

Customer Service (CS)



Release 4.6C



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Icons

Icon	Meaning
	Caution
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Customer Service (CS)

Purpose

This component supports you when representing, managing and processing all services that you provide to your customers. You can:

- Structure and manage technical objects for which services should be performed (for example, technical systems, machines)
- Manage data for warranties and business partners
- Create service requests
- Plan and execute requested services
- Bill the costs that arise as a result of the services being executed
- Monitor call processing in order to keep to deadlines and agreed response times

Integration

For information on other service-related functions, refer to the following documentation:

- *PM Structuring Technical Systems* for information on structuring and managing technical objects
- *FI-AA Asset Accounting - User Guide* for information on managing serviceable items as tangible assets
- *MM - Services Management* for information on service records
- *PM - Maintenance Notifications* for information on maintenance notification functionality
- *PM - Maintenance Orders* for information on maintenance order functionality
- *SD - Sales, Sales Order Processing* for information on managing and billing sales orders and service contracts.
- *PS - Project System* for information on using projects

Features

This function comprises:

- Structuring and maintenance of the installed base using technical objects
- Warranties, management
- Call management, using service notifications, service orders and sales orders
- Call monitoring with response and service times
- Link between installed base and business partners

Customer Service Overview (CS)

Customer Service (CS)

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- Link between installed base and business partners

Installed Base Management (CS-IB)

Installed Base Management (CS-IB)

Purpose

You use installed base management to represent and manage products at the customer site and products that are used internally. You can assign pieces of equipment, materials, serial numbers, and documents that belong together as installed base components (components) of a common installed base.

You can also use installed base management if you want to record for documentation purposes which parts belong to an installed base.



- An installed base could comprise an airplane with all components that require servicing.
- An installed base could also comprise an airplane that has not yet been assembled, but whose parts are to be managed in the planning and manufacturing phases as belonging together.
- An installed base could also comprise two wings, that are to be integrated in the general installed base “airplane” after being manufactured.

Implementation Considerations

You can use installed base management instead of a maintenance bill of material (maintenance BOM).

An installed base presents the following advantages in comparison to a maintenance BOM:

- Multi-level representation of components
- Temporal limitation through the recording of installation and dismantling times for components of the installed base
- Components do not have to be represented as equipment master records
- You can record additional data for the components (for example, batch, revision level)

Integration

Installed base management is part of the Plant Maintenance (PM) and Customer Service (CS) application components.

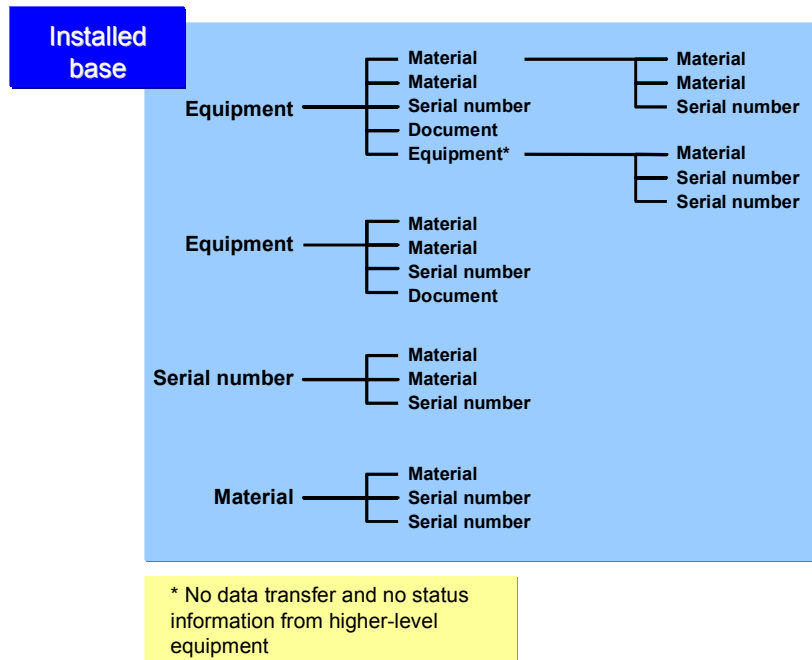
Features

You can use installed base management in two forms and switch between them as required (using the SET-GET parameter **IBT**):

- With structure display ([Tree Control \[Ext.\]](#))
- Without structure display

Installed base management with tree control enables you to display and maintain the structure for each installed base and its components. You can perform the assignment of a component to the installed base directly in the structure maintenance screen. You can change the order of the components at any time.

Possible Structure of an Installed Base With Components



From within installed base management, you can access the structure maintenance screen either via the header data for the installed base or via the individual components. If you access the structure maintenance screen via the individual components, you can display the entire structure at all times or enter a component on the initial screen and determine the levels that should be displayed.

You can assign a master record to several installed bases, but you should note that a piece of equipment, functional location, or material with serial number may only exist in **one** installed base at any **one** time.

Constraints

Installed base management does not (at present) support the following functions:

- Representation of an equipment hierarchy
- Inclusion of customer data
- Display of a document hierarchy (to do this, use the tools of the Document Management System)
- Documentation of changes using change documents

Service Agreements

Service Agreements

Purpose

Service agreements are arrangements that are made to structure the service process more effectively. They are drawn up between the company that is performing the services and the customer who is requesting the services.

Implementation Considerations

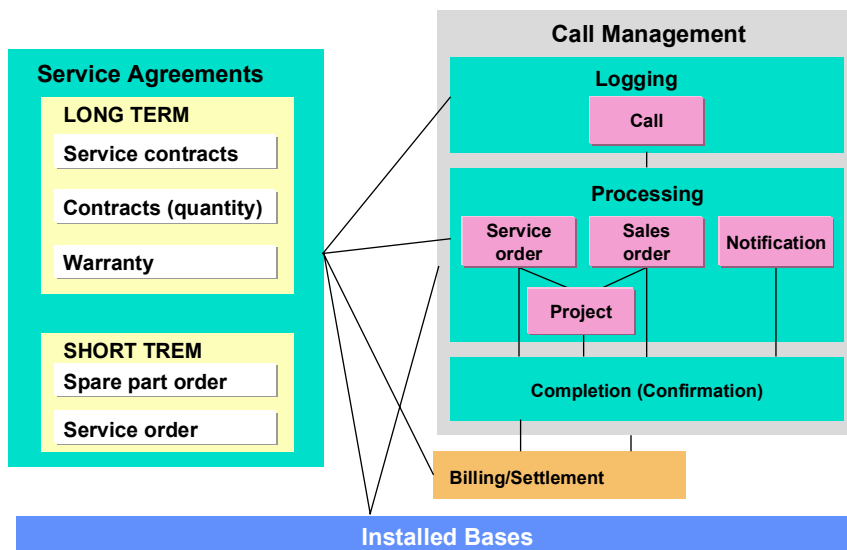
The management of service agreements presents the following advantages:

- Content and scope of the services and conditions for performing the services are defined in the form of a binding contract.
- Warranties commit the service provider to certain services.
- Service agreements protect both service provider and service recipient.
- Service agreements can represent a competitive advantage for the service provider or a deciding factor for the customer.

Features

In Customer Service, you can make various agreements regarding the services you provide for a customer:

- **Long term** service agreements in the form of service contracts, warranty agreements, and quantity contracts for spare part deliveries
- **Short term** service agreements in the form of one-time [service orders \[Page 1070\]](#) and [spare part orders \[Page 1074\]](#).



Service Products

The services that a company provides are described as [service products \[Page 1043\]](#). From a technical perspective, the service product is a material master record (material type DIEN). The features of a service can vary immensely, meaning that it is advantageous to provide services as [configurable products \[Page 1044\]](#) and to define the individual agreements specifically for each contract.

The characteristics are available directly when the call is logged. Service and response times automatically determine the further processing of a service notification because the due dates of the service tasks are calculated on the basis of the response and service times.

Typical characteristics that can be agreed here include:

- Service times for the company
For example, Monday to Friday from 8.00 to 17.00
- Response times for service requests
For example, return call within 2 hours at the latest
- Service area agreements
For example, costs charged outside a 100 km radius
- Service location
For example, at the customer's

Service Contracts

Service Contracts

Purpose

You use service contracts to record the details of the service package that you have agreed to provide a service recipient with over a specified period of time. For example, you specify:

- The routine service tasks which are to be performed on a piece of machinery you have sold or rented to a customer
- The prices which are to apply for these routine tasks
For more information, see [Standard Pricing in Service Contracts \[Ext.\]](#).
- The prices which are to apply for additional service tasks and for any spare parts required
For more information, see [Price Agreements in Service Contracts \[Ext.\]](#).
- The terms under which the contract can be cancelled
For more information, see [Cancellation Data in Service Contracts \[Ext.\]](#).

During the validity period of the service contract, you use the service contract as follows:

- To initiate automatic billing of the routine service tasks at regular intervals
- To determine whether a service request from the customer is covered by the service contract
- To determine which price agreements apply for service tasks not covered by the service contract
- To determine whether a cancellation request from the customer is valid
- To initiate follow-up actions before the service contract becomes invalid

Customer Interaction Center

Purpose

The R/3 Customer Interaction Center (CIC) application offers customer service organizations robust call center functionality and a highly customizable design. The CIC application enables agents to:

- Process inbound, and simple outbound, telephone calls from customers and other business partners using Computer Telephony Integration (CTI) technology as middleware
- Seamlessly process any business transaction

The ability to view the state of any call participant and extensive call logging support inbound and outbound call processing.

CIC supports business transaction processing with a full range of telephony features, such as screen pop, automatic number identification (ANI), and soft phone controls.

Agent productivity is enhanced with CIC's Action Box, Business Data Display, and the highly customizable design of CIC. The design allows personalization for agent skill and business processes.

Implementation Considerations

CIC requires CTI middleware to function as a call center. CIC supports a variety of CTI middleware products, as well as telephony servers and switches. CIC also supports interactive voice response (IVR) systems.

Integration with other R/3 System components gives agents total access to customer information and customer business transactions. Business transactions that an agent has access to are defined through customizing. Examples include creating a service notification, updating a customer address, changing employee information, and checking the status of a delivery.

Features

Primary features of CIC include:

- Telephony controls integrated with easy access to business transactions
As an integrated call center application, CIC provides agents complete access to R/3 business transactions. CIC supports business transaction processing and a full range of telephony features.
- Ability to view call state
This feature allows the agent to view the state of any party participating in a call at the agent's extension, for example, whether a party is active, on hold, muted, or participating in a conference call.
- Extensive call logging
CIC performs comprehensive call logging including activities performed by agents, events occurring in the background, and business transactions.
- Total customer information access
CIC provides agents complete access to customer information and related business transactions.

Customer Interaction Center

- Integration with interactive voice response (IVR)
CIC supports interactive voice response (IVR) systems, which capture call-attached data. Call-attached data is not only the data collected through an IVR before a call reaches an agent but also data added by a previous agent during a call.
- Increased agent productivity via Action Box and Business Data Display
These two features work together to display customer-related information for the agent and to enable the agent to navigate to and perform any business transaction in the R/3 system.

Companies can use CIC in a variety of business scenarios including sales, service, collections, or human resources. One company might use CIC in an inbound sales center, where agents enter sales orders, answer delivery inquiries, create return material authorizations, or update customer addresses. In this scenario, agents could take leads for salespeople to call.

Another company might use CIC to register service requests for internal or external customers. In an integrated call center, all of these activities mentioned above might be occurring.

Constraints

This application offers a wide range of functions. However, it is not integrated with the Internet or email for this release.

Service Notifications (CS-CM-SN)

Purpose

This application component enables you to:

- Enter customer notifications
- Recognize the condition of the service object
- Request the necessary service tasks and thereby roughly plan further service processing
- Track the progress of the tasks to be performed

Integration

You can only use this component in conjunction with the *Maintenance Notifications* component.

Features

From the service notification, you can initiate all the processes involved in problem solving:

- Tasks for problem solving using the Help Desk or Hotline Support
- Creation of a service order for sending service technicians to a customer site for a service within the service center
- Delivery of spare parts

The description of the problem can be written as text or in coded form. It is not absolutely necessary to enter the service object in the service notification. However, if it is entered, the system determines the following data based on the object definition or serial number whilst the problem is being entered:

- Localization of the object
- Warranty claims, existing contracts or contact people

The system makes this data available to the processor immediately. The entry of the notification is fully integrated into contract and customer object management.

If your system has been configured accordingly, the system provides the number of the service notification as soon as you call up the create function. This is particularly useful if you enter a notification over the phone, since you can immediately inform the caller of the notification number.

If one or more service technicians are required to solve the problem, you can make a rough plan in the service notification for further processing using tasks. This can be calculated automatically based on certain settings (for example, priority, response times, and service times). Proposals for service activities to be performed using customer-specific interfaces, which are dependent on the problem screen, can also be included in task determination.

Follow-up tasks can result from service notifications, for example, printing a certain paper, or initiating a workflow.

A service order, in which you plan dates, technicians and materials in detail, can be created from a service notification.

Service Notifications (CS-CM-SN)

During service processing, you can obtain an overview of all the service requests entered and the progress of service notifications at any time.

In addition, the functions for incoming calls and service notifications in the Internet are available, which make it easier to enter service notifications.

When a service notification is completed, its data is entered in the service history.

Call Management

Purpose

This component comprises a whole range of processes from call logging to planning and processing, to completion and billing of the costs incurred.

When a service is requested, you respond by using one of the following:

- **Service notification**

The service notification cannot carry costs or revenues, meaning that you can only record and process a requested service in a service notification if neither personnel costs nor material costs have to be documented. In this case you do not need to create a separate order. You can describe the condition of a technical object in the service notification.

- **Service order**

If a technician has to be sent to a customer's, and material, utilities and personnel have to be planned in order to rectify a problem, you need to use a service order to perform service processing. A sales order can be created on the basis of a maintenance plan, a service notification, or a sales order.

- **Sales order**

If spare parts and other materials have to be sent to the customer's, but no scheduling has to be performed, you use a sales order for service processing.

You can find more information on sales orders in the documentation *SD - Sales and Distribution Processing*.

Integration

You can only use this component in conjunction with the following components:

- *Maintenance processing*
- *Sales order processing*
- *Materials Management*, if you want to perform material planning

Data is entered during processing, which can be evaluated according to different criteria. The Logistics Information System, which is part of the general information system, is available for performing analyses.

Features

Call management can be divided into the following stages:

- **Call Logging**

During call logging, you request the necessary service tasks using a service notification, and can track the progress of the tasks to be performed.

- **Call processing**

The service order and the sales order are the most important instruments during call processing. A service order enables you to plan the execution of the individual activities

Call Management

in greater detail, to estimate the costs, and to monitor the work progress. You use the sales order to send the spare parts to the customer.



A service notification can also be used at this stage if the nature of the service involved is purely consultational, for example, as in the case of a hotline service that is covered by contract specifications.

- **Call monitoring**

You can monitor the progress of your service notifications and orders to ensure that deadlines determined in the response profile are met.

- **Call closure**

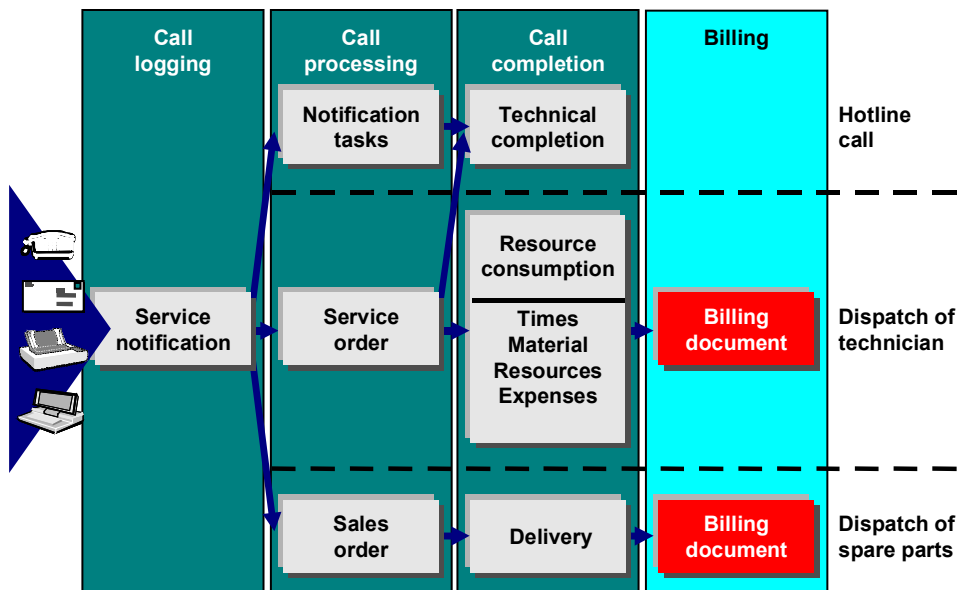
At this stage, the actual costs that have arisen as a result of materials used, and activities performed, are recorded in detail in the service order. You describe the activities that were performed and the technical findings in the service notification. You can also record any configuration changes made to the service object and also measurement documents for the object in the completion confirmation. You can close a service order once it has been completely confirmed. Its data is then available in the order history for future planning and analyses.

- **Service Order Billing**

You can create both a billing request and a billing document for a service order. The actual expenses as well as the items that were not billed (for example, because they were covered by the warranty) are listed in both documents.

The diagram below illustrates the main stages involved in call management:

Main Stages of Call Management



Management of the Installed Base

Management of the Installed Base

Purpose

You use this component to structure and maintain your installed base. The installed base can involve very different objects and systems (for example, photocopier, fork-lift truck, software, buildings and other equipment).

Implementation Considerations

Depending on your specific requirements, you can represent the objects as follows:

- **As materials**
This is advisable if you are working with a large number of similar or identical objects. You can use the material number for inventory management purposes, and to control stock movements.
- **As pieces of equipment** (serialized or non-serialized)
This is advisable if you want to manage and possibly evaluate individual data, or if you want to perform regular, planned or unplanned maintenance activities and services.
- **As functional locations**
This is advisable if you want to structure complex customer systems or represent and track pieces of equipment from a functional perspective.
- **As bills of material**
This is advisable if you want to further categorize individual devices according to assembly and material.

Once you have structured the objects, you can:

- Classify objects
- Assign partners to the objects
- Assign documents or drawings to the objects

Integration

If you want to represent a serviceable item,	...you should find out about the following components:
As a functional location	Functional Locations [Page 76]
As a piece of equipment	Equipment [Page 121]
As bills of material	Maintenance Bills of Material [Ext.]
As serialized	Serial Numbers [Ext.]

Features

You can maintain the following data for objects for which you perform services:

- **Classification data**

If you have many serviceable items, it is useful to be able to sort them according to different criteria and to group them for analysis purposes. Using the Classification functionality, you can build up a hierarchically structured system of classes for your serviceable items.

For more information on the classification of technical objects, refer to the documentation *PM - Structuring Technical Systems*.

- **Partner data**

You can enter various partners in the master record of a serviceable item, such as the object vendor and a customer. You can also branch to a separate screen to enter a number of different partner functions. In the partner data screen, you can also determine the settings for the various partners displayed, depending on your specific requirements. For example, you can display address data, phone number, and so on for a contact person.

You can find more information on partners in [Partners in PM/CS Processing \[Page 1213\]](#).

- **Documents**

You can link object master records to document master records. This enables you to make reference to all documents relating to the serviceable item, (for example, construction drawings).

You can find more information on documents in *Document Management*.

Serviceable Item as a Material

Definition

In the R/3 System, you can represent your serviceable items as materials in various ways. Depending on your specific requirements, you can use material master records to represent both object categories, maintenance assemblies, and spare parts.

Use

Often, a large number of similar or identical objects are involved in service contracts. In this case you can use the material number of the object for inventory management purposes, and to control stock movements.

A number of data fields in the equipment master record may be dependent on the equipment category and not specific to an individual piece of equipment. In such a case, the equipment category can be represented using a material master record.

The material master record is the reference for a piece of equipment or functional location. When you create a piece of equipment or a functional location, you can enter a material as a reference for it in the initial screen. The system then automatically enters the relevant material data in the master record of the technical object.



If you are responsible for servicing large numbers of similar objects, it is usually more sensible to use serial numbers for the objects. For more information on using serialized equipment and materials, see [Serial Number Management \[Ext.\]](#).

Assemblies

If the systems you are responsible for maintaining consist of several components, but you do not want to manage a master record and history for each component, you can represent these components as assemblies.

When you create an assembly, you can enter the following:

- General data (dimensions, sales division)
- Classification data

Spare Parts

Spare parts are, for example, non-stock material and operating supplies.

You can enter the following data for replaceable or repairable spares:

- Engineering data
- Sales information
- Planning and purchasing data

Serviceable Item as a Piece of Equipment

Definition

If you need to represent and manage your serviceable items in individual master records, for example, in order to monitor costs and keep records for the individual objects, you can use an [equipment master record \[Page 122\]](#).

Use

You should always create an equipment master record for a serviceable item if you need to:

- Manage individual data for the item
- Perform maintenance and service activities, both regular, planned and unplanned, for the item
- Keep a record of any service activities performed for the item (for example, for warranty or contract purposes)
- Record data about the item for long-term evaluation purposes

You can assign a serial number to your pieces of equipment, which is advisable if you service a large number of similar or identical items.

You can also use the configuration function to configure pieces of equipment. For more information on using serialized objects and maintaining configuration data, see [Serial Number Management \(LO-MD-SN\) \[Ext.\]](#).

If you are responsible for servicing equipment belonging to a customer (for example, operational systems, machines), you can represent this in the system using the customer equipment master.



If you also have to structure and manage your own equipment in the *Plant Maintenance (PM)* component, you need separate equipment master records for this. For more information on the Plant Maintenance (PM) application component, see [Structuring Technical Systems \[Page 72\]](#).

If you want to represent more complex systems and structures, you can use [equipment hierarchies \[Page 144\]](#) to do this.

Structure

You can maintain the following data in the customer equipment master:

- General data
- Location and account assignment data
 - Structuring data
- Serial numbers
- Configuration data

Furthermore, you are also able to:

Serviceable Item as a Piece of Equipment

- Maintain sales and distribution data in a dialog box (for example, license number, warranty expiry date, customers)
 - Maintain special data for pieces of equipment that are managed as production resources/tools
 - Maintain additional notes or comments for internal use
 - Describe the individual pieces of equipment in long texts
 - Store addresses

This is particularly useful if the equipment is not installed at the customer address (which, for example, is used for billing).

You can also manage the following data in the customer equipment master record:

- Classification data
- Documents
- Partner data
- Measuring points
- Permits
- Object link data

Serviceable Item as a Functional Location

Definition

The [functional location \[Page 78\]](#) is a logical object, whereas the piece of equipment, which is installed at a functional location, is a physical object. This physical object is considered from the perspective of its use at this functional location (for example, whether it is installed or dismantled there). You can use the installation and dismantling functions to dismantle and replace a piece of equipment at a customer's.

Functional location labels are structured hierarchically. The hierarchy for these labels is defined in each company, according to specific requirements. In this way, the hierarchies can reflect the interrelation of individual operational functions within a system.

Use

You should always use functional locations if you want to

- Structure complex customer systems
- Represent and trace pieces of equipment from a functional perspective

Structure

You can maintain the following data in the customer functional location master record:

- Location and account assignment data
You can enter a controlling object (for example, order, contract for order processing)
- Structuring and account assignment data (including the position of a functional location within the location hierarchy)
- Maintenance and planning data (for example, maintenance planner group, catalog)
- Installation data - that is, the pieces of equipment that are installed at or have been dismantled from the functional location
- Link objects, if the functional location forms part of a network of functional locations

Furthermore, you can:

- Maintain status information for the functional location
- Maintain additional notes or comments for internal use
- Describe the functional location in long texts
- Maintain address and administrative data (for example, if the object address differs from the customer address)

You can also manage the following data for your customer location master record:

- Classification data
- Documents
- Partners
- Measuring points

Serviceable Item as a Functional Location

- Permits

You can find more information on structuring and managing functional locations in the application component Plant Maintenance (PM), under [Structuring Technical Systems \[Ext.\]](#).

Serviceable Item as a Bill of Material

Definition

A [bill of material \[Ext.\]](#) describes the structure of a piece of equipment, material or functional location. It comprises a complete, formally structured list of components making up a technical object or assembly. The individual components can be stock or non-stock spares or assemblies, which in turn can be described by another bill of material. Each component is listed with its quantity and unit of measure in the bill of material.

Use

Bills of material have two main uses within maintenance and service:

- **Structure description**
You can use a bill of material to describe the structure of a piece of equipment, functional location or material, as regards its individual components.
- **Assignment of spare parts**
You can use a maintenance bill of material to specify the spare parts that are required for performing the service.

You can use bills of material when processing calls, specifically in order to:

- Plan materials and spares (for a service order)
- Locate a problem at a technical object (when logging/handling a call)

Structure

For customer service purposes, you most frequently require multi-level bills of material that can have any number of levels. The highest level depicts, for example, the customer's equipment. The lower levels depict the components that make up the piece of equipment as well as their components and spares.

Bills of material can be used in the system to manage data for various types of object. The most important types of BOM used in service and maintenance are listed below:

- **Material BOMs**
The main use of a material BOM is to represent the structure of the serviceable object. It is created with a direct link to a material master record
- **Equipment BOMs**
The main use of an equipment BOM is to:
 - Describe the structure of a piece of equipment
 - Assign spares to the equipment for service and maintenance purposes

A piece of equipment can be linked to the bill of material either directly or indirectly, by means of a material BOM
- **Functional location BOMs**

You can find a more detailed description of the structure and use of bills of material in [PM - Maintenance Bills of Material \[Ext.\]](#).

Serviceable Item as a Bill of Material

Installed Base Management (CS-IB)

Purpose

You use installed base management to represent and manage products at the customer site and products that are used internally. You can assign pieces of equipment, materials, serial numbers, and documents that belong together as installed base components (components) of a common installed base.

You can also use installed base management if you want to record for documentation purposes which parts belong to an installed base.



- An installed base could comprise an airplane with all components that require servicing.
- An installed base could also comprise an airplane that has not yet been assembled, but whose parts are to be managed in the planning and manufacturing phases as belonging together.
- An installed base could also comprise two wings, that are to be integrated in the general installed base “airplane” after being manufactured.

Implementation Considerations

You can use installed base management instead of a maintenance bill of material (maintenance BOM).

An installed base presents the following advantages in comparison to a maintenance BOM:

- Multi-level representation of components
- Temporal limitation through the recording of installation and dismantling times for components of the installed base
- Components do not have to be represented as equipment master records
- You can record additional data for the components (for example, batch, revision level)

Integration

Installed base management is part of the Plant Maintenance (PM) and Customer Service (CS) application components.

Features

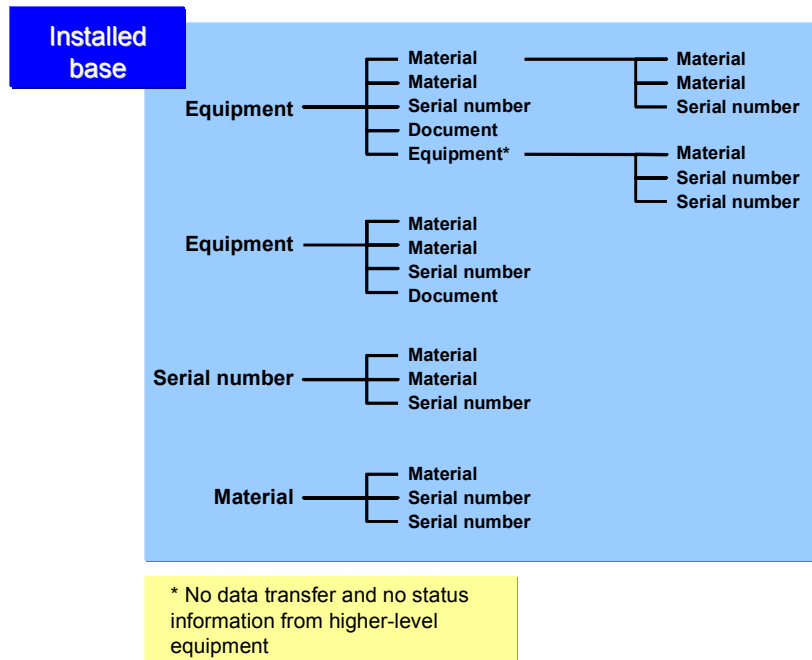
You can use installed base management in two forms and switch between them as required (using the SET-GET parameter **IBT**):

- With structure display ([Tree Control \[Ext.\]](#))
- Without structure display

Installed base management with tree control enables you to display and maintain the structure for each installed base and its components. You can perform the assignment of a component to the installed base directly in the structure maintenance screen. You can change the order of the components at any time.

Installed Base Management (CS-IB)

Possible Structure of an Installed Base With Components



From within installed base management, you can access the structure maintenance screen either via the header data for the installed base or via the individual components. If you access the structure maintenance screen via the individual components, you can display the entire structure at all times or enter a component on the initial screen and determine the levels that should be displayed.

You can assign a master record to several installed bases, but you should note that a piece of equipment, functional location, or material with serial number may only exist in **one** installed base at any **one** time.

Constraints

Installed base management does not (at present) support the following functions:

- Representation of an equipment hierarchy
- Inclusion of customer data
- Display of a document hierarchy (to do this, use the tools of the Document Management System)
- Documentation of changes using change documents

Installed Base

Definition

Multi-level structure of components for managing both products at the customer site and products that are used internally. The installation describes the structure of these products and their components.

Structure

An installed base consists of header data and the installed base components.

A component consists of a **reference to the master record** of the respective object, and additional data that describes the use of the object in more detail (for example, quantity, batch).

The following master records could be part of a component:

- Material
- Equipment
- Functional location
- Installed base
- Document

A component is an assignment of an object to a structure (place holder), not an installation item. If you remove the object from the structure (by cutting), the component is removed with all additional data.

The serial number appears within installed base management as a piece of additional information regarding the material, because the combination of material and serial number enables an individual piece of material to be tracked. Although the combination of material and serial number is technically assigned to an equipment number, this does not appear within installed base management.

Creating an Installed Base

Creating an Installed Base

Purpose

An installed base consists of header data and components. You can create as many different components as you require for each installed base and assign as many sub-components to them as you want. This means that you can create an installed base structure with as many nodes as you require.



You can include another installed base as a component in installed bases. However, this is only a link to these installed bases. For example, it would be feasible to include all the installed bases for a customer under a new, superior installed base.



You can also create your own installed bases. You define installed base categories using transaction **sm31** in view **V_T371A**. If you create your own categories, you define the valid object types using transaction **sm31** in view **V_T371U**.

Prerequisites

Each component (equipment, functional location, material, document) must already exist as a master record in the system.

Process Flow

1. You create an installed base of a certain category.
2. The system assigns a sequential number.
3. You enter the necessary header data for managing the installed base.
4. You create the components by entering the equipment, material, document number, or functional location labeling.
5. The system creates an installed base structure.
6. If you want to create subordinate components for a component, you must select this component. Then enter the equipment, material, document number, or functional location labeling of the subordinate components.

Result

A multi-level installed base structure is created. You can now:

- Use the various display functions (structure view, detail view)
- Process the structure (using the tree control functions *Cut*, *Copy* or *Paste*)
- Display the components' environment (for example, master record, lists)

Creating an Installed Base with a Reference

1. Choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Installed Base* → *Create Installed Base* or *Logistics* → *Customer Service* → *Technical Objects* → *IBase* → *Create Installed Base*.
2. Enter the category of the installed base to be created.



SAP recommends that you define your own category 03 for reference installed bases.

3. Enter the number of the reference installed base and choose *Continue*.



Note that the reference installed base may **not** have any equipment, functional locations, or serial numbers.

4. Enter the necessary data and save your entries.


Creating an Installed Base from Sales Data

Creating an Installed Base from Sales Data

Use

You can create an installed base from a sales order. You thereby record the object status in the sales phase (as_sold).

Procedure

1. Choose *Logistics → Plant Maintenance → Technical Objects → Create Installed Base (Special) → With Sales Order Reference* or *Logistics → Customer Service → Technical Objects → Create IBase (Special) → With Sales Order Reference*.
2. Select *Sales* as the selection option.
3. Enter the number of the sales order and, if necessary, the item.
4. Choose .
5. The system generates an installed base from the sales order data that you can subsequently process. Note that the system only copies sales-relevant items from the bill of material (BOM).
6. Enter the necessary data and save your entries.

Creating an Installed Base from Production Data

Use


You can create an installed base from production orders that are assigned to a sales order. You thereby record the object status after production (as_built).



This function enables you to copy serial numbers to the installed base if the order quantity of all production orders involved is 1. If the order quantity is greater than 1, and you still want to take serial numbers into consideration, use the function *Create Installed Base (Special) → With Reference to Production Data*. You should also use this function if you are not working with a sales order (for example, make-to-stock production).

For more information on this function, see [Creation of ABCs \(As-Built Configurations\) \[Ext.\]](#).

Procedure

1. Choose *Logistics → Plant Maintenance → Technical Objects → Create Installed Base (Special) → With Sales Order Reference* or *Logistics → Customer Service → Technical Objects → Create IBase (Special) → With Sales Order Reference*.
2. Select *Production* as the selection option.
3. Enter the number of the sales order and, if necessary, the item.
4. Choose .
5. If production orders are assigned to the sales order, the system generates an installed base from the production order data that you can subsequently process manually.
6. Enter the necessary data and save your entries.

Displaying an Installed Base

Displaying an Installed Base

Use

In installation management, you can use the tree control to display the whole structure or just parts of it. Within the structure, you can navigate:

- In tree control by clicking once
- By level using the pushbuttons

When using the version without tree control, you navigate using the pushbuttons *Level above/below*.

Features

You can display the structure view or the detail view for each component:

Detail view
Information about the position of the component within the structure
Detail data from the component master record
You reach the detail view by choosing <i>Edit → Component detail</i> .

Structure view
Information about the position of the component within the structure
Information about all the subordinate components of the component
You reach the structure view by choosing <i>Edit → Process structure</i> .

Additional functions are available in the version with tree control:

- **Field selection**
You can display additional fields such as number, quantity, or unit in tree control using field selection. You reach field selection using *Select layout*. You can also save this field selection as a display variant.
- **Printing**
You can print all the components displayed in tree control.
- **Find**
You can search components in tree control for texts or numbers using this search function. Note that the system only searches the components displayed.

Displaying an Installed Base

Activities

To display an installed base, choose *Logistics → Plant Maintenance → Technical Objects* or *Customer Service → Technical Objects*. You execute the additional functions with the help of the corresponding icons.



To display and compare two different installed bases, choose *Installed base → Compare*. Using this function, you can also display and compare an installed base at different times.

Displaying an Installed Base from the Technical Object

Displaying an Installed Base from the Technical Object

Use

You can display to which installed base a technical object belongs as well as the appearance of this installed base from the master record of a technical object, that is, a piece of equipment or functional location.

Prerequisites

Your system administration has activated the screen area with installed base data for a certain tab in the Customizing function for equipment and functional location categories.

Procedure

1. Choose *Logistics → Plant Maintenance → Technical Objects* or *Logistics → Customer Service → Technical Objects* and then *Equipment → Display* or *Functional Location → Display*.
2. If the technical object is assigned to an installed base as a component, you will see the installed base on the corresponding tab.
3. Choose *Whole installation* if you want to view the installed base in the overview.

Displaying an Installed Base from the Notification

Use

You can use the maintenance notification or service notification to display the installed base to which the equipment you are using as a reference object belongs. If you create a notification, you can also search for a piece of equipment about which you only know that it belongs to a particular installed base and use this as the reference object for the notification.



You create a problem notification for a pump engine, although you do not know the equipment number of the engine, only that of the pump. Enter the pump as the reference object and display the installed base. In this way, you find the equipment number of the engine using the structure display and can copy this as the reference object in the malfunction report.

Prerequisites

Your system administration has activated the screen area with installed base data for a certain tab in the Customizing function for notifications.

Procedure

1. Choose *Logistics → Plant Maintenance → Maintenance Processing* or *Logistics → Customer Service → Service Processing* and then *Notification → Create*.
2. Enter a piece of equipment as the reference object. If the equipment is assigned to an installed base as a component, you will see the installed base on the corresponding tab.
Choose *Whole installation* if you want to view the installed base in the overview.
Choose *Copy* if you want to copy another piece of equipment from the installed base as a new reference object.

Structure Processing of an Installed Base

Structure Processing of an Installed Base

Use

You can use the structure processing functions to extend or change an existing structure as you require by moving or copying individual components or complete structure branches.



In the version **without tree control**, you select the components that you want to process in table control.

In the version **with tree control**, you select the components that you want to process in tree control by clicking once.

If you have selected a tree control and a table control component, the system prefers the component you have selected in table control when cutting, copying, and dismantling the component.

Features

Structure Processing Function	Use
Cutting components	Deleting or removing
Copying components	Duplicating
Inserting components	Inserting cut or copied components
Drag & Drop components	Moving

If you do not want to delete the components but just temporarily remove them from the installed base structure, use the function *Component dismantling*. In this way, the components of the installed base remain assigned, but are located directly under the header data of the installed base instead of in the structure.

Activities

You select a component and choose one of the structure processing functions. The functions then affect both the components as well as all subordinate components.

Environment Display for the Installation

Use

You can display data from the environment for each component:

Features

Environment display	Use
Display object	Display of master data for the component (for example, material, equipment, or document master record)
Serial number history	Display of all documents for the serial number
Original document	Direct display of the assigned original document (without calling up the document master record)
Component use	Displays the installations in which the object is used as a component. You can also specify a historical period

Activities

Choose the installation master record in the menu option *Environment*.

Technical Objects (CS-BD/PM-EQM)

Purpose

If DP-supported maintenance is to be set up properly at a company, it is necessary to structure the existing technical systems on the basis of technical objects.

Advantages of structuring:

- The time required for managing the technical objects is reduced.
- Maintenance processing is simplified.
- The time spent entering data during maintenance processing is reduced considerably.
- More specific, thorough and faster evaluation of maintenance data.

Implementation Considerations

You should allow sufficient time for planning the structure. Weigh up all the pros and cons for your company that each structuring approach will bring. Note that it takes longer to restructure objects later than it does to structure them in the first place.



Before you start representing technical objects in the system, it is imperative that you read the corresponding texts in the R/3 Implementation Guide (IMG).

Integration

Structuring your systems forms the basis for implementing the application components *Plant Maintenance (PM)* and *Customer Service (CS)*.

Features

Before you begin representing technical objects in the system, you should be aware of the organization of maintenance planning within your company. You should focus primarily on the structure of the entire company. This involves defining correctly the maintenance plants and maintenance planning plants in your system.

Maintenance Plant

The maintenance plant for a technical object is the plant at which it is installed.



Clarification plant C1 is located in plant 0001. Plant 0001 is therefore the maintenance plant for the clarification plant C1.

Maintenance Planning Plant

The maintenance planning plant for a technical object is the plant in which the maintenance tasks for the object are planned and prepared. Maintenance planner groups work at the maintenance planning plant to plan and prepare the maintenance tasks for the plants that are assigned to the maintenance planning plant. The following activities are performed at the maintenance planning plant:

- Definition of task lists
- Material planning based on bills of material in task lists and orders
- Management and scheduling of maintenance plans
- Creation of maintenance notifications
- Execution of maintenance orders



The maintenance plant for the clarification plant C1 is plant 0001. Plant 0001 does not perform its own maintenance planning. It is assigned to plant 0002, in which a maintenance planner group works, and that, for this reason, is indicated in the system as being a maintenance planning plant. The maintenance planner group in plant 0002 plans for plants 0001 and 0002.

The maintenance planning plant for the clarification plant C1 is therefore plant 0002.

The way in which you represent the organization of maintenance planning in your company depends on the structure of the entire company. You have three options:

- Centralized maintenance planning
- Decentralized maintenance planning
- Partially centralized maintenance planning

Centralized Maintenance Planning

With centralized maintenance planning, you can have the following combinations of plants:

- A The company comprises only one plant which is both maintenance plant and maintenance planning plant for all the technical objects.
- B The company has several maintenance plants, however, only one plant in which maintenance planning is performed. The plant in which maintenance planning is performed is indicated in the system as the maintenance planning plant. All other plants are assigned to this plant as maintenance plants, for which the maintenance tasks must be planned in the maintenance planning plant.



Plants:	0001, 0002, 0003
Maintenance plants:	0001, 0002, 0003
Maintenance planning plant:	0001
Plants assigned to the maintenance planning plant:	0002, 0003

Decentralized Maintenance Planning

The company comprises several maintenance plants. Each plant performs its own maintenance planning. In this case, all the plants in the system are indicated as maintenance planning plants.

Technical Objects (CS-BD/PM-EQM)

Plants:	0001, 0002, 0003
Maintenance plants:	0001, 0002, 0003
Maintenance planning plants:	0001, 0002, 0003

Partially Centralized Maintenance Planning

The company comprises several maintenance plants. Some of the maintenance plants perform their own maintenance planning, others do not. The plants without their own maintenance planning are assigned to maintenance planning plants in which planning is also performed for them, whilst the plants in which maintenance planning is performed are indicated in the system as being maintenance planning plants.



Plants:	0001, 0002, 0003, 0004, 0005
Maintenance plants:	0001, 0002, 0003, 0004, 0005
Maintenance planning plants:	0001, 0004
Plants assigned to maintenance planning plant 0001:	0002, 0003
Plants assigned to maintenance planning plant 0004:	0005

Once you have represented the organizational structure of your company, you can choose between three different options for representing technical objects:

- Functional structuring (only functional locations)
- Object-related structuring (only equipment)
- Combination (equipment at functional locations)

Functional Structuring

With this type of structuring, you subdivide your technical system into **functional locations**. For example, when you subdivide a production line into functional locations, you can represent the individual function units as functional locations in the system.

If you use functional locations when structuring your technical system, you can also take into account the process-oriented or spatial structure of the system.

For more information, see [Functional Location \[Page 78\]](#) and [Reference Functional Location \[Page 82\]](#).

Object-Related Structuring

With this type of structuring, you subdivide your technical system into pieces of **equipment**. A piece of equipment is an individual, physical object that is to be maintained independently, and that can be installed in a technical system or part of a technical system.

Combination

You can combine object-related structuring using pieces of equipment with functional structuring using functional locations. In this case, the pieces of equipment are installed at functional locations (installation/dismantling of individual objects at a functional location).

- The functional location represents the site where the technical tasks are performed.
- The piece of equipment represents the object with which the technical tasks are performed.

Within damage analysis, you will then be able to recognize, for example, whether or not damage occurring repeatedly is linked to the usage site, or is specific to the objects made by a particular manufacturer.

For more information, see:

[Equipment \[Page 122\]](#)

[Hierarchical Equipment Structure \[Page 144\]](#)

[Equipment at Functional Locations \[Page 134\]](#)

Structuring from a Technical and/or Accounting Perspective

When you perform structuring from a technical perspective, you assign the technical objects of the system to particular **object classes** (equipment, functional location and assembly classes).

You can use this type of structuring in addition to structuring from a functional and/or object-related perspective.

For more information, see [Classification of Technical Objects \[Page 200\]](#).

When you perform structuring from an accounting perspective, you assign the system and its technical objects to certain **cost centers** or **tangible assets**.

You can use this type of structuring in addition to structuring from a functional and/or object-related perspective.

For more information, see [Equipment as Units of Tangible Assets \[Page 170\]](#).

Functional Locations (CS-BD/PM-EQM-FL)

Purpose

Functional locations are elements of a technical structure (for example, functional units within a system). You create functional locations hierarchically, and can also structure them based on the following criteria:

- Functional
- Process-related
- Spatial

Each functional location is managed independently in the system, so that you can:

- Manage individual data from a maintenance perspective for the object
- Perform individual maintenance tasks for the object
- Keep a record of the maintenance tasks performed for the object
- Collect and evaluate data over a long period of time for the object

Implementation Considerations

You implement this component if:

- You want to represent systems or operational structures within your company according to functionality
- Maintenance tasks (in the broadest sense) are to be performed for the individual areas of your system or operational structure
- Records are to be kept of the maintenance tasks that are performed for the individual areas of your system or operational structure
- Technical data is to be collected and evaluated over long periods of time for the individual areas of your system or operational structure
- The costs of maintenance tasks are to be monitored for the individual areas of your system or operational structure
- You want to perform analyses on the influence of usage conditions on the damage susceptibility of the pieces of equipment installed
- You require different views of a location structure (for example, a technical procedure view and a measurement/control technique view).



Refer to [Reference Functional Location \[Page 82\]](#) and [Functional Location \[Page 78\]](#), **before** you start representing functional locations and reference functional locations in the system.

Integration

Pieces of equipment can be installed and dismantled at functional locations. The usage times for a piece of equipment at a functional location are documented over the course of time. If you want to use pieces of equipment, you need to implement the component *Equipment*.

Features

- The hierarchical structure of the functional location enables you to maintain centrally data that is on higher levels for all levels located below (hierarchical data transfer).
For more information on hierarchical data transfer, see [Data Transfer \[Page 180\]](#).
- You can also work with reference functional locations within this component. When doing this, you only have to define each specific type of data once. The reference location provides the corresponding locations located horizontally with the type-specific data (horizontal data transfer).
- You can display the objects of the entire technical system using various structure views.
- You can create functional locations and reference locations much quicker using list editing, than by creating them individually.
- You can assign several labels to each functional location. You define the label that you work with the most as the **primary label** and all others as **alternative labels**. You use this function if different views of functional locations structures are required.

Certain users then identify a functional location in the technical procedure view or labeling system 1 using label A, while other users identify the same functional location in their measurement/control technique view or labeling system 2 using label B.

Functional Location

Definition

The business object functional location is an organizational unit within Logistics, that structures the maintenance objects of a company according to functional, process-related or spatial criteria. A functional location represents the place at which a maintenance task is to be performed.

Use

A functional location represents system area at which an object can be installed. The objects that can be installed at functional locations are called pieces of equipment in the R/3 System.

You can structure functional locations according to the following criteria:

- **Functional criteria**

Example: "pumping station", "drive unit"

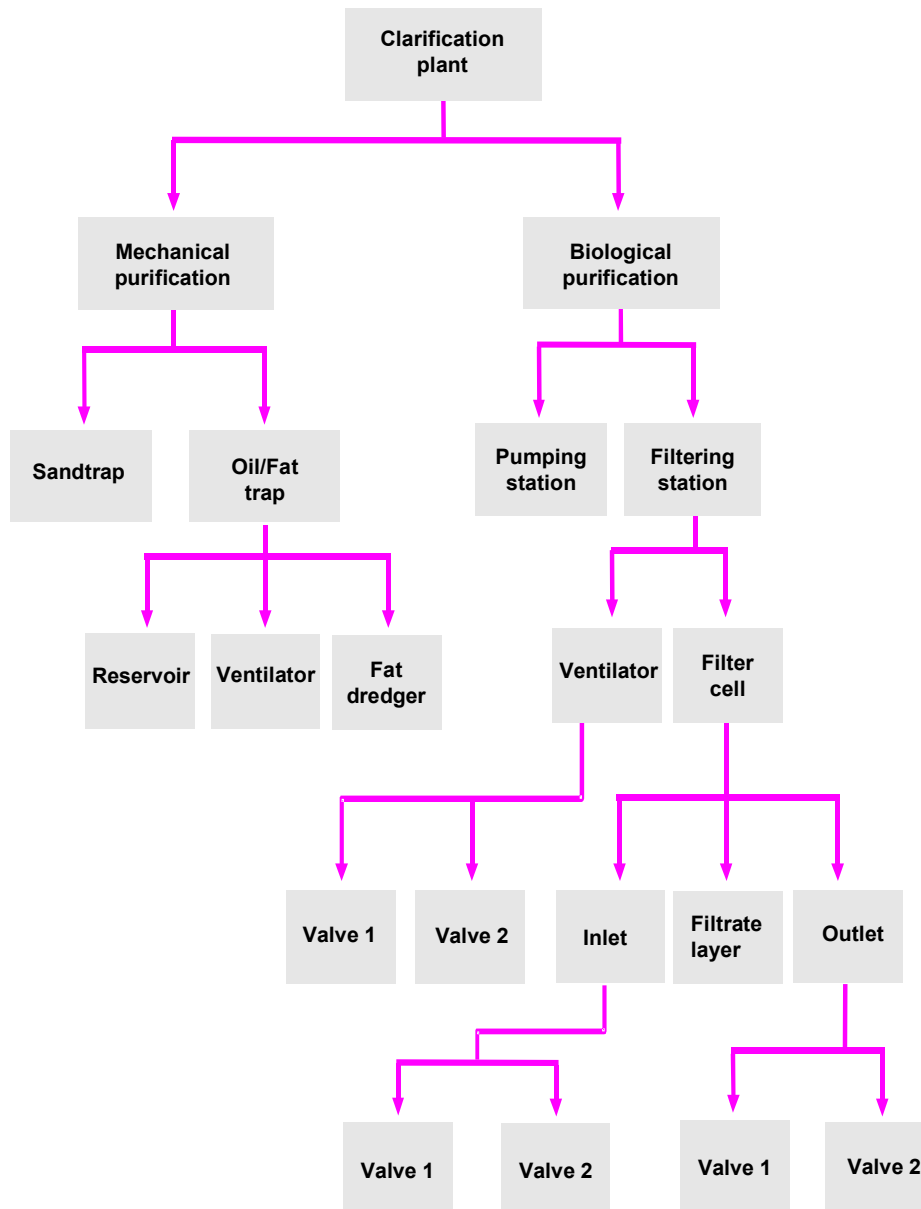
- **Process-related criteria**

Example: "polymerization", "condensing"

- **Spatial criteria**

Example: "hall", "location"

Example of a Function Location: Clarification Plant



The following applies to functional location master records:

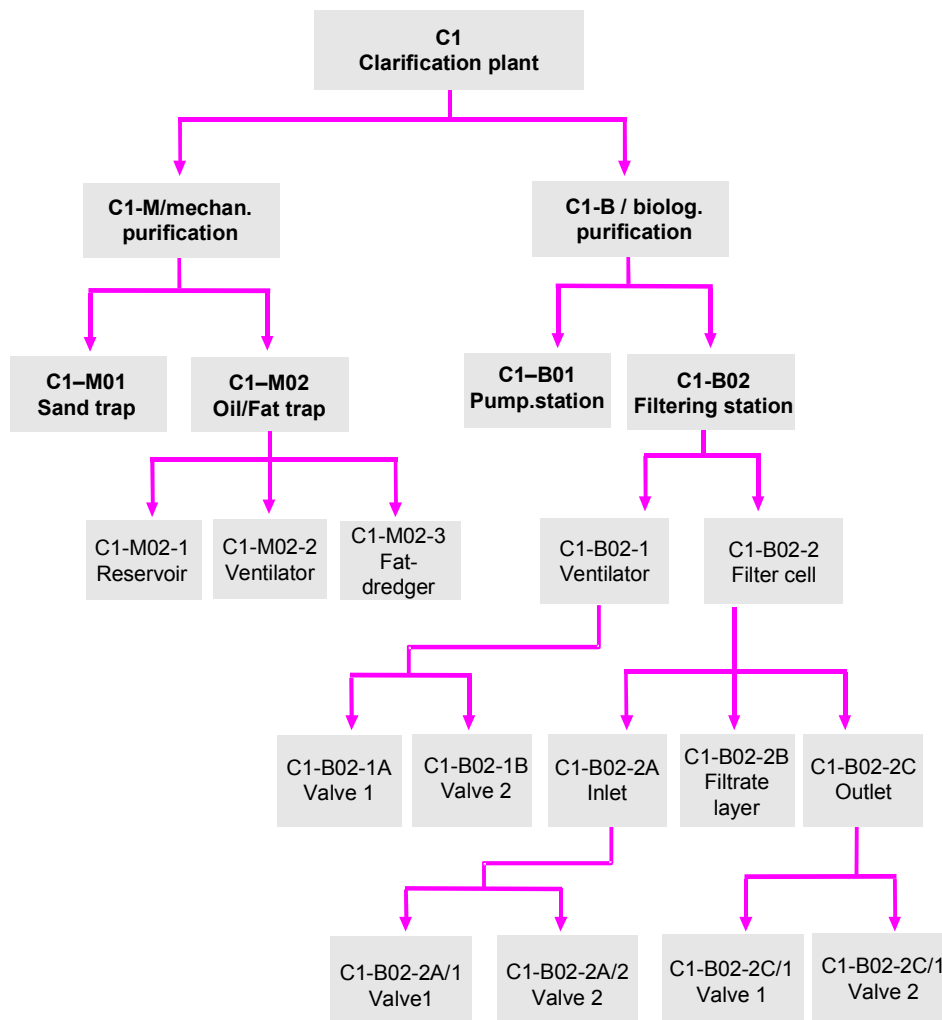
- You define and manage each functional location in the *Plant Maintenance (PM)* component in a separate master record.
- You can build up a separate maintenance history for each functional location.
- The labels for functional locations are structured hierarchically. You can specify their structure according to your own company criteria.

Functional Location

Using hierarchical labels, your company can easily represent systems or operational structures from a functional perspective. The hierarchical structure of functional locations can therefore represent the interrelations of the operational functions within a system.

- Each hierarchy level of the functional location labels represents a given level of detail in the description of the system.

Example of a Functional Location With Hierarchical Label Assignment: Clarification Plant



Structure

The master record for a functional location contains the following data groups:

- Location and maintenance data

Functional Location

This data includes, for example, maintenance plant and cost center, structure indicator, superior functional location and the maintenance planning group responsible.

- Partner data

This is data that describes a certain responsibility for a functional location, for example, supplier, purchaser, responsible employee.

See [Partners in PM/CS Processing \[Page 1213\]](#).

The following functions are also available:

- Measuring points, counters and measurement documents

- [Permits \[Page 218\]](#)

- [Multilingual texts \[Page 210\]](#)

- [Classification \[Page 200\]](#)

You can use the classification system to classify functional locations according to technical characteristics. The classes make it easier for you to find similar or identical functional locations in the system.

- [Document management \[Page 207\]](#)

- Address management

You can define an address for each functional location. The address could be, for example, where the functional location is situated at a customer's.

- Evaluation

Using ABAP reports, you can evaluate the data in the master records for functional locations at any level in the hierarchy according to various criteria.

Reference Functional Location

Reference Functional Location

Definition

A reference functional location is a tool that helps you to enter and manage functional locations. You can use a reference functional location when you have to create and manage several functional locations of the same kind in the system.

You define and manage reference functional locations in their own master records. However, they do not represent functional locations that actually exist but are assigned to real functional locations as reference locations.

The master record of a reference functional location contains entries that are valid for the functional locations assigned to it. This means that when you create functional locations using reference functional locations, you only need to enter data afterwards that is specific to each of the individual functional locations.

Use



You want to represent several similar clarification plants in the system as functional locations. To do this, first create a reference functional location that contains all the data that applies to all the clarification plants. Then create the master records for the individual clarification plants, referring to the reference functional location. You then only need to enter the data that is specific to each individual clarification plant in each master record.

Structure

The system manages the master records for reference functional locations at client level. This means that their labels are valid for the entire corporate group.



As the label of the reference functional location is structured generically, the system automatically proposes the location with the generically immediately superior number as the superior reference functional location.

You use the master record of a reference functional location to describe model structures for technical systems. It contains:

- The label of the reference functional location
- The description
- [Classification data \[Page 200\]](#)

You can use the SAP Classification System to classify reference functional locations according to technical characteristics. The classes make it easier for you to find similar or identical functional locations in the system.

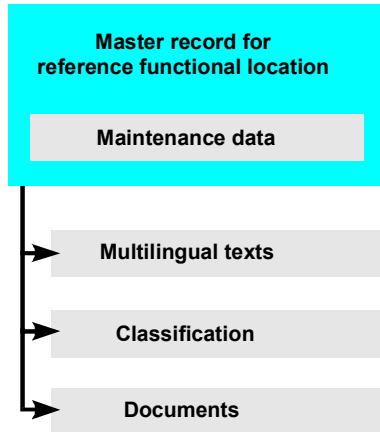
- The superior reference functional location
- Maintenance data

Reference Functional Location

The [Document Management \[Page 207\]](#) function is also available.

Using ABAP reports, you can evaluate the data in the master records for reference functional locations at any level in the hierarchy, according to various criteria.

Master Record Structure of a Reference Functional Location



Creating a Reference Functional Location

Creating a Reference Functional Location

Prerequisites

Before you begin to represent reference functional locations in your system, you should at least know about master data structures. For more information, see:

[Reference Functional Location \[Page 82\]](#)

[Functional Location \[Page 78\]](#)

[Structure Indicator \[Page 90\]](#)

You should only create a master record for a reference functional location, once the following prerequisites have been met:

- You must have established the structure of the system to be represented.
- You must have performed the table settings for structuring functional locations using the system's Customizing function.
- You must know which level of the functional location you are entering in each case, in order to represent the hierarchical structure correctly in the system. The Top-Down principle is valid in this case: You begin with the highest level and then enter the lower levels.
- You must know if the description of the functional location has to be entered according to a specific company procedure, so that they are easier to search for in the system.

Procedure

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Reference Location* → *Create*.

The screen *Create Reference Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system now displays the edit mask for the reference location label as well as its hierarchy levels.

3. Enter the reference location and the label of another reference location if applicable, and choose *Continue*.

The screen *Create Reference Location: Master data* is displayed.

4. Make all the necessary entries in this screen.

If you want to classify the reference location, choose *Goto* → *Classification*. You go to the classification processing function.

5. Save the master record.

Creating a Reference Functional Location

Copying a Reference Functional Location

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Reference Location* → *Create*.

The screen *Create Reference Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system now displays the edit mask for the reference location label as well as its hierarchy levels.

3. Enter the reference location label.
4. Enter the reference location in the section *Reference*.
5. Choose *Enter*.

A dialog box is displayed in which you specify which data belonging to the reference location should be copied to the new reference functional location.

6. Choose *Enter*.

The screen *Create Reference Location: Master data* is displayed.

The system has copied the data from the reference into the master record of the new reference functional location. You can change this data if required.

7. Make all the necessary entries in this screen.

If you want to classify the reference location, choose *Goto* → *Classification*. You go to the classification processing function.

8. Save the master record.

Changing and Displaying a Reference Functional Location

Prerequisites

In particular cases, you may have to make changes to the data in the master record of a reference functional location, for example, if mistakes were made when data was entered or if certain data has changed in all the dependent functional locations.

Every change that you make can affect the master records of all the functional locations that you have assigned to the reference functional location.

Changing a Reference Functional Location

1. In the screen *Technical Objects* choose *Functional Location* → *Reference Location* → *Change*.

The screen *Change Reference Location: Initial screen* is displayed.

2. Enter the label of the reference functional location or use a matchcode to search for it. Choose *Enter*.

The screen *Change Reference Location: Master data* is displayed.

3. Make all the necessary changes in this screen.

If you want to change the classification, choose *Goto* → *Classification*. You go to the classification processing function.

4. Save the changes.

Displaying a Reference Functional Location

1. In the screen *Technical Objects* choose *Functional Location* → *Reference Location* → *Display*.

The screen *Display Reference Location: Initial* is displayed.

2. Enter the label of the reference functional location or use a matchcode to search for it. Choose *Enter*.

The screen *Display Reference Location: Master data* is displayed. From this screen, you can display all the technical data for the reference functional location.

Activating/Deactivating Reference Functional Locations

Activating/Deactivating Reference Functional Locations

Prerequisites

A master record is always activated when you create it. Before you deactivate a reference functional location, you should be fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 238\]](#).

Deactivating Reference Functional Locations

1. Select the master record of the reference location in the create or change mode.
2. Choose *RefLocation* → *Functions* → *Active* <-> *Inactive* → *Deactivate*.
The system then shows the status "Object deactivated".
3. Save the master record.

Activating Reference Functional Locations

1. Select the master record of the reference functional location in the change mode.
2. Choose *Reference location* → *Functions* → *Active* <-> *Inactive* → *Activate*.
The system then cancels the status "Object deactivated".
3. Save the master record.

Flagging a Reference Functional Location for Deletion

Prerequisites

Before you set a deletion flag for a reference location, you should be fully aware of the effect and consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 236\]](#).

Setting Deletion Flags

1. Select the reference location in the change mode.
2. Choose *Reference location* → *Functions* → *Deletion flag* → *Set*.
The system sets the status “Flagged for deletion” for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Select the reference location in the change mode.
2. Choose *Reference location* → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status “Flagged for deletion” for the master record.
3. Save the master record.

Structure Indicator

Structure Indicator

Definition

Before you can create functional locations and reference functional locations in the system, you must define the structure you want to use for them. You do this with the help of **structure indicators**.

You define the structure indicator in Customizing for *Plant Maintenance* under *Create structure indicator for ref.funct.locs/funct.locs*.

Use

Using structure indicators, you can:

- Specify and monitor the generic structure of the functional location label
- Portray the hierarchy levels within the functional location structure in the functional location label
- Make use of the system's automatic functions for generating the structure when you create functional locations



The generic structure of the location label enables the system to determine a superior functional location and to copy specific data from it into the new functional location. However, this is only possible if the functional locations have been created strictly according to the top-down principle, in other words starting with the uppermost functional location.

After you have created a functional location, the system no longer determines the location hierarchy of this particular location from its label, but from the entries in the *SupFunctLoc*. fields of the individual master records.

The following shows an example of a structure indicator and the resulting structure of a functional location label:

Structure element	Structure of structure indicator and location label	Location text
Structure indicator	CLARF	
Text for the structure indicator		Clarification plant structure
Edit mask	XX-XNN-NX/X	
Hierarchy levels	1 2 3 4 5 6	
Functional location label according to structure indicator	C1	Clarification plant
	C1-B	Biological purification
	C1-B02	Filter station
	C1-B02-2	Filter cell
	C1-B02-2A	Inlet
	C1-B02-2A/1	Valve 1

Creation Functions for Functional Locations

Creation Functions for Functional Locations

Use

There are four possible procedures for creating a functional location:

If you want to	You use the following creation function	Advantages
Create a functional location without a reference,	Creating a Functional Location [Page 93]	
Create a functional location that is based on a reference location,	Creating a Functional Location for the Reference Location [Page 94]	The reference location transfers type-specific data to the fields of the functional location being created (horizontal data transfer).
Use another functional location as a copy reference,	Creating a Functional Location Using a Copy Reference [Page 95]	You can transfer either all or only part of the data from the copy reference.
Create a subordinate functional location within the hierarchy of another functional location,	Assigning a Superior Functional Location [Page 96]	The data of the superior functional location is transferred automatically (hierarchical data transfer).

Prerequisites

You can only create a master record for a functional location once the following prerequisites have been met:

- You must have established the structure of the system to be represented.
- You must have performed the table settings for structuring functional locations using the system's Customizing function.
- You must know which level of the functional location you are entering in each case, in order to represent the hierarchical structure correctly in the system. The top-down principle applies: Start at the highest level and enter the next levels down, one after the other. This ensures data transfer within a hierarchical structure.
- You must know if the description of the functional location has to be entered according to a specific company procedure, so that they are easier to search for in the system.

Creating a Functional Location

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Create*.

The screen *Create Functional Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system displays the edit mask for the location label as well as its hierarchy levels.

3. Enter the functional location label and a technical location as a reference if necessary, and choose *Continue*.

The screen *Create Functional Location: Master data* is displayed.

4. Make all the necessary entries.

If you want to classify the functional location, choose *Goto* → *Classification*. You go to the classification processing function.

For further information on classifying functional locations, see [Classifying Functional Locations \[Page 204\]](#).

5. Save the master record.

Creating a Functional Location for the Reference Location

Creating a Functional Location for the Reference Location

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.
The screen *Create Functional Location: Initial* is displayed.
2. Enter the structure indicator you require and choose *Continue*.
The system displays the edit mask for the location labels as well as their hierarchy levels.
3. Enter the label of the new functional location, as well as the label of the location you want to use in the field *RefLocation* in the section *Reference*.
4. Choose *Enter*.
The screen *Create Functional Location: Master data* is displayed. The system has copied all the data that was entered in the reference location into the corresponding fields. You can change this data if necessary and add data that is specific to the master record.
If you want to classify the functional location, choose *Goto* → *Classification*. You go to the classification processing function.
For further information on classifying functional locations, see [Classifying Functional Locations \[Page 204\]](#).
5. Save the master record.

Creating a Functional Location Using a Copy Reference

Prerequisites

If the functional location you are using as a copy reference has a reference functional location, this reference will also be copied. However, the superior functional location in the structure will not be copied for the new functional location; the system will automatically search for it instead.

If the functional location you are using as a copy reference is classified, you can copy the classification data to the new functional location. To do this, you must call up the classification function.

If measuring points have been assigned to the location that you are using as a copy reference, you can also copy these to the new functional location. To do this, you must call up the measuring point function.

Procedure

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.
The screen *Create Functional Location: Initial* is displayed.
2. Enter the structure indicator you require and choose *Continue*.
The system displays the edit mask for the location label as well as its hierarchy levels.
3. Enter the label of the new functional location as well as the label of the location whose data you want to copy in the block *Reference* in the field *FunctLocation*.
4. Choose *Enter*.
A dialog box is displayed, in which you specify which reference location data should be copied to the new location.
5. Choose *Enter*.
The screen *Create Functional Location: Master data* is displayed.
The system copies the selected data from the copy reference into the master record of the new functional location. You can change this data if required.
6. Save the new master record.

Assigning a Superior Functional Location

Assigning a Superior Functional Location

Prerequisites

When you create a functional location, the system **automatically** proposes the directly superior functional location, based on the structure indicator.

When creating a functional location, you can also assign the directly superior functional location **manually**. This makes possible data transfer within a location hierarchy even if the location label deviates from the structure indicator. In this way you override the automatic determination of the superior location.

Manual assignment is particularly useful if your company identifies individual units of a technical system with a label that describes the position of a unit within the system. This so-called **tag number**, is often used as an identification of the equipment category (for example, **P** for pumps) combined with a serial number (for example, pump station **1234**). This identification is generally only unique within a plant or system.



In a company, the following structure of functional locations exists:

01-A	Production line A in plant 01
01-A-S	Spinning machine area
01-A-S-EXT	Extruder
01-A-S-EXT-A01	Extruder level A01
01-A-S-EXT-A01-P1234	A spin pump at position 1234 would have this label, based on the conventional labeling structure.

However, in the company, the spin pump is usually referred to by the generally known tag number **01-P1234**.

If you want to create the master record for the spin pump using the shortened label **01-P1234**, enter this label in the initial screen of the function *Create Functional Location*, and the label of the superior location (in this example **01-A-S-EXT-A01**) in the appropriate field.

In the **structure display**, the system also includes those functional locations whose description does not conform to the naming convention for the superior functional location. This means that it is possible to perform a complete analysis of all functional locations for a technical system, regardless of their location label.



If you copy a structure similar to that in the following example using the **list editing function**, the system does not take into account the exception to the naming convention. In the example, this would mean that the superior location **01** would be

Assigning a Superior Functional Location

assigned as the superior location for the newly created functional location 01-P1234.

The tag number is usually related to the functional location and not to the piece of equipment. The pieces of equipment installed at a functional location are identified by their equipment number. If numbering systems are also being used for identifying pieces of equipment in your company, check whether this number can be used as a key in the R/3 System. It must be unique at client level and unchangeable for each piece of equipment. If the criteria for the number being unique and unchangeable are not met, you should use the internally assigned serial number given by the system as an equipment number (internal number assignment) and use the existing external number as the technical identification number in the equipment master record. You can use a matchcode to access the piece of equipment by means of the technical identification number.

Procedure

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.

The screen *Create Functional Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system displays the edit mask for the location label as well as its hierarchy levels.

3. Enter the label of the new functional location and the label of the superior location.

If a superior location is already displayed, you can overwrite it. Take into account the above-mentioned prerequisites when doing this.

4. Choose *Enter*.

The screen *Create Functional Location: Master data* is displayed.

The system copies the data from the superior location into the master record of the new functional location. You can change this data if required.

5. Save the new master record.

Changing and Displaying a Functional Location

Changing and Displaying a Functional Location

Prerequisites

Changes should only be made in certain cases, for example, if you made a mistake when entering the data, or if certain data has changed and the master record has to be updated.

Changing a Functional Location

1. In the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects*.
2. Choose *Functional Location* → *Change*.

The screen *Change Functional Location: Initial* is displayed.

3. Enter the label of the functional location or use a matchcode to search for it.
4. Choose *Enter*.

The master record of the functional location is displayed.

Displaying a Functional Location

1. In the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects*.

You go to the screen *Technical Objects*.

2. Choose *Functional Location* → *Display*.

The screen *Display Functional Location: Initial* is displayed.

3. Enter the label of the functional location or use a matchcode to search for it.
4. Choose *Enter*.

The master record of the functional location is displayed.



If necessary, you can switch from the display mode to the change mode. In the screen *Display Functional Location*, choose *Functional location* → *Display* → *Change*.

Renaming Functional Locations

Use

Functional location labels can be changed. The system saves all previously used labels as historical labels. To avoid confusion, you cannot reuse a historical label.

However, if you need to use the historical label you must explicitly release it for reuse.

Prerequisites

Activate the function *Alternative Labeling of Functional Locations* in Customizing for *Plant Maintenance (PM)* under *Functional Locations*.

Procedure

1. Choose *Logistics → Plant maintenance → Technical objects* and then *FunctLocation → Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras → Label → Overview*. You go to the labeling history for the functional location.
4. Select the label you require and choose *Rename*.
5. Enter the new label in the dialog box *Functional Location: Rename* and choose *Continue*.
6. In the dialog box for the labeling history the new label is displayed as the active version and the old label as the historical version.

Choose *Continue* and save the changes made to the master record.

Changing the Maintenance Plant in a Functional Location

Changing the Maintenance Plant in a Functional Location

Prerequisites

In rare cases, such as for example, complete restructuring within a company or dismantling and rebuilding an entire system, it may be necessary to change the maintenance plant of a functional location.



Consider carefully whether this change is really necessary. This is a change with far-reaching consequences:

•	The system automatically clears all fields that are dependent on the maintenance plant for this master record and all the dependent master records.
•	The maintenance plant change can cause a company code change, which means that the system will clear all fields dependent on the company code for this master record and all the dependent master records.
•	The company code change can produce a change in the controlling area, which means that the system clears all fields dependent on the controlling area.

Procedure

1. Select the master record of the functional location as described in [Changing and Displaying a Functional Location \[Page 98\]](#), and call up the location data screen.

2. Choose *Edit* → *Change MaintPlant*.

The dialog box *Change Maintenance Plant* is displayed, in which you can enter the new maintenance plant.

3. Choose *Continue*.

The system issues a warning of the consequences of changing the maintenance plant. If you really do want to change the maintenance plant, choose *Continue*.

4. Save the changes to the master record.



If you want to change the data origin for the field *Maintenance plant*, you must call up this function in the dialog box *Change Maintenance Plant*.

Activating/Deactivating Functional Locations

Prerequisites

A master record is always activated when you create it. Before you deactivate a functional location make sure that you are fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 238\]](#).

Deactivating Functional Locations

1. Select the master record of the functional location in the create or change mode.
2. Choose *FuncLocation* → *Functions* → *Active* <-> *Inactive* → *Deactivate*.
The system then shows the status "Object deactivated".
3. Save the master record.

Activating Functional Locations

1. Select the master record of the functional location in the change mode.
2. Choose *FuncLocation* → *Functions* → *Active* <-> *Inactive* → *Activate*.
The system then cancels the status "Object deactivated".
3. Save the master record.

Flagging a Functional Location for Deletion

Flagging a Functional Location for Deletion

Prerequisites

Before you flag a functional location for deletion you should be fully aware of the consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 236\]](#).

Setting Deletion Flags

1. Select the functional location in the change mode.
2. Choose *FuncLoc* → *Functions* → *Deletion flag* → *Set*.
The system sets the status “Flagged for deletion” for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Select the functional location in the change mode.
2. Choose *FuncLoc* → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status “Flagged for deletion” for the master record.
3. Save the master record.

Alternative Labeling Systems

Use



SAP recommends that you avoid testing this function in the productive system. You will be unable to set the alternative labeling systems to inactive and undesirable side effects may occur during deactivation.

Note that you must adjust the selection of internal reports accordingly if you activate or deactivate alternative labeling.

A functional location is identified by its label. You can assign several labels to each functional location. You define the label that you work with the most as the **primary label** and all others as **alternative labels**. In this way you can define a primary and as many alternative labeling systems as you require for a functional location structure.

You use this function if different views of functional locations structures are required. You can only generate new views for existing structures using these functions. You cannot generate **any new structures**. Certain users then identify a functional location in their view or labeling system 1 using label A, while other users identify the same functional location in their view or labeling system 2 using label B.



The following views are feasible:

Primary labeling system	Alternative labeling systems
Service provider view	View for customer 1 View for customer 2 View for customer 3
SAP view	Geographical Information System (GIS) view
Technical procedure view	Electronic/measurement/control technique view

Features

Primary Labeling System

You should define the labeling system that the majority of users work with as the primary labeling system.

When creating or processing functional locations, a user can select a labeling system and save it in his or her own user profile if necessary. If a user has not saved a labeling system in his or her user profile, the system proposes the primary labeling system.

Uniqueness

A label must be unique within a labeling system. This means that it can only exist once. You can also define that a label must be unique across **all** labeling systems.

Alternative Labeling Systems

Historical Labels

Functional location labels can be changed. The system saves all previously used labels as historical labels. You cannot reuse a historical label.



However, if you need to use the historical label you must explicitly release it for reuse. To do this, use the executable program under *Logistics → Plant Maintenance → Technical Objects → Functional Location → Labels → Reusability*.

Activities

You make all settings for labeling systems in Customizing for *Plant Maintenance (PM)* under *Functional Locations*.

Configuring a Required Labeling System

Prerequisites

If you want to work with alternative labeling systems you must first make the following settings in Customizing for *Plant Maintenance (PM)* under *Functional Locations*:

1. Activate the function *Alternative Labeling of Functional Locations*.
2. Create the required labeling system. Assign a key and a description.

If necessary, define the labeling system as unique. This means that if you want to use a particular label in this labeling system, it is first checked whether the label already exists in one of the other labeling systems. If this is the case, the label cannot be assigned.

Procedure

1. Choose *Logistics → Plant Maintenance → Technical Objects* and then *Functional Location → Labels → User Profile*. A dialog box is displayed.
2. Select the required labeling system in your user profile or create a new entry.
3. If you are creating a new entry, you go to the dialog box *Alternative Functional Location Label: Create User Profile*.

Assign a new number and a description for the new entry in the user profile.

4. Enter one of the labeling systems that were created in Customizing.
5. Assign a structure indicator to the labeling system and choose *Continue*.
6. You return to the dialog box in which your user profile is now entered. Check that the required labeling system is selected and choose *Continue*.

Result

You can now create functional locations within the required labeling system. When doing this, the system automatically proposes the labeling system linked to the structure indicator.

You can change the selected labeling system at any time either by selecting another entry in your user profile or by creating a new entry.

The labeling system selected in the user profile overrides the primary labeling system (which could be a cross-client setting).

Assigning an Alternative Label to a Functional Location

Assigning an Alternative Label to a Functional Location

Use

A functional location could, for example, have the label BB-03 in a company-wide labeling system. However, in a customer-defined labeling system the same location should have the label RL-999.



You do **not** rename the functional location label using this method. The master record of the functional location remains unchanged. Using the alternative label, you just create a **reference to this master record** in an alternative labeling system.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* and then *FunctLocation* → *Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras* → *Alternative labels* → *Overview*. The *Labels* dialog box is displayed.
4. Select the required alternative labeling system and choose *Change label*. The *Functional Location: Change Label* dialog box is displayed.
5. Enter the new, alternative label and choose *Continue*.
6. The new, alternative label is displayed in the *Labels* dialog box for the corresponding labeling system.
7. Choose *Continue* and you return to the master record of the functional location.

Displaying Alternative Labels for a Functional Location

Use

You are working with a company-defined labeling system. However, your customer uses a customer-defined labeling system for the same functional locations. When your customer makes an inquiry, you can identify the functional location in the company-defined labeling system and report back to the customer using their labeling system.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* and then *FunctLocation* → *Display/Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras* → *Label* → *Overview*.

A dialog box is displayed showing which labels the functional location has in existing labeling systems.

Representing the Structure of a Whole System

Representing the Structure of a Whole System

Use

If you want to create, change or display functional locations or reference functional locations, you can display the whole hierarchy, or just parts of it, using the structure overview. This enables you to obtain an overall picture of the structure that you are processing or want to process.

Features

You can find the structure overview:

- In the initial screen, the PM data screen and the location data screen of the location master record
- When using a matchcode to help you enter a location

You can select an individual master record for processing from the structure graphic.

You can display the location structure in two different ways on the screen:

- As a structure graphic
- As a structure list

Structure Graphic

The structure graphic provides you with a graphic overview of the structure, that you can break down further.

You can select individually the fields you want to display for the functional locations and reference functional locations. To do this, choose *Settings* → *Field selection* in the structure graphic.

Structure List

The structure list provides you with a graphic overview of the structure in list form, that you can break down further.

You can select individually the fields you want to display for the functional locations and reference functional locations. To do this, choose *Settings* → *Field selection* → *FunctLocation* in the screen *Structure list*.

Displaying Location Structures

Calling up a Structure Display from the Master Record of a Functional Location or Reference Location

1. Call up the master record of the required functional location or reference functional location in the display or change mode.
2. In any master data screen, use one of the following menu bar sequences:
 - *Structure → Structure list*
 - *Structure → Structure graphic*

The location structure that you can break down further is displayed either as a graphic or in list form, depending on the menu bar sequence you selected.

Calling up the Structure Overview Directly

1. In the screen *Technical Objects*, choose one of the following menu bar sequences:
 - *FunctLocation → Structure*
 - *RefLocation → Structure*

The selection screen for the structure overview is displayed.

2. Make the selection field entries you require.
3. Choose *Program → Execute*.

The location structure that you can break down further is displayed either as a graphic or in list form, depending on the selections you made.

List Editing for Functional and Reference Functional Locations

List Editing for Functional and Reference Functional Locations

Use

In addition to entering functional locations and reference functional locations individually, a list editing option is also available. Using this you can quickly represent complete functional location structures including their essential data, and you can refer to existing structures if necessary.

You can use reference functional locations when working with the list editing option for functional locations.

Advantages

- You can quickly represent the structure you require in the system in one operation and enter detail data later if necessary.
- You can copy existing structures quickly and clearly.
- You can quickly create a clear structure for functional locations which refers to the structure of a reference functional location.

Features

If you want to	Then use the following creation function
Create reference functional locations and functional locations without using a reference,	Creating Master Records Using List Editing [Page 111]
Use another reference functional location as a copy reference for new reference functional locations,	List Editing Using a Copy Reference [Page 114]
Use another functional location as a copy reference for new functional locations,	List Editing Using a Copy Reference [Page 114]
Use a reference functional location as a copy reference for new functional locations,	List Editing Using a Reference Functional Location [Page 118]

Creating Location Master Records Using List Editing

1. In the main menu, choose *Logistics → Plant maintenance → Technical objects*.

The screen *Technical Objects* is displayed.

2. Then choose

- for functional locations:

Then use the menu bar sequence *FunctLocation → List editing → Create*.

- for reference functional locations:

Now use the menu bar sequence *Edit → Copy reference → Create*.

In both cases the List Entry screen is displayed.

3. Enter the required structure indicator for the new functional location in the list entry screen and choose *Continue*.

You see the corresponding edit mask with the hierarchy levels.

4. Enter the new functional location labels together with their descriptions in the columns provided.

5. Save your entries.



When saving, the system may find that there are obligatory entry fields with no entries. If so, it branches into individual processing of the master records and asks you to make the entries in these fields.

Creating Similar Structures

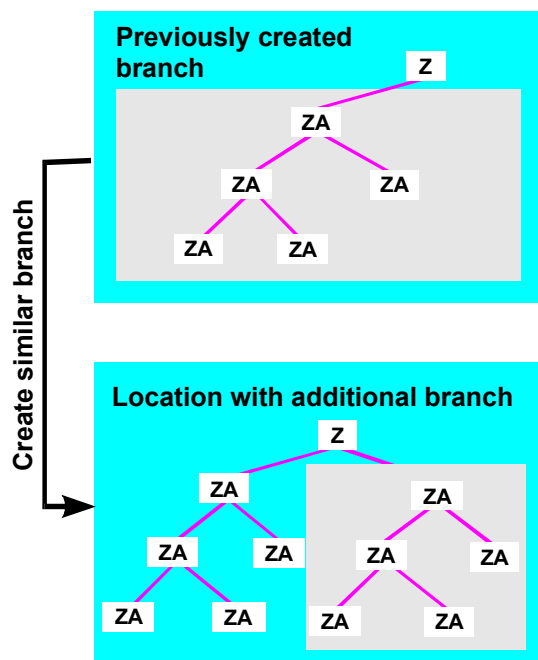
Creating Similar Structures

Use

Entering similar structures within a functional location or a reference functional location has been made easier by the function *Change structure*. This enables you to alter and insert structure branches whose labels vary from the branch that has already been entered. You can use this function as long as you have not yet saved the data of the similar structure to which you are referring. You cannot access the database when using this function.

Example of Creating Similar Structures

You have entered branch ZA for the functional location Z. Branch ZA consists of 5 functional locations. You now want to create a second branch that should have the same structure as ZA.



Procedure

1. In the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects*.
You go to the screen *Technical Objects*.
2. Then choose
 - for functional locations:
FunctLocation → *List editing* → *Create*.
 - for reference functional locations:
FunctLocation → *Reference location* → *List editing* → *Create*.
 In both cases, the List Entry screen is displayed.

Creating Similar Structures

3. Enter the required structure indicator and enter the new functional location labels and descriptions.
4. Position the cursor on the functional location or reference functional location at the top of the hierarchy of the structure branch you require.
5. Choose *Edit* → *Change structure*.
6. Change the label in the dialog box as required.
7. Flag the field *Create*.
8. Choose *Enter*.

The system creates the new branch in the list editing screen.

List Editing Using a Copy Reference

List Editing Using a Copy Reference

Use

If you want to represent a location structure that already exists in the system in a similar form, you can use this structure as a copy reference. In this way you are able to:

- Extend existing location structures at a later date, using copy references
- Create new location structures using a number of individual copy references

Procedure

1. In the main menu, choose *Logistics → Plant maintenance → Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose
 - for functional locations:
Then use the menu bar sequence *FunctLocation → List editing → Create*.
 - for reference functional locations:
FunctLocation → Reference location → List editing → Create.In both cases you go to the List Entry screen.
3. Enter the structure indicator that you want to use. Then choose *Edit → Copy reference*.
The dialog box *Copy Functional Location Structure* is displayed.
4. Enter the label of the location you want to use as a copy reference in this dialog box.
5. Enter the label of the functional location that is to be at the top of the new structure in the field *New FunctLocStruct*.
6. You now have two options:
 - You copy all locations of this structure
To do this, choose *Continue*.
The system enters all the location labels and texts in the entry list. The labels have already been changed according to the new location structure specified.
 - You display the structure of the copy reference and select the locations that you want to copy.
To do this, choose either *Structure list* or *Structure graphic*.
In both cases, the location hierarchy, that you can break down further as required, is displayed.
Flag the locations that you would like to copy and choose *Edit → Select*. You return to the List Editing screen.
The system enters all the labels and texts of the selected locations in the entry list. The labels have already been changed in accordance with the new location structure, and possibly adapted to suit the new structure indicator.

List Editing Using a Copy Reference

7. Change the functional location texts as required.
8. Save the new functional locations.

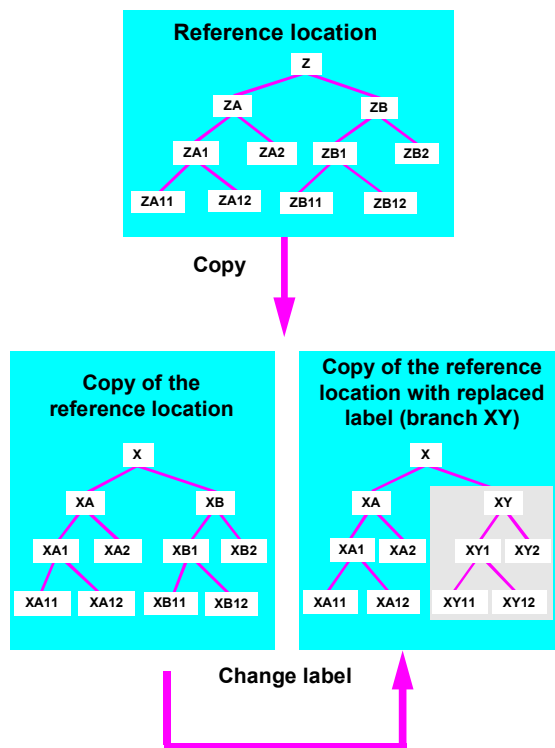
Replacing Location Labels

Replacing Location Labels

Use

The function *Change structure* also helps you with this form of list editing when creating new functional locations or reference functional locations. You can use it to change and enter a structure branch of the copy reference into the new functional location.

Example



Procedure

1. Make a copy of the copy reference functional location as described in the topic [List Editing Using a Copy Reference \[Page 114\]](#).
2. Position your cursor on the top functional location in the branch whose label you want to change. Use the menu bar sequence *Edit* → *Change structure*.
3. In the dialog box that is displayed, change the label according to your needs.
4. Flag the field *Replace*.
5. Choose *Enter*.

The system replaces the old label of the branch with the new one.

List Editing Using a Reference Functional Location

List Editing Using a Reference Functional Location

Prerequisites

You can only use this list editing function for **functional locations**.

With this list editing option, you refer to an existing reference functional location.

Procedure

1. In the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose *FuncLocation* → *List editing* → *Create*.
The list entry screen is displayed.
3. Choose *Edit* → *Copy reference*.
The dialog box *Create FuncLocation Structure using Copy Reference* is displayed.
4. Enter the label of a reference functional location to be used as a reference, and the label of the new functional location structure.
In this dialog box, the functions *Structure list* and *Structure graphic* are also available.
5. The system enters all the locations, or those with the new labels, in the list.
Using this option, the functional locations that are created refer in their master records to the reference functional location that you specified when creating them.

The function *Change structure* also helps you with this form of list editing when creating new functional locations. You can use it to change and enter a structure branch of the copy reference into the new functional location. To do this, proceed in the same way as when replacing functional location labels (see [Replacing Location Labels \[Page 116\]](#)).

Consistency Check for Functional Location Data

Definition

In the master records of functional locations, reference is made to many objects, which for their part, were also created in the form of master records in the system. These also can refer to further objects.

When you create a functional location in the system or change certain data in the master record, the system warns you of existing inconsistencies with dialog messages. If, however, you are only displaying the location or do not perform any changes to particular fields over a long period of time, it is possible that data inconsistencies will occur.



In the master record C1-B01 (filtration plant) the cost center 511 is entered. Additionally, the master record refers to the asset 1004711/0001. However, in the master record of the asset, the cost center is 909.

In cases like this, it is advisable to perform a consistency check for the location master record at certain intervals.

Performing a Consistency Check

Performing a Consistency Check

1. Select the functional location required in display or change mode.
2. In the Location Data or PM Data screen, choose *Functional location* → *Check* and then enter a key date for the check in the dialog box.

The system checks the functional location and displays any data inconsistencies found in a dialog box as a list with corresponding dialog messages.

3. Check the content of the dialog messages. Display the long texts if required, and correct the inconsistencies where necessary.

Equipment (CS-BD/PM-EQM-FL)

Purpose

A piece of equipment is an individual object that is to be maintained independently. Each piece of equipment is managed independently in the system, so that you can:

- Manage individual data from a maintenance perspective for the object
- Perform individual maintenance tasks for the object
- Keep a record of the maintenance tasks performed for the object
- Collect and evaluate data over a long period of time for the object

Pieces of equipment can be installed and dismantled at functional locations. The usage times for a piece of equipment at a functional location are documented over the course of time.

Implementation Considerations

You should always create an equipment master record for a technical object if:

- Individual data is to be managed for the object (for example, year of construction, warranty period, usage sites)
- Maintenance tasks are to be performed for the object, either regular, planned or resulting from damage
- A record of the maintenance tasks performed for the object must be kept (for example, for insurance or compulsory annual inspection purposes)
- Technical data on the object is to be collected and evaluated over a long period of time
- The costs of maintenance tasks are to be monitored for the object
- Records of usage times at functional locations are required for the object

Integration

You can use pieces of equipment by themselves (pure object-related structuring), or in combination with the component *Functional locations* (function and object-related structuring).

You can create warranties in the system using the *Customer Service (CS)* application component.

You can also use pieces of equipment in the following application areas:

- *Production Planning and Control (PP)*: Production resources/tools
- *Quality Management (QM)*: Test equipment
- *Materials Management (MM)*: Serialized material
- *Sales and Distribution (SD)*: Customer devices

Equipment

Equipment

Definition

The business object “Equipment” is an individual, physical object that is to be maintained independently. It can be installed in a technical system or part of a technical system.

You can manage all types of device as pieces of equipment (for example, production utilities, transportation utilities, test equipment, production resources/tools, buildings, PCs).

Since many of these physical objects are managed as “assets” in Asset Management, the term “piece of equipment” was chosen for objects defined from a technical perspective, in order to avoid confusion with the activated tangible assets.

You define and manage each piece of equipment in the *Plant Maintenance (PM)* System in a separate master record and can set up an individual maintenance history for each one.

Structure

The system manages the master records for pieces of equipment at client level. This means that their numbers are valid for the entire corporate group.

The equipment master record contains several types of data:

- General data

This is fixed data, which generally does not change in the course of time, for example, the acquisition value of the piece of equipment, its size and dimensions and the year of construction.
- Plant Maintenance data, location data and sales data

This is time-dependent data. It can change repeatedly in the course of time. This data can be, for example, the maintenance planner group, the responsible work center, the maintenance plant and the cost center.

Time-dependent data allows you to look at a piece of equipment dynamically, in other words over the course of time. If your system is set up accordingly with the help of the Customizing functions, it automatically creates a new time segment for specific master record changes that describes the equipment usage period.
- Serial number data

This is data that you specify when you want to manage your pieces of equipment not only as individual objects, but also from an inventory management perspective. This data comprises material data as well as stock and customer information.

See [Serialization Data in the Piece of Equipment \[Ext.\]](#).
- Configuration data

This is data that describes which individual components of a standard product make up the piece of equipment.
- Partner data

This is data that describes a certain responsibility for a piece of equipment, such as for example, supplier, purchaser, responsible employee.

See [Partners in PM/CS Processing \[Page 1213\]](#).

The following functions are also available:

- Measuring points, counters, measurement documents
- [Permits \[Page 218\]](#)
- [Multilingual texts \[Page 210\]](#)
- [Classification \[Page 200\]](#)

You can classify pieces of equipment by their technical characteristics using the SAP Classification System. The classes help you to find similar or identical pieces of equipment in the system more easily.

- [Document management \[Page 207\]](#)
- Address management

You can define an address for each piece of equipment. This could be, for example, the address of a company that is responsible for the maintenance of a service equipment, or an internal consultant.

Using ABAP reports, you can evaluate the master records data for pieces of equipment, according to different criteria.

Creating a Piece of Equipment

Creating a Piece of Equipment

Prerequisites

Before you create a master record for a piece of equipment, you must know the following:

- How are the **equipment numbers** assigned?
 - Internally, meaning automatically by the system
 - Externally, meaning manually, possibly according to a company-specific system
- Do you have to enter **equipment descriptions** according to a particular company-specific method, in order to simplify the search process?

Procedure

1. In the main menu, choose *Logistics → Plant maintenance → Technical objects*.
The screen *Technical Objects* is displayed.
2. Choose *Equipment → Create*.
The initial screen is displayed.
3. Make all the necessary entries.
If you want to use another piece of equipment or material as a reference for the new piece of equipment, enter its number in the block *Reference*.
4. Choose *Continue*.
If you have specified a piece of equipment as a reference, the system displays a dialog box, in which you specify which data of the reference equipment should be copied to the new equipment. Then choose *Continue* and you return to the screen *General Data*.
5. Make all the necessary entries in this screen.
6. Select further master data screens, such as the location and maintenance data, serialization or partner data screens.
Make all the required entries in these screens too.
If you want to classify the equipment master record, choose *Goto → Classification*. You go to the classification processing function.
7. Save the master record.

Using List Editing for Equipment

Use

In addition to the individual entry of equipment master records, you can also use the list editing function. This allows you to enter quickly a large number of pieces of equipment in the system with their essential data, using existing equipment or material master records as a reference where necessary.

Procedure

1. From the main menu, choose *Logistics → Plant maintenance → Technical objects → FunctLocation → List editing → Change*.

You go to the screen *Equipment List Entry*.

2. In the upper section of the screen, enter the equipment category and the maintenance plant. These entries will be valid for all the pieces of equipment that you create using this transaction.
3. If you want to use a reference when creating the pieces of equipment, enter either a piece of equipment or a material in the section *Reference*.

If you are using a reference, you can specify the number of pieces of equipment that you want to create. The description of the reference equipment or material is copied into as many of the list entry fields as you specify here.

4. In the list entry part of the screen, enter the following data for each equipment master record that you want to create:
 - The equipment number (only if you are using external number assignment)
 - The equipment description (if this has not been copied from the reference)
5. Save the new equipment master records.

Depending on the fields in the equipment master record that have been defined as obligatory fields, processing continues in one of the following ways:

- A** The system saves the master records and issues a message informing you of the numbers of the pieces of equipment created
- B** The system branches into the individual master records in which you must enter particular data that has been defined as obligatory data.

After you have made all the required entries, the system saves the master records and issues a message informing you of the numbers of the pieces of equipment created.

Changing a Piece of Equipment

Changing a Piece of Equipment

Prerequisites

In certain circumstances, you may have to make changes to the data in the equipment master record. For example, if you made mistakes when the data was entered or if certain data has changed and has to be updated in the master record.

For information on what you should be aware of when creating serial number and configuration data for a piece of equipment so that you can use inventory management for it, see the topics [Serialization Data \[Ext.\]](#) and [Configuration Data \[Page 172\]](#).

Procedure

1. In the screen *Technical Objects* choose *Equipment* → *Change*.
The screen *Change Equipment: Initial*, is displayed.
2. Enter the number of the equipment master record or use a matchcode to search for it.
3. Choose *Continue*.
The screen *Change Equipment: General Data*.
4. Make all the necessary changes in this screen. To change further data, go to the required screens.
5. If necessary, you can change the equipment category. Choose *Edit* → *Change category*.
6. The dialog box *Change Equipment Category* is displayed. Enter the required data.
7. Save the changes.

Changing the Maintenance Plant

Prerequisites

It may be necessary to change the maintenance plant for a piece of equipment. For example when it is to be installed at a functional location which is in another maintenance plant, or when it is to be used in another maintenance plant from now on.

However, you can only change the maintenance plant for a piece of equipment, when the piece of equipment is no longer installed at a functional location.



Changing a maintenance plant has the following consequences:

- The system automatically clears all fields of the master record that are dependent on the maintenance plant.
- A change of maintenance plant can result in a change of company code, which causes the system to clear all fields that are dependent on the company code.
- The company code change can produce a change in the controlling area, which means that the system clears all fields dependent on the controlling area.

Procedure

1. Select the equipment master record in the change mode, and go to the Location data screen.
2. Choose *Edit* → *Change MaintPlant*.

The dialog box *Change Maintenance Plant* is displayed, in which you can enter the new maintenance plant.

3. Choose *Continue*.

The system issues a warning of the consequences of changing the maintenance plant. If you really do want to change the maintenance plant, choose *Continue*.

4. Save the changes to the master record.

Change View Selection

Change View Selection

Use

The view selection is determined by the equipment category. Generally, the views (tab pages) *General data*, *PM data* and *Location data* belong to the equipment.

When you create a new piece of equipment, you can select and deselect any of the views. Once a piece of equipment has been created, you can only select new views. It is then no longer possible to deselect existing views.

Procedure

1. Select the equipment master record in the Change mode.
2. Choose *Edit* → *View selection*.
The selection screen is displayed.
3. Select the additional views that you require.
4. Save the changes to the master record.

Displaying an Equipment Master Record

Use

You can display equipment master records for information purposes. When doing so, you have the options of displaying individual master records as they appeared on a particular validity date.

Procedure

1. In the screen *Technical Objects* choose *Equipment → Display*.
The screen *Display Equipment: Initial*, is displayed.
2. Enter the number of the equipment master record or use a matchcode to search for it.
3. Enter a date in the field *Valid on*. The date must lie within the validity period you want to view.
4. Choose *Continue*.

The screen for general data is displayed.

PM data, location data and sales and distribution data are displayed for the validity period you have entered. You can display further data for the piece of equipment by using the menu bars and the function buttons.



If necessary, you can switch from the display mode to the change mode. In the screen *Display Equipment: Initial*, choose *Equipment → Display → Change*.

Activating/Deactivating Equipment

Activating/Deactivating Equipment

Prerequisites

Before you deactivate a piece of equipment, you should be fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 238\]](#).

Deactivating a Piece of Equipment

To deactivate a piece of equipment, perform the following three steps:

1. Call up the equipment master record in create or change mode.
2. Choose *Equipment* → *Functions* → *Active <-> Inactive* → *Deactivate*.
The system then shows the status "Object deactivated".
3. Save the master record.

Activating a Piece of Equipment

To activate a deactivated piece of equipment, perform the following three steps:

1. Call up the equipment master record in create or change mode.
2. Choose *Equipment* → *Functions* → *Active <-> Inactive* → *Deactivate*.
The system then cancels the status "Object deactivated".
3. Save the master record.

Flagging a Piece of Equipment for Deletion

Prerequisites

Before you set a deletion flag for a piece of equipment, you should be fully aware of the effect and consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 236\]](#).

Setting Deletion Flags

1. Call up the equipment in change mode.
2. Choose *Equipment* → *Functions* → *Deletion flag* → *Set*.
The system sets the status *Flagged for deletion* for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Call up the equipment in change mode.
2. Choose *FunctLocation* → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status *Flagged for deletion* for the master record.
3. Save the master record.

For information on how to archive equipment data, refer to the document *BC - Application Data Archiving*.

Displaying Usage Times

Displaying Usage Times

Use

Usage times are created by the system for every piece of equipment. They describe certain equipment data (for example, at which functional location it is installed, to which cost center it is assigned or which maintenance planner group is responsible for the piece of equipment).

If you change certain fields defined in the system, the system completes the existing equipment usage period and creates a new one which contains the changed data. This occurs, for example, when you install the piece of equipment at a new functional location, or when you assign it to a new cost center.

You can display the usage periods of a piece of equipment in its master record in list form.

Using the Customizing function, you can specify the conditions under which the system should create new equipment usage periods.

Procedure

1. In the screen *Technical Objects* choose *Equipment* → *Display*.

You go to the initial screen of the equipment master record.

2. Enter the number of the piece of equipment and the validity date you require and choose *Extras* → *Usage list*.

If there are several entries in the usage list for the equipment and validity date entered, the system displays the most recent entry.

3. You can now display the different usages with reference to:

- Location data
- PM data
- Account assignment data
- Sales data

The functions for editing single-level lists are also available to you. For more information, refer to [Working With Lists \[Ext.\]](#).

Displaying the Structure List and the Structure Graphic

Use

You can display a structure graphic or a structure list for a piece of equipment. This is useful in the following cases:

- When a bill of material exists for the piece of equipment
- When the piece of equipment is part of an equipment hierarchy
- When the piece of equipment is installed at a functional location

The system displays the piece of equipment and the surrounding structure in either graphic or list form.

Procedure

1. Select the master record for the piece of equipment you require.
2. In any of the master data screens, choose:
 - For the structure list *Structure* → *Structure list*
 - For the structure graphic *Structure* → *Structure graphic*
3. Depending on your choice, the system displays a structure list or structure graphic, which you can hide or break down further using the function keys, and in which you can see the following:
 - The materials in the bill of material, if one exists for the piece of equipment
 - The superior and/or sub-pieces of equipment, if the piece of equipment is part of an equipment hierarchy
 - The structure of the functional location, if the piece of equipment is installed at a functional location.

Equipment at Functional Locations

Equipment at Functional Locations

Definition

If you have structured your technical system using functional locations, then you have simultaneously specified the possible installation locations for the pieces of equipment you have defined.

Pieces of equipment can be installed at different functional locations in the course of their useful life. It is also possible that this useful life contains periods when they are not installed or when they are in stock.

Use

The individual equipment usage periods are documented by the system. For each piece of equipment it creates a usage list in which it makes an entry for every equipment usage period. This list forms part of the equipment history.

You can create the link between the piece of equipment and the functional location (the equipment installation or dismantling) in the object master record.



If you have structured your technical operation system not only using functional locations and pieces of equipment, but also equipment hierarchies, you must make sure that you can only install the uppermost superior equipment at a functional location.

Structure

The installation/dismantling of equipment is performed either from the functional location master record, or from the equipment master record.

Installing/Dismantling Equipment from the Functional Location Master Record:

Function	Use	Example
Installation	No pieces of equipment are installed at the functional location. You want to install one or more pieces of equipment there.	Part of the system which is under construction is equipped with pieces of equipment.
Dismantling	One or more pieces of equipment are installed at the functional location. You want to dismantle one or more of these.	Damage has occurred and one or more pieces of equipment are affected.
Replacement	One or more pieces of equipment are installed at the functional location. You want to dismantle one or more of these and install one or more other pieces of equipment in their place.	Damage has occurred and you replace the pieces of equipment to ensure that the system is operational again as quickly as possible.

Equipment at Functional Locations



In certain circumstances you cannot install or dismantle pieces of equipment, for example, when the equipment category does not allow it. If this is the case, the system provides dismantling information in the list for the pieces of equipment installed at the functional location. This information is explained in *Plant Maintenance (PM)* online help.

Installing/Dismantling Equipment from the Equipment Master Record

Function	Use	Example
Installation	The piece of equipment is not installed at a functional location. You want to install it.	A new piece of equipment, to be used for the first time, must be installed.
Dismantling	The piece of equipment is installed at a functional location. You want to dismantle it.	Damage has occurred and the piece of equipment cannot be repaired at its location.
Replacement	The piece of equipment is installed at a functional location. You want to dismantle it and immediately install it at a different functional location.	The piece of equipment is installed in part of the system which is shutdown at the moment, and therefore, has to be moved to another functional location.

To display a whole system consisting of functional locations, pieces of equipment and sub-equipment, see [Representing the Structure of a Whole System \[Page 108\]](#).

Installing/Dismantling Equipment from the Functional Location Master Record

Installing/Dismantling Equipment from the Functional Location Master Record

Use

You can define for a functional location whether:

- No pieces of equipment can be installed
- Only one piece of equipment can be installed
- Several pieces of equipment can be installed

For this reason, the functions for installing and dismantling pieces of equipment include the possibility of installing or dismantling several pieces of equipment simultaneously at a functional location.

When can you Install/Dismantle?

You can call up the transaction for installing/dismantling when you create a functional location. However, you can only install the piece of equipment at the functional location if the equipment master record already exists in the system.

If all necessary master records exist in the system, you can represent an installation or dismantling that was carried out some time before its entry into the system. Date and time fields are provided to enable you to do this.

If you do not enter an installation or dismantling time, the system automatically enters the date and valid system time.

What are the Consequences of Installing/Dismantling?

When you install a piece of equipment, the system - if it is set up accordingly - creates a new entry in the equipment usage list. This contains the current data for the piece of equipment.

When the piece of equipment is dismantled, the system automatically closes the current entry in the equipment usage list and enters the date and time of dismantling. It also creates a new entry containing the new equipment data.

Installing Equipment

Prerequisites

The master records for the functional location and the pieces of equipment must already be created in the system. You can install several pieces of equipment at the functional location.

Procedure

1. From the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FuncLoc* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installation/dismantling can be selected from either screen.

3. To do this, choose *Structure* → *Equipment*.

- If no pieces of equipment have yet been installed at the functional location, you go to the screen *Installation Location: Install Equipment*.
- If pieces of equipment have already been installed at the functional location, you go to the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location.

Select *Edit* → *Install equipment*, to go to the screen *Installation Location: Install Equipment*.

For how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 154\]](#).

4. Enter the pieces of equipment that you want to install at the functional location in the section *Equipment*.
5. Now you can choose *Extras* → *Change log* to display:
 - Which pieces of equipment are installed
 - Which pieces of equipment were installed before this installation
 - Which pieces of equipment are installed after this installation



If you want to use the *Data transfer* function for the newly installed pieces of equipment, proceed as described in [Data Transfer \[Page 191\]](#).

6. Return to the Maintenance data or Location data screen and save the installation.

Dismantling Equipment

Dismantling Equipment

1. From the main screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FunctLocation* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installing/dismantling are on both screens.

3. Choose *Structure* → *Equipment*.

You go to the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location.

For how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 154\]](#).

4. Select the pieces of equipment which you want to dismantle from the functional location.
5. Choose *Edit* → *Dismantle equipment*.

The system deletes the selected pieces of equipment from the list.

6. Using *Extras* → *Change log*, you can display:

- Which pieces of equipment were dismantled
- Which pieces of equipment were installed before the dismantling
- Which pieces of equipment are installed after the dismantling



If you want to use the *Data transfer* function for the dismantled pieces of equipment, proceed as described in [Data Transfer \[Page 191\]](#).

7. Return to the Maintenance data or Location data screen.
8. Save the dismantling.

Replacing Equipment

1. From the main screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FunctLocation* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installing/dismantling are on both screens.

3. Choose *Structure* → *Equipment*.

You are now on the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location, is displayed.

For information on how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 154\]](#).

4. Select the pieces of equipment which you want to dismantle from the functional location.
5. Choose *Edit* → *Replace equipment*.

6. Specify the pieces of equipment that the selected pieces of equipment are to replace. Select *Confirm*.

You are now back on the screen *Installation Location: Equipment Overview*, on which you now see the list with the new pieces of equipment, is displayed.

7. Here you may enter the installation time, which differs from the date and system time, for each new piece of equipment.
8. Using *Extras* → *Change log*, you can display:
 - Which pieces of equipment were dismantled
 - Which pieces of equipment were installed
 - Which pieces of equipment were installed before the replacement
 - Which pieces of equipment are installed after the replacement



If you want to use the *Data transfer* function for the replaced pieces of equipment, proceed as described in [Data Transfer \[Page 191\]](#).

9. Return to the Maintenance data or Location data screen and save the modification.

Installing/Dismantling from the Equipment Master Record

Installing/Dismantling from the Equipment Master Record

Use

When can you Install/Dismantle?

As a piece of equipment is an individual object, you can only install or dismantle a single piece of equipment (for the master record you are currently editing) at a functional location from the equipment master record.

You can call up the installation/dismantling functions when creating the equipment master record. However, you can only represent the installation of a piece of equipment at a functional location immediately provided the functional location master record has already been created in the system and permits equipment installation.

If all necessary master records exist in the system, you can represent an installation or dismantling that was carried out some time before its entry into the system. Date and time fields are provided to enable you to do this.

If you do not enter an installation or dismantling time, the system automatically enters the date and valid system time.

What are the Consequences of Installing/Dismantling?

When you install a piece of equipment, the system - if it is set up accordingly - creates a new entry in the equipment usage list. This contains the current data for the piece of equipment.

When the piece of equipment is dismantled, the system automatically closes the current entry in the equipment usage list and enters the date and time of dismantling. It also creates a new entry containing the new equipment data.

Installing Equipment

Prerequisites

The master records for the functional location and the pieces of equipment must already be created in the system.

Procedure

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc*.
 The dialog box *Change Equipment Installation Location* is displayed.
4. Make all the required entries for the installation location.
5. Perform the installation. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer*.
 The system installs the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 191\]](#).
 Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Installation*.
 The system installs the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
6. Select *Confirm*.
 You return to the master record screen from which you called up the dialog box.
7. Save the equipment master record.

Dismantling Equipment

Dismantling Equipment

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc*.

The dialog box *Change Equipment Installation Location* is displayed.
4. Dismantle the piece of equipment. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer*.

The system dismantles the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 191\]](#).
Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Dismantle*.

The system dismantles the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
5. Choose *Confirm*.

You return to the master record screen from which you called up the dialog box.
6. Save the equipment master record.

Replacing Equipment

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc.*
 The dialog box *Change Equipment Installation Location* is displayed.
4. First of all, dismantle the piece of equipment at its current installation location. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer.*
 The system dismantles the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 191\]](#).
 Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Dismantle.*
 The system dismantles the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
5. Now install the piece of equipment at its new installation location. The following options are available for doing this:
 - Use the pushbutton *Inst. w. DataTransfer.*
 The system installs the piece of equipment. You can determine the data transfer manually.
 Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Installation.*
 The system installs the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
6. Choose *Confirm.*
 You return to the master record screen from which you called up the dialog box.
7. Save the equipment master record.

Hierarchical Equipment Structure

Hierarchical Equipment Structure

Definition

When you structure your company's technical systems, you have the option of representing a hierarchical equipment structure with the use of **superior** and **sub-pieces** of equipment. This is useful, for example, when you want to divide large pieces of equipment that are installed at a functional location into smaller units, that you can also manage in the system as pieces of equipment.

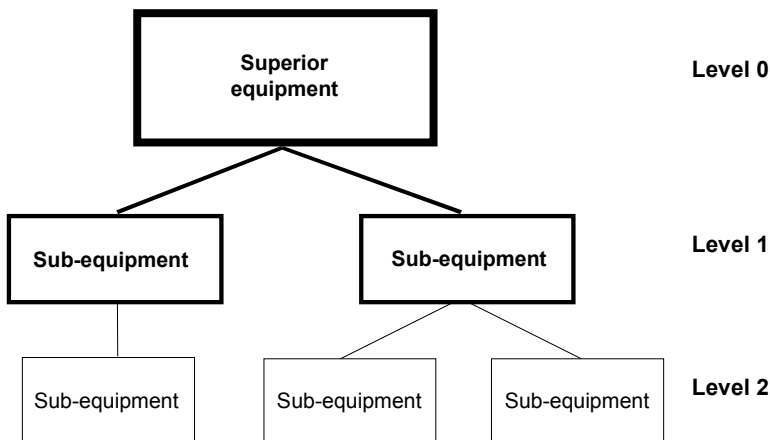
You can also use structuring of superior and sub-pieces of equipment even if you do not use functional locations.

Use

A superior piece of equipment is a complex system that is made up of several individual pieces of equipment. You can represent the structure of the system by installing individual pieces of equipment in the superior piece of equipment.

All the elements of the structure represented by the superior pieces and the sub-pieces installed in them are themselves pieces of equipment. They are objects that are to be maintained as autonomous units and for which an individual maintenance history is to be built up.

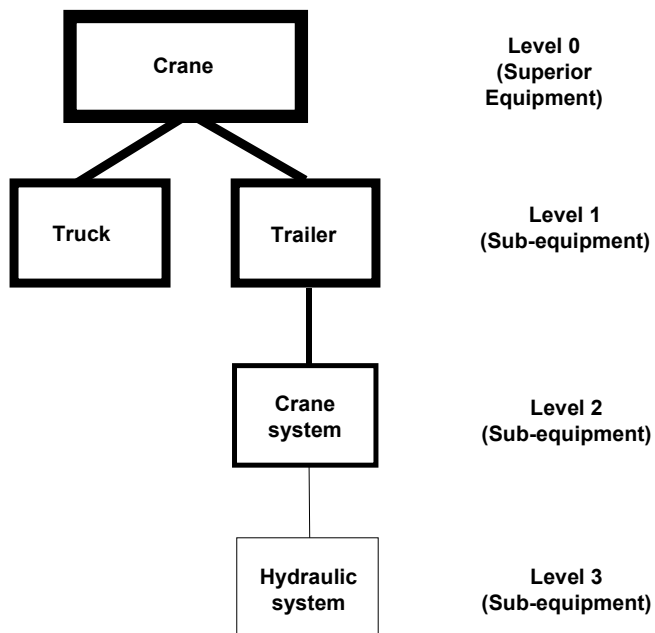
You can structure a complex system with as many levels as you require using superior and sub-pieces of equipment. You can install as many sub-pieces of equipment as required in superior pieces of equipment. A sub-piece of equipment can itself be a superior piece of equipment to several other sub-pieces of equipment. This produces the hierarchical structure:



Pieces of equipment can be installed in various superior pieces of equipment in the course of their useful life. It is also possible that this useful life contains periods when they are not installed or when they are in stock.

The individual equipment usage periods in superior pieces of equipment are recorded if the appropriate settings have been made within your system. The system creates a usage period list, in which it makes one entry per equipment usage period, for each piece of equipment. This list forms part of the equipment history.

Example of an Equipment Hierarchy



If you have structured your technical operation system not only using functional locations and pieces of equipment, but also equipment hierarchies, you must make sure that you can only install the uppermost superior equipment at a functional location.

Hierarchy System for Equipment

Hierarchy System for Equipment

Use

You structure a system into superior equipment and sub-equipment by assigning individual pieces of equipment to another piece of equipment. This piece of equipment becomes the superior piece of equipment for all the individual pieces of equipment.

To represent the installation of the sub-equipment in the superior equipment, the following methods are available:

- You assign one or more sub-pieces of equipment to a piece of equipment.
- You assign one or more pieces of equipment to a superior piece of equipment.

Prerequisites

You must create **equipment master records** for both superior and sub-pieces of equipment because the assignment of equipment is performed there.

Features

When you create equipment hierarchies, you can use the following additional functions:

- **Data Transfer** within the Structure
The associated superior and sub-pieces of equipment form a structural unit. This is why it is possible to copy certain data (for example, the planning plant or the responsible maintenance planning group) from the master record of the superior piece of equipment into the master records of the sub-pieces of equipment.
- **Installation /Dismantling on a Specific Date**
When dismantling an equipment hierarchy, you also have the option in the system of representing an installation, dismantling or replacement that has already taken place some time ago, with the correct date and time. In this way you can be sure that the sequence of equipment usage periods in the equipment usage list is correct.

Installing Sub-Equipment in a Piece of Equipment

1. Create master records for all the pieces of equipment you want to process. To do this, proceed as described in [Creating a Piece of Equipment \[Page 124\]](#).
2. Call up the master record of the piece of equipment that you want to define as the superior equipment. In the screen *Technical Objects* use the menu bar sequence *Equipment* → *Change* or use the list editing functions.
3. In any master record screen, use the menu bar sequence *Structure* → *Sub-equipment*.
You are now back on the screen *Installation Location: Install Equipment*.
4. Enter the pieces of sub-equipment that you want to install in the list.
5. When you have installed all the pieces of sub-equipment required, you can display all the pieces of installed equipment in an overview. To do this use the menu bar sequence *Installation location* → *Equipment overview*

The screen *Installation Location: Equipment Overview* is displayed.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 191\]](#).

6. Return to the master data screen from which you called up the sub-equipment installation function.
7. Save the equipment master record.

Installing Equipment in a Superior Piece of Equipment

Installing Equipment in a Superior Piece of Equipment

1. Create master records for the pieces of equipment that you want to process. To do this, proceed as described in [Creating a Piece of Equipment \[Page 124\]](#).
2. Call up the master record of the piece of equipment that you want to install in the superior piece of equipment. To do this, in the screen *Technical Objects* either use the menu bar sequence *Equipment* → *Create* or *Equipment* → *Change*, or use the list editing functions.
3. In any master data screen, choose *Structure* → *Change InstallLoc*.

The dialog box *Change Equipment Installation Location* is displayed.

4. Enter the superior piece of equipment.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 191\]](#).

5. Choose *Confirm*.

You return to the master data screen.

6. Save the equipment master record.

Changing the Equipment Hierarchy

Use

You use this function to represent the changes made to an equipment hierarchy. When doing this, you can:

- **Change the installed pieces of equipment in the master record of the superior equipment**

For more information, see [Changing the Hierarchy in the Superior Equipment Master Record \[Page 150\]](#).

- **Change the installation location in the master record of the sub-equipment**

For more information, see [Changing the Hierarchy in the Sub-Equipment Master Record \[Page 155\]](#).

Features

Further change functions are available in the master record of the superior equipment. You can:

- [Install further pieces of sub-equipment \[Page 151\]](#)
- [Delete pieces of sub-equipment \[Page 152\]](#)
- [Replace pieces of sub-equipment \[Page 153\]](#)
- [Change position numbers \[Page 154\]](#)

Changing the Hierarchy in the Superior Equipment Master Record

Changing the Hierarchy in the Superior Equipment Master Record

1. Select the master record for the superior piece of equipment in the change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Sub-equipment*.

You are now back on the screen *Installation Location: Install Equipment*, in which you will see a list of all the sub-pieces of equipment assigned to this piece of equipment.
4. Perform the changes you require in this screen.
5. After you have made the changes to the pieces of sub-equipment, you can then display:
 - The newly assigned pieces of equipment
 - The deleted pieces of equipment
 - The pieces of equipment for which the position number was changed
 - All the pieces of equipment assigned before this change
 - All the pieces of equipment assigned after this change

To view these, choose *Extras* → *Change log* in the screen *Equipment Overview*. You go to the screen *Equip.Hierarchy Configuration: Overview of Changes*.



If you want to use the *Data transfer* function for the changed or newly installed sub-equipment, proceed as described in [Data Transfer \[Page 191\]](#).

6. Return to the master data screen from which you called up the change function for pieces of sub-equipment.
7. Save the equipment master record.

Installing Further Sub-Equipment

1. Select an equipment master screen, using *Structure → Sub-equipment*.
2. In the screen *Installation Location: Equipment Overview*, choose *Edit → Install equipment*.
The list entry screen *Installation Location: Install Equipment* is displayed.
3. Enter further pieces of sub-equipment.
4. Choose *Edit → Equipment overview* to return to the screen *Installation Location: Equipment Overview*.
5. Save the equipment master record.

Deleting Pieces of Sub-Equipment

Deleting Pieces of Sub-Equipment

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Then choose *Edit* → *Dismantle equipment*.

The system deletes the selected pieces of equipment from the overview.

4. Save the equipment master record.

Replacing Sub-Equipment

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Choose *Edit* → *Replace equipment*.

The system displays a dialog box for each piece of equipment that is to be replaced.

4. Enter each replacement piece of equipment.
5. Confirm that you want to replace the sub-equipment.

You return to the screen *Installation Location: Equipment Overview*.

6. Save the equipment master record.

Changing the Position Number

Changing the Position Number

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Then choose *Edit* → *Change InstPosition*.

The dialog box *Installation Location: Change Equipment Position* is displayed.

4. Change the position number.
5. Confirm the position number change.

You return to the screen *Installation Location: Equipment Overview*.

6. Save the equipment master record.

Changing the Hierarchy in the Sub-Equipment Master Record

1. Select the master record of the sub-piece of equipment in the change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc*.
The dialog box *Change Equipment Installation Location*, which contains the superior piece of equipment, is displayed.
4. Dismantle the piece of sub-equipment from the superior equipment and install it into another superior equipment if necessary.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 191\]](#).

5. Select *Confirm*.
You return to the master data screen from which you called up the change function for the installation location.
6. Save the equipment master record.

Hierarchy Display for Equipment

Use

There are two possibilities for displaying a hierarchical equipment structure:

- You can display the **whole hierarchy** of superior and sub-pieces of equipment, including the functional location at which the uppermost piece of equipment may be installed. To do this, use the structure display as it is also described in [Representing the Structure of the Whole System \[Page 108\]](#).
- You can display the **superior piece of equipment** that you are currently processing together with its sub-equipment structure. This display possibility only reflects the current state of processing.

Displaying the Whole Hierarchy

1. In the screen *Technical Objects*, choose *Equipment* → *Structure*.

The screen *Equipment Structure: Selection* is displayed.

2. Make the selection field entries you require.
3. Choose *Program* → *Execute*.

You will see a display of the piece of equipment and also any functional location structure in either graphic or list form, depending on your entries in the selection screen.

4. You can explode the display as required. To do this, use the options in the *Edit* menu bar.

Displaying the Sub-Equipment Structure of an Individual Piece of Equipment

Displaying the Sub-Equipment Structure of an Individual Piece of Equipment

1. Selected the master record of the superior piece of equipment you require in the screen *Technical Objects*, by choosing *Equipment → Change* or *Equipment → List editing → Change*.
2. Now select the sub-equipment processing function from any master data screen by choosing *Structure → Sub-equipment*.
3. On the screens *Installation Location: Equipment Overview*, and *Installation Location: Install Equipment*, you can display the current sub-equipment structure by choosing *Goto → Equipment structure → Structure graphic* or *Goto → Equipment structure → Structure list*.

Production Resources/Tools as Equipment

Definition

To perform certain operations in a maintenance order, the worker responsible for performing the task requires resources. In the R/3 System, these resources are given the term **production resources/tools** (abbreviated to **PRT**).

PRTs belong to the group of operating resources. PRTs are involved in the production process, or are used to check or restore size, structure, or efficiency. They are also used to support or to fulfill the prerequisites for performing a maintenance task.

Possible PRTs are, for example, tools, measuring equipment, drawings, NC programs, cranes, scaffolds.

Use

Using PRTs for which you have created equipment master records in the system, has the following advantages:

- You can monitor wear and tear of production resources/tools.
To do this, create a counter for the PRT's equipment master record (PRT usage counter). The counter reading, which is updated when the order is completed, provides information about how many units are available after the PRT has been used.
- You can restore the production resource/tool to working condition in a cycle.
You also define a preventive maintenance plan for a PRT, in addition to a performance-based counter. In the preventive maintenance plan, you define at what counter reading (meaning at what level of wear and tear) the PRT must be restored to working order. You enter the preventive maintenance plan in the PRT's equipment master record.
For information on counter-based maintenance, see the SAP document *PM Maintenance Planning*.
- You can use an availability check for individual PRTs.
When doing this, the system checks what status the equipment has, and whether the level of wear and tear is sufficiently low for the PRT to be used again.

Creating Production Resources/Tools as Equipment

Creating Production Resources/Tools as Equipment

The procedure for creating an equipment master record for production resources/tools (PRTs) is basically the same as described in the topic [Creating Equipment \[Page 124\]](#). Note, however, the following **changes to the procedure**:

- In the screen *Technical Objects* choose *Equipment* → *Create (special)* → *ProdRes/Tools*.
The initial screen is displayed. Depending on the configuration, your system may have already specified the correct equipment category for PRTs. If not, enter the valid equipment category.
- To enter production/resource data, select *PRT data*.
The tab page for PRT data, where you can make all the necessary entries, is displayed.

You can monitor wear and tear of production resources/tools. To do this, create a counter for the equipment master record of the PRT ([Create PRT Usage Counter for Equipment \[Page 161\]](#)).

Creating PRT Usage Counters for Equipment

Prerequisites

You create the production resource/tool (PRT) as a piece of equipment by choosing *Equipment* → *Create (special)* → *ProdRes/Tools*.

The PRT data is maintained in the equipment master record under *PRT data*.

For more information, see [Creating Equipment \[Page 124\]](#).

Procedure

1. In the screen *Technical Objects*, choose *Environment* → *Measuring points* → *Create*.
The initial screen is displayed.
2. Enter the key of the PRT equipment master record, for which you want to create the PRT usage counter.
Flag the field *MeasPoint is counter* and choose *Continue*.
3. Enter the required data in the screen *General Data*. Make sure that you assign a characteristic and a characteristic unit to the counter.
4. Save the data for the counter.
5. In the screen *Technical Objects* choose *Equipment* → *Change*.
The initial screen is displayed.
6. Enter the key of the PRT equipment master record that you want to assign to the counter and choose *Continue*.
7. Choose *PRT data*.
8. In the block *Plant maintenance default values*, enter the key for the counter in the field *MeasPoint*.
In this way, the counter is linked to the PRT equipment master record as the PRT usage counter.
9. Save the data.



You can restore the production resource/tool to working condition in a cycle.

You also define a preventive maintenance plan for a PRT, in addition to a performance-based counter. In the preventive maintenance plan, you define at what counter reading (meaning at what level of wear and tear) the PRT must be restored to working order. You enter the preventive maintenance plan in the PRT's equipment master record.

For information on counter-based maintenance, see the SAP document *PM Maintenance Planning*.

Creating PRT Usage Counters for Equipment

Releasing/Locking Production Resources/Tools

Use

If you have created a production resource/tool as a piece of equipment, you can use a status to specify whether the PRT is:

- Released for use
This status is useful if the PRT is freely available for use.
- Not released for use
This status is useful if, for example, there is no longer a work list available for the PRT or the PRT is defect.

Procedure

1. Select the master record of the PRT in the Create or Change mode.
2. Choose the PRT data screen of the master record.
3. On the PRT data screen, choose *Equipment* → *Functions* → *Production resources/tools* → *<Required release status>*.
4. Save the equipment master record.

Fleet Object as Equipment

Definition

In addition to cars and trucks, the term 'fleet object' also includes buses, trains, commercial vehicles (tow-trucks, deep loading vehicles, cranes, and so on), machinery, ships, airplanes and helicopters. You can also use the fleet functionality to manage containers.

Use

The R/3 system shows a fleet object as an equipment master record with fleet-relevant data. Like all pieces of [equipment \[Page 122\]](#), you can also use the fleet object as a reference object for maintenance or service tasks.

Structure

In addition to the normal components of the equipment master record, the following fleet-relevant data is available in the R/3 system:

- Identification data (for example, license plate number, chassis number)
- Measurement data (for example, height, width)
- Transport-relevant data (for example, weight, maximum load weight, maximum load volume)
- Planning data (for example, criteria based on which the fleet object should be replaced)
- Further attributes (for example, fuel card number, key number)
- Engine data (for example, engine type, engine power, number of revolutions per minute, cubic capacity)
- Fuel and lubrication data (for example, fuel type, oil type)
- A customer-defined screen section for your individual fleet data

Integration

Fleet management is fully integrated in the *Plant Maintenance* (PM) and *Customer Service* (CS) application components.

Fleet Management

Use

This function enables you to display [fleet objects \[Page 164\]](#) from your transport fleet in the R/3 system. As a general rule, it was already possible to show fleet objects as equipment master records prior to Release 4.6. The fleet-relevant additional data represented in the standard system as two additional tabstrips is new. You can now maintain important fleet data such as the license plate number, load volume, consumption data, fuel card number, engine data, fuel type and so on directly in the equipment master record.

Like all pieces of equipment, you can also use the fleet object as a reference object for maintenance or service tasks. The fleet object can act as the reference object for either a notification or an order. You can also perform maintenance planning for a fleet object. You can make the date of the next scheduled service dependent on the distance counter (for example, the odometer), the time counter (for example, the time meter), or any other fleet counter.

Integration

Fleet management is a standard function. All *Plant Maintenance* (PM) and *Customer Service* (CS) functions are available to you, including evaluation functions such as executable programs (reports), list display and list editing functions, the maintenance history and the Plant Maintenance Information System (PMIS).

Prerequisites

Your system administrator has defined the desired fleet types as types of technical objects in the Customizing function for technical objects. Fleet types enable you to differentiate between cars, fork lift trucks and tanks in your fleet pool.



Even if you only have freight vehicles in your fleet pool, you can still use the fleet type for classification purposes. For example, a haulage company divides its fleet pool into the following fleet types for better data evaluation: Silo vehicles, tanks, tip trucks (for example, street car suspensions or semitrailers), container vehicles, tarpaulin-covered vehicles (for example, semitrailers, conveyor vehicles, plateau vehicles or jumbo load trucks) and special vehicles (for example, coal trucks or walking floor vehicles for bulky material).

Your system administrator has assigned a separate view profile to each defined fleet type regulating the screen structure. This enables you to configure screens for cars and tanks differently, because, in the case of cars for example, you may only want to record the usage type (business or private), and in the case of tanks, only the load volume. You have two tabstrips with a total of eight screen sections at your disposal in the standard system which you can arrange as you wish. You can choose the titles of these tabstrips yourself.

Features

If your system administrator has defined special measurement positions for your fleet objects in the fleet management Customizing function, you can create special measuring points or counters in the *Plant Maintenance* (PM) application component that are used to calculate the consumption data for your fleet object. To calculate consumption, you require a fuel counter that measures

Fleet Management

either the amount of fuel consumed or also (for trams, locomotives and electrical cars) the amount of energy consumed. You also require a so-called primary counter (activity counter) that measures time or distance (for example, the number of kilometers traveled or the operating hours).



The measurement position of the fuel counter must be labeled with the counter usage 3 = **consumption-relevant fuel counter** in Customizing. The measurement position of the primary counter must be labeled with the counter usage 1 = **consumption-relevant distance counter** or 2 = **consumption-relevant time counter** in Customizing.

You can define several such counters for a fleet object. The counters referred to when calculating the consumption values are controlled by the calculation method. This is defined by your system administrator in Customizing. The length of the periods from which the calculation of average consumption values should be determined as well as the unit of measurement of consumption (for example, liters per 100 kilometers, miles per gallon, liters per hour, gallons per hour) is controlled by the calculation method. In the standard system, calculation methods for calculating consumption values are delivered in the following units of measurement:

- Liters per 100 kilometers
- Miles per gallon
- Liters per hour
- Liters per mile

You can display the consumption data in the fleet master at all times if you have correctly maintained the calculation method. The following analysis data is necessary:

- Total counter reading of the primary counter

The system determines the overall counter reading for the primary counter from the measurement document last entered for this counter.
- Total counter reading of the consumption-relevant fuel counter

The system determines the overall counter reading for the consumption-relevant fuel counter from the measurement document last entered for this counter.
- Average daily vehicle activity (for example, the distance traveled in kilometers per day) in the long and short term

In order to calculate the average daily fleet object activity, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

The average daily fleet object activity is then calculated from the first and last measurement documents entered for the primary counter at the start of the period. The number of days between the entry dates for these documents is chosen as the time interval. The following formula is used for calculation purposes: Average daily activity =

(Overall counter reading for the last measurement document – Overall counter reading for the first measurement document after the start of the period) / Number of days between the entry dates for both documents

- Average daily fuel consumption (for example, liters per day) in the short and long term
In order to calculate the quantity of fuel consumed daily, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

The average quantity of fuel consumed daily is then calculated from the first and last measurement documents entered for the consumption-relevant fuel counter at the start of the period. The number of days between the entry dates for these documents is chosen as the time interval. The following formula is used for calculation purposes:
Average daily consumption = (Overall counter reading for the last measurement document – Overall counter reading for the first measurement document after the start of the period) / Number of days between the entry dates for both documents
- Average vehicle consumption (for example, how many liters on average does the vehicle consume per 62.14 mi? How many liters does the vehicle consume on average per operating hour? How many miles on average can a vehicle travel with 100 liters of fuel?)

In order to calculate the average consumption for the fleet object, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the next step, the system determines the first and last measurement documents entered for the consumption-relevant fuel counter. The difference between the overall counter readings for these measurement documents is displayed. The system also searches for the measurement document entered for the primary counter at the same time as the measurement documents for the consumption-relevant fuel counter. The difference between the overall counter readings is also displayed in this case. The average consumption is calculated from the quotient of both differences. The unit is expressed in the units that your System Administrator has assigned to the costing method selected.



In order to ensure the precise calculation of these consumption values, you must enter a measurement document for the primary counter in realtime for each measurement document entered for the consumption-relevant fuel counter in your system. This means that the mileage reading and other related data must be entered every time the tank is filled.

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- Date of next scheduled service (only if you perform maintenance planning).

All average values are calculated as an average of a long and a short period, the exact length of which is defined in Customizing. You can use the comparison of long-term and short-term analysis values to detect damages to the fleet object (for example, a leak or a faulty engine) or to recognize misuse.

Creating a Fleet Object as Equipment

Prerequisites

Your system administrator has created fleet types as technical object types in the Customizing function for technical objects.

At the same time, your administrator has also defined the following data for fleet types in the Customizing function for fleet management:



- The view profile used by all fleet objects of a particular fleet type
- The equipment categories permitted for fleet objects of a particular fleet type

Procedure

1. From the initial screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → and then *Equipment* → *Create (special)* → *Fleet object*.
2. Enter the necessary data and choose *Continue*.
3. Enter the necessary data on the equipment master record and fleet object screens.



If you want to assign a counter to the fleet object, follow the procedure described in [Creating Measuring Points and Counters \[Page 274\]](#). You will find the prerequisites for calculating consumption in the Implementation Guide (IMG) under *Settings for Fleet Management*.

You can call up the current data, that is, the consumption data for the fleet object, directly from the fleet object master record using . In the case of planned maintenance, the system displays the date of the next scheduled service. The icon  is located on the screen area *Fuel and lubrication types*.

4. Save the data.

Equipment as Units of Tangible Assets

Definition

Pieces of equipment that are to be maintained in a technical system, can be grouped together in asset units from an accounting perspective. In this case, the superior technical system is equivalent to a tangible asset in the business sense.

Use

By grouping pieces of equipment together to form tangible assets, you can perform comprehensive analyses at a higher level than that of the individual piece of equipment.

Integration

In the R/3 System, the application components *Plant Maintenance (PM)* and *Asset Accounting (FI-AA)* are linked together by the tangible asset number in the equipment master.

If your company does not use the application component *Asset Accounting*, you cannot use the tangible asset number in the equipment master.

For more information on asset accounting, see the SAP documentation *FI - AA - Asset Accounting*.

Allocating Equipment to an Asset

Prerequisites

The equipment master record must already be created. You can assign a piece of equipment to a tangible asset when you create or change the equipment master record.

Procedure

1. In the *Technical Objects* screen, select the equipment master record by choosing *Equipment* → *Change*.
2. Enter the equipment and go to the Location data screen.
3. Enter the required main asset number and the sub-number.
4. Save the changes to the master record.

Configuration Data

Configuration Data

Definition

It may be necessary to enter configuration data for a piece of equipment. The piece of equipment may have the same configuration a piece of material that has already been configured, and that you are managing as a variant. It can, however, also be an individual configuration purely for this piece of equipment.

Configurable Material

A **configurable** material is a material whose material type allows configuration. It can also be described as a standard product.

The bill of material of the configurable material contains components that can be selected, in addition to the components that are contained in all variants.

The components can be selected by assigning and evaluating configuration parameters (characteristics of an assigned class) and through defined relationships (for example, for the selected items of a BOM). The valuation is checked for consistency and completeness at the time of configuration.

Configured Material

A **configured** material is one that is assigned to a standard product, in other words, to a **configurable** material. It can also be described as a variant. It represents a particular product variant, through the configuration valuation.

Structure

Maintaining Configuration Data

There are several options available for maintaining configuration data for a piece of equipment:

- A** You configure the piece of equipment in the same way as existing stock material.

To do this, refer to a configured material using a configurable material, also known as a variant.

For more information, see [Configuring a Piece of Equipment as a Variant \[Page 174\]](#).

- B** You define an individual configuration for the piece of equipment.

There are two possibilities for doing this.

- You copy an existing configuration, for example, that of a variant, and modify it.

For information on how to proceed in this case, see [Copying and Changing the Existing Configuration \[Page 175\]](#).

- You refer to a configurable material and create a separate configuration from the components that can be selected.

For information on how to proceed in this case, see [Creating a New Configuration \[Page 176\]](#).

Configuring a Piece of Equipment Individually

If you want to enter an individual configuration for a piece of equipment, you must first choose one of the following procedures:

- A** Copy the configuration of a configured material and then make any individual changes.

If you choose this option, see [Copying and Changing an Existing Configuration \[Page 175\]](#).

- B** Refer to a configurable material and create an individual configuration from its components.

If you choose this option, see [Creating a New Configuration \[Page 176\]](#).

Configuring a Piece of Equipment as a Variant

Configuring a Piece of Equipment as a Variant

1. Select the equipment master record.
2. Select the Configuration data screen.
3. Choose *Edit → Assign to ConfMat*.
A dialog box is displayed.
4. Enter the configured material and the plant information.
To display the configuration, choose *Display object*. Otherwise, choose *Continue*.
5. You return to the Configuration data screen.
6. Save the equipment master record.

Copying and Changing an Existing Configuration

1. Select the equipment master record.
2. Choose the Configuration data screen.
3. Choose *Edit → Assign to ConfigMat*.
A dialog box is displayed.
4. Enter the configured material and the plant information.
To display the configuration, press *Display object*. Otherwise, choose *Continue*.
5. You return to the Configuration data screen.
6. Choose *Edit → Copy*.
The system copies the configuration data from the configured material. This means that the master record of the material serial number no longer refers to the variant configuration. Instead you can maintain the configuration individually for the material serial number.
You go to the screen with the characteristic values for the configured material.
7. Change the data according to your requirements, and return to the configuration screen for the material serial number.
The configuration data is now flagged to show that it is maintained individually.
8. Save the master record.

Creating a New Configuration

Creating a New Configuration

1. Select the equipment master record.
2. Select the Configuration data screen.
3. Enter the configurable material you require.
4. Choose *Edit → Maintain*.

The screen for evaluating characteristics of the configurable material is displayed.

5. Change the data according to your requirements.
6. Save the characteristic evaluation.

You return to the configuration data screen. You will see that the configuration data is now flagged as being maintained individually.

7. Save the master record.

Comparison: Equipment - Functional Location

Use

The following functional comparison should enable you to decide when to represent an object as a piece of equipment, and when as a functional location.

Prerequisites

The deciding factor is whether you mainly want to represent the object concerned in the R/3 System as a technical object, that is, as a piece of [equipment \[Page 122\]](#) or [functional location \[Page 78\]](#):

- **Equipment, Functional Location**

You should represent an object as a technical object if it is repaired, not exchanged, in the event of a breakdown. In this case, you represent the object as an individual object whose maintenance or service history can be documented.

- **Material, Assembly**

You should **not** represent an object as a technical object if it is exchanged in the event of a breakdown because repairing it is not worthwhile due to its low value. In this case, you represent the object as a material or assembly. This does not enable you to document a maintenance or service history, but a material or assembly can also be a reference object for a notification or order.

Features

Equipment Functions

- A piece of equipment can be serialized by assigning a material number and serial number to it. This makes inventory management possible for the equipment.
- You can create a piece of equipment with a material as reference and thereby copy material data. From Release 4.6, this also includes the classification of material.
- A piece of equipment can be [configured \[Page 172\]](#) (using a super bill of material/variant configuration).
- Pieces of equipment can be installed in functional locations, in other pieces of equipment, or exist as individual objects.
- From Release 4.6, a piece of equipment can be a [fleet object \[Page 164\]](#) in Fleet Management.
- A piece of equipment can be a device in the industry solution *Utilities* (IS-U).
- A piece of equipment that is installed in a technical object can store the [history \[Page 132\]](#) of its installation location. The system records a usage period for each installation location, enabling you to track the complete installation history.
- In addition to the standard tab pages for the equipment master record, you can call up further [tab pages \[Page 128\]](#) where necessary using the menu (sales and distribution data, production resources/tools data, configuration data), without having to make any settings in Customizing.

Comparison: Equipment - Functional Location**What to Note when Using Equipment**

- When you create structures, the pieces of equipment are not ordered in the structure automatically. You have to assign the equipment for each master record manually.
- The equipment number cannot be changed once it has been created. If you have made a mistake during external number assignment, you must archive the equipment.
- If you use many pieces of equipment as individual objects or equipment hierarchies, without also using functional locations, you should [classify \[Page 200\]](#) the pieces of equipment. This enables you to search more easily.

Functional Location Functions

- From Release 4.5, you can change the label for the functional location, provided that you use the alternative labeling function. Moreover, additional labels ([alternative labels \[Page 103\]](#)) are possible for functional locations.
- Functional locations are automatically ordered in the structure when created, based on the [structure indicator \[Page 90\]](#) (according to the top-down principle). This simplifies the process of creating functional location structures.
- Since the structure of functional locations is strictly hierarchical, it is possible to summarize data (for example, costs) for individual hierarchy levels.
- A functional location can be a real estate object in the industry solution *Real Estate Management* (IS-RE).

What to Note when Using Functional Locations

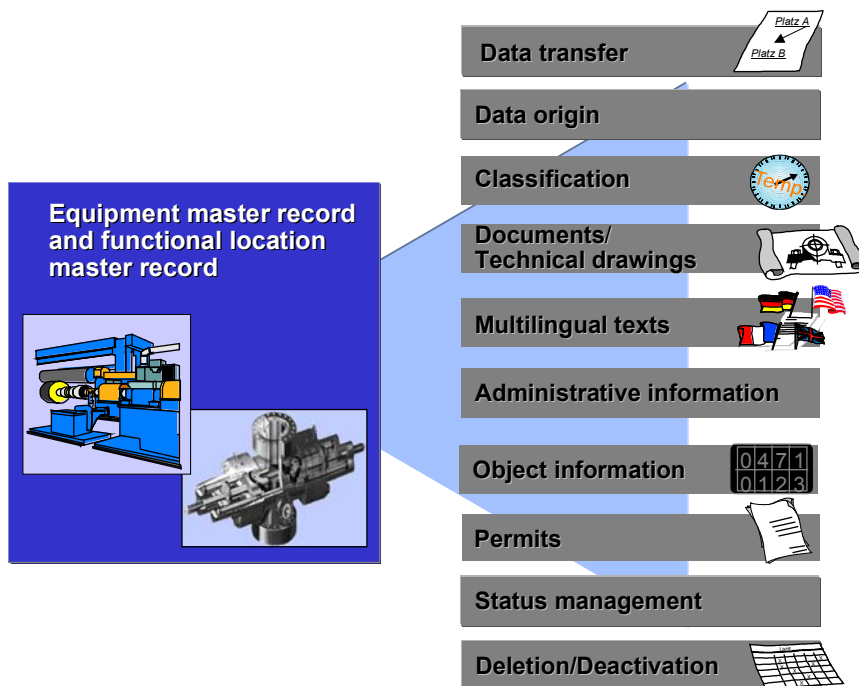
- You must create a structure indicator for each structure in Customizing.
- Functional locations can only be installed in functional locations or exist as individual objects.
- A functional location that is installed in another functional location cannot store the history of its installation location. It only shows the current installation location.
- When modifying functional location structures that have different structure indicators, automatic assignment no longer functions. As with equipment, you must then assign the subordinate functional location manually.
- Until Release 4.5B, no warranties are available for functional locations; they only exist for equipment.

Functions of Technical Objects

Use

The following functions are valid for both the equipment master record and the functional location master record.

Features



Data Transfer

Data Transfer

Definition

Data is transferred from functional locations and reference functional locations to reference functional locations, functional locations and pieces of equipment.

If you structure your technical systems using reference functional locations, functional locations and pieces of equipment, the hierarchical structures you create often have identical master data.



The functional location “clarification plant” is assigned to the cost center 511 at its highest structure level, C1. All the levels below C1 are therefore also assigned to this cost center.

For a better overview and easier management of the data contained in the master records assigned to certain structures, you can use the data transfer function. Using this you can:

- Maintain data at a superior level for objects further down the hierarchy
- Maintain data centrally for objects assigned to a reference location
- Copy or leave out data from the superior or central object when creating a technical object.

Use

You must distinguish between the following:

- The objects between which data transfer can be performed
- The data transfer procedure

For the objects between which data transfer can be performed, you can have:

- [Hierarchical Data Transfer \[Page 181\]](#)
- [Horizontal Data Transfer \[Page 182\]](#)

There are two different data transfer procedures:

- [Data Transfer By System Rules \[Page 183\]](#)
- [Individually-Defined Data Transfer \[Page 184\]](#)

Hierarchical Data Transfer

Definition

You can maintain data at a high level within a hierarchical object structure. The system will automatically transfer the data changes to the levels below that are affected.



The maintenance planner group is changed for the clarification plant described in [Functional Location \[Page 78\]](#). The employee responsible for maintaining the master data makes the change to the master record of the highest functional location C1 and saves the changes. The system automatically makes the same change for all affected functional locations below the functional location C1, and issues a message to inform the employee of these changes.

Horizontal Data Transfer

Definition

With horizontal data transfer you can differentiate between:

- Data transfer from reference location to functional location
- Data transfer from functional location to installed piece of equipment



In some cases, when data is transferred from the reference location, it can also cause data to be transferred **hierarchically**, as objects below can acquire their data from the superior objects that have changed.

Using reference functional locations you can specify type-specific data for each system type and transfer it to the corresponding functional locations as well as to the pieces of equipment installed there and their sub-equipment.



The ABC indicator of the functional location C1-B02-1 "Ventilator" is to be changed for several clarification plants.

The employee responsible for maintaining the master data makes the change in the master record of the reference functional location and saves the entries.

The system automatically makes the same change for all affected functional locations that were assigned to this reference location and for the pieces of equipment that are installed at these locations. The system then issues a message informing the employee of the changes.

Data Transfer By System Rules

The data transfer should be performed as extensively as possible. For this reason the following three rules have been created:

Rule 1

When you create a functional location or reference functional location, the system tries to determine the superior location from the label and automatically writes this in the master record for the new location.



You create the functional location C1-B02-2. The system determines the functional location C1-B02 as the superior functional location and writes it to the new master record.

When the system finds a superior functional location, it transfers all the data that makes sense to be transferred to the new master record. The user **cannot** change this setting using the Customizing functions.

Rule 2

When you create a functional location, you can refer to a reference functional location, by which you will later still have the possibility of maintaining data centrally in the assigned master records by using data transfer.

When you create a functional location and use a reference location as a copy reference, the data from this has priority over the data from the functional location that is higher in the hierarchy.

Rule 3

When you create a functional location and use another location as a copy reference, the system also copies the reference functional location that is entered in the copy reference.

Individually-Defined Data Transfer

Individually-Defined Data Transfer

You can change the data transfer individually for each functional location and reference location. However, the following restrictions apply:

Restriction 1

Data from a superior location or reference location can only be transferred, if such a location has been assigned. You can change the assignments whenever you want.

Restriction 2

In the case of dependent data, subordinate data can only be transferred in the same way as the corresponding superior data.



The maintenance planning group in the reference functional location can only be transferred once the maintenance planning plant in the reference functional location has been transferred.

Data Transfer Sequence

Purpose

As a general rule, both hierarchical and horizontal data transfer occur over several levels in the technical system as a whole.

When both forms of data transfer occur, the rule is that the more specific data has priority over the more general data.

Process Flow

Hierarchical Data Transfer

When data is transferred hierarchically in the system as a result of a change to the master record, it affects all objects in the structure that are below the changed object. This means, for example, that a change to a functional location high up in the hierarchy will affect all the functional locations below and the pieces of equipment that are installed at the functional locations.



During data transfer to a superior functional location, the system normally does not check any authorizations, in this way making it possible to also transfer data for which you do not have authorization, to a superior location.

Horizontal Data Transfer

When data is transferred horizontally in the system from a reference location, it affects all the objects that are assigned to this master record on the same level. This means, for example, that a change to the data of a reference functional location will affect all the functional locations directly assigned to this reference location as well the functional locations below them and the pieces of equipment installed there.

Changing Data Transfer by Field

The data transfer sequences described above represent the normal data transfer patterns. However, you can define data transfer differently for each object and field. For example, you can set your system so that it always transfers the maintenance planning plant and maintenance planner group from the superior location, even if a reference location is assigned.

You can also deactivate data transfer for each object or field.

The system automatically deactivates data transfer when you maintain a field directly.

Transferring Data from Dependent Fields

Transferring Data from Dependent Fields

Use

In the master record for technical objects, there are fields that are dependent on other master record fields. The maintenance planner group, for example, is dependent on the maintenance planning plant.

In certain cases it makes sense to maintain the hierarchically dependent, subordinate fields individually.

Activities

What Happens When You Change a Superior Field?

If you change data in the superior field using data transfer, it is no longer certain that the data in the individually maintained, dependent fields is still correct. For example, if you change the planning plant, it is not necessarily the case that the new maintenance planner group responsible for a technical object has the same number in the new planning plant as in the old one.

What Does the System Do and What Do You Have to Do?

As it cannot be ensured that the data in the individually maintained, dependent fields is still correct, the system automatically clears these fields in such a case, and you must maintain them again where necessary.

Transferring Data When Objects are Locked

Use

When the data of a master record is changed and this change is to be copied into other master records using data transfer, it may be that the objects in question are locked by another user at this time. In this case, the system displays an overview of the objects to which data could not be transferred as well as the names of the users who are blocking the objects.



Objects that are hierarchically below the locked objects, are only included in the data transfer when you perform subsequent processing for the objects.

Processing the Objects Immediately

Processing the Objects Immediately

Prerequisites

As soon as the objects are no longer locked, you can perform the data transfer using the list issued by the system.

Procedure

1. Position your cursor on the object you require and choose *Edit* → *Edit object*.
You go directly to the master record of the object you selected. The system automatically performs the data transfer and issues a message to inform you of this.
2. Save the master record. By doing this, you save the data that has been transferred.
Any objects that are below the selected object in the hierarchy, will be included in the data transfer when you perform this step.

Processing the Objects Later

Use

The employee responsible will not always be able to process the list of locked objects immediately. For this reason, the system stores a list of the objects that were locked during the data transfer in a separate database table.

Procedure

1. Display the list of these objects from the screen *Technical Objects* by choosing *Environment* → *Data transfer* → *Take up data transfer*.

The screen *Take Up Data Transfer* is displayed, containing a list of all technical objects that still have to be processed for the data transfer.

2. Position your cursor on the object you require and choose *Edit* → *Edit object*.

You go directly to the master record of the object you selected. The system automatically performs the data transfer and issues a message to inform you of this.

3. Save the master record. In this way you save the transferred data, and return to the list of objects.
4. Position the cursor on the next required object, and repeat steps 2 and 3 for all other objects that you want to process.

Data Transfer for Subsequent Structure Changes

Data Transfer for Subsequent Structure Changes

Use

In exceptional cases it is necessary to:

- Assign a functional location subsequently to a reference functional location
- Insert a complete functional location structure subsequently in another functional location structure

In both cases, data cannot be transferred to the newly assigned objects at first because the uppermost functional location in the structure is set to be maintained individually.

- To transfer a functional location from one structure to another

For a functional location that, up until now, had a superior functional location/reference functional location up and was assigned to another superior functional location/reference functional location, data is transferred automatically for all the fields that are set for allowing data transfer. The contents of the fields that were maintained individually up to now remains intact.

Activities

If you want to make data transfer possible, you must activate it for each individual master record field of the newly assigned functional location.

Data Transfer

Use

The *Data Transfer* function is used in the following cases:

- When you are creating or maintaining an equipment hierarchy
- When you are installing or dismantling a piece of equipment at a functional location

You can use data transfer to define which data should be transferred from the master record of the superior equipment or functional location into the master record of the installed piece of equipment.

Features

You can use the *Data transfer* function:

- When a piece of equipment is installed at a functional location or in a superior piece of equipment
- When sub-pieces of equipment are assigned to a piece of equipment
- When a piece of equipment is dismantled from a functional location or from a superior piece of equipment
- When assignment changes have been performed in the equipment hierarchy, for example,
 - Assignment of further sub-pieces of equipment
 - Assignment of a different superior equipment

In these cases, however, data transfer can only be performed for the pieces of equipment affected by the changes.

You can access the data transfer function in two different ways, depending on whether you want to transfer data from the superior piece of equipment or functional location, or from the installed piece of equipment.

Transferring Data From the Superior Equipment or Location

Transferring Data From the Superior Equipment or Location

1. Select the screen *InstallLocation: Equipment Overview*:
 - In the functional location master record using *Structure → Equipment*
 - In the equipment master record using *Structure → Sub-equipment*
2. Go to the change log by choosing *Extras → Change log*.

You go to a screen that displays all the newly created pieces of equipment, or those affected by changes.
3. Select the pieces of equipment for which you want to perform the function *Data Transfer*.
4. Access the data transfer function by choosing *Goto → Data transfer*.

The screen *Data Transfer* is displayed for the first piece of equipment you selected.
5. Specify,
 - Which data should be transferred from the master record of the installation location into the equipment master record.

To do this, select the appropriate fields in the column *IL*.
 - Which data should be individually maintained in the equipment master record.

To do this, select the appropriate fields in the column *EQ*.
6. When you have made all the necessary entries for the first piece of equipment, you can transfer the information by choosing *Goto → Back*.

The screen *Data Transfer* is now displayed for the next selected piece of equipment.
7. Process the *Data Transfer* screen for all the selected pieces of equipment. Afterwards, return to the screen displaying all the newly assigned pieces of equipment, or those pieces affected by changes.
8. Return to the master data screen from which you accessed the function for processing pieces of equipment.
9. Save the master record.

Transferring Data From Installed Equipment

1. In the equipment master record, choose *Structure* → *Change InstallLoc* to display the dialog box *Change Equipment Installation Location*.
2. Proceed by choosing one of the following options:
 - **Install the piece of equipment.** To do this, enter the required superior equipment or functional location in the dialog box, and then choose *Install w. DataTransfer*.
 The screen *Data Transfer: Install Equipment* is displayed.
 Specify,
 - Which data should be transferred from the master record of the superior piece of equipment or functional location into the equipment master record.
 To do this, select the appropriate fields in the column *IL*.
 - Which data should be individually maintained in the equipment master record.
 To do this, select the appropriate fields in the column *EQ*.
 - **Dismantle the piece of equipment.** To do this, choose *Dism. w. DataTransfer*.
 The screen *Data Transfer: Dismantle Equipment* is displayed:
 Specify which data for the installation should be retained for the piece of equipment after the dismantling.
3. Choose *Goto* → *Back*.
4. Confirm the installation or dismantling and save the equipment master record.

Displaying and Changing Data Origin

Displaying and Changing Data Origin

Use

When you create a functional location, reference location, or equipment hierarchy, the default values for the fields have been set in such a way that data transfer is possible. The default values are only set to individual maintenance in the case of functional locations that are uppermost in a hierarchy and those that are not assigned to a reference location.

Features

There are certain circumstances in which it makes sense to change the type of data transfer normally used for technical objects in your system.

In these circumstances you can use the system's display and change functions:

- For each object, to which you want to transfer data, you can use the display function to display the data it receives or can receive from superior functional locations, reference functional locations or pieces of equipment.
- For many fields, you can use the change functions to specify whether data should be transferred from the superior functional location, from the reference functional location or from the superior piece of equipment. Alternatively, you can specify whether data should be maintained individually for the respective fields.

Displaying and Changing Data for Locations

Use

You can display where data in the master record fields has come from for reference functional locations and functional locations. To do this you have the following two display options:

- Individual display for an individual field
- Overview display

Features

What Information Can You Display?

- For **reference functional locations**, you can display whether the data:
 - Originates from a superior location in the structure
 - Was maintained individually for this master record
- For **functional locations**, you can display whether the data:
 - Originates from a superior location in the structure
 - Originates from a reference functional location
 - Was maintained individually for this master record

What Information Can You Change?

For reference functional locations and functional locations you can specify from where the data should originate for the individual master data fields.

- For **reference functional locations**, you can specify whether the data:
 - Should originate from a superior location in the structure
 - Should be maintained individually for this master record
- For **functional locations**, you can specify whether the data:
 - Should originate from a superior location in the structure
 - Should originate from a reference functional location
 - Should be maintained individually for this master record

Displaying Data Origin for Locations

Displaying Data Origin for Locations

Data Origin of an Individual Field

1. In the master record, go to the required screen in the display mode.
2. Position the cursor on the field you require.
3. Choose *Edit* → *Data origin*.

A dialog box is displayed, containing information on the data origin for the field you selected.

If you want to change the data origin of the field, perform the steps described in [Changing Data Origin for Locations \[Page 197\]](#).

Data Origin of All Fields in One Screen

1. In the master record, go to the required screen in the display mode.
2. Choose *Edit* → *Data origin list*.

A dialog box is displayed, containing information on the data origin for all the fields in the screen you selected.

Changing Data Origin for Locations

1. In the master record, go to the screen you require in the create or change mode.
2. Position the cursor on the field you require.
3. Choose *Edit → Data origin*.

A dialog box is displayed, in which you can specify the required information for the field you selected.
4. Save the changes to the master record.

Displaying and Changing Data Origin for Equipment

Use

You can change the data origin for equipment master records in the following situations:

- When you install a piece of equipment at a functional location or dismantle it from a functional location
- When you install a piece of equipment in an equipment hierarchy or when you dismantle it from an equipment hierarchy

For more information, see [Equipment at Functional Location \[Page 134\]](#).

Features

Which Information Can You Display?

For the fields in the PM data screen and the location data screen of an equipment master record, you can display an overview which tells you whether the data

- Comes from the functional location or from a superior piece of equipment
- Was maintained individually for this master record

What Information Can You Change?

You can specify from where the data should originate for the individual master data fields in the location data and PM data screens for pieces of equipment.

When you want to change the data origin for pieces of equipment, you can specify for the data in the master record fields:

- Whether it should originate from the functional location or from the superior equipment at which the piece of equipment is installed
- Whether it should be maintained individually for the piece of equipment

Displaying Data Origin for Pieces of Equipment

1. Call up the equipment master record you require.
2. Select the location data or PM data screen.
3. Choose *Edit* → *Data origin list*.

A dialog box is displayed, containing the information you require.

Classification of Technical Objects

Classification of Technical Objects

Purpose

When you are managing a large number of objects, you must be able to group these objects according to particular features. In this way, you can logically organize them according to various criteria, find them easily, and group them together when performing analyses.

Using the Classification System you can create a hierarchically structured classification system for your company. The **hierarchical structure** of the Classification System enables you to find easily existing special classes - starting from a superior class.



A class hierarchy could look like this, for example:

Pumps → Rotary pumps → Magnetically-coupled pumps

In Plant Maintenance, you can classify all technical objects that are represented by a master record in the system. You classify an individual object in its master record either when creating the master record or later when changing it.

Process Flow

1. First you create **Characteristics**, with which you describe the technical objects in more detail.

This also enables you to manage technical data that is not contained in the master records of the maintenance objects.



For a solar collector class you could, for example, specify the effectiveness in % and the conductor used as characteristics.

2. Afterwards, you create the necessary **Classes**. Classes are created within the class type for the respective technical objects.



In plant maintenance, for example, there are class types for pieces of equipment, functional locations and reference functional locations.

You assign a suitable characteristic to the class. You can assign **keywords** to the class to make it easier to find.



For example, you could assign to a class of solar collectors, the keywords "solar collector", "collector" and "alternative energy source".

Classification of Technical Objects

3. You perform the **classification** in the master record of the technical object, by assigning one or more classes to it.
4. You can perform characteristic valuation based on the classification data in the master record of the technical object. To do this, you enter one value for the class and the characteristic respectively.

Creating and Changing Characteristics and Classes

Characteristics

1. Choose *Logistics → Plant maintenance → Technical objects → Environment → Classes* and then *Characteristic → Create/Change*.

The initial screen for maintaining characteristics is displayed.

2. Enter the required data. You can obtain additional data by choosing *Goto → Additional data*.
3. You can assign the characteristic to a particular class type. To do this, choose *Goto → Restr. to class types*.
4. Save the data.

Classes



Always create the characteristic first and then the class.

1. Choose *Logistics → Plant maintenance → Technical objects → Environment → Classes* and then *Characteristic → Create/Change*.

The screen *Classifiable Objects/Class types* is displayed.

2. When you create a class, you must first determine the class type and then the initial screen for class maintenance is displayed. When you change a class, you access this screen directly.
3. Enter the required data.
You can assign keywords to the class to make it easier to find. To do this, choose *Goto → Keywords*.
4. Assign characteristics to the class by choosing *Goto → Characteristics*.
The screen for maintaining characteristics is displayed.
5. Enter the required data.
6. Save the data.

Classifying Reference Functional Locations

Prerequisites

- A master record must exist for the reference functional location
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 202\]](#).

Procedure

1. Go to the initial screen of the reference functional location by choosing *Reference location* → *Change* in the screen *Technical Objects*.
2. Make all the necessary entries in the initial screen and choose *Continue*.
The screen *Change Reference Location: PM Data* is displayed.
3. Choose *Goto* → *Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System* → *Classes* → *Object types* → *Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Reference Location: Classification* is displayed.

4. Enter the classes to which you want to assign the reference functional location in the column *Class*.
5. Select the class that is to be the standard class for the reference location in the field *StdClass*.
6. To specify value entries for the class, position your cursor on the class you require and choose *Edit* → *Values*.
The screen *Change Reference Location: Char.Val.Assgmt* is displayed.
7. Enter the values for the specified characteristics.
Use *Goto* → *Back* to return to the screen *Change Functional Location: Classification*.
8. When you have entered the values for all the classes you require, you can return to the PM data screen of the master record by choosing *Goto* → *Back*.
9. Save the changes to master record.

Classifying Functional Locations

Classifying Functional Locations

Prerequisites

- A master record must exist for the functional location
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 202\]](#).

Procedure

1. Select the master record in the screen *Technical Objects* by choosing *FuncLocation → Change*.

You can call up the classification function from the Location Data and the PM Data screens.

2. Choose *Goto → Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System → Classes → Object types → Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Functional Location: Classification* is displayed.

3. Enter the classes to which you want to assign the functional location in the column *Class*.
4. Select the class that is to be the standard class for the functional location in the field *StdClass*.
5. To specify value entries for the class, position your cursor on the class you require and choose *Edit → Values*.

The screen *Change Functional Location: Char.Val.Assgmt.* is displayed.

6. Enter the values for the specified characteristics.

Choose *Goto → Back* to return to the screen *Change Functional Location: Classification*.

7. When you have entered the values for all the classes you require, you can return to the master data screen from which you called up the classification function by using the menu bar sequence *Goto → Back*.
8. Save the changes to master record.

Classifying Equipment

Prerequisites

- A master record must exist for the piece of equipment
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 202\]](#).

Procedure

1. Select the master record in the *Technical Objects* screen by choosing *Equipment* → *Change*.

You can call up the classification function in the General Data, Location Data and PM Data screens.

2. Choose *Goto* → *Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System* → *Classes* → *Object types* → *Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Equipment: Classification* is displayed.

3. Enter the classes to which you want to assign the piece of equipment in the column *Class*.
4. Select the class that is to be the standard class for the piece of equipment in the field *StdClass*.
5. To specify value entries for the class, position your cursor on the class you require and choose *Edit* → *Values*.

The screen *Change Equipment: Char.Val.Assgmt* is displayed.

6. Enter the values for the specified characteristics.

Choose *Goto* → *Back* to return to the screen *Change Equipment: Classification*.

7. When you have entered the values for all the classes you require, you can return to the master data screen from which you called up the classification function by using the menu bar sequence *Goto* → *Back*.
8. Save the changes to master record.

Changing the Classification

Changing the Classification

1. Select the master record of the technical object you require in the change mode.
2. Go to the master data screen you require and in this screen call up the classification by choosing *Goto → Classification*.

The screen *Change <Technical object>: Classification* is displayed.

3. Make all the changes you require:
 - To **delete the assignment** to a class, position the cursor on the class you want to delete and choose *Allocation → Delete*.
Confirm the question in the dialog box.
 - To **assign further** classes, choose *Edit → New allocations*.
The system displays further entry lines in which you can enter the classes.
When assigning classes, proceed as described previously.
 - To **change the standard class**, place your cursor on the class in which you want to enter a new standard class and use the menu bar sequence *Extras → Chge standard class*.
4. When you have made all the changes you require, choose *Goto → Back*.
5. Save the changes to master record.

Document Management for Technical Objects

Use

Information about technical objects that are to be maintained, can also exist in the form of documents (for example, design drawings, programs or photographs). Documents are managed, visualized and archived in the document management system as master records.

As documents are frequently required during the execution of maintenance tasks, you can link directly the document master records with the master record of the technical object. By using the corresponding application or a view program, almost every document can be made available at the work centers concerned.

Prerequisites

Your system administrator has made the necessary settings in Customizing for *Cross-Application Components* under *Document Management System*.

Features

You can:

- Link master records of technical objects to [documents \[Page 208\]](#)
- [Display \[Page 209\]](#) linked documents from master records of the technical objects

For more information, refer to the SAP documentation *CA - Document Management Guide*.

Linking Master Records to Documents

Linking Master Records to Documents

Prerequisites

If you have specified a reference functional location for a **functional location**, you should only assign those documents to the functional location that as a result of their limited validity cannot be linked to the reference functional location.

Procedure

1. Select the master record in the create or change mode.
2. Use the menu bar sequence *Goto → Documents* in any of the master data screens.

The dialog box *Functional Location: Link to Documents*, in which you can select the documents relating to the master record, is displayed.
3. If you want to link the master record with a document, the number of which you do not know, you can use the system **search function**. This is available when you want to link a master record for a technical object to a document in the create or change mode.

Select the function *Find document*.

The screen *Find Documents: Selection Criteria* is displayed.
4. Enter the selection criteria you require.
5. Choose *Execute*.

The system displays a list of all the documents that correspond to your selection criteria.
6. Select the required documents and choose *Continue*.

You return to the master data screen from which you called up the document management system.
7. Save the changes to the master record.

Displaying Documents

1. Select the master record you require.
2. Use the menu bar sequence *Goto → Documents* in any of the master data screens.
The dialog box *Link to Documents* is displayed.
3. In the dialog box *Link to Documents*, place your cursor on the line containing the document you require.
4. Select the function *Display Originals*.

You go to a screen in which the required document is displayed.

Creating Multilingual Texts for Technical Objects

Use

You can create multilingual short texts and long texts for each functional or reference functional location, as well as for pieces of equipment, when you create or change the master record.

In many companies, plant maintenance is performed in several languages for different reasons. Companies may be located, for example, in countries where several languages are spoken (for example, Belgium or Canada) or they may operate plants in countries that have different languages. Technical objects have short texts by which the maintenance planner can identify them and long texts that contain manufacturer descriptions or technical data that should be available in all languages. It is therefore logical to provide these technical objects with short and long texts in more than one language.

Prerequisites

You can only maintain multilingual texts for pieces of equipment when the equipment category set in the system permits this. You define this in Customizing for *Plant Maintenance* under *Equipment and Technical Objects* → *Technical Objects* → *Equipment* → *Allow multilingual text maintenance by EquipCategory*.

Entering Multilingual Short Texts

1. Select the master record of the technical object in the create or change mode.
2. In one of the master record screens, choose *Goto → Multilingual texts*.
You go to the screen *Multilingual Texts*.
3. Assign a language key to each new entry.

DE	for German
EN	for English
FR	for French

4. Enter the short text in the respective language.
5. After you have entered all the short texts, save them by choosing *Texts → Hold*.
You return to the master data screen.
6. Save the master record.

You can enter a long text for the short text. For more information, see [Entering Multilingual Long Texts \[Page 212\]](#).

Entering Multilingual Long Texts

Entering Multilingual Long Texts

1. Select the master record of the technical object in the create or change mode.
2. In one of the master record screens, choose *Goto → Multilingual texts*.
You go to the screen *Multilingual Texts*.
3. Select the short text in the language you want to enter a long text.
4. Choose *Goto → Long text*.
The long text editor screen is displayed.
5. Enter the long text. The *SAPscript* functions are available for this.
6. Save the long text and return to the screen *Multilingual texts* by choosing *Goto → Back*.
The system sets the long text indicator for the language that has been processed.
7. Save the text you entered by choosing *Texts → Hold*.
You return to the master data screen of the technical object.
8. Save the master record.

Administrative Information for Technical Objects

Definition

- Administrative Information for **Functional Locations and Reference Functional Locations**:
 - Date on which the master record was created
 - Name of the user who created the master record
 - Date on which the master record was last changed
 - Name of the user who made the last change

- Administrative Information for **Pieces of Equipment**

Master Data Information	Equipment Usage Information
Date master record was created and date of the last change	Date usage information was created and date of the last change
Name of the person who created and last changed the equipment usage period	Name of the person who created and last changed the equipment usage period
Primary language	Time equipment usage period was created
	Sequential number for the equipment usage period and its time stamp
	Abbreviation for the business transaction in which the equipment usage period was created

For information about changes to a technical object, see [Displaying the Action Log \[Page 215\]](#).

Displaying Administrative Information

Displaying Administrative Information

1. Select one of the master data screens for the technical object in the display mode.
Possible screens from which you can display administrative information:

For functional locations and reference functional locations:	For pieces of equipment
Initial data	General data
Location data	Location data
PM data	PM data
	Sales data
	PRT data

2. Choose *Extras* → *Administrative info*.
The administrative information for the master record is displayed.

Displaying the Action Log

Use

Changes made to pieces of equipment and functional locations are recorded in the action log. This enables you to trace who has made status or data changes to which fields at what time.

In contrast to the administrative information, the action log displays not only the last change to be made, but **all** changes.

Procedure

1. Call up the technical object in the display or change mode.
2. Choose *Extras* → *Action log*.

The action log for the technical object is displayed.

Object Information

Object Information

Definition

Object information is displayed in a dialog box that you can call up for functional locations and pieces of equipment. Using the functions in this dialog box, you can answer many questions that concern the technical object being displayed.

Use

Your system administrator must have defined the object information in Customizing for *Plant Maintenance* under *Equipment and Technical Objects* → *Basic Settings* → *Define object information key*. Depending on these settings, you can use the object information to find out, for example:

- Whether open maintenance notifications exist for the technical object at the present time
- How many maintenance orders had been entered for the technical object between a certain date and the date displayed
- In which structure (location hierarchy, equipment hierarchy) and in which position the technical object is located
- Which object links exist for the technical object
- Which are the next maintenance dates for the technical object
- Which maintenance items there are for the technical object

In addition to this, you also have the option of:

- Directly displaying maintenance notifications and orders for the object
- Directly calling up the PM Information system

Calling up Object Information

1. Select the required functional location or piece of equipment in the display or change mode.
2. In the Location Data, Maintenance Data or (with pieces of equipment) the General Data screen, choose *Extras* → *Object info*.

The screen *Object Information* is displayed.

Permit

Permit

Definition

For some technical objects certain regulations or conditions must be taken into account when using them or performing maintenance work. These regulations are managed in the system as **permits**.

Use

When a maintenance task has to be performed for a technical object and you want a special permit for this to be issued in the maintenance order, you must assign this permit to the technical object. You do this in the master record for the technical object.

You can assign permits to the following technical objects:

- Functional locations
- Equipment

Structure

Because the term 'permit' covers all possible types of regulations or conditions, it is useful to combine individual permits in logical **permit categories** to achieve a better overview of them. You must define the permit categories, **before** you create the individual permits in the system.



The following permit categories are feasible:

- Work permits
- Safety permits

You can create the individual permits -which can be very varied even within the company - once you have defined the permit category for your system in Customizing for *Plant Maintenance*, under *Define permit categories*. For each individual permit, you must specify to which permit category it is assigned.



The following permits are feasible:

- Welding permit
- Vat access permit
- Activation authorization
- Technical inspection certificate

Creating Data for the Permit

Creating Data for the Permit

1. In the screen *Technical Objects*, choose *Environment* → *Permits*.
The screen *Change View "Maintain Permits"* is displayed.
2. Enter a permit category for each permit. You can enter a long text by choosing *Goto* → *Long text*.
3. To process a Detail screen, select the required permit and choose *Goto* → *Detail*.

Assigning a Permit

1. Select the master record for the technical object you require in the change mode.
2. Select the permit screen by choosing *Extras* → *Permits*.
The screen for assigning permits is displayed.
3. Enter data as required.
4. If you want to enter a long text for the permit, select the permit you require in the dialog box for assigning permits, and choose the function *Long text*.
You go to the long text editor.
5. Enter the text you require.
6. Save the long text and return to the dialog box for assigning permits. You will see that the permit you processed has been given a long text indicator.
7. Save the data.

Partner

Partner

Definition

Partners (business partners) are internal and/or external organizational units. For example, internal partners can be logistics and sales departments that perform services. External partners can be customers as service recipients and vendors as supporting service providers. A partner can be a natural or a legal entity. You can use partners in CS and PM processing.

Structure

Partner Type

The following partner types are delivered with the Standard System:

- Customer
- Contact person
- Vendor
- User
- Personnel number
- Organizational unit
- Position

Partner Function

You define partner functions in Customizing for Plant Maintenance and Customer Service. They are freely definable and always refer to a partner type. Standard functions exist (for example, goods recipient) and you can also define your own functions.

Partner Determination Procedure

The partner determination procedure is a grouping of partner functions. It specifies which partner functions are permitted or must always be specified for a particular business transaction (for example, for the processing of a service or maintenance order). In Customizing you define the partner determination procedure and assign partner functions to it. If functions are assigned to the partner determination procedure, you can assign the partner determination procedure to an object (for example, to a notification type).

Integration

You can assign partners to the following objects:

- [Functional location \[Page 375\]](#) and [equipment \[Page 375\]](#)

If you have defined in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Copy Partner Functions to Master and Movement Data*, which partners you want to copy, the system copies the respective partner functions when creating the notification with a technical object. For example, a particular technician, who performs a service to a piece of equipment, is assigned to a

customer. This technician can be specified as the partner in the equipment master record. In this case, the system copies the partner data into the notification.

- [Notification \[Page 885\]](#)
- [Order \[Page 377\]](#)

For more information on partner data in serial numbers see *Management of Serial Numbers* in [Partner Data \[Ext.\]](#).



The system offers you different search helps depending on the partner function. In the Standard System up to now, you could select organizational units using a search term. If the partner function of category *Employee* has been maintained in Customizing, you can search for organizational units using tasks as of Release 4.6C. The system displays a hit list of the organizational units which fulfill this task.

Customizing for Partners

Customizing for Partners

Purpose

You want to work with partners in your company.

Prerequisites

You can make the following settings in Customizing:

Function	Menu Path	What You Should Know
General settings		
You define the partner functions and the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Partner Determination Procedure and Partner Function</i>	If you want to work with partners, first define the partner functions, then define the partner determination procedure, and finally, assign the partner functions to the partner determination procedure.
You assign the partner functions to the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Movement Data</i>	
Notification		
The <i>Partner</i> tab should be visible in the notification	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Notification Types → Set Screen Templates for the Notification Type</i>	

Customizing for Partners

Assign notification type to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Partners → Define Partner Determination Procedure and Partner Function</i>	
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Processing → List Editing → Define Field Selection for Multi-Level List Displays of Notifications</i>	
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the notification. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.
Order		
Define partner determination procedure and assign order types to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Partner → Define Partner Determination Procedure and Partner Function</i>	The partner overview screen can be seen in the order by choosing the <i>Partner</i> tab. By choosing the <i>Overview</i> button, you go to a more detailed overview screen where you are able to perform further settings using the menu.
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the order. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.

Customizing for Partners

You define a transaction variant for the transaction in which an additional partner address is to be entered. Afterwards, you assign the transaction variant to the respective partner function	<i>General Settings → Field Display Characteristics → Configure Application Transaction Fields</i>	You can create a transaction variant per partner function, which defines the field selection.
You want to process the partner in the order header.		Partner Processing in the Order Header [Page 373]
Functional Locations		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Field Selection for Multi-Level List Displays of Functional Locations</i>	
The <i>Partner</i> tab should be visible in the functional location	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign functional location category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Define Category of Functional Location</i>	
Equipment		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Define Field Selection for Multi-Level List Displays of Equipment.</i>	

Customizing for Partners

The <i>Partner</i> tab should be visible in the equipment	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign equipment category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Assign Partner Determination Procedure to Equipment Category</i>	

For more information, refer to the documentation in Customizing for Plant Maintenance and Customer Service.

Partner Transfer

Partner Transfer

Use

You use this function to determine which partner the system copies from an object into the notification, order, and serial number. The system also copies the mandatory partner if one exists.


Features

Data source	Data destination
Master record of a functional location or of a piece of equipment	Notification when creating a notification for the reference object
Master record of a functional location or of a piece of equipment	Order when creating an order for the reference object
Notification	Order when creating an order for the notification
Delivery note	Serial number when posting goods issues



If you change the reference for notifications or orders at a later date, it is possible that the partner data will no longer correspond. You can then decide whether you want to copy the partner data of the new reference object.

Creating a Partner for the Technical Object

1. Call up the technical object in Create or Change mode.
2. Choose .
3. First specify a partner function and then the corresponding partner.
4. Save the data.

Status Management

Status Management

Use

This function deals with general status management and its use for technical objects in Plant Maintenance (technical objects, orders, notifications).

You can use status management to describe and recognize whether particular business transactions can be performed for an object.

There are two types of status:

- [System Status \[Page 231\]](#)
- [User Status \[Page 232\]](#)

Prerequisites

System Status

None

User Status

To use this type of status you must:

1. Create a status profile for the objects concerned
2. Define the user statuses within this status profile
3. Assign the status profile

You maintain the status profile in Customizing for *Plant Maintenance*.

Features

System Status

Generally, all functional locations have the system status *CRTE* (Created). In addition, the system statuses *INAK* (object deactivated) and *DLFL* (deletion flag activated) are possible.

Several system statuses are available for equipment, notifications and orders.

You can display for each object the various business transactions that can be performed for it.

User Status

The functional scope of the user status depends on your settings in Customizing.

System Status

Definition

System statuses are set internally by the system within the framework of general status management when you perform certain business transactions. They inform you that a certain business transaction was performed on an object, which enables you to determine which business transactions you can now perform on the object as a result of this status.

Because system statuses cannot be directly changed by the user and are set automatically by the system when you perform certain business transactions, you can only display them.

Use



A user creates a new piece of equipment in the system. He or she installs it immediately at a functional location and saves it. The system assigns the internal system status “*INST (Installed)*” to the new piece of equipment.

Business transactions that can be performed with this system status are, for example, “*dismantle object*” and “*install object*”. Business transactions that cannot be performed are, for example, “*delivery to customer*” and “*set deletion flag*”.



An order is assigned the status “*REL*”. The system checks the material and production resource/tool availability and possible permit requirements. Goods receipt postings and time confirmations are possible, printing is possible and settlement is possible once this status has been set.

User Status

User Status

Definition

User statuses are defined within a status profile in Customizing for *Plant Maintenance*. You can use them to further limit the business transactions allowed by the various system statuses.



A status profile that has been assigned once can no longer be changed.

You can assign and delete any user statuses that have been defined in your system provided you have the appropriate authorization.

There are generally two types of user status within a status profile:

- User status with status number
- User status without status number

The status number serves to define the possible follow-on statuses for a particular user status. Only one user status with status number can be active at any one time. For more information and an example of the status number, see Customizing for *Plant Maintenance*.

If you want to activate one or more user statuses simultaneously in addition to the user status that is currently active, you must define these as user statuses without status number. Any number of user statuses without status numbers can be active at any one time.

Use



The employee responsible sets the user status "*Equipment in production*" for a piece of equipment that has been created and installed. This restricts the permitted business transactions, as it does not allow the transaction "*Dismantle Equipment*" to be performed.

As a consequence, this piece of equipment cannot be dismantled and installed at another functional location using the replacement transaction as long as it has this user status. The employee responsible must first deactivate the status before the piece of equipment can be dismantled from the current functional location.



You can set the user status "*Blocked for billing*" for an order. The business transaction "Create billing document" is then not allowed.

You can configure the operations "Determine costs" and "Advance shipment" in Customizing for the status profile in such a way that they are allowed, allowed but a warning is displayed, or not allowed.

Displaying the Status and Transactions Allowed

Use

Based on a combination of system and user statuses, there are a certain number of business transactions that the user can perform for an object. There is separate information about these operations for each individual object.

Procedure

1. Select the object for which you want to display the permitted business transactions in the display mode.
2. Choose *Extras* → *Status* in any of the screens.
You are now on the screen *Display Status*.
3. Choose *Extras* → *Business transactions*.
The dialog box *Business Transactions*, in which all the possible transactions are listed, is displayed. You will see:
 - Which business transactions are allowed
 - Which business transactions can only be performed once the system has issued a warning
 - Which business transactions are not allowed
4. For more information on the individual business transactions, position your cursor on the transaction required and select *Transaction analysis*.

Setting a User Status

Setting a User Status

Prerequisites

Your system administrator has defined a status profile in Customizing.

Procedure

1. Select the object for which you want to set a user status in the create or change mode.
2. Choose *Extras* → *Status* in any of the screens.
The screen *Change Status* is displayed.
3. Choose *Edit* → *Set user status*.
The dialog box *User Statuses Allowed*, in which all the user statuses contained in the status profile are listed, is displayed.
4. Select the user status that you want to set.
You return to the screen *Change Status*, and the status you selected appears in the column *User Status*.
5. Choose *Goto* → *Back*.
You return to the screen from which you called up the status management function.
6. Save the data.

Deactivating a User Status

1. Select the object for which you want to delete the user status in the change mode.
2. Choose *Extras* → *Status* in any of the screens.
The screen *Change Status* is displayed.
3. Place the cursor in the column *User Status*, on the status that you want to delete.
4. Choose *Edit* → *Delete user status*.
5. If you do want to delete the status, confirm with *Yes*.

The system deletes the status from the column *User Status*.



You **cannot** delete user statuses that have a status number. You can only overwrite them by assigning another user status with a status number.

To do this, proceed as described in [Setting a User Status \[Page 234\]](#).

6. Choose *Goto* → *Back*.
You return to the screen from which you called up the status management function.
7. Save the changes to the object.

Flagging Master Records for Deletion

Flagging Master Records for Deletion

Use

You use the deletion flag for the master record of a technical object if it is no longer needed in the system.



- There are no longer any functional locations that refer to a particular reference location because this structure type was replaced a long time ago by a more modern one. The master record of the reference location is also no longer needed for evaluation or statistical purposes.
- A piece of equipment was scrapped long time ago. The master record of the piece of equipment is also no longer needed for evaluation or statistical purposes.

You can set and reset deletion flags at any time.

Prerequisites

Do not confuse the deletion **flag** with the deletion **indicator**.

- The deletion **flags** are set by you.
- The deletion **indicators** are set by the preprocessing program for the PM reorganization program.



You cannot reverse the effects of a deletion indicator. If you discover that a master record has inadvertently been given a deletion indicator, you can only transfer its data to a new master record by copying.

Features

What are the Consequences of Setting a Deletion Flag?

When a deletion flag is set for the master record of a technical object, this means that:

- You can now only save it or perform status functions for it
- You can perform further processing and close existing notifications, orders and so on if necessary
- No new dependencies can be defined for it. This means that no new notifications, orders and so on can be created for it.

What Happens When you set a Deletion Flag?

The deletion flag is of prime importance if a data reorganization has to be performed for the *Plant Maintenance (PM)* area. With the aid of a preprocessing program, the system administrator then establishes whether active dependencies belonging to the object marked for deletion still exist in the system. If this is **not** the case, the preprocessing program automatically sets the deletion **indicator** for the master record. Dependencies that are themselves flagged for deletion will no longer be taken into consideration by the program.

Flagging Master Records for Deletion

If no deletion indicators are set for a master record, this means that:

- The master record can no longer be processed in the system
- No dependencies exist for it in the system and no new ones can be created
- The master record will then be archived by the PM reorganization program and physically deleted from the database.

For more information on archiving PM master data, refer to the SAP documentation *CA - Application Data Archiving*.

Deactivating Master Records

Deactivating Master Records

Use

You use this function if:

- The technical object has been scrapped but you want to keep its data in the system for statistical reasons.
This could be the case for an piece of equipment or a functional location.
- There are no more objects that refer to the master record, but you wish to keep the master record data in the system for statistical reasons.
This could be the case for reference functional locations.
- You want to plan a structure in your system, but the structure is not yet under construction.
This could be the case for reference functional locations, functional locations and pieces of equipment.

Features

You can carry out and reverse a deactivation at any time.

Generally, when a master record is deactivated this means that maintenance of the master record itself is still possible, however, no new transaction data can be entered for the master record.

This means, for example, that no new notifications or orders can be entered for a functional location or a piece of equipment and that no new functional locations can be allocated to a reference functional location. Transaction data that already exists for technical objects can, however, still be processed and closed.

Management of Technical Objects

Purpose

The Product Structure Browser is a tool from Product Data Management (PDM) with which you can create, manage and display complex product structures. The following scenarios are possible in Plant Maintenance and Customer Service:

- Creating hierarchical structures for technical objects (for example, functional location hierarchy, equipment hierarchy)
- Changing the structures of technical objects and the master records for technical objects
- Displaying the structure for a particular time in the past and thereby seeing changes (installation, dismantling)
- Displaying environment data within the structure, for example, materials, documents, classes, characteristics
- Generating a workflow task from the structure, sending a technical object, or storing in a folder

Process Flow

1. You create a functional location or piece of equipment as the initial object for the structure. To do this, use the usual create transactions.
For more information, see [Creation Functions for Functional Locations \[Page 92\]](#) or [Creating Equipment \[Page 124\]](#).
2. For the Product Structure Browser, you first define one or more filters from the Plant Maintenance or Customer Service view.
For more information, see [Defining Display Filters for Plant Maintenance \[Page 243\]](#).
3. You activate the filter and call up the initial object in the Product Structure Browser.
4. In the Product Structure Browser, you create subordinate technical objects, include existing technical objects, or copy partial structures.
For more information, see [Creating a Structure \[Page 244\]](#).
5. Once you have created the structure, you process individual technical objects, move them using Drag&Drop, restructure or remove pieces of equipment and relocate partial structures.
For more information, see [Processing a Structure \[Page 246\]](#).
6. You can use a different filter to show environment data, such as materials, documents or classes, in the structure.
For more information, see [Showing Environment Data \[Page 248\]](#).
7. If you change the date, you can consider the status of the structure at a given time in the past and thereby improve your management of the change status of the structure.
For more information, see [Managing Structural Changes \[Page 250\]](#).
8. If follow-up functions result from the processing of a technical object, you generate a workflow task.

Management of Technical Objects

For more information, see [Information About Structural Changes \[Page 251\]](#).

9. If you want to inform your employees of changes to an object, send the technical object as a SAPOffice mail.

For more information, see [Information About Structural Changes \[Page 251\]](#).

10. If you yourself want to create a worklist of objects, which you must change, store these objects in your own object folder.

For more information, see [Information About Structural Changes \[Page 251\]](#).

Refer to:

For more information about the Product Structure Browser in the PDM environment, see [Product Structure Browser \[Ext.\]](#).

Comparison: Structural Display – Product Structure Browser

Use

The following comparison of functions should help you to decide when to use the structural display and Product Structure Browser respectively.

Integration

The structural display is fully integrated into the *Plant Maintenance* (PM) and *Customer Service* (CS) application components. The Product Structure Browser can evaluate objects from different components, including *Materials Management*, *Document Management System*, *Engineering Change Management*, *Production Planning*, *Classification System*, *Plant Maintenance*, *Customer Service* and *Quality Management*.

Prerequisites

There are no prerequisites for the structural display. The Product Structure Browser requires a Windows operating system (32 Bit). With other systems, for example, you cannot use the Drag&Drop functions.

Features

Structural Display Can Be Used to:

- Display the following objects in the structure: Functional locations, pieces of equipment, bills of material
- Display the installed base in which a technical object is used
- Create a notification or order from the structural display for a technical object
- Display whether measuring points, task lists or maintenance plans exist for a technical object

Product Structure Browser Can Be Used to:

- Display the following objects in the structure: Functional locations, pieces of equipment, bills of material, materials, documents, change master records, routings (PP), reference operation sets (PP), classes, characteristics, inspection plans (QM) and material specifications (QM)
- Change, move (using Drag&Drop) or copy technical objects
- Move objects from other structures into the current structure (using Drag&Drop)
- Create new technical objects or build existing technical objects into the structure
- Set or reset a deletion flag for technical objects
- Deactivate or reactivate technical objects
- Display the structure at a particular time
- Generate a workflow task for a technical object in the structure
- Send technical objects or store them in object folders

Comparison: Structural Display – Product Structure Browser

- Change the display of the structure, for example, using filters
- Show and hide the relationships for a technical object to superior and subordinate objects

Defining a Display Filter

Use

Since the Product Structure Browser is a tool that can display a large number of different objects in the R/3 System, you should define your own display filters for Plant Maintenance and Customer Service to help improve performance.

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Choose the *Filters* icon.
3. All the existing filters are displayed.
4. To define a new user-specific filter, choose the *Create filter* icon.
5. Enter a filter name and description. Choose *Continue*, whereupon a display of all the objects appears.
6. Deactivate all the objects that you do not require in your filter display. Equipment, functional locations, materials and bills of material are generally sufficient for Plant Maintenance and Customer Service.
7. Save your data. The new filter is now activated automatically.



Note that a filter defined in this way is user-specific. If you want to define a filter that can be used generally, you must define it in the Customizing for *Logistics - General*.

Result

You have defined a filter that you can select when you call up the Product Structure Browser. To do this, choose the *Filters* icon and activate the required filter. Which filter is active is displayed on the initial screen for the Product Structure Browser. You can change the filter at any time.

Creating a Structure

Creating a Structure

Use

You can use the functions of the Product Structure Browser to create a hierarchy of technical objects from a uniform graphical user interface. Objects that you add to the structure are posted directly to the database and displayed in the browser.



The usual guidelines about creating hierarchical structures of technical objects and data transfer within structures apply for all activities in the Product Structure Browser. For more information, see [Structure Indicators \[Page 90\]](#) and [Data Transfer \[Page 180\]](#).

Prerequisites

For you to create a structure in the Product Structure Browser, at least the uppermost hierarchy node must already be created in the system. Create the uppermost technical object in the hierarchy with the usual create transaction. For more information, see [Creation Functions for Functional Locations \[Page 92\]](#) and [Creating Equipment \[Page 124\]](#).

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Activate the required filter using the *Filters* icon.
3. Enter the uppermost technical object in the hierarchy on the relevant tab page (*Functional location* or *Equipment*) and choose *Continue*. The technical object entered now appears in the browser.
4. Place the cursor on the technical object and call up the context menu using the right mouse button.
5. You can now use the context menu to create subordinate functional locations or pieces of equipment in the system and simultaneously insert them into the structure. To do this, choose the functions *Create subordinate functional location* or *Create equipment* in the context menu.

Complete the master record fields. When you save the master record, the technical object is posted and displayed immediately in the structure.

6. You can use the context menu to insert technical objects, which already exist in the system, in the structure. To do this, choose the function *Reassign hierarchy* or *Install equipment* in the context menu.
7. You can use the context menu to copy branches of your structure. To do this, choose the function *Copy sub-hierarchy* in the context menu.



You can also copy branches from other structures into your new structure. To do this, choose the *Other object* icon and enter the required object. The other structure appears in a screen area. Place the cursor on the technical object to be copied and

Creating a Structure

call up the context menu using the right mouse button. Choose *Copy* if you require the technical object in both structures or *Reassign* if you want to move the technical object from one structure to another.

Processing a Structure

Processing a Structure

Use

The Product Structure Browser makes numerous processing functions available for the functional location and equipment in a structure. You process the technical objects either with Drag&Drop or using the functions in the context menu.

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Activate the required filter using the *Filters* icon.
3. Enter the uppermost technical object in the hierarchy on the relevant tab page (*Functional location* or *Equipment*) and choose *Continue*. The technical object entered now appears in the browser.
4. Place the cursor on the technical object and call up the context menu using the right mouse button. Choose one of the functions available.

Function	Use	Drag&Drop
Change	You can change the master record for a functional location or piece of equipment directly. All the changes are posted immediately.	No
Display	You can display the master record for a functional location or piece of equipment. You can also execute this function with a double-click.	No
Create subordinate functional location	You create a new functional location within the structure. The data for the new functional location is transferred from the selected functional location.	No
Create piece of equipment	You create a new piece of equipment that is installed in the selected technical object. You can install pieces of equipment in functional locations and other pieces of equipment.	No
Reassign or copy sub-hierarchy	You cut or copy a sub-structure. You can re-insert the sub-structure at any place in the structure. Sub-structures can consist of both functional locations and pieces of equipment.	Yes
Install or remove equipment	You remove a piece of equipment from a technical object or install a piece of equipment in a technical object.	No

Processing a Structure

Reassign functional location or equipment	You remove a functional location or piece of equipment from a technical object and install it simultaneously in another technical object.	Yes
Set or reset deletion flag	For more information, see Deletion Flag for Master Records [Page 236] .	No
Activate or deactivate	For more information, see Deactivation of Master Records [Page 238] .	No



The *Rename* function for functional locations requires you to have activated the function for alternative labeling in Customizing. Make sure you are fully aware of the effects of [alternative labeling \[Page 103\]](#) before you use it, since it is not simply a renaming function.

Result

In contrast to the structural display, you can use the Product Structure Browser to process existing structures for technical objects. Since all the changes are posted directly to the database, you can display all the changes in real time.

Showing Environment Data

Showing Environment Data

Use

If you want to show environment data for the technical objects in Plant Maintenance and Customer Service, you should define a second filter.

For more information about environment data for technical objects, see [Classification of Technical Objects \[Page 200\]](#) and [Document Management System for Technical Objects \[Page 207\]](#).

Procedure

1. To define a second filter, proceed as described in [Defining a Display Filter \[Page 243\]](#).
2. Activate the display of the required environment objects for the filter. The following objects are available here:
 - Document, document revision
 - Change number, change notification
 - Material, material revision, material specification
 - Class
 - Characteristic
 - Configuration definition, configuration folder
 - Baseline
 - Bill of material, BOM item
 - Inspection characteristic, master inspection characteristic
3. Save the filter and activate it either immediately or from the structure called up using the *Filters* icon.

Result

As soon as you have activated the new filter, the system triggers the initial object again. You then see the environment data set for each technical object in the structure.

You activate the filter for Plant Maintenance and Customer Service again using the *Filters* icon. Select the required filter and choose *Activate filter*.

Hiding Object Dependencies

Use

Object dependencies are superior and subordinate technical objects for a particular functional location or piece of equipment. These object dependencies are normally displayed in the Product Structure Browser for each individual technical object.

If you hide these object dependencies, they are no longer displayed as nodes in the tree structure, and the text lines, which specify the relationship type, are thereby removed. The object dependencies only reappear when you call up the context menu.

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Choose the *Settings* icon and select the field *Dependencies in context menu*.
3. Then activate the required filter using the *Filters* icon.
4. Enter the uppermost technical object in the hierarchy on the relevant tab page (*Functional location* or *Equipment*) and choose *Continue*. The technical object entered now appears in the browser as an individual object without sub-nodes.
5. Place the cursor on the technical object and call up the context menu using the right mouse button. The entry *Dependencies* also appears in the context menu.
6. Choose *Dependencies* and display the subordinate technical objects level by level.

Result

When you hide the object dependencies, the display of the structure becomes clearer and more similar to the structural display.

Managing Structural Changes

Managing Structural Changes

Use

When extending or changing structures, it is advisable to consider what the structure looked like at a given time. The Product Structure Browser enables you to call up the structure for any date. In this way, you can check and manage structural changes over any period of time.

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Choose the *Selection date* icon.
3. Reset the validity date by entering any date from the past and confirm using *Continue*.
4. Activate the required filter using the *Filters* icon.
5. Enter the uppermost technical object in the hierarchy on the relevant tab page (*Functional location* or *Equipment*) and choose *Continue*. The technical object entered now appears in the browser. The validity date entered in the structure is shown in the upper section of the screen.

Result

An historical structure appears. To call up the current status, return to the initial screen and set the validity date to the current date.

Information About Structural Changes

Use

When you process structures, it may be necessary to inform other users about the changes made. All the changes are posted directly in the Product Structure Browser, so that you can send a mail to the processor responsible, informing them of a change made.

From the Product Structure Browser, you can also trigger actions based on changes by using the SAP Business Workflow. You can generate defined tasks for each object and send them to a user.

Prerequisites

You use SAPOffice mail and SAP Business Workflow using the Business Workplace. For more information, see [Business Workplace \[Ext.\]](#).

Procedure

1. Start the Product Structure Browser by choosing *Logistics → Central Functions → Engineering → Environment → Product Structure*.
2. Activate the required filter using the *Filters* icon.
3. Enter the uppermost technical object in the hierarchy on the relevant tab page (*Functional location* or *Equipment*) and choose *Continue*. The technical object entered now appears in the browser.
4. Place the cursor on the technical object and call up the context menu using the right mouse button.
5. If you choose *Send*, you can process a SAPOffice mail document. Enter a short text, long text, and the user name of the recipient. The relevant technical object is sent as an attachment to the mail document.
6. If you choose *Create work item*, you can generate a new work item for existing workflow tasks for a processor. Enter the name of the person responsible and choose *Continue*. Then select the relevant line and choose *Create task*. As soon as the task has been generated, you can use *Cancel* to exit the screen and return to the structure.
7. If you choose *Create in object folder*, the system branches to your personal folder in the Business Workplace. Choose a folder and confirm using *Continue*. The technical object is now stored in your folder.

Result

Mail documents and workflow tasks are sent to the Business Workplace. You can also maintain your folders in the Business Workplace. On the initial SAP screen, choose *Office → Workplace*. You can find your workflow tasks under *Workflow*, and your mail documents under *Unread documents*.

Measuring Points and Counters (CS-IB-MC/PM-EQM-SF-MPC)

Purpose

You use this component in *Plant Maintenance* (PM) or *Customer Service* (CS) to enter measurement and counter readings for [technical objects](#) [Page 72]. This can be of use in the following situations:

- You want to document the condition of a technical object at a particular point in time.
Documenting the condition of a particular object is of great importance in cases where detailed records regarding the correct condition have to be kept for legal reasons. This could involve critical values recorded for environmental protection purposes, hazardous working areas that are monitored for health and safety reasons, the condition of equipment in hospitals (intensive care units), as well as measurements of emissions and pollution for objects of all types.
- You want to perform [counter-based maintenance](#) [Page 261].
Condition and counter-based maintenance tasks are forms of preventive maintenance. Generally, these tasks should reduce the number of breakdowns for your objects.
In the case of counter-based maintenance, maintenance activities are always performed when the counter of the technical object has reached a particular counter reading, for example, every 100 operating hours.
- You want to perform [condition-based maintenance](#) [Page 263].
In the case of condition-based maintenance, maintenance activities are always performed when the measuring point of a technical object has reached a particular state, for example, every time a brake pad has been worn away to the minimum thickness permitted.

Integration

This component is composed as follows:

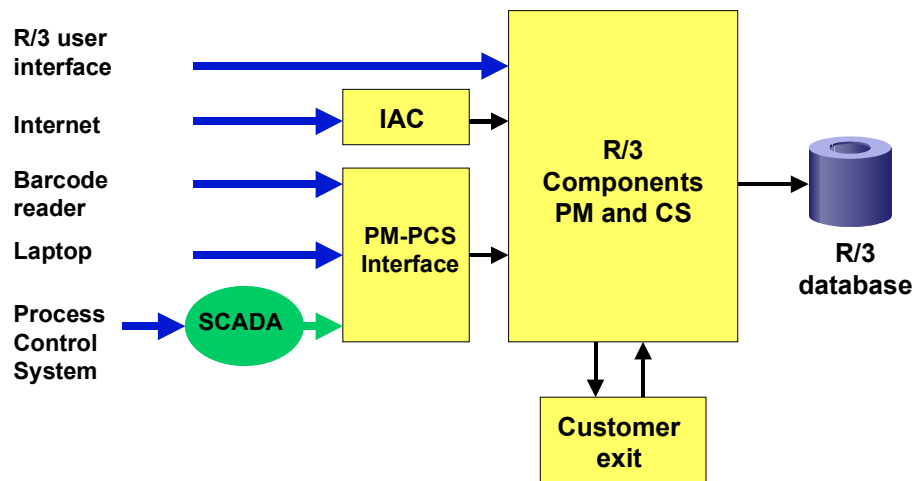
- You enter data manually into the R/3 System using the R/3 user interface.
- You use the [Internet Application Component](#) [Ext.] (IAC) to enter data in an entry screen in the browser and transfer this data to the R/3 System using the Internet.
- You can enter data using a [barcode](#) [Page 270] reader and transfer it to the R/3 System using the [PM-PCS interface](#) [Ext.].
The PM-PCS Interface is an interface between the R/3 System and external systems, such as a Process Control System (PCS).
- You can enter data using a laptop and transfer it to the R/3 System using the PM-PCS Interface.
- Data from a process control system is data that arises during the monitoring, control, regulation, and optimization of a technical process. You can transfer this data to the R/3 System using the PM-PCS Interface.

Measuring Points and Counters (CS-IB-MC/PM-EQM-SF-MPC)

When transferring data, you can use a SCADA System (Supervisory Control and Data Acquisition System) which filters the data from the process control system and only transfers the data that is actually relevant to the R/3 System.

- You can use the [customer exit \[Page 265\]](#) to automate your business processes.

Overview of all Elements of the Component *Measuring Points and Counters*



For more information on the maintenance planning functions in the R/3 System (for example, creating a maintenance plan, scheduling) see [Maintenance Planning \[Page 521\]](#).

Features

Within the R/3 components PM and CS, the component *Measuring Points and Counters* is divided into:

- [Basic functions \[Page 273\]](#), which are the prerequisites for using measuring points and counters
- [Additional functions \[Page 292\]](#), whose use is optional

Measuring Point

Measuring Point

Definition

Measuring points in the R/3 System describe the physical and/or logical locations at which a condition is described, (for example, the coolant temperature in a nuclear power station after the coolant has left the pressure vessel, or the number of revolutions at a rotor shaft of a wind-driven power plant).

In Plant Maintenance, measuring points are located on technical objects, in other words, on pieces of equipment or functional locations. For example, in a storeroom for fruit, a certain room temperature has to be created and maintained. The temperature is kept constant by a regulator, and is also checked regularly by a measuring device. The storeroom is represented in the system as functional location SR1-FR2. The temperature measuring device is then created as measuring point 23 for functional location SR1-FR2.

Use

Measurement readings are taken at measuring points in particular measurement units at particular intervals. For example, the temperature in degrees Celsius of the coolant in the coolant pipe that leaves the pressure vessel at the nuclear power station, or the number of revolutions per minute at the rotor shaft of the wind-driven power plant.

Measurement readings describe a condition at a measuring point at a particular point in time, and represent the transaction data for measuring points in the R/3 System. They are documented in the form of [measurement documents \[Page 260\]](#).

In many cases, there may be an optimum value for a particular measuring point to which the device concerned is calibrated. You can specify this measurement reading as a **target value** for the measuring point.

You can enter measurement readings in three different forms:

Valuation	Use	Example
Quantitative	The current reading measured is entered in the system. The unit of the measurement reading (degrees Celsius in the above example) is defined by the characteristic in the master record of the measuring point.	February 2, 2000, 14.00: 25 degrees Celsius
Qualitative	A valuation code is entered in the system that gives the meaning of the current reading measured. You can only enter a solely qualitative valuation if you have specified this in the system explicitly for the measuring point concerned.	February 2, 2000, 14.00: Temperature is normal

Measuring Point

This is a combination of a quantitative and qualitative valuation.	The current reading measured is entered in the system together with a valuation code.	February 2, 2000, 14.00: 25 degrees Celsius Temperature is normal
--	---	---

Structure

To enable you to differentiate more easily between the individual measuring points and provide them with a unit, you assign each measuring point to a characteristic from the classification system.

You can only use characteristics that are numerical and to which a unit (for example, 'degrees Celsius', or 'millimeters') has been assigned. You can use the characteristics to evaluate similar measuring points.

Measuring Point Category

Before you can create measuring points or counters, the valid measuring point categories must be defined in Customizing for *Measuring Points, Counters and Measurement Documents*.

For many measuring points, the same measuring point attributes are valid. For example, the number of the measurement position might have to be unique for each client, and a particular catalog type for code groups is valid for all measuring points. Measuring points are grouped in the system by measuring point category. Each measuring point category is identified by a key, which is the first thing you assign to the measuring point when you create it in the system.

You might have the following measuring point categories in a system:

Measuring Point Category	Attributes
B Measuring points whose values are read by users	<ul style="list-style-type: none"> • Time of measurement reading cannot lie in the future • Measurement position must be unique for each object • Catalog type 9 • Warning in the event of readings above/below the measurement range
A Measuring points whose values are transferred automatically from process control systems	<ul style="list-style-type: none"> • Time of measurement can lie up to two hours in the future • Measurement position number must be unique for the whole client • Catalog type 9 • Error in the event of readings above/below the measurement range

Measuring Point

Measurement Position

Measuring points are uniquely identified by the numbers that they are assigned internally. Since this number is not descriptive, you have the option of giving the measuring point a text or a descriptive number to describe the position of a measuring point at a technical object. You can do this in the field *MeasPosition* in the master record of the measuring point.

Measuring Point	Measurement Position	Description
261	P-FR	Front right tire
262	P-FL	Front left tire

The overview of an object's measuring points is always sorted by the system on the basis of the measurement position. You can change the entry in the field *MeasPosition* at any time, for example, if you determine after a few months that a particular measurement position at which measurements are taken very frequently is too far down the list.

The entry in the field *MeasPosition* only needs to be unique if this has been defined in Customizing for your system. In Customizing, you can define that the measurement positions of a measuring point category:

- Can be entered without a check for uniqueness
- Must be unique for each technical object
- Must be unique within a client

Measurement Range

The measurement range represents the values that a measuring instrument or counter can display. For example, a thermometer can measure temperatures in a measurement range between -20 and +45 degrees Celsius, or a tape measure can measure lengths in a measurement range between 0 and 10 meters.

Measurement Range Limit

In the case of **measuring points**, you can define that only readings that fall between the upper and lower limits are possible. If, for example, the thermometer in your company can only display temperatures in a measurement range between -20 and +45 degrees Celsius, a measurement reading of 90 degrees Celsius is outside the measurement range limit.

In the case of **counters**, the measurement range limits do not apply to the counter readings that are read, but to the total counter reading determined by the system. For example, a milometer can display values from 0 to 99,999. Since vehicles of this category have an expected life of 200,000 miles as a general rule, a counter overflow will occur several times before this total counter reading is reached. The employee responsible will enter a measurement range of 0 to 200,000 for the milometer.

You can define in Customizing for *Measuring Points, Counters and Measurement Documents* that the system issues a warning or an error message in the event of the measurement falling outside the measurement range. If you use the [customer exit IMRC0001 \[Page 265\]](#), you can trigger a follow-on event that you have defined when the measurement range is exceeded, such as the creation of a notification or an order.

Measurement Range Unit

You use the measurement range unit to define the unit in which the measurement is made by the measuring instrument. This unit does not have to correspond to the unit of the characteristic that you have assigned to the measuring point or counter. However, it must share the same dimension in order that the system can convert the entry in the measurement document into the unit of measure of the characteristic. If you have, for example, assigned a characteristic with the unit “degrees Celsius” to a measuring point, you can enter “degrees Fahrenheit” as the measurement range unit, if this is the unit of the thermometer being used. However, units such as “meters” or “kilograms” are not possible in this case, as they do not belong to the same dimension “temperature”.

Counter

Counter

Definition

Tools that you use to represent the wear and tear of an object, consumption, or the reduction of an object's useful life are described as counters in the R/3 System (for example, the milometer for a vehicle, or an electricity meter for an electric-powered system).

In Plant Maintenance, counters are located on technical objects, in other words, on pieces of equipment or functional locations. For example, in the reservoir of a clarification plant, the volume of sewage that flows out of the drainage channels into this reservoir is measured in m³. The filtering tank is represented in the system as functional location C1-BR1. The waste water counter is designated as a counter 12 for functional location C1-BR1.

Counters form the basis for [counter-based maintenance \[Page 261\]](#).

Use

Counter readings are taken at counters at particular intervals and in particular measurement units. For example, counter readings for kilometers driven or electricity used.

Counter readings describe a status at a counter at a particular point in time, and represent the transaction data for counters in the R/3 System. They are documented in the form of [measurement documents \[Page 260\]](#).

Counters are a special form of [measuring point \[Page 254\]](#) because over the course of time, counter readings only either continuously rise or fall. Counter overflow is also possible in the case of most counters. For example, a milometer can display a maximum value of 99,999 miles. Once this reading has been reached, an overflow occurs, in other words, the counter starts to count upwards from 00,000 again.

Counter readings can be entered in the system in two different ways. In both cases, a qualitative valuation is made:

- The **absolute counter reading** is entered in the system as the counter reading that the counter is currently displaying (for example, 02.01.2000, 14.00, 48,200 miles).
- The **counter reading difference** between the last reading and the current reading is entered in the system (for example, 02.01.2000, 14.00, 200 (additional) miles).

As with measurement readings, you can also enter a qualitative valuation for counter readings, using a valuation code (for example, 02.01.2000, 14.00, 48,200 miles, above-average increase of milometer reading).

You cannot make a solely qualitative valuation in the case of counters.

If you are dealing with counter-based maintenance, you can display the maintenance plans in which a counter is used in the master record of that counter. You have the following options for doing this:

- In the list of measuring points and counters, select the required counter and choose *Environment* → *Usage in MaintPlans*.
- In the detail screen of general data for the counter, choose *Environment* → *Usage in MaintPlans*.

Measurement Document

Definition

The data transferred to the system after a measurement has been taken at a measuring point or a counter is described in the R/3 System as a measurement document. This transfer can be performed automatically or manually. The measurement document is therefore the result of a measurement or counter reading being entered in the system.

Structure

A data record for a measurement document comprises the following groups of data:

- Measuring point data
This includes measuring point number, measurement position, description, characteristic and unit.
- Measurement result data
This includes the time of the measurement or reading (time stamp) to the exact second, the measurement or counter reading, and any qualitative judgment regarding the result of the measurement.
- Possible additional information (as short and long text)
This includes information about which employee who took the measurement or counter reading, and where necessary, the number of the measurement document from which the measurement or counter reading result has been copied.

You can also assign a **processing status** to the measurement document. This can indicate whether:

- Action must be taken as a result of the measurement or counter reading being taken
- The action to be taken as a result of the measurement or counter reading is already covered by a planned maintenance task

The system records both the entries converted to the unit of the characteristic and the **original entries** of the user, that may have been made in a different unit to that of the characteristic unit. This enables you to check later on, whether unusual values are the result of entries made incorrectly or conversion errors.

If you change a measurement document, the system saves your changes in the form of **change documents**. The measurement document also contains the user who created it and the user who last changed it in its **administrative data**. You can only change the processing status, and the short or long text.

You can **archive** measurement documents in the same way as a normal R/3 object.

Counter-Based Maintenance

Purpose

In the case of counter-based maintenance, maintenance activities are performed when the counter of the technical object has reached a particular counter reading, for example, every 100 operating hours. Counter-based maintenance can be employed for technical systems within the process, energy supply, or aviation industries.

Process Flow

The following example describes a process scenario.

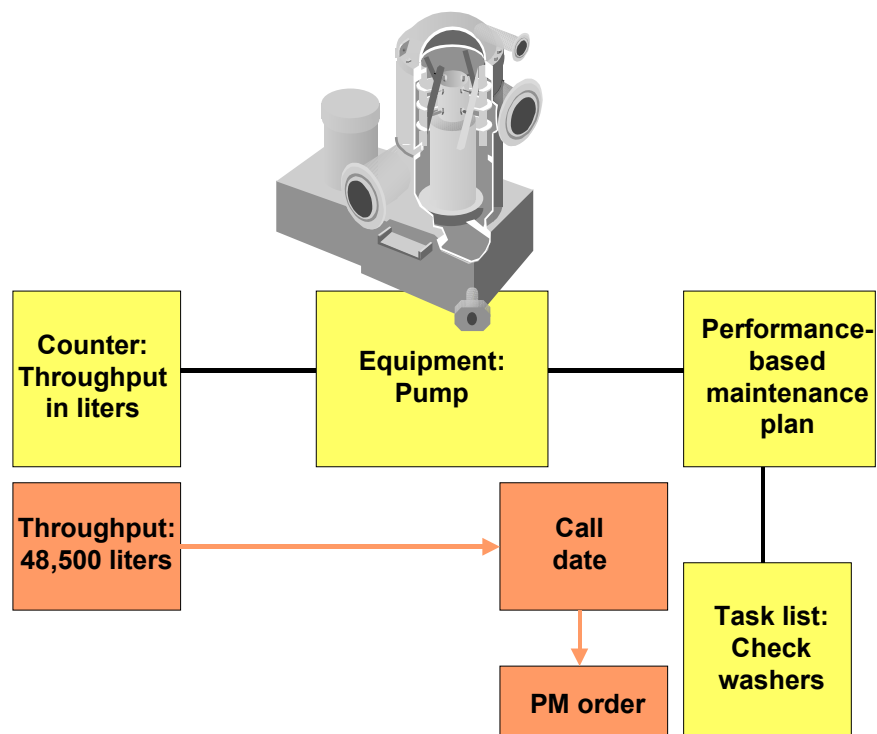
You want to check the washers of a pump every time 50,000 liters of water have flowed through it. The pump is represented in the R/3 System as a piece of [equipment \[Page 121\]](#). The equipment has a counter that measures the volume of water that flows through it. The maintenance of the equipment is based on a performance-based maintenance plan. This maintenance plan is linked to a task list in which all necessary operations for checking the washers are recorded.

In this example, the system creates a maintenance order with the operations from the task list. However, a maintenance notification, service order, or a service notification can also be created.

1. You create a measuring point for the piece of equipment "Pump". For more information, see [Creating Measuring Points and Counters \[Page 274\]](#).
2. You create a measurement document for this measuring point. This document serves as an initial document, meaning that all further counter readings or counter reading differences are calculated on the basis of this measurement document.
3. The system calculates the planned date by which 50,000 liters must have flowed through the pump. Your technician should check the washers on this planned date.
4. The system then calculates the call date on which the maintenance order is created. You have defined the call date before the planned date, so that you will have enough time to schedule and dispatch a technician.
5. You create further measurement documents over the course of time. The volume of water flowing through the pump increases.
6. Each time you create a new measurement document, the system recalculates the planned date.
7. The call date is reached when 48,500 liters have flowed through the pump and the system generates a maintenance order with the data from the task list.
8. Because the system created the maintenance order in good time, your technician can check the pump when the volume has reached 50,000 liters.

Counter-Based Maintenance

Creating a Maintenance Order for Counter-Based Maintenance



For more information on the maintenance planning functions in the R/3 System (for example, creating a maintenance plan, performing scheduling) see [Maintenance Planning \[Page 521\]](#).

Condition-Based Maintenance

Purpose

In the case of condition-based maintenance, maintenance activities are always performed when the measuring point of a technical object has reached a particular state, for example, every time a brake pad has been worn away to the minimum thickness permitted.

Prerequisites

In the following example process, you use the [PM-PCS Interface \[Ext.\]](#) and the [customer exit IMRC0001 \[Page 265\]](#). The PM-PCS Interface is an interface between the R/3 System and external systems such as a Process Control System (PCS).

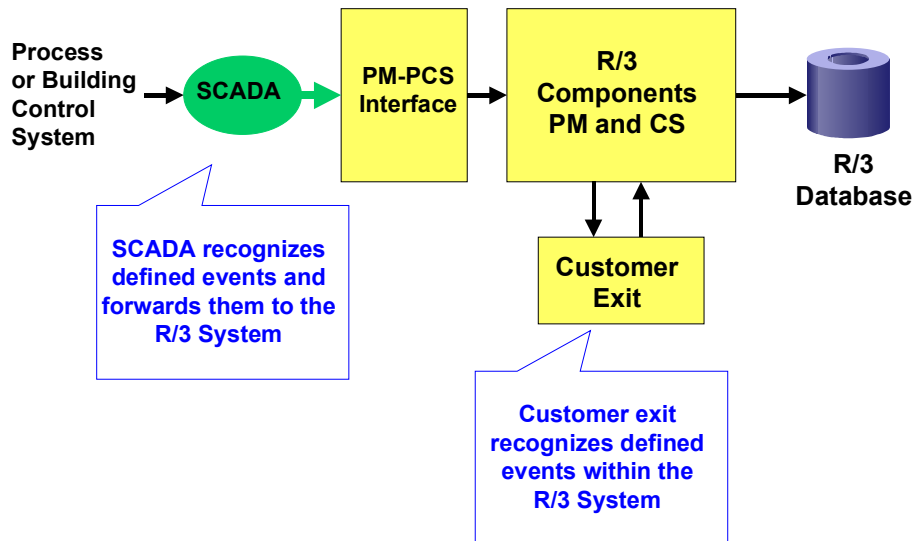
Process Flow

The following example describes a process scenario.

You use a building control system to monitor a building's air conditioning system. You use a SCADA system (Supervisory Control And Data Acquisition system) that recognizes events that you have predefined. You define one of the events so that the drop in pressure at an air filter may not be greater than 50 mbar. The air filters are changed once a year, but when there is such a great loss in pressure, a note can be used to indicate that the air filter is dirty and must be exchanged earlier.

1. Each time 50 mbar is exceeded, the SCADA system transfers this in the form of a measurement reading (for example, 52 mbar) via the PM-PCS interface to the R/3 System.
2. The R/3 System generates a measurement document and a malfunction report for the measurement reading of 52 mbar.
3. The R/3 System recognizes 53 mbar as a measurement that exceeds the threshold value of 50 mbar, or as the valuation code "Measurement reading not OK".
4. In addition to the malfunction report, the R/3 System can trigger other events, for example, a customer-specific workflow, using customer exit IMRC0001.

Condition-Based Maintenance



For more information on the maintenance planning functions in the R/3 System (for example, creating a maintenance plan, performing scheduling) see [Maintenance Planning \[Page 521\]](#).

Customer Exit IMRC0001

Use

You can use this customer exit and the function modules behind it to:

- Define particular field contents in measuring points, counters and measurement documents
- Define and trigger automated business processes
- Update customer-specific tables

Features

You have the following options for automating business processes with the customer exit IMRC0001:

- Condition-based maintenance
- Scheduling maintenance plans
- Internal cost assignment

Condition-Based Maintenance

The system automatically triggers a malfunction notification when particular threshold values are exceeded, or if particular valuation codes occur.

You can define measurement range limits, meaning a value range in which the measurement results may lie, for each technical object. In Customizing for *Measuring Points, Counters and Measurement Documents*, you can configure the settings so that the system issues a warning or an error message in the event of the measurement exceeding the measurement range.

You can also define that a malfunction notification is triggered when measurement readings exceed a particular threshold value. Customer exits can be used in the notification to trigger further tasks, such as the creation of an order.

The **valuation code** is a standardized code for valuating the measurement reading, and is specified in addition to the measurement reading. For example, measurement reading *100 degrees Celsius* with valuation code *0001* (which means “*Measurement OK*”), measurement reading *105 degrees Celsius* with the valuation code “*Measurement reading not OK*”.

In certain cases, it is sufficient to specify a valuation code (for example, *1000 “Fire door OK”, 1001 “Fire door damaged”, 2001 “Fire door: no local alarm”, 2002 “Fire door: no alarm in central control office”*).

In the case of valuation codes that you have defined, the system can automatically trigger a malfunction notification that already contains the text of the valuation code as the malfunction description.

Scheduling Maintenance Plans

The system can schedule maintenance plans automatically. Scheduling is started each time a measurement document is saved. It makes sense to use this customer exit if you have a large number of maintenance plans, but only a few measurement and counter readings.

Customer Exit IMRC0001**Internal Cost Assignment**

You can use this customer exit to perform consumption billing (for example, for electricity, gas, water) in the form of internal cost assignment. This would mean, for example, that the heating costs for a technical system are passed on to the appropriate production cost center, or the water costs for a block of flats are passed on to the individual tenants.

For example, you can assign a meter for heating costs to a technical system that you represent in the R/3 System as a [functional location \[Page 76\]](#). You enter the cost center of the functional location in the master record of this functional location. You then define the events to be passed on using customer-specific fields. For example, the system can pass on the heating costs each time 1000 heating units are used.

Activities

To call up the online documentation for the customer exit and for the function module, proceed as described in [Calling up Documentation for the Exit \[Page 267\]](#).

Calling up Documentation for the Exit

Calling up Documentation for the Customer Exit IMRC0001

1. Choose *Tools* → *ABAP Workbench*.
2. Then choose *Utilities* → *Enhancements* → *Project management*.
3. Enter **IMRC0001** and select *Documentation* as the object component.
4. Choose *Display* and the online documentation is displayed.

Calling up Documentation for the Function Module EXIT_SAPLIMR0_001

1. Choose *Tools* → *ABAP Workbench*.
2. Then choose *Development* → *Function Builder*.
3. Enter **EXIT_SAPLIMR0_001** and select *Interface* as the object component.
4. Choose *Display*.
5. Choose *Goto* → *Further options* → *Documentation* → *Function module doc.* and the online documentation is displayed.

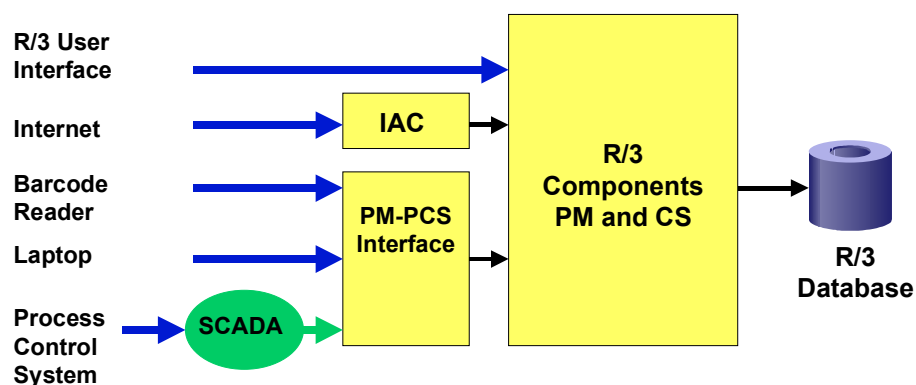
Entering Measurement and Counter Readings

Entering Measurement and Counter Readings

Use

You have five different options for entering measurement and counter readings in the R/3 System.

Overview of all Options for Entering Measurement and Counter Readings



The PM-PCS Interface is an interface between the R/3 System and external systems, such as a Process Control System (PCS). Data from a process control system is data that arises during the monitoring, control, regulation, and optimization of a technical process. You can transfer this data to the R/3 System via the PM-PCS Interface. When transferring data, you can use a SCADA System (Supervisory Control and Data Acquisition System) which filters the data from the process control system and only transfers the data that is actually relevant to the R/3 System.

Features

Option for Entering Measurement and Counter Readings	Transfer into the R/3 System	For more information, see:

Entering Measurement and Counter Readings

R/3 User Interface	No transfer, because data is created directly in the R/3 System.	Creating a Measurement Document [Page 286]
Internet Application Components	The data is transferred via the Internet into the R/3 System.	Entering Measurement and Counter Readings in the Internet [Ext.]
Barcode Reader	The data is transferred via the PM-PCS Interface into the R/3 System.	Entering Measurement and Counter Readings As Barcodes [Page 270] PM-PCS Interface [Ext.]
Laptop	The data is transferred via the PM-PCS Interface into the R/3 System.	PM-PCS Interface [Ext.]
Process Control System with SCADA system (Supervisory Control And Data Acquisition system)	The data is transferred via the PM-PCS Interface into the R/3 System.	PM-PCS Interface [Ext.]

Entering Measurement and Counter Readings as Barcodes

Entering Measurement and Counter Readings as Barcodes

Purpose

You use barcode readers for entering measurement and counter readings if:


- You have to take a large number of readings
- You have to enter barcode IDs of ten or more digits
- You require a robust device for entering data


The following scenarios illustrate the use of barcode readers.


Scenario 1: Barcode ID and Valuation Code are Scanned


You have represented a building in the R/3 System using a hierarchy of functional locations, including the fire doors. Each fire door is assigned a measuring point that is represented by a barcode ID. Once a month, each individual fire door is checked. Most of the time, the result of inspection is "Door is OK", but this inspection result should also be documented in the R/3 System.


The possible defects can be represented clearly using valuation codes. The valuation code is also entered in barcode form. Defects that are determined during the inspection must trigger the creation of a malfunction notification in the R/3 System.





012589090001000


012589090001001


012589090001002


012589090001003


012589090001004

Valuation code	Condition of fire doors
1000	Fire door OK
1001	Door rubs on the floor
1002	Closing power too weak
1003	Closing power too strong
1004	Time to close greater than 60 seconds

Entering Measurement and Counter Readings as Barcodes

Scenario 2: Barcode ID is Scanned, Counter Reading is Entered Manually

You have represented a block of flats in the R/3 System using a hierarchy of functional locations. Each flat is assigned an electricity meter that is represented by a barcode ID. The electricity meter is read once a year.

The meter reading cannot be entered as a barcode, but is instead entered manually by the meter reader using a key pad on the barcode reader. Consumption billing is performed in the industry-specific component *Real Estate Management* (RE) on the basis of the meter readings that are entered in the R/3 System.

Prerequisites

You need a barcode reader device with the appropriate transfer programs.

To be able to transfer the data from the barcode reader to the R/3 System, use the [PM-PCS Interface \[Ext.\]](#). If you want to create automatically malfunction notifications for the measurement document, use the [customer exit IMRC0001 \[Page 265\]](#).

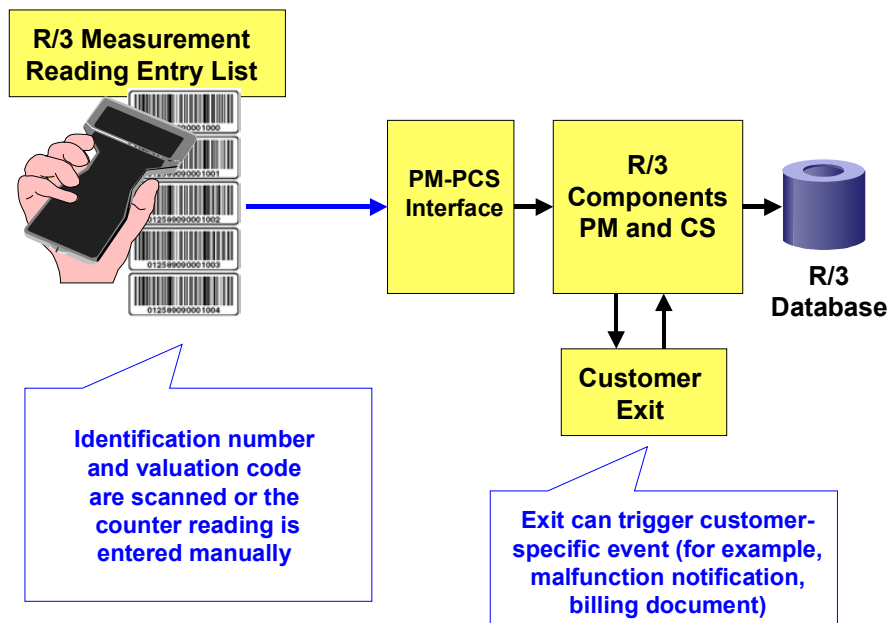
If you want to print out barcodes from the R/3 System using SAPscript, you can find out about the prerequisites for doing this in the Online Service System note 5196.

Process Flow

1. You compile a list of the measuring points and counters in the sequence that they will be read in preparation for this to be done. This list is represented in the R/3 System as a [measurement reading entry list \[Page 300\]](#).
2. The person taking the readings first scans the barcode ID for each measuring point and counter with a barcode reader.
3. In Scenario 1, the person taking the readings scans one of the valuation codes that is on their list.
In Scenario 2, the person taking the readings enters the counter reading manually.
4. After all the measurement and counter readings have been taken, you transfer the data from the barcode reader via infra-red to the docking station. The barcode reader supplies the data that is transferred to the R/3 System via the PM-PCS Interface.
5. The R/3 System generates a measurement document for each measurement and counter reading.
6. If you are using the customer exit IMRC0001, the system generates a malfunction notification in Scenario 1 for each measurement document that has one of the valuation codes predefined by you.

In Scenario 2, the measurement document forms the basis on which consumption billing is performed in the industry-specific component *Real Estate Management*.

Entering Measurement and Counter Readings as Barcodes



Basic Functions

Use

These functions are obligatory if you are using measuring points, counters and measurement documents in the R/3 System. You use them in the R/3 user interface to create master records for measuring points and counters, to process the master records and to create measurement documents for them.

Even if you do not enter measurement and counter readings via the R/3 user interface, but instead automatically or semi-automatically (for example, via a process control system or barcode) you must still first create the master records for the measuring points and counters.

Features

The following functions are basic functions:

- [Creating Measuring Points and Counters \[Page 274\]](#)

You create the master records for measuring points and counters and assign them to a technical object. This can be a piece of equipment or a functional location.

- [Processing Measuring Points and Counters \[Page 284\]](#)

If you want to make changes in the master record of a measuring point or counter, you can either call up this master record directly, or from the master record of the technical object that is assigned to it.

- [Creating Measurement Documents \[Page 286\]](#)

- [Processing Measurement Documents \[Page 288\]](#)

Measurement and counter readings are represented in the R/3 System as measurement documents. You can create measurement documents for the following objects:

- For a technical object (for example, in the case of routine readings and measurements)
- For several measuring points and counters simultaneously
- For several technical objects simultaneously
- For a notification
- For an order (using the technical completion confirmation)

Creating Measuring Points and Counters

Creating Measuring Points and Counters

Prerequisites

Definition of Measuring Point Categories

Before you can create measuring points and counters in the system, you must first define the measuring point categories that are valid for your system using the Customizing function.

Creating Characteristics

Next, you must ensure that the characteristics that you want to assign to the measuring points and counters, were created using the classification system. You can access characteristics within the framework of measuring point and counter processing, using the following menu paths:

- *Logistics* → *Plant maintenance* → *Technical objects* → *<Technical object>* → *<Processing mode>* → *Extras* → *Measuring points/counters* → *Environment* → *Characteristics* → *<Processing mode>*
- *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Measuring points* → *<Processing mode>* → *Environment* → *Characteristics* → *<Processing mode>*

For more information on how to process characteristics, see the SAP documentation *MM - Characteristics*.

Creating Code Groups

If you want to qualitatively evaluate measurement and counter readings, the code groups you specify in the master records of measuring points and counters for this purpose must have been created in the system.

For more information on how to process code groups, see the SAP documentation *PM - Maintenance Notifications*.

Process Flow

	Creating a measuring point/counter when processing a technical object	Creating a measuring point/counter directly
1.	You call up the master record of the technical object from the screen <i>Maintain Measuring Points: Overview</i> .	You call up the initial screen directly.
2.	If you want to create a counter, you select the field <i>MeasPoint is counter</i> .	
3.	You enter data as required in the overview screen.	You make reference to a technical object in the initial screen.

Creating Measuring Points and Counters

4.	The system assigns a number for the measuring point or counter.
5.	You enter data as required in the detail data screen.

Creating Measuring Points When Processing a Technical Object

Creating Measuring Points When Processing a Technical Object

1. In the create or change mode, call up the technical object that you want to create measuring points for.

For more information on how to create or change a technical object, see the documentation *PM - Structuring Technical Systems*.

2. Call up one of the master record screens of the technical object.
3. Choose *Extras* → *Measuring points/counters*.

The overview screen for maintaining measuring points and counters for the object is displayed.

4. For each measuring point that you want to assign to the technical object, fill out the two lines provided with the necessary data.



Bear in mind the following rules:

If you want to enter quantitative measurement results for the measuring point (for example, 20 degrees Celsius, 10 cm, 300 ampere, 1000 candela), you must assign a numerical characteristic to it with the required unit.

If you want to enter qualitative measurement results for the measuring point (for example, sufficient, low, too high, too dry), you must assign the required code group to it.

If the entry of qualitative measurement results in the form of an evaluation code is sufficient for a measuring point, you do not need to enter any characteristics for the measuring point. You just specify a code group and later select the field *ValCode sufficient* in the detail screen with the general data for the measuring point.

If you want, you can assign both a characteristic and a code group to a measuring point.

5. After you have made all the necessary entries, choose *Continue*.

The system then assigns a number from an internal number range to each measuring point.

If you have already entered the measurement position for each measuring point, the system sorts the measuring points according to entries in the field *MeasPosition*.

6. For further processing of the measuring points, you must switch to individual processing for each measuring point.

To do this, select the measuring point that you want to process, and choose *Goto* → *MeasPoint*.

This brings you to the detail screen for the measuring point, where you can maintain its general data.

7. Enter data as required.

Creating Measuring Points When Processing a Technical Object

If the entry of qualitative measurement results is sufficient for a measuring point, and you have therefore only entered a code group (no characteristic) for it, select the field *ValCode sufficient*.

Make any other necessary entries. For more information on this, see the detailed descriptions in the following topics:

- [Defining a Measurement Range \[Page 283\]](#)
 - [Defining Data for a Measurement/Counter Reading Transfer \[Page 296\]](#)
 - [Classifying a Measuring Point/Counter \[Page 282\]](#)
8. Return to the master record screen of the technical object, from which you called up measuring point processing.
 9. Save the master record.

Creating a Measuring Point Directly

Creating a Measuring Point Directly

1. From the initial R/3 menu, choose *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Measuring points* → *Create*.

The initial screen for the direct maintenance of measuring points is displayed.

2. Specify in the field *MeasPointObject*, whether the measuring point that you want to create is located at a functional location or at a piece of equipment.
3. Choose *Continue*.
4. Enter the number of the technical object that you wish to create the measuring point for, and the required measuring point category.
5. Choose *Continue*. The detail screen for maintaining general data for the measuring point is displayed.
6. Enter data as required in the detail screen.



Bear in mind the following rules:

If you want to enter quantitative measurement results for the measuring point (for example, 20 degrees Celsius, 10 cm, 300 ampere, 1000 candela), you must assign a numerical characteristic to it with the required unit.

If you want to enter qualitative measurement results for the measuring point (for example, sufficient, low, too high, too dry), you must assign the required code group to it.

If the entry of qualitative measurement results in the form of an evaluation code is sufficient for a measuring point, you do not need to enter any characteristics for the measuring point. You just specify one code group and select the field *ValCode* *sufficient*.

If you want, you can assign both a characteristic and a code group to a measuring point.

Make any other necessary entries. For more information on this, see the detailed descriptions in the following topics:

- [Defining a Measurement Range \[Page 283\]](#)
- [Defining Data for a Measurement/Counter Reading Transfer \[Page 296\]](#)
- [Classifying a Measuring Point/Counter \[Page 282\]](#)

7. Save the master record of the measuring point.

Creating Counters When Processing a Technical Object



From the point of view of technical data, a counter represents a particular type of measuring point (see also [Counter \[Page 258\]](#)).

1. In create or change mode, call up the technical object that you want to create counters for.

For more information on how to create or change a technical object, see the documentation *PM - Structuring Technical Systems*.

2. Call up one of the master record screens of the technical object.

3. Choose *Extras* → *Measuring points/counters*.

The overview screen for maintaining measuring points and counters for the object is displayed.

4. For each counter that you want to assign to the technical object, fill out the two lines provided with the necessary data.

5. After you have made all the necessary entries, choose *Continue*.

The system then assigns a number from an internal number range to each counter in the field *Measuring point*.

If you have already entered the measurement position for each counter, the system sorts the counters according to entries in the field *MeasPosition*.

6. For further processing of the counters, you must change to individual processing for each counter.

To do this, select the counter that you want to process, and choose *Goto* → *MeasPoint*.

This brings you to the detail screen for the counter, where you can maintain its general data.

7. In the *General data* block, select the field *MeasPoint is counter*. This designates the measuring point as a counter, which is of importance when entering further data.

8. Choose *Continue* and enter data as required. For more information on this, see the detailed descriptions in the following topics:

- [Defining a Measurement Range \[Page 283\]](#)
- [Defining Data for a Measurement/Counter Reading Transfer \[Page 296\]](#)
- [Classifying a Measuring Point/Counter \[Page 282\]](#)

Counter data can be entered in the fields in the lower half of the screen. If the counter is to be used for scheduling maintenance plans, you must make an entry in the field *AnnualEstimate*.

If you want to enter an initial total counter reading for a counter, to act as the basis for all further readings, proceed as described in [Setting the Total Counter Reading Externally \[Page 301\]](#).

Creating Counters When Processing a Technical Object

9. Return to the master record screen of the technical object, from which you called up measuring point processing.
10. Save the master record.

Creating a Counter Directly



From the point of view of technical data, a counter represents a particular type of measuring point (see also [Counter \[Page 258\]](#)).

1. From the initial R/3 menu, choose *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Measuring points* → *Create*.

The initial screen for the direct maintenance of measuring points and counters is displayed.

2. Specify in the field *MeasPointObject*, whether the measuring point that you want to create is located at a functional location or at a piece of equipment.
3. Choose *Continue*.
4. Enter the number of the technical object that you want to create the measuring point for, and the required measuring point category.
5. Select the checkbox *MeasPoint is counter*. This is of importance when entering further data in the detail screen.
6. Choose *Continue*.

The detail screen for maintaining general data for the counter is displayed.

7. Make any other necessary entries. For more information on this, see the detailed descriptions in the following topics:

- [Defining a Measurement Range \[Page 283\]](#)
- [Defining Data for a Measurement/Counter Reading Transfer \[Page 296\]](#)
- [Classifying a Measuring Point/Counter](#)

[\[Page 282\]](#) Counter data can be entered in the fields in the lower half of the screen. If the counter is to be used for scheduling maintenance plans, you must make an entry in the field *AnnualEstimate*.

If you want to enter an initial total counter reading for a counter, to act as the basis for all further readings, proceed as described in [Setting the Total Counter Reading Externally \[Page 301\]](#).

8. Save the master record of the counter.

Classifying a Measuring Point/Counter

Classifying a Measuring Point/Counter

1. In the detail data screen of the measuring point or counter in which you maintain general data, choose *Goto* → *Classification*.

A list entry screen is displayed, in which you can enter the required classes.



You can only enter classes of a class type that allows the assignment of measuring points and counters.

2. If necessary, maintain the characteristic valuations for the classes entered. To do this, position the cursor on the class required and choose *Edit* → *Values*.

This brings you to the characteristic valuation assignment screen for the respective class.

Enter the values for the entered characteristics, and return to the list entry screen for classes of the measuring point or counter.

3. Flag one of the listed classes as the standard class.
4. Return to the detail screen for the general entries regarding the measuring point/counter.

For more information on the classification system, see the SAP documentation *MM Classification System*.

Defining a Measurement Range

Use

Example of a Measuring Point:

A storeroom for fruit is represented in the system as functional location SR1-FR2. The temperature in this room is checked continuously by a measuring device (thermometer). A measuring point has been created for this in the system for functional location SR1-FR2.

The thermometer that checks the temperature can display temperatures in the range +40 C (upper measurement range limit) and -20 C (lower measurement range limit). The unit "degrees Celsius" belongs to the dimension "temperature", like the unit of the characteristic assigned to the measuring point.

Example of a Counter:

The milometer of a vehicle can display values in the range 0 to 99,999. Since vehicles of this category have an expected life of 200,000 miles as general rule, a counter overflow will occur several times before this total counter reading is reached. The employee responsible will enter a measurement range of 0 to 200,000 for the milometer.

Procedure

1. In the detail data screen of the measuring point or counter where you maintain general data, choose *Goto* → *Additional data...*

A dialog box for additional data is displayed for the measuring point or counter.

In the upper half of the dialog box there are input fields for the measurement range limits.

2. Enter the upper and lower measurement range limits and the measurement range unit.



The measurement range unit must have the same dimension as the unit of the characteristic that you assigned to the measuring point or counter.

For counters, the measurement range limits do not apply to the counter reading that is read, but to the total counter reading determined by the system.

3. Choose *Continue*.

You return to the detail screen for the general data for the measuring point or counter.

Processing Measuring Points and Counters

Processing Measuring Points and Counters

To call up the individual functions in the table, choose *Logistics → Plant maintenance → Technical objects*.

Function	Menu path	What you should know
Changing a measuring point or counter when processing a technical object	<i>FunctLocation → Change</i> or <i>Equipment → Change</i> , and then in a master data screen <i>Extras → Measuring points/counters</i>	You can change the detail data for any selected measuring point or counter by choosing <i>Goto → MeasPoint</i> .
Changing a measuring point or counter directly	<i>Environment → Measuring points → Change</i>	
Changing measuring points or counters using list editing	<i>Environment → Measuring points → Change</i>	You use this function if you want to change several measuring points or counters that are not assigned to the same technical object. For more information, see Working With Lists [Ext.] .
Changing the measuring point category	<i>Environment → Measuring points → Change</i> , and then in the general data screen for the measuring point <i>Edit → Change MeasPoint category</i>	You use this function if you want to assign an existing measuring point or counter to another measuring point or counter.
Deactivating a measuring point or counter	<i>Environment → Measuring points → Change</i> , and then in the general data screen for the measuring point <i>MeasPoint → Functions → Active <-> Inactive → Deactivate</i>	You use this function if you do not want to delete a measuring point or counter, but want to prevent further measurement documents being created for it.
Activating a measuring point or counter	<i>Environment → Measuring points → Change</i> , and then in the general data screen for the measuring point <i>MeasPoint → Functions → Active <-> Inactive → Activate</i>	You use this function to reverse a deactivation.
Displaying a measuring point or counter from the technical object	<i>FunctLocation → Display</i> or <i>Equipment → Display</i> , and then in a master data screen <i>Extras → Measuring points/counters</i>	You can display the detail data for any selected measuring point or counter by choosing <i>Goto → MeasPoint</i> .

Processing Measuring Points and Counters

Displaying a measuring point or counter directly	<i>Environment → Measuring points → Display</i>	
Displaying a measuring point or counter using list editing	<i>Environment → Measuring points → List editing → Display</i>	<p>You use this function if you want to display several measuring points or counters that are not assigned to the same technical object.</p> <p>For more information, see Working With Lists [Ext.].</p>
Deleting a measuring point or counter	<i>FunctLocation → Change or Equipment → Change, and then in a master record screen Extras → Measuring points/counters and then in the overview screen Edit → Delete entries</i>	<p>You can only delete measuring points or counters for which no measurement documents have yet been entered.</p>

Creating Measurement Documents

Creating Measurement Documents

Prerequisites

Please note the following rules when creating a measurement document for a **measuring point**:

You can only enter a valuation code on its own when the indicator *ValCode sufficient* has been set in the master record of the measuring point.

Please note the following rules when creating a measurement document for a **counter**:

Enter either the counter reading, or the difference between the current reading and the last reading. The system will automatically calculate the other value in each case.

Procedure

To call up the individual functions in the table, choose *Logistics → Plant maintenance → Technical objects*.

Function	Menu path	What you should know
Creating a measurement document directly	<FunctLocation/Equipment> → <i>Measurement documents</i> → <i>Create</i>	You use this function for routine readings and measurements.
Creating measurement documents for several measuring points or counters simultaneously	<FunctLocation/Equipment> → <i>Measurement documents</i> → <i>List editing</i> → <i>Create</i>	You use this function if you want to create measurement documents for several measuring points or counters of a single technical object. You can change the detail data for any selected measuring point or counter by choosing <i>Goto</i> → <i>MeasPoint</i> .
Creating measurement documents for several technical objects simultaneously	<i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>Multiple entry</i> → <i>For MeasPointObjects</i>	You use this function if you want to create measurement documents for several measuring points or counters of different technical objects. You can change the detail data for any selected measuring point or counter by choosing <i>Goto</i> → <i>MeasPoint</i> .
Creating a measurement document for a maintenance notification	<i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Notifications</i> → <Required processing mode>	You can change the detail data for any selected measuring point or counter by choosing <i>Goto</i> → <i>MeasPoint</i> .

Creating Measurement Documents

Creating a measurement document for a maintenance order		To call up this function, use the technical completion confirmation. You access the corresponding activity report from the order (See The Central Completion Confirmation Function [Page 1530]).
Creating a measurement document during order completion confirmation		To be able to create a measurement document for an order operation, first create an operation list for the order, then select the required operation and create the measurement document for it (See The Central Completion Confirmation Function [Page 1530]).

Processing Measurement Documents

Processing Measurement Documents

To call up the individual functions in the table, choose *Logistics* → *Plant maintenance* → *Technical objects*.

Function	Menu path	What you should know
Changing a measurement document	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>Change</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>Change</i> 	You can use these functions to change the text for the measurement document and the processing status.
Changing measurement documents using list editing	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>List editing</i> → <i>Change</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>List editing</i> → <i>Change</i> 	You can use these functions to change the text for the measurement document and the processing status.
Displaying a measurement document	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>Display</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>Display</i> 	<p>If you want to check values, you can display the original entries for the measurement document by calling up the screen <i>General Data</i> for the measurement document, and then choosing <i>Extras</i> → <i>Original entries</i>.</p> <p>If you want to check changes, you can display a list of all change documents for the measurement document by calling up the screen <i>General Data</i> for the measurement document, and then choosing <i>Extras</i> → <i>Display changes</i>. You access the detail data for the change document by choosing <i>Goto</i> → <i>Display documents</i>.</p>

Processing Measurement Documents

Displaying measurement documents using list editing	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>List editing</i> → <i>Display</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>List editing</i> → <i>Display</i> 	
Reversing a measurement document	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>Change</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>Change</i> <p>and then in the screen <i>General Data</i> of the measurement document, choose <i>MeasDocument</i> → <i>Functions</i> → <i>Reversal indicator</i> → <i>Set</i>.</p>	<p>When you reverse a measurement document, the system sets the appropriate indicator in the measurement document concerned.</p> <p>If you reverse a measurement document within a sequence of consecutive measurement documents, the system recalculates the resulting value (Example [Page 291]).</p>
Resetting the reversal indicator for a measurement document	<ul style="list-style-type: none"> • <FunctLocation/Equipment> → <i>Measurement documents</i> → <i>Change</i> • <i>Logistics</i> → <i>Plant maintenance</i> → <i>Maintenance processing</i> → <i>Completion confirmation</i> → <i>Measurement documents</i> → <i>Change</i> <p>and then in the screen <i>General Data</i> of the measurement document, choose <i>MeasDocument</i> → <i>Functions</i> → <i>Reversal indicator</i> → <i>Reset</i>.</p>	<p>If you reset the reversal indicator for a measurement document within a sequence of consecutive measurement documents, the system recalculates the resulting value (Example [Page 291]).</p>

Processing Measurement Documents

Processing the measurement document for the measuring point or counter when processing the measurement point or counter	In the screen <i>General Data</i> for the measuring point or counter, choose <i>Extras</i> → <i>MeasDoc history</i> → <i>MeasDocument list</i>	In the measurement document list you have the option of calling up a graphical display of the measurement documents by choosing <i>Goto</i> → <i>MeasDoc graphic</i> .
Displaying an archived measurement document	< <i>FunctLocation/Equipment</i> > → <i>Measurement documents</i> → <i>List editing</i> → <i>Display archive</i>	The system displays a list of all measurement documents that have already been archived as if they were still available in the R/3 System.
Displaying the last measurement document created for a measuring point or counter	<ul style="list-style-type: none"> In the screen <i>General Data</i> for the measuring point or counter, choose <i>Extras</i> → <i>MeasDoc history</i> → <i>Last MeasDocument</i> In the overview screen for all measuring points or counters for a technical object, select the required measuring points or counters, and choose <i>Extras</i> → <i>MeasDoc history</i> → <i>Last MeasDocument...</i> 	
Displaying the last measurement document created for all measuring points or counters of a technical object	In the overview screen for all measuring points or counters for a technical object, choose <i>Extras</i> → <i>MeasDoc history</i> → ... <i>for all MeasPoints</i>	

Example for Reversing a Measurement Document

Example for Reversing a Measurement Document

If you reset the reversal indicator of a measurement document for a counter, the system recalculates the measurement document concerned, as well as all subsequent measurement documents that have already been created. The following rules apply:

- If an absolute counter reading was entered previously, the system will recalculate the counter reading difference and the total counter reading with reference to the previous measurement document.
- If a counter reading difference was entered previously, the system will recalculate the absolute counter reading and the total counter reading with reference to the previous measurement document.

Date	Action	Difference entered	Total counter reading
30.06.1997	Document #1 entered	100	100
15.07.1997	Document #2 entered	100	200
30.07.1997	Document #3 entered	100	300
10.08.1997	Document #2 reversed		
	↓		
	Document #3 recalculated	100	200
11.08.1997	Reversal indicator reset in document #2		
	↓		
	Document #2 recalculated	100	200
	Document #3 recalculated	100	300

Additional Functions

Additional Functions

Use

You only use these optional functions once you have represented your measuring points and counters in the R/3 System and are productively using the entry of measurement and counter readings.

You use some of these functions just once when a particular event occurs. None of the additional functions constitutes a necessary part of your day-to-day work.

Features

- [Transfer of Measurement and Counter Readings \[Page 293\]](#)
Dependencies can exist between measuring points/counters. The measurement readings entered for a measuring point can also be valid for other measuring points, or the counter reading differences entered for a counter can also be valid for other counters. In cases such as these, you can make sure that this data is transferred automatically.
- [Working With a Measurement Reading Entry List \[Page 300\]](#)
You can compile a freely definable sequence of measuring points/counters to better plan the actual procedure of entering measurement and counter readings (for example, in preparation for the work to be performed by the person taking the readings).
- [Setting the Total Counter Reading Externally \[Page 301\]](#)
- [Representing Counter Replacement \[Page 302\]](#)
A one-off activity that you only perform when you replace counters.
- [Converting Units of Measurement \[Page 303\]](#)
The R/3 System converts measurement units automatically. You can simulate this conversion function.

Transfer of Measurement and Counter Readings

Use

This function comprises the following types of transfer:

- Measurement reading transfer from one measuring point to another (1:1 relationship)



The proportion of chlorine in the water of a swimming pool is measured on a regular basis. To do this, water samples are taken from the pool, and the measurement readings determined are entered for the measuring point that has been created in the system for the pool.

A measuring point has also been created for the swimming pool's circulation pump, for which the chlorine content of the water is also relevant. The measurement readings determined for the swimming pool are copied from the measuring point of the pump, since this value also concerns the pump: the greater the concentration of chlorine in the water, the greater the risk of corrosion to the pump.

- Measurement reading transfer from one measuring point to several others (1:n relationship)
- Counter reading transfer from one counter to another (1:1 relationship)
- Counter reading transfer from one counter to several others (1:n relationship)



A passenger airplane is represented in the system as a functional location. The starts and landings are counted for the airplane, since certain maintenance tasks are dependent on the number of times the airplane takes off and lands.

The tires of the undercarriage are represented on one of the lower levels of the functional location. The tires must be changed after a certain number of starts and landings.

The counter that counts the number of starts and landings for the airplane copies the counter reading difference to the counter that counts the starts and landings for the tires. This might appear as follows:

Airplane counter:	Total counter reading on March 12 2000: 350 starts and landings	New counter reading entered on March 12 2000: 360 starts and landings
		↓ Difference of 10 starts and landings copied ↓
Landing gear counter for tires:	Total counter reading on March 12 2000: 20 starts and landings	New total counter reading on March 12 2000: 30 starts and landings

Transfer of Measurement and Counter Readings

Prerequisites

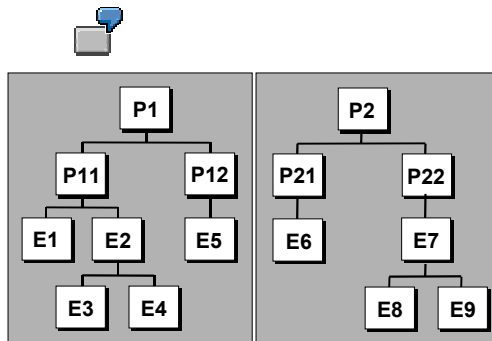
A measurement or counter reading transfer can only be performed under the following circumstances:

- Measurement readings can only be copied from one measuring point to another if both measuring points have the **same characteristic**. Counter readings can only be copied from one counter to another if both counters have the same characteristic.

Each measuring point or counter has a classification characteristic that is valid for all objects. Characteristics are used to enable measuring points or counters to be compared across all objects, so that you can define, for example, whether this involves a kilometer counter for a car or an operating-hours counter for a cooling compressor.

- You can only transfer measurement and counter readings **within an object hierarchy**. Measurement or counter readings cannot be transferred from other object hierarchies.

Within a hierarchy, you can only transfer measurement or counter readings in a straight line from above or from below; you cannot copy them from another branch.



You can only transfer measurement or counter readings within the structure of the functional location P1 and within the structure for the functional location P2. You cannot transfer, for example, the piece of equipment E1 in P1 to the piece of equipment E6 in P2.

You can skip levels within a structure. For example, you can transfer from P11 to E3.

You must transfer measurement or counter readings in a straight line. For example, you can transfer from P1 to E1 or from E4 to P11, however, it is not directly possible to transfer from E1 to E4.

Special Case:

A milometer has been mounted on the axle (E2) of a locomotive. The kilometers counted there are to be distributed between the entire axle and wheel sets of the train. However, it is not possible to transfer these readings directly, as it would mean transferring them diagonally within the hierarchy.

Solution:

The kilometers counted are copied to the train P1 (= copying in a straight line from the bottom to the top). The readings are then transferred from the train to the axle sets and, if necessary, to the wheel sets. Axle E2 does not, however, receive the kilometer reading again as the system checks and stops cyclical copying (if E2 was transferred to P1, P1 cannot transfer back to E2).

Transfer of Measurement and Counter Readings

Features

Once a piece of equipment is dismantled from a structure, the system automatically interrupts the measurement reading transfer. A system message is displayed, informing you of the number of measurement readings for which the transfer procedure was interrupted. The same applies when you change the assignment of a piece of equipment to its superior piece of equipment or the assignment of a functional location to its superior functional location.

Once a piece of equipment is dismantled, the indicator *MeasReadTransf. Copying required* remains. When the piece of equipment is installed again, this enables the system to recognize that a measurement reading transfer will probably be necessary. After that, the system checks the object hierarchy (from the installation point upwards) and searches for the measuring points or counters from which a transfer is possible on the basis of the same characteristic. These measuring points or counters are displayed in a proposal list, in which you can define the required measurement reading transfer.



You can also set the indicator *MeasReadTransf. Copying required* as soon as you create the piece of equipment, without having to make an assignment first. When you install the piece of equipment, the system creates the proposal list based on the characteristics that are suited to the equipment. However, the search for suitable measuring points or counters is only performed upwards in the object hierarchy.

This function also comprises the copying of transfer dependencies between measuring points and counters, if you copy functional location structures using the copy reference function.

If a measurement document is entered for an historical reference time, the transfer of the measurement document is performed according to the historical transfer dependencies, even if the object structure has changed in the meantime.

If you have defined transfer dependencies for measuring points and counters, you can display them with respect to time. Depending on the key date, you can display both historical and current transfer dependencies. There are two different display forms:

- As a structure display of all technical objects for which a transfer dependency exists. The technical object with the measuring point or counter from which you called up the report is highlighted.
- As a list display of the historical and current transfer dependencies for a measuring point or counter.

Defining Data for a Measurement/Counter Reading Transfer

Defining Data for a Measurement/Counter Reading Transfer

1. In the detail data screen of the measuring point or counter where you maintain general data, choose *Goto* → *Additional data...*

A dialog box for additional data is displayed for the measuring point or counter.

In the lower half of the dialog box, you see the input fields for the transfer of measurement and counter readings.

2. Enter the number of the measuring point or counter, from which the data should be copied.



The characteristic of the measuring point or counter, at which the measurement or counter reading was entered, must correspond to the characteristic of the receiving measuring point or counter. If it does not, then the transfer is not possible.

When transferring measurement readings, the respective value entered for the given measuring point is copied.

When transferring counter readings, the counter reading difference entered or calculated for the given counter is copied.

3. Choose *Continue*.

You return to the detail screen for the general data for the measuring point or counter.

The transfer of measurement or counter readings is usually performed automatically. In the event of the master record for the measuring point or counter being blocked by another user at the time of the transfer procedure, you must [repeat the transfer \[Page 297\]](#).

Repeating a Measurement or Counter Reading Transfer

Use

The transfer of measurement or counter readings is usually performed automatically. In the event of the master record for the measuring point or counter being blocked by another user at the time of the transfer procedure, you must repeat the transfer.

Procedure

1. In the screen *Technical Objects* choose *Environment* → *Measuring points* → *Display or* → *Change*.

The initial screen is displayed.

2. Enter the key of the measuring point or counter that you want to repeat the data transfer for, and choose *Continue*.

3. In the screen *General Data* choose *Environment* → *Take up measurement reading transfer*.

The system displays a list of all measurement or counter readings for the entire client, for which the data transfer has to be repeated. From this list, you can choose *Goto* → *Display object* to display the data of the original documents and that of the corresponding measuring point or counter.

4. Start the data transfer for each document by positioning the cursor on the respective document line and choose *Edit* → *Take up transfer*.

Result

The data transfer is repeated for each measurement document using this method. The system informs you in each case whether subsequent measurement documents are available and if they need to be recalculated. If recalculations are necessary, the system informs you of the numbers of changed documents.

Defining a Measurement/Counter Reading Transfer for Copied Location Structures

Defining a Measurement/Counter Reading Transfer for Copied Location Structures

Use

You copy functional location structures using the copy reference function. In the reference, measuring points or counters are created and measurement and counter reading transfers that you want to copy at the same time are defined.

Procedure

1. Construct the new location hierarchy structure in its entirety.
2. Call up the uppermost functional location in the new hierarchy.
You have two options for doing this:

In the screen <i>Technical Objects</i> , choose <i>FunctLocation</i> → <i>Change</i> .	In the screen <i>Technical Objects</i> , choose <i>Environment</i> → <i>Measuring points</i> → <i>Object meas.points</i> → <i>Change</i>
Enter the data of the functional location and choose <i>Continue</i> .	Enter the data of the functional location and choose <i>Continue</i> .
Choose <i>Extras</i> → <i>Measuring points/counters</i> .	

The overview screen for measuring points and counters is displayed.

3. In the overview screen, choose *Extras* → *Propose assignment*.
The system determines the possible transfer dependencies for measuring points and counters for all subordinate functional locations (including the piece of equipment installed there), and displays this information in list form.
4. Select transfer dependencies as necessary, or accept the system proposals.
5. Save the data of the functional location.

Displaying the Transfer Hierarchy for a Key Date

Use



If you have defined transfer dependencies for measuring points and counters, you can display them with respect to time. Depending on the key date, you can display both historical and current transfer dependencies.

If a measurement document is entered for an historical reference time, the transfer of the measurement document is performed according to the historical transfer dependencies, even if the object structure has changed in the meantime.



In an airplane, an average of 2500 pieces of equipment are installed, each with three counters per piece of equipment. One measurement document is created per counter per day and transferred within the defined hierarchy. Sometimes, the case arises where the counter readings are equivalent to planned values that have to be recorded each time the airplane is used, because the actual values are not obtained until some time later. If the actual values that are obtained later deviate from the planned values, they must be updated accordingly. The transfer of these measurement documents that are entered subsequently is performed according to the historical transfer dependencies.

Displaying the Transfer Structure for a Key Date

1. In the master record of the measuring point or counter, choose *Extras* → *Measurement reading transfer* → *...Structure*.
2. Enter the required key date. The key date can be either in the present or in the past.
3. Choose *Continue*. The system displays the structure of the measurement reading transfer for the key date that you entered. The technical objects concerned are displayed with their measuring points or counters in the form of an object hierarchy. The measuring point or counter from which you called up the function is highlighted.
4. If you want to change the key date, choose  and enter the new key date.
5. Choose  *Log*, to display the results of the consistency check. Messages that are displayed for the log can also include information about deactivated measuring points or counters.

Displaying the History from the Perspective of the Measuring Point/Counter

1. In the master record of the measuring point or counter, choose *Extras* → *Measurement reading transfer* → *...History*.
2. The system displays the transfer dependencies in the form of a time line. This time line usually corresponds to the usage list for the piece of equipment.

Working With a Measurement Reading Entry List

Working With a Measurement Reading Entry List

Use

You use this function to compile a list of measuring points and counters in a freely definable sequence, so that measurement readings can be entered for it (for example, in preparation for the meter reader).

When doing this, the system branches from the measurement reading entry list to the collective entry screen for measurement documents and creates a measurement document for each value.

Prerequisites

The measuring points and counters must already exist in the system as master records. You cannot create measuring points/counters from the measurement reading entry list.

Features

You can enter measurement or counter readings directly in the measurement reading entry list, or choose them using the measuring point selection function. You access the measuring point selection screen from the entry list by choosing *Edit* → *Select measuring points*.

Activities

You access the entry list by choosing *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Measuring points* → *MeasReading entry list*.

Setting the Total Counter Reading Externally

Use

If you want to enter an initial value for a counter, on the basis of which all further counter readings or counter reading differences are to be entered, you can do so using a measurement document.

A total counter reading that is set externally (also known as an "initial document") forms the basis for [counter-based maintenance \[Page 261\]](#).

Procedure

1. In the screen *General Data* for the measurement document, choose *Edit* → *Replace counter*.

The *Replace Counter* dialog box is displayed.

2. Select the field *Total CntrReadg set externally*.
3. Choose *Continue*.

You return to the *General Data* screen. The field *TotalCtrReading* is now ready for input.

4. Enter the required total counter reading and save the data.

Representing Counter Replacement

Representing Counter Replacement

Use

You will need to represent the replacement of a counter in the system if, for example, a counter's mechanism is defective and has to be replaced by another, or if a whole counter unit has to be replaced. In most cases, the counter reading of the old counter will not be the same as that of the new counter, and so an indicator has to be set in a new measurement document to explain the sudden jump in counter readings that have otherwise been increasing or decreasing steadily.



Reading date	Counter reading	Indicator	Total counter reading
17.08.1997	20010		20010
24.08.1997	20100		20100
31.08.1997	20190		20190
04.09.1997	00400	Counter replacement	20190
10.09.1997	00410		20200

When you create a measurement document for documenting the replacement of a counter, the total counter reading does not change. With this measurement document, you enter the new reading that the newly installed counter has at the start of its use. The total counter reading does not change with respect to the last measurement document.

Therefore, if the situation arises in which the reading of the old counter has increased since the last counter reading took place, you should first create a measurement document that records the last counter reading of the old counter. When you have done this, you can then create another measurement document that documents the reading of the newly installed counter at the start of its use. This ensures that all the units counted have been entered in the system.

Procedure

1. In the screen *General Data* for the measurement document, choose *Edit* → *Replace counter*.

The dialog box *Replace Counter* is displayed.

2. Select the field *Counter replaced*.
3. Choose *Continue*.

You return to the screen *General Data*.

4. Save the data.

Converting Units of Measurement

Use

This function helps you to understand the automatic conversion functions of the system. You may use these, for example, when you have a reading for a measurement document in a unit different from the characteristic unit, but want to make the entry in the measurement document in the characteristic unit. This function is also useful if you want to make sense of confusing measurement readings, or display a value in its internal display format (SI unit).

Features

An SI unit is a unique unit of measurement, that was established for each dimension by the international unitary system ("SI" for the French "système international des unités").

The following SI units are valid for base dimensions:

Distance:	meter
Mass:	kilogram
Time:	second
Electrical current:	amp
Temperature:	Kelvin
Molar mass:	mole
Brightness:	candela

All other dimensions can be traced back to these base dimensions, for example:

Velocity:	Distance over time
Acceleration:	Change in velocity over time
Force:	Mass multiplied by acceleration
Work:	Force multiplied by distance
Power:	Work over time

Activities

How do you call up these functions?

If you want to...	...then choose:
Create, change or display a measuring point or counter	In the screen <i>General Data</i> for the measuring point or counter, choose <i>Environment</i> → <i>Convert MeasUnit</i>

Converting Units of Measurement

Create, change or display a measurement document	In the screen <i>General Data</i> for the measurement document, choose <i>Environment</i> → <i>Convert MeasUnit</i>
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Using the Conversion Function

Using the Function Without Parameterization

1. If you place the cursor on a non-numerical field, it is possible to enter any value. For a numerical field, conversion is performed immediately. Choose *Environment* → *Convert MeasUnit*.

The *Convert Unit of Measurement* dialog box is displayed.

2. Enter the value to be converted together with its unit in the block *Value entry*.
3. In the block *Conversion to target unit*, enter the unit into which the value is to be converted.
4. Choose *Proceed*.

The system enters the value in the block *Conversion to target unit* and shows you in the block *Conversion to SI unit*, in which SI unit it is storing this value, and to which dimension the SI unit belongs.

5. You can now convert further entries. To do this, repeat steps 2 to 4.
6. Save the data.

Using the Function With Parameterization

1. Place the cursor on the required value, and choose *Environment* → *Convert MeasUnit*.

The *Convert Unit of Measurement* dialog box is displayed. It has already converted the value into the SI unit for the characteristic.

2. In the block *Conversion to target unit*, enter the unit into which the value is to be converted.
3. Choose *Proceed*.

The system calculates the required value and enters in the field in the block *Conversion to target unit*.

4. You can now convert further entries.
5. Save the data.

Displaying the List of Conversions

1. Choose *Environment* → *Convert MeasUnit*.

The *Convert Unit of Measurement* dialog box is displayed.

2. Select the icon *Conversion list*.

You see a list of all conversions performed in this work operation.

Permits (CS-SE/PM-EQM-SF)

Definition

Agreement required depending on setting before an order may be released or technically completed.

Permit Status:	Condition:
<i>Created</i>	The permit has been created as a master record.
<i>Deleted</i>	The master record for the permit has been deleted.
<i>Assigned</i>	The permit has been assigned to either a technical object or an order.
<i>Not relevant</i>	The assignment of the permit to a technical object or order is currently not effective.
<i>Issued</i>	The permit has been issued by an employee responsible for it.
<i>Canceled</i>	The permit was canceled by an employee, after it had already been issued.

Use

You can use permits to ensure that special approval must be obtained before orders are executed.

Permits can be assigned to the following objects:

- Technical objects – functional locations and equipment
- Orders

Structure

Permits can cover the following areas:

- The way the order is executed or the safety aspects involved
 - Safety precautions for the employees and surroundings: Providing ear protection for employees or acidproof equipment, safeguarding the work area, installing a flame-proof zone, work clearance certificate
- How the execution of an order is organized
 - Budget guarantee, approval of plant manager

It is therefore advisable to group permits into permit categories, for example, safety permits or work permits.

Working with Permits

Purpose

This process describes the use of permits during order processing. Before an order can be executed or technically completed, a planner ensures that:

- All the necessary safety precautions have been taken
- The required financial resources are available
- The work has been approved at management level

Prerequisites

You define permit categories in the Customizing for *Plant Maintenance* and *Customer Service* by choosing *Master Data in Plant Maintenance and Customer Service* → *Basic Settings* → *Permits* → *Define Permit Categories*.

Employees who need to issue and cancel permits must obtain the appropriate authorization for this. For more information, see [BC - Users and Authorizations \[Ext.\]](#).



Any employee, who is authorized to change orders or technical objects, can assign permits to an order or technical object.



Employee A has obtained authorization to edit general data for an order or technical object. When changing the order or technical object, employee A can assign permits to it or change existing assignments. This employee can also issue and cancel permits.

Employee B has obtained authorization to edit general data for an order or technical object. When changing the order or technical object, employee B can assign permits to it or change existing assignments. However, this employee cannot issue or cancel permits.

Employee C has only obtained authorization to issue or cancel permits. They cannot change the general data for the order or technical object. In addition, employee C cannot assign permits or change permit assignments. This employee must issue or cancel permits directly from the list of permits.

Process Flow

1. You define permit categories in Customizing.
2. You create permits as master data in the system.

These can be based on safety advice from the manufacturer of a technical object, general legal regulations on safety in the workplace or fixed company rules.
3. You can create authorizations for issuing and canceling permits in the system.
4. You assign permits to a technical object if these permits could be relevant (now or later) for an order on an object.

Working with Permits

If a permit should be valid for each order on a particular technical object or its subordinate objects, then the indicator *Proposal* can be set when assigning this permit to the technical object. The permit is then always assigned to all the orders.

You can edit or delete the assignment of permits to technical objects at any time.

5. You create an order. If permits have already been assigned to the reference object for the order or the subordinate objects, and these assignments marked with indicator *Proposal*, these are also automatically referred to the order.

In addition, classified permits can also have been assigned automatically to the order.

However, you can assign permits manually to the order. To do this, you can use the default values supplied by the structure for the technical object.

You can then only delete the assignment of permits to an order if the assignment was performed manually. If the assignment was made automatically, only the indicator *Not relevant* can be set.

6. You issue the permits in the order. To do this, you have the following options:
 - You print the permit papers. The employee responsible signs these and issues the necessary permits. An employee subsequently enters who issued the permits and when.

The printing of permit papers is integrated in the printing of order papers. For more information, see [Printing and Faxing of Shop Papers \[Page 1235\]](#).
 - As the employee responsible, you can either issue the permits directly in the system when changing the order or by using the permit list.
Depending on which indicator you have set in the permit master record, the permits must have been issued before the order is released or before the technical completion.
Permits do not affect the order status.
7. Issued permits can be canceled in the following cases:
 - The permit must be issued before the order is released, but the order has not yet been released.
 - The permit must be issued before the order is technically completed, but the order has not yet been technically completed.
8. The order can be executed.
9. At this point, you can use specific selection criteria to create a list of permits. A traffic light display helps you to assess the urgency of reprocessing a particular permit.

Creating, Changing and Deleting a Permit as Master Data

Creating a Permit

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Management of technical objects / Maintenance processing → Environment → Permits*
 - *Logistics → Customer service → Management of technical objects / Service processing → Environment → Permits*

The overview of all the permits appears.

- Choose *New entries*.
- For each permit, specify a permit category.
- To create a long text, choose *Long text*.
- If the permit should be determined using class selection, enter a permit class and choose the classification detail screen. Enter the characteristic values, which should be used to determine the permit.
- Specify the following information:
 - When the permit should be issued
 - Whether the permit papers should be printed
 - If the specifications may be changed
 - Whether the use of this permit should be locked
- Save the permit.

Changing a Permit

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Management of technical objects / Maintenance processing → Environment → Permits*
 - *Logistics → Customer service → Management of technical objects / Service processing → Environment → Permits*

The overview of all the permits appears.

2. Select the required permit and choose *Details*.
3. Make changes as required and save the permit.

Deleting a Permit

1. Depending on the application component in which you are working, choose one of the following menu paths:

Creating, Changing and Deleting a Permit as Master Data

- *Logistics → Plant maintenance → Management of technical objects / Maintenance processing → Environment → Permits*
- *Logistics → Customer service → Management of technical objects / Service processing → Environment → Permits*

The overview of all the permits appears.

2. Select the permit to be deleted and choose *Delete*.

One of the following scenarios will occur:

- If the permit has not yet been used, its master record is deleted. It can no longer be viewed in the overview.
- If the permit has already been assigned to a technical object or an order, it cannot be deleted. However, it is no longer ready for input in the overview.

Return to the overview of all the permits.

You now have the following options:

- To ensure that a particular permit cannot be assigned to a technical object or order in future, call up the detail screen for this permit and set the indicator *Usage lock*.
- To see the objects, to which a permit is still assigned, choose *Where-used list*. You can then delete the existing assignments and even the permit itself.

3. Return to the overview of all the permits and save your entries.

Assignment of Permits

Use

You can assign permits to the following objects in the system:

- Technical objects – functional locations and equipment
- Orders

You can also cancel the assignment of permits, but not in all cases. For more information, see [Changing and Canceling an Assignment of Permits to the Order \[Page 319\]](#).

Features

Assignment to a Technical Object

It is not obligatory to assign permits to a technical object. However, it does provide the following advantages:

- If a permit should be assigned manually in the order, the assignments from the master record for the technical object, which is the reference object for the order, can be proposed. This ensures that only those permits relevant for the reference object are proposed.
- When assigning a permit to a technical object, you can set the indicator *Proposal*. When creating an order with this technical object or a subordinate object as the reference object, the permit is automatically copied into the order.



Permits in an object hierarchy:

In clarification plant C1, there is a pumping station C1-B01, in which a pump C1-B01-1 is installed.

Ear protection is a normal requirement for work in the pumping station. The permit **Ear protection** was created and assigned to functional location C1-B01.

A welding permit is required for welding work on the pump. The permit **Welding permit** was created and assigned to functional location C1-B01-1.

In an order for the pump, ear protection for pumping station C1-B01 and welding permit for pump C1-B01-1 are proposed by the system, since functional location C1-B01 is superior to functional location C1-B01-1.

If the indicator *Proposal* was set when the permits **Ear protection** and **Welding permit** were assigned to the respective functional locations, the corresponding permit is automatically copied into the order.

Assignment to an Order

Permits can be:

- Assigned **manually**
- Calculated **automatically** by the system **using class selection** and then assigned

For this, the permits in your system must:

Assignment of Permits

- Belong to a permit group, to which a class of class type 049 has been assigned
- Have been classified using the class characteristics
These characteristics must have been assigned for this using the additional data for structure CSEVPERMIT.
The system automatically determines these permits. It compares the order data with the characteristic features of the classified permits available in the system. Permits, for which the data matches, are assigned automatically to the order.

If you change the order data and then call up the permits again, the system repeats the class selection. It changes the permit entries for the order if required and records this in the **log**. You can call up the log in the order by choosing *Goto* → *Logs* → *Permit determination*. All of the system messages, which occur whilst the permits are being determined using classification, are logged here.

For more information, see [CA - Class System \[Ext.\]](#).



Examples of class selection of permits:

The permit **Approve modification costs** is part of a permit group, to which a class of class type 049 is assigned. The class is classified using the *Maintenance activity type* characteristic with the feature *001* (= modification).

A planner creates an order. They enter maintenance activity type *001* in the order header and call up the permits.

The system determines an agreement between the order data (*maintenance activity type 001*) and the characteristic feature of the classified permit **Approve modification costs**, and assigns this permit automatically to the order.

If the planner does not call up the permits, the required permits are determined automatically when the order is released or technically completed.

Assigning Permits

Assigning a Permit to a Technical Object

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Customer service → Management of technical objects → Functional location / Equipment → Change*
 - *Logistics → Plant maintenance → Management of technical objects → Functional location / Equipment → Change*
2. Choose *Extras → Permits*.
 The screen for assigning permits appears. Permits may already be assigned here.
3. Enter data as required.
4. If you want to enter a long text for the assignment of a permit, select the required permit and choose *Long text*.
 The long text entry appears. If a long text was entered when the permit was created, this is also copied into the long text for the permit assignment.
 Enter the required text, save it and return to the dialog box for assigning permits. The indicator *Long text* is now set for the edited permit.
5. Save the technical object.

Assigning a Permit to an Order

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Change*
 - *Logistics → Customer service → Service processing → Order → Service order → Change*
2. Choose *Goto → Permits*.
 The screen for assigning permits appears.
 Permits may already be entered here, proposed from the object structure or determined using class selection.
3. Enter data as required.
4. To enter additional permits, which have been assigned to another technical object from the object structure, proceed as follows:
 Choose *Proposals*.
 You see a multi-level object list with the correspondingly assigned permits.
 Select the required permits and copy them to the permit list in the order.



You cannot assign permits to the same order more than once.

Assigning Permits

Permits, which must be issued before the release or the technical completion of the order, can no longer be assigned if the order has already been released or technically completed.

Choose *Continue*.

5. Save the order.

For more information about canceling permits, see [Canceling the Assignment of Permits \[Page 319\]](#).

Displaying a Permit List

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Permit list* → *Display*
 - *Logistics* → *Customer service* → *Service processing* → *Order* → *Service order* → *Permit list* → *Display*

A selection screen appears.

2. Enter data as required.

Specifying the duration until the key date is necessary for using the traffic light display in the results list to see how urgently which permits should be issued until this date.

3. Choose *Execute*.

The list of permits appears.

The traffic light colors signify the following:

Traffic Light Color	Meaning
Green	The permit was issued on time.
Yellow	The permit has not yet been issued, although its issue is: <ul style="list-style-type: none"> - Necessary for release and the basic start date is not yet past and occurs before the key date - Recommended for release and the basic start date is before the key date - Necessary for completion and the basic end date is not yet past and occurs before the key date - Recommended for completion and the basic end date is before the key date
Red	The permit has not been issued, although its issue is: <ul style="list-style-type: none"> - Necessary for release and the basic start date is already past - Necessary for completion and the basic end date is already past
<None>	The permit does not need to be issued (yet).

4. To display more detail data for the order to which a permit is assigned than just the order number, choose *Display order*.

For more information, see [Entering, Issuing and Canceling a Permit \[Page 321\]](#).

Displaying a Permit List

Changing an Assignment of Permits

Prerequisites

You require authorization to assign permits and to change orders overall.

Procedure

Changing an Assignment of Permits to a Technical Object

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Management of technical objects → Functional location / Equipment → Change*
 - *Logistics → Customer service → Management of technical objects → Functional location / Equipment → Change*

2. Enter the number of the functional location or equipment, whose assignment to a permit you want to remove and choose *Continue*.

The master data screen for the technical object appears.

3. Choose *Extras → Permits*.

A dialog box appears in which you see all the existing permit assignments to this technical object.

4. Make changes as required.
5. Choose *Continue* to return to the master data screen.

Your entries are saved.

Changing an Assignment of Permits to the Order

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Change*
 - *Logistics → Customer service → Service processing → Order → Service order → Change*

2. Enter the number of the order, whose assignment to a permit you want to change, and choose *Continue*.

The header data screen for the order appears.

3. Choose *Goto → Permits*.

A dialog box appears, in which you can change and cancel the assignments.

4. Make changes as required.
5. Choose *Continue*.

Your changes are saved, and you return to the header data screen for the order.

Changing an Assignment of Permits

Canceling an Assignment of Permits

Prerequisites

You require authorization to assign permits and to change orders overall.

Procedure

Canceling an Assignment of Permits to a Technical Object

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Management of technical objects* → *Functional location / Equipment* → *Change*
 - *Logistics* → *Customer service* → *Management of technical objects* → *Functional location / Equipment* → *Change*

2. Enter the number of the functional location or equipment, whose assignment to a permit you want to remove, and choose *Continue*.

The master data screen for the technical object appears.

3. Choose *Extras* → *Permits*.

A dialog box appears in which you see all the existing permit assignments to this technical object.

4. Select the permits, whose assignment you want to cancel, and choose *Delete*.
5. Choose *Continue* to return to the master data screen.

Your entries are saved.

Canceling an Assignment of Permits to the Order



You can no longer cancel assignments for permits that have been:

- Issued already
- Copied from the proposals from the object structure
- Determined automatically using classification

These permits would be reassigned during the next check. To prevent them being assigned, you can set the indicator *Not relevant*. Under certain circumstances, this can also be set and changed by the system.



The indicator *Not relevant*:

You have created the permit *Budget check*. This has been classified so that it only needs to be issued if the budget exceeds \$ 2,000. Should the budget fall below the \$ 2,000 mark, the indicator *Not relevant* is automatically set for this permit by the

Canceling an Assignment of Permits

system. However, a planner with the requisite authorization can reset the indicator manually.

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Change*
 - *Logistics → Customer service → Service processing → Order → Service order → Change*
2. Enter the number of the order, whose assignment to a permit you want to cancel, and choose *Continue*.

The header data screen for the order appears.

3. Choose *Goto → Permits*.

A dialog box appears, in which you can change and cancel the assignments.

4. Select the permit, whose assignment you want to cancel, and choose *Delete*.
5. Choose *Continue*.

The header data screen for the order reappears. The deleted assignment is canceled and the new status is saved.

Entering, Issuing and Canceling a Permit

Prerequisites

You require one of the following authorizations:

- Authorization to change orders
When **changing the order**, you can enter, issue and cancel permits.
- Authorization to issue and cancel permits
You can only enter, issue and cancel permits using the **permit list**.



You can only cancel issued permits if the order has not been:

- Released and the permit must be issued when the order is released
- Completed and the permit must be issued for when the order is technically completed

You can **reissue** a **canceled** permit later.

For more information, see [Displaying a Permit List \[Page 315\]](#).

Procedure

When Changing the Order

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Change*
 - *Logistics* → *Customer service* → *Service processing* → *Order* → *Service order* → *Change*
2. Enter the number of the order, in which you want to issue permits, and choose *Continue*.
The header data screen for the order appears.
3. Choose *Goto* → *Permits*.
The system displays a dialog box with all the permits valid for the order.
You can assign additional permits if required, as described in [Assigning Permits \[Page 313\]](#).
4. Select the permit that you want to edit.
5. Now choose one of the following options:
 - To **state** that **someone else** is issuing the permit, enter their name and yours in the corresponding columns.
Save your entries or choose the *Issue permit* pushbutton.
The permits are issued.
 - To **issue** the permit **yourself**, choose *Issue permit*.

Entering, Issuing and Canceling a Permit

- To cancel the permit, choose *Cancel permit*.

The system cancels the issue data in the corresponding fields. The permit needs to be issued again.

Depending on the permit attributes and the system status of the order, the reissue can be refused.

The system writes the relevant data to the appropriate fields.

6. Save the order.

From the Permit List

1. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Permit list* → *Change*
- *Logistics* → *Customer service* → *Service processing* → *Order* → *Service order* → *Permit list* → *Change*

A selection screen appears.

2. Enter data as required.

Specifying the duration until the key date is necessary to see which permits should be issued until this date.

3. Choose *Execute*.

The list of permits appears. The urgency of issuing permits is represented using a traffic light display.

4. Select the permit that you want to edit.

5. Now choose one of the following options:

- To **state** that **someone else** is issuing the permit, enter their name and yours in the corresponding columns.

Save your entries or choose the *Issue permit* pushbutton.

The permits are issued.

- To **issue** the permit **yourself**, choose *Issue permit*.

- To **cancel** the permit, choose *Cancel permit*.

The system cancels the issue data in the corresponding fields. The permit needs to be issued again.

Depending on the permit attributes and the system status of the order, the reissue can be refused.

The system writes the relevant data to the appropriate fields.

6. Choose *Back*.

The selection screen reappears.

SAP Business Partner (SAP BP)

SAP Business Partner (SAP BP)

Purpose

The component SAP Business Partner enables you to create and manage business partners centrally. This is of prime interest if a business partner plays different roles for a company, such as contract partner and prospect.

SAP Business Partner is designed to utilize technical benefits such as data integrity and freedom from data redundancy, and to place greater emphasis on aspects relating to customer maintenance and acquisition of new customers.

Features

You can create a business partner in different business partner roles, and during the course of the business relationship the business partner can assume other business partner roles. No new data has to be created each time, meaning that redundant data creation and retention is avoided, and there can be no inconsistencies.

By using SAP Business Partner, it is possible to merge the partner data already held by a company in more than one system in such a way that the potential for new contracts within the same customer contact can be identified.

When you enter data, the data related to SAP Business Partner, and the application-specific data are integrated seamlessly on the processing screen.

Seamless integration of customer-specific data is possible without modification, ensuring full future maintenance, because defined interfaces exist for this purpose.

Business Partner Category

Definition

The business partner category denotes whether a business partner is a natural person (private individual) or an organization (legal person/entity or part of a legal entity, such as a department).

Use

When you create a business partner, you have to select a business partner category. Depending on the business partner category, a certain set of fields has to be filled with data. For example, if you are creating a business partner as an organization, there is a field for the legal form, whereas the field selection with a person includes first names, name affixes and gender.

Structure

The standard business partner categories are:

- Natural person (private individual)
- Group (e.g. married couple, shared living arrangement)
- Organization (e.g. company, department in a company, club, association)

It is not possible to create any other business partner categories.

Creating Business Partners

Creating Business Partners

Procedure

1. Select the appropriate [menu path \[Ext.\]](#).
You reach the initial screen for creating data.
2. Select a grouping. Each grouping is assigned to a number range. Along with the interval, the number range determines whether internal or external number assignment is to be used.
If you select internal number assignment, the field bearing the name of the BP role selected must remain empty.
If you select external number assignment, you must enter a business partner number in the field bearing the name of the BP role selected.
3. Select the business partner category. With the BP role “contact person” the business partner category “person” is default.
4. Select at least one entry from the *Screen selection*.
5. Choose *Continue*.
6. In the processing screens that follow you now enter the required data on the business partner. Enter data in all of the required fields.
Using the navigation buttons, you can navigate between the individual processing screens.
7. Choose *Save*.

Result

You have created a business partner in the BP role you selected.

Changing/Displaying Business Partners

Prerequisites

Before you can change or display data on a business partner, you must first create a business partner.

Procedure

1. Select the appropriate [menu path \[Ext.\]](#).
2. Enter the required business partner.

If you do not know the business partner number, initiate a search.

With the F4 help select an appropriate search criterion (for example, partner by address, partner by bank details, partner by search term).

A dialog box appears and you can now search for the business partner.

3. Select at least one entry from the *Screen selection*.
4. Choose *Continue*.

Result

The desired processing screens are displayed.

Business Partner Role (BP Role)

Business Partner Role (BP Role)

Definition

The basis for the definition of a BP role is a business process. The attributes of the BP role depend on the particular process involved.

Example

Process	BP Role
Customer order	Sold-to party
Delivery of goods	Ship-to party

Use

The standard BP roles are:

- Contact person
- Prospect
- Business partner, general

In addition there are industry-specific BP roles such as:

- IS-U: Contract partner, installer
- IS-IS-CD: Contract partner
- BCA: Account maintenance officer, account holder, authorized drawer, bank statement recipient

It is possible to create a business partner in one or more BP roles. Central data such as name, addresses and bank details only has to be created once.

Structure

With the help of field groupings in Customizing you can hide or display fields for this role.

An [extension \[Page 356\]](#) of the BP roles to include customer-specific attributes is possible. In theory it is possible to define other BP roles but this should only be considered if a customer has developed own applications. For more information, see the [Business Data Toolset \[Ext.\]](#).

BP Role Contact Person

Definition

A business partner in the BP role of *contact person* acts as intermediary to an organization with which business contact is maintained.

Use

The BP role *contact person* is created in connection with the [relationship “is contact person for” \[Page 349\]](#). When you create a business partner in the BP role of *contact person*, the system checks whether the business partner category involved is that of *natural person*.

Structure

With the BP role *contact person* you can enter data on name, address and relationships but not on bank details and payment cards.

Integration

To be able to create a [relationship “is contact person for” \[Page 349\]](#), you must first create a business partner in this BP role.

BP Role Prospect

BP Role Prospect

Definition

A prospect is a potential customer.

Use

The BP role prospect is a suitable option for a possible future business partner with whom just a first loose contact has been made. In this way this business partner can be provided with information on a product, for instance.

Structure

For the BP role *prospect* you can define the name and address and control data.

BP Role *Business Partner, General*

Definition

The BP role *business partner, general* is not specified in any direction. Data entered in this BP role is for information purposes only.

Use

You use the BP role *business partner, general* to store data on a business partner who does not (yet) play any specific role for the company.

For example, at a meeting you are given a person's business card. You might want to store this data without pursuing a specific business interest. In this case you can use the BP role *business partner, general*.

Structure

You can store the name and address as well as data on bank details and relationships. If a business relationship does materialize with a business partner created in this BP role, you can also create this business partner additionally in other, specific BP roles such as *contact person*.

Conversely, it is not possible to take a business partner who has already been created in a specific role and add the role of *business partner, general*. This is because a business partner created in another role automatically receives the role of *business partner, general*.

GP-Rolle Mitarbeiter

GP-Rolle Mitarbeiter

Definition

Die GP-Rolle *Mitarbeiter* bezeichnet einen Arbeitnehmer des eigenen Unternehmens.

Verwendung

Wenn ein Unternehmen mit einem Arbeitnehmer des eigenen Unternehmens Geschäftsbeziehungen unterhält, können Sie die Daten des Geschäftspartners in der GP-Rolle *Mitarbeiter* erfassen.

Struktur

Für die GP-Rolle *Mitarbeiter* können Sie neben den entsprechenden Stammdaten zusätzlich die Benutzernummer und die Personalnummer des Arbeitnehmers hinterlegen.

Integration

Wenn Sie die SAP Komponente HR im Einsatz haben, stellt das System die Beziehung zu dem HR-Objekt *Zentrale Person* her und überprüft die Eingaben.

BP Role Organizational Unit

Definition

The BP role *Organizational unit* maps units of internal structures in your own company.

Use

For example, if two organizational units in your company with different company codes have business relations with one another, you can enter these units in the BP role *Organizational unit*.

Structure

You must create the business partners in the role of *Organizational unit* in PDOrg. This means that you have to maintain data on the name and address in PDOrg as well. The corresponding fields are not ready for input in Business Partner.

If the role of Organizational unit exists in PDOrg, you can enter changes to other master data, such as bank details, in Business Partner.

BP Role Grouping

BP Role Grouping

Definition

Merging of several BP roles to simplify data maintenance.

Use

To simplify data maintenance you can merge individual BP roles into a BP role grouping. In this way it is possible to create a business partner in a BP role grouping and thus in the BP roles belonging to this grouping.

Example: From the point of view of SAP BP, the customer in the classical area of FI has the BP roles invoice recipient, payer, dunning recipient and correspondence recipient.

If you want to manage and maintain a customer (debtor) with the help of SAP BP, the best option is to select a BP role grouping that incorporates the above-mentioned BP roles.

Structure

You can define the screen structure and screen sequence for each BP role grouping individually.

SAP Business Partner Data

Use

Business Partner Data

Frame on screen:	Description:	What you should know:
Data for initial creation of partner	<p>When you select the field <i>Grouping</i> you have to make a decision on the number range. As well as the interval, the number range determines whether external or internal number assignment takes place. It is not possible to change this assignment at a later date.</p> <ul style="list-style-type: none"> Internal number assignment: During data entry the BP role field remains empty for the BP number. External number assignment: The BP role field has to be filled with data. 	In the IMG you define number ranges in accordance with the number assignment.
	<p>In the field <i>Business partner type</i> you select a grouping that entails a certain field selection.</p> <ul style="list-style-type: none"> When first creating a grouping, this field is on the initial screen and along with the data for control, when you are changing or displaying data, the field is along with the data for control. 	In the IMG you can amend the field selection for the business partner type in question and also define your own business partner types, depending on the customer-specific requirements.
Screen selection	By selecting the screen titles you can call up the corresponding processing screens for data entry or for viewing.	

SAP Business Partner Data

Name fields	<p>The selection of name fields available depends on the business partner category.</p> <p>You can enter the following data:</p> <ul style="list-style-type: none"> • Organization: Form of address, name, legal form, industry, legal entity • Person: Form of address, first and last name, name components (name affixes and academic titles) • Groups: Form of address, two names, partner group type (marriage, shared living arrangement) 	The name fields that are relevant for each particular business partner category are pre-set. Changes can only be made through modification.
Addresses	<p>You can enter any number of addresses for each business partner.</p> <p>The standard address is always maintained on the Address screen.</p> <p>If you want to create other addresses [Page 339] , you can also assign address usage [Page 340] to these addresses.</p>	You can define address types in Customizing and store proposals for a standard address type per role.

SAP Business Partner Data

Control data	<p>The <i>business partner type</i> enables you to freely group business partners.</p> <p>The control function <i>Authorization group</i> means that only end-users with the appropriate authorization may edit business partners belonging to the authorization group.</p> <p>In the <i>external partner number</i> field you can define business partner numbers from a legacy or operational system.</p> <p>With persons you can enter information on gender, marital status and other personal data.</p> <p>With organizations you can enter data on the foundation and liquidation.</p>	In Customizing you can define business partner types and default values for amending fields to suit the business partner type.
Bank details	You can enter bank details [Page 341] for a business partner.	You can take over bank master data from an external system with the help of transfer programs.
Payment cards	You can enter payment cards [Page 342] for a business partner.	In the IMG you can maintain payment card type, payment card category and payment card blocks.
Notes on BP	You can store notes on every business partner. The areas of sales, accounting and marketing are included in the standard delivery. Other subject areas can be freely defined.	To define note types go to the menu <i>Tools → Word processing → Settings</i> . Select <i>Change text objects and IDs</i> and place the cursor on BUT000. In the menu select <i>Text ID → Create</i> and enter a new note type.
Relationships	In the <i>Relationships</i> screen you create or edit relationships.	

Addresses

Addresses

Use

You can create one or more addresses for each business partner. If you create multiple addresses, you can define when they should be used (for example, use of a certain address as the delivery address).

Features

If you only require one address for each business partner, you can use the *standard address* fields in the *Address* processing screen. This address will be used for all activities.

If you require several addresses for a business partner, you enter the standard address in the *Address* processing screen and then select *Address overview* to enter other addresses. You have the following customizing and assignment options to help you manage several addresses:

1. In addition to the standard address you require addresses for certain transactions. For example, with a business partner you want to send letters to a different address to the one used for deliveries.

In Customizing you have to define the address types *Correspondence address* and *Delivery address*.

You assign the address to which letters should be sent to the address type *Correspondence address*, and the address to which deliveries should be sent to the address type *Delivery address*.

If several addresses are assigned to an address type, you can assign the attribute *Standard use* to the address to which correspondence should normally be sent. The field selection that appears only includes addresses of this address type.

Example

If a business partner has five addresses, of which three are correspondence addresses, only the three correspondence addresses appear in the selection of correspondence addresses.

In Customizing you define whether several addresses may be assigned to an address type.

2. If a BP role suggests that one address type will be used the most, you can use the Customizing feature to assign an address type as the standard address type to a BP role. For example, it may make sense to assign the address type *Delivery address* as the *standard address type* to the BP role *Goods recipient*.

Creating Other Addresses

Prerequisites

You are in the *Address* processing screen in *Create* or *Change* mode.

Procedure

1. Choose *Address overview*.
The *Address overview* frame appears.
2. Choose *Create*.
The processing screen for entering address data appears.
3. After you have entered the address, choose *Back*.
4. Enter another address or choose *Back*.

Result

You have created one or more addresses.

Assigning Address Usage

Assigning Address Usage

Prerequisites

You must have already created several addresses.

Procedure

1. In the *Address* processing screen select *Address overview* and then *Address usage*.
The *Address usage* processing screen appears.
2. Select an address type (for example, delivery address) and then choose *Create usage*.
3. Select the corresponding address in the dialog box.

You have assigned an address to a usage.

4. If you have assigned several addresses to an address type, the first address entered is marked as being the standard usage.

If you wish to define a different address as the standard usage for an address type, select the desired address and choose *Standard usage*.

The indicator *Standard usage* appears after the address chosen.

Bank Details

Use

You can enter any number of bank details for each business partner.

Integration

Bank master data can be imported to the database from an external data medium with the aid of read programs. (See IMG: *Financial Accounting* → *Bank Accounting* → *Bank Accounts* → *Transfer Data to Bank Directory*).

Prerequisites

The corresponding fields have been assigned to the BP role.

Features

With the help of bank data you can uniquely identify the bank and the account in the system.

If the bank referred to does not yet exist in the system, create this with the bank details.

Payment Cards

Payment Cards

Use

You can enter any number of payment cards for each business partner. You can create a payment card for one or several persons.

Integration

You may have to maintain payment card type, payment card category and payment card blocks in the IMG. (*SAP- Business Partner → Business Partner → Basic Settings → Payment Cards*)

Prerequisites

The corresponding fields have been assigned to the BP role.

Features

As the *payment card ID* enter a key with which card data on a business partner can be uniquely identified.

Under *payment card type* enter the name of the card or the name of the card company (for example, VISA). A checking rule has been defined for the card companies included in the standard delivery. This checks the number of the card for each card company.

The *card number* is the term for the account number on the payment card.

Business Partner Relationship (BP Relationship)

Definition

A BP relationship forms a business-relevant connection between two distinct business partners.

Use

You can assign a relationship category to two business partners. If a relationship category is assigned to business partners, the business partners are said to have this relationship.

Attributes can be assigned to a relationship, meaning that redundant data retention is avoided.

Example

If a business partner is both the purchasing manager of company A and also the MRP controller of company B, the attributes that this business partner has as purchasing manager and as MRP controller (such as department, function, power of attorney) can be defined in the relevant relationships. If this was not possible, the business partner would have to be created twice so that the relevant data could be assigned uniquely to the particular relationship.

Structure

You can limit a relationship in time by entering the start date and end date of the relationship. This means that it is possible to get an overview of the periods in which certain business partners were contact persons for a company, for example.

Creating Relationships (Integrated Maintenance)

Creating Relationships (Integrated Maintenance)

Prerequisites

The business partner for whom you want to create the relationship must already exist in the system.

Procedure

1. When you want to create or change a business partner, select the screen title *Relationships*.
2. Choose *Continue*.
The *Relationships* processing screen appears.
3. Select *BP Relationships* and choose *Create*.
4. In the dialog box, enter the relationship category and the number of business partner 2. You can also limit the relationship in time.
5. Choose *Continue*.
6. If you want to create other relationships, position the cursor on
 - a. *BP Relationships*, to create a relationship to a relationship category that has not yet been created
 - b. a relationship category that has already been created, if you want to create another relationship to this category.
7. Choose *Create*.

Result

You have created one or several relationships.

Creating Relationships (Independent Maintenance)

Procedure

If you want to create a relationship, take the following steps:

8. In the initial screen you can make a preselection of the relationship/s you want to create, by specifying the relationship category/categories, business partner 1 and 2, and the validity dates. In addition, you can choose whether you want other differentiations to be displayed, if this function is maintained for the relationship category.



It is a good idea to specify the relationship category in the initial screen, if you want to create several relationships belonging to the same category. If you want to maintain several relationships for a business partner, select the business partner first.

9. Choose *Execute*.
10. Enter the necessary data for the relationship, and maintain the detailed data, if required.



From relationship maintenance, you can create, display or change a business partner. To create a business partner, choose *Environment* → *Create business partner*. Save the business partner data, and return to relationship maintenance by choosing *Back*.

11. Choose *Save*. You can now create other relationships.

Result

You have created one or several relationships.

Changing Relationships (Integrated Maintenance)

Changing Relationships (Integrated Maintenance)

Procedure

12. When you want to create or change a business partner, select the screen title *Relationships*.

13. Choose *Continue*.

The *Relationships* processing screen appears.

14. Position the mouse pointer on the relationship that you want to process, and choose:

- *Select*, to process detailed data on the relationship.
- *Change validity*, to change the start date or end date of a relationship.
- *Delete*, to delete the relationship.

Result

You have changed one or several relationships.

Changing Relationships (Independent Maintenance)

Prerequisites

Before you can change relationships, you must have already created business partners and relationships.

Procedure

1. Choose *Relationship* → *Change*.
2. In the initial screen, you can make a preselection of the relationship/s that you want to change, by specifying a search strategy, relationship category, business partner 1 or 2, validity key data and sorting sequence.
3. Choose *Execute*.



If you do not enter any details, you get an overview of relationships (maximum of 500 relationships), from which you can choose the desired relationship by drilling down the hierarchy.

4. Position the mouse pointer on the node that you want to process, and choose:
 - To change the validity: *Edit* → *Change validity*
 - To delete the relationship: *Edit* → *Delete*
 - To create a relationship that is identical to a relationship that already exists: *Edit* → *Copy*.



If you want to edit several relationships at the same time, position the mouse pointer on the corresponding relationship and choose *Select*. This allows you to make the desired change to all the relationships selected, in one activity.



When you are in relationship maintenance, it is also possible to create a new relationship. The data from the node that you have selected is taken as default.

Result

You have changed one or several relationships.

Relationship Category

Relationship Category

Definition

Relationship categories reflect business-relevant links between business partners.

Use

With the help of relationship categories you can define temporary contact persons and contact persons for a company as well as certain data on members of a shared living arrangement or marriage. The latter might be necessary for liability reasons.

Relationships is the term used if a relationship category contains information on concrete business partners.

The relationship categories that can be selected depend on the business partner category and on the BP role.

The standard relationship categories are:

- *is contact person for*
- *is married to*
- *is temporary contact person for*
- *belongs to a shared living arrangement*
- *is identical to*

Structure

With the help of field groupings in Customizing you can hide or display fields.

An [extension \[Page 356\]](#) of the relationship categories to include attributes is possible. You can also define other relationship categories. For more information, see the [Business Data Toolset \[Ext.\]](#).

Relationship Category “Is Contact Person For”

Definition

This relationship category denotes the status as intermediary through whom business contacts are maintained.

Use

The relationship category *is contact person for* links a business partner with the BP role *contact person* with a business partner of the category “Organization”.

Integration

To be able to create a relationship category *is contact person for*, you must first create a business partner in this BP role.

Relationship Category “Is Married To”

Relationship Category “Is Married To”

Definition

The relationship category *is married to* denotes the conjugal partnership of two business partners.

Use

The relationship category *is married to* links two business partners of the category “natural person”. You may want to define this relationship for liability reasons, or you may just wish to obtain an overview of the contracts that the marriage partners have with a company.

Integration

With the relationship category *is married to*, a check is made that the two business partners are of a different sex. If this is not the case, the system issues a warning but still accepts the entry.

In the case of the relationship category *is married to*, the system does not check whether an entry has been made in the marital status field in the master data.

Relationship Category “Is Activity Partner For”

Definition

This relationship category denotes the status as intermediary through whom business contacts are maintained, whereby these contacts are strictly limited in time.

Use

The relationship category *is activity partner for* links a person, organization or group with a business partner.

For example, a business partner already has a contact person but announces the name of a second person who represents his/her interests in certain isolated cases. This person can be entered in the system by using the relationship category *is activity partner for*.

Rel. Cat. “Belongs To A Shared Living Arrangement”

Rel. Cat. “Belongs To A Shared Living Arrangement”

Definition

This relationship category denotes the status of a business partner as member of a shared living arrangement.

Use

The relationship category *belongs to a shared living arrangement* is used, for example, if you want to store data on the individual members of a shared living arrangement for liability reasons.

Integration

Before you can create a relationship category *belongs to a shared living arrangement*, you must first create a business partner of the category *Group*.

Relationship Category "Is Identical To"

Definition

The relationship category *is identical to* denotes an alias.

Use

If you suspect that a business partner has been created twice in the system under different names or with different data, you can create the relationship *is identical to*, and use this until the identity or the data records have been clarified.

Relationship Category "Is Shareholder Of"

Relationship Category "Is Shareholder Of"

Definition

A business partner holding a shareholding interest in a company either on the basis of an agreement or upon having purchased shares.

Use

If you want to map the relationship between a shareholder and a company, choose the relationship category *is shareholder of*.

Integration

You must have created a business partner as an *organization*, *person* or *group*, and a different business partner as an *organization*.

Central Relationship Data

Use

Using control tables, you specify whether attributes can be maintained for the relationship category.

To date, attributes can be maintained with the contact partner relationship and shareholder relationship.

Contact person relationship

Frame on screen:	Description:
Relationship category: General data	You can specify a VIP indicator for the business partner You can also enter data on the department, function, and power of attorney of the business partner, plus free text as a comment.
Relationship category: Address data	In addition to telephone and fax numbers, and email address, you can also specify address details such as company department and name of function. If a company address is maintained, you can assign this by choosing <i>Assign company address</i> .

Shareholder relationship

Frame on screen:	Description:
Shareholding data	You can specify the shareholding percentage as well as the actual amount, together with the currency. With the <i>Control</i> indicator you can state whether it is a controlling interest on the basis of a controlling agreement or key shareholding. A controlling interest is not strictly limited to one business partner. For example, if two business partners each hold an interest of 50%, both can have a controlling interest.

➡ If you have specified an own relationship category (see [Extensibility \[Page 356\]](#)), you can define an attribute maintenance for this relationship category.

Extensibility

Extensibility

Use

SAP Business Partner is designed to enable you to make extensions, as the screen structure and the screen sequences are defined in control tables. Program logic can be integrated by way of firmly defined interfaces.

Prerequisites

Features

1. BP role:

a. Extension by way of attributes:

BP roles can be extended to include attributes.

If you wish to make customer-specific evaluations or enter additional information on a business partner, you can add fields to existing BP roles in an existing screen or in a separate screen:

b. Extension to include BP roles:

An extension of BP roles is also permitted.

Extensions should only be made by developers with ABAP/4 experience and only if specific customer applications have been programmed.

Adding new BP roles only makes sense if a customer-specific development is being conducted. The business partner data required for this application can be composed of data supplied by SAP as well as customer-specific data.

If no BP role-specific data is required, you should first check whether the required functionality could be presented with the help of the BP role *Business partner (general)*.

For detailed information on the extension to include new BP roles see [Business Data Toolset \[Ext.\]](#).

2. Relationships:

a. Extension by way of attributes:

Relationships can be extended by way of attributes.

b. Extension by way of relationship categories:

You can create new relationship categories. Examples of relationships:

Is a member of (club)

Is an employee of (business partner company)

Is the son/daughter of

Is the managing director of

Is guarantor for

Is guardian of

You should define own relationships analogously to own BP roles.

Data Transfer

Data Transfer

Use

Automatic data transfer from a legacy or operational system is possible (see also [External Data Transfer \[Ext.\]](#)).

Look in the IMG for further information and the application programs. See *Cross-Application Components* → *SAP-Business Partner* → *External Data Transfer*.

Service Agreements

Purpose

Service agreements are arrangements that are made to structure the service process more effectively. They are drawn up between the company that is performing the services and the customer who is requesting the services.

Implementation Considerations

The management of service agreements presents the following advantages:

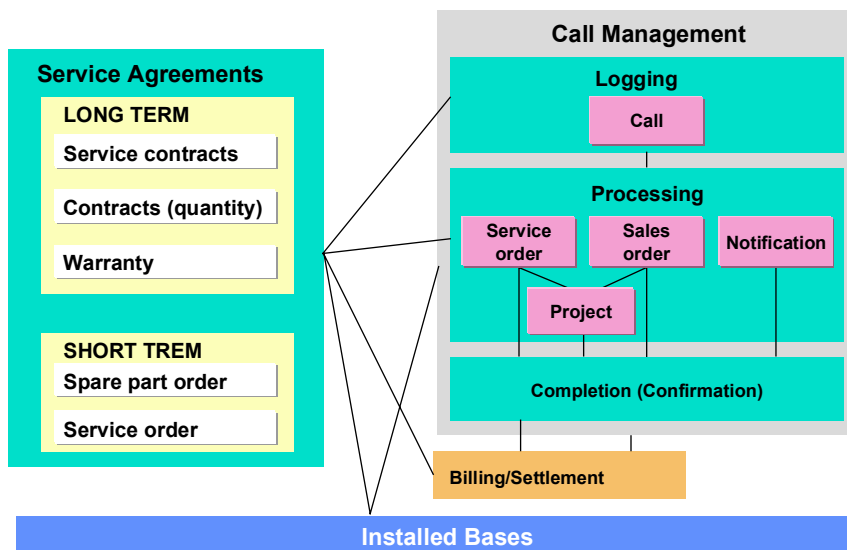
- Content and scope of the services and conditions for performing the services are defined in the form of a binding contract.
- Warranties commit the service provider to certain services.
- Service agreements protect both service provider and service recipient.
- Service agreements can represent a competitive advantage for the service provider or a deciding factor for the customer.

Features

In Customer Service, you can make various agreements regarding the services you provide for a customer:

- **Long term** service agreements in the form of service contracts, warranty agreements, and quantity contracts for spare part deliveries
- **Short term** service agreements in the form of one-time [service orders \[Page 1070\]](#) and [spare part orders \[Page 1074\]](#).

Service Agreements



Service Products

The services that a company provides are described as [service products \[Page 1043\]](#). From a technical perspective, the service product is a material master record (material type DIEN). The features of a service can vary immensely, meaning that it is advantageous to provide services as [configurable products \[Page 1044\]](#) and to define the individual agreements specifically for each contract.

The characteristics are available directly when the call is logged. Service and response times automatically determine the further processing of a service notification because the due dates of the service tasks are calculated on the basis of the response and service times.

Typical characteristics that can be agreed here include:

- Service times for the company
For example, Monday to Friday from 8.00 to 17.00
- Response times for service requests
For example, return call within 2 hours at the latest
- Service area agreements
For example, costs charged outside a 100 km radius
- Service location
For example, at the customer's

Service Contract

Definition

Long-term agreement concerning the content and scope of services that are to be performed for a customer. A service contract describes which services are to be performed for which objects, and under which conditions.

Use

You, as a service provider, would use service contracts in the following situations:

- Checking a customer's entitlement to services requested
- Making price agreements in service orders
- Performing periodic billing
- Determining tasks automatically for a service notification

Structure

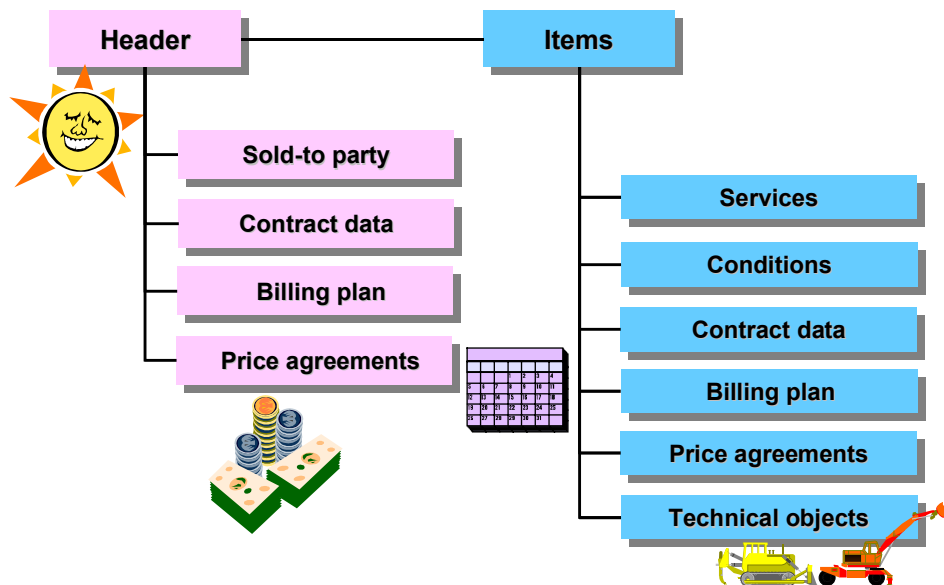
The service contract is a sales document in Sales and Distribution (SD) and consists of an order header and one or more order items.

The order header contains the assignment to the sold-to party. Contract data, a billing plan, and price agreements can also be stored in the order header. These are valid for all items for which nothing else has been defined.

The order items contain the services or products and the conditions. Contract data, a billing plan, and price agreements can also be stored at the level of the item. The technical objects, on which the services are performed, are also assigned at the level of the item.

Service Contract

Structure of the Service Contract



Integration

If an obligation exists to provide services periodically (for example, periodic inspections), a link is created between the service contract and service plan, whereby the service plan is responsible for the automatic generation of service orders. In this way, integration between contract agreements and processing is ensured.

You can find more information in the application component Sales and Distribution (SD) under [Customer Contracts \[Ext.\]](#).

Quantity Contract

Definition

Long-term agreement with a customer concerning the acceptance of a particular quantity of services.

Use

You agree with a customer that he has the right to a particular quantity of services at a set price, over a specified period of time. Once this quantity has been reached, the quantity contract has been fulfilled, and you must either make a new agreement regarding further services, or you perform and bill the customer for the services as and when required.

You can find more information in the application component Purchasing (MM), under [Contract \[Ext.\]](#).

Service Order

Service Order

Definition

Short-term agreement between service provider and service recipient, in which one-time services are ordered by the service recipient and resource-related billing performed upon completion.

A service order contains the following data groups:

- Header data
- Location and account assignment data
- Object data
- Settlement data
- Operation data
- Component data

Use

The service order is used to document service and customer service work. In particular, you can use the service order to:

- Plan services specifically with regard to usage of material, utilities and personnel
- Monitor the execution of services
- Enter and settle the costs which arise from the services

The data for the service order is entered in the history and is important for evaluations and future planning.

You can also create a one-time customer in the order and transfer the data, for example, to the sales order. For more information, see [Transfer of One-Time Customer Data \[Page 844\]](#) and [One-Time Customers and Vendors \[Ext.\]](#).

Structure

A service order contains operations that describe the individual work steps. An operation can be divided into sub-operations for greater detail.

Spare materials and utilities, which are required for service work, can be planned in the operation.

Integration

If several similar service notifications exist, they can be grouped together into a service order and completed.

Services at several similar objects installed at the customer can also be processed using a service order.

Spare Parts Order

Definition

Sales order used to process and supply required spare parts.

Use

When creating the notification, if you determine that only one spare part must be delivered and no technician is required, you can create a spare parts order immediately from the notification, which can be used for further processing. You can use the bill of material and configuration data for the object to determine the spare parts.

Integration

When you use spare parts orders, all the functions for shipping processing and transportation are also available.

For more information, see [Advance Shipment \[Page 1033\]](#).

Partner

Partner

Definition

Partners (business partners) are internal and/or external organizational units. For example, internal partners can be logistics and sales departments that perform services. External partners can be customers as service recipients and vendors as supporting service providers. A partner can be a natural or a legal entity. You can use partners in CS and PM processing.

Structure

Partner Type

The following partner types are delivered with the Standard System:

- Customer
- Contact person
- Vendor
- User
- Personnel number
- Organizational unit
- Position

Partner Function

You define partner functions in Customizing for Plant Maintenance and Customer Service. They are freely definable and always refer to a partner type. Standard functions exist (for example, goods recipient) and you can also define your own functions.

Partner Determination Procedure

The partner determination procedure is a grouping of partner functions. It specifies which partner functions are permitted or must always be specified for a particular business transaction (for example, for the processing of a service or maintenance order). In Customizing you define the partner determination procedure and assign partner functions to it. If functions are assigned to the partner determination procedure, you can assign the partner determination procedure to an object (for example, to a notification type).

Integration

You can assign partners to the following objects:

- [Functional location \[Page 375\]](#) and [equipment \[Page 375\]](#)

If you have defined in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Copy Partner Functions to Master and Movement Data*, which partners you want to copy, the system copies the respective partner functions when creating the notification with a technical object. For example, a particular technician, who performs a service to a piece of equipment, is assigned to a

customer. This technician can be specified as the partner in the equipment master record. In this case, the system copies the partner data into the notification.

- [Notification \[Page 885\]](#)
- [Order \[Page 377\]](#)

For more information on partner data in serial numbers see *Management of Serial Numbers* in [Partner Data \[Ext.\]](#).



The system offers you different search helps depending on the partner function. In the Standard System up to now, you could select organizational units using a search term. If the partner function of category *Employee* has been maintained in Customizing, you can search for organizational units using tasks as of Release 4.6C. The system displays a hit list of the organizational units which fulfill this task.

Customizing for Partners

Customizing for Partners

Purpose

You want to work with partners in your company.

Prerequisites

You can make the following settings in Customizing:

Function	Menu Path	What You Should Know
General settings		
You define the partner functions and the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Partner Determination Procedure and Partner Function</i>	If you want to work with partners, first define the partner functions, then define the partner determination procedure, and finally, assign the partner functions to the partner determination procedure.
You assign the partner functions to the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Movement Data</i>	
Notification		
The <i>Partner</i> tab should be visible in the notification	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Notification Types → Set Screen Templates for the Notification Type</i>	

Customizing for Partners

Assign notification type to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Partners → Define Partner Determination Procedure and Partner Function</i>	
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Processing → List Editing → Define Field Selection for Multi-Level List Displays of Notifications</i>	
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the notification. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.
Order		
Define partner determination procedure and assign order types to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Partner → Define Partner Determination Procedure and Partner Function</i>	The partner overview screen can be seen in the order by choosing the <i>Partner</i> tab. By choosing the <i>Overview</i> button, you go to a more detailed overview screen where you are able to perform further settings using the menu.
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the order. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.

Customizing for Partners

You define a transaction variant for the transaction in which an additional partner address is to be entered. Afterwards, you assign the transaction variant to the respective partner function	<i>General Settings → Field Display Characteristics → Configure Application Transaction Fields</i>	You can create a transaction variant per partner function, which defines the field selection.
You want to process the partner in the order header.		Partner Processing in the Order Header [Page 373]
Functional Locations		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Field Selection for Multi-Level List Displays of Functional Locations</i>	
The <i>Partner</i> tab should be visible in the functional location	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign functional location category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Define Category of Functional Location</i>	
Equipment		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Define Field Selection for Multi-Level List Displays of Equipment.</i>	

Customizing for Partners

The <i>Partner</i> tab should be visible in the equipment	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign equipment category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Assign Partner Determination Procedure to Equipment Category</i>	

For more information, refer to the documentation in Customizing for Plant Maintenance and Customer Service.

Partner Transfer

Partner Transfer

Use

You use this function to determine which partner the system copies from an object into the notification, order, and serial number. The system also copies the mandatory partner if one exists.

Features

Data source	Data destination
Master record of a functional location or of a piece of equipment	Notification when creating a notification for the reference object
Master record of a functional location or of a piece of equipment	Order when creating an order for the reference object
Notification	Order when creating an order for the notification
Delivery note	Serial number when posting goods issues



If you change the reference for notifications or orders at a later date, it is possible that the partner data will no longer correspond. You can then decide whether you want to copy the partner data of the new reference object.

Partner Processing in the Order Header

Use

The assignment and planning of employees is a vital element of effective customer service and efficient maintenance. As a rule, a service organization includes several organizational units with resources and is responsible for assigning and planning these resources.

When planning resources, it is normal to plan the available resources of the responsible organizational unit first, and not those of another organizational unit. In the SAP System, the organizational responsibility lies with the responsible work center for the order and its respective plant.

You can define that you want to process a partner directly in the order header in Customizing. You can maintain each partner function that you have assigned to the partner determination procedure for an order in Customizing.

In Customizing, you can assign different partner functions when assigning the partner determination procedure to the order. If the partner function is a type of person, for example, *Responsible employee*, you can select which search help the system should use in the field *SpecSearch*.

Prerequisites

The following Customizing settings are required for this function:

- In Customizing, choose *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Partner → Define Partner Determination Procedure → Assign Partner Determination Procedure to Order*.
- Assign the partner function that you want to process in the order header to the order type.
- Select the search help you want to use in the field *SpecSearch*.
- You have the following options:
 - If you do not select the field, the system offers you a collective search help for personnel numbers, for example, surname/first name, or organizational assignment.
 - If you select the field, you can search for employees assigned to a work center or for employees with particular qualifications who are assigned to a work center.

Copying the Partner into the Serial Number

Copying the Partner into the Serial Number

Use

Within the framework of a delivery, partner data is automatically transferred from the delivery note into the master record of the serial number when goods issues are posted.

Prerequisites

You have set the indicator *Copy Partner* in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Transaction Data*.


Furthermore, you have assigned the partner determination procedure and the corresponding functions to the equipment category under *Technical Objects → Equipment → Assign Equipment to Partner Determination Procedure*.

Features

The system copies the partner data from the delivery note into the serial number master record.

If partner data has already been specified in the serial number master record, this data is overwritten with the data from the delivery note. However, the system only overwrites partner data for which the indicator has been set in Customizing.


Creating a Partner for the Technical Object

2. Call up the technical object in Create or Change mode.
3. Choose .
4. First specify a partner function and then the corresponding partner.
5. Save the data.

Creating a Partner for the Notification

Creating a Partner for the Notification

1. Call up a notification in Create or Change mode.

2. Choose .

The Partner screen is displayed.

3. In this screen you can enter an additional address for each partner function. To do this, select the relevant partner function and choose *Change partner address*.

A dialog box is displayed in which data from the master record is possibly proposed. You can overwrite the data; the changes will not be copied into the master record. The partner address that you have entered is valid only for this notification.

4. Choose *Copy*.

You return to the Partner screen. The indicator for an additional address is now displayed.

5. You also have the following options in the Partner screen:

- Using the function *Delete Partner Address*, you can delete the additional address.
- If you enter a one-time customer as a partner, the system automatically prompts you to specify an address. It is only possible to create a one-time customer if an address is specified. It is not possible to delete just this address, because the system will also delete the partner function.
- If you choose *Delete partner assignment*, the system deletes the assignment (for example, to the notification) and the additional address.
- You can display the main partner changes (for example, change of sold-to party) for the notification in the [Action Log \[Page 875\]](#).

6. Save the data.



If you enter the reference object in the notification and choose *Continue*, you have the following options:

If partner data already exists for the reference object in the notification, a dialog box is displayed. You can copy the partner data from the reference object.

If you replace the reference object in the notification with another one, the dialog box is only displayed if the partner is different. You can select which partner data you want to copy.

Creating a Partner for the Order

1. Call up an order in Create or Change mode.

2. Choose the *Partner* tabstrip.

The Partner screen is displayed.

4. In this screen you can enter an additional address for each partner function. To do this, select the relevant partner function and choose *Change partner address*.

A dialog box is displayed in which data from the master record is possibly proposed. You can overwrite the data; the changes will not be copied into the master record. The partner address that you have entered is valid only for this notification.

5. Choose *Copy*.

You return to the Partner screen. The indicator for an additional address is now displayed.

6. You also have the following options in the Partner screen:

- Using the function *Delete Partner Address*, you can delete the additional address.
- If you enter a one-time customer as a partner, the system automatically prompts you to specify an address. It is only possible to create a one-time customer if an address is specified. It is not possible to delete just this address, because the system will also delete the partner function.
- If you choose *Delete partner assignment*, the system deletes the assignment (for example, to the order) and the additional address.
- You can display the main partner changes (for example, change of sold-to party) for the order in the [Action Log \[Page 875\]](#).

7. Save the data.



If you enter the reference object in the order and choose *Continue*, you have the following options:

If partner data already exists for the reference object in the order, a dialog box is displayed. You can copy the partner data from the reference object.

If you replace the reference object in the order with another one, the dialog box is only displayed if the partner is different. You can select which partner data you want to copy.

Task Lists (CS-AG/PM-PRM-TL)

Purpose

Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company. Task lists are used to standardize these recurring work sequences and to plan them more effectively. Many manufacturers deliver their technical objects together with maintenance task lists; these task lists are, however, frequently created within the company itself.

Activities for a technical object include for example

- Inspections
- Maintenance
- Repairs

Task lists help to reduce the maintenance effort when standardized work sequences change, for example as a result of new legal regulations. You must carry out the changes at exactly one place in the corresponding maintenance task list. All maintenance orders and maintenance items that refer to the maintenance task list automatically receive the actual status of the work sequences.

Integration

Using maintenance task lists, you can reduce the time required to create maintenance orders and maintenance items as you can refer back to the operations and sequences already entered in the maintenance task list.

Moreover, you can include inspection characteristics from the Quality Management module in maintenance task lists and if necessary, include the task lists in the test equipment management function. This is advisable, for example, if you want to keep individual data for each piece of test equipment or if you want to have a record of the results history. For more information, see [Test Equipment Management \[Ext.\]](#).

Features

You can use maintenance task lists in the following areas of Plant Maintenance:

- Planned maintenance
- Ongoing maintenance

Maintenance task lists contain important information such as the spares and tools required for the work steps or the time required to perform the work.

Planned Maintenance

The term “Planned maintenance” includes all the maintenance work you can plan for the scope of work and deadlines, that is, inspection, maintenance and planned repairs.

In the PM application component, you can also define the intervals at which individual work steps should be executed in the task list for planned maintenance. You assign these task lists to a maintenance plan in maintenance planning. This ensures that only operations in the maintenance order that have been assigned to the maintenance package due can be copied when scheduling work. The system creates maintenance orders when a maintenance plan is due.

For more information, see [Maintenance Planning \[Page 521\]](#)

Ongoing Maintenance

All maintenance work that does not come under planned maintenance is classed under ongoing maintenance.

Task lists for ongoing maintenance serve as the basis for a maintenance order and can be used based on the results of the current inspection.

You can also use maintenance task lists as a model and aid for capturing data when processing maintenance orders by assigning a task list to an order. This considerably reduces the amount of work preparation for maintenance activities.

If, for example, you are creating a maintenance order for a task whose operations have already been described in detail in a maintenance task list, enter only this task list and the performance deadlines in the order. The system will copy the individual operations from the maintenance task list.

For further information, see [Work Scheduling with Maintenance Task Lists \[Page 1152\]](#)

Configurable Maintenance Task Lists

It is also possible to create super task lists in which you describe all possible operations for maintenance activities for different object types. According to requirements, you can configure a suitable variant for a technical object from the super task list which means that you do not have to create your own task list every time.

For further information, see [Configurable General Maintenance Task Lists \[Page 511\]](#)

Maintenance Task Lists

Definition

Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company.

There are three types of maintenance task lists that can be distinguished from one another using indicators:

- [Equipment Task List \[Page 383\]](#)
- [Functional Location Task List \[Page 384\]](#)
- [General Maintenance Task List \[Page 385\]](#)

Use

You can use all three task list types for ongoing and planned maintenance.

If you want to use the general maintenance task list for planned maintenance you must assign the task list to a maintenance plan or one or more maintenance items. The operations described in the general maintenance task list are performed for all technical objects that you have assigned to the maintenance item. The operations fall due at the times calculated by the system while scheduling the maintenance plan.

For more information on maintenance plans, see the documentation [PM - Maintenance Planning \[Page 521\]](#).

Structure

You can group together all similar maintenance task lists for groups. The [Task list group \[Page 381\]](#) contains a series of maintenance task lists that describe similar maintenance tasks, for example, oil changes for cars and trucks.

You describe the maintenance tasks to be performed in the individual elements of the maintenance task list. The most important elements are:

- [Operations \[Page 1099\]](#)
- [Sub-operations \[Page 447\]](#)
- [Material Components \[Page 455\]](#)
- [Maintenance Packages \[Page 578\]](#)
- [Production Resources/Tools \[Page 464\]](#)
- [Relationships \[Page 494\]](#)

Task List Group

Definition

Maintenance task lists (PM task lists) are grouped into task list groups. A task list group includes all maintenance task lists with similar maintenance flows (for example, oil changes for cars and trucks). Task lists within a task list group are identified by a group counter.

If you create a maintenance task list ([Equipment Task List \[Page 383\]](#), [Task List for Functional Location \[Page 384\]](#) or [General Maintenance Task List \[Page 385\]](#)) for the first time, the system will automatically assign a new group and the counter 01 to your task list.

Use

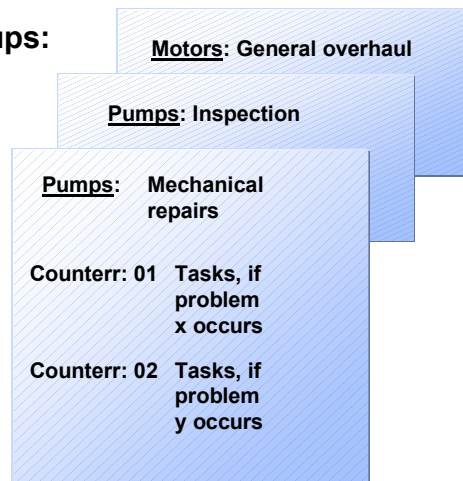
The task list group has more significance for general task lists, as they are called up using the task list group number. Group numbers for general task lists can be assigned either internally or externally. Group numbers for equipment task lists and task lists for functional locations can only be assigned internally.

The SAP System treats all maintenance task lists within a group as one unit. It is therefore recommended that you assign general maintenance task lists to several small groups. This considerably reduces the volume of data that must be processed when the group is accessed and has a positive effect on the system response time.



In your company you have created two groups for "Inspection" and "Mechanical Repairs". The individual maintenance task lists within the group "Mechanical Repairs" are identified by the task list counter numbers 01 and 02.

Task list groups:



Task List Group

Equipment Task List

Definition

Equipment task lists have a specific link to a piece of equipment. Using equipment task lists, you can centrally define and manage maintenance tasks for your pieces of equipment. Equipment task lists can also help you to prepare maintenance plans and orders.

Within a task list group, each equipment task list is identified by a group counter. This enables you, for example, to combine several equipment task lists in one group. Within the group, the system allocates a sequential number - the group counter - to each individual equipment task list.

Task List for Functional Location

Definition

A functional location task list is assigned to a specific functional location. Using a functional location task list, you can centrally define and manage maintenance tasks for your functional location. Functional location task lists can also help you to prepare maintenance plans and maintenance orders for functional locations.

Within a task list group, each functional location task list is identified by a group counter. This enables you, for example, to combine several functional location task lists in one group. Within the task list group, the system assigns a sequential number - the group counter - to each individual functional location task list.

General Maintenance Task List

Definition

General maintenance task lists are task lists that are used for general maintenance tasks. They do not refer to a specific technical object. Using general maintenance task lists, you can define and manage sequences of maintenance tasks centrally, and use them for work scheduling.

Within a group, you can create several individual general maintenance task lists. The system automatically assigns a sequential number, the group counter, to each general maintenance task list. This clearly identifies each general maintenance task list within the group.

Use

General maintenance task lists help you to prepare maintenance plans and orders. Furthermore, you can use these task lists to reduce the time spent creating equipment task lists.

Operation

Operation

Definition

You can describe the individual maintenance tasks to be performed in the operations. An operation specifies the time, work center and other control information required for the maintenance task. You can describe how the task is to be performed in the operation text.

Use

Operations have the following tasks in the PM component:

- Determination of capacity requirements
- Specification of whether a task should be carried out internally (internal processing) or externally (external processing)
- Maintenance of status
- Determination of deadlines on the operational level
- Specification of the required spare parts and resources (for example, special tools)
- Determination of flow in task completion through relationships between operations

You can assign service packages to both kinds of operations if this is allowed by the control key you have entered. Using service packages enables you to

- Plan services in all dimensions
- Jointly plan services to be performed in different dimensions
- Define services uniformly
- Structure services in an unlimited number of levels
- Make basic agreements
- Agree on conditions
- Use service catalogs
- Better describe work content

Control Key

The control key specifies which operations should be performed. You can specify the following, for example:

- Scheduling
- Confirmation
- Settlement
- External processing
- Printing
- Costing

- Service specifications maintenance

You define the operation type using a control key. The control key specifies:

- Operation type, that is, whether internally or externally processed
- The business functions to be performed in the operation, for example, whether a purchase order will be created for the operation
- How the operation is handled while it is being processed, for example, whether it will be taken into account in costing or whether it should be printed and confirmed

For each operation it is possible to create data for both internal and external processing.

You must first assign a control key to be able to decide whether the operation should be processed internally or externally. You can enter the control key in the *Operation overview* screen and the detail screens for the individual operations.

Integration

It is possible that you are not able to overwrite certain values that the system copies into the task list. These values originate from the master record of the work center you have entered in the task list, and are marked with a reference indicator. This indicator shows that these values are obligatory and cannot be overwritten at any point (for example, in a task list or maintenance order) where they refer to the work center.

Sub-Operations

Sub-Operations

Definition

In the PM component, you can create sub-operations for all the operations in a maintenance task list. Sub-operations represent an additional level of detail for an operation and are situated hierarchically below an operation. You can assign several sub-operations to one operation. This can be an advantage in the following scenarios:

- Several work centers are required in one operation.
- Employees with varying qualifications and skills are working simultaneously on the same operation.

Sub-operations may contain some of the same information as operations, for example,

- Work center assignment
- Control key
- Start and end dates

Structure

There are two types of operations for maintenance task lists in the PM component:

- Internal processing
- External processing



You can divide the operation "Inspection" into two sub-operations:

- Motor inspection
- Building inspection

You can also add a sub-operation to your operation if part of the task is to be processed externally. For example, the sub-operation "motor inspection" could be performed by a third party. In this case, the sub-operation will contain a purchase requisition for the external labor.

You can create different types of sub-operation for one operation. For example, you can create externally processed sub-operations for an **internally** processed operation and vice versa.

For more information on sub-operation, see [Features of the Sub-Operation \[Page 448\]](#).

Internally Processed Operations

Definition

Internally processed operations are operations that are performed in your own company by internal personnel.

Structure

The detailed data you can enter in internally processed operations can be divided into two basic groups:

- Internally processed data: for example, work, activity type, duration.
- Wage data: for example, wage group, wage type, qualifications.

External Processing Operations

External Processing Operations

Definition

Operations that are performed by a third party are called external processing operations.



You send out a machine construction order to a company. The construction of the machine is therefore an external processing operation. The system automatically creates a purchase requisition from the operation data entered. This purchase requisition contains the quantity and dates. The purchasing department creates a purchase order based on this purchase requisition.

Structure

The detailed data you can enter in external processing operations can be divided into two basic groups:

- External processing data
- Procurement option data

External processing data contains information from the supplier on net price and planned delivery time. The procurement option data contains vendor account and purchasing information, such as the purchasing info record, purchasing group and organization.

Control Key

Definition

The control key is a default value which defines how an operation should be processed.

It is entered in the operation overview or on the detail screen for the operation.



If a default value for the control key was specified in your system using the Customizing function, the system proposes this as the entry. You can overwrite it, if necessary.

Use

You can define control keys in the Customizing of Plant Maintenance under *Functions and Settings for Order Types* and under *Task List Data*.

You can enter the following information for each control key:

Control Key/Indicator	Use
Schedule	Controls whether an operation is scheduled or determines the time position of a sub-operation. If you do not set the indicator, the operation or sub-operation is not scheduled.
Determine capacity requirements	Controls whether capacity requirements records are generated for an operation or sub-operation. If you set this indicator, you must also set the indicator <i>Scheduling</i> . The system only generates capacity requirements records if you maintain the relevant formulae.
Estimate costs	Controls whether the system considers an operation or sub-operation in costing.
Print	Controls whether you can print shop papers for an operation or sub-operation.
Print time ticket	Controls whether you can print time tickets for an operation or sub-operation.
Completion confirmation	Controls whether and how you confirm an operation or sub-operation.
Print confirmation tickets	Controls whether you can print confirmation tickets for an operation or sub-operation.
External processing	Controls whether an operation or sub-operation is processed externally.
Service	Controls whether you can plan services for an operation.

Control Key

Scheduling of an external operation with standard values	Controls whether the system also schedules an operation using its standard values if it is processed externally. This setting is only considered by the system if you also mark the control key as externally processed (field <i>External processing</i>).
--	---

Maintenance Task Lists for Planned Maintenance

Use

You can use maintenance task lists for both recurring and planned maintenance. This includes inspections, preventive maintenance and planned repairs.

Using maintenance task lists for planned maintenance has the following advantages:

- **Improved resources planning**
Improved planning results in better control over resources, such as manpower and material.
- **Improved production planning**
Better co-ordination between Plant Maintenance and Production results in more information about planned shutdowns.
- **Improved machine availability**
Planned preventive maintenance reduces unplanned downtime.

Integration

In the PM component you can create all three types of maintenance task lists for planned maintenance tasks:

- Equipment task lists
- Functional location task lists
- General task lists

You can find additional information on planned maintenance under [Maintenance Planning in the PM Component \[Page 521\]](#)

Prerequisites

The prerequisites for creating a maintenance task list are different and depend on the type of maintenance plan for planned maintenance that you use for the task list.

- **Single cycle plans, multiple counter plans**
You do not have to take any prerequisites into account if you want to use a maintenance task list for single cycle plans or multiple counter plans. The assignment of a maintenance strategy is not necessary.

If a maintenance strategy has been assigned to a maintenance task list, you can also use it for single cycle and multiple counter plans.
- **Strategy plans**
You must assign a maintenance strategy to a task list if you want to use the task list for strategy plans. You can then allocate the maintenance packages from this strategy to the operations within the task list.

A maintenance strategy represents the scheduling rules for preventive maintenance tasks. It contains general scheduling data and describes which maintenance packages

Maintenance Task Lists for Planned Maintenance

are valid for a technical object. A maintenance package is a series of tasks that are to be performed at a given point in time or once a specified counter reading is reached.

By allocating maintenance packages to the individual operations in your task list, you define the frequency in which the operations are to be performed. For example, every two months, every 1000 km, every 500 operating hours.

Activities

1. Call up the maintenance task list in the create or change mode, and choose *Operation → Overviews → Maintenance packages*.

The *Maintenance package overview* screen is displayed.

2. You assign the maintenance packages to the selected operations in the *Maintenance package overview* screen.

Number Assignment for Maintenance Task Lists

Use

When you create your first maintenance task list, it will be posted with a group number and a group counter number. The system saves each further task list you create for the same piece of equipment or within the same group will be assigned a counter.

Number Assignment for Equipment Task Lists and Functional Location Task Lists

Numbers for equipment and functional location task lists are assigned internally. When you have created an equipment or functional location task list, the system issues a message with the number it has assigned to the task list. The first task list you create for a specified piece of equipment or functional location will be identified by a group number and a counter number. Further task lists for the same piece of equipment or functional location will simply be identified by a counter number within the group.

Number Assignment for General Maintenance Task Lists

Number assignment for general maintenance task lists works on the same principle as for equipment task lists. However, you can assign internal and external numbers to general task lists. The group number is more important for general maintenance task lists as it is used to access the task list.

If you use external number assignment for the general task lists in your company, you must specify an alphanumeric or numeric group identification for the general task list. This number must not have been previously assigned and it must be within the number range defined for your company. The number range for general maintenance task lists in your company is defined using the customizing function. If you want to know which numbers are valid for your maintenance task list type, contact your SAP Systems Administrator.

Copying Data in Technical Objects

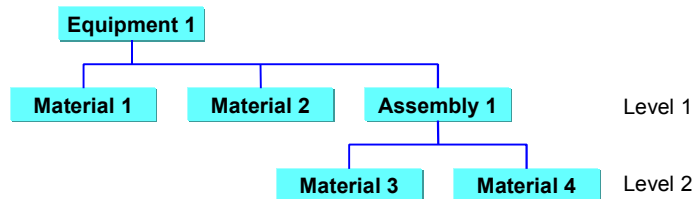
Use

If you create a maintenance task list for a piece of equipment, or a functional location with a bill of material (BOM), you can use an existing maintenance task list for a piece of equipment or functional location with an identical structure, but its own BOM number, as a reference. The system will only copy certain objects from the reference.

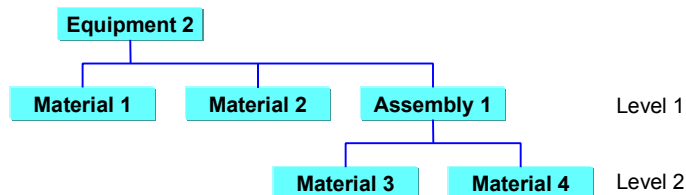
Features

The following example clearly explains how the system copies data:

Equipment 1 has the following structure:



Equipment 2 is bought at a later date. Its structure is identical to that of Equipment 1 and you therefore copy the bill of material from Equipment 1. This means that the bill of material for Equipment 2 has a different number from that of Equipment 1.



The maintenance task list 1 already exists in the *Plant Maintenance* application component for Equipment 1. Materials 1 through 4 from the equipment BOM are assigned to this task list.

Copying Data in Technical Objects

For Equipment 2, you can create the maintenance task list *task list 2* using the maintenance task list *task list 1* as a reference.

Result

Maintenance task list *task list 2* contains only materials 3 and 4.

Reason

When you create a maintenance task list using a reference, the system **only copies parts with an identical bill of material reference**. Only materials 3 and 4 have the same reference in both equipment task lists, that is, *Assembly 1*. In contrast, materials 1 and 2 refer to *Equipment 1* and *Equipment 2* respectively.

Recommended Change

To ensure that the system copies all the materials assigned to the reference, when you create a maintenance task list using a reference, you must create one bill of material that is valid for all the identically structured pieces of equipment. To do this you must specify a construction type for each piece of equipment and create a bill of material for this construction type. This bill of material is identical to the bill of material for *Equipment 1* from the example. However, as it has an individual number and as this number is included in the master record for each identical bill of material, the identical bill of material reference is produced. When you create a maintenance task list using a reference, the system can therefore copy all the materials assigned in the reference.

Creation of a Profile

Creation of a Profile

Use

Often certain fields in different maintenance task lists contain the same values or data. To reduce the entry time required, you can create a profile. A profile contains standard information which you require in the same or similar combinations when processing maintenance task lists.

Function

When you create a maintenance task list, you can enter the key for the profile containing the data you require in the initial screen. The system automatically enters this data in the maintenance task list. You can overwrite the data if necessary. For further information, see [Creating a Maintenance Task List: Initial Screen \[Page 401\]](#).

You can specify the following in a profile:

- The fields in which data will be entered when you create a maintenance task list
- Data to enter in these fields

Activities

To create a profile in a maintenance task list, choose *Settings → Profile*.

Determination of Validity

Use

Each element in a maintenance task list (for example, operation, sub-operation, material component) is valid for a certain period of time. You can specify validity by entering the **key date** when creating or changing a task list.

Features

If you change a task list or an object within a task list using a **change number**, the system overwrites the key date with the “Valid from” date specified for the change number.

The validity of an object depends on

- Processing type, and
- Change number entries

The following table clearly explains the dependencies:

Processing type	Change number	Validity
Create	Yes	Unlimited from the change number date
Create	Yes	Unlimited from the change number date
Change	No	From the last valid date Example: From the date the task list was created or from the change number date if the task list was previously changed using a change number
Change	Yes	From the change number date

Creation of a Maintenance Task List

Purpose

Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company. The functions for creating data in equipment task lists, functional location task lists and general maintenance task lists are very similar and will therefore be dealt with jointly in this section.

Process Flow

1. You create a maintenance task list with or without reference and enter the header data (for example, short text, maintenance planner group, status).
2. You create operations and, where necessary, sub-operations and enter detail data for internal or external processing.
3. You can include user data in the operations or sub-operations, as required.
4. You can enter dates for sub-operations if the start or end of the sub-operations affects the operations.
5. You can assign the following objects to the operations:
 - Material components
 - Production resources/tools
 - Maintenance packages
 - Inspection characteristics
6. You can arrange the operations according to time by defining relationships.
7. You can perform a cost analysis.

See also:

[Configurable General Maintenance Task List \[Page 511\]](#)

Creating Maintenance Task Lists

Use

If you want to describe a sequence of individual maintenance activities that must be performed at continuous intervals, create a maintenance task list. The functions for creating data in equipment task lists, functional location task lists and general maintenance task lists are very similar and will therefore be dealt with jointly in this section.

If you want to create a maintenance task list in which, for example, you describe all possible operations for a particular object type and from which you would later like to configure the necessary operation, create a configurable general maintenance task list. For further information see [Configurable General Maintenance Task Lists \[Page 511\]](#)

Procedure

1. Use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.
You are now on the *Maintenance Task Lists* menu.

2. Use one of the following menu paths:

Function	Menu path
Create equipment task list	<i>Task lists → For equipment → Create</i>
Create functional location task list	<i>Task lists → For functional location → Create</i>
General maintenance task list	<i>Task lists → General task lists → Create</i>

The initial screen for creating general maintenance task lists is displayed.

3. The data you enter in the initial screen (for example [Creation of a Profile \[Page 398\]](#) as an aid for capturing data) and the features of the [Number Assignment \[Page 395\]](#) are independent of the maintenance task list type you want to create.

Enter the required data as described in the table:

Function	Data entry	Screen
Create equipment task list	Enter the equipment number and if necessary the existing profile number and choose <i>Continue</i> .	If an equipment task list already exists, the <i>Task list overview</i> screen is displayed. If no equipments task list exists, the <i>General overview</i> screen is displayed.
Create functional location task list	Enter the identification of the functional location and if necessary the existing profile number and choose <i>Continue</i> .	If a functional location task list already exists, the <i>Task list overview</i> screen is displayed. If no functional location task list exists, the <i>General overview</i> screen is displayed.

Creating Maintenance Task Lists

Create general maintenance task list	Enter no data and choose <i>Continue</i> . or: Enter the existing group number and choose <i>Continue</i> .	If a general maintenance task list exists, the <i>Operations overview</i> screen is displayed. If no general maintenance task list exists, the <i>General overview</i> screen is displayed.
	Enter the existing external alphanumerical group number and choose <i>Continue</i> . or: Enter the existing profile number and choose <i>Continue</i> .	The <i>General overview</i> screen is displayed.

4. Depending on the screen displayed, continue as described below:
 - Screen *Task list overview*
 To create a new maintenance task list from this screen, use the menu bar sequence *Edit → New entries*.

 You are now on the *Header General View* screen where you can process all the relevant data (see [Entering Header Data \[Page 403\]](#)).
 - -Screen *Header General View*
 To create a new maintenance task list from this screen, enter the task list header data (see [Entering Header Data \[Page 403\]](#)).
5. Save the maintenance task list.

Entering Header Data

Use

In the PM component, the maintenance task list header contains data that is valid for the entire maintenance task list. Typical header data is:

- Short text
- Maintenance planner group
- Status
- Maintenance strategy



The system automatically copies the short text from the piece of equipment or functional location as a short text to the maintenance task list. You can overwrite this if necessary.

It is possible that you are not able to overwrite certain values that the system copies into the task list. These values originate from the master record of the work center you have entered in the task list, and are marked with a reference indicator. This indicator shows that these values are obligatory and cannot be overwritten at any point (for example, in a task list or maintenance order) where they refer to the work center.

Procedure

1. Call up the Header data screen of the maintenance task list (see [Creating Maintenance Task Lists \[Page 401\]](#)).
2. Enter the necessary data.
3. To enter a long text for the task list header, use the menu bar sequence *Task list header* → *Edit long text*.
4. Enter an assembly if necessary. In this way, you can:
 - Create the general maintenance task list for a specific **assembly**
To do this, enter the number of the required assembly.
 - Create the general maintenance task list for a specific **object type**
To do this, enter the number of the required construction type.
If you specify a construction type number here, the system selects all task lists that are valid for the reference object **and** all task lists that are valid for the construction type that is specified in the master data for the reference object, when performing an object-based search of task lists.

If you are creating an equipment or functional location task list, you can use a structure display to select the assembly. Use one of the following menu bar sequences:

- *Extras* → *Select construction type* → *Structure display*
- *Extras* → *Select construction type* → *Structure graphic*

Entering Header Data

If you enter the assembly number directly in an equipment or functional location task list and the system ascertains that the assembly does not belong to the bill of material for the piece of equipment or functional location, the system will issue an appropriate message. If you choose *Continue* the system will display a structure list from which you can select a valid assembly.

5. When you have finished entering the header data in your task list, you have the following options:
 - Exit the entry mode by saving the data.
 - Create operations (see [Creating an Operation \[Page 437\]](#)).

Creating a Maintenance Task List Using a Reference

Use

If you want to create a new maintenance task list (equipment task list, functional location task list or general maintenance task list), you can reduce the time required for data entry by using an existing maintenance task list as a reference. The system copies the data in the task list (for example, header data, operations) to the new maintenance task list. You can overwrite data if necessary.

You can use **all** types of task list to create an equipment task list, functional location task list or a general maintenance task list with a reference.

Procedure

1. Use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.
You are now on the *Maintenance Task Lists* menu.
2. Use one of the following menu paths:

Function	Menu path
Create equipment task list	<i>Task lists → For equipment → Create</i>
Change functional location task list	<i>Task lists → For functional location → Create</i>
General maintenance task list	<i>Task lists → General task lists → Create</i>

The initial screen for creating general maintenance task lists is displayed.

3. To create an equipment or functional location task list, enter the equipment number or identification for the functional location and all further necessary data in the initial screen.

To create a general maintenance task list, the number you enter depends on the type of number assignment to be used for that particular task list:

- External number assignment:

Enter an alphanumeric key in the field *Task list group*.

- Internal number assignment:

Do not enter any data in the field *Task list group*. As soon as you have entered all the other data for the general task list and saved, the system will automatically assign a number.



Do **not** choose Continue here.

4. Choose one of the following menu paths on the initial screen:

Function	Menu path
----------	-----------

Creating a Maintenance Task List Using a Reference

Create an equipment task list using a reference	<i>Equipment task list → Copy reference</i>
Create functional location task list using a reference	<i>Functional location task list → Copy reference</i>
Create general maintenance task list using a reference	<i>General maintenance task list → Copy reference</i>

The dialog box appears.

5. Enter the type of task list you want to use as a reference in the dialog box. Select the maintenance task list type you want to use as a reference and choose *Continue*.
6. Another dialog box appears. It contains fields for the selection of a maintenance task list that you want to use as a reference for the new task list.

Enter the necessary data and choose *Continue*.

7. Another dialog box appears. It contains a list of the task list groups corresponding to the selection you made.



It is possible that only one maintenance task list meets the selection criteria you defined.

No list is displayed in this case. The reference data is displayed in the *Header General View* of the new task list.

Select a maintenance task list from the list whose data you would like to copy to the task list you want to create.

In this case a list will not be displayed. Choose *Continue* to copy the data in the new task list.

8. Change or add to the required data.



The system will **not** copy the following reference data to the new maintenance task list:

- Maintenance packages maintenance task list for planned maintenance
- freely-assigned materials

Pay attention to the special features of maintenance task lists for structured technical objects. For more information see [Copying Data in Structured Technical Objects \[Page 396\]](#).

9. Save the maintenance task list.

See also:

[Entering Header Data \[Page 403\]](#)

Creating an Operation

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.

You are now on the screen for entering operations.

2. Enter the necessary data.
Be careful to enter the correct control key.
3. The following options are available to you once you have entered all the data for the operations.
 - Save the data.
 - Enter additional data for the operations (see [Entering Detail Data in Operations \[Page 439\]](#)).

Entering Detail Data in Operations

Entering Detail Data in Operations

Use

There are two types of operations for maintenance task lists in the PM system:

- [Internal Processing Operations \[Page 389\]](#)
- [External Processing Operations \[Page 390\]](#)

The data in operations is especially important for work scheduling when the maintenance task list is included in the maintenance order and order is planned.

You can also enter user-defined data for both types of operation. For more information, see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
2. Select the operations for which you want to enter detail data.
3. Select one of the following options to enter detail data:

Function	Menu path	The Detail data screen is displayed.
Enter internal processing data	<i>Operation → Internal processing</i>	for internal processing operations
Enter external processing data	<i>Operation → External processing</i>	for external processing operations

4. Enter the necessary data.

To refer to service specifications during external processing operations see [Creating an External Processing Operation with Reference to Service Specifications \[Page 443\]](#).

You now have the following options:

- Call up the next selected operation to enter detail data for this operation (see step 5).
- Call up another operation type (internal or external processing) and enter detail data (see step 3).
- Go back to the *Operation overview* screen (see step 6).
- Save your entries.

5. To go to the next selected operation, use the menu bar sequence *Operation → Further operations → Next operation*.

You go to the same data entry screen for the next selected operation.

You can only call up the operations that you have selected in the *Operations overview* screen.

6. Return to the *Operation overview* screen.

You now have the following options:

Entering Detail Data in Operations

- Save the data.
- Enter user data (see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)).
- Create sub-operations for the operations you have already entered (see [Creating a Sub-Operation \[Page 449\]](#)).

Including User Data in Operations/Sub-Operations

Including User Data in Operations/Sub-Operations

Use

User data consists of all the fields that are defined using the customizing function and identified by a field key. They can be used to include additional, user-specific data for a particular operation or sub-operation.

You can define the following fields:

- General user fields
 - 10 character fields
 - 20 character fields
- Quantity fields
- Value fields
- Date fields
- Selection fields

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
2. Select the operations and sub-operations for which you want to enter user data.
3. Use the menu bar sequence *Operation → User data*.

The *User data* screen is displayed. The data that you have already entered for the operation/sub-operation is displayed here.

4. To enter your operation-specific user data, enter the key in the *Field key* field.



You can only use the keys that you have defined in Customizing.

5. Choose *Continue*.

The system will display the fields defined for this key.
6. Enter the necessary data.

If you have selected more than one operation or sub-operation, you can call them up using the menu bar sequence *Operation → Further operations → Next operation*.
7. The following options are available to you once you have entered all the data.
 - You can return to the screen *Operation overview*. To do this, choose *Goto → Back*.
 - Save the user data.

Creating Ext. Ops. With Service Specification Ref.

Use

When you create externally processed operations based on service specifications (see [Service Specifications \[Ext.\]](#)), you can use the general task description as stored in the service specifications. You must describe how to perform the task in the operation of your maintenance task list - not in the service specifications - as only there can you enter materials, production resources/tools, personnel and so on.

As a maintenance task list is exploded in a maintenance order, the system creates a purchase requisition that also refers to the service specifications used in the operation.

For a detailed description of service specifications and external services management, see the documentation *MM - External Service Management*. The following topic merely describes how to include service specifications in maintenance task lists.

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
2. Enter a control key in the operation you want to have a reference to service specifications to create the reference to external services management. The control key must be flagged as a *Service* indicator.
3. Enter the operation short text and choose *Continue*.
You are now on the screen for external processing.
4. Enter all the relevant data, for example, purchase order quantity, purchase order quantity unit, material group and purchasing group.
5. Choose *Continue*.
A pop-up window will appear and the system will ask you if you want to create a hierarchy.
If you answer *YES*, perform steps 5 and onwards.
If you answer *NO*, perform step 6.
6. Create the hierarchy (see documentation *MM - Service*).
To call up the individual service lines for a grouping level, double click on the level.
You are now on the screen for maintaining service specifications in externally processed operations.
7. Position your cursor on the service line and enter the service.
You can also select the service using the menu bar sequence *Service specs. → Service selection*
In the pop-up window that appears, select the purchase requisition or purchasing object you want to use as a reference. The system copies the specifications to the service lines in the externally processed operation.
8. Return to the data screen for external processing.

Creating Ext. Ops. With Service Specification Ref.

The system copies the purchase quantity and the corresponding quantity unit from the service lines and shows the net price summed up for this operation. You can no longer change the data in the screen for external processing.



On the screen for external processing data, you may also refer to an outline agreement or outline agreement item. The system automatically transfers this reference to the purchase order requisition when an order pointing to this task list is released (see documentation *MM - Purchasing*).

Assigning Maintenance Packages

Use

If you want to use a maintenance task list for planned maintenance (see [Maintenance Task Lists for Planned Maintenance \[Page 393\]](#)) you can assign maintenance packages to individual operations in a maintenance task list. You cannot assign maintenance packages to sub-operations.

The assignment of maintenance packages has been simplified for Release 4.5A. You can also assign maintenance packages as before (up to Release 4.5A). For more information see [Assigning Maintenance Packages \(to Release 4.5A\) \[Ext.\]](#).

Prerequisites

You have entered a maintenance strategy in the header of the maintenance task list (see second step).

Procedure

1. Call up the maintenance task list in create or change mode.
2. If you have not yet assigned a maintenance strategy to a maintenance task list, use the menu bar sequence *Goto → Task list header → General view*.
 - a) Enter a maintenance strategy in the *Header General view* screen.
 - b) Use the menu bar sequence *Goto → Operation overview*.
3. Choose *Maintenance packages*.

The *Maintenance package overview* screen is displayed.
4. Select the packages that you want to assign to individual operations.



Once you have assigned maintenance packages to operations, you cannot change the maintenance strategy assigned to your maintenance task list.

5. Save the maintenance task list.

Creating a Sub-Operation

Creating a Sub-Operation

Use

Sub-operations represent an additional level of detail for an operation and are situated hierarchically below an operation. You can create different types of sub-operation for one operation. For example, you can create **externally** processed sub-operations for **internally** processed **sub**-operations and vice versa.

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
2. Enter an operation (see [Creating an Operation \[Page 437\]](#)) and choose *Continue*.
3. In the data entry line below the operation you have just entered, the system will propose the next sequential number.



You have just entered operation 0030.

In the next operation line you will see the number 0040.

4. Overwrite the number proposed by the system with the number of the operation that you have just created (0030 in the above example). Enter the number of the sub-operation in the column *UVrg*. Enter the necessary data.
5. To create more sub-operations for the same or another operation, repeat step 4 as often as required.
6. To insert a sub-operation in a list of existing operations, position your cursor on the operation line **following** the operation for which you want to create a sub-operation.



If you want to create a sub-operation for operation 0030, position your cursor on the operation 0040.

Then use the menu bar sequence *Edit → Insert*.

The system enters an appropriate line where you can enter data. Enter the required data as described in the previous steps:

7. To display your entries, use the menu bar sequence *Goto → Operation overview*
8. If you assign a sub-operation to the wrong operation, you can easily change it by overwriting the operation number with the number of the operation to which the sub-operation should be assigned, and choosing *Continue*.
9. The following options are available to you once you have created all the necessary sub-operations.
 - Save the data.
 - Enter further data for the sub-operations.

Creating a Sub-Operation

For more information on the data you can enter for sub-operations, see

- [Including Detail Data in Sub-Operations \[Page 452\]](#)
- [Entering Dates in Sub-Operations \[Page 451\]](#)
- [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Entering Dates in Sub-Operations

Use

You can specify in a sub-operation when you want it to start or end in relation to the relevant operation. To do this, use the start/end reference date together with the start/end offset. The system uses these specifications to calculate the start or end date for the sub-operation.

The time references have no influence on the duration of a sub-operation. The actual duration of a sub-operation is specified in the detail data of the sub-operation. It is not used for scheduling an operation. Only the duration specified in the operation is used for scheduling.

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
2. Select the sub-operation or sub-operations for which you want to enter the start and end dates.
3. Use the menu bar sequence *Operation* → *Sub-operation deadline*.
You are now on the *Sub-Operation - Usage dates* screen.
4. Enter the necessary data.
Note that you must enter a **positive** offset for the start of a sub-operation (start of the operation plus n units of time) and a **negative** offset for the end of the sub-operation (end of the operation minus n units of time).
5. Save the deadlines.

Including Detail Data in Sub-Operations

Use

You can enter detail data for operations and sub-operations in the PM system. There are two types of sub-operations corresponding to the operations:

- [Internal Processing Operations \[Page 389\]](#)
- [External Processing Operations \[Page 390\]](#)

You can enter user-specific data for both types of sub-operations. For more information, see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Procedure

Execute the steps described in [Entering Detail Data in Operations \[Page 439\]](#).

Including User Data in Operations/Sub-Operations

Including User Data in Operations/Sub-Operations

Use

User data consists of all the fields that are defined using the customizing function and identified by a field key. They can be used to include additional, user-specific data for a particular operation or sub-operation.

You can define the following fields:

- General user fields
 - 10 character fields
 - 20 character fields
- Quantity fields
- Value fields
- Date fields
- Selection fields

Procedure

8. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
9. Select the operations and sub-operations for which you want to enter user data.
10. Use the menu bar sequence *Operation → User data*.

The *User data* screen is displayed. The data that you have already entered for the operation/sub-operation is displayed here.

11. To enter your operation-specific user data, enter the key in the *Field key* field.



You can only use the keys that you have defined in Customizing.

12. Choose *Continue*.

The system will display the fields defined for this key.

13. Enter the necessary data.

If you have selected more than one operation or sub-operation, you can call them up using the menu bar sequence *Operation → Further operations → Next operation*.

14. The following options are available to you once you have entered all the data.
 - You can return to the screen *Operation overview*. To do this, choose *Goto → Back*.
 - Save the user data.

Documentation of Changes

Use

You can document changes to maintenance task lists. This may be necessary in the following cases for example:

- New environmental protection or occupational safety regulations come into effect affecting continuous and regular maintenance.
- Changes may require further tasks in the plant and must be traceable (for example, using another spare part leads to changes in the maintenance task list).

Change documents are sufficient if you do not require a precise historical presentation for changes in the maintenance task list; you can make the changes without a history.

Prerequisites

If you make changes with a history, the field *Active* for the object type *Plan* must be selected in the change master record that you create or use for the changes.

To define the object type *Plan*, choose *Logistics* → *Central functions* → *Engineering change management* → *Change master record* → *Change* and then *Goto* → *Object types*.

Features

You have two options for modifying a maintenance plan or its elements. You can

- change with a history,
- change without a history.

Changes with a History

If you make changes to your maintenance task list with a history, the system will document and save these changes along with the change management data to produce change master records. This means, at any time, you can call up:

- The data contained in the task list before the changes were made
- Who made the changes
- When the changes were made
- Which fields were changed

When you change a maintenance task list with a history, you must enter the relevant change number in the initial screen of the change transaction. Only then will the system document the changes. The changes are valid from the [validity date \[Page 399\]](#) for the change number. The change number identifies the change master record. In the PM system, change master records are maintained using **Engineering Change Management**.

You can find additional information on maintenance task lists and engineering change management in the documentation [Changing Task Lists with Reference to a Change Number \[Ext.\]](#)

Documentation of Changes

Changes without a History

If you make changes to your maintenance task list without a history, the system only documents the changes using change documents. The system automatically creates change documents for all the changes you make to the task list. In contrast to changes with a history, change documents do not display task list data for a certain period or date. On the contrary, they only show who changed what and when. They therefore serve to monitor changes.

When you change your task list without a history, you must not enter a change number in the initial screen of the change transaction. The changes you make will be valid from the last validity date entered in the task list.

Activities

Changes with a History	Changes without a History
Enter a change number in the initial screen of the change transaction.	Do not enter a change number in the initial screen of the change transaction.
The system creates change master records.	The system creates change documents.

You can find additional information on making changes under [Changing Maintenance Task Lists \[Page 429\]](#).

Reasons for Documenting Changes

The following table helps you to decide when you should make changes to maintenance task lists with a history and when without.

Reason	y/n	Change type
Do the changes need to be documented?	yes	With change history, this means with reference to a change master record
	no	Without history
Are there legal requirements for a change history?	yes	With change history, this means with reference to a change master record
	no	Without history

Answer the following questions to decide whether an existing change number is suitable for your requirements and can be assigned to a maintenance task list:

- What object types or objects are changed owing to this change number?
- What validity period has been set?
- Why do the changes have to be made?

If no existing change number is suitable, you create a new change master record.

Changing Maintenance Task Lists

Changing Maintenance Task Lists

Use

You can make changes to a maintenance task list and document these changes as required using a change number. For further information, see [Documentation of Changes \[Page 419\]](#).

Prerequisites

For further information on the prerequisites, see [Documentation of Changes \[Page 419\]](#).

Procedure

1. Use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.
You are now on the *Maintenance Task Lists* menu.
2. Use one of the following menu paths:

Function	Menu path
Changing equipment task list	<i>Task lists → For equipment → Change</i>
Changing functional location task list	<i>Task lists → For functional location → Change</i>
Changing general maintenance task list	<i>Task lists → General task lists → Change</i>

The initial screen for changing maintenance task lists is displayed.

3. Enter the required data as described in the following table.

If you are working with a change number and would like to determine whether a change master record is suitable use the menu bar sequence *Logistics → Central functions → Engineering change management* and then *Change master → Display*.

Function	Data entry	Screen
Changing equipment task list	Enter the equipment number and if necessary a change number and choose <i>Continue</i> .	If several equipment task list exist, the <i>Task list overview</i> screen is displayed. If only one equipment task list exists, the <i>Operations overview</i> screen is displayed.
Changing functional location task list	Enter the identification of the functional location and if necessary a change number and choose <i>Continue</i> .	If several task list exists for the functional location, the <i>Task list overview</i> screen is displayed. If only one task list exists for the functional location, the <i>Operation list overview</i> screen is displayed.

Changing Maintenance Task Lists

Changing general maintenance task list	Enter the group number and if necessary a change number and choose <i>Continue</i> .	<p>If several general maintenance task list exists, the <i>Task list overview</i> screen is displayed.</p> <p>If only one general maintenance task list exists, the <i>Operations overview</i> screen is displayed.</p>
--	--	---



If you enter a change number and choose *Continue*, the system will issue a warning that the key date will be overwritten with the "Valid from" date from the change master record.

Choose *Continue* to confirm if you want to use the change number. If not, change your input.

4. Depending on the screen displayed, continue as described below:

– Screen *Task list overview*

In this screen, select the task lists you want to change, and choose the screen you require by using the appropriate menu bar sequence.

You can select more than one maintenance task list simultaneously and call up the different task lists using *Next task list* or *Last task list*.

– Screen *Operation overview*

You can either change data in the existing operations, add a new operation or delete (see [Subsequently Entering Operations \[Page 438\]](#) or [Deleting Operations/Sub-Operations \[Page 454\]](#)).

To change certain data, select the corresponding operations and use the menu bars to go to the appropriate screens.

5. Save the maintenance task list.

Displaying the Change Master Record

Displaying the Change Master Record

1. Use the menu bar sequence *Logistics → Central functions → Engineering change management* and then *Change master → Display*.

The initial screen for displaying change master records is displayed.

2. Choose *Continue*.

The Change master header is displayed.

3. Use the menu bar sequence *Environment → Evaluations → Task list changes*.

The screen containing all task list changes for a change number is displayed.

For more information on change master records see the documentation *Logistics - Engineering change management*.

Displaying Change Documents

Use

There are two possibilities of displaying change documents for maintenance task lists. One provides the original documents which show the changes in a rather technical form while the other gives you a prepared list of change documents with explanatory notes. Both options are available to you either when making changes with a change number or without.

Procedure

1. Use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.

You are now on the *Maintenance Task Lists* menu.

2. Use one of the following menu bar sequences:

- *Evaluations → Change documents → Document information*

- *Evaluations → Change documents → Document evaluation*

You are now on the *Display PM Task List Change Documents* screen.

3. Enter the criteria the system is to use to select and display the change documents.
4. Use the menu bar sequence *Program → Execute*.

You obtain a list of all the changes carried out in the selected maintenance task lists. The changes are displayed in chronological order. You can call up further data from this list using the menu bar sequences stated.

Processing Maintenance Task Lists

Processing Maintenance Task Lists

To call up the individual functions in the table use the menu bar sequence *Logistics* → *Plant maintenance* → *Maintenance task lists*.

Function	Menu path	What you should know
Change one maintenance task list	<i>Task lists</i> → < <i>Task list type</i> > → <i>Change</i>	For further information, see Documentation of Changes [Page 419] .
Change several task list	<i>Task lists</i> → <i>List editing</i> → <i>Change</i>	For more information see Working with Lists [Ext.] and Documenting Changes [Page 419] .
Display one task list	<i>Task lists</i> → < <i>Task list type</i> > → <i>Display</i>	
Display several task list	<i>Task lists</i> → <i>List editing</i> → <i>Display</i>	For more information see Working with Lists [Ext.]
Display one task list with the object overview	<i>Task lists</i> → < <i>Task list type</i> > → <i>Display</i> and then <i>Goto</i> → <i>Object overview</i>	<p>You select the object overview when you want to display a random combination of individual objects from a task list on the form of a structured list, for example, task list headers, operations, material components, inspection characteristics. You can generate an operations-independent list (for example, setting up all production resources/tools and materials used) and display operations and sub-operations separately.</p> <p>You can define a composition of the individual objects and fields that meets your specific requirements in Customizing and in the <i>Settings</i> menu.</p>

Processing Maintenance Task Lists

Display more than one task list with the object overview	<i>Task lists → List editing → Display (multi-level)</i>	You select the object overview when you want to display a random combination of individual objects from a task list on the form of a structured list, for example, task list headers, operations, material components, inspection characteristics. You can generate an operations-independent list (for example, setting up all production resources/tools and materials used) and display operations and sub-operations separately. You can define a composition of the individual objects and fields that meets your specific requirements in Customizing and in the <i>Settings</i> menu.
Print a task list	<i>Evaluations → Print</i>	This is of particular use if you have extensive task lists and require a complete paper version to check them or if you want to display certain criteria in the task list (so-called views); see Printing Maintenance Task Lists [Page 428]

Printing Maintenance Task Lists

Printing Maintenance Task Lists

Use

You can only run the program for printing maintenance task lists for one type of task list at a time. If, for example, you want to print equipment task lists and functional location task lists, you must run the program once for equipment task lists and again for functional location task lists.

Using selection criteria, you can specify what is to be printed. For example, you may want to print the long text and/or also the material components.

Procedure

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Evaluations → Print*.

The screen *Task List Printing List* is displayed.

2. Select the task list type whose maintenance task list you want to print and enter the required data.

Within a task list type you can restrict the selection further by entering a specified number range, group and/or group counter.

3. Use the menu bar sequence *Program → Execute*.

The system displays a list of all the maintenance task lists corresponding to your selection criteria.

4. Print the list by choosing *List → Print*.

Changing Maintenance Task Lists

Use

You can make changes to a maintenance task list and document these changes as required using a change number. For further information, see [Documentation of Changes \[Page 419\]](#).

Prerequisites

For further information on the prerequisites, see [Documentation of Changes \[Page 419\]](#).

Procedure

4. Use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.
You are now on the *Maintenance Task Lists* menu.
5. Use one of the following menu paths:

Function	Menu path
Changing equipment task list	<i>Task lists → For equipment → Change</i>
Changing functional location task list	<i>Task lists → For functional location → Change</i>
Changing general maintenance task list	<i>Task lists → General task lists → Change</i>

The initial screen for changing maintenance task lists is displayed.

6. Enter the required data as described in the following table.

If you are working with a change number and would like to determine whether a change master record is suitable use the menu bar sequence *Logistics → Central functions → Engineering change management* and then *Change master → Display*.

Function	Data entry	Screen
Changing equipment task list	Enter the equipment number and if necessary a change number and choose <i>Continue</i> .	If several equipment task list exist, the <i>Task list overview</i> screen is displayed. If only one equipment task list exists, the <i>Operations overview</i> screen is displayed.
Changing functional location task list	Enter the identification of the functional location and if necessary a change number and choose <i>Continue</i> .	If several task list exists for the functional location, the <i>Task list overview</i> screen is displayed. If only one task list exists for the functional location, the <i>Operation list overview</i> screen is displayed.

Changing Maintenance Task Lists

Changing general maintenance task list	Enter the group number and if necessary a change number and choose <i>Continue</i> .	<p>If several general maintenance task list exists, the <i>Task list overview</i> screen is displayed.</p> <p>If only one general maintenance task list exists, the <i>Operations overview</i> screen is displayed.</p>
--	--	---



If you enter a change number and choose *Continue*, the system will issue a warning that the key date will be overwritten with the "Valid from" date from the change master record.

Choose *Continue* to confirm if you want to use the change number. If not, change your input.

5. Depending on the screen displayed, continue as described below:

- Screen *Task list overview*

In this screen, select the task lists you want to change, and choose the screen you require by using the appropriate menu bar sequence.

You can select more than one maintenance task list simultaneously and call up the different task lists using *Next task list* or *Last task list*.

- Screen *Operation overview*

You can either change data in the existing operations, add a new operation or delete (see [Subsequently Entering Operations \[Page 438\]](#) or [Deleting Operations/Sub-Operations \[Page 454\]](#)).

To change certain data, select the corresponding operations and use the menu bars to go to the appropriate screens.

6. Save the maintenance task list.

Assigning Maintenance Packages

Use

If you want to use a maintenance task list for planned maintenance (see [Maintenance Task Lists for Planned Maintenance \[Page 393\]](#)) you can assign maintenance packages to individual operations in a maintenance task list. You cannot assign maintenance packages to sub-operations.

The assignment of maintenance packages has been simplified for Release 4.5A. You can also assign maintenance packages as before (up to Release 4.5A). For more information see [Assigning Maintenance Packages \(to Release 4.5A\) \[Ext.\]](#).

Prerequisites

You have entered a maintenance strategy in the header of the maintenance task list (see second step).

Procedure

6. Call up the maintenance task list in create or change mode.
7. If you have not yet assigned a maintenance strategy to a maintenance task list, use the menu bar sequence *Goto → Task list header → General view*.
 - a) Enter a maintenance strategy in the *Header General view* screen.
 - b) Use the menu bar sequence *Goto → Operation overview*.
8. Choose *Maintenance packages*.

The *Maintenance package overview* screen is displayed.
9. Select the packages that you want to assign to individual operations.



Once you have assigned maintenance packages to operations, you cannot change the maintenance strategy assigned to your maintenance task list.

10. Save the maintenance task list.

Deletion of Maintenance Task Lists

Deletion of Maintenance Task Lists

Use

You can archive and delete maintenance task lists.

Prerequisite

You can only delete a maintenance task list(group counter) when the task list group is no longer being used in another object such as a maintenance order or a maintenance plan item. As soon as a task list group is in use, the system will not allow you to delete the group counters in it.

Features

You can delete a group counter at two levels or alternatively, set it with a deletion flag:

- [Deleting at Maintenance Task List Level \[Page 433\]](#)

The system then sets a **deletion flag** that you can no longer undo. The group counter is logically deleted and will no longer be displayed at the maintenance task list level.

The group counter is only physically deleted by the archiving program. This program deletes all group counters with deletion flags from the database.

- [Setting a Deletion Flag in the Task List Header \[Page 434\]](#)

the system sets a **deletion flag** that you can undo if necessary. The system displays the group counter in the header overview.

As soon the group counter has been marked with a deletion flag, you can no longer assign it to other objects such as a maintenance order, single cycle plan or maintenance plan item.

You can physically delete maintenance task lists with the archiving program by selecting all task lists that have been marked with a deletion flag.

For further information on archiving maintenance task lists see [Archiving of Maintenance Task Lists \(PM-PRM-TL\) \[Ext.\]](#).

Deleting at Maintenance Task List Level

Use

You should delete at maintenance task list overview level when you want to delete several maintenance task lists, in other words, group counters, at the same time.

The system then sets a deletion indicator that you can no longer undo. The group counter is logically deleted and will no longer be displayed at the maintenance task list level.

Procedure

1. Call up the maintenance task list in change mode.
2. Select the group counter you want to delete on the maintenance task list level.
3. Use the menu bar sequence *Edit* → *Delete*.
You will come to a dialog box with a confirmation prompt.
4. If you do not want to delete the group counter, exit the window.
If you do want to delete the group counter, confirm this by pressing *Yes*.
Once you have confirmed, the system produces a message to inform you that the group counter will be flagged with a deletion indicator.
5. Choose *Continue*.
The group counters you selected disappear from the *TL overview*.
The system enters the deletion indicator in the task list header of each group for each group counter selected.
6. Save the maintenance task list.

Result

The system archives and deletes the maintenance task list the next time the archiving program is run.

Setting a Deletion Flag in the Task List Header

Setting a Deletion Flag in the Task List Header

Use

Set a deletion flag for the maintenance task lists that the system can also display in the *Task list overview* screen. You can undo the deletion flag if necessary.

Procedure

1. Call up the maintenance task list in change mode.
2. Call up the task list header by choosing one of the following options:
 - Select *Goto → Task list overview → General overview*.
 - Select a group counter from the Task list overview and select *Task list header → General overview*.
3. In the block *Assigning to Task list* header select a *deletion flag*.
4. Save the maintenance task list.
5. Confirm the information message by choosing *Continue*.

The system sets a deletion flag for the maintenance task list.

Result

You can archive and delete the task list the next time the archiving program is run.

Operation

Definition

You can describe the individual maintenance tasks to be performed in the operations. An operation specifies the time, work center and other control information required for the maintenance task. You can describe how the task is to be performed in the operation text.

Use

Operations have the following tasks in the PM component:

- Determination of capacity requirements
- Specification of whether a task should be carried out internally (internal processing) or externally (external processing)
- Maintenance of status
- Determination of deadlines on the operational level
- Specification of the required spare parts and resources (for example, special tools)
- Determination of flow in task completion through relationships between operations

You can assign service packages to both kinds of operations if this is allowed by the control key you have entered. Using service packages enables you to

- Plan services in all dimensions
- Jointly plan services to be performed in different dimensions
- Define services uniformly
- Structure services in an unlimited number of levels
- Make basic agreements
- Agree on conditions
- Use service catalogs
- Better describe work content

Control Key

The control key specifies which operations should be performed. You can specify the following, for example:

- Scheduling
- Confirmation
- Settlement
- External processing
- Printing
- Costing

Operation

- Service specifications maintenance

You define the operation type using a control key. The control key specifies:

- Operation type, that is, whether internally or externally processed
- The business functions to be performed in the operation, for example, whether a purchase order will be created for the operation
- How the operation is handled while it is being processed, for example, whether it will be taken into account in costing or whether it should be printed and confirmed

For each operation it is possible to create data for both internal and external processing.

You must first assign a control key to be able to decide whether the operation should be processed internally or externally. You can enter the control key in the *Operation overview* screen and the detail screens for the individual operations.

Integration

It is possible that you are not able to overwrite certain values that the system copies into the task list. These values originate from the master record of the work center you have entered in the task list, and are marked with a reference indicator. This indicator shows that these values are obligatory and cannot be overwritten at any point (for example, in a task list or maintenance order) where they refer to the work center.

Creating an Operation

4. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.

You are now on the screen for entering operations.

5. Enter the necessary data.

Be careful to enter the correct control key.

6. The following options are available to you once you have entered all the data for the operations.
 - Save the data.
 - Enter additional data for the operations (see [Entering Detail Data in Operations \[Page 439\]](#)).

Subsequently Entering Operations

Subsequently Entering Operations

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
2. Position the cursor where the new operation should be and use the menu bar sequence *Edit* → *Insert*.

The system displays a new entry line ready for input.

3. Enter the necessary data.
4. Enter detail data for the operation if necessary (see [Entering Detail Data in the Operation \[Page 439\]](#)).
5. Save the maintenance task list.



If you insert an operation in a maintenance task list for planned maintenance which is already in operation the maintenance items that were already released at the time the task list was changed will not contain the new operation.

Entering Detail Data in Operations

Use

There are two types of operations for maintenance task lists in the PM system:

- [Internal Processing Operations \[Page 389\]](#)
- [External Processing Operations \[Page 390\]](#)

The data in operations is especially important for work scheduling when the maintenance task list is included in the maintenance order and order is planned.

You can also enter user-defined data for both types of operation. For more information, see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Procedure

5. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
6. Select the operations for which you want to enter detail data.
7. Select one of the following options to enter detail data:

Function	Menu path	The Detail data screen is displayed.
Enter internal processing data	<i>Operation → Internal processing</i>	for internal processing operations
Enter external processing data	<i>Operation → External processing</i>	for external processing operations

8. Enter the necessary data.

To refer to service specifications during external processing operations see [Creating an External Processing Operation with Reference to Service Specifications \[Page 443\]](#).

You now have the following options:

- Call up the next selected operation to enter detail data for this operation (see step 5).
- Call up another operation type (internal or external processing) and enter detail data (see step 3).
- Go back to the *Operation overview* screen (see step 6).
- Save your entries.

7. To go to the next selected operation, use the menu bar sequence *Operation → Further operations → Next operation*.

You go to the same data entry screen for the next selected operation.

You can only call up the operations that you have selected in the *Operations overview* screen.

8. Return to the *Operation overview* screen.

You now have the following options:

Entering Detail Data in Operations

- Save the data.
- Enter user data (see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)).
- Create sub-operations for the operations you have already entered (see [Creating a Sub-Operation \[Page 449\]](#)).

Entering QM Data for the Operation

Use

You can include inspection characteristics for the *Quality Management* (QM) application component in maintenance task lists (PM task lists) or you can enter planned inspection characteristics. This is advisable, for example, if you want to keep individual data for each piece of test equipment or if you want to have a record of the results history. For more information see the documentation *Quality Management - Master Inspection Characteristics*.

You can include the maintenance task list in the [Test Equipment Management \[Ext.\]](#).

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
2. Select the operations for which you want to enter QM data.
3. Choose *Operation* → *QM data*.

You reach the screen *Operation: QM Data*.

Enter the necessary QM data. The data which you maintain here affects the subsequent entry of inspection results and the inspection point completion (= test equipment valuation).

In the standard system, variant "2" (manual test equipment valuation) is set for the inspection point completion.

4. Return to the operation overview.
5. Maintain the inspection characteristics.
 - a) Select the operation or operations, to which you want to assign inspection characteristics (for example, diameter, color) and choose *Operation* → *Inspection characteristic overview*.

You reach the characteristics overview.

- b) Enter a master inspection characteristic or a planned inspection characteristic.

- **Master inspection characteristic**

Assign a master inspection characteristic and choose *Continue*.

- **Inspection characteristic**

Select the field *QN* (quantitative) or *QL* (qualitative). Enter a short text and choose *Continue*. You reach a dialog box, in which you can maintain the required data.

For more information, see [Inspection Characteristics \[Ext.\]](#).

- c) Return to the operation overview for the task list.
6. Save the task list.

Including User Data in Operations/Sub-Operations

Including User Data in Operations/Sub-Operations

Use

User data consists of all the fields that are defined using the customizing function and identified by a field key. They can be used to include additional, user-specific data for a particular operation or sub-operation.

You can define the following fields:

- General user fields
 - 10 character fields
 - 20 character fields
- Quantity fields
- Value fields
- Date fields
- Selection fields

Procedure

15. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
16. Select the operations and sub-operations for which you want to enter user data.
17. Use the menu bar sequence *Operation* → *User data*.

The *User data* screen is displayed. The data that you have already entered for the operation/sub-operation is displayed here.

18. To enter your operation-specific user data, enter the key in the *Field key* field.



You can only use the keys that you have defined in Customizing.

19. Choose *Continue*.

The system will display the fields defined for this key.

20. Enter the necessary data.

If you have selected more than one operation or sub-operation, you can call them up using the menu bar sequence *Operation* → *Further operations* → *Next operation*.

21. The following options are available to you once you have entered all the data.
 - You can return to the screen *Operation overview*. To do this, choose *Goto* → *Back*.
 - Save the user data.

Creating Ext. Ops. With Service Specification Ref.

Use

When you create externally processed operations based on service specifications (see [Service Specifications \[Ext.\]](#)), you can use the general task description as stored in the service specifications. You must describe how to perform the task in the operation of your maintenance task list - not in the service specifications - as only there can you enter materials, production resources/tools, personnel and so on.

As a maintenance task list is exploded in a maintenance order, the system creates a purchase requisition that also refers to the service specifications used in the operation.

For a detailed description of service specifications and external services management, see the documentation *MM - External Service Management*. The following topic merely describes how to include service specifications in maintenance task lists.

Procedure

9. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
10. Enter a control key in the operation you want to have a reference to service specifications to create the reference to external services management. The control key must be flagged as a *Service* indicator.
11. Enter the operation short text and choose *Continue*.
You are now on the screen for external processing.
12. Enter all the relevant data, for example, purchase order quantity, purchase order quantity unit, material group and purchasing group.
13. Choose *Continue*.
A pop-up window will appear and the system will ask you if you want to create a hierarchy.
If you answer *YES*, perform steps 5 and onwards.
If you answer *NO*, perform step 6.
14. Create the hierarchy (see documentation *MM - Service*).
To call up the individual service lines for a grouping level, double click on the level.
You are now on the screen for maintaining service specifications in externally processed operations.
15. Position your cursor on the service line and enter the service.
You can also select the service using the menu bar sequence *Service specs.→ Service selection*
In the pop-up window that appears, select the purchase requisition or purchasing object you want to use as a reference. The system copies the specifications to the service lines in the externally processed operation.
16. Return to the data screen for external processing.

Creating Ext. Ops. With Service Specification Ref.

The system copies the purchase quantity and the corresponding quantity unit from the service lines and shows the net price summed up for this operation. You can no longer change the data in the screen for external processing.



On the screen for external processing data, you may also refer to an outline agreement or outline agreement item. The system automatically transfers this reference to the purchase order requisition when an order pointing to this task list is released (see documentation *MM - Purchasing*).

Deleting Operations/Sub-Operations

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
2. Select the operations or sub-operations that you want to delete.
3. Use the menu bar sequence *Edit* → *Delete*.
The system deletes the operations or sub-operations.
4. Save the maintenance task list.



If you delete an operation in a maintenance task list for planned maintenance which is in operation in your company, the maintenance items that were already released at the time the task list was changed will still contain the operation that no longer exists in the task list.

If a released order refers to the task list in which you deleted an operation after the order was released, the maintenance order also contains an operation which no longer exists in the task list.

Internal Service Packages for the Operation

Internal Service Packages for the Operation

Use

You can assign external service specifications to the operations of a task list. From Release 4.6A, you can also assign internal service specifications to an operation. The operation control key determines whether a service package will be interpreted as internal or external.

Prerequisites

You do not need to maintain the purchasing data for operations which have an internal control key. The operation control key must provide for "Service" for operations to which you would like to assign service packages. If *internally processed operation* or *internally processed operation/external processing possible* are allowed entries in the external processing field, then service packages for internal processing are allowed.

See also

[Configurable General Maintenance Task Lists \[Page 511\]](#)

Sub-Operations

Definition

In the PM component, you can create sub-operations for all the operations in a maintenance task list. Sub-operations represent an additional level of detail for an operation and are situated hierarchically below an operation. You can assign several sub-operations to one operation. This can be an advantage in the following scenarios:

- Several work centers are required in one operation.
- Employees with varying qualifications and skills are working simultaneously on the same operation.

Sub-operations may contain some of the same information as operations, for example,

- Work center assignment
- Control key
- Start and end dates

Structure

There are two types of operations for maintenance task lists in the PM component:

- Internal processing
- External processing



You can divide the operation "Inspection" into two sub-operations:

- Motor inspection
- Building inspection

You can also add a sub-operation to your operation if part of the task is to be processed externally. For example, the sub-operation "motor inspection" could be performed by a third party. In this case, the sub-operation will contain a purchase requisition for the external labor.

You can create different types of sub-operation for one operation. For example, you can create externally processed sub-operations for an **internally** processed operation and vice versa.

For more information on sub-operation, see [Features of the Sub-Operation \[Page 448\]](#).

Features of the Sub-Operation

Features of the Sub-Operation

Operations and sub-operations sometimes have different features. You should note the following features for sub-operations:

- **Number**
The numbers of the sub-operations determine the sequence in which they are performed.
- **Control key**
You can assign a control key to each sub-operation.
- **Material components and maintenance packages**
You **cannot** assign any material components or maintenance packages to sub-operations.
- **Capacity planning and costing**
The sub-operations are relevant for capacity planning and costing of the maintenance orders in which the task lists are included. The work is used for capacity planning instead of the work specified in the operation.
- **Duration and scheduling**
This data in the sub-operation is purely for information. The duration specified in the operation is always relevant for order scheduling after the task list has been canceled. However, you can plan the sub-operations within the schedule relative to the start or end of the corresponding operation.
- **Activity type**
This is used for cost accounting instead of the activity type specified in the operation.



Example of the importance of duration and work.

The duration of an operation is two days, because the performance of the tasks specified in the sub-operations takes up this time. For the engineer that planned the tasks for an hour, the work in the corresponding sub-operation takes one hour.

Creating a Sub-Operation

Use

Sub-operations represent an additional level of detail for an operation and are situated hierarchically below an operation. You can create different types of sub-operation for one operation. For example, you can create **externally** processed sub-operations for **internally** processed **sub**-operations and vice versa.

Procedure

4. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
5. Enter an operation (see [Creating an Operation \[Page 437\]](#)) and choose *Continue*.
6. In the data entry line below the operation you have just entered, the system will propose the next sequential number.



You have just entered operation 0030.

In the next operation line you will see the number 0040.

5. Overwrite the number proposed by the system with the number of the operation that you have just created (0030 in the above example). Enter the number of the sub-operation in the column *UVrg*. Enter the necessary data.
5. To create more sub-operations for the same or another operation, repeat step 4 as often as required.
6. To insert a sub-operation in a list of existing operations, position your cursor on the operation line **following** the operation for which you want to create a sub-operation.



If you want to create a sub-operation for operation 0030, position your cursor on the operation 0040.

Then use the menu bar sequence *Edit* → *Insert*.

The system enters an appropriate line where you can enter data. Enter the required data as described in the previous steps:

8. To display your entries, use the menu bar sequence *Goto* → *Operation overview*
8. If you assign a sub-operation to the wrong operation, you can easily change it by overwriting the operation number with the number of the operation to which the sub-operation should be assigned, and choosing *Continue*.
9. The following options are available to you once you have created all the necessary sub-operations.
 - Save the data.
 - Enter further data for the sub-operations.

Creating a Sub-Operation

For more information on the data you can enter for sub-operations, see

- [Including Detail Data in Sub-Operations \[Page 452\]](#)
- [Entering Dates in Sub-Operations \[Page 451\]](#)
- [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Entering Dates in Sub-Operations

Use

You can specify in a sub-operation when you want it to start or end in relation to the relevant operation. To do this, use the start/end reference date together with the start/end offset. The system uses these specifications to calculate the start or end date for the sub-operation.

The time references have no influence on the duration of a sub-operation. The actual duration of a sub-operation is specified in the detail data of the sub-operation. It is not used for scheduling an operation. Only the duration specified in the operation is used for scheduling.

Procedure

6. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
7. Select the sub-operation or sub-operations for which you want to enter the start and end dates.
8. Use the menu bar sequence *Operation* → *Sub-operation deadline*.
You are now on the *Sub-Operation - Usage dates* screen.
9. Enter the necessary data.
Note that you must enter a **positive** offset for the start of a sub-operation (start of the operation plus n units of time) and a **negative** offset for the end of the sub-operation (end of the operation minus n units of time).
10. Save the deadlines.

Including Detail Data in Sub-Operations

Use

You can enter detail data for operations and sub-operations in the PM system. There are two types of sub-operations corresponding to the operations:

- [Internal Processing Operations \[Page 389\]](#)
- [External Processing Operations \[Page 390\]](#)

You can enter user-specific data for both types of sub-operations. For more information, see [Including User Data in Operations/Sub-Operations \[Page 453\]](#)

Procedure

Execute the steps described in [Entering Detail Data in Operations \[Page 439\]](#).

Including User Data in Operations/Sub-Operations

Use

User data consists of all the fields that are defined using the customizing function and identified by a field key. They can be used to include additional, user-specific data for a particular operation or sub-operation.

You can define the following fields:

- General user fields
 - 10 character fields
 - 20 character fields
- Quantity fields
- Value fields
- Date fields
- Selection fields

Procedure

22. Call up the maintenance task list in the create or change mode, and choose *Goto → Operation overview*.
23. Select the operations and sub-operations for which you want to enter user data.
24. Use the menu bar sequence *Operation → User data*.

The *User data* screen is displayed. The data that you have already entered for the operation/sub-operation is displayed here.

25. To enter your operation-specific user data, enter the key in the *Field key* field.



You can only use the keys that you have defined in Customizing.

26. Choose *Continue*.

The system will display the fields defined for this key.
27. Enter the necessary data.

If you have selected more than one operation or sub-operation, you can call them up using the menu bar sequence *Operation → Further operations → Next operation*.
28. The following options are available to you once you have entered all the data.
 - You can return to the screen *Operation overview*. To do this, choose *Goto → Back*.
 - Save the user data.

Deleting Operations/Sub-Operations

Deleting Operations/Sub-Operations

5. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
6. Select the operations or sub-operations that you want to delete.
7. Use the menu bar sequence *Edit* → *Delete*.
The system deletes the operations or sub-operations.
8. Save the maintenance task list.



If you delete an operation in a maintenance task list for planned maintenance which is in operation in your company, the maintenance items that were already released at the time the task list was changed will still contain the operation that no longer exists in the task list.

If a released order refers to the task list in which you deleted an operation after the order was released, the maintenance order also contains an operation which no longer exists in the task list.

Material Components

Definition

Materials required for maintenance tasks. You assign the corresponding operations.

Use

You can assign the following material components to the operations in maintenance task lists.

- Material components from the bill of material for the maintenance object (piece of equipment, functional location or header assembly) assigned to the maintenance task list.

For more information on bills of material and BOM items see [Maintenance Bills of Material \[Ext.\]](#).

- Stock materials that are not in the BOM for the maintenance object

You can assign several materials to one operation and one material to several operations.

The system copies the material components assigned to the task list to the maintenance order once the task list is exploded in the order. For more information on maintenance orders see [Work Scheduling with Maintenance Task Lists \[Page 1152\]](#).

Assignment of Material Components

Assignment of Material Components

Use

You can assign the following material components to the operations in maintenance task lists.

- Material components from the bill of material for the maintenance object (piece of equipment, functional location or header assembly) assigned to the maintenance task list.

For more information on bills of material and BOM items see [What is a Bill of Material? \[Ext.\]](#).

- Stock materials that are not in the BOM for the maintenance object

You can assign several materials to one operation and one material to several operations. You **cannot** assign any material components to sub-operations.

The system copies the material components assigned to the task list to the maintenance order once the task list is exploded in the order. For more information on maintenance orders see [Work Scheduling with Maintenance Task Lists \[Page 1152\]](#).

Prerequisites

You can assign material components to all three categories of maintenance task lists, that is, general maintenance task lists, task lists for functional locations and equipment task lists.

The prerequisites for assigning material components differ from one maintenance task list category to the next.

Prerequisites for General Maintenance Task Lists

Assignment of material components to a general maintenance task list is controlled by the assembly assigned in the task list header. To assign material components to your general task list, you must first enter an assembly in the task list header.

In the *Plan overview* use the menu bar sequence *Task list header* → *General view*.

In the *Allocation* data section of the screen, you see the entry field for the assembly. You can enter an assembly here. Only once you have made the entry, can you assign material components from the bill of material in the header assembly using bill of material explosion. However, you can also assign stock items that are not contained in the bill of material.

If you require a higher level of detail, you can split up the header assembly by assigning an assembly from a lower hierarchical position to an operation.



You cannot change the assembly in the task list header after you have assigned material components to the task list.

Prerequisites for Equipment and Functional Location Task Lists

The assembly assigned in the header of an equipment or functional location task list does not have as much significance as in the general task list. It purely provides more detail, similar to the assembly entry in the individual operations of a general task list.

Assignment of Material Components

The material components you want to assign to an equipment or functional location task list do not have to be in the bill of material for the piece of equipment or functional location when you assign them. You can also allocate a stock item.

If a bill of material exists for the equipment or functional location task list, and you assign a stock item that is not contained in the bill of material, the system produces a pool of materials assigned to the object bill of material. When you assign a further material at a later date, the system adds this to the pool.

The system does **not** add the material to the bill of material. The original bill of material remains untouched, so that it can be accessed again and again. This is important because the assignment of an extra material may be an exception for a special maintenance case and the bill of material for the piece of equipment or functional location would be falsified if the extra material was added.

Prerequisites for all Three Maintenance Task List Types

To enable the assignment of extra materials maintenance task lists, the system administrator must specify bill of material usage for bills of material relevant to maintenance (for example, usage 4 in the standard System) in the Customizing function for maintenance task lists.

You may not change the assigned usage as long as free material assignments exist. You may lose existing material assignments if you do this.

Assigning Material Components

Assigning Material Components

Prerequisites

For more information on the prerequisites, see [Assignment of Material Components \[Page 456\]](#).

Procedure

1. Call up the maintenance task list in the create or change mode, and choose *Goto* → *Operation overview*.
2. Select all the operations to which you want to assign material components and use the menu bar sequence *Operation* → *Components*.

You are now on the *Component overview PM* screen of the first selected operation.

3. Assign the material components you require to each selected operation in the task list. You can do this in the following ways:
 - Assigning components by entering the material number (see a)
 - Assigning components using the structure graphic (see b)
 - Assigning components using the structure list (see c)

a) Assigning Components by Entering the Material Number

When you know the number of the material (stock item or bill of material item) you want to assign, enter the number in the field *Material* and choose **ENTER**.

The system automatically enters further data for the material. For example:

- Bill of material number
- Item number
- Unit of measure
- Item category

Assign all the required components to the operation. If required you can sort the components differently in the list (see [Sorting Material Components \[Page 460\]](#)).



If you assign an extra material, the item will automatically be assigned the sort term *Standard*. This indicates that the item is not from the object bill of material. If you later want to include the assigned materials in the object bill of material, you can look for these items using the sort term.

b) Assigning Components Using the Structure Graphic

If you do not know the number of the material you want to assign, you can select it using the structure graphic for the bill of material.

To call up the structure graphic, use the menu bar sequence *Extras* → *Component selection* → *Structure graphic*

Assigning Material Components

The system displays a graphic of the material components in the bill of material assigned to the maintenance task list. You can explode or hide the individual levels within the bill of material using the appropriate function buttons.

Select the material components you require and assign them to the task list. To do this, use the menu bar sequence *Extras* → *Choose*.

For more information on the structure graphic see [Working With the Structure Graphic \[Page 461\]](#).

In the *Component overview* you will see the components you selected in the graphic.

If required, you can sort the components differently in the list (see [Sorting Material Components \[Page 460\]](#)).

c) Assigning Components Using the Structure List

Instead of working with the structure graphic, you can also assign components using the structure list.

To call up the structure list, use the menu bar sequence *Extras* → *Component selection* → *Structure list*.

The system displays a list of the material components in the bill of material assigned to the maintenance task list. You can explode or hide the individual levels within the bill of material using the appropriate function buttons.

Select the material components you require and assign them to the task list.

In the *Component overview* you will see the components you selected from the list.

If required, you can sort the components differently in the list (see [Sorting Material Components \[Page 460\]](#)).

4. Save the maintenance task list.

Sorting Material Components

Sorting Material Components

Use

You can sort the material components in the *Component overview* according to different criteria. The system will display the components in the desired sequence.

Procedure

1. Call up the maintenance task list and choose *Goto → Operation overview*.
2. Select all the operations for which you want to sort material components and use the menu bar sequence *Operation → Components*.

You are now on the *Component overview PM* screen of the first selected operation.

3. Choose a sorting function in the *Component overview*, for example

Edit → Sort by → Sort field

Edit → Sort by → Item

Edit → Sort by → Material component

The system sorts the assigned material components according to the sort criteria you specified.

Working With the Structure Graphic

Use

The structure graphic is divided into two sections:

- Display Area
- Navigation Area

Within these sections you can select the material components you want to assign to a selected operation in the maintenance task list.

- Display Area

Depending on the size of the structure, the display area displays all or a section of the structure. This structure is made up of a series of nodes on different levels. You can hide or explode these levels. To do this, choose the menu bar sequence *Extras* → *Explode/Hide*.

- Navigation Area

The navigation area displays the entire structure. Within the navigation area is a colored frame which indicates the section of the structure currently displayed in the display area. By moving this frame with the mouse, you can display another section of the structure in the display area.

Procedure

There are four methods of selecting nodes in the structure graphic:

- Selecting all nodes
- Selecting one node only
- Selecting several nodes
- Selecting the Complement to a Node

Selecting All Nodes

To select all the nodes in the structure graphic, use the menu bar sequence *Edit* → *Select* → *Select all*.

Selecting One Node Only

To select one node only, position your cursor on the node and select it using your mouse. The system will highlight the node to indicate that it has been selected.

Selecting Several Nodes

To select several nodes, first select one node as described above. To select further nodes, position your cursor on the nodes required, and select them using *SHIFT* and the mouse. The system will highlight all the nodes you select.

Working With the Structure Graphic**Selecting the Complement to a Node**

To select the complement to a node, first select one node as described above. To select the complement or complements to this node, use the menu bar sequence *Edit* → *Select* → *Select complement*.

For further information on structure graphics, see the documentation *SAP Graphics: User Guide*.

Displaying Material Where-Used Lists

Use

You can determine all task lists to which a certain material has been assigned as a component.

The material where-used list does not determine any material entered in the equipment, material or production resources/tools bills of material for a task list.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Planned maintenance* → *Maintenance task lists* → *Evaluations* → *Where-used list* → *Material where-used list*.

The initial screen for material where-used lists is displayed.

2. Enter the necessary data.
3. Choose *Program* → *Execute*.
4. The system displays a list of those task lists in which the specified material is used.

Production Resources/Tools

Definition

Production resources/tools (PRTs) are the capacities you require to perform an operation at a certain work center. In contrast to machines and technical devices, PRTs are mobile, in other words they are not fixed to a specified location.

Production resources/tools include, for example,

- Tools
- Cranes
- Measuring and inspection instruments for quality inspections

Use

If you plan work processes in maintenance task lists and at the time of planning know which resources are required to perform the operations, you can enter these resources in the task list.

Structure

The PM application component has the following four categories of master records for production resources/tools (PRTs):

- **Material**
If you create a PRT as a material, you can use all the functions available for a material master record. The system supports the procurement of this PRT category. In other words, this PRT category can be both externally procured and internally produced. Both quantity- and value-based inventory management can be used for this PRT category.
- **PRT master (other)**
When you create a simple production resources/tools master record, the system does not support procurement of this PRT category, and inventory management is not possible. The advantage of the PRT category "PRT master (other)" is that little data maintenance is required for this master record.
- **Document**
When you create a document master record for a PRT, you can manage it as a document in the R/3 system. A document is a data storage medium that either contains information for the user or is used to transfer data from one system to another. A document, for example, can contain an overview of all the pieces of equipment requiring maintenance.
- **Equipment**
When you create a PRT as a piece of equipment, you can use all the functions available for equipment master records. It is useful for PRTs that have to be individually maintained and/or maintained at regular intervals, and which require proof of the maintenance tasks performed and/or operating times.

Creating Material for Production Resources/Tools

To create production resources/tools (PRT) as a **material**, you must create a material master record and maintain the **Production Resources/Tools view**.

PRT data is defined for each plant.

For more information on creating material master data, see the SAP document *Managing Material Master Data*.

To create a material master record for a PRT, perform the following seven steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*

followed by the menu bar sequence

Production resources/tools → *Material* → *Create*.

The initial screen for creating a material master record is displayed.

2. Make all the necessary entries.

The help functions support you in this.



The material type controls the entry fields that are ready for input on the screen and the views to be maintained. You must enter a material type, for which maintenance of the **production resources/tools view** is allowed.

3. Press **ENTER**.

The dialog box *Select view(s)* is displayed.

4. Select the view *Production resources/tools*, and press *Continue*.

The dialog box *Organizational levels/Profiles* is displayed.

5. In the dialog box, enter the plant to which the PRT is allocated and press *ENTER* or *Data*.

The screen *Production resources/tools* is displayed.

6. Make all the necessary entries.

The help functions support you in this.

7. Save the material master record by using the menu bar sequence *Material* → *Save*.

Creating Production Resources/Tools (Other)

Creating Production Resources/Tools (Other)

If you want to create a production resources/tools (PRT) master record **Other**, perform the following five steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*
followed by the menu bar sequence
Production resources/tools → *PRT master (other)* → *Create*.
The initial screen for creating a PRT of the category “Other” is displayed.
2. Make all the necessary entries.
The help functions support you in this.
3. Press ENTER.
The *Basic data* screen is displayed.
4. Make all the necessary entries.
The help functions support you in this.
5. Save your PRT master record by using the menu bar sequence *Production resources/tools* → *save*.

Creating Documents for Production Resources/Tools

To create production resources/tools (PRT) as a **Document**, perform the following five steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*

followed by the menu bar sequence

Production resources/tools → *Document* → *Create*.

The initial screen for creating a PRT of the category "Document" is displayed.

2. Make all the necessary entries.

The help functions support you in this.



The document type for document management is specified using the customizing function. A document type for production resources/tools must be defined in your system.

3. Press **ENTER**.

The *Basic data* screen is displayed.

4. Make all the necessary entries.

The help functions support you in this.

5. Save the PRT master record using the menu bar sequence *Document* → *Save*.

For more information on the management of documents, see the documentation *Document Management System*.

Creating Equipment Production Resources/Tools

Creating Equipment Production Resources/Tools

To create production resources/tools (PRT) as an **Equipment**, you must create an equipment master record and maintain the **Production Resources/Tools view** in it.

For more information on creating equipment master data, see *PM - Structuring Technical Systems*.

To create an equipment master record for a PRT, perform the following four steps:

1. Use the menu bar *Logistics → Plant maintenance → Technical objects*

followed by the menu bar sequence

Equipment → Create (special) → ProdRes/Tools

or

Equipment → Create.

Equipment → Create (special) → ProdRes/Tools

Equipment → Create.

The initial screen for creating a PRT of an equipment is displayed. The first option contains a default equipment category, but the second category requires you to enter a permitted equipment category for the production resource/tool.

2. Make all the necessary entries in this and all other relevant screens.

The help functions support you in this.



The equipment type controls the data entry fields appearing on the screen and the views that have to be maintained. You must enter an equipment type that allows the maintenance of the **Production Resources/Tools view**.

3. You must make data entries in the *Production Resources/Tools* screen. Call up this screen using the menu bar sequence *Goto → ProdRes/Tools*.
4. Save the equipment master record by using the menu bar sequence *Equipment → Save*.

Creating PRTs Using a Reference

You can create production resources/tools (PRT) master record using a reference to reduce the time spent making data entries.

To create a PRT master record using a reference, perform the following four steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*

followed by one of the following menu bar sequences:

ProdRes/Tools → *Material* → *Create*

ProdRes/Tools → *PRT master (other)* → *Create*

ProdRes/Tools → *Document* → *Create*.

The initial screen for creating a PRT master record is displayed.



If the PRT is managed as an equipment, use the transactions available for equipment master records (see *PM - Structuring Technical Systems*).

2. Make the necessary entries for the selected PRT type. The following table is intended to help you in this:

To create a PRT of this type...	Enter:
Material	New material number and all necessary data in the <i>Copy from</i> data section
Other	New PRT key and all necessary data in the <i>Copy from</i> data section
Document	New document number and document type and all necessary data in the <i>Copy from</i> data section

3. Make all the entries as described in the following topics:

[Creating Material for PRTs \[Page 465\]](#)

[Creating PRTs \(Other\) \[Page 466\]](#)

[Creating Documents for PRTs \[Page 467\]](#)

4. Save the PRT master record by using one of the following menu bar sequences:

Material → *Save*

Prod.Resources/Tools → *Save*

Document → *Save*.

Creating PRTs Using a Reference

Changing Production Resources/Tools

To change a production resources/tools (PRT) master record, perform the following four steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*

followed by one of the following menu bar sequences:

ProdRes/Tools → *Material* → *Change*

ProdRes/Tools → *PRT master (other)* → *Change*

ProdRes/Tools → *Document* → *Change*

The initial screen for changing a PRT master record is displayed.



If the PRT is managed as an equipment, use the transactions available for equipment master records (see *PM - Structuring Technical Systems*).

2. Enter the number of the PRT you want to change and press **ENTER**.
3. Depending on the PRT category, make all further necessary entries. The following table is intended to help you in this:

To change a PRT of the category...	Go to...
Material	The dialog box <i>Select View(s)</i> . Select the view(s) you require and press <i>Continue</i> . The dialog box <i>Organization Levels/Profile</i> is displayed. Enter the plant and press ENTER or <i>Data</i> . The screen <i>Production resources/tools</i> is displayed. Make all the necessary entries.
Other	The screen <i>Basic data</i> Make all the necessary entries.
Document	The screen <i>Basic data</i> Make all the necessary entries.

4. When you have entered all the data, save the changes using one of the following menu bar sequences:

Material → *Save*

Prod.Resources/Tools → *Save*

Document → *Save*.

Changing Production Resources/Tools

Displaying Production Resources/Tools

To display a production resources/tools (PRT) master record, perform the following four steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools*

followed by one of the following menu bar sequences:

ProdRes/Tools → *Material* → *Display*

ProdRes/Tools → *PRT master (other)* → *Display*

ProdRes/Tools → *Document* → *Display*.

The initial screen for displaying a PRT master record is displayed.



If the PRT is managed as an equipment, use the transactions available for equipment master records (see documentation *PM - Structuring Technical Systems*).

2. Enter the number of the PRT you want to display and press **ENTER**.
3. Depending on the PRT category, make all further necessary entries. The following table is intended to help you in this:

To display a PRT of the category...	Go to...
Material	The dialog box <i>Select View(s)</i> . Select the view(s) you require and press <i>Continue</i> . The dialog box <i>Organization Levels/Profile</i> is displayed. Enter the plant and press ENTER or <i>Data</i> . The screen <i>Production resources/tools</i> is displayed.
Other	The screen <i>Basic data</i>
Document	The screen <i>Basic data</i>

4. Use the appropriate menu bar sequences to go to the screens you want to display.



Use the menu bar sequence *Extras* → *Long text*.

5. To leave the display transaction for PRTs, use one of the following menu bar sequences:

Material → *Exit*

Prod.Resources/Tools → *Exit*

Displaying Production Resources/Tools

Document → Exit.

Assigning Production Resources/Tools to Operations

Production resources/tools (PRT) are assigned to the operations in maintenance task lists. You can assign both one PRT to several operations and several PRTs to one operation.

To allocate a PRT to a task list, perform the following eight steps:

1. In the *Maintenance Task List* menu, use either the *Create* or *Change* transaction for an equipment task list, functional location task list or general maintenance task list.



Use the *Create* transaction for an equipment task list by using the menu bar sequence *Task lists* → *For equipment* → *Create*.

The initial screen for creating or changing a maintenance task list is displayed.

2. Enter the necessary data and choose *Enter*.
3. Perform the steps described in the following table.

If	Then
Only one task list corresponds to your entries	You go to the screen <i>Operation overview</i> .
Several maintenance task lists meet your selection criteria	<p>You go to the screen <i>Task list header</i>.</p> <p>Select the task list to which you want to allocate PRTs and choose <i>Goto</i> → <i>Operation overview</i>.</p> <p>You go to the screen <i>Operation overview</i>.</p>

4. In the *Operation overview* screen, select the operations to which you want to allocate PRTs. Then choose *Operation* → *PRT*.
5. Perform the steps described in the following table:

If	Then
A PRT has not yet been allocated	<p>You go to the dialog box <i>PRT: New Lines</i> is displayed.</p> <p>Perform step 6.</p>

Assigning Production Resources/Tools to Operations

PRTs were already allocated	<p>You go to the screen <i>PRT overview</i></p> <p>To allocate further PRTs, choose one of the following menu options:</p> <p><i>Edit → New Lines → Material</i></p> <p><i>Edit → New Lines → Others</i></p> <p><i>Edit → New Lines → Document</i></p> <p><i>Edit → New Lines → Equipment.</i></p> <p>The dialog box <i>PRT: New Lines</i> is displayed.</p>
Several maintenance task lists meet your selection criteria	<p>You go to the screen <i>Task list overview</i>.</p> <p>Select the task list to which you want to assign the PRT and choose <i>Goto → Operation overview</i>.</p> <p>Perform step 4.</p>

6. Enter the necessary data in the dialog box *PRT: New Lines*.



You define the category of PRT that you want to link to by using the function keys *Material*, *Document*, *Equipment* or *Other*.

Assign the PRT to the operation as described in the table below:

If	Then
You only want to assign one PRT,	<p>Choose <i>Continue</i>.</p> <p>The <i>PRT overview</i> screen is displayed.</p>
You want to assign several PRTs,	<p>Choose <i>Insert</i>.</p> <p>The dialog box <i>PRT: New Lines</i> is displayed again. Enter the required data for the next PRT that you want to assign.</p>



You cannot assign PRTs that have been assigned a deletion flag.

7. When you have entered all the PRTs you want to assign, press *Back*. You return to the *PRT overview* screen where all the PRTs you have assigned are displayed.
8. To save the maintenance task list, use one of the following menu bar sequences:
- Equipment task list → Save*
- FunctLoc task list → Save*
- General maintenance task list → Save*

Assigning Production Resources/Tools to Operations

Deleting the Production Resources/Tools Assignment

Deleting the Production Resources/Tools Assignment

To delete assigned production resources/tools (PRT) from an operation, perform the following three steps:

1. In the *Operation overview* of the maintenance task list, select the operations from which you want to delete the assigned PRT. Use the menu bar sequence *Operation → PRT*.
The *PRT overview* screen is displayed. There you will see the PRTs that are assigned to the selected operation.
2. Select the PRT that you no longer want to be assigned to the operation. Use the menu bar sequence *Edit → Delete*.
The system deletes the selected PRT and brings you to the next selected operation.
3. Delete the PRT for all selected operations.
4. Save the changes.

Deleting Production Resources/Tools

There are two methods for deleting production resources/tools (PRT) master records:

- Direct deletion

Direct deletion means that you can delete the PRT online, without using a deletion flag and an archiving program.

You can only directly delete PRTs of the category "PRT Master (Other)", provided they are not being used in a maintenance task list or maintenance order.



You **cannot** delete PRTs of the category "Material", "Equipment" and "Document" directly.

- Assigning a deletion flag

Assigning a deletion flag, means that you assign the PRT a deletion flag that results in the PRT being deleted by an archiving program. You can assign deletion flags to all PRT categories, even if they are being used in a maintenance task list or maintenance order. The deletion flag has no influence on the assignment of PRTs to a task list or order.

PRTs that have been assigned a deletion flag will be deleted the next time the archiving program is run, provided they are no longer being used in the task list or order.

To delete or assign a deletion flag to the individual PRT categories, read the following topics:

[Deleting PRTs \(Other\)" \[Page 482\]](#)

[Assigning a Deletion Flag to "Other"/"Docu." PRTs \[Page 483\]](#)

[Assigning Deletion Flag to Material PRTs \[Page 480\]](#)

[Assigning a Deletion Flag to Equipment PRTs \[Page 485\]](#)

Assigning a Deletion Flag to “Material” PRTs

Assigning a Deletion Flag to “Material” PRTs

You can mark a production resources/tools (PRT) master record of the category “Material” for deletion by assigning a deletion flag to it.

You can set the deletion flag at different levels in the organizational hierarchy, for example on the following levels:

- Client
If you set the deletion flag at client level, the archiving program will delete the material master record completely at all existing organizational levels.
- Plant
If you assign the deletion flag at plant level, the archiving program will delete the material master record at this and all lower levels. The data on a higher level remains intact.

Procedure

To assign a deletion flag to a PRT of the category “Material”, perform the following six steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools* followed by the menu bar sequence *ProdRes/Tools* → *Material* → *Change Immediately/Plan*.
The initial screen for changing a material PRT is displayed.
2. Enter the number of the PRT to which you want to assign a deletion flag.
However, do **not** press ENTER.
3. Use the menu bar sequence *Material* → *Flag for deletion*
The initial screen for assigning a deletion flag is displayed.
4. Make all the necessary entries. You must enter the organizational level at which the PRT is to be deleted.
The help functions support you in this.
5. Press ENTER.
The initial screen *Flag Material for Deletion: Initial Screen* is displayed.
On the left side of this screen you will see a field for the deletion flag.
6. Select the deletion flag you require and make all further necessary entries.
7. Save your changes using the menu bar sequence *Material* → *Save*.
The system assigns a deletion flag to the PRT. The next time the archiving program is run, the material will either be completely deleted or will be deleted on the specified levels with the specified criteria.

Assigning a Deletion Flag to “Material” PRTs

If you want to remove the deletion flag, perform steps 1 to 5 as described above. You can then remove the criteria for the deletion flag in the data entry fields and save the changes to the master record.

For more information on how to delete material master records, see the SAP document *Managing Material Master Data*.

Deleting Production Resources/Tools (Other)

Deleting Production Resources/Tools (Other)

Note that only PRTs of this category can be deleted directly.

To delete PRT master, perform the following three steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools* followed by the menu bar sequence *ProdRes/Tools* → *PRT master (other)* → *Change*.
The initial screen for changing a PRT master record is displayed.
2. Enter the number of the PRT you want to delete and use the menu bar sequence *Prod.Resources/Tools* → *Delete*.
The dialog box *Delete production resource/tool* is displayed.
3. Confirm you do want to delete the PRT by pressing Yes.

The system will issue a message informing you that the PRT has been deleted.



When the PRT you want to delete is still in use (for example, because it is allocated to a maintenance task list), you **cannot** delete it directly.

However, you can assign a deletion flag. Read [Assigning a Deletion Flag to "Other"/"Docu." PRTs \[Page 483\]](#)

Assigning Deletion Flag to "Other" / "Docu." PRTs

Assigning Deletion Flag to "Other" / "Docu." PRTs

To assign a deletion flag to a production resources/tools (PRT) master record of the types "Other" and "Document", perform the following four steps:

1. In the *Maintenance Task Lists* menu, use the menu bar sequence *Environment* → *Production resources/tools* followed by one of the following menu bar sequences:
ProdRes/Tools → *PRT master (other)* → *Change*
ProdRes/Tools → *Document* → *Change*
 The initial screen for changing a PRT master record is displayed.
2. Depending on the PRT category, make all the further necessary entries. The following table is intended to help you in this:

If you want to change this type.....	Enter...	You will go to...
Other	PRT number Press ENTER.	The screen <i>Basic data</i> .
Document	Document number, Document type Press ENTER.	The screen <i>Basic data</i> .

3. Now follow the steps in the table below:

To assign a deletion flag to the category	Use the menu bar sequence:	The system will...
Other	<i>Edit</i> → <i>Deletion flag/Reset</i>	Make an entry in the field <i>Deletion flag</i> and issue a message to inform you that the PRT is marked for deletion.
Document	<i>Edit</i> → <i>Change delete flag</i>	Make an entry in the field <i>Deletion flag</i> and issue a message to inform you that the PRT is marked for deletion.



If the PRT is still being used (for example, if it is assigned to a maintenance task list), the system will issue a warning.

Assigning Deletion Flag to “Other” / “Docu.” PRTs

If you want to delete the PRT that is being used, press `ENTER`. The system assigns a deletion flag. As soon as the assignment has been removed, the PRT will be deleted in the next archiving run.

4. To save the changes you have made to the PRT master record, perform one of the following menu bar sequences:
Prod.Resources/Tools → *Save*
Document → *Save*.

The system saves the changes and the next time the archiving program is run, the marked PRTs are deleted.



To remove the deletion flag, use the same menu bar sequence in the *Basic data* screen, as you used to set the deletion flag.

Assigning a Deletion Flag or PRTs “Equipment”

Assigning a Deletion Flag or PRTs “Equipment”

At present it is not possible to delete a production resources/tool (PRT) master record of the category “Equipment”.

Bulk Functions for Work Centers and PRTs

Bulk Functions for Work Centers and PRTs

Use

Almost maintenance task lists contain data on work centers (for example, machines, persons) and/or data on production resources/tools (for example, tools, cranes).

To effectively manage and change this data, you can

- Create where-used lists
- Perform bulk changes for production resources/tools or work centers
- Change default data for bulk changes for work centers

For more information on work centers, see the documentation [Work Center \[Ext.\]](#).

Procedure

To call up the individual functions in the table, use the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists*.

Function	Menu path	What you should know
Where-used list for PRT	<i>Evaluations → Usage → PRT usage</i>	See Creating Where-Used Lists for PRTs [Page 488]
Bulk changes for PRT	<i>Extras → Bulk changes → Replace PRT.</i>	See Replacing Production Resources/Tools [Page 489]
Where-used list for work centers	<i>Evaluations → Usage → Work center where-used</i>	See Creating Where-Used Lists for Work Centers [Page 493]
Bulk changes for work centers	<i>Extras → Bulk changes → Replace work center.</i>	See Replacing Work Centers [Page 491]
Changing default data for work centers	<i>Extras → Bulk changes → Replace work center → and then Settings → Default value for work center</i>	

Pre-Setting Overview Variants

Use

The presentation type and sequence of objects in the where-used list is controlled by the **Object overview variant**. The object overview controls the data display list for maintenance task lists. It determines which task list objects (for example, header, operation, sub-operation) and which fields the system should display from these task list objects.

You can preset your user master record to contain what you consider to be the most important overview variants for where-used lists and bulk changes.

Activities

To pre-set the overview variants in the user master record, use the menu bar sequence *System* → *User defaults* → *User parameters*. The following parameters are relevant:

Object overview	Relevant parameter ID
Work center	V02
PRT "Material"	V03
PRT "Other"	V04
PRT "Document"	V05
PRT "Equipment"	V06

You have to assign a list variant from the Customizing function as a parameter value. In the standard system there are the following list variants:

Parameter-ID	Assigned variant
V02	L00000000110
V03	L00000000290
V04	L00000000350
V05	L00000000170
V06	L00000000230

Creating Where-Used Lists for PRTs

Creating Where-Used Lists for PRTs

Use

Using where-used lists, you can display in which maintenance task lists specific production resources/tools (PRTs) are used. From this list of task lists, you can access the header data for the individual task lists and the detailed data screens of the individual operations.

You can use where-used lists for all four categories of [PRT types \[Page 464\]](#).

Procedure

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Evaluations → Where-used list → PRT usage*.
The screen *PRT Usage in PM Routings: Selection* is displayed.
2. To determine a *PT category* for the where-used list, use the menu bar sequence *Settings → PRT category*.
In the pop-up window *PRT category*, select the desired PRT category and choose *Select*.
3. Enter the necessary data in the selection screen.
4. Use the menu bar sequence *Goto → Execute*.
You see a pop-up window in which you can select the overview version you require. For more information, see [Pre-Setting Overview Variants \[Page 487\]](#).
5. Enter an existing variant and choose *Continue*.
The system displays a list of all the elements corresponding to the object overview version and your selection criteria. This means that all the elements displayed contain the specified production resources/tools.
6. In the screen *PRT Usage in Maintenance Task Lists: Selection* you can display individual maintenance task lists in more detail by choosing the menu bar sequence: *Goto → Detail*.
7. Exit the function.

Replacing Production Resources/Tools

Use

The *Plant Maintenance* component enables you to perform bulk changes for production resources/tools that are assigned to operations in maintenance task lists. Using the bulk changes procedure saves you time, because you do not need to individually change each task list.

When you change a PRT using the bulk changes procedure, the system first generates a where-used list (see [Creating Where-Used Lists for Production Resources/Tools \[Page 488\]](#)). From this list, you can select the task lists in which you want to change the PRTs.

You can use the bulk changes procedure for all four PRT categories:

- Material
- Other
- Document
- Equipment

Procedure

1. Choose the menu bar sequence *Logistics* → *Plant maintenance* → *Maintenance task lists* and then *Extras* → *Bulk changes* → *Replace PRT*.

The *Bulk changes* screen for replacing production resources/tools in maintenance task lists is displayed. *Selection*.

2. Enter the PRT category you want to replace. To do this, choose *Settings* → *PRT category*

In the dialog box *Production Resources/Tools Category*, select the PRT category you require and select *Choose*.

3. Enter the necessary data.
4. To generate the where-used list, choose *Goto* → *Execute*.

A dialog box is displayed. Here you must select the required report variant.

5. Enter an existing variant and choose *Continue*.

For more information on where-used lists and bulk changes see [Pre-Setting Overview Variants \[Page 487\]](#)

6. You can replace production resources and tools in the screen *Where-used lists: Select results* by selecting the required lines and selecting one of the following menu bar sequences:

- Settings → Replace with → Material
- Settings → Replace with → Miscellaneous
- Settings → Replace with → Document
- Settings → Replace with → Equipment

The dialog box *Plan-related default values: Change* appears.

Replacing Production Resources/Tools

7. Enter the new PRT in the appropriate data entry field in the dialog box and choose *Continue*.

The system replaces the PRT.

8. To display the replaced PRT, choose *Environment → Display → Change*.

The system displays the *PRT overview* screen with the new PRT in the task list.

Replacing Work Centers

Use

The bulk changes function allows you to replace a specific work center by another in maintenance task lists. Using the bulk changes procedure saves you time, because you do not need to individually change each task list. The system will only replace the selected work center. You can also change the default values that are copied into the maintenance task lists from the new work center.

When you change a work center using the bulk changes procedure, the system first generates a where-used list (see [Creating Where-Used Lists for Work Centers \[Page 493\]](#)). From this list, you can select the task lists in which you want to change the work center.

You can use the bulk changes procedure to

- Replace a specified work center with a new work center
- Change default values in the new work center

Procedure

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Extras → Bulk changes → Replace work center*.

You are now on the screen *Replace Work Center: Selection*.

2. Enter the following data:
 - The work center you want to replace and the new work center
 - The maintenance task lists in which the work center is to be replaced
3. To change the default values for the work center choose *Settings → Default values work center*

You are now in the dialog box *Plan-related default values: Change*.

Enter the necessary data.

To copy these changes to the new work center, choose *Copy value* in the desired line and then choose *Copy*.

4. To select the task lists in which the work center is to be replaced, use the menu bar sequence *Goto → Proceed*.

The dialog box appears.

5. Enter an object overview version (see also [Pre-Setting Overview Variants \[Page 487\]](#)), and choose *Continue*.

The system displays a list of all the objects corresponding to the object overview version and the selection criteria you specified.

6. Select the elements in which the work center is to be replaced and use the menu bar sequence: *Edit → Replace work center*

The system will issue a message informing you in which maintenance task lists the changes have been performed and saved.

Replacing Work Centers

7. Exit the function.

Creating Where-Used Lists for Work Centers

Use

The *Plant Maintenance* component enable you to create where-used lists for work centers. This is important,

- If you want to know, which work centers are used in which maintenance task lists
- If you want to make changes in certain work center master records and must therefore be able to see which maintenance task lists are affected.

The where-used list provides you with an overview of the task lists to which a specified work center has been assigned.

You can create a where-used list for all categories of maintenance task lists, that is, for general maintenance task lists, equipment task lists or functional location task lists.

You can generate an individual where-used list either for each task list type or for a specified number of all three task list types (from-to list).

Procedure

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Evaluations → Where-used list → Work center where-used*.

The screen *Work Center Usage: Selection is displayed*.

2. Enter the necessary data.
3. Use the menu bar sequence *Goto → Execute*.

You see a pop-up window in which you can select the overview version you require. For more information, see [Pre-Setting Overview Variants \[Page 487\]](#).

4. Enter an existing variant and choose *Continue*.

The system displays a list of all the elements corresponding to the object overview version and your selection criteria. This means that all the elements displayed contain the specified work center.

5. To view the elements in the list in more detail, select these objects and use one of the following menu bar sequences:

- Goto → Select
- Goto → Detail

The system branches to the corresponding screen.

6. Exit the function.

Relationships

Relationships

Definition

You can use relationships to link operations for maintenance task lists.

A relationship describes the chronological interdependence between two operations in a task list. A relationship specifies, for example, that one operation can only begin once another operation has been completed, or that an operation can only be completed when another operation is also completed. You can use relationships to make an operation a predecessor or successor of another operation.

Use

You can use relationships to make a maintenance task list comparable with a standard network from the *Project System* application component. The maintenance task list is therefore used as the basis for planning, description and control of resources (for example, material, personnel, production resources/tools).

For more information about standard networks, see [PS - Project System \[Ext.\]](#).

The relationship type specifies how the individual operations are connected to each other. There are the following types:

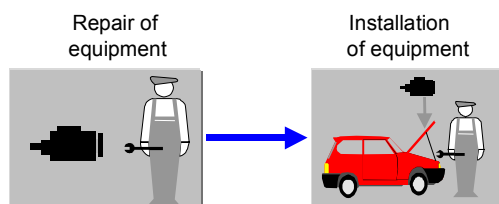
- FS Relationship
- SS Relationship
- FF Relationship
- SF Relationship

In Plant Maintenance, FS relationships with a [time interval \[Page 496\]](#) of zero are usually used.

FS Relationship

The finish of an operation is connected to the start of the following operation.

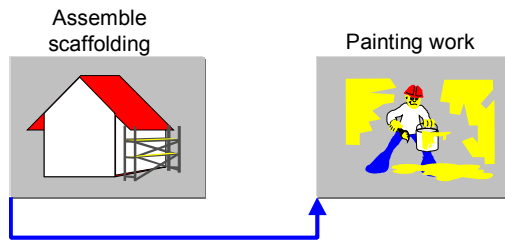
For example, the operation “Installation of Equipment” can only start once the operation “Repair of Equipment” has been completed.



SS Relationship

The start of an operation is connected to the start of the following operation.

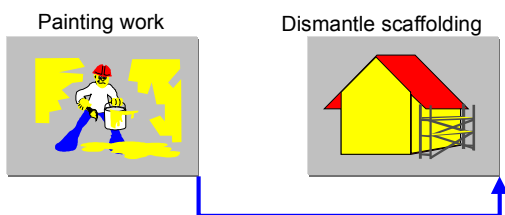
For example, the operation “Painting Work” can only start once the operation “Assemble Scaffolding” has been completed.



FF Relationship

The end of an operation is connected to the end of the following operation.

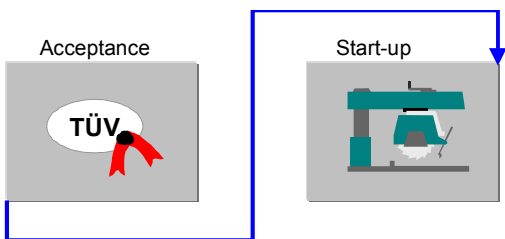
For example, the operation "Dismantle Scaffolding" can only start once the operation "Painting Work" has been completed.



SF Relationship

The start of an operation is connected to the end of the following operation.

For example, the operation "Start-up" can only start once the operation "Acceptance" has been completed.



Time Intervals in Relationships

The time interval is the time between two operations which are connected by a relationship.



The operation “Install piece of equipment” is connected to the operation “Repair piece of equipment” in a FS relationship with a time interval of two days. This means that - at the earliest - the operation “Install piece of equipment” can begin two days after the operation “Repair piece of equipment” has been completed.

You can specify time intervals between connected operations in two ways:

- **With positive or negative absolute values**

You enter an absolute value, for example -10 days. In a FS relationship, this means that the successor operation can begin 10 days before the predecessor operation is finished.

- **As a percentage of the duration of the predecessor or successor**

You enter a percentage, for example 80%. In a FS relationship, when the predecessor “Repair” has a duration of 10 days, the following operation “Install piece of equipment” begins 8 days (= 80% of 10 days) after the operation “Repair” was finished.

For a detailed description of relationships, see the documentation *PS Project System*.

Prerequisites for Creating Relationships

You can only connect operations using relationships. You cannot connect sub-operations with one another. In maintenance task list processing, you must first create a task list with operations, before you can connect the individual operations.

You can create relationships for all three types of maintenance task list. However, you can only connect the operation within one individual task list.

The following prerequisites must be met before you can create and maintain relationships:

- The profile for standard networks and networks must be set using the Customizing function so that the profile group, name, relationships and the specifications for graphic display appear on your screen.
- A maintenance task list must be created.
- The maintenance task list must contain several operations.
- You may not use the task list group in which the operations should be connected for planned maintenance, in other words, as soon as you have entered maintenance strategy in the maintenance task list header, you may no longer connect the operations with one another using relationships.

Creating Relationships

Prerequisites

For more information, see [Prerequisites for Creating Relationships \[Page 497\]](#).

Procedure

1. Call up the maintenance task list (equipment task list, functional location task list or general maintenance task list) in the create or change mode, and choose *Goto* → *Operation overview*.
2. Set the network profile for the graphic by using *Settings* → *Profile* and then enter the profile and profile group you require in the *General data* section.
3. Choose *Continue*.
You return to the screen *Operation overview*.
4. Now decide how you want to create the relationships:
 - In the graphic (see [Creating a Relationship in the Graphic \[Page 499\]](#))
 - In the list (see [Creating a Relationship in the List \[Page 502\]](#))



Remember: You can only connect operations to one another, not sub-operations.

Creating a Relationship in the Graphic

Prerequisites

For more information, see [Prerequisites for Creating Relationships \[Page 497\]](#).

Procedure

1. Choose *Goto* → *Network graphic*.

You reach the SAP Graphical Editor screen. This displays all the operations that have been entered previously for the maintenance task list.

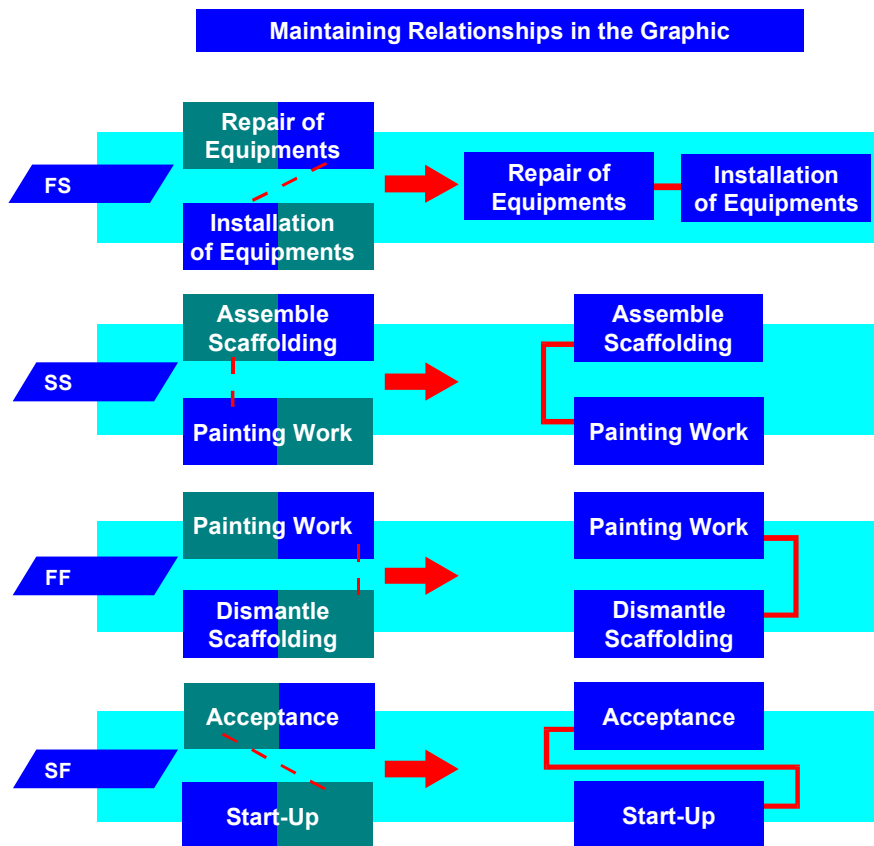
2. Press the *Connect* pushbutton.
3. Press and hold the left mouse button on the operation **from which** you want to create a relationship. The position of the pointer specifies the type of relationship (see the figure “Maintaining Relationships in the Graphic” below).

Each element in a maintenance plan (for example, operation, sub-operation, material component) is valid for a certain period of time.

4. Drag the line to the operation, **for which** you want to create the relationship. The position of the pointer specifies the type of relationship (see the figure “Maintaining Relationships in the Graphic” below).
5. Release the mouse button.

The system will connect the two operations with a line and will record the type of relationship above the line. The line extends from the right edge of the predecessor to the left edge of the successor, and therefore only shows that a relationship exists; the type of relationship is always written above the line.

Creating a Relationship in the Graphic



Defining the relationship type using the mouse cursor (lines here do not correspond to those you would see in the graphic on the screen)

6. To enter detailed data for a relationship (for example, time interval), select the relationship and choose *Details* → *Relationship*.

Make all the required entries. The help functions support you in this.

Use *Back* to return to the graphical display.



From the graphic (menu option *Details*), you can also call up the screens for externally and internally processed operations, enter or change data and then return to the graphic for relationships.

You can also create new operations in the graphic. To do this, see [Creating an Operation in the Graphic \[Page 503\]](#).

7. To create additional relationships, repeat steps 1 to 6.
8. Return to the operation overview of the maintenance task list using *Goto* → *Back*.
9. Save the maintenance task list.

Creating a Relationship in the List

Creating a Relationship in the List

Prerequisites

For more information, see [Prerequisites for Creating Relationships \[Page 497\]](#).

Procedure

1. In the *Operation Overview* screen, select the operations for which you want to create relationships.

2. Then choose *Operation → Relationship*.

You reach the screen *Operation Relationships*.

3. In the screen *Operation Relationships* in the upper part of the screen, you will see the first operation selected **from which** you want to create the relationship.

In the data section *Relationships*, enter the operations **with which** you want to connect the operation mentioned above, the type of relationship and any additional data.

The help functions support you when entering data.



From the list, you can call up the screens for the data from internally and externally processed operations, enter or change the data and then return to the relationships list.

4. To call up the next selected operation, choose *Operation → Add operation → Next operation*.
5. Proceed in the same way for all the other operations you selected.

When you reach the last selected operation, the system will issue a message informing you of this. You can either return to the *Operation Overview* screen by using *Goto → Back*, and call up further functions for the maintenance task list, or perform step 6 immediately.

6. Save the maintenance task list.

See also:

[Working with Lists \[Ext.\]](#)

Creating an Operation in the Graphic

If you are creating or changing relationships, and realize that a certain operation has not been created, you can create the operation you require in the network graphic. To do this, perform the following five steps:

1. Select the pushbutton *Insert mode*.
In the navigation area you will see a standard operation.
2. Select this operation in the navigation area.
3. Position the pointer in the display area where the new operation should be and press the left mouse button.
The standard operation will appear there.
4. Select the new operation. Use the menu bar *Modify* to call up the processing screens for the operation and enter all the relevant operation data.
5. Once you return to the graphic display, you can connect this operation with the other operations using relationships.

Changing Relationships

Changing Relationships

If you want to make changes to the relationships, remember that the maintenance task list may be in use in your company already, and the changes will not be transferred to created maintenance orders and released maintenance items which refer to the task list.

To change relationships, call up the relationships as described in the topic [Creating Relationships \[Page 498\]](#).

You can change both the data in existing relationships and add or insert new relationships to the existing network.

To change relationships, proceed as for creating relationships (see topic [Creating Relationships \[Page 498\]](#)).

Displaying Relationships

To display your relationships, call up the appropriate maintenance task list in the *Maintenance Task Lists* screen with one of the following options:

Task lists → *For equipment* → *Display*

Task lists → *For function location* → *Display*

Task lists → *General task lists* → *Display*.

Call up the relationships overview as described in the topic [Creating Relationships \[Page 498\]](#).

Deleting Relationships

Deleting Relationships

When you delete a relationship, you change the network structure. Therefore, you should always remember that maintenance task lists may be in use in your company and that the changes you make will not be transferred to a created maintenance order and the maintenance items which refer to the maintenance task list.

To delete a relationship, perform the following six steps:

1. In the *Maintenance Task Lists* screen, call up the maintenance task list in which you want to delete the relationships using one of the following options:
Task lists → For equipment → Change
Task lists → For functional location → Change
Task lists → General maintenance task list → Change.
2. Call up the *Operation Overview* of the maintenance task list. If you want to call up the relationships list, select the operation for which you want to delete a relationship.
3. Set the network profile for the graphic, by choosing *Settings → Profile* and enter the profile required with the profile group and name in the section *General data*. Return to the operation overview by using *Continue*.
4. Call up the list or the graphic for relationships with one of the following options:
Operation → Relationships
or
Goto → Network graphic
5. Select the relationship you want to delete.
6. Choose *Edit → Object → Delete*.
7. Save the changes.

Loop Analysis

In Plant Maintenance, it is presumed that the operations connected by relationships within an operation network will be performed one after the other and individual operations will not be repeated. A loop should be avoided as this can cause problems when scheduling the maintenance order in which the maintenance task list is included.

To avoid saving such loops in a maintenance task list, the PM system offers you loop analysis. This is a tool which checks if any loops exists in the operation network. You should always use loop analysis when you have created or changed relationships.

To start loop analysis, perform the following steps:

1. Call up the maintenance task list in which you want to start the loop analysis by using one of the following menu bar sequences:

Task lists → For equipment → Change

Task lists → For functional location → Change

Task lists → General task lists → Change.

2. Call up the *Operation overview* of the maintenance task list.
3. Set the network profile for the graphic, by choosing *Settings → Profile* and enter the profile required with the profile group and name in the section *General data*. Return to the operation overview by using *Continue*.
4. Go to the network graphic for relationships by choosing the following option:
Goto → Network graphic.

The system displays the existing relationships in the network graphic.

5. To start the loop analysis, choose the menu bar sequence *Edit → Functions → Loop analysis → Proceed*.

The system checks all relationships to see if they form a loop. If it finds a loop, it will highlight the affected relationships and operations.

6. Select the relationship(s) that produce a loop and choose the menu bar sequence *Edit → Object → Delete*.



To remove the highlighting, choose *Reset*.

7. Exit the graphic and save the changes to the maintenance task list.

Cost Analysis

Cost Analysis

Use

You can perform cost analyses for maintenance task lists with the *Plant Maintenance* component. This allows you to see which of the operations described have created which costs in a maintenance task list. This enables you to control your costs without creating an order.

Prerequisites

All the data entry fields relevant to costing and the preparation possibilities of the costing result must have been set using the customizing function by your CO consultant.

Features

The cost analysis can refer either to entire task lists or individual operations (for example, all externally processed operations).

Enter the following data in the costs analysis:

- All material costs
- All costs for external processing
- All costs for internal processing

Cost calculation depends on the costing variant (for example, with or without surcharges) assigned to the order type that is used as a basis for the cost analysis.

You can only run the cost analysis program for **one** maintenance task list type. If you want to calculate the costs for equipment task lists and for functional location task lists, you must run the program once for the equipment task lists and again for the functional location task lists.

Creating a Log

Within the cost analysis framework, you can create a log which checks all the costing relevant master data for completeness and consistency. For example, the system checks if all activity types and valuation segments of the assigned materials are maintained. The system creates a corresponding message in the cost analysis when errors or inaccuracies occur.

This inconsistency check is important to ensure that the task list is correct before it is included in the maintenance order. Only in this way can you ensure that there will be no problems when creating the order as a result of inadequately maintained data.

Analyzing Costs

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Evaluations → Costing PM task lists*

The screen *Task list costing* is displayed.

2. Select the maintenance task list type for which you want to perform the cost analysis.

Within a task list type you can restrict the selection further if required, by entering one or more pieces of equipment or functional locations, a specified task list group and/or specific group counter. Enter the necessary data.

3. Use the menu bar sequence *Program → Execute*.

The dialog box *Select operation* appears.

4. Select all the operations that are to be included in the cost analysis. Then press *Copy selection*.

If you want to cost all the operations displayed, you can simply choose *Copy all* without selecting them.



While the system calculates the costs, it may also issue system message with information about the orders. You can simply ignore these messages as they are not relevant to maintenance task list costing. The messages are only issued because the system simulates a pseudo-order in the background when costing the task list in order to be able to perform the costing function.

The system produces a list of all the maintenance task lists and operations corresponding to the selection criteria you have defined and displays the costing result.

The presentation depends on the basic cost report. If you require another presentation, choose one by using the menu bar sequence *Goto → Other report*. The reports displayed depend on the options set centrally in the CO component.

5. You can call up further information from the list by using any of the available menu bar sequences.

Creating a Log for Cost Analysis

Creating a Log for Cost Analysis

Use

You can create a log while the system issues all inconsistencies relevant to costing.

Procedure

1. Choose the menu bar sequence *Logistics → Plant maintenance → Maintenance task lists* and then *Evaluations → Costing PM task lists*

The screen *Task list costing* is displayed.

2. Select the field *Create log*.
3. Use the menu bar sequence *Program → Execute*.

The dialog box *Select operation* appears.

4. Once you have selected all the operations, you can view the log in the initial screen for analyzing and controlling errors.

You can choose *Log → Display* to display different versions of the log.

The long texts for the individual system messages describe the problems that have occurred and offer solutions. You should eliminate the problem before releasing the maintenance task list and including it in the maintenance order.

5. Return to the screen for displaying the costing result.

Configurable General Maintenance Task Lists

Definition

A general maintenance task list in which you, for example, group together all possible operations for repairing different object types in a **super task list**. This means that you do not have to create a separate general maintenance task list for each variant of a technical object, but that you configure each variant accordingly.

You create **object dependencies** for the individual operations of the general maintenance task list, by specifying, for example, that the system should only select an **operation** during maintenance or service order creation when particular characteristic values apply. In addition, you can assign an assembly to the general maintenance task list. If you have entered object dependencies for the materials in the corresponding material BOM, the system copies the **material components** with the assigned object dependencies into the general maintenance task list. This means that you are also able to configure materials, and define that they are only selected when particular characteristic values apply.

Use

When maintaining technical objects, it is sometimes the case that task lists for maintaining different object types only differ from one another by additional, variant-specific operations, and that otherwise, they are largely identical. In cases such as this, you can use configurable general maintenance task lists.

For example, this may be the case if you want to repair production lines that only differ from one another as regards additional operations that are based on the age or on the modernity of the system. Another situation where you could use configurable general maintenance task lists would be if you have created service contracts for object types that differ from one another based on, for example, the type of motor concerned (for example, fork lift truck with electric engine, fork lift truck with diesel engine).



Configurable General Maintenance Task List for Fork Lift Truck

Operation	Object dependency: Select if the type of engine is...
Check electronics	Electric
Check wear and tear of carbon brushes	Electric
Check tread depth of tires	Electric, Diesel
Change hydraulics oil	Electric, Diesel
Check tension of lift chain	Electric, Diesel
Change oil filter	Diesel
Change air filter	Diesel
Clean fuel injectors	Diesel

Configurable General Maintenance Task Lists

You can use the configurable general maintenance task list in Plant Maintenance (PM) and Customer Service (CS). Observe the following features for the [configuration profile \[Page 513\]](#):

Use	Features
PM, maintenance order	Assign an object dependency and a configuration profile to the general maintenance task list.
CS, service order with configurable service product	A configuration profile is assigned to the configurable service product. From this, assign object dependencies but no separate configuration profile to the general maintenance task list. If, however, you still choose to assign object dependencies, they will be ignored by the system.
CS, service order with "normal" service product	Assign an object dependency and a configuration profile to the general maintenance task list.
PM and CS	Assign an object dependency and a configuration profile to the general maintenance task list. If you assign the general maintenance task list in the Customer Service component to a service order with a configurable service product, the configuration of the service product has priority over the configuration of the general maintenance task list.

For more information on the service product, see [Configurable Service Product \[Page 1044\]](#).

Integration

The configurable general maintenance task list integrates the following components:

- Classification system
- Variant configuration
- Maintenance orders or service orders

If you create a maintenance or service order and assign a configurable general maintenance task list to it, the system recognizes that the general maintenance task list is assigned to a configuration profile. It calls up characteristic valuation and only selects the relevant operations for the order from the super task list, based on the object dependencies that you specified.

See also

[Configurable Service Specifications \[Page 519\]](#)

Configuration Profile

Definition

You maintain the configuration parameters for a configurable general maintenance task list in the configuration profile.

The settings that you make here also concern the BOM explosion for the piece of material. In addition, at least one class, whose class type allows variant configuration, must be assigned to each configuration profile. The class contains the characteristics that the system proposes for characteristic evaluation when you create a maintenance or service order.

Creation of Configurable General Maintenance Task Lists

Purpose

When maintaining technical objects, it is sometimes the case that task lists for maintaining different object types only differ from one another by additional, variant-specific operations, and that otherwise, they are largely identical. In cases such as this, you can use configurable general maintenance task lists.

If you create a maintenance or service order and assign a configurable general maintenance task list to it, the system recognizes that the general maintenance task list is assigned to a configuration profile. It calls up characteristic valuation and only selects the relevant operations for the order from the super task list, based on the object dependencies that you specified.

Prerequisites

- You have created a class in the class system and assigned characteristics to it, for example, the class “Fork lift truck” with the characteristics “Engine type”, “Construction year” and “Extras”. For more information, see [The Classification System \[Ext.\]](#).
- You are familiar with the variant configuration (see [Logistics \(General\) - Variant Configuration \[Ext.\]](#)).

Process Flow

1. You [create a general maintenance task list \[Page 515\]](#) and enter object dependencies for the individual operations.
2. You [enter a configuration profile \[Page 517\]](#) for the general maintenance task list and assign one or more classes to the configuration profile.

Result

You can assign the general maintenance task list to a maintenance or service order and then select suitable operations for it. The class(es) that you assign to the general maintenance task list using the configuration profile control(s) which characteristics the system proposes for the characteristic evaluation.

See also

[Configurable Service Specifications \[Page 519\]](#)

Creating Configurable General Maintenance Task Lists

Prerequisites

You have created a class in the class system and assigned characteristics to it, for example, the class "Fork lift truck" with the characteristics "Engine type", "Construction year" and "Extras". For more information, see [The Classification System \[Ext.\]](#).

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Planned maintenance* → *Maintenance task lists* → *Task lists* → *General task lists* → *Create*.

The initial screen for creating general maintenance task lists is displayed.

For more information about creating general maintenance task lists, see [Creating Maintenance Task Lists: Process \[Page 400\]](#).

2. Enter object dependencies for the individual operations.

To do this, select the operation to which you want to assign an object dependency in the screen *Operation overview*, and choose *Extras* → *Object dependencies* → *Editor*.

The dialog box appears.

3. Select the relationship type and choose *Continue*.

The screen for maintaining object dependencies is displayed.

4. Enter the source text for the object dependency.



\$parent.engine type eq 'Electrical'

(The system should only select operations for the engine type "Electrical").

For more information on object dependencies, see [Logistics \(General\) - Variant Configuration \[Ext.\]](#).

5. Save the general maintenance task list.



In the general maintenance task list, you cannot assign object dependencies directly to the free **material components**. An assignment of object dependencies to material components is only possible if you assign a material of the category *Assembly* to the general maintenance task list in the task list header, and you select the material components using component selection from the material BOM. The system copies the object dependency that is assigned to the components in the bill of material to the general maintenance task list. In this way, you are also able to control the configuration of the material components, and define that the system only selects components for particular characteristic values (for example, material "Air filter" for engine type "Diesel") when you create a maintenance or service order.

For more information on material components, see [Assignment of Material Components \[Page 456\]](#).

Creating Configurable General Maintenance Task Lists**Result**

- You have created a general maintenance task list and must now [create a configuration profile \[Page 517\]](#).
- You can assign the general maintenance task list to a maintenance or service order and then select suitable operations for it. The class(es) that you assign to the general maintenance task list using the configuration profile control(s) which characteristics the system proposes for the characteristic evaluation.

For more information, see the SAP documentation *PM - Maintenance Orders* and *PM - Service Management*

See also

[Configurable Service Specifications \[Page 519\]](#)

[Processing Maintenance Task Lists \[Page 426\]](#)

Creating Config. Profile for Gen. Maint. Task List

Prerequisites

You have created a general maintenance task list (see [Creating Configurable General Maintenance Task Lists \[Page 515\]](#)).

Procedure

1. Use the menu bear sequence *Logistics → Plant maintenance → Maintenance task lists* and then one of the following menu paths:
 - *Task lists → General task lists → Configuration profile → Create*
 - *Environment → Variant configuration* and then *Config. profile → Create*

A dialog box is displayed, in which you can select the required configurable object.

2. Select *General maintenance task list* and choose *Continue*.

The initial screen for creating configuration profiles is displayed.



By choosing *Extras → Change confble.obj.*, you can change the object later if required.

3. Enter the name of the general maintenance task list that you want to create a profile for and choose *Continue*.

The Profile overview screen is displayed.

4. Enter a **profile name** and a **class type** by which the object is to be classified, for each profile that you want to create.



The class type must be admissible for the variant configuration. You can perform this setting in the Customizing function for the class system.

5. Assign one or more classes to each profile for the general maintenance task list. The class must be created for the class type that you have specified in the Overview screen. In this way, you determine which characteristics are proposed by the system when you assign the configurable general maintenance task list to a service or maintenance order.

To do this, choose *Goto → Class allocations*.

The Assignment screen for classes is displayed.

6. Enter the class that you want to assign to the object and return to the configuration profile.
7. To determine the status of the profile, select *Goto → Profile detail*.



When you create the profile, the status is set to *In preparation*. You can change the status to *Released* once you have assigned the object to a class.

Creating Config. Profile for Gen. Maint. Task List

8. Return to the Profile overview screen.
9. Save the configuration profile.

For more information on variant configurations and the creation of configuration profiles, see the documentation *LO - Variant Configuration Guide*.

Result

You can assign the general maintenance task list to a maintenance or service order and then select suitable operations for it. The class(es) that you assign to the general maintenance task list using the configuration profile, control which characteristics the system proposes for the characteristic evaluation.

For more information on maintenance and service orders, see the documentation *PM - Maintenance Orders* and *PM - Service Management*.

Service Packages in Configurable General Maintenance Task Lists

Use

You can include configurable general maintenance task lists in an order during order creation. The system analyzes and evaluates the object dependencies of the operations and the material components in the general maintenance task list using the configuration and copies the relevant operations and components to the order.

You can also assign service packages to the operations of a general maintenance task list and define object dependencies for individual service lines. For example, you can define if a service line is necessary only for the assembly of red bicycles.

Object dependencies for service lines enable you to transfer and value the services to be executed during order creation.

For more information about creating configurable general maintenance task lists, see [Configurable General Maintenance Task Lists \[Page 511\]](#).

Integration

The following components are integrated in the function:

- Task lists of the *Plant Maintenance* and *Customer Service* application components
- Maintenance or service orders of the *Plant Maintenance* and *Customer Service* application components
- Service specifications of the *Materials Management* application component

Prerequisites

You have specified a control key for operations to which a service package that allows external processing should be assigned (for example, *PM03* or *PM04*).

Features

You can include general maintenance task lists with service packages in an order. You have the following options:

- You can include a general maintenance task list manually in an order. For more information, see [Selecting a Task List for an Order \[Page 1160\]](#).
- If you create an order with a service product, the system automatically includes the general maintenance task list using the task list assigned to the service product. For further information, see [Creating a Sales Order With a Service Product \[Page 1053\]](#).

In both cases, the system calls up the configuration when including the general maintenance task list. You evaluate the characteristics here, that is, you enter Color = Red as a characteristic (for example). Based on the object dependencies, the system then selects suitable operations and service lines from the general maintenance task list.

The system copies the following operations to the order:

- All operations without object dependencies

Service Packages in Configurable General Maintenance Task Lists

- All operations with object dependencies that are relevant after evaluation and analysis of the object

In addition to selecting suitable service lines, you can also set values in the service lines using the object dependencies, for example, quantity.

Activity

Function	Menu path
Assigning service packages	<i>Operation → Overviews → Service packages</i>
Defining object dependencies for the operation	<i>Extras → Object dependencies → Editor</i>
Defining object dependencies for the service line	In the service package: <i>Extras → Object dependencies → Editor</i>

Maintenance Planning (CS-AG/PM-PRM-MP)

Purpose

Ensuring a high availability of objects in the long term is an important part of Plant Maintenance. Preventive maintenance is used to avoid system breakdowns or the breakdown of other objects, which - in addition to the repair costs - often result in much higher costs subsequently owing to production breakdown.

There are many benefits in using preventive maintenance within your company. It is the generic term for inspections, maintenance and planned repairs, for which the time and scope of the work can be planned in advance.

In addition to internal company aspects for preventive maintenance, external factors should also be considered. An increasing number of conditions set by legislative bodies demand more stringent requirements on planned monitoring and maintenance of objects. External requirements can be:

- **Manufacturer recommendations**

The manufacturer of your technical objects may recommend certain procedures to ensure that the objects always function optimally.

- **Legal requirements**

There may be labor protection laws or laws concerning the safety of objects which require you to maintain your technical system on a regular basis.

- **Environmental requirements**

Effective preventive maintenance can also help to prevent breakdowns that could lead to environmental hazards.

Another reason for preventive maintenance is the need for quality assurance, since, for example, the quality of products manufactured at a technical system is substantially affected by the operating condition of the production plant.

It is also often more cost-effective to maintain objects regularly, and therefore prevent a much more expensive breakdown. You can determine the data required for this using past data supplied by the system.

Integration

The *Maintenance Planning* component is integrated with the following components and sub-components of the SAP System:

Plant Maintenance application component

- *Maintenance task lists*
- *Maintenance orders*
- *Maintenance notifications*

Customer Service application component

- *Service orders*
- *Service notifications*

Maintenance Planning (CS-AG/PM-PRM-MP)

Materials Management application component

- *Service procurement*
- *Service entry sheets*

Quality Management application component

- *Inspection characteristics*
- *Inspection lots*

Sales and Distribution application component

- *Outline agreements*

Features

You can use maintenance planning to describe the dates and scope of corrective maintenance and inspection activities at technical objects. You can ensure that your technical objects are maintained on time and thereby function optimally.

Generation of Maintenance Call Objects

The system generates [maintenance call objects \[Page 547\]](#) during the scheduling process. The following maintenance call objects are available in the overview:

- For rough planning of tasks
 - Maintenance notification
 - Service notification
- For detailed planning of tasks
 - Maintenance order
 - Service order
- For detailed planning of tasks and history for the damage processed in the notification
 - Maintenance notification and maintenance order simultaneously
 - Service notification and service order simultaneously
- For Customer Service
 - Maintenance plans with reference to an outline agreement
- For Quality Management using the link to QM inspection characteristics
 - Inspection lots
- For service procurement in purchasing
 - Service entry sheets
- Graphical scheduling overview
- List with calculated maintenance dates
- Cost display for maintenance plans
- Archiving of maintenance plans

Split-Level Maintenance

One of the most significant advantages offered by the *Plant Maintenance* application component is the option of split-level maintenance. You can create a maintenance plan, and consequently the maintenance call objects, for example, at the following levels:

- Pieces of equipment
- Functional locations
- Materials
- Material and serial numbers
- Assemblies

The possibility of split-level maintenance allows you to plan and perform maintenance tasks for the following objects:

- An **individual piece of equipment** which operates independently of other equipment (for example, a vehicle)
- **Functional locations** (for example, a production line) which may comprise several pieces of equipment

You can thereby maintain the whole functional location, rather than the independent technical objects it comprises.

- An **assembly** within a piece of equipment (for example, a pump motor)
- Materials
- Material and serial numbers

Maintenance Plan

Maintenance Plan

Definition

Description of the maintenance and inspection tasks to be performed at maintenance objects. The maintenance plans describe the dates and scope of the tasks.

Use

You can create maintenance plans for the technical objects in your company, thereby ensuring that your technical objects function optimally.

How Do I Structure Maintenance Plans in a Meaningful Way?

When creating a maintenance plan, you can take your company's method of working into account and, for example, control whether the system should generate a common order or separate orders for the objects to be maintained:

- You have several objects that must be maintained on **different dates**. You create a separate maintenance plan for each object to be maintained. The system should generate a [call object \[Page 547\]](#) (for example, an order or a notification) on a due date for each object. This method of structuring is the one most frequently used, as it is very flexible. (See [Example 1 \[Page 537\]](#))
- You have several objects that must always be maintained **on the same date** and with the **same cycle** (for example, every 6 months). For a due date, the system should:
 - Generate a separate call object (for example, an order or notification) for each object to be maintained (see [Example 3 \[Page 538\]](#))
 - Group several objects to be maintained in one call object. This grouping is only possible for the call object "Order", as only orders can have an [object list \[Page 591\]](#). (See [Example 2 \[Page 539\]](#))

Which Maintenance Plan Do I Use?

The maintenance plan you use depends on the type of maintenance planning that you would like to use in your plant:

- **Single cycle plan or strategy plan (time-based or performance-based)**

If you want to perform [time-based \[Page 542\]](#) or [performance-based \[Page 543\]](#) (counter-based) maintenance planning, you can work with both single cycle plans as well as strategy plans. For more information, see [Single Cycle Plan and Strategy Plan \[Page 526\]](#).
- **Multiple counter plan**

If you want to combine [maintenance cycles \[Page 578\]](#) from different dimensions (for example, time and distance), you can use [multiple counter plans \[Page 527\]](#).
- **Maintenance plan for service procurement in Purchasing**

If you want to use maintenance plans to process regular services, for example, the monthly maintenance of an elevator or a photocopier, you can use the [maintenance plan for service procurement in Purchasing \[Page 534\]](#).

- **Maintenance plan with reference to an outline agreement**

If you want to determine agreed deadlines for activities due as part of a cycle, you can use the [maintenance plan with reference to an outline agreement \[Page 529\]](#).

What Controls the Maintenance Plan Category?

When you create a maintenance plan, you must specify a maintenance plan category which determines, among other things, which [maintenance call object \[Page 547\]](#) the system generates for a due maintenance call (for example, a maintenance order, service entry sheet, or notification). For more information, see [Maintenance Plan Category \[Page 545\]](#).

Structure

A maintenance plan basically consists of the following elements:

- **Maintenance item(s)**

A maintenance item describes which preventive maintenance tasks should take place regularly at a technical object or a group of technical objects.

A maintenance plan **automatically** always contains a maintenance item. You can create additional maintenance items directly in the maintenance plan, or assign existing maintenance items that have not yet been assigned. Exceptions to this rule include maintenance plans for service procurement and maintenance plans with reference to an outline agreement. These plans have only **one** maintenance item.

For more information, see [Maintenance Item \[Page 582\]](#).

For the [call objects \[Page 547\]](#) maintenance order (PM order) or service order, you can describe the necessary activities using a task list which you assign to the maintenance item.

- **Maintenance plan**

The maintenance plan contains scheduling information from the following sources:

- For single cycle plans, from the [maintenance cycle \[Page 578\]](#)
- For strategy plans from the [maintenance strategy \[Page 615\]](#) assigned to the maintenance plan
- For multiple counter plans from the maintenance cycles
- From the [scheduling parameters \[Page 635\]](#) specific to this maintenance plan

When you schedule the maintenance plan, this information is used to calculate the due dates for the maintenance operations to be performed on the assigned technical objects.

For more information about scheduling, see [Scheduling \[Page 629\]](#).

Single Cycle Plan and Strategy Plan

Single Cycle Plan and Strategy Plan

Definition

Single cycle plans or strategy plans are maintenance plans with which you can show time-based or performance-based maintenance cycles.

Use

- You use single cycle plans to show **simple maintenance cycles**.

A single cycle plan is the simplest form of maintenance plan. You create a single cycle plan and define exactly **one** time-based or performance-based [maintenance cycle \[Page 578\]](#), in which you specify the interval at which the maintenance plan should be executed.

It might be used, for example, for the annual maintenance of a car or for the repair of a photocopier after every 10,000 copies.

- In contrast, you use strategy plans to show **complex maintenance cycles**.

You create a strategy plan and assign a [maintenance strategy \[Page 615\]](#) in which you have defined the maintenance cycles (in the strategy [maintenance packages \[Page 578\]](#)). A maintenance strategy contains general scheduling information, and can therefore be assigned to as many maintenance plans and maintenance task lists as required.

For example, it makes sense to use a strategy plan if different maintenance tasks for a car are due in different cycles: oil check every 1,242.74 mi, oil change every 6,213.71 mi.

For more information, see [Time-Based Maintenance Plans \[Page 542\]](#) and [Performance-Based Maintenance Plans \[Page 543\]](#).

See also

[Creating a Single Cycle Plan \[Page 563\]](#)

[Creating a Time-Based Strategy Plan \[Page 564\]](#)

[Creating a Performance-Based Strategy Plan \[Page 566\]](#)

Multiple Counter Plan

Definition

A multiple counter plan is used in counter-based (performance-based) maintenance. This type of maintenance planning is not based on a maintenance strategy. This means that you create a multiple counter plan **without a maintenance strategy**.

In the maintenance schedule, you define [maintenance cycles \[Page 578\]](#) to which you assign equipment or functional location counters of **different dimensions**, for example, number of hours flown, number of take-offs and landings, kilometers travelled. You can also integrate time-based cycles into the maintenance plan. However, these do not have counters. Alternatively, you can also create a multiple counter plan with a cycle set as a **copy model** for maintenance cycles.

For the [call objects \[Page 547\]](#), maintenance order (PM order) or service order, you can describe the necessary activities using a [maintenance task list \[Page 604\]](#), which you assign to the [maintenance item \[Page 582\]](#).



If you use a multiple counter plan, **all** the operations in the task list are copied into the [maintenance call object \[Page 547\]](#), maintenance order or service order, when maintenance is due. You should consider this when planning and preparing maintenance tasks.

If you schedule the multiple counter plan, the system calculates the planned deadlines for each maintenance cycle on the basis of the current counter reading and the estimated annual counter activity. (For a time-based cycle, the system calculates the deadlines based on the time unit and cycle duration.)

The cycles for a multiple counter plan are linked with either an OR operation or an AND operation. For an **OR operation**, a maintenance order is generated for the **earliest** possible planned date. If maintenance is due, for example, every 100 tons produced or every 50 operating hours or every two weeks, the decisive factor is which occurs **first**.

For an **AND operation**, a maintenance order is generated for the **last** planned date. If maintenance is due, for example, every 100 tons produced or every 50 operating hours or every two weeks, the decisive factor is which occurs **last**.

Use

Multiple counter plans are best suited to individual activities or individual groups of activities, for example, in the airline industry, if the landing gear should be inspected according to the number of kilometers flown and the number of take-offs and landings.

Structure

A multiple counter plan must comprise the following parts in order to be scheduled:

- Scheduling data
 - [Scheduling parameters \[Page 635\]](#)
 - [Maintenance cycles \[Page 578\]](#)
- [Maintenance item\(s\) \[Page 582\]](#)

Multiple Counter Plan

See also

[Cycle Set as Copy Model \[Page 560\]](#)

Maint. Plan with Reference to an Outline Agreement

Use

By creating a maintenance plan with reference to an outline agreement, you can simplify the processing of services which you have agreed for service objects in outline agreements.

You can create maintenance plans for this purpose for which the system generates the following [maintenance call objects \[Page 547\]](#):

- Service notification
- Service order

You can define which maintenance call object (service notification or order) is generated by a maintenance plan by specifying a [maintenance plan category \[Page 545\]](#) when you create a maintenance plan.

Integration

The maintenance plan with reference to an outline agreement combines the functions from the *Plant Maintenance* (PM), *Sales and Distribution* (SD) and *Customer Service* (CS) application components.

Prerequisites

The following prerequisites must be fulfilled for you to create a maintenance plan with reference to an outline agreement.

Service Product

You have maintained the following data for the service product that you subsequently entered in the outline agreement under *Logistics* → *Customer Service* → *Contracts and planning* → *Environment* → *Sales* → *Service products*:

- Plant for maintenance planning
- Work center
- Order type
- Plant of maintenance work center
- Business area
- General maintenance task list (you cannot assign equipment task lists or functional location task lists)
- Task list type

Outline Agreements

You have created an outline agreement that fulfils the following conditions:

- The contract category is *Contract*.
- The contract type is *Service and Maintenance (WV)*.
- On the tabstrip *Sales*, you have specified

Maint. Plan with Reference to an Outline Agreement

- the start and end dates of the contract
 - a service product as outline agreement item
- You have specified the start and end dates for billing in the billing plan under *Goto* → *Item* → *Billing plan*.

You can create a maintenance plan for outline agreement items with the following status:

- **Overall status**
 - *Outstanding*
 - *In process*
- **Completion status**
 - *Complete*
- **Rejection status**
 - *Not rejected* (The system assigns the outline agreement item when creating a maintenance plan.)
 - *Partially rejected* (The system issues a warning and assigns the outline agreement item when creating a maintenance plan.)

When Creating the Maintenance Plan

- When creating a maintenance plan, you choose an appropriate maintenance plan category. In the standard system, this is one of the following maintenance plan categories:
 - Maintenance plan category with reference to an outline agreement, maintenance call object “service notification”
 - Maintenance plan category with reference to an outline agreement, maintenance call object “service order”
- Enter the following data:
 - **Valid** outline agreement
You cannot create a maintenance plan for an agreement that has expired.
 - Outline agreement item
 - Maintenance planning plant

Features

You can create a maintenance plan with reference to an outline agreement and for a maintenance planning plant (PM planning plant). Each agreement item for an outline agreement can:

- Apply to your own dates
- Apply to different objects (object list)
- Have its own status (for example, *Outstanding*, *In process*, *Complete*)

To ensure a unique assignment between outline agreement item and maintenance plan, you must create your own maintenance plan for each outline agreement item. Therefore, a

Maint. Plan with Reference to an Outline Agreement

maintenance plan created with reference to an outline agreement only ever contains one [maintenance item \[Page 582\]](#).

Maintenance Call Object “Service Notification”

When a maintenance plan is being created with the **maintenance call object Service notification**, the system copies the start of the agreement as the start date for scheduling from the outline agreement into the field *Cycle start of scheduling parameters*. The maintenance item does not have an object list.

Maintenance Call Object “Service Order”

When a maintenance plan is being created with the **maintenance call object Service order**, the system copies the proposed dates for the service order from the service product. The start of the agreement as the start date for scheduling is copied from the outline agreement into the field *Cycle start of scheduling parameters*. The maintenance item for the maintenance plan contains the [object list \[Page 591\]](#) (for example, all copying equipment which should be maintained according to the outline agreement item). The object list in the maintenance plan refers to the outline agreement, that is, it contains your data from the outline agreement and can only be changed there. The remaining data for the maintenance plan consists of default values that you can change directly in the maintenance plan.

Since you have assigned a general maintenance task list to the service product, the system obtains information about the [maintenance plan type \[Page 541\]](#) when a maintenance plan is created. The type of maintenance plan is determined using the [maintenance strategy \[Page 615\]](#) which is specified in the general maintenance task list. The table clarifies the system activities for the different call objects:

Strategy	Call Object	System Activity
Time-based or performance-based	Service order	The system creates a strategy plan and obtains data (for example, maintenance packages [Page 578]) from the strategy. For performance-based maintenance plans, you must also enter a counter in the maintenance plan.
None	Service order	The system creates a single cycle plan. You must enter the maintenance cycle manually.
Time-based or performance-based	Service notification	
None	Service notification	

Scheduling a Maintenance Plan with Reference to an Outline Agreement

For scheduling, the system creates maintenance calls for the [scheduling period \[Page 647\]](#) that you have defined using the scheduling parameters, or [maintenance call objects \[Page 547\]](#) (for example, service orders) for the due date. However, the decisive factor in creating maintenance calls and maintenance call objects is the end date for the outline agreement item and not the scheduling period. If the agreement has expired, the system does not generate any call objects for maintenance calls with the status *On hold*, and no longer generates any new maintenance calls.

Maint. Plan with Reference to an Outline Agreement

If you change the object list or the validity of the agreement in the outline agreement, the changes come into effect when the maintenance plan is rescheduled.

You can display the document flow for the service notification or service order, that is, which predecessor and successor documents exist and their status. For more information, see [Document Flow \[Page 1401\]](#).

Activities**In the menu**

Activity	Menu Path
Creating an outline agreement	<i>Logistics → Customer service → Contracts and planning and then Contracts → Contract → Create</i>
Assigning an object list in the outline agreement	<i>Extras → Technical objects</i>
Assigning a general maintenance task list to a service product	<i>Logistics → Customer service → Contracts and planning and then Environment → Sales and distribution → Service products</i> <i>Choose Edit → New entries.</i>
Displaying a document flow (for example, for a service order)	<i>Logistics → Customer service → Service processing → Service order → Order → Display → Extras → <Documents for notification/Documents for order> and then Environment → Maintenance contract → <Desired function></i>

In Customizing

Activity	Menu Path	Special Features
Define your own maintenance plan categories as required.	In Customizing of Plant Maintenance under <i>Plant Maintenance → Maintenance Plans, Work Centers, Task Lists and PRTs → Maintenance Plans → Set Maintenance Plan Categories.</i>	Set the indicator for the maintenance contract. You must define <i>Service notification</i> or <i>Service order</i> as the maintenance call object [Page 547] for the maintenance plan category with reference to an outline agreement. The indicator <i>Service</i> must be set for the order type under <i>Plant Maintenance and Customer Service → Plant Maintenance and Services → PM Orders and Service Orders → Functions and Settings for Order Types → Credit Limit Checks, Sales Document Types for Service Orders.</i>

Maint. Plan with Reference to an Outline Agreement

For more information about outline agreements, see [Customer Contracts \[Ext.\]](#) in the *Sales and Distribution* application component.

Additional Information

[Creating a Maintenance Plan for an Outline Agreement \[Page 572\]](#)

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

Maintenance Plan for Service Procurement

Maintenance Plan for Service Procurement

Use

There are different [maintenance plan categories \[Page 545\]](#) in maintenance planning. Using the maintenance plan category *Materials Management (MM)* in the standard system, you can use automatically generated service entry sheets to simplify service procurement in purchasing.

The “service entry sheet” is defined as the maintenance call object for this maintenance plan category. The system therefore generates a service entry sheet for a due maintenance call.

You can use the maintenance plan category for service procurement in purchasing (MM) to **process regular services**, for example, the monthly maintenance of an elevator or a photocopier.

The system automatically generates a service entry sheet for an external service order with runtime from the maintenance plan (the document type for this in the standard system is *FO*). As a result, service entry sheets do not need to be created for the services provided. It is only necessary to accept the service entry sheets generated automatically.

Integration

The maintenance plan category for service procurement in purchasing combines the functions from the PM and MM application components.

Prerequisites

The following prerequisites must be fulfilled if you want to create a maintenance plan for service procurement in purchasing:

- You have created an external service order in Materials Management for which the following conditions are fulfilled:
 - The standard document type is *FO*.
 - The runtime is specified in the header.
The purchase order item
 - cannot be flagged for deletion
 - Has the account assignment category *Unaccounted (U)* or *Settlement on order (F)*
 - Has a goods receipt indicator
 - Provides a goods receipt-related invoice
 - Is not finally settled or delivered
- If the external service order has the account assignment category *Unaccounted*, you must also specify the following in the maintenance plan:
 - G/L account
 - A settlement order (standing order) with object reference, for example, a maintenance order



Maintenance Plan for Service Procurement

If the external service order has the account assignment category *Settlement on order*, you can nevertheless enter the G/L account and the settlement order. In this case, the system overrides the entries for the external service order.

Features

You can shorten the process for the purchase order of a service using the maintenance plan category for MM.

You create a maintenance plan with maintenance plan category MM and assign the following data to it:

- External service order
- G/L account
- Settlement order (for example, maintenance order)
- Service specifications with detailed service descriptions and/or value limits

Using the shortened process, the system creates a service entry sheet for a due maintenance call, which contains the planned services. You can supplement the service entry sheet with further unplanned services manually as required. Finally, it must still be signed off manually. Previously, a maintenance order had to be generated, from which a purchase order request and a purchase order had to be created, before a service entry sheet was created.

The system can display an object history using the settlement order (standing order) assigned with object reference.

See also

[MM – Services \[Ext.\]](#)

Maintenance Plan and Sales Document Item

Use

If you manually create a service order in the application component *Customer Service* and assign an outline agreement item, the system copies the service product and the form of billing from the outline agreement item to the service order.

This function is also available if the service order is generated through a maintenance plan.

Prerequisites

You have specified a **non-revenue-bearing service order** as the order type for the subsequent [maintenance call object \[Page 547\]](#) in the maintenance item.

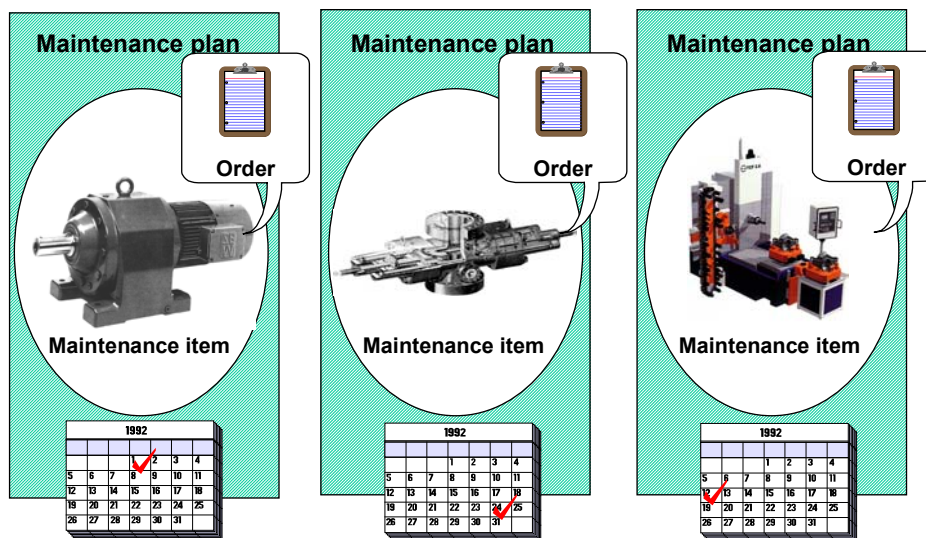
Features

As a result, you can assign an outline agreement item to the maintenance item in the maintenance plan. If the system generates a maintenance call object (in this case, a service order), the service product and the form of billing are also copied from the outline agreement item to the service order here.

Example 1: Maintenance Plan

Display in the System

- You create several maintenance plans.
- Each maintenance plan contains a maintenance item that describes the object to be maintained.
- The system generates a separate order for each object on a due date.



Example 3: Maintenance Plan

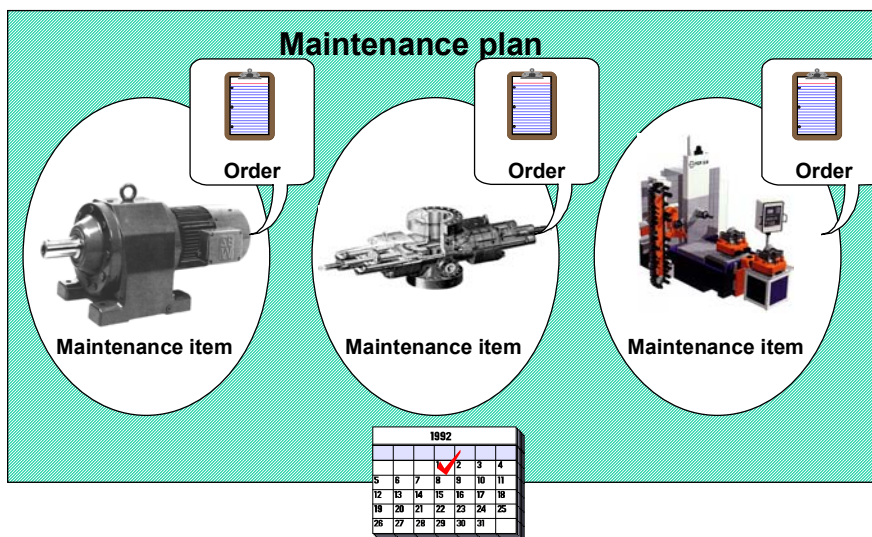
Example 3: Maintenance Plan

Display in the System

- You create **one** maintenance plan.
- The maintenance plan contains several maintenance items that each describe the objects to be maintained.
- The system generates a separate order for each object on a due date.



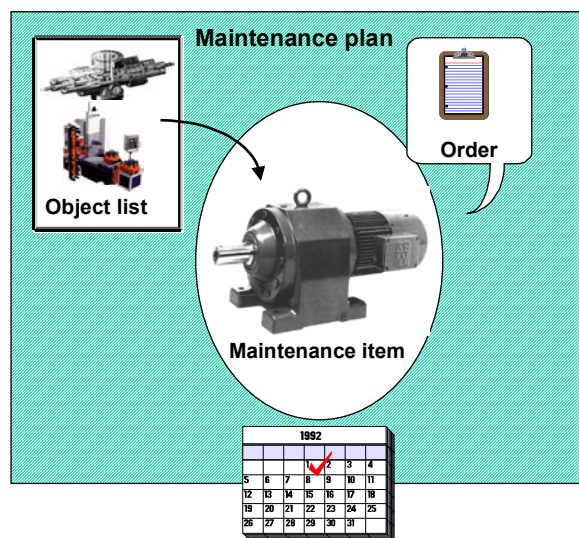
Changes to the maintenance plans and in scheduling always affect **all** the maintenance items assigned to the maintenance plan. Date shifts that affect only one object are **not** possible in this example.



Example 2: Maintenance Plan

Display in the System

- You create **one** maintenance plan.
- You assign an object list to the maintenance plan in which all object to be maintained are listed.
- The system generates an order for all objects on a due date.



Process for Maintenance Planning

Purpose

This process describes how you create a maintenance plan, which objects you must assign and which additional functions are available to you after you have created the maintenance plan.

Process Flow

1. You create a [maintenance plan \[Page 524\]](#).
A maintenance plan always **automatically** contains at least one [maintenance item \[Page 582\]](#).
2. You enter the [maintenance cycles \[Page 578\]](#).
For strategy plans, this means the maintenance cycles from the assigned [maintenance strategy \[Page 615\]](#).
3. Assign other technical objects if necessary to the maintenance item (see [Object List \[Page 591\]](#)).
4. You assign a [maintenance task list \[Page 604\]](#) to the maintenance item.
This assignment is optional for single cycle plans.
5. You assign **additional** maintenance items to the maintenance plan if necessary.
6. You maintain the [scheduling parameters \[Page 635\]](#) if necessary.
7. Save the maintenance plan.
8. You schedule the maintenance plan and thereby generate maintenance calls, from which the system generates [maintenance call objects \[Page 547\]](#) (for example, maintenance orders, maintenance notifications or service entry sheets) for the due date.
9. You can display the scheduled calls using the [call history \[Page 684\]](#).
10. Where necessary, you can display the expected costs for one or more maintenance plans using the [maintenance plan or cost display \[Page 699\]](#).

Maintenance Plan Type

Definition

You can perform time-based and performance-based (counter reading-based) maintenance planning in your organization using the *Plant Maintenance* component. For more information, see [Time-Based Maintenance Plans \[Page 542\]](#) and [Performance-Based Maintenance Plans \[Page 543\]](#).

Time-Based Maintenance Plan

Time-Based Maintenance Plan

Definition

Maintenance is performed in specific cycles for time-based maintenance planning, for example, every two months or every six months.

To represent simple maintenance cycles, you can create a single cycle plan. To represent complex maintenance cycles, you can create a strategy plan based on a time-based [maintenance strategy \[Page 615\]](#). For more information, see [Single Cycle Plan and Strategy Plan \[Page 526\]](#).

Structure

A time-based maintenance plan must comprise the following parts, in order for it to be scheduled:

- Scheduling data
 - [Scheduling parameters \[Page 635\]](#)
 - [Maintenance cycle \[Page 578\]](#) (for single cycle plans and multiple counter plans)
 - [Maintenance strategy \[Page 615\]](#) with [maintenance packages \[Page 578\]](#) (for strategy plans)
- [Maintenance item\(s\) \[Page 582\]](#)

See also

- [Multiple Counter Plan \[Page 527\]](#)

Performance-Based Maintenance Plan

Definition

With performance-based maintenance plans, you can plan regular maintenance based on counter readings maintained for measuring points at pieces of equipment and functional locations. To represent simple maintenance cycles, you can create a [single cycle plan \[Page 526\]](#). To represent complex maintenance cycles, you can create a strategy plan based on a performance-based [maintenance strategy \[Page 615\]](#).

Assign a counter to the maintenance plan. Maintenance takes place when the counter for the technical object has reached a certain reading, for example, every 100 operating hours, every 500 moulding cycles. The calculated planned date depends on the counter reading at the time of planning, and the estimated annual performance that has been defined for the counter.

Counters are represented in the *Plant Maintenance* (PM) application component as a special form of measuring point. For more information about counters and measurement documents (= counter readings), see [Counters \[Page 258\]](#) and [Measurement Documents \[Page 260\]](#) in the *Measuring Points and Counters* component.

Use

You can use performance-based maintenance planning, for example, to ensure for the [maintenance call object \[Page 547\]](#), maintenance order (PM order), that the operations contained in the [maintenance task list \[Page 604\]](#) are performed at a time when the technical object actually requires maintenance.

For performance-based maintenance planning, it is important that you enter the current counter reading regularly, even if it has not changed. Otherwise, the system generates call objects (for example, maintenance orders) based on the estimated annual performance entered for the counter, even though the counter reading has not in reality been reached.



A pump requires a maintenance task to be performed every 100 operating hours. The call date calculated when the maintenance plan was scheduled is almost due, but the counter reading for the pump indicates that it has only been in operation for 50 hours (for example, owing to a temporary shutdown).

To avoid a maintenance order being created before it is needed, you maintain the new total counter reading in the system. You then reschedule the maintenance plan, and the call date is recalculated based on the updated counter reading. In this case, the call date would be later.

Structure

A performance-based maintenance plan must comprise the following parts in order for it to be scheduled:

- **Scheduling data**
 - [Scheduling parameters \[Page 635\]](#)
 - [Maintenance cycle \[Page 578\]](#) (for single cycle plans and multiple counter plans)

Performance-Based Maintenance Plan

- [Maintenance strategy \[Page 615\]](#) with [maintenance packages \[Page 578\]](#) (for strategy plans)
- [Maintenance item\(s\) \[Page 582\]](#)

Maintenance Plan Category

Definition

You use the maintenance plan category to determine which [maintenance call object \[Page 547\]](#) the system generates for a maintenance plan when a maintenance call is due (for example, maintenance order).

Furthermore, you can also define number ranges and the reference object view (for example, equipment, functional location, serial number) in the maintenance plan category.

SAP delivers pre-defined maintenance plan categories in the Standard system. You can create further maintenance plan categories in the Customizing for *Plant Maintenance* under *Plant Maintenance and Customer Service* → *Set Maintenance Plan Categories*.

Use

You can create maintenance plan categories with the following maintenance call objects:

- **Maintenance order and service order (PM, CS)**

“Maintenance order or service order” is defined as the call object. The system generates a maintenance order or a service order for a due maintenance call.

You can use this maintenance plan category to process preventive maintenance, for which detailed planning using an order is required.

You can specify a priority for the maintenance or service order in the [maintenance item \[Page 582\]](#) of a maintenance plan (see [Maintenance Item Priority \[Page 555\]](#)).

For more information on orders, see the documentation [Maintenance Orders \[Page 1064\]](#) and [Service Orders \[Page 1070\]](#).

You can also set the order type in Customizing in such a way that the system generates an order and a notification simultaneously. The supplementary notification is helpful if, in addition to the order, you also want to define a history for the damage processed in the notification, to be able to evaluate this better in the Plant Maintenance Information System (PMIS).

For more information about the Plant Maintenance Information System, see *LO - Logistics Information System*.

- **Maintenance or service notification (PM, CS)**

“Maintenance or service notification” is defined as the call object. The system generates a maintenance notification or service notification for a due maintenance call.

You can use this maintenance plan category to process preventive maintenance, for which rough planning (for example, describing the tasks to be performed) is sufficient. The call object *maintenance notification* is very useful if a maintenance order is not necessary, for example, since you only want to enter a note in the notification, indicating that a technical object should be checked.

You can specify a priority for the maintenance or service notification in the [maintenance item \[Page 582\]](#) of a maintenance plan (see [Priority for Maintenance Item \[Page 555\]](#)).

You can trigger an automatic task determination for the generated notifications (see [Automatic Task Determination for Notifications \[Page 556\]](#)).

Maintenance Plan Category

For more information about maintenance notifications, see [Maintenance Notification \[Page 825\]](#).

- **Service entry sheet (MM)**

“Service entry sheet” is defined as the call object. The system generates a service entry sheet for a due maintenance call.

You can use the [maintenance plan for service procurement in Purchasing \[Page 534\]](#) to process regular services, for example, the monthly maintenance of an elevator or a photocopier.

For more information about services generally, see [MM - Service \[Ext.\]](#).

- **Service order for outline agreements**

“Service order” is defined as the call object. The system generates a service order for a due maintenance call.

You can use the [maintenance plan with reference to an outline agreement \[Page 529\]](#) to determine the dates agreed in the contract for the services due in the cycle, and to generate service orders automatically.

- **Service notification for outline agreements**

“Service notification” is defined as the call object. The system generates a service notification for a due maintenance call.

You can use the [maintenance plan with reference to an outline agreement \[Page 529\]](#) to determine the dates agreed in the contract for the services due in the cycle, and to generate service notifications automatically.

See also

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

Maintenance Call Object

Definition

An object which is generated by the system for a due maintenance call.

Use

You define which maintenance call object the system should generate in the [maintenance plan category \[Page 545\]](#).

For example, there are the following call objects:

- Order
 - Maintenance order (PM order)
 - Service order
 - Maintenance order with maintenance notification (Customizing setting)
 - Service order with service notification (Customizing setting)
- Notification
 - Maintenance notification
 - Service notification
- Service entry sheet

Maintenance Call Object**Practical Functions and Utilities**

In maintenance planning, different practical functions and utilities are available in addition to normal maintenance planning functionality, that you can control from maintenance planning (for example [Automatic Task Determination for Notifications \[Page 556\]](#) or [Sort Field for the Maintenance Plan \[Page 554\]](#)).

Optimizing the Maintenance Plan

Use

The table describes how you can use customer exits to adjust the functions of the maintenance plan to better meet the individual requirements of your company.

Adjusting maintenance plans

How Can I...?	Customer Exit	What You Should Know
How can I define internal fields for automatically generated orders or notifications?	IPRM0003	<p>You can define your own fields for the maintenance item using this customer exit. The fields appear on the tab <i>Customer exit: Item</i> in the maintenance plan or maintenance item.</p> <p>You can cause the system to copy these additionally defined fields to the maintenance call objects [Page 547] <i>order</i> and <i>notification</i>.</p>
How can I check whether certain fields in the maintenance plan contain values?	IPRM0004 Function module: EXIT_SAPLIPWP3_004	<p>You can define your own checks for saving maintenance plans using this customer exit.</p> <p>For example, you can define,</p> <ul style="list-style-type: none"> • That certain fields that you must document to meet regulations must contain values • That due to a verification obligation, changes to certain fields are documented

See also

[Optimizing Scheduling \[Page 654\]](#)

Worklist for Planned Maintenance

Worklist for Planned Maintenance

Purpose

You can generate a worklist for planned maintenance from maintenance planning.

You can combine several notifications that were generated from maintenance plans and for which joint processing makes sense in a maintenance or service order using the list editing function for notifications ("Worklist"). For example, you can combine all notifications for a certain building or all notifications for a certain work center.



A specialist visits your company every three weeks and requires an analysis kit for some maintenance activities.

Previously, the specialist received several orders in which the activities to be performed were described. The result of this was that business requirements analysis and completion confirmations were very awkward and time-consuming (for example, through a high number of printouts and completion confirmations for individual orders).

You can combine all relevant notifications for the specialist in **one** order using the worklist. You can select the notifications according to work center, location, room or equipment, for example. The specialist receives only one order and less paper is wasted. This means that the processing and confirmation of the activities performed are greatly simplified.

Prerequisites

The following prerequisites must be fulfilled for this process:

- You have specified a [maintenance plan category \[Page 545\]](#) with a [maintenance call object \[Page 547\]](#) "maintenance or service notification" for the maintenance plan.
- You have assigned a task list to the maintenance item in the maintenance plan.
- In order to combine the notifications in an order, you must call up the notification worklist in Change mode.

Process Flow

1. You create separate maintenance plans with the maintenance call object "notification" for all planned activities in your company. To do this, you enter a task list in the maintenance item for the maintenance plan in which the activities are precisely described.
2. Using maintenance plan scheduling, the system generates a notification for each maintenance item of a maintenance plan when maintenance calls are due.
3. If you call up the list editing function for notifications in Change mode, you can display the notifications thus generated and select those that should be combined in an order ("worklist").
4. When you create an order from list editing, the selected notifications are combined as follows:

Worklist for Planned Maintenance

- The individual notifications are displayed in the object list for the order. You can identify the maintenance plan from which a notification has originated.
 - If you have specified a task list in the maintenance item of a maintenance plan, the system copies the operations of the task list to the order. The sequence of the operations corresponds to the sequence of notifications in the object list.
5. You can print out and process the order with all operations.
 6. You post a completion confirmation for the completed activities to the order.



The system will only copy the operations from the task list, if you combine the notifications together in an order using the worklist. The operations will not be copied if you manually include the notifications in an order.

Configurable Equipment as a Reference Object

Configurable Equipment as a Reference Object

Use

As of Release 4.6A, maintenance planning supports the configuration of objects.

Prerequisites

You have specified a piece of configurable equipment as a reference object in the maintenance plan and assigned a configurable general maintenance task list.

Features

You can specify a piece of configurable equipment as the reference object for a maintenance plan in which the operations to be performed are described. You can define object dependencies for the operations of the general maintenance task list, that is, an operation, for example, is a relevant characteristic for the color "red" only.

If the system generates a maintenance or service order as a [maintenance call object \[Page 547\]](#) through scheduling, the general maintenance task list will be configured and the relevant operations copied to the order.

The general maintenance task list is configured automatically.



The characteristic defined in the equipment (Color = "Red") causes the system to configure the general maintenance task list assigned to the maintenance plan, and to copy the following operations of the general maintenance task list to the generated order:

- The operations in which the color "red" has been defined as object dependencies.
- All operations without object dependencies.

If problems occur during the configuration process (for example, if the system is unable to evaluate a characteristic), scheduling will be canceled.

Defining a Default Value for a Maintenance Plan Category

Procedure

1. Choose *System* → *User profile* → *Own data* → *Parameters*.

You reach the screen for maintaining user data.

2. Enter the following:

Parameter	Value
WAT	<Desired maintenance plan category, for example, PM>

3. Save your entries.



The changes take effect from when you next log on.

Result

When you create a maintenance plan, the system proposes the maintenance plan category entered under *Value* as the default value.

Sort Field for the Maintenance Plan

Sort Field for the Maintenance Plan

Use

You can define your own criteria for selecting maintenance plans using the sort field for maintenance plans. You can use the sort field to make a selection in the list editing function for maintenance plans, the scheduling overview in list form and deadline monitoring.



In plant 0001, there is one business unit called "Electrics" and another called "Mechanics". You want to schedule the maintenance plans for these business units separately.

Maintain the sort fields "0001 Mechanics" and "0001 Electrics" in Customizing and assign the fields to the maintenance plans of the corresponding business units.

In deadline monitoring, this means that you can use these sort fields for precise scheduling.

Activities

In Customizing

You can define possible entries for the sort field in Customizing for maintenance planning under *Plant Maintenance and Customer Service → Maintenance Plans, Work Centers, Task Lists and PRTs → Maintenance Plans → Define sort fields for maintenance plan*.

In the Maintenance Plan

Assign a sort string to each maintenance plan on the tabstrip *Maintenance plan: Additional data*.

Priority for Maintenance Item

Use

You can specify a priority for maintenance plans that generate a maintenance/service notification or a maintenance/service order as the [maintenance call object \[Page 547\]](#) in the [maintenance call item \[Page 582\]](#). In scheduling, the priority is copied to the call object. This enables you to set priorities when planning the tasks to be performed, as is also possible in unplanned maintenance and service processing.

Prerequisites

In Customizing for *Plant Maintenance and Customer Service*, you have defined the priority types and the priorities for each priority type, and assigned the priority types to the notification types (for example, malfunction report) or order types (for example, service order) which are generated from the maintenance plan.

Activities

In Customizing

Activity	Menu Path
Defining priorities for notifications	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Processing → Response Time Monitoring → Define Priorities</i>
Defining priorities for orders	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → General Data → Define Priorities</i>

Automatic Task Determination for Notifications

Automatic Task Determination for Notifications

Use

You can trigger automatic task determination for maintenance plans which generate a maintenance or service notification as the [maintenance call object \[Page 547\]](#).

The system determines at which times and in which period certain tasks must be performed for this notification from the response profile, service profile and, if necessary, the priority.



You create a notification at 10am. Intervals of 2 hours for the task code "Callback for partner" and 4 hours for the task code "Check whether technician is at customer site" are specified in the response profile. The service times are from 8am to 12pm and again from 2pm to 6pm.

You must therefore call your partner by 12pm in order to discuss the problem, or clarify that the technician must arrive at the partner site by 4pm.

Prerequisites

Maintenance Plan

You have selected the indicator *Tasks determined* on the tabstrip *Item* in the maintenance item, and, if necessary, specified a priority.

Customizing

You have maintained the following data for maintenance or service notifications:

- Priorities
- Response monitoring (for example, response profile, service profile)

You have assigned a response profile, service profile and, if necessary, a priority type to the notification type (for example, a malfunction report) from which the maintenance plan is generated.

Features

If the system generates a notification on the due date, the system will determine suitable tasks based on the settings you have performed in Customizing.

Activities

Settings in Customizing

Function	Menu Path
Defining priorities	<i>Plant Maintenance and Customer Service → Plant Maintenance and Services → Notifications → Priorities</i>

Automatic Task Determination for Notifications

Defining a response profile and a service profile	<i>Plant Maintenance and Customer Service → Plant Maintenance and Services → Notifications → Response Time Monitoring</i>
---	---

Profile for a General Maintenance Task List

Profile for a General Maintenance Task List

Definition

A profile which you can use to facilitate the creation of general maintenance task lists from the maintenance plan.

Use

You maintain the profile for the general maintenance task list in order to reach the **operation overview** of the general maintenance task list **directly** when creating a general maintenance task list from the maintenance plan. You thereby reduce the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Structure

The profile for the simplified creation of a general maintenance task list from the maintenance plan contains the following specifications:

- Default values for a task list which you maintain in Customizing.
- The profile number of the task list profile which you define with your personal user defaults.

See also:

[Creating a Profile for a Maintenance Task List and Assigning it to the User Profile \[Page 614\]](#)

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Procedure

1. In Customizing, choose *Plant Maintenance* → *Preventive Maintenance* → *Task Lists* → *Control Data* → *Define profiles with default values*.

You reach the overview screen for profile data of maintenance task lists.

2. You can change an existing profile or create a new profile as required.
3. Select the profile you want to process and choose *Goto* → *Details*.

You reach the detail view of the profile maintenance.

4. Enter a status in the section *Header data*.
5. Save the profile.
6. Choose *System* → *User profile* → *Own data* → *Parameters*.

You reach the screen for maintaining user data.

7. Enter the following:

Parameter	Value
PIN	<The number of the profile created or changed>

8. Save your entries.



The changes take effect from when you next log on.

Result

If you create a general maintenance task list from the maintenance plan, the system branches **directly** to the **operation overview** of the general maintenance task list, thereby reducing the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Cycle Set

Cycle Set

Definition

Combination of maintenance cycles which can be used as a **copy model** for creating multiple counter plans.

Use

You create a cycle set, to which you assign maintenance cycles. In these maintenance cycles, you define possible times or performance levels for planned maintenance, for example, monthly, every 6,213.71 mi.

When creating multiple counter plans, you can accelerate the creation process by specifying a cycle set as a copy model. You can delete cycles which are not required, but are copied into the multiple counter plan. Similarly, you can add cycles which are missing.

Structure

A cycle set consists of a:

- Strategy header
- Scheduling indicator *Cycle set*
- Maintenance cycles (for example, cycle duration, unit of measurement)

The cycle set contains no other scheduling parameters.

Creating a Cycle Set

Use

When creating [multiple counter plans \[Page 527\]](#), you can accelerate the creation process by specifying a [cycle set \[Page 560\]](#) as a copy model. You can delete cycles which are not required and add cycles which are missing.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Utilities* → *Create cycle set*.

You reach the overview screen for creating cycle sets.

2. Choose *New entries*

You reach the detail screen for cycle sets.

3. Enter the necessary data, and call up the entry screen for maintenance cycles in the overview tree by clicking twice on *Cycles*.

4. Choose *New entries*.

The system makes the fields ready for input.

5. Enter the necessary data.
6. Save the cycle set.
7. Return to the overview screen by clicking twice on *Cycle sets*.

Creating a Maintenance Plan

Creating a Maintenance Plan

Purpose

This process describes how you create a complete maintenance plan, which you can then schedule in order to generate [maintenance call objects \[Page 547\]](#) (for example, maintenance orders).

Process Flow

1. You create a maintenance plan and enter a [maintenance plan category \[Page 545\]](#) when creating it. You have the following options:
 - [Creating a single cycle plan \[Page 563\]](#)
 - [Creating a time-based strategy plan \[Page 564\]](#)
 - [Creating a performance-based strategy plan \[Page 566\]](#)
 - [Creating a multiple counter plan \[Page 568\]](#)
 - [Creating a maintenance plan for service procurement \[Page 570\]](#)
 - [Creating a maintenance plan for an outline agreement \[Page 572\]](#)
2. Enter the necessary data for the maintenance item.
5. You assign a task list to the maintenance item. This assignment is optional for single cycle plans. You have the following options:
 - You create a task list in the maintenance plan. For a strategy plan, you assign [maintenance packages \[Page 578\]](#) to the operations of the task list.
 - Assign an existing task list.
7. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see [Object List \[Page 591\]](#)).
8. Assign **additional** maintenance items to the maintenance plan if necessary. You can:
 - [Create a maintenance item in the maintenance plan \[Page 585\]](#)
 - [Assign maintenance items to a maintenance plan \[Page 587\]](#)
6. Maintain the [scheduling parameters \[Page 635\]](#).
7. Save the maintenance plan.

Creating a Single Cycle Plan

6. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Single Cycle Plan*.

You reach the screen for creating a maintenance plan.

7. Enter the [maintenance plan category \[Page 545\]](#) and choose .

You reach the initial screen for creating a single cycle plan.






8. Enter the necessary data.

If you specify a performance unit for the cycle, the system automatically selects the first counter suitable for the reference object as a default value.

9. Maintain the [scheduling parameters \[Page 635\]](#) if necessary on the tab *Maintenance plan scheduling parameters*.



You can only maintain the scheduling parameters for the maintenance plan if you have entered a unit in the section *Interval* for the cycle. From the unit, the system can recognize whether the single cycle plan is performance-based or time-based and provides the corresponding scheduling parameters.

10. Enter the necessary data for the maintenance item.
11. You assign a task list if necessary to the maintenance item:
 - To assign a task list, choose .
 - To create a task list, choose  with quick info *Create task list/general task list*.
9. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see [Object List \[Page 591\]](#)).
8. If you want to create further maintenance items, choose  with quick info *Create MaintItem*.
 - Enter the necessary data, or select an unassigned maintenance item using .
 - Assign a task list if necessary to each of the maintenance items.
 - Assign other technical objects if necessary to the maintenance item.
 - In order to cancel the assignment of a maintenance item to the maintenance plan, choose .
9. Save the maintenance plan.

See also

[Profile for a General Maintenance Task List \[Page 613\]](#)

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)


Creating a Time-Based Strategy Plan

Creating a Time-Based Strategy Plan

3. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Strategy Plan*.

You reach the initial screen for creating a maintenance plan.



4. Enter the necessary data:
 - Enter a [maintenance plan category \[Page 545\]](#).
 - Enter a time-based [maintenance strategy \[Page 615\]](#).

5. Choose .

You reach the initial screen for creating a strategy plan.

12. Enter the necessary data for the maintenance plan header and the maintenance item.

13. Assign a task list to the maintenance item:



- To assign an existing task list, choose .
- To create a task list, choose  with quick info *Create task list/general task list*. Assign [maintenance packages \[Page 578\]](#) to the operations of the task list.

After you have assigned a task list, the system displays the following data:

- The assigned task list on the tab *Item*
- The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*

10. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see [Object List \[Page 591\]](#)).

9. If you want to create further maintenance items, choose  with quick info *Create MaintItem*.

- Enter the necessary data, or select an unassigned maintenance item using .
- Assign a task list if necessary to each of the maintenance items.
- Assign other technical objects if necessary to the maintenance item.
- In order to cancel the assignment of a maintenance item to the maintenance plan, choose .

9. Maintain the [scheduling parameters \[Page 635\]](#) if necessary on the tab *Maintenance plan scheduling parameters*.

10. Save the maintenance plan.

See also

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

[Profile for a General Maintenance Task List \[Page 613\]](#)

Creating a Performance-Based Strategy Plan

Creating a Performance-Based Strategy Plan

1. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Strategy Plan*.

You reach the initial screen for creating a maintenance plan.

2. Enter the necessary data:
 - Enter a [maintenance plan category \[Page 545\]](#).
 - Enter a performance-based [strategy \[Page 615\]](#).



The strategy that you enter must have the scheduling indicator *Performance* and a dimension other than *Time*.

3. Choose

You reach the initial screen for creating a strategy plan.

14. Enter the necessary data for the maintenance plan header and the maintenance item and choose .

If you have already created counters for the reference object (for example, equipment) that you have specified in the maintenance item, you reach the dialog box *Counter selection*.

Enter the counter whose readings are to serve as a basis for scheduling and choose .




The counter unit must have the same dimension as the maintenance strategy that you have entered.

15. Assign a task list to the maintenance item:
 - To assign an existing task list, choose .
 - To create a task list, choose with quick info *Create task list/general task list*. Assign [maintenance packages \[Page 578\]](#) to the operations of the task list.

After you have assigned a task list, the system displays the following data:

 - The assigned task list on the tab *Item*
 - The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*
11. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see [Object List \[Page 591\]](#)).
10. If you want to create further maintenance items, choose with quick info *Create MaintItem*.
 - Enter the necessary data, or select an unassigned maintenance item using .
 - Assign a task list if necessary to each of the maintenance items.
 - Assign other technical objects if necessary to the maintenance item.

Creating a Performance-Based Strategy Plan

- In order to cancel the assignment of a maintenance item to the maintenance plan, choose .
- 8. Maintain the [scheduling parameters \[Page 635\]](#) if necessary on the tab *Maintenance plan scheduling parameters*.
- 9. Save the maintenance plan.

See also

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

[Profile for a General Maintenance Task List \[Page 613\]](#)

Creating a Multiple Counter Plan

Creating a Multiple Counter Plan

1. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Multiple Counter Plan*.

You reach the initial screen for creating a maintenance plan.

2. Enter the necessary data:
 - A maintenance plan category which generates service entry sheets for the due date, is not advisable for a multiple counter plan because the system would generate the same service entry sheet for each due date.

Enter a [maintenance plan category \[Page 545\]](#).

- If you want to create the maintenance plan with a copy model for maintenance cycles, you enter a [cycle set \[Page 560\]](#).

6. Choose .



You reach the initial screen for creating a multiple counter plan.

4. Enter the necessary data for the maintenance plan header and create new maintenance cycles on the tab *Maintenance plan cycles* or change/delete existing cycles if you have created the multiple counter plan with a cycle set as copy model.

For more information, see [Creating or Changing Maintenance Cycles in the Multiple Counter Plan \[Page 580\]](#).

16. Enter the necessary data for the maintenance item.

17. Assign a task list to the maintenance item:



- To assign an existing task list, choose .
- To create a task list, choose  with quick info *Create task list/general task list*. Assign [maintenance packages \[Page 578\]](#) to the operations of the task list.

After you have assigned a task list, the system displays the following data:

- The assigned task list on the tab *Item*
- The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*

12. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see [Object List \[Page 591\]](#)).

11. If you want to create further maintenance items, choose  with quick info *Create MaintItem*.

- Enter the necessary data, or select an unassigned maintenance item using .
- Assign a task list if necessary to each of the maintenance items.
- Assign other technical objects if necessary to the maintenance item.
- In order to cancel the assignment of a maintenance item to the maintenance plan, choose .

11. Maintain the [scheduling parameters \[Page 635\]](#) if necessary on the tab *Maintenance plan scheduling parameters*.

10. Save the maintenance plan.

See also

[Profile for a General Maintenance Task List \[Page 613\]](#)

Creating a Maint. Plan for Service Procurement

Creating a Maint. Plan for Service Procurement

Prerequisites

For more information about requirements, see [Maintenance Plan for Service Procurement \[Page 534\]](#).

Procedure

1. Choose *Logistics → Plant maintenance → Maintenance planning → Maintenance plans → Create → Single cycle plan*.

You reach the initial screen for creating a maintenance plan.

2. Enter a [maintenance plan category \[Page 545\]](#) for the service procurement in purchasing and choose *Continue*.

You reach the initial screen for creating a single cycle plan.

3. Enter the necessary data.



If the external service order has the account assignment category *Settlement on order*, you can nevertheless enter the G/L account and the settlement order. In this case, the system overrides the entries for the external service order.

4. Assign service specifications to the maintenance plan.

- a) For this, choose *Goto → Service specifications*.

You reach a dialog box in which you are asked if you want to create an outline.

- b) Choose *No* if you do not want an outline.

You reach the screen for maintaining service specifications.

- c) You have the following options:

- Enter manual services for new service specifications.
- Select services from existing service specifications. For this, choose *Service specifications → Service selection*.

For more information about service specifications and creating outlines for service specifications, see *MM – Service*.

- d) Return to the maintenance plan. The system automatically saves the data.

5. Maintain the [scheduling parameters \[Page 635\]](#) if necessary on the tabstrip *Scheduling parameters* for the maintenance plan.

6. Save the maintenance plan.

Result

You have created a maintenance plan which generates a service entry sheet for a due maintenance call that you can process and sign off.

See also

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

Creating a Maint. Plan for an Outline Agreement

Creating a Maint. Plan for an Outline Agreement

Prerequisites

For more information about the prerequisites, see [Maintenance Plan with Reference to an Outline Agreement \[Page 529\]](#).

Procedure

1. Choose one of the following menu options:
 - PM:
Logistics → Plant maintenance → Maintenance planning and then Maintenance plans → Create → For contract item.
 - SM:
Logistics → Service management → Contracts and planning and then Maintenance plans → Create (special) → For contract item.

You reach the initial screen for creating a maintenance plan.
2. If you use the external number assignment in your company, enter an alphanumeric sequence for the maintenance plan.
3. Enter the following data:
 - Maintenance plan category with reference to an outline agreement
 - Outline agreement
 - Outline agreement item
 - Maintenance planning plant
4. Choose *Continue*.

If a maintenance plan already exists for the outline agreement item, the system indicates this in a dialog box. You can create a second maintenance plan for the item by choosing *Continue*.

The system response depends on the maintenance plan category selected and the [maintenance call object \[Page 547\]](#) defined for it:

Call Object	System Activity
Service Notification	The system copies the start of the agreement as the start date for scheduling into the field <i>Cycle start</i> for the scheduling parameters. The maintenance item does not have an object list.

Creating a Maint. Plan for an Outline Agreement

Service Order	<p>The system copies the start of the agreement as the start date for scheduling into the field <i>Cycle start</i> for the scheduling parameters.</p> <p>The system copies other data as changeable default data from the service product into the maintenance plan.</p> <p>The object list [Page 591] for the maintenance item refers to the outline agreement, that is, it contains your data from the outline agreement and can only be changed there.</p>
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Since you have assigned a general maintenance task list to the service product, the system obtains information about the [maintenance plan type \[Page 541\]](#) when a maintenance plan is created. The type of maintenance plan is determined using the [maintenance strategy \[Page 615\]](#) which is specified in the general maintenance task list.

The table clarifies the activities for the different call objects:

Strategy	Call Object	Activity
Time-based or performance-based	Service order	<p>The system creates a strategy plan and obtains data (for example, maintenance packages [Page 578]) from the strategy.</p> <p>Change the default data as required.</p> <p>For performance-based maintenance plans, enter a counter in the maintenance plan.</p>
None	Service order	<p>The system creates a single cycle plan.</p> <p>Change the default data as required, and enter the maintenance cycle manually.</p>
Time-based or performance-based	Service notification	<p>The system creates a single cycle plan.</p> <p>Enter the necessary data, and enter the maintenance cycle manually.</p>
None	Service notification	

5. Save the maintenance plan.

Additional Information

[Defining a Default Value for a Maintenance Plan Category \[Page 553\]](#)

[Displaying Objects for Outline Agreement \(Items\) \[Page 681\]](#)

[Document Flow \[Page 1401\]](#)

Processing Maintenance Plans

Processing Maintenance Plans

To call up individual functions in the table, choose one of the following menu paths:

- *Logistics → Plant Maintenance → Planned Maintenance → Maintenance Planning → Maintenance Plans → Change*
- *Logistics → Customer Service → Service Agreements → Maintenance Planning → Maintenance Plans → Change*

Function	Menu Path/Pushbutton	What You Should Know
Displaying/hiding maintenance plan header	<i>Displaying/hiding maintenance plan header</i>	Using this pushbutton, you can hide the maintenance plan header data if this is not required.
Changing a maintenance cycle	Tab <i>Maintenance plan: Cycles</i>	See also Creating/Changing Maintenance Cycles in the Multiple Counter Plan [Page 580]
Changing the scheduling parameters	Tab <i>Maintenance plan scheduling parameters</i>	You can modify the scheduling process to meet your individual requirements by changing the scheduling parameters [Page 635] in your maintenance plan accordingly.
Displaying a maintenance item	Tab <i>Item</i> or <i>Overview: Item</i>	If more than one maintenance item is available for a maintenance plan, the system will automatically display the tab <i>Overview: Items</i> . Select the required item, and choose the tab <i>Item</i> .
Assigning a maintenance item to a maintenance plan		See Assigning a Maintenance Item to a Maintenance Plan [Page 587]
Processing a maintenance item		See Processing a Maintenance Item [Page 588]
Setting or resetting a deletion flag	<i>Maintenance plan → Functions → Deletion flag → <Set/Reset></i> .	The system does not generate any more maintenance calls for maintenance plans with a deletion flag.
Setting or resetting several deletion flags		See Setting a Deletion Flag for Several Maintenance Plans [Page 576]
Activating or deactivating a maintenance plan	<i>Functions → Active <-> Inactive → <Deactivate/Activate></i> .	This function is also available in scheduling.
Sorting maintenance plans	<i>Sort field</i> on the tab <i>Maintenance plan: Additional data</i>	See Sort Field for the Maintenance Plan [Page 554]

Processing Maintenance Plans

Changing a maintenance item with list editing	<i>Maintenance Plans → Maintenance Items → List Editing → Change</i>	See Working with Lists [Ext.]
Assigning processing authorization	<i>AuthorizGroup</i> on the tab <i>Maintenance plan: Additional data</i>	With this field, you can control that only certain persons can change a maintenance plan.
Changing an assigned maintenance strategy		It is not possible to assign another strategy to a maintenance plan.

See also

[Scheduling \[Page 629\]](#)

[Displaying Maintenance Call Objects \[Page 675\]](#)

Setting a Deletion Flag for Several Maint. Plans

Setting a Deletion Flag for Several Maint. Plans

Use

You can use this function to select several maintenance plans and to set the status *Deletion flag* for all the maintenance plans selected.

The system does not generate any more maintenance calls for maintenance plans which are set with a deletion flag.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Set deletion flag*.

You reach the selection screen for setting deletion flags.

2. Enter the necessary data.

If you want to test the function first, select *Test mode*.

3. Choose *Program* → *Execute*.

The system sets deletion flags for the maintenance plans selected and a log is displayed.

4. Exit the function.

Creating a Maintenance Item in the Maint. Plan





Use

You can create a new maintenance item directly in the maintenance plan. However, you can also [assign existing maintenance items \[Page 587\]](#) to a maintenance plan.

Prerequisites

You are in the Create or Change mode of the maintenance plan.

Procedure

1. Enter the necessary data for the first maintenance item on the tabstrips *Item*, *Object list*, *Location* and so on.
18. You assign a task list if necessary to the maintenance item:
 - To assign a task list, choose .
 - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.
13. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see [Object List \[Page 591\]](#)).
12. If you want to create further maintenance items, choose  with quick info *Create MaintItem*.
 - Enter the necessary data, or select an unassigned maintenance item using .
 - Assign a task list if necessary to each of the maintenance items.
 - Assign other technical objects if necessary to the maintenance item.
13. Save the maintenance plan.

See also

[Creating a Maintenance Item Without Assignment \[Page 586\]](#)

Maintenance Cycle and Maintenance Package

Maintenance Cycle and Maintenance Package

Definition

The maintenance cycles and packages contain the time or performance condition when maintenance must be performed.

Use

A distinction is made between [maintenance plan types \[Page 541\]](#) which are created without a [maintenance strategy \[Page 615\]](#) and those created with one.

- **Maintenance Plans Without a Maintenance Strategy**

You create **maintenance cycles** directly in the maintenance plan for maintenance plans that were created without a maintenance strategy (for example, single cycle plan or multiple counter plan).

To create multiple counter plans, you can use a copy model for maintenance cycles, known as [cycle sets \[Page 560\]](#).

- **Maintenance Plans with Maintenance Strategy**

The maintenance plans created using a maintenance strategy (for example, time-based or performance-based strategy plans) contain **maintenance packages** which you define in the maintenance strategy.

Structure

Maintenance packages and maintenance cycles contain the following data:

Maintenance Packages	Maintenance Cycle
Package number	
Short text and description	Short text and description
Cycle duration	Cycle duration
Unit of measurement	Unit of measurement
Hierarchy	
Offset and offset short text	Offset and offset short text
Preliminary buffer and follow-up buffer	

Integration

The following example describes integration for maintenance packages:



The maintenance order (PM order) is defined as the [maintenance call object \[Page 547\]](#) for a maintenance plan. You can assign a [task list \[Page 604\]](#) to a maintenance item in the maintenance plan which describes the maintenance tasks to be performed in its operations.

Maintenance Cycle and Maintenance Package

You finally assign the individual operations for the maintenance task list to the maintenance strategy assigned to the task list. You assign the maintenance package “every 6,213.71 mi” to the operation “oil change”.

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 mi) in which the operations should be performed.

See also

[Displaying a Maintenance Package Sequence for a Maintenance Strategy \[Page 627\]](#).

Creating/Changing Maint. Cycles in MultCntr Plans

Creating/Changing Maint. Cycles in MultCntr Plans

Use

If you want to create or change maintenance cycles in a multiple counter plan, the procedure differs from that used for performance and counter-based maintenance plans.


In performance and counter-based maintenance plans, you define maintenance cycles using the [maintenance packages \[Page 578\]](#) that you create in the [maintenance strategy \[Page 615\]](#). However, since **no maintenance strategy** is assigned to a multiple counter plan, you must create or change the maintenance cycles directly in the multiple counter plan. This also applies to multiple counter plans that you have created using a [cycle set \[Page 560\]](#) as a copy model. You can transfer or delete copied cycles.

Prerequisites

You must be in the Create or Change mode of a multiple counter plan.

Procedure

To call up the individual functions in the table, choose *Logistics → Plant maintenance → Maintenance planning → Maintenance plans → Change* in the R/3 screen.

Function	Menu Path/Pushbutton	What You Should Know
Creating a maintenance cycle		<p>Enter a cycle, a cycle unit and a cycle text.</p> <p>For performance-based cycles, enter the functional location or equipment counter.</p> <p>For performance-based maintenance cycles, the counter unit (for example, operating hours) must have the same dimension as the cycle entered. In this case, the dimension would be "time".</p> <p>Enter the offset as required at which maintenance should be performed.</p> <p>If you want to create new maintenance cycles for a multiple counter plan, then we recommend that you add new maintenance cycles, and do not overwrite existing ones. Delete the maintenance cycles that are not required.</p>
Changing a maintenance cycle		Change the maintenance cycle.
Deleting a maintenance cycle		

Maintenance Item

Maintenance Item

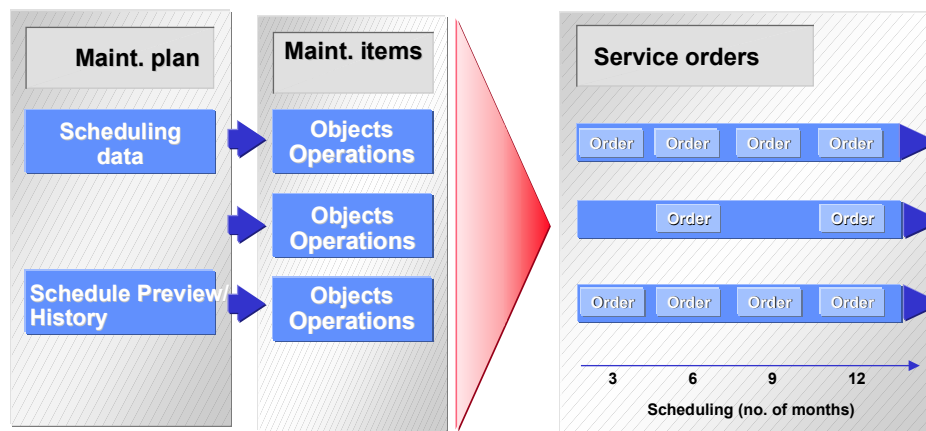
Definition

A maintenance item describes which preventive maintenance tasks should take place regularly at a technical object or a group of technical objects.

A maintenance item could, for example, be “perform safety test”. You then assign exactly the objects (for example, equipment, functional locations or assemblies) at which you want to perform the maintenance task “safety test” to a maintenance item.

For some [call objects \[Page 547\]](#), (for example, maintenance order or service order), you can describe the activities that are necessary for the maintenance item “Perform safety test” using a [maintenance task list \[Page 604\]](#), which you assign to the maintenance item. If, for example, the system generates a service order for a due date, the operations will be copied from the task list to the service order.

Maintenance Plan with Maintenance Items



Use

You can assign one or more maintenance items to a maintenance plan. A maintenance plan always **automatically** contains at least one maintenance item. Maintenance plans for service procurement and maintenance plans which refer to an outline agreement have only **one** maintenance item.

You can assign maintenance items to a maintenance plan in the following ways:

Maintenance Item

- You create a maintenance plan and create a maintenance item directly in the maintenance plan by entering the required data in the tabstrip *Item*.
- You create additional maintenance items in a maintenance plan.
- You create a maintenance item without assignment and subsequently assign it to a maintenance plan.
 - The following rules apply if you assign a maintenance item to a maintenance plan:
 - A maintenance item can only be assigned to one maintenance plan.
 - You must have created the maintenance item you want to assign to a single cycle plan or multiple counter plan without reference to a maintenance strategy.
 - The maintenance item you assign to a strategy plan must have the same maintenance strategy as the maintenance plan.
 - The maintenance item you assign to a strategy plan must have the same maintenance plan category as the maintenance plan.

The easiest way is to create maintenance items directly in the maintenance plan.

Reference Objects for Maintenance Items

You assign the reference object(s) to a maintenance item at which you want to perform the maintenance task "safety test".

Maintenance items can also be object-independent, that is, you can create them without a reference object.

Maintenance Items with Reference Object

You can create maintenance items with a reference object, that is, object-specific maintenance items, for example, for the following reference objects:

- Functional locations
- Pieces of equipment
- Assemblies for a piece of equipment
- Materials
- Material and serial numbers

For further information on the assignment of several technical objects to a maintenance item, see [Object List \[Page 591\]](#).

Maintenance Items Without Reference Object

You can also create maintenance items that do not refer to a technical object, that is, object-independent maintenance items. You can maintain both location data and account assignment data individually for such maintenance items. This allows you to define regular preventive maintenance tasks without having to specify the technical objects for which the tasks are to be performed. This is particularly useful for smaller maintenance tasks, such as "cleaning", "lubricating" and so on.

See also

[Changing a Reference Object of a Maintenance Item \[Page 590\]](#).

Maintenance Item

Creating a Maintenance Item in the Maint. Plan





Use

You can create a new maintenance item directly in the maintenance plan. However, you can also [assign existing maintenance items \[Page 587\]](#) to a maintenance plan.

Prerequisites

You are in the Create or Change mode of the maintenance plan.

Procedure

2. Enter the necessary data for the first maintenance item on the tabstrips *Item*, *Object list*, *Location* and so on.
19. You assign a task list if necessary to the maintenance item:
 - To assign a task list, choose .
 - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.
14. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see [Object List \[Page 591\]](#)).
14. If you want to create further maintenance items, choose  with quick info *Create MaintItem*.
 - Enter the necessary data, or select an unassigned maintenance item using .
 - Assign a task list if necessary to each of the maintenance items.
 - Assign other technical objects if necessary to the maintenance item.
15. Save the maintenance plan.

See also

[Creating a Maintenance Item Without Assignment \[Page 586\]](#)

Creating a Maintenance Item Without Assignment

Creating a Maintenance Item Without Assignment

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Maintenance items* → *Create*.

You reach the initial screen for creating a maintenance item.

7. Enter the necessary data:

- Enter a [maintenance plan category \[Page 545\]](#).
- Enter a [maintenance strategy \[Page 615\]](#) if necessary.

If you want to assign the maintenance item to a time-based or performance-based maintenance plan, you must enter a corresponding maintenance strategy.

If you do not specify a strategy for the maintenance item, you can only assign this item to a single cycle plan or multiple counter plan.

3. Choose .



You reach the maintenance item.

4. Enter the necessary data.

You should use a descriptive text for the maintenance item (for example, "Perform safety test"), as this will make it easier for you to recognize the relevant maintenance item when assigning it to the maintenance plan. For more information about this assignment, see [Assigning Maintenance Items to a Maintenance Plan \[Page 587\]](#).

15. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see [Object List \[Page 591\]](#)).

20. You assign a task list if necessary to the maintenance item:

- To assign an existing task list, choose .
- To create a task list (category: *General task list*), choose  with quick info *Create general task list*. If you have created a maintenance item with a strategy, you assign [maintenance packages \[Page 578\]](#) to the operations of the task list.

After you have assigned a task list, the system displays the assigned task list on the tabstrip *Item*.

6. Save the maintenance item.

See also

[Creating a Maintenance Item in the Maintenance Plan \[Page 585\]](#)

Assigning a Maintenance Item to a Maintenance Plan






Use

As a rule, you create [maintenance items \[Page 582\]](#) directly in the maintenance plan (see [Creating a Maintenance Item in the Maintenance Plan \[Page 585\]](#)). However, you can also assign existing maintenance items that have not yet been assigned to a maintenance plan.

Prerequisite

You are in the Create or Change mode of the maintenance plan.

Procedure

1. Select  with quick info *Create MaintItem*, and select a maintenance item that has not yet been assigned using .
21. You assign a task list if necessary to the maintenance item:
 - To assign a task list, choose .
 - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.
16. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see [Processing an Object List \[Page 594\]](#)).
4. In order to cancel the assignment of a maintenance item to the maintenance plan, choose .
16. Save the maintenance plan.

See also

[Creating a Maintenance Item Without Assignment \[Page 586\]](#)

Processing a Maintenance Item




Processing a Maintenance Item

Use

You can change a maintenance item directly or from the maintenance plan, for example, to insert additional information.

Procedure

To call up the individual functions in the table, choose *Logistics → Plant maintenance → Maintenance planning* in the R/3 screen.

Function	Menu Path	What You Should Know
Changing a Maintenance Item from a Maintenance Plan	<i>Maintenance plans → Change</i>	If more than one maintenance items are available for a maintenance plan, the system will automatically display the tabstrip <i>Overview: Items</i> . Select the required item, and choose the tabstrip <i>Item</i> .
Displaying a Maintenance Item from the Maintenance Plan	<i>Maintenance plans → Display</i>	
Assigning a Maintenance Item to a Maintenance Plan		See Assigning a Maintenance Item to a Maintenance Plan [Page 587]
Canceling the Assignment of a Maintenance Item to the Maintenance Plan	<i>Maintenance plans → Change</i> and then  with quick info <i>Cancel MaintItem assignment</i>	You cannot delete the last maintenance item of a maintenance plan because at least one maintenance item must always be assigned to a maintenance plan.
Changing a Maintenance Item Directly	<i>Maintenance plans → Maintenance items → Change</i>	
Displaying a Maintenance Item Directly	<i>Maintenance plans → Maintenance items → Display</i>	
Assigning Further Technical Objects	Tabstrip <i>Object list</i>	See Processing an Object List [Page 594]
Creating a Task List (Category: General Task List) in the Maintenance Item	 with quick info <i>Create general task list</i>	
Assigning a Task List		
Changing a Maintenance Item with List Editing	<i>Maintenance plans → Maintenance items → List editing → Change</i>	For more information, see Working With Lists [Ext.] .
Displaying a Maintenance Item with List Editing	<i>Maintenance plans → Maintenance items → List editing → Display</i>	

See also


[Changing a Reference Object of a Maintenance Item \[Page 590\]](#).

Changing a Reference Object of a Maintenance Item

Changing a Reference Object of a Maintenance Item

1. Choose *Maintenance plans* → *Change*.

You reach the initial screen for changing maintenance plans.

2. Enter the number of the maintenance plan you want to change and choose .

You reach the maintenance plan screen.

3. Select the tabstrip *Item object list* and delete the objects from the object list using .


4. Select the tabstrip *Item* and delete the data entered in the section *Reference object*.

5. Choose *Extras* → *Settings* → *Reference object view*.

You reach a dialog box in which the system indicates the object change.

6. Choose .

You reach a dialog box in which you can select a new reference object.

7. Select a reference object and choose .

The system adjusts the section *Reference object* accordingly.

8. Check whether the item data is also still valid for the new reference object and save it.

Object List

Definition

A list of objects which are assigned to a particular maintenance item.

These objects can be:

- Functional locations
- Pieces of equipment
- Assemblies
- Materials
- Material and serial numbers

You can assign several technical objects to a maintenance item. The maintenance operations that you define for a maintenance item, using the link to a maintenance task list, are due for all the technical objects assigned.

For more information about the significance of the object list in maintenance orders (PM orders), see *PM - Maintenance Orders*.

Use

By using an object list, you can create logical groups of similar or interlinked technical objects which can then be linked with a group of maintenance activities. This has the advantage that the data entry requirement is reduced and order processing is facilitated considerably. Another advantage is the reduction in paper used as a result.

These advantages are particularly clear when planning a small preventive maintenance task for a technical system, for example, a general view control. Instead of creating a maintenance order for each object at which the view control should be performed, you create one common maintenance order for all objects listed in the object list.



No cost update takes place for objects in the object list. You cannot perform an evaluation for the reference object that you have directly specified in the maintenance item in the Plant Maintenance Information System (PMIS).

Structure

The structure of the object list depends on:

- The choice of reference object for the maintenance item
- The view setting in the section *Reference object* in the maintenance item

Integration

If the system generates a maintenance call object, for example, a maintenance order, for a maintenance plan, and the maintenance item has an object list, the system copies the object list into the order. You can extend it there as necessary.

Object List

See also

[Rules for Processing an Object List \[Page 593\]](#)

[Processing an Object List \[Page 594\]](#)

Rules for Processing an Object List

You must observe these rules if you want to:

- Enter objects in the object list
- Process entries in the object list

If you enter...	then...
a piece of equipment	the system shows you the functional location at which it is installed. This field is not ready for input. If the equipment is not installed, the field for the functional location is blank.
a functional location	the system displays no more data for the location.
a combination of material and serial numbers	you can only do this if the reference object view is set accordingly. In an object list, in which technical objects (pieces of equipment; functional locations) have already been entered, you cannot enter any combination of material and serial numbers.
a material number	you can only do this if the reference object view is set accordingly. In an object list, in which technical objects (pieces of equipment; functional locations) have already been entered, you cannot enter any combination of material and serial numbers.

Processing an Object List

Processing an Object List

1. To call up the individual functions in the table, choose *Logistics → Plant maintenance → Maintenance planning → Maintenance plans → Change*.



You reach the initial screen for changing maintenance plans.

2. Enter the number of the maintenance plan you want to change and choose *Continue*.



You reach the maintenance plan screen.

3. Choose the tab page *Object list item*.

You reach the object list. When working with the object list, note the [rules for processing an object list \[Page 593\]](#).

Function	Menu Path/Pushbutton	What You Should Know
Assigning objects	<p>Enter the necessary data in the appropriate fields (for example, material, functional location, equipment, assembly).</p> <p>Choose .</p> <p>The system displays the short text for the technical objects.</p>	<p>You assign other technical objects to a maintenance item. This may be necessary, for example, if you have received a new piece of equipment which is constructed in exactly the same way as another object in the list and which you want to maintain with the same maintenance tasks.</p>
Deleting an object from the object list		<p>The deletion of objects from the object list may be necessary, for example, if an object has become obsolete or if it is to be included in the object list for another maintenance item.</p>

Processing an Object List

<p>Assigning objects in the object list</p>	<p>Place the cursor in the object list and choose .</p>	<p>You have the option of specifying the sequence in which the maintenance activities should be executed at the objects contained in the object list.</p> <p>There is a sort field for this in the object list. If you enter a number or alphanumeric key in this field, you can determine the sequence in which the objects should be maintained.</p> <p></p> <p>On the shop floor in Hall A of your company, you have six milling machines and eight lathes. These are arranged so that they cover the entire shop floor space. In the sort field, you can enter an appropriate sequence to determine an optimum inspection route around the shop floor. This enables you to save time and energy.</p> <p>Once all the machines have been inspected, the completion confirmation, which you enter for the maintenance order, is valid for all the technical objects contained in the object list.</p>
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Assignment of Task Lists to a Maintenance Item

Assignment of Task Lists to a Maintenance Item

Use

In the *Plant Maintenance* application component, maintenance task lists (PM task lists) are used to process planned and unplanned maintenance tasks. Maintenance task lists describe the individual steps which must be executed for inspections, repairs, and maintenance. In addition, they list the spare parts and tools required for the job, and specify the necessary completion time.

You include this information if necessary in a maintenance item by assigning a maintenance task list to it. If you work with strategy plans, enter a maintenance strategy in the maintenance task list. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles" to the operation "oil change".

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. The operations described in the maintenance task list are performed on all the technical objects which have been assigned to the maintenance item (see [Object List \[Page 591\]](#)).

Prerequisites

The following prerequisites must be fulfilled:

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set for the maintenance task list.

Features

You can assign an existing task list to a maintenance item or alternatively, you can create a general task list, an equipment task list, or a function location task list directly from the maintenance item.

- [Assigning a Functional Location Task List or Equipment Task List \[Page 608\]](#)
- [Assigning a General Maintenance Task List \[Page 609\]](#)
- [Creating a Task List from the Maintenance Item \[Page 605\]](#)

On the detail screen for task lists, you can also enter the following data:

- **Task list factor**

The task list factor specifies how often a task list should be performed.



You have created an elevator, which you must inspect according to industrial standards, as a piece of equipment. The assigned task list describes the operation "Check elevator door mechanism". You enter "5" as the task list factor because the elevator stops on five floors and you must check five elevator doors in total.

The system automatically projects the labor time and material components assigned to the task list.

- **System condition**

Assignment of Task Lists to a Maintenance Item

The system condition indicates, for example, whether or not a technical system can be in operation during the maintenance task.



If a maintenance order is generated from the maintenance item, then the capacity requirements records for the assigned PP work center (work center for the *Production Planning* application component) are generated. The production planning sees when maintenance is to be performed and whether or not the technical object concerned, for example, a production system, can be in operation during the maintenance work.

Assigning a Functional Location Task List or Equipment Task List

Assigning a Functional Location Task List or Equipment Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list (PM task list) to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

1. On the item data screen, choose *Goto → Task list → Select task list*.

You reach a list of the maintenance task lists that are relevant for your technical object and strategy specifications.



If **only one** task list fulfills the criteria in your maintenance item, a dialog box appears which displays the assigned maintenance packages. Choose *Continue*.

The system immediately assigns this task list to the maintenance item.

You save this assignment using *Maintenance item → Save*.

2. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto → Task list*.

You reach the maintenance task list.

You can page through the various screens of the maintenance task list using the *Goto* menu.

3. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit → Choose*.

A dialog box appears which displays the assigned maintenance packages.



4. Choose *Continue*.

The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

5. To maintain the task list factor or the system condition, choose *Goto → Task list details*.
6. Save the assignment using *Maintenance item → Save*.

Creating a Task List from the Maintenance Item

1. Call up the maintenance plan in Create or Change mode.
2. Assign a task list to the maintenance item:

- To assign a task list, choose .
- To create a task list, choose  with quick info *Create task list/general task list*.

If a task list has already been assigned, the system will issue an information message. Choose *Continue*. This creates a new task list group and you reach the header data screen (general view) for the general maintenance task list.



If a task list was already assigned to the maintenance item, the existing task list data is overwritten when you save. If you want to avoid this, you must cancel the task list processing. The existing assignment is not overwritten, but any data that you have just entered and not saved in the maintenance item will be lost.

3. Enter the necessary data.
4. Save the task list.

The system automatically assigns the new task list to the maintenance item and then redisplay the tab *Item*.

5. Save the maintenance item.

See also

[Profile for a General Maintenance Task List \[Page 613\]](#)

Assigning a General Maintenance Task List

Assigning a General Maintenance Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

1. On the item data screen, choose *Goto → Task list → Select GenTaskList*.

You now have three options for choosing a general maintenance task list:

- [For the assembly \[Page 610\]](#)
- [For the object structure \[Page 611\]](#)
- [With general criteria \[Page 612\]](#)

2. When you have chosen one of the above options, the system displays a list of the maintenance task lists that are relevant for your technical object and strategy specifications or correspond to your general criteria.



If only **one** task list fulfils the criteria in your maintenance item, the system assigns this task list to the maintenance item immediately.

You save this assignment using *Maintenance item → Save*.

3. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto → Task list*.

You reach the maintenance task list.

You can page through the various screens using the *Goto* menu bar.

4. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit → Choose*.

The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

5. To maintain the task list factor or the system condition, choose *Goto → Task list details*.
6. Save the assignment using *Maintenance item → Save*.

Choosing a General Maintenance Task List Using an Assembly

Use

You can assign a general maintenance task list to a maintenance item using an assembly.

Prerequisites

The assembly and its associated technical object must have already been entered on the item data screen.

Procedure

On the item data screen, choose *Goto → Task list → Select GenTaskList → For assembly*.

Result

The system searches for the general maintenance task lists that contain the specified assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using an Object Structure

Choosing a General Maintenance Task List Using an Object Structure

Use

You can assign a general maintenance task list to a maintenance item using an object structure.

Prerequisites

A functional location or piece of equipment must have already been entered on the item data screen.

Procedure

1. On the item data screen, choose *Goto → Task list → Select GenTaskList → For object structure*.
2. The system searches through the structure list of the technical object entered. For each assembly found, the system searches for the general maintenance task lists which contain that assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using General Criteria

Use

You can choose a general maintenance task list in a maintenance item using general criteria entered directly, and then assign it to the maintenance item.

Procedure

1. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *General*.

You reach a selection screen for maintenance task lists.

2. Make all the necessary entries.



You will see that certain fields are not ready for input and that others already contain entries. These are fields that the system has processed automatically when you called up the selection.

3. Choose *Continue*.
4. You reach a list of the general maintenance task lists that fulfill your criteria.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Maintenance Task Lists

Definition

Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company.

There are three types of maintenance task lists that can be distinguished from one another using indicators:

- [Equipment Task List \[Page 383\]](#)
- [Functional Location Task List \[Page 384\]](#)
- [General Maintenance Task List \[Page 385\]](#)

Use

You can use all three task list types for ongoing and planned maintenance.

If you want to use the general maintenance task list for planned maintenance you must assign the task list to a maintenance plan or one or more maintenance items. The operations described in the general maintenance task list are performed for all technical objects that you have assigned to the maintenance item. The operations fall due at the times calculated by the system while scheduling the maintenance plan.

For more information on maintenance plans, see the documentation [PM - Maintenance Planning \[Page 521\]](#).

Structure

You can group together all similar maintenance task lists for groups. The [Task list group \[Page 381\]](#) contains a series of maintenance task lists that describe similar maintenance tasks, for example, oil changes for cars and trucks.



You describe the maintenance tasks to be performed in the individual elements of the maintenance task list. The most important elements are:

- [Operations \[Page 1099\]](#)
- [Sub-operations \[Page 447\]](#)
- [Material Components \[Page 455\]](#)
- [Maintenance Packages \[Page 578\]](#)
- [Production Resources/Tools \[Page 464\]](#)
- [Relationships \[Page 494\]](#)

Creating a Task List from the Maintenance Item

2. Call up the maintenance plan in Create or Change mode.

3. Assign a task list to the maintenance item:

- To assign a task list, choose .
- To create a task list, choose  with quick info *Create task list/general task list*.

If a task list has already been assigned, the system will issue an information message. Choose *Continue*. This creates a new task list group and you reach the header data screen (general view) for the general maintenance task list.



If a task list was already assigned to the maintenance item, the existing task list data is overwritten when you save. If you want to avoid this, you must cancel the task list processing. The existing assignment is not overwritten, but any data that you have just entered and not saved in the maintenance item will be lost.

6. Enter the necessary data.

7. Save the task list.

The system automatically assigns the new task list to the maintenance item and then redisplay the tab *Item*.

8. Save the maintenance item.

See also

[Profile for a General Maintenance Task List \[Page 613\]](#)

Assignment of Task Lists to a Maintenance Item

Assignment of Task Lists to a Maintenance Item

Use

In the *Plant Maintenance* application component, maintenance task lists (PM task lists) are used to process planned and unplanned maintenance tasks. Maintenance task lists describe the individual steps which must be executed for inspections, repairs, and maintenance. In addition, they list the spare parts and tools required for the job, and specify the necessary completion time.

You include this information if necessary in a maintenance item by assigning a maintenance task list to it. If you work with strategy plans, enter a maintenance strategy in the maintenance task list. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles" to the operation "oil change".

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. The operations described in the maintenance task list are performed on all the technical objects which have been assigned to the maintenance item (see [Object List \[Page 591\]](#)).

Prerequisites

The following prerequisites must be fulfilled:

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set for the maintenance task list.

Features

You can assign an existing task list to a maintenance item or alternatively, you can create a general task list, an equipment task list, or a function location task list directly from the maintenance item.

- [Assigning a Functional Location Task List or Equipment Task List \[Page 608\]](#)
- [Assigning a General Maintenance Task List \[Page 609\]](#)
- [Creating a Task List from the Maintenance Item \[Page 605\]](#)

On the detail screen for task lists, you can also enter the following data:

- **Task list factor**

The task list factor specifies how often a task list should be performed.



You have created an elevator, which you must inspect according to industrial standards, as a piece of equipment. The assigned task list describes the operation "Check elevator door mechanism". You enter "5" as the task list factor because the elevator stops on five floors and you must check five elevator doors in total.

The system automatically projects the labor time and material components assigned to the task list.

- **System condition**

Assignment of Task Lists to a Maintenance Item

The system condition indicates, for example, whether or not a technical system can be in operation during the maintenance task.



If a maintenance order is generated from the maintenance item, then the capacity requirements records for the assigned PP work center (work center for the *Production Planning* application component) are generated. The production planning sees when maintenance is to be performed and whether or not the technical object concerned, for example, a production system, can be in operation during the maintenance work.

Assigning a Functional Location Task List or Equipment Task List

Assigning a Functional Location Task List or Equipment Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list (PM task list) to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

7. On the item data screen, choose *Goto → Task list → Select task list*.

You reach a list of the maintenance task lists that are relevant for your technical object and strategy specifications.



If **only one** task list fulfills the criteria in your maintenance item, a dialog box appears which displays the assigned maintenance packages. Choose *Continue*.

The system immediately assigns this task list to the maintenance item.

You save this assignment using *Maintenance item → Save*.

8. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto → Task list*.

You reach the maintenance task list.

You can page through the various screens of the maintenance task list using the *Goto* menu.

9. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit → Choose*.

A dialog box appears which displays the assigned maintenance packages.

10. Choose *Continue*.

The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

11. To maintain the task list factor or the system condition, choose *Goto → Task list details*.

12. Save the assignment using *Maintenance item → Save*.

Assigning a General Maintenance Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

7. On the item data screen, choose *Goto → Task list → Select GenTaskList*.

You now have three options for choosing a general maintenance task list:

- [For the assembly \[Page 610\]](#)
- [For the object structure \[Page 611\]](#)
- [With general criteria \[Page 612\]](#)

8. When you have chosen one of the above options, the system displays a list of the maintenance task lists that are relevant for your technical object and strategy specifications or correspond to your general criteria.



If only **one** task list fulfils the criteria in your maintenance item, the system assigns this task list to the maintenance item immediately.

You save this assignment using *Maintenance item → Save*.

9. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto → Task list*.

You reach the maintenance task list.

You can page through the various screens using the *Goto* menu bar.

10. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit → Choose*.

The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

11. To maintain the task list factor or the system condition, choose *Goto → Task list details*.
12. Save the assignment using *Maintenance item → Save*.

Choosing a General Maintenance Task List Using an Assembly

Choosing a General Maintenance Task List Using an Assembly

Use

You can assign a general maintenance task list to a maintenance item using an assembly.

Prerequisites

The assembly and its associated technical object must have already been entered on the item data screen.

Procedure

On the item data screen, choose *Goto → Task list → Select GenTaskList → For assembly*.

Result

The system searches for the general maintenance task lists that contain the specified assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using an Object Structure

Use

You can assign a general maintenance task list to a maintenance item using an object structure.

Prerequisites

A functional location or piece of equipment must have already been entered on the item data screen.

Procedure

3. On the item data screen, choose *Goto → Task list → Select GenTaskList → For object structure*.
4. The system searches through the structure list of the technical object entered. For each assembly found, the system searches for the general maintenance task lists which contain that assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using General Criteria

Choosing a General Maintenance Task List Using General Criteria

Use

You can choose a general maintenance task list in a maintenance item using general criteria entered directly, and then assign it to the maintenance item.

Procedure

5. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *General*.

You reach a selection screen for maintenance task lists.

6. Make all the necessary entries.



You will see that certain fields are not ready for input and that others already contain entries. These are fields that the system has processed automatically when you called up the selection.

7. Choose *Continue*.
8. You reach a list of the general maintenance task lists that fulfill your criteria.



If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Profile for a General Maintenance Task List

Definition

A profile which you can use to facilitate the creation of general maintenance task lists from the maintenance plan.

Use

You maintain the profile for the general maintenance task list in order to reach the **operation overview** of the general maintenance task list **directly** when creating a general maintenance task list from the maintenance plan. You thereby reduce the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Structure

The profile for the simplified creation of a general maintenance task list from the maintenance plan contains the following specifications:

- Default values for a task list which you maintain in Customizing.
- The profile number of the task list profile which you define with your personal user defaults.

See also:

[Creating a Profile for a Maintenance Task List and Assigning it to the User Profile \[Page 614\]](#)

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Procedure

8. In Customizing, choose *Plant Maintenance* → *Preventive Maintenance* → *Task Lists* → *Control Data* → *Define profiles with default values*.

You reach the overview screen for profile data of maintenance task lists.

9. You can change an existing profile or create a new profile as required.

10. Select the profile you want to process and choose *Goto* → *Details*.

You reach the detail view of the profile maintenance.

11. Enter a status in the section *Header data*.

12. Save the profile.

13. Choose *System* → *User profile* → *Own data* → *Parameters*.

You reach the screen for maintaining user data.

14. Enter the following:

Parameter	Value
PIN	<The number of the profile created or changed>

9. Save your entries.



The changes take effect from when you next log on.

Result

If you create a general maintenance task list from the maintenance plan, the system branches **directly** to the **operation overview** of the general maintenance task list, thereby reducing the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Maintenance Strategy

Definition

A maintenance strategy defines the rules for the sequence of planned maintenance work. It contains general scheduling information, and can therefore be assigned to as many maintenance task lists (PM task lists) and maintenance plans as required. A maintenance strategy contains [maintenance packages \[Page 578\]](#) in which the following information is defined:

- The cycle in which the individual work should be performed (for example, every two months, every 3,106.86 miles, every 500 operating hours)
- Other data which affects scheduling

Use

From Release 4.0A, maintenance strategies are optional. If you want to perform simple preventive maintenance in your company, for which **one** maintenance cycle is sufficient, then you can work with [single cycle plans \[Page 526\]](#). In contrast, you use [strategy plans \[Page 526\]](#) to show complex maintenance cycles.

You create some maintenance plans with a maintenance strategy. The following table shows which [maintenance plan types \[Page 541\]](#) require a maintenance strategy.

Maintenance Plan Type	Maintenance Strategy
Single cycle plan, time-based	No
Single cycle plan, performance-based	No
Strategy plan, time-based	Yes
Strategy plan, performance-based	Yes
Multiple counter plan	No

If you want to use [time-based \[Page 542\]](#) or [performance-based \[Page 543\]](#) strategy plans in your company, you must first define

- Where regular maintenance is required (shown in the system as a [maintenance item \[Page 582\]](#))
- The frequency of these maintenance tasks in terms of performance or time (shown in the system as [maintenance packages \[Page 578\]](#))

For this, you must compare the legal requirements, manufacturer recommendations and costs of preventive maintenance with the cost of a breakdown. You should also consider how you can set up the tasks in a maintenance plan, so that [scheduling \[Page 629\]](#) and maintenance activities are combined most effectively.

Once you have determined the optimum cycles for preventive maintenance, you can define a suitable maintenance strategy. Using the PM application component, you can create strategies which represent the scheduling rules for all the preventive maintenance tasks required within your company. As these strategies contain general scheduling information, they can be assigned to as many different maintenance plans as required.

Maintenance Strategy

By using maintenance strategies containing general scheduling information, you can:

- **Reduce maintenance plan creation time**

You do not need to create the same scheduling information for each maintenance plan.

- **Update scheduling information easily**

Maintenance packages are referenced. In other words, when you make changes in the maintenance strategy (for example, delete packages, change the preliminary or follow-up buffer), the changes are also valid for the assigned maintenance plans. However, the scheduling parameters are copied into the respective maintenance plan. For more information about the effects of the changes, see [Scheduling Parameters \[Page 635\]](#).

Structure

A maintenance strategy consists of:

- Strategy header
- Scheduling parameters
- Scheduling indicators
- Maintenance packages

The individual components of a maintenance strategy are explained in detail below:

Strategy Header

- Name of the strategy
- Short text

Scheduling Parameters

The [scheduling parameters \[Page 635\]](#) (for example, call horizon, shift factor) contain the scheduling data for the respective maintenance strategy, with which you can influence the scheduling of maintenance plans. When you create a strategy plan, the system copies this data to the plan where you can change it.

Scheduling Indicators

Within a maintenance strategy, you can use different scheduling indicators to specify the type of scheduling you require or to define a cycle set:

- [Time-based \[Page 639\]](#) (for example, every 30 days)
- [Time-based by key date \[Page 640\]](#) (for example, every 30 days on the 30th day of the month)
- [Time-based by factory calendar \[Page 641\]](#) (for example, every 30 working days)
- [Performance-based \[Page 642\]](#) (for example, every 50 operating hours)

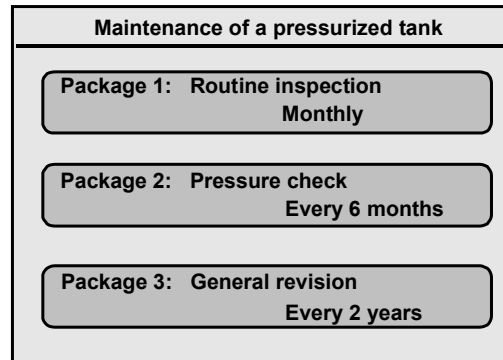
Maintenance Packages

Maintenance activities that must be performed at a particular date or point in time are combined into maintenance packages. These contain, for example, the cycle duration and unit of measurement. For more information, see [Maintenance Packages \[Page 578\]](#).



Maintenance Strategy

You can create a maintenance strategy with three packages for maintaining a pressurized tank.



You can assign several packages with different cycle durations to a strategy. All packages must have the same dimensions, for example, 'time', 'weight', or 'length'. The packages or maintenance cycles within a strategy have a common basic unit of conversion. This unit corresponds to a particular dimension, for example, 'time', 'weight', or 'length'.

Packages within **one strategy** may have different cycle units, but they all have the **same dimension**.



A strategy contains three packages:

- Every two weeks
- Every 4 months
- Annually

Here, the dimension 'time' has the cycle units 'week', 'month', 'year'.

If you work with [hierarchies \[Page 652\]](#) for packages and several packages are due on the same date, note that one year and twelve months are considered to be of **different** length in the SAP System.

1 year = 365 days; 12 months = 360 days (12 x 30)

Integration

For strategy plans, you can assign a [maintenance task list \[Page 604\]](#) if necessary to a maintenance item in the strategy plan which describes the maintenance tasks to be performed in its operations. The same strategy must be specified in the maintenance task list as in the strategy plan. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles" to the operation "oil change".

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. For more information, see [Assignment of Task Lists to the Maintenance Item \[Page 606\]](#).

See also

[Changing a Maintenance Strategy \[Page 620\]](#).

Creating a Maintenance Strategy

8. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Change*.

You reach the overview screen for changing maintenance strategies.

9. Choose *New entries*

You reach the detail screen for maintenance strategies.

10. Enter the necessary data. For more information about scheduling parameters, see [Scheduling Parameters \[Page 635\]](#).
11. Call up the entry screen for maintenance packages in the overview tree by clicking twice on *Packages*.
12. Choose *New entries*.
The system makes the fields ready for input.
13. Enter the necessary data.
14. Save the maintenance strategy.
15. To return to the overview screen, click twice on *Maintenance Strategies* in the overview tree.



If you want to create a **one-time maintenance package**, proceed exactly as described above. However, leave the field for the cycle duration blank, and enter the offset at which maintenance is to be performed, for example, one year and once only.

Changing a Maintenance Strategy

Changing a Maintenance Strategy

Use

It may be necessary for you to change a maintenance strategy, for example, because you find the best solution for scheduling after a certain period has elapsed. In this case, you can change the [scheduling parameters \[Page 635\]](#) or the cycle in which the [maintenance packages \[Page 578\]](#) should be performed.

After the changes have been made, the activities contained in the maintenance plan are performed in the new maintenance cycle. If you change a package from a 1 month cycle to a 2 month cycle in a strategy, all the maintenance tasks assigned to this package are scheduled at 2 month intervals from now on.

You can use a maintenance strategy in several maintenance plans simultaneously. This means that when you change a maintenance strategy, some changes are copied into all the maintenance plans to which this strategy has been assigned. It therefore makes sense to find out to which maintenance plans a maintenance strategy was assigned by performing a [where-used list for maintenance strategies \[Page 628\]](#) before you make any changes.

For more information about the effects of the changes, see [Scheduling Parameters \[Page 635\]](#).

Procedure

To call up the individual functions in the table, choose *Logistics → Plant Maintenance → Planned Maintenance → Maintenance Planning → Maintenance Plans → Change* and select a strategy.

Function	Menu Path/Pushbutton	What You Should Know
Changing a maintenance strategy header	<i>Goto → Detail</i>	You can change the strategy description and the scheduling parameters [Page 635] .
To call up the following functions, click twice on <i>Packages</i> in the overview tree.		
Adding maintenance packages	Choose <i>New entries</i> .	See Adding Maintenance Packages [Page 622]

Changing a Maintenance Strategy

Deleting maintenance packages	<i>Edit → Delete</i>	<p>Before the system deletes maintenance packages, it performs a series of checks to ensure that the packages are not being used in a maintenance task list [Page 604]. If the packages are being used in one or more task lists, the system issues a message in a dialog box informing you of this, and you will not be able to delete the packages.</p> <p>It is possible to reactivate deleted maintenance packages. However, it is assumed that you have not saved the changes after deletion and have not exited the transaction (see Reactivating Processed Maintenance Packages [Page 624]).</p>
Reactivating deleted, changed and added maintenance packages		Reactivating Processed Maintenance Packages [Page 624]
Copying maintenance packages		See Copying Maintenance Packages [Page 623]
Displaying a list of all changed maintenance packages	<i>Selection → All changed entries</i>	<p>This function is available if you have not saved and have not exited the transaction.</p> <p>You can undo changes (see Reactivating Processed Maintenance Packages [Page 624]).</p>
Displaying a list of all added maintenance packages	<i>Selection → All added entries</i>	
Displaying a list of all deleted packages	<i>Selection → Display deleted entries</i>	

See also

[Deleting a Maintenance Strategy \[Page 625\]](#)

Adding Maintenance Packages

Adding Maintenance Packages

Use

You want to add new packages to your [maintenance strategy \[Page 615\]](#).

Prerequisites

Always add new maintenance packages **after** existing ones.

Procedure

1. Call up the maintenance strategy in Create or Change mode.
2. Select the strategy which you want to edit and select it in the overview tree by doubleclicking on *Packages*.

You reach the overview screen for maintenance packages.

3. Choose *New entries*.

The system makes the fields ready for input.



The maintenance packages you have previously entered are saved in the background. You will not see them on this screen.

4. Enter the necessary data.
5. Choose *Back*.

You see the maintenance packages that you have just added and those already contained in the strategy.

6. Save the maintenance packages.



If you want to create a **one-time maintenance package**, proceed exactly as described above. However, leave the field for the cycle duration blank, and enter the offset at which maintenance is to be performed, for example, one year and once only.

Copying Maintenance Packages

1. Call up the maintenance strategy in Create or Change mode.
2. In the screen *Change maintenance packages: Overview*, select the maintenance package or packages you want to copy.
3. To copy the maintenance package(s) you have selected, choose *Edit* → *Copy as...*
4. The system will ask you to enter your **target entries**.

Overwrite the numbers of the maintenance packages displayed on the screen with the numbers of the maintenance packages to which you want the data to be copied.



You want to copy the data from maintenance packages 1 and 2 to the new maintenance packages 7 and 8.

The system displays maintenance packages 1 and 2 on the screen. Overwrite the numbers 1 and 2 with **7** and **8**, and choose *Continue*. Your data is then copied to the new packages 7 and 8.



You can only copy the data from existing maintenance packages to new maintenance packages.

5. Make any changes you require to the copied data.



If you are copying a **single maintenance package**, the system displays the new package after copying has been completed. You can display the other packages by choosing *Goto*.

If you are copying **several maintenance packages**, the system displays a list of the new packages after copying has been completed. To return to the entire list, choose *Goto* → *Back*.

6. Save the maintenance packages.

Reactivating Processed Maintenance Packages

Reactivating Processed Maintenance Packages

Use

You can undo changes that you have made to the maintenance packages of a [maintenance strategy \[Page 615\]](#). For example, when you have deleted maintenance packages or changed existing ones, you can undo the changes and save the packages with your initial entries.

Prerequisites

You can only restore the original field entries before you have **saved and exited the transaction**.

Procedure

1. Display the maintenance packages which you have changed. Choose one of the following options:

Selection → All changed entries

Selection → All created entries

Selection → Display deleted entries

You see a list of all the maintenance packages which you changed, created or deleted.

2. Select the maintenance packages to which you made changes that you want to undo.
3. To restore the original entries in your maintenance packages, choose *Retrieve*.

Deleting a Maintenance Strategy

Use

If you have the necessary authorization, you can delete a maintenance strategy. When you delete a maintenance strategy, the system performs a series of checks to ensure that the strategy is not being used in a maintenance plan or [maintenance task list \[Page 604\]](#).

You cannot delete a strategy that is being used in a maintenance plan or maintenance task list. The system issues a message informing you the strategy is being used.

If you have accidentally deleted a maintenance strategy, you can reactivate it (see [Reactivating Deleted Strategies \[Page 626\]](#)).



You can only reactivate deleted maintenance strategies if you have **not saved and exited the transaction**.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Maintenance strategies* → *Change*.

You reach the screen *Change Maintenance Strategies: Overview*.

2. Select the strategy or strategies you want to delete.
3. Choose *Edit* → *Delete*.

If the strategy or strategies still contain maintenance packages, you can:

- Delete all the strategies selected including their maintenance packages.
- Delete only the strategies that have no maintenance packages.
- Cancel the deletion operation.

4. Save the changes by choosing *Table view* → *Save*.

Reactivating a Deleted Maintenance Strategy

Reactivating a Deleted Maintenance Strategy

Prerequisites

If you have deleted strategies from the overview but **not yet saved** your changes, you can display and, if necessary, reactivate the deleted strategies.

Procedure

1. In the screen *Change maintenance strategies: Overview*, choose *Selection* → *Display del.entries*.

You see a list of all the maintenance strategies you have deleted.

2. In the list of deleted maintenance strategies, select those which you want to reactivate.
3. To reactivate the strategies, choose *Retrieve*.



The system reactivates the maintenance strategies selected, and issues an online message indicating how many strategies were reactivated.

Displaying Package Sequence: Maint. Strategy

Use

You can display the package sequence and the due date of the packages graphically for a [maintenance strategy \[Page 578\]](#).

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Change*.
2. Enter the maintenance strategy you want to display.
3. Choose *Program* → *Execute*.
You reach the package sequence screen for the specified maintenance strategy.
4. You can display past dates or simulate future dates. To do this, choose:
 -  *Previous dates*
 -  *Further dates*

Displaying Uses for a Maintenance Strategy

Displaying Uses for a Maintenance Strategy

Use

The where-used list for maintenance strategies enables you to establish to which maintenance plans you have assigned a certain maintenance strategy. For example, this can be useful if you want to make changes to a maintenance strategy and want to determine which maintenance plans will be affected by these changes before you perform them.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Where-used list*.

You reach the initial screen for where-used lists.

2. Enter the maintenance strategy for which you want to display a where-used list.
3. Choose *Program* → *Execute*.

You see a list of all the maintenance plans to which the specified maintenance strategy has been assigned.

4. To display the detail data for a maintenance plan, call up the corresponding maintenance plan with a double-click.
5. Exit the display.

Scheduling

Use

You schedule a maintenance plan with which the system generates [maintenance call objects \[Page 547\]](#) (for example, maintenance orders or service orders) for the defined cycles.

Features

When you schedule a maintenance plan for the first time, the start date or the initial counter reading entered triggers the maintenance cycle on the time axis. The following special features are valid for the start date or initial counter reading:

- If you **enter** the start date or initial counter reading in the scheduling parameters, then you can start the automatic deadline monitoring directly for the maintenance plan (see [Scheduling a Maintenance Plan automatically \[Page 631\]](#)).
- If you do **not enter** the start date or initial counter reading in the scheduling parameters, then you must start the scheduling for the maintenance plan manually before you can start the automatic deadline monitoring (see [First-Time Scheduling \[Page 662\]](#)).
- If you have created a [maintenance plan with reference to an outline agreement \[Page 529\]](#), the system copies the start date automatically from the outline agreement into the scheduling parameters for the maintenance plan.

Scheduling

For each scheduling, the system calculates the due date (planned date) for a maintenance call object based on the [scheduling parameters \[Page 635\]](#) and the [maintenance cycles or packages \[Page 578\]](#) and generates maintenance calls. It ensures that at least one maintenance call has the status *On hold*. When the maintenance call is due, the system generates a maintenance call object for each due maintenance item. Which object the system generates for the due date is determined by the [maintenance plan category \[Page 545\]](#).

Automatic Deadline Monitoring

You can use this function to simplify the generation of maintenance call objects for maintenance plans. Start the deadline monitoring at regular intervals using an internally programmed report (for example, weekly or for a weekly cycle). The system then generates the maintenance call objects according to the cycles defined.

A start date or an initial counter reading must have been entered in the scheduling parameters for the maintenance plan, or you must have already scheduled the maintenance plan once (see [First-Time \[Page 662\] Scheduling](#)).

When you run the deadline monitoring function, the system converts all the maintenance calls, for which the [call horizon \[Page 646\]](#) has been reached, into maintenance call objects. The system also performs a complete rescheduling of the maintenance plan and ensures that maintenance calls are always available for the period which you have defined as the [scheduling period \[Page 647\]](#).



Scheduling

Scheduling period	30 days
Deadline monitoring on:	01. January, 19XX
Scheduling performed up to:	01. February, 19XX

Even if you do not specify a scheduling period in the maintenance plan, scheduling is performed at least once, and the system generates at least one maintenance call. The maintenance plan is automatically extended. You no longer need to schedule the maintenance plan manually using the scheduling function.

Scheduling parameters

You can control special scheduling requirements using the [scheduling parameters \[Page 635\]](#) in the maintenance plan. The system calculates the cycles in which maintenance call objects should be generated, based on these scheduling parameters. The following data is also considered:

- For performance-based or time-based strategy plans: the [maintenance strategy \[Page 615\]](#)
- For single cycle plans: [the maintenance cycles \[Page 578\]](#) defined in the maintenance plan
- For multiple counter plans: the maintenance cycles defined in the maintenance plan



You schedule a maintenance plan which contains a 2-month and a 6-month package. The first due package is the 2-month package. After four months, the 2-month package is due again. After six months, both the 2-month package and the 6-month package are due.

If you specify a [scheduling period \[Page 647\]](#) for a maintenance plan in the scheduling parameters, the system calculates the due dates for this period of time, and generates maintenance calls. For example, you can enter a scheduling period of 365 days or 6 months to obtain an overview of the due dates for the entire year or half year.

Special Scheduling Functions

In some cases, it may be necessary to reschedule the maintenance plan or cancel scheduling. For more information about additional scheduling functions, see [Special Scheduling Functions \[Page 661\]](#).

See also

[Completion Confirmation \[Page 634\]](#)

[Rescheduling \[Page 632\]](#)

[Adapting a Planned Date Individually \[Page 674\]](#)

[Changing the Scheduling Parameters for a Maintenance Plan \[Page 637\]](#)

Scheduling a Maintenance Plan Automatically

Use

You can use automatic deadline monitoring (see [Scheduling \[Page 629\]](#)) to schedule a maintenance plan for the first time or reschedule it (see [Rescheduling \[Page 632\]](#)).

Prerequisites

You have entered a start date or an initial counter reading in the [scheduling parameters \[Page 635\]](#) for the maintenance plan, or you have already scheduled the maintenance plan once (see [First-Time Scheduling \[Page 662\]](#)).

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Deadline monitoring*.
You reach the initial screen for deadline monitoring.
2. Enter the maintenance plans or maintenance strategies for which the system should perform scheduling.
3. Select either *Call transaction* or *BDC session* (batch input). The *Call Transaction* mode is proposed by the system.
4. Start the program using *Program* → *Execute*.
The system generates maintenance calls and/or maintenance call objects for the maintenance plan(s) selected.

See also

[Displaying Maintenance Call Objects \[Page 675\]](#)

Rescheduling

Rescheduling

Use

A maintenance plan can be rescheduled in the following ways:

- Using automatic deadline monitoring (see [Scheduling a Maintenance Plan Automatically \[Page 631\]](#))
- Using the scheduling function (see [Rescheduling a Maintenance Plan \[Page 667\]](#))

Prerequisites

The prerequisites for rescheduling a maintenance plan depend on the [maintenance plan type \[Page 541\]](#). The following prerequisites apply regardless of whether it is a single cycle plan or a strategy plan.

Maintenance Plan	Prerequisites
Time-based	None
Performance-based	The overall counter reading of the counter assigned to the maintenance plan is current. If you are rescheduling a performance-based maintenance plan or a multiple counter plan, the system assumes that the counter readings are current and calculates the planned dates accordingly.
Multiple counter plan	

Features

The system generates maintenance calls. For due maintenance calls, for example, for calls where the due date (planned date) has been reached, [maintenance call objects \[Page 582\]](#) are generated for each due [maintenance item \[Page 547\]](#). The system ensures that at least one maintenance call has the status *On hold*.

Maintenance Calls

For **time-based maintenance plans**, the system calculates the next maintenance calls based on the [maintenance cycles or maintenance packages \[Page 578\]](#) and the [scheduling parameters \[Page 635\]](#).

For **performance-based maintenance plans** and **multiple counter plans**, the system calculates the next maintenance calls based on the maintenance packages or maintenance cycles, the scheduling parameters, the estimated annual performance and the last counter readings.

Maintenance Call Objects

For multiple counter plans, the planned date, for which the system generates a maintenance call object, depends on the link type. In the case of an OR link, the system selects the earliest planned date. In the case of an AND link, the system will select the latest.

Note the [confirmation requirement \[Page 648\]](#) for maintenance call objects when scheduling.

Completion Confirmation

Completion Confirmation

Use

If a due maintenance call has been called, that is, the system has generated a [maintenance call object \[Page 547\] \[Page 547\]](#) (for example, maintenance order), then the maintenance call has the [status \[Ext.\] Called](#).

The maintenance call only obtains the status *Completed* when:

- The maintenance order (PM order) or service order generated has been technically completed
- The maintenance notification or service notification has been completed
- The service entry sheet generated has been signed off
- You have confirmed the maintenance call in the scheduling function

Scheduling Parameters

Use

You can use the scheduling parameters to adapt the scheduling process to meet your individual requirements.

Features

The maintenance of scheduling parameters is dependent on the [maintenance plan type \[Page 541\]](#).

Maintenance for Single Cycle Plans and Multiple Counter Plans

You maintain the scheduling parameters for single cycle plans and multiple counter plans directly in the maintenance plan.

Maintenance for Strategy Plans

For maintenance plans with a [maintenance strategy \[Page 615\]](#), the system copies the scheduling parameters defined in the strategy to the maintenance plan. The scheduling parameters are default values that you can change in the maintenance plan.

Take account of the following special features for modifications:

- Changes that you perform in the maintenance strategy will not affect the scheduling parameters of existing maintenance plans.
- However, [maintenance packages \[Page 578\]](#) are referenced. In other words, when you make changes in the maintenance packages of the maintenance strategy, (for example, delete packages, change the preliminary or follow-up buffer), the changes are also valid for the maintenance plans to which you have assigned the strategy.

General Information on Maintenance

You can maintain the scheduling parameters in the maintenance plan or in the maintenance strategy. The following table shows which scheduling parameters you can only maintain in the maintenance strategy and which you can maintain in both the strategy and the maintenance plan:

- S: Maintenance only possible in the maintenance strategy
- W, S: Maintenance possible in both the strategy and the maintenance plan

The following scheduling parameters are available for different maintenance plan types:

Scheduling parameters	Single Cycle and Strategy Plan	Multiple Counter	
	Time-based	Performance-based	
Scheduling indicators [Page 638]	W, S		
...for date determination			
Shift factor [Page 643]	W, S	W, S	

Scheduling Parameters

Tolerance [Page 644]	W, S	W, S	
Cycle modification factor [Page 645]	W, S	W, S	W, S
...for call control			
Call horizon [Page 646]	W, S	W, S	
Scheduling period [Page 647]	W, S		
Confirmation requirement [Page 648]	W	W	
Others			
Preliminary buffer [Page 649]	S	S	W, S
Follow-up buffer [Page 650]	S	S	
Link type [Page 651]			W, S
Maintenance package hierarchy [Page 652]	S	S	

See also

[Changing the Scheduling Parameters for a Maintenance Plan \[Page 637\]](#)

Changing the Scheduling Parameters

Use

You can modify the scheduling process to meet your individual requirements by changing the [scheduling parameters \[Page 635\]](#) in your maintenance plan accordingly.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), call up the maintenance plan in Create or Change mode.
2. Enter the necessary data.
3. Choose the tabstrip *Maintenance plan: Scheduling parameters*.
4. Make the desired changes.
5. Save the maintenance plan.

Scheduling Indicators

Scheduling Indicators

There are four scheduling indicators in the *Maintenance Planning* component. They are used for the following scheduling options:

- [Time-based scheduling \[Page 639\]](#)
- [Scheduling based on a key date \[Page 640\]](#)
- [Scheduling by factory calendar \[Page 641\]](#)
- [Performance-based scheduling \[Page 642\]](#)

Time-Based Scheduling

If you create a monthly maintenance cycle (one month = 30 days) and have specified time-based scheduling, planned dates are calculated as follows:

Current Date	21. August, 1999
1st planned date	20. September, 1999
2nd planned date	20. October, 1999
3rd planned date	19. November, 1999

Planned dates are therefore created every 30 days.

See also

[Adapting a Planned Date Individually \[Page 674\]](#)

Scheduling Based on a Key Date

Scheduling Based on a Key Date

If you create a monthly maintenance cycle (one month = 30 days) and have specified key-date scheduling, planned dates are calculated as follows:

Current Date	21. August, 1999
1st planned date	21. September, 1999
2nd planned date	21. October, 1999
3rd planned date	21. November, 1999

The planned dates always fall on a specific day of each month, in this example on the 21st of each month.



You should not define a key date later than the 28 of a month.

See also

[Adapting a Planned Date Individually \[Page 674\]](#)

Scheduling by Factory Calendar

If you create a monthly maintenance cycle (one month = 30 days) and have specified scheduling by factory calendar, planned dates are calculated as follows:

Current Date	21. August, 1999
1st planned date	02. October, 1999
2nd planned date	15. November, 1999
3rd planned date	02. January, 2000

The planned dates therefore have an interval of 30 **working days**. In this example, five days of the week have been defined as work days in the factory calendar.

See also

[Adapting a Planned Date Individually \[Page 674\]](#)

Performance-Based Scheduling

Performance-Based Scheduling

If you create a performance-based maintenance cycle (for example, 'Every 500 operating hours'), the planned date is calculated based on the estimated annual performance of the counter specified in the maintenance plan and the current counter reading.

If the counter reading at which maintenance should be performed has not yet been reached, the planned date is calculated for each scheduling operation based on the current counter reading and the estimated annual performance.



The estimated annual performance of a car is 7,456.45 mi, that is, 621.37 mi per month.

If, owing to company holidays, the car travels less than the estimated 621.37 mi in a month, the system reacts to this deviation. When scheduling is next performed, the calculated planned date is moved accordingly to a later date.

See also

[Adapting a Planned Date Individually \[Page 674\]](#)

Shift Factor

There are two shift factors in the *Maintenance Planning* component. These are shift factors for the following cases:

- Early completion confirmation
- Late completion confirmation

You can define the shift factor specifically for your maintenance plan by specifying the shift percentage to be taken into account when calculating the next due date.

The shift factor only applies once the maintenance plan has already been scheduled, and when the difference between the planned date and actual date lies outside the tolerance range.



The planned date for your maintenance order was August 1, 1995, but it was confirmed 15 days too late, namely on August 16. The next planned date may now be on a different date since this is dependent on the shift factors entered. Three possible shift factors are shown in the table below:

Shift Factors

Planned Date	Confirmed	Next Planned Date	Shift Factor
01.08.1995	16.08.1995	01.09.1995	0 %
		16.09.1995	100 %
		08.09.1995	50 %

Tolerance

Tolerance

There are two tolerance ranges for the scheduling parameters in the *Maintenance Planning* component.

- + Tolerance

For a **late** completion confirmation, this tolerance defines the time span in which a **positive** deviation between the actual and planned date does not influence any subsequent scheduling.

- - Tolerance

For an **early** completion confirmation, this tolerance defines the time span in which a **negative** deviation between the actual and planned date does not influence any subsequent scheduling.

You can define the tolerance as a percentage of the smallest cycle in the maintenance strategy which you have assigned to the maintenance plan.



The smallest cycle in the maintenance strategy which you have assigned to the maintenance plan is 30 days. You have defined a tolerance of 10% in the case of **early** completion confirmation. This produces a tolerance of 3 days.

If completion is confirmed no more than 3 days **before** the planned date, the system does not consider this deviation when calculating the next planned date.

Cycle Modification Factor

You can use the cycle modification factor to define the execution time for a maintenance plan individually. To do this, modify the cycle for the maintenance strategy which is generally valid to meet the requirements of the technical system, process or location.

By entering a cycle modification factor, you can lengthen or shorten the cycle specified in the maintenance strategy. A cycle modification factor greater than 1 lengthens the cycle, whereas a factor less than 1 shortens the cycle.



A maintenance strategy with a total cycle duration of 60 days is assigned to the maintenance plan. You want to change that for this plan. Therefore, you enter the cycle modification factor 1.5.

Cycle according to strategy	60 days
Cycle modification factor	1.5
Result	$60 \times 1.5 \Rightarrow 90$ days

Call Horizon

Call Horizon

The call horizon specifies as a percentage when a [maintenance call object \[Page 547\]](#) (for example, a maintenance order) should be created for a calculated maintenance date, that is, the time interval between the confirmation date or start date and the next planned date of a maintenance plan until the maintenance order is created.

You can define a specific call horizon for a time-based or performance-based maintenance plan by entering a percentage of the total maintenance cycle. When you schedule a maintenance plan, the system calculates the next planned date.



The total maintenance cycle is 250 days. If you define a call horizon of 0%, 80% or 100%, the system creates the maintenance order according to the following number of days:

0 %	Immediate call
80 %	Call after 200 days (= 80% of 250 days)
	The start date is April 1, 1995. The maintenance order will be created 200 days later, on November 17, 1995.
100 %	The call is only made once the planned date has been reached



You **cannot** define a call horizon for a multiple counter plan. To ensure that a maintenance order is created before the order start date is reached, you must specify a preliminary buffer in the scheduling parameters. To do this, enter how many days before the start date the maintenance order should be created.

You should **always** specify a call horizon for performance-based maintenance plans.

Scheduling Period

You can define a scheduling period for a **time-based** and **performance-based** maintenance plans. You can use the scheduling period to display a preview of the maintenance dates in the queue.

The scheduling period specifies in days, months, or years the actual length of time over which scheduling will take place. For example, if you want a maintenance plan to be scheduled for the entire year, so that all the calls are generated for this year, you must enter 365 days or 12 months as the scheduling period.



If you work with a call horizon, you should use [deadline monitoring \[Page 631\]](#) to perform further scheduling.

Confirmation Requirement

Confirmation Requirement

You can use the indicator *Confirmation requirement* to control when the system generates the next [maintenance call object \[Page 547\]](#).

If you set the indicator, the system only generates the next maintenance call object once the previous call object has been confirmed.



For the call object “maintenance order”, this means that the system only creates the next order if the previous order has been technically completed, or if you have confirmed the call in scheduling.

Do not confuse this indicator with the completion confirmation function at order operation level. These functions work independently of one another.

Preliminary Buffer

The preliminary buffer specifies how long before the due date for the maintenance package the activities can be started, without the subsequent due dates being changed.



You specify a preliminary buffer of 5 days for each maintenance package in the strategy.

The planned date calculated by the system is September 30. The start date proposed in the maintenance order is therefore September 25.

Follow-up Buffer

Follow-up Buffer

The follow-up buffer specifies how long after the maintenance package is due the processing of the activities can be finished, without the subsequent due dates being changed.



You specify a follow-up buffer of 5 days for each maintenance package in the strategy.

The planned date calculated by the system is September 30. The end date proposed in the maintenance order is therefore October 5.

Link Type

The link type is an indicator for defining the relationship between the maintenance cycles of a multiple counter plan.

In the case of an **OR link**, an activity will be due as soon as a maintenance cycle finishes.

In the case of an **AND link**, an activity will only be due once the last maintenance cycle has also finished.



A car should be maintained annually and/or every 10,000 km.

If the maintenance cycles are linked using an OR operation, you must maintain the car as soon as one of these conditions is fulfilled: Either one year must have elapsed **or** the car has traveled 10,000 km.

If the maintenance cycles are linked with an AND operation, you must only maintain the car when both conditions are fulfilled: A year must have elapsed **and** the car has traveled 10,000 km.

Maintenance Package Hierarchy

Maintenance Package Hierarchy

A hierarchy which determines which maintenance packages are performed if several [maintenance packages \[Page 578\]](#) are due at one time.

If the maintenance packages are to be performed together at this time, they must have the same hierarchy number (= value).

If only certain maintenance packages are to be performed at this time, these packages must have a higher hierarchy number (= value) than the others. The system always selects the packages with the highest hierarchy number.

If you work with hierarchies and several packages are due on the same date, note that one year and twelve months are considered to be of **different** length in the R/3 System.

1 year = 365 days; 12 months = 360 days (12 x 30)

Examples

The example explains the due date of maintenance packages with different hierarchies for a period of **one year** (01.01). - 31.12). The strategy assigned to the maintenance plan contains two maintenance packages:

- Package 1: monthly (1M)
- Package 2: every three months (3M)

Example 1

Package 2 belongs to a **higher** hierarchy than package 1.

Package	Due Date	Frequency	Special Features
Package 1	1M	8 times	Packages 1 and 2 are due at the same time four times. Because only the packages with the higher hierarchy number are executed, package 1 is omitted when two packages are due at the same time.
Package 2	3M	4 times	

Example 2

Package 1 and package 2 belong to the **same** hierarchy.

Package	Due Date	Frequency	Special Features
Package 1	1M	12 times	Packages 1 and 2 are due at the same time four times. The same package hierarchy means that both packages are always due. In this case, neither package is omitted when both packages are due at the same time.
Package 2	3M	4 times	

Optimizing Scheduling

Use

The table describes how you can flexibly adjust the dates calculated by the system for the maintenance plans to meet your company's individual requirements.

Adjusting dates for maintenance plans

How Can I...?	Customer Exit	What You Should Know
How can I influence planned deadlines individually?	IPRM0002	You can use this customer exit to specify the next planned dates for performance-based and time-based maintenance plans . This exit consists of several function modules.
How can I determine a desired date for a planned counter reading, for example, if the date should always occur on a working day? How can I use self-defined forecast models or seasonal models for scheduling?	IPRM0002 Function module: EXIT_SAPLIPM5_001	You can use this customer exit function module to determine the date on which the next planned counter reading should be reached for performance-based maintenance plans . For more information, see Example Customer Exit IPRM0002 (1) [Page 657] .
How can I determine desired dates, for example, if an inspection should always be due on the first Monday in the month?	IPRM0002 Function module: EXIT_SAPLIPM5_002	You can use this customer exit function module to individually adjust planned dates for time-based maintenance plans to meet your company's requirements. For more information, see Example Customer Exit IPRM0002 (2) [Page 658] .

Optimizing Scheduling

<p>How can I show seasonal counter deviations in the system, for example, for ice manufacture or in agriculture?</p>	<p>IPRM0002</p> <p>Function module: EXIT_SAPLIPM5_002</p>	<p>You can use this customer exit function module to change the estimated annual performance for the counter used in the maintenance plan for performance-based maintenance plans. The new counter reading will only be used in scheduling to schedule seasonally varying dates. The annual performance saved in the system is not changed.</p> <p>For more information, see Example Customer Exit IPRM0002 (3) [Page 659].</p>
<p>How can I dynamically change the estimated annual performance?</p>	<p>MEASURE_POINT_UPD_YEAR</p>	<p>You can use this function module to change the estimated annual performance for the counter used in the maintenance plan for performance-based maintenance plans.</p> <p>For more information, see Example Function Module MEASUREM_POINT_UPD_YEAR [Page 660].</p>
<p>How can I use my own rules to determine which maintenance package should be due next?</p> <p>How can I skip maintenance packages that are not required because they no longer need to be performed based on the current counter reading?</p>	<p>IPRM0005</p>	<p>You can influence the dates for performance-based strategy plans using this customer exit.</p> <p>You can determine which maintenance packages are due next, and, for example, which can be skipped on the basis of the counter reading entered using your own rules.</p> <p>For more information, see Example Customer Exit IPRM0002 [Page 656].</p>

See also

[Optimizing the Maintenance Plan \[Page 549\]](#)

Example Customer Exit IPRM0005

Example Customer Exit IPRM0005

The following inspection cycles have been defined for the maintenance strategy of a boring head:

- Package 1: Every 100 operating hours (small inspection)
- Package 2: Every 500 operating hours (large inspection)

Which packages are due for the boring head?

100 h	200 h	300 h	400 h	500 h
Package 1	Package 1	Package 1	Package 1	Package 1
-	-	-	-	Package 2

The last inspection of the boring head was performed after 100 hours. The boring head comes back from the oil platform after 480 operating hours.

Despite the current counter reading of 480 hours, the system still determines *Package 1 at 200 h* as the next maintenance call on the basis of the strategy.

However, as the counter has already reached 480 hours and both a small and a large inspection are due **simultaneously** at 500 hours, you want to skip *Package 1 at 200 h* (as well as *Package 1 at 300 h* and *Package 1 at 400 hours*).

This is possible using customer exit IPRM0005. You can use your own rules to determine which maintenance packages are due next and which can be skipped. If the logic in the customer exit means that packages are skipped, the system performs a start for the cycle for the maintenance plan in the background.

Example Customer Exit IPRM0002 (1)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPM5_001

The system calculates the planned dates for your machine on the basis of the estimated annual performance. You require that the calculated planned dates always fall on a workday - never on Sundays or holidays. This means, for example, that if the next planned date is due on January 1, the system should determine the next workday.

Example Customer Exit IPRM0002 (2)

Example Customer Exit IPRM0002 (2)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPM5_002

The system calculates the planned dates for your machine on the basis of the specified cycles. You want to adjust these planned dates to meet your company's individual requirements.

- You require, for example, that the calculated planned dates always fall on a workday - never on Sundays or holidays. This means, for example, that if the next planned date is due on January 1, the system should determine the next workday.
- For example, you require that the date for an inspection and maintenance always occurs on the first Monday in the month.

Example Customer Exit IPRM0002 (3)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPWP3_003

You have created a maintenance plan for an agricultural machine whose performance is subject to strong seasonal fluctuations. 90% of the operating performance occurs in the summer months between May and September

You want the system to take account of these seasonal variations when determining planned dates for maintenance and inspection.

Example Function Module MEASUREM_POINT_UPD_PYEAR

Example Function Module MEASUREM_POINT_UPD_PYEAR

Function module: MEASUREM_POINT_UPD_PYEAR

You want to dynamically change the annual performance of a counter:

- For example, if you want to enter a counter reading, a customer-defined program should automatically update the estimated annual performance in the system.
- A customer-defined forecast program should run periodically or for a specific reason in order to update the annual performance of several counters.

Special Scheduling Functions

Use

If you want to ensure that there is at least one maintenance plan call, or if you want to restart the entire maintenance cycle, for example, you can use one of the special scheduling functions.

Features

The *Maintenance Planning* component offers the following special scheduling functions:

- [Scheduling a maintenance plan for the first time \[Page 662\]](#)
- [Confirming a maintenance call \[Page 666\]](#)
- [Rescheduling a maintenance plan \[Page 632\]](#)
- [Canceling scheduling \[Page 668\]](#)
- [Restarting a scheduling function \[Page 669\]](#)
- [Starting scheduling in the current cycle \[Page 670\]](#)
- [Creating a call manually \[Page 672\]](#)
- [Changing the status of a call \[Page 685\]](#)
- [Adapting a planned date individually \[Page 674\]](#)

First-Time Scheduling

First-Time Scheduling

Use

When you schedule your maintenance plan for the first time, you trigger the maintenance cycle. The system uses the scheduling information in the maintenance plan to calculate which maintenance package is due next.

The procedure depends on the type of maintenance plan. You have the following options:

- [Scheduling a time-based maintenance plan for the first time \[Page 663\]](#)
- [Scheduling a performance-based maintenance plan for the first time \[Page 664\]](#)
- [Scheduling a multiple counter plan for the first time \[Page 665\]](#)



For more information on how to cancel scheduling before saving, see [Canceling Scheduling \[Page 668\]](#).

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.

Additional Information

[Adapting a Planned Date Individually \[Page 674\]](#)

Scheduling a Time-Based Maintenance Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.
You reach the initial screen for scheduling a maintenance plan.
2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.
You reach the *Maintenance Schedule* screen.
3. To start the scheduling function, choose *Edit* → *Start*.
The system displays the field *Start of cycle* as ready for input.
4. Enter the date on which you want scheduling to start, and choose *Continue*.
The system automatically calculates the planned dates and call dates based on the [maintenance packages \[Page 578\]](#) and the [scheduling parameters \[Page 635\]](#).
If necessary, you can cancel scheduling (see [Canceling Scheduling \[Page 668\]](#)).
5. Save the scheduled maintenance plan.

Additional Information

[Adapting a Planned Date Individually \[Page 674\]](#)

[Call History \[Page 684\]](#)

[Special Scheduling Functions \[Page 661\]](#)

Scheduling a Performance-Based Maintenance Plan for the First Time

Scheduling a Performance-Based Maintenance Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.
- The overall counter reading of the counter assigned to the maintenance plan is current.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

You reach the *Maintenance Schedule* screen.

3. To start the scheduling function, choose *Edit* → *Start*.

The system displays the field *Start of cycle* as ready for input.

4. Enter the counter reading at which you want scheduling to start, and choose *Continue*.

The system automatically calculates the planned date and call date based on the [maintenance packages \[Page 578\]](#), the [scheduling parameters \[Page 635\]](#), the estimated annual performance and the counter reading at the start of the cycle. It then displays the following:

- Counter reading unit
- Counter reading at the planned date



The first planned date cannot be in the past. If it is in the past, then the system sets the planned date as the current date.

If necessary, you can cancel scheduling (see [Canceling Scheduling \[Page 668\]](#)).

5. Save the scheduled maintenance plan.

Additional Information

[Adapting a Planned Date Individually \[Page 674\]](#)

[Call History \[Page 684\]](#)

[Special Scheduling Functions \[Page 661\] \[Page 661\]](#)

Scheduling a Multiple Counter Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.
- The overall counter reading of the counter assigned to the maintenance plan is current.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

You reach the *Maintenance Schedule* screen.

3. To start the scheduling function, choose *Edit* → *Start*.

The system uses the current date as the start date and automatically calculates the planned dates based on the maintenance cycles, the scheduling parameters, the estimated annual performance and the last counter readings. It then displays the following:

- Counter reading units
- Last counter readings
- Next planned counter readings and planned dates

The planned date for which a maintenance order is created depends on the operation type in the multiple counter plan. In the case of an OR operation, the system selects the earliest planned date. In the case of an AND operation, the system will select the latest.

If necessary, you can cancel scheduling (see [Canceling Scheduling \[Page 668\]](#)).

4. Save the scheduled maintenance plan using *Maintenance plan* → *Save*.



For more information on how to cancel scheduling before saving, see [Canceling Scheduling \[Page 668\]](#).

Additional Information

[Adapting a Planned Date Individually \[Page 674\]](#)

[Call History \[Page 684\]](#)

[Special Scheduling Functions \[Page 661\]](#)

Confirming a Maintenance Call

Confirming a Maintenance Call

Use

When you confirm a [maintenance call object \[Page 547\]](#) (for example, technically completing a maintenance order), then the accompanying maintenance call obtains the status *Completed*.

However, you can also confirm a maintenance call in the scheduling function. This completion confirmation has no effect on the actual maintenance call object.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

You reach the screen for scheduling maintenance plans. The system displays the planned date that should be confirmed next in the *Due planned date* field.

3. Choose *Edit* → *Confirm*.

The system highlights the *Confirmation* field and proposes the current date as a completion confirmation date.

4. Save the maintenance plan.

The system confirms the maintenance call. The maintenance call obtains the status *Completed*.

Additional Information

[The Call History \[Page 684\]](#)

[Adapting a Planned Date Individually \[Page 674\]](#)

Rescheduling a Maintenance Plan

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

You reach the screen for scheduling maintenance plans.

3. Choose *Edit* → *Update scheduling*.

The system calculates the maintenance calls based on the [maintenance packages or maintenance cycles \[Page 578\]](#) and the [scheduling parameters \[Page 635\]](#). It ensures that at least one scheduling record exists that has the status *On hold*.



For more information about how to cancel scheduling **before** saving, see [Canceling Scheduling \[Page 668\]](#).

4. Save the maintenance plan.

Additional Information

[Adapting a Planned Date Individually \[Page 674\]](#)

[The Call History \[Page 684\]](#)

Canceling Scheduling

Canceling Scheduling

Use

If you have performed a scheduling function and subsequently want to perform a different scheduling function or reschedule your maintenance plan, for example, using different [scheduling parameters \[Page 635\]](#), you must either exit the maintenance plan function without saving your changes or cancel the scheduling function **before** you save.

Procedure

1. On the *Maintenance Schedule* screen, choose *Edit → Cancel scheduling*.
The system issues an online message informing you that the original schedule has been restored.
2. Save the original schedule for the maintenance plan.

Restarting Scheduling

Use

You can restart scheduling for your maintenance plan. This is useful, for example, if there has been a major shutdown in your company and you want to resume maintenance from a new start date.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Maintenance Plans* → *Scheduling for Maintenance Plans* → *Schedule*.
You reach the initial screen for scheduling a maintenance plan.
2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.
You reach the maintenance plan scheduling screen.
3. Choose *Restart*.
If there are still maintenance calls with status 'waiting', the system displays a dialog box. You can decide whether the system should delete or skip the calls.
The system displays the *Start of cycle* field as ready for input.
4. Enter the date at which you want to restart scheduling (or the counter reading in the case of performance-based maintenance plans) and choose *Continue*.
The system then calculates the next due [packages \[Page 578\]](#) based on the scheduling information in the maintenance plan. For performance-based maintenance plans, the system also considers the current counter readings.
5. Save the maintenance plan.

Starting Scheduling in the Current Cycle

Starting Scheduling in the Current Cycle

Use

You can start scheduling in the current cycle for [strategy plans \[Page 526\]](#). A start in the cycle is normally the start for a maintenance plan during data transfer from an old system. This function is useful, for example, if you previously managed your plant maintenance without an EDP system or with an EDP system other than the SAP System.

Example

The [maintenance strategy \[Page 615\]](#) which you have assigned to your maintenance plan contains two [packages \[Page 578\]](#):

- 1M: monthly
- 3M: every three months

The table shows when packages are due:

1M	1M	1M	1M	1M	1M
		3M			3M

You have carried out maintenance work, and the contents correspond to the monthly package. This appears in bold in the table.

When maintenance is next due you also want to perform measures included in the 3-monthly plan. From a strategic perspective, the function *Start in Cycle* allows you to start from the package you performed previously. This means that you use *Start in cycle* to confirm the monthly package that you just carried out (for example, without a data processing system). The next packages falling due in the example are 1M and 3M.

- You therefore enter two months as the offset.
- For the confirmation date you enter the date when you performed the last maintenance measure.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling for Maintenance Plans* → *Schedule*.

You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

You reach the *Schedule Maintenance Plan* screen.


3. Choose *Start in cycle*.

If there are still maintenance calls with status 'waiting', the system displays a dialog box. You can decide whether the system should delete or skip the calls.

The system displays the fields *CompConfirmDate* and *Offset* as ready for input.

4. Enter the completion confirmation date of the last package performed, or the counter reading in the case of performance-based maintenance plans.

Starting Scheduling in the Current Cycle

5. Enter the offset **directly** (in the example this would be 2 MON) or select it using **package selection**.
 - a) Choose *Select package*.
You reach the *Package Sequence* screen and see the maintenance strategy, which is assigned to the maintenance plan, in graphical form.
 - b) Select the package that you performed last by placing the cursor on it, and then choosing *Set start offset*.
 - c) The system flags the new start offset with a call symbol. Scheduling begins with the package(s) after the start offset (see example).

 - d) Exit the function.
If you want to cancel the offset, choose *Reset offset*.
6. The system calculates the next due packages based on the scheduling information in the maintenance plan. For performance-based maintenance plans, the system also considers the current counter readings.
7. Save the maintenance plan.

Creating a Maintenance Call Manually

Creating a Maintenance Call Manually

Use

A manual maintenance call allows you to include additional dates for maintenance calls without affecting normal scheduling. You can specify the required call date and [maintenance packages \[Page 578\]](#) which should be due on this date.

The [call horizon \[Page 646\]](#) is not considered for a manual maintenance call.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.
You reach the initial screen for scheduling maintenance plans.
2. Enter the number of the maintenance plan you want to schedule and choose *Continue*.
You reach the *Maintenance Schedule* screen.
3. Choose *Edit* → *Manual call*.
The system displays the *Manual call* field as ready for input.
4. Enter the planned date for the manual call and choose *Continue*.
You reach a dialog box in which you can select the required maintenance packages.
5. Select the maintenance packages that are to be performed for the call date and choose *Copy*.
The packages selected are copied into the *Packages due* field.
6. Save the maintenance plan.

Changing the Status of a Call

Use

If you have called up the maintenance plan in scheduling mode, you can change the status of a scheduled maintenance call within the call history.



You cannot change the status of manual maintenance call.

Procedure

1. On the *Schedule Maintenance Planning* screen, choose *Goto → Display schedule → Scheduled calls*.
2. You can define the following statuses:
 - **Save to call**

To set the status **save to call**, place the cursor on the call status you want to change and choose *Edit → Release call*.

The system releases the call and creates a [maintenance call object \[Page 547\]](#) (for example, maintenance order) when you save.
 - **Fixed**

To set the status to **fixed**, place the cursor on the call status you want to change and choose *Edit → Fix call*.

The system makes the field *Planned date* ready for input. Enter the planned date on which you want to fix the call, and choose *Continue*.

The system fixes the call for the date entered.
 - **Skipped**

To set the status to **skipped**, place the cursor on the call status you want to change and choose *Edit → Skip call*.

The system will ignore this call and no maintenance call object will be created for it.
3. Save the maintenance plan.

Adapting a Planned Date Individually

Adapting a Planned Date Individually

Use

You can use the customer exit IPRM0002 to adapt a planned date calculated by the system individually, and, for example, represent seasonal variations for counter readings.

Features

The following function modules are available:

- For counter-based maintenance: EXIT_SAPLIPM5_001
- For time-based maintenance: EXIT_SAPLIPM5_002

For more information, see the online help.

Displaying Maintenance Call Objects

Use

When maintenance plans are scheduled, the system generates [maintenance call objects \[Page 547\]](#) (for example, maintenance orders). You define the maintenance call object which should be generated for a maintenance plan in the [maintenance plan category \[Page 545\]](#). You can display the different maintenance call objects in different ways:

- From the maintenance plan
- From the call history
- Using the list function for the maintenance call object

Procedure

Displaying from the Maintenance Plan or Call History

Function	What You Should Know:
Displaying maintenance orders, maintenance notifications, service orders or service notifications	See Displaying Orders or Notifications [Page 677]
Displaying service entry sheets	See Displaying a Service Entry Sheet [Page 679]

Displaying Using the List Function

The list function is only possible for maintenance call objects which the system has generated using automatic deadline monitoring (see [Scheduling \[Page 629\]](#)).

Function	Menu Path	What You Should Know:
Displaying maintenance orders	<i>Logistics → Plant maintenance → Maintenance processing → Orders → List editing → <Desired function></i>	Select a status. Enter a period of time and the group name [Ext.] (for example, IP1019980101) as <i>Created by</i> . Choose <i>Program → Execute</i> .
Displaying service orders	<i>Logistics → Service management → Call management → Orders → List editing → <Desired function></i>	

Displaying Maintenance Call Objects

Displaying maintenance notifications	<i>Logistics → Plant maintenance → Maintenance processing → Notifications → List editing → <Desired function></i>	<p>Select a status.</p> <p>Enter a period of time and the group name [Ext.] (for example, IP1019980101) as <i>Reported by</i>.</p> <p>Choose <i>Program</i> → <i>Execute</i>.</p>
Displaying service notifications	<i>Logistics → Service management → Call management → Notifications → List editing → <Desired function></i>	

Displaying Orders or Notifications

Prerequisites

If a maintenance call has the status *Called* or *Completed*, a [maintenance call object \[Page 547\]](#) (here, maintenance order, service order, maintenance notification or service notification) exists in the system for that call. You can display maintenance call objects from the call history or the maintenance plan.

Displaying from the Call History

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling maintenance plans.

2. On the screen *Schedule Maintenance Plan*, choose:

Goto → *Display schedule* → *Scheduled calls* or

Goto → *Display schedule* → *Manual calls*.

You reach the call history with the scheduled maintenance calls for the **current system date**.



If you want to display **older** maintenance calls, choose *Edit* → *Selection date* and enter the required selection date.

The system displays the list according to the selection date.

3. Select the call for which you want to display the maintenance call object, and choose *Goto* → *<Order/notification>*.

Depending on the number of maintenance items assigned to the maintenance plan, you reach one of the following screens:

Number of Maintenance Items	Screen
One	Order header
More than one	List of all the maintenance call objects for the different maintenance items Select the maintenance item for which you want to display the maintenance call object, and choose <i>Goto</i> → <i>Maintenance item details</i> .

4. Return to the call history.

Displaying the Last Call from the Maintenance Plan

1. In the [maintenance planning menu \[Ext.\]](#), choose *Maintenance plans* → *<Change/Display>*.

You reach the initial screen for displaying or changing maintenance plans.

2. Enter the number of the maintenance plan you want to display or change.

Depending on the number of maintenance items assigned to the maintenance plan, you reach one of the following screens:

Displaying Orders or Notifications

Number of Maintenance Items	Screen
One	Item data screen
More than one	Maintenance plan overview Select the maintenance item you want to edit and choose <i>Goto</i> → <i>Maintenance item details</i> .

3. Choose *Environment* → *Last call*.

The system displays the last order generated or the last notification generated.

Displaying a Service Entry Sheet

Use

If a maintenance call has the status *Called* or *Confirmed*, a service entry sheet exists in the system for this call. You can display the service entry sheets created for a purchase order number from the call history or from the maintenance plan.

Displaying from the Call History

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Schedule*.

You reach the initial screen for scheduling maintenance plans.

2. Enter the number of the maintenance plan you want to display.

You reach the scheduling screen for maintenance plans.

3. Select one of the following options:

Goto → *Display schedule* → *Scheduled calls*.

Goto → *Display schedule* → *Manual calls*.

The system displays the scheduled maintenance calls for the **current system date**.



If you want to display **older** maintenance calls, choose *Edit* → *Selection date* and enter the required selection date.

The system displays the list according to the selection date.

4. Select the call for which you want to display the service entry sheet and choose *Goto* → *Service entry sheet*.

You reach the service entry sheet.

5. If you want to display the purchase order for the service entry sheet, choose *Environment* → *Purchase order*.

You reach the screen for displaying the purchase order.

6. Return to the call history.

Displaying the Last Call from the Maintenance Plan

1. Choose *Maintenance plans* → *<Change/Display>*.

You reach the initial screen for displaying or changing maintenance plans.

2. Enter the number of the maintenance plan you want to display or change.

3. Choose *Environment* → *Last call*.

The system displays the service entry sheets which have been created for the same purchase order number.

See also

[MM-Service \[Ext.\]](#)

Displaying a Service Entry Sheet

Displaying Objects for an Outline Agreement

Use

If a maintenance plan has been created for an outline agreement item, you can define a period of time for the outline agreement or for the outline agreement item, and display the objects available. You can display the following objects:

- Maintenance items
- Maintenance plan calls as a list or graphic
- Notifications
- Orders

Procedure

1. Choose *Logistics* → *Service management* → *Contracts and planning* and then *Contracts* → *Contract* → *Environment evaluations* → *Evaluation*.

You reach the initial evaluation screen.

2. Enter the necessary data and select the objects which you want to display for the outline agreement or the outline agreement item.
3. Choose *Execute*.

The system displays the objects for the first object group selected (for example, maintenance items).

4. Use *Back* to return each time to the objects for the next object group selected.

Scheduling Overview

Scheduling Overview

Use

To obtain an overview of the maintenance calls and [maintenance call objects \[Page 547\]](#) (for example, maintenance orders), you can display and edit the scheduling overviews.

Features

The different scheduling overviews are as follows:

- Call history
- **Graphical** scheduling overview
- Scheduling overview as **list**

Call History

The call history provides you with an overview of the calls which the system has generated for a maintenance plan using the scheduling function. This overview displays both scheduled and manual call dates. This is particularly important for critical technical systems, for example, in the case of unforeseen shutdowns or damage which could affect the past or future call dates.

When you generate a call in a maintenance plan, the system records all the calls in one of two displays:

- Call history of scheduled calls
- Call history of manual calls

The call history contains the following data:

- [Planned date \[Ext.\]](#)
- [Maintenance packages \[Page 578\]](#)
- [Scheduling type \[Ext.\]](#)
- [Status \[Ext.\]](#)
- [Call date \[Ext.\]](#)
- [Actual deviation \[Ext.\]](#)

For more information, see [Calling Up a Call History \[Page 684\]](#).

Graphical Representation

The graphical scheduling overview provides information about maintenance calls, maintenance call objects, maintenance items and the capacity load for work centers concerned, which result from the maintenance plans.

The graphical scheduling overview consists of the following components:

- **Graphical maintenance scheduling overview**

This overview provides information in graphical form about the call dates and maintenance call objects associated with the maintenance items contained in the overview.

- **Graphical representation of the capacity load**

The graphical representation of the capacity load provides information in graphical form about the capacity required by the maintenance items for the:

- Individual work centers
- Chosen period of time (for example, daily, weekly, monthly)

- **Detail screen(s)**

You can display detail screens (for example, the order or the notification) for all the maintenance calls or maintenance call objects contained in the scheduling overview.

The graphical scheduling overview is available for time-based and performance-based maintenance plans and multiple counter plans. You can display the graphical scheduling overview in the following ways:

- [From the maintenance planning menu \[Page 690\]](#)
- [From the maintenance plan \[Page 688\]](#)
- [Using list editing \[Page 689\]](#)

For more information, see [Simulating Changes in the Scheduling Overview \[Page 695\]](#), [Shifting a Call Date in the Scheduling Overview \[Page 697\]](#) and [Change of a Call in the Scheduling Overview \[Page 698\]](#).

List Representation

You can use the scheduling list to display all the dates for conditions defined by you, for example, for a piece of equipment, a maintenance plan number, a specific start date.

- **Maintenance item overview list**

The schedule list provides information about the call dates and maintenance call objects for the conditions defined by you.

- **Detail screen(s)**

You can display detail screens for all of the maintenance calls or maintenance call objects contained in the scheduling overview.

For more information, see [Displaying a Scheduling List \[Page 687\]](#).

Additional Information

[Variant Maintenance for Scheduling Overview \[Page 692\]](#)

Calling Up a Call History

Calling Up a Call History

Use

You can display scheduled and manual calls, which have been generated using the scheduling function, from the *Maintenance Schedule* screen.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), call up the Change, Display or Schedule transaction, using one of the following menu paths:

Maintenance plans → Change

Maintenance plans → Display

Scheduling → Schedule

2. Enter the number of the required maintenance plan and choose *Continue*.

You reach the *Maintenance Schedule* screen.

3. To display the call history, choose one of the following options:

Goto → Display schedule → Scheduled calls

Goto → Display schedule → Manual calls

Additional Information

[Changing a Status \[Page 685\]](#)

[Displaying a Scheduling Algorithm \[Page 686\]](#)

Changing the Status of a Call

Use

If you have called up the maintenance plan in scheduling mode, you can change the status of a scheduled maintenance call within the call history.



You cannot change the status of manual maintenance call.

Procedure

3. On the *Schedule Maintenance Planning* screen, choose *Goto → Display schedule → Scheduled calls*.
4. You can define the following statuses:
 - **Save to call**

To set the status **save to call**, place the cursor on the call status you want to change and choose *Edit → Release call*.

The system releases the call and creates a [maintenance call object \[Page 547\]](#) (for example, maintenance order) when you save.
 - **Fixed**

To set the status to **fixed**, place the cursor on the call status you want to change and choose *Edit → Fix call*.

The system makes the field *Planned date* ready for input. Enter the planned date on which you want to fix the call, and choose *Continue*.

The system fixes the call for the date entered.
 - **Skipped**

To set the status to **skipped**, place the cursor on the call status you want to change and choose *Edit → Skip call*.

The system will ignore this call and no maintenance call object will be created for it.
4. Save the maintenance plan.

Displaying a Scheduling Algorithm for a Maintenance Call

Displaying a Scheduling Algorithm for a Maintenance Call

Use

For each scheduled call in the call history, the system has created a scheduling algorithm. This algorithm provides an overview of the scheduling information that determined a particular maintenance call.

The scheduling algorithm displays:

- Scheduling parameters
- Status
- Actual dates
- Planned dates
- Shift factor

Since the actual and planned confirmation dates are displayed in the scheduling algorithm, you can easily compare deviations between these dates, and if necessary, specify to what extent they should be taken into account when you reschedule your maintenance plan.

Procedure

1. On the *Schedule Maintenance Plan* screen, choose *Goto → Display schedule → Scheduled calls*.
2. To display the scheduling algorithm for a maintenance call, place the cursor on the call and choose *Goto → Algorithm*.

The system displays the scheduling algorithm for the call you selected. You can display the scheduling algorithms for other calls in the call history by using one of the following menu paths:

Goto → Next algorithm

Goto → Previous algorithm

The system issues an online message informing you when the first or the last call date has been reached.

3. To leave the algorithm display, choose *Goto → Back*.

Displaying a Scheduling List

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling* → *Scheduling overview* → *List*.
You reach the screen where you can define selection criteria.
2. Enter the necessary data and choose *Program* → *Execute*.
You reach the screen *Maintenance Item: Scheduling List*.

Displaying a Scheduling Overview from the Maintenance Plan

Displaying a Scheduling Overview from the Maintenance Plan

1. In the [maintenance planning menu \[Ext.\]](#), choose one of the following options:

Maintenance plans → Display

Maintenance plans → Change

Scheduling → Schedule

2. Enter the number of the required maintenance plan and choose *Continue*.

You reach the *Maintenance Schedule* screen.

3. To display the graphical maintenance scheduling overview, choose *Extras → Maintenance item overview*.

The system displays the graphical maintenance scheduling overview.



If you have called up the scheduling overview using *Schedule* or *Change maintenance plan*, you cannot make any changes.

If you display the graphical maintenance scheduling overview **directly** from the maintenance plan, you can make changes.

For more information, see [Displaying a Graphical Scheduling Overview or Simulation Directly \[Page 690\]](#).

See also:

[Working with the Graphical Scheduling Overview \[Page 693\]](#)

[Variant Maintenance for Scheduling Overview \[Page 692\]](#)

Displaying a Scheduling Overview Using List Editing

Procedure

You can also use the list editing functions for maintenance plans and maintenance items to display the scheduling overview:

1. In the [maintenance planning menu \[Ext.\]](#), choose one of the following options:
Maintenance plans → List editing → Change
Maintenance plans → List editing → Display
Maintenance plans → Maintenance items → List editing → Change
Maintenance plans → Maintenance items → List editing → Display
You reach the selection criteria screen.
2. Enter the necessary data and start the program by using *Program → Execute*.
The system creates a list of maintenance items or maintenance plans which correspond to your criteria.
3. Select the maintenance items or plans you require and choose *Goto → Scheduling overview*.
The system displays the graphical maintenance scheduling overview and simulation.



For more information about the scheduling overview, see [Working with the Graphical Scheduling Overview \[Page 693\]](#).



If you display the graphical maintenance scheduling overview in list editing mode, you cannot make any changes.

If you display the graphical maintenance scheduling overview **directly** from the maintenance plan, you can make changes.

For more information, see [Displaying a Graphical Scheduling Overview or Simulation Directly \[Page 690\]](#).

See also:

[Variant Maintenance for Scheduling Overview \[Page 692\]](#)

Displaying the Graphical Scheduling Overview or Simulation Directly

Displaying the Graphical Scheduling Overview or Simulation Directly

Use

If you display the scheduling overview from the *Maintenance Planning* menu, you can use other object selection criteria to display additional information in the scheduling overview. For example, you can display a scheduling overview containing the following data:

- Pieces of equipment
- Maintenance orders

You can also define the period of time for which you want to view the scheduling and capacity load by entering a start and end date.

Procedure

1. In the [maintenance planning menu \[Ext.\]](#), choose *Scheduling → Maintenance scheduling overview → Graphical*.

You reach the *Selection Criteria* screen.

2. The options available include:
 - In the section *General object selection*, select all the objects which should be included in the scheduling overview.
 - Select *With task list* if you want to display the maintenance task list assigned to the maintenance item with due packages and operations.



The display is very performance-intensive.

- Enter a start and end date to limit the period for which you create the scheduling overview.
 - If you select *Additional date*, the scheduling overview can simulate other call dates for the rest of the analysis period.
 - If you select *With object list*, the scheduling overview selects maintenance items that have an object list.
 - Make the necessary entries in the section *Maintenance item selection*.
 - Select *Maintenance plan simulation* or *Maintenance item overview* in the section *Maintenance scheduling overview start screen*.
3. Choose *Program → Execute*.

You reach the graphical maintenance scheduling overview or maintenance plan simulation for the maintenance item(s) selected.
 4. To change the selection of displayed objects subsequently, choose *Environment → Object setting*.

Displaying the Graphical Scheduling Overview or Simulation Directly

See also:

[Working with the Graphical Scheduling Overview \[Page 693\]](#)

[Simulating Changes in the Scheduling Overview \[Page 695\]](#)

[Change of a Call in the Scheduling Overview \[Page 698\]](#)

[Variant Maintenance for Scheduling Overview \[Page 692\]](#)

Variant Maintenance for Scheduling Overview

Variant Maintenance for Scheduling Overview

Use

You can use the variant maintenance to define the selection criteria for the graphical scheduling overview and the scheduling overview as a list individually.

Features

Three variants are available in the *Maintenance Planning* component. The table lists the variants in the order of priority in which they are considered by the system. If, for example, a user variant (= priority 1) is created, then it is displayed; if no user variant exists, the system displays the standard variant (= priority 2).

Variant Priorities

Priority	Type of Variant	Special Features
1	User variant	Begins with <i>U_</i>
2	Standard variant	<ul style="list-style-type: none">– Begins with <i>SAP_</i>– Setting in Customizing– Valid for all users
3	Standard system	Display period for the graphic: Current date plus three months

Activities

You maintain a standard variant for the **list display** in the Customizing of Maintenance Planning under *Plant Maintenance* → *Preventive Maintenance* → *Maintenance Plans* → *Set list editing for maintenance item dates*.

You maintain a standard variant for the **graphic display** in the Customizing of Maintenance Planning under *Plant Maintenance* → *Preventive Maintenance* → *Maintenance Plans* → *Set list editing for maintenance plan overview*.

Working with the Graphical Scheduling Overview

Overview

The graphical scheduling overview consists of three components:

- Graphical scheduling overview
- Graphical representation of the capacity load
- Detail screen(s)

The graphical representation of the capacity and the detail screen can only be displayed from the graphical maintenance scheduling overview. The following sections explain the individual components of the scheduling overview.

Graphical Scheduling Overview

The graphical scheduling overview displays colored blocks which represent the following objects:

- Call dates for individual operations
- Operation status

For example:	Called
	On hold

- Maintenance orders created
- Maintenance orders executed

The different colors represent the different statuses, and are explained in the legend. To call up the legend, choose *Settings* → *Legend*.

Detail Screen(s)

You can click on each symbol to display it in detail. The system displays the detail screen for the selected object. For example, you see the task list operation, order operation, order header and maintenance packages (if you do not display any task lists).

To exit the detail screen, choose *Graphics* → *Back*.

Capacity Load

1. To display the capacity load, choose one of the following options:

Environment → *Daily capacity load*

Environment → *Weekly capacity load*

Environment → *Monthly capacity load*

The system displays a business graphic of the capacity load for the period of time you specified.

2. You can display the capacity load in 2D or 3D. Choose one of the following options:

Settings → *2D settings*

Settings → *3D settings*

Working with the Graphical Scheduling Overview

3. To display an overview, choose *Goto* → *Overview*.

See also:

For more information about working with graphics in the SAP System, see *BC - SAP Graphics: User Manual*.

Simulating Changes in the Scheduling Overview

Use

In the simulation mode of the scheduling overview, the graphical maintenance plan simulation of the scheduling overview, you can simulate certain changes to the information displayed at maintenance plan level.

This is very useful if you want to see the effect that shifting call dates has on the maintenance plan, or if you want to level off the capacity load interactively in the individual work centers.

The following table shows the functions possible in the maintenance scheduling overview:

Counter-based strategy plan, single cycle plan or multiple counter plan	Time-based strategy plan, single cycle plan or multiple counter plan
Change status	Change status
	Change dates

Possible Simulated Changes

You can simulate the following changes at maintenance plan level:

- **Date shift**

You can shift dates provided that the call sequence is maintained. You cannot skip over earlier or later call dates. You can:

 - Shift a selected date and all subsequent call dates (status **Fixed**)
 - Shift only the selected call date (status **Fixed**)
- Status change for individual maintenance plan calls

You can change the status to:

 - **Released** (with order creation for each maintenance item)
 - **Skipped**
- Status change for maintenance plans

You can change the status to:

 - **Locked**
 - **Inactive**
 - **Deletion flag**

Simulating Changes

1. Call up the scheduling overview [directly \[Page 690\]](#) from the [maintenance planning menu \[Ext.\]](#).

Simulating Changes in the Scheduling Overview

If you are already in the graphical maintenance item overview (and have called it up directly), you can switch to the maintenance plan simulation. To do this, choose *Environment* → *Maintenance plan simulation*.

2. You reach the maintenance plan simulation graphic.
3. Using the *Edit* menu, you can simulate the following changes:
 - [Date Shift \[Page 697\]](#)
 - [Status Change \[Page 698\]](#)

For multiple counter plans, you can change the status, but it is not possible to simulate scheduling.

Resetting Simulated Changes Again

If you do not want the changes you have simulated to be transferred, you can:

- Exit the graphic
The simulated changes are not saved.
- Choose *Environment* → *Reset*
The original call dates are restored, and the colored blocks reassigned their original color.

Saving Simulated Changes

If you want to save the changes you have simulated, choose *Graphic* → *Save*.

The simulated changes are saved immediately. For example, if you have shifted a call date, the new (shifted) date becomes the new call date when you save, and is indicated accordingly in the graphic.

Shifting a Call Date in the Scheduling Overview

1. In the maintenance plan simulation graphic, choose *Edit* → *Move*.
2. Select the colored block representing the date you want to shift and move it to the required date using the left mouse button.
3. Release your mouse button.

A dialog box appears asking you whether you want to shift the date selected and all subsequent dates, or whether you only want to shift the selected date.

4. Choose the shift type you require. You return to the maintenance plan simulation graphic, on which you can see all the dates which have been moved. The color of the block has also changed, so you can see that this is a simulation.

Changing a Call in the Scheduling Overview

Changing a Call in the Scheduling Overview

Use

In the scheduling overview, you can change maintenance calls for time-based and performance-based maintenance plans and for multiple counter plans.

Procedure

1. In the maintenance plan simulation graphic, choose *Edit* → *Choose*.
2. Click on the call date for which you want to change the status.

You see the dialog box *Change status of calls*.

3. Choose the status you want to assign to your selected call.

You can assign the following statuses to calls:

- Released
- On hold
- Skipped

You can assign the following statuses to maintenance plans:

- Active/inactive
- Deletion flag

The color of the block you selected changes to indicate that a status change has been simulated.

Maintenance Plan Costing

Use

You can determine the expected costs for maintenance plans for a period using maintenance plan costing (see also [Example of Maintenance Plan Costing \[Page 703\]](#)).

Prerequisites

The following prerequisites must be fulfilled:

- The maintenance plans are scheduled.
- In Customizing for the [maintenance plan category \[Page 545\]](#), the *maintenance order* or *service order* is configured as the [maintenance call object \[Page 547\]](#).
- The maintenance plan does **not** have the status *Inactive* or *Deletion flag*.
- The following data is specified in the task list for the operations:
 - The working time and/or materials with prices
 - A work center to which an activity type is assigned
- Tariffs are assigned to the activity type.

Features

The system determines the costs to be expected for the specified period as follows:

- It calculates on the basis of existing calls in the maintenance plans.
- It then simulates maintenance calls and the corresponding maintenance or service orders. The expected costs are also determined from this.

The costs determined are planned costs and not actual costs, and are determined from the following sources:

- The [maintenance packages and cycles \[Page 578\]](#)
These contain the time or performance condition when maintenance must be performed.
- The assigned [task list \[Page 604\]](#)
This contains the activities to be performed together with the corresponding quantities (for example, internal and external services, required materials).



The system does not determine any overhead costs. You cannot perform a costing for multiple counter plans.

When costing for strategy plans, note the following:

- The system notes calls that are already available.
- These calls are determined according to when packages fall due. If a package is no longer valid, (for example, because the task list was exchanged or the package in the task list was deleted) then costing cannot be performed. The system must once again determine the costs in the operations (these costs arose when the original package was due). This assignment is

Maintenance Plan Costing

no longer possible when a task list has been exchanged or an original package has been deleted.

The system uses the currently valid tariffs for the cost tariffs on which the costing is based. These tariffs are calculated from the activity type and cost center. If you have changed tariffs for the future, these will not be considered by the system which also uses the current tariffs here.

You will find additional information on

- Maintenance plan costing under [Costing a Maintenance Plan \[Page 701\]](#)
- Changing the maintenance plan costing display in the documentation *CO - Product Cost Planning*.

Costing Maintenance Plans

Prerequisites

For more information about the prerequisites, see [Maintenance Plan Costing \[Page 699\]](#).

Procedure

To call up individual functions in the table, choose one of the following menu paths:

- *Logistics → Plant Maintenance → Planned Maintenance → Maintenance Planning*
- *Logistics → Customer Service → Service Agreements → Maintenance Planning*

Function	Menu Path	Special Features
Costing in the maintenance plan	<i>Maintenance Plans → <Change/Display> and then Extras → Costing</i>	The system calculates the costs for the maintenance plan. The system does not save the costing.
Costing in list editing for maintenance items	<i>Maintenance Plans → Maintenance Items → List Editing → <Change/Display></i>	Select the desired maintenance items in the list of results, and choose <i>Costing</i> . When performing costing using the list editing function, you can select the maintenance plans based on different criteria. The system does not save the costing.
Maintenance plan costing (online)	<i>Scheduling → Maintenance plan costing</i>	You can only execute costing for one maintenance plan. The system does not save the costing.

Costing Maintenance Plans

Maintenance plan costing (in the background)	<i>Scheduling → Maintenance plan costing → Execute in background</i>	<p>You can execute costing for one or more maintenance plans.</p> <p>The system saves the costing specific to the user together with the date on which it was performed in a file (INDX). As soon as you execute costing in the background in your name again, the system overwrites the user-specific data.</p>
The following functions are available if you have executed costing in the background :		
Displaying selected maintenance plans	<i>Selected maintenance plans</i>	Displays the maintenance plans considered by the system during the last costing performed by the user.
Displaying costing	<i>Display costing</i>	Displays costing with the expected costs from planned maintenance in the specified analysis period.
Displaying the last error log	<i>Last error log</i>	Displays the error log for the last costing.
Displaying administrative data	<i>Administrative data</i>	Displays the date of the last costing saved.

For more information about changing the maintenance plan costing display, see *CO - Product Cost Planning*.

Example of Maintenance Plan Costing

In this example, maintenance plan costing is performed for a **one-year** analysis period from 01.01 to 31.12. The strategy assigned to the maintenance plan contains two maintenance packages:

- Package 1: Every month (1M)
- Package 2: Every three months (3M)

The following calculations take different [package hierarchies \[Page 652\]](#).

Determination of the frequency for Calculation 1

Package 2 belongs to a **higher** hierarchy than package 1.

Package	Due Date	Frequency	Special Features
Package 1	1M	8 times	Packages 1 and 2 are due at the same time four times. Because only the packages with the higher hierarchy number are executed, package 1 is omitted when two packages are due at the same time.
Package 2	3M	4 times	

Determination of the frequency for Calculation 2

Package 1 and package 2 belong to the **same** hierarchy.

Package	Due Date	Frequency	Special Features
Package 1	1M	12 times	Packages 1 and 2 are due at the same time four times. The same package hierarchy means that both packages are always due. In this case, neither package is omitted when both packages are due at the same time.
Package 2	3M	4 times	

Determination of Costs

1. The system totals the maintenance calls determined for a specified analysis period (= frequency) for each scheduling combination.
2. The service simulates a maintenance or service order for each maintenance call.
3. The costs to be expected are derived from the multiplication of quantities and values (for example, (internal/external service, required materials) and the determined frequency.

Status Management

Use

This function informs you about the status of the maintenance plans and their meaning.

Features

The system statuses for the maintenance plan are set internally by the system within the general SAP R/3 Status Management. For example, the system sets the status *Created* if you create a maintenance plan, or it sets the status *Deletion flag* if you flag a maintenance plan for archiving.

Status “Created”

- **Prerequisites**

The maintenance plan is created.

- **Effects**

Changes to the maintenance plan, the assignment of a maintenance item and maintenance task list as well as the scheduling of the maintenance plan are possible.

- **Special features**

None.

Status “Deletion flag”

- **Prerequisites**

None.

- **Effects**

You mark a maintenance plan for archiving with the status *Deletion flag*. The system does not generate any further maintenance calls for this maintenance plan. The maintenance plan can no longer be scheduled.

- **Special features**

You can reset the status as required.

Status “Deleted”

- **Prerequisites**

- The maintenance plan has the status *Deletion flag*.
- All the maintenance calls for the maintenance plan which are called have the status *Completed*.
- If you use maintenance plans for pieces of equipment of category *Production resources/tools* (PRT equipment) in your company, and you set the indicator *Use in PRT equipment* in the initial run variant, the maintenance plan can also no longer be used in PRT equipment. For more information, see [Variant Settings for the Initial Archiving Run \(PM-PRM-MP\) \[Ext.\]](#).

- **Effects**

The status *Deleted* is set by the initial run program for archiving.

- **Special features**

You can no longer reset the status.

Status “Inactive”

- **Prerequisites**

The status *Deletion flag* cannot be set for the maintenance plan.

- **Effects**

If you set the status *Inactive* for a maintenance plan, it can no longer be scheduled. This means that the system does not generate any maintenance calls or maintenance call objects for this maintenance plan.



From Release 4.0A, the status *Inactive* replaces the field *Lock for calls* which you could set in the maintenance plan using *Goto → Maintenance plan additional data*. The system automatically converts the previous indicator to the status *Inactive*.

- **Special features**

You can reactivate the maintenance plan if necessary.

Displaying Status Information

Displaying Status Information

1. From the [maintenance planning menu \[Ext.\]](#), choose *Maintenance plans* → *<Change/Display>*.

You reach the initial screen for changing or displaying maintenance plans.

2. Enter the number of the maintenance plan you want to change or display, and choose *Continue*.

You reach the item data screen.

3. Choose *Extras* → *Status info*.

You reach the status screen where you see all the active statuses for the maintenance plan.

Document Flow

Use

The document flow shows the development of a PM or CS document and provides an overview of preceding and subsequent documents and their status.

The individual documents form document chains. All preceding and subsequent documents will be shown for each document you call up.



Document	Date	Status
Contract 40000149	30.03.1998	open
. Notification 300001256	23.03.1998	in process, assigned to order
.. Order 905580	23.03.1998	open, pre-costed
.. Sales order 2155	24.03.1998	completed
... Delivery 80001132	24.03.1998	completed
.... Goods movement 49008835	24.03.1998	completed
.... Invoice 900001082	24.03.1998	completed

Integration

The document flow includes notifications and orders for the application components Customer Service (CS), Plant Maintenance (PM) and Quality Management (QM).

Within the logistics supply chain, the document flow is integrated with the application components

- Materials Management (MM)
for example, via purchase requisitions or goods receipt documents, and
- Sales and Distribution (SD)
for example, via invoices or credit memos.

Features

You can display the following objects in the document flow:

- Service contract
- Maintenance plan item
- Service notification
- Service order
- Paging object (for example, a document)

Document Flow

- Purchase requisition
- Purchase order
- Sales order
- Confirmation in time
- Debit memo request
- Debit memo
- Returns
- Returns delivery
- Credit memo request
- Invoice
- Invoice cancellation
- Credit memo
- Credit memo cancellation
- Delivery
- Goods movement
- Goods movement cancellation

Document Selection

Use

This function enables you to display a specific document and its position within the document flow.

You can for example search for an invoice using the invoicing number, for a sales order using the sales document or for a service notification using customer data.

Features

In the *Document Flow Display* screen, you can specify criteria for selecting documents as well as filter criteria for displaying data.

If you select the field *Object links*, the system will display the existing links in a dialog box. This concerns documents that are not directly part of the document flow but that are assigned to a specific document (for example because they were used as a copy model or reference object).

Activities

Use the menu bar sequence *Service processing → History → Document flow list* to display the document selection.

After you have made your selection the *Document Flow* screen is displayed. You can select the desired document in this screen and use the menu bar sequence *Environment → Display document* to display the detail data or the sequence *Environment → Object links* to display the existing object links.

Displaying Document Flow for Notifications or Orders

Displaying Document Flow for Notifications or Orders

1. Depending on the application component in which you are working, select one of the following menu paths:
 - *Logistics* → *Plant Maintenance* → *Maintenance Processing*
 - *Logistics* → *Customer Service* → *Service Processing*
2. Call up the notification or order in the display or change mode.
3. In the notification or order, use the menu bar sequence *Extras* → *<Notification documents/Order documents>* → *Document flow*.

The *Document Flow* screen appears.



If object links already exist for a notification or order, the dialog box *Display Object Links* will first be displayed. You can display objects that are linked to the notification or order by selecting the relevant object type and choosing *Select*.

4. You can select the desired document and display in it in the *Document Flow Display* screen using the menu bar sequence *Environment* → *Display document*.
5. If object links already exist for a notification or order, the documents are highlighted in green in the list. You can display objects that are linked to the notification or order by selecting the relevant object type and using the menu bar sequence *Environment* → *Object links*.

Obtaining Maintenance Contract Information from the Document Flow

Use

Using this function you can call up all necessary information on the maintenance contract within the document flow on the screen *Display document flow*.

Integration

The system automatically branches out into the PM - Maintenance Planning function.

Prerequisites

A maintenance contract must be shown in the document flow.

Features

You can call up the following information:

- Maintenance items
- Maintenance calls
- Generated orders and notifications

Activities

Select the maintenance contract in the list of documents. Then use the menu bar sequence *Environment → Maintenance contract*.

Warranties (CS-AG-WA/PM-EQM-SF)

Warranties (CS-AG-WA/PM-EQM-SF)

Purpose

Warranties define the scope of the services that a company performs at a technical object in the event of damage or problems.

Integration

You can assign warranties to pieces of equipment, functional locations, or serial numbers.

Features

Using this component, you can cover the following warranties from the viewpoint of the system user:

- Warrantee (inbound) (for example, manufacturer or vendor warranty)

Example:

You buy a new piece of equipment and receive a warranty from the manufacturer that covers a certain period or usage (manufacturer warranty).

- Guarantor (outbound) (for example, customer warranty)

Example:

You sell or lease a piece of equipment and concede a warranty to your customer.

Warranty

Definition

Commitment of the manufacturer, vendor, or retailer to guarantee services to a customer either free-of-charge or only charged in part, over a certain period of time. In the majority of cases, the warranty relates to a technical object. This might be an object belonging to your company or to a customer.

Use

Many business transactions, such as buying, selling, and maintaining products, involve a warranty. When you purchase a new product, for instance, it is supplied with a manufacturer warranty for a certain period of time, or amount of use. When you sell or lease a product, you may be legally required to supply your customer with a warranty for this product. Similarly, if you are a provider of services, you may need to provide a warranty to define the extent of the services to be provided, in order to protect yourself, as well as your customer.

Before you can issue warranties for individual objects, you need to define your basic conditions and requirements. These conditions and requirements may be specific to your company, your products, your customers, and your customer groups, and may well differ from one country or region to another.

The Customer Service application component provides the following types of warranties:

- Temporally valid warranties
- Counter-dependent warranties
- Warranties that are valid for periods of time and counter intervals

The warranty check can be performed automatically by the system when processing customer notifications and billing requests.

Structure

The structure of a warranty record corresponds to that of the master warranty record. You can extend and change the data that it contains for each individual object.

Master Warranty

Master Warranty

Definition

The master warranty comprises:

- Warranty header (warranty type, description, classification)
- Warranty service items (services included/excluded)
- Warranty counters (counters, limits)

Structure

Warranty Header

Header data is relevant to the whole data record. Some header data, such as the warranty number and type, is fixed for the validity of the warranty.

You can maintain the following data at header level:

- Warranty type

In this field you define the type of warranty you require. For example, whether the warranty is to be used as a manufacturer or vendor warranty (inbound) or as a customer warranty (outbound).
- Pass on warranty indicator

This indicator specifies whether the master warranty of technical object should be passed on to the technical objects lower down in the hierarchy. When a warranty check is performed for technical objects lower down in the hierarchy, the warranty of the technical object of the higher hierarchy level is displayed. A maximum of two higher technical objects are displayed.
- Warranty sort field

The freely definable sort field serves mainly as a function for finding particular warranties.
- Short text/long text

In the long text, you can list the general conditions that apply to the validity of the warranty (for example, "Warranty services apply only during normal conditions of use..."). You can create texts in different languages.
- Classification

If you need to manage a large number of different warranties, you can assign them to different classes (for example, for different suppliers, customer groups, and so on). This simplifies search processes, and evaluations based on particular aspects are supported.

Warranty Service Items

You can enter any number of service items in the master warranty record. You must describe each service item using one of the following options:

- Service master record

Master Warranty

If you do not enter a service master record, you must enter a short text to describe the service item.

- Short text/long text

You can create texts in different languages. If you choose a service master record, the system displays automatically the text for that service or activity.

- Checkboxes

Depending on the type of service entered, the system displays whether the service is already configured or whether it is configurable in the checkboxes *Configured* and *Service is configurable*.

- Inclusive/exclusive services

You must enter an inclusive/exclusive indicator for each service item. You use this indicator to define whether the item should be included in the warranty, or whether it is excluded from it. Inclusive and exclusive items can be combined in a warranty.



A warranty for a vehicle includes the following items:

Items	Incl./Excl.
Engine	Inclusive
Bodywork	Inclusive
Corrosion protection	Inclusive
Damage to soft-top	Exclusive
Damage to wind-screen	Exclusive

Warranty Counters

Each item has one or more counters which record the time or counter reading for the validity of the warranty. Generally, if you enter items that are to be excluded from the general warranty conditions, these do not require a counter. If you have assigned more than one counter to an item, you must define whether:

- **All** the counters must be valid, in order for the warranty item to be valid
- **At least one** counter must be valid

To define the relationship between the different counters for an item, you must select one of the following radio buttons:

- AND

Specifies that all counter readings must be valid, in order for the warranty to be valid

- OR

Specifies that at least one of the counter readings must be valid, in order for the warranty to be valid

Master Warranty

If you have assigned several counter readings, you can assign a sort field to each counter which enables you to set priorities.



Before you create a warranty, you should define all counters that you are using. Warranty counters are represented in the system using characteristics of the classification system. For more information, see [Defining a Warranty Counter \[Page 717\]](#)

You must enter a measurement unit for each counter, for example:

Warranty period	1 year
Operating hours	500 hours
Counter reading	9999.

The counter unit is represented in the system by a characteristic unit of measure. This unit of measure can form the link between the warranty record and the master record of the object for which the warranty was created.

Integration

The warranty can be assigned either to pieces of equipment, functional locations, or serial numbers. You can assign two warranty types (customer/vendor warranty) per object. Warranty data for the technical object is now processed in the tab pages and can be used for functional locations, equipment and serial numbers.



As of Release 4.5B, it is no longer possible to process warranty data in technical objects using the menu path *Extras → Warranty*.

From Release 4.6B, warranty data will be processed using special settings in Customizing under *Master Data → Technical Objects → General Data → Set View Profiles for Technical Objects*.

Defining a Warranty Counter

Prerequisites

Warranty counters are normally defined by your system administrator at the time of setting up your system. If you have the necessary authorizations, you can create warranty counters using the Classification System.

Procedure

1. Create the warranty counter as a characteristic in the Classification System.
To do this, choose *Logistics* → *Central functions* → *Classification* → *Characteristic* → *Create*.
2. Enter the name of the characteristic and choose *Create*.
The screen *Create Characteristic* is displayed.
3. Enter a short text for the characteristic in the block *Basic data*.
In the block *Formatting*, enter a numeric data type.
4. Choose *Continue*.
5. Enter the number of characters, decimal places and the unit of measure for the warranty counter (for example, the unit *Year* for the characteristic *Warranty period*).
6. Save the characteristic.
For more information, see the SAP documentation on Characteristics under *CA-Classification*.
7. Define the warranty counter in Customizing.
Plant Maintenance and Customer Service → *Master Data in Plant Maintenance and Customer Service* → *Basic Settings* → *Warranties* → *Define warranty counter*.



Only warranty counters that are entered in Customizing are recognized as valid counter types by the system.

Creating a Master Warranty

Creating a Master Warranty

1. Choose *Logistics* → *Customer Service* → *Service agreements* → *Warranties* → *Master warranty* → *Create*.

The initial screen *Create master warranty* is displayed, where you can enter the warranty number if your company uses external number assignment.

2. Choose *Continue*. The initial master warranty screen is displayed.

Enter the short text for the warranty header. If necessary, you can add a more detailed description using the long text function.

3. Enter the warranty type.

The warranty type specifies what sort of warranty is involved. For more information, see [Warranty Management \[Page 719\]](#)

4. Enter a service in the block *Service*. Depending on the type of service entered, the system displays whether the service is already configured or whether it is configurable in the checkboxes *Configured* and *Service is configurable*. You can change the configuration of the service by choosing *Configuration*. You must enter an inclusive/exclusive indicator for each service item. You use this indicator to define whether the item should be included in the warranty, or whether it is excluded from it. Inclusive and exclusive items can be combined in a warranty.

5. Select one of the following radio buttons to define the relationship between the different counters for an item:

- **AND** specifies that all counter readings must be valid in order for the warranty to be valid
- **OR** specifies that at least one of the counter readings must be valid, in order for the warranty to be valid

6. Enter one or more warranty counters together with the appropriate value for each service item.

The counters record the time or the counter readings for the validity of the warranty. The value entered, together with the unit of measure, equals the maximum amount (time or counter reading) for which the warranty is valid (for example, up to 1 year, or up to a reading of 9999).

For more information, see [Defining a Warranty Counter \[Page 717\]](#)



You can classify master warranties by choosing *Classification*. In order to do this, you must have already created the classes for the master warranties in the Classification System. The advantage of this is that you can then search for master warranties by class. For more information, see *CA-Classification*.

Warranty Management

Use

Before you create a warranty master, you must determine how the warranty is to be used. For this, you need to use a **warranty type**.

The warranty type specifies what sort of warranty is involved, meaning how it is used. The warranty type is assigned to an internal warrant category, which indicates whether the system user's company is the warrantee, or the guarantor.

Prerequisites

In the standard system, the following warranty types can be differentiated from the perspective of the system user:

Warranty type	Warranty category
Manufacturer and vendor warranties	Warrantee (inbound)
Customer warranties	Guarantor (outbound)

You can define in Customizing the different types of warranty that are required by your company, and assign one of the two available warranty categories to each warranty type. When you, as a system user, [create a master warranty \[Page 718\]](#), you must use one of the existing warranty types for this.

Features

Each warranty type is assigned internally to a **warranty category**. In the system, there are two warranty categories that define warranty from the user's perspective. The warranty categories are predefined in the system and cannot be changed. The warranty category has the following two characteristics:

- Warrantee (inbound)

The warranty comes from outside the company (for example, from a vendor or an manufacturer). It is defined from the perspective of the warrantee.

- Guarantor (outbound)

The warranty comes from your own company, and goes to a customer. It is defined from the perspective of the guarantor.



The warranty category is set internally in the system, and cannot be changed on a company-specific basis.



A supplier of photocopiers sells you a machine. The supplier gives you a warranty for the machine. This warranty is indicated in the system as being an **inbound warranty** under the warranty category *Warrantee*. (The warranty type in this case is *vendor warranty*.)

Warranty Management

You then sell or rent out the machine to a customer, and give him a warranty for it. This warranty is indicated in the system as being an **outbound warranty** under the warranty category *Guarantor*. (The warranty type in this case is *customer warranty*.)

Warranty Check

Use

You can use the warranty check to determine whether a warranty still exists for an object.

The warranty start can take place at different points in time. For example, a warranty can start at one of the following times:

- Purchase date (for example, in the case of a machine)
- Installment date (for example, in the case of a computer)
- Operating start date and time
- Combination of the above

The validity period is calculated from that point in time, based on the time or counter readings specified.

If, during the warranty check, you want the system to display the warranty data for the superior technical objects in addition to the warranty of the technical object being checked, you can set the following indicators:

- Pass on warranty

You can also set the indicator *Pass on warranty* when you create a master warranty. If the indicator is set in the master warranty, it is automatically copied when you enter the master warranty in the technical object. This indicator specifies whether the master warranty of the technical object should be passed on to the technical objects lower down in the hierarchy. If this indicator is set, both the warranties of the object being checked and those of the superior technical objects in the hierarchy are displayed in a list during the warranty check. The system searches for the next-highest equipment and the next-highest functional location for which the indicator *Pass on warranty* is set, and to which a master warranty or a warranty period is assigned. A maximum of two higher technical objects per warranty type are displayed.

- Inherit warranty

This indicator specifies whether the master warranty or the warranty period can or cannot be inherited from the next-highest technical object in the hierarchy level. If the indicator is set, both the warranties that have been passed on and the warranties for the technical object are displayed in a list for the warranty check. If the indicator is not set, only the warranties for the technical object are displayed.

Activities

You can set in Customizing whether a dialog box should be displayed automatically in the event of a positive warranty check when creating a notification or an order, or when performing flexible billing.

Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Warranties → Define Warranty Types.

When a claim is made for a warranty service, it must be checked for each counter whether the warranty is still valid. Depending on the counters involved, this check is either performed automatically by the system, or manually by the user. For example, if the warranty is valid for a

Warranty Check

certain period of time from the start date, the system can determine automatically whether the claim is being made within the validity period of the warranty.

If, for example, the validity of the warranty depends on a counter reading, the system technician must take the counter reading and check it against the warranty conditions.



A car dealer sells a car on 01/01/99 with a general warranty valid for up to 1 year or up to 10,000 miles, and a corrosion guarantee valid for up to 5 years from date of purchase.

Six months later, the owner brings his car back to the customer services department. The car dealer performs normal customer service as stipulated by the manufacturer, and checks the service items in the warranty, to establish whether the services that have been performed are covered by the warranty.

He checks the validity period, or it is checked automatically on the basis of the current date.

He checks the actual mileage of the car's milometer.

If the car displays any specific problems (for example, signs of rust), these must be inspected by a skilled employee, who then decides whether the repair work would be covered by the warranty or not. He also checks, for example, what external influences the car has been subjected to during the period of time in consideration. (Information regarding conditions or usage can be entered in long text form.)

Sales Pricing and Quotation Creation

Purpose

You can use the sales pricing to calculate the sales price for a customer inquiry regarding a product or service. You save the result in a document. You can run as many sales pricings as you wish and compare the results.

As a rule, you use one of your sales pricings to create a quotation.



Quotation creation in SD is not based on the sales pricing described here. For information on creating quotations in SD, see [Customer Inquiries/Quotations \[Ext.\]](#).

Implementation Considerations

If you had implemented the sales pricing in a release prior to 4.6A, you can continue to work with your usual settings if you run program RVPKUPD1.

Features

Sales pricings are used in the Customer Service (CS) and Project System (PS) application components. For more information on sales pricing in those components, see:

- [Quotation Creation Process \(CS\) \[Page 724\]](#)
- [Sales Pricing in the Project System \(PS\) \[Page 737\]](#)



When the customer accepts a quotation, you can bill the customer for work done/materials used either flat rate or on a resource-related basis. For more information, read [Resource-Related Billing \[Page 1793\]](#).

Quotation Creation Process (CS)

Quotation Creation Process (CS)

Purpose

You can use quotation creation in Customer Service (CS) for different [scenarios \[Page 727\]](#). The process flow is described using an example scenario and is also valid for the other objects for which you can perform a quotation (with planned resource-related billing).

Prerequisites

Customizing

You have maintained a [Dynamic Item Processor Profile \[Ext.\]](#) (DIP Profile).

Service Order

- You have created a revenue-bearing service order.
- You have specified a billing form in the tab *Header data*.
- You have maintained the following sales and distribution data under *Extras*→ *Sales and distribution data*:
 - Sales organization
 - Distribution channel
 - Channel
- You have specified a DIP profile in the tab *Control*.
- You have specified a customer.
- If you want to bill with [service product \[Page 1043\]](#), you have specified a service product and selected the characteristic *Product* in the DIP profile.
- You have entered planned costs (planned working time and material) in the tab *Component* or *Operations*.
- You have not released the service order, only opened it.

Material

If the system differentiates the planned costs (totals records) in the sales price basis according to material and should give a representation specifying quantities, select the following indicators when you create a material:

- On the tab *Costing 1*: the indicator *Material origin*
- On the tab *Costing 1*: the indicator *Quantity structure*

Process Flow

1. You create a service order and enter the planned costs in it.
2. You create a quotation, that is, a sales pricing, for the service order.
3. When you create a sales pricing, the following occurs:

Quotation Creation Process (CS)

- The system determines the item of the sales price basis based on the planned costs using the [DIP Profile \[Ext.\]](#).
 - It sorts the dynamic items according to the SD document items and determines the sales price using [SD Price Determination \[Ext.\]](#). The system uses the document category specified in the DIP profile to determine the pricing procedure required for this. Other necessary data for the pricing procedure, the sold-to party for example, is defined in the order.
4. You can choose between two views for processing:
- [Sales Price Basis \[Page 747\]](#)
 - [Sales Price View \[Page 750\]](#)
- You can process the costing data in both views and change the views at any time.
5. You save the quotation.
- The service order obtains the status *QUCR (Quotation created)* and cannot be released so long as it has this status.
6. You send the quotation to the customer.
7. If necessary, you confirm the acceptance of the quotation by the customer.

Result

If you confirm the acceptance of the quotation by the customer, the system generates a billing request.

The billing request has the following significance:

- In Sales and Distribution, a quotation is first considered as accepted when a sales order (for example, a billing request) has been created for a quotation. When the quotation is accepted, the system therefore creates a billing request, that you have specified in the dynamic item processor profile using the sales document type.
- If you perform resource-related billing for the service order, the billing request has no further purpose.
- If you perform flat-rate billing, you create the subsequent billing document on the basis of this billing request.

For more information about billing, see [Resource-Related Billing \(CS\) \[Page 1798\]](#).

See also

[Document Flow \[Page 1401\]](#)

Quotation Creation (CS)

Use

You can record activities and data belonging to the presales period in the system using inquiries and quotations.

- For example, an **inquiry** is created when a customer requests information about products or services.
- As a vendor, you answer the customer's inquiry with a **quotation**. The quotation to a purchasing organization defines the delivery of materials or the performance of services under the conditions stipulated. The quotation is binding for the vendor for a particular period of time. You can create a quotation for a service order with or without a [service product \[Page 1043\]](#). For more information on the different scenarios in quotation creation in Customer Service, see [Quotation Creation Scenarios \(CS\) \[Page 727\]](#).

On acceptance of the quotation, you can bill the customer according to the prices stipulated in the quotation (flat rate billing) or using resource-related billing for the services that were performed, or for the materials that were delivered. For more information about billing, see [Billing \(CS\) \[Page 1798\]](#).

In the component *Customer Service* (CS), you create quotations using the sales pricing function. In sales pricing, the system condenses information into so-called [dynamic items \[Ext.\]](#).

Prerequisites

For more information on the prerequisites, see [Quotation Creation Process \(CS\) \[Page 724\]](#).

Activities

Settings in Customizing

Function	Menu path
Maintain DIP profile	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Basic Settings → Quotation Creation and Billing for Service Orders → Profile for Quotation Creation, Billing, Results Analysis.</i>
Maintain sets for DIP profile	<i>Enterprise Controlling → Profit Center Accounting → Tools → Sets and Variables → Maintain Sets</i>

Quotation Creation Scenarios (CS)

Use

When a customer accepts a quotation, you can invoice him for the services that have been performed or for materials that were delivered using flat-rate or resource-related billing. For more information, see [Billing \[Page 1790\]](#).

The following table describes the different scenarios that you can represent for quotations in Customer Service. You can call up more detailed information for the individual scenarios:

Quotation	Use	Features
Quotations for Service Order	You send a quotation with planned costs to a customer. The quotation is binding , meaning that the customer will later be billed the price agreed upon in the quotation once the services have been performed. The customer accepts the quotation.	See Scenario 1 [Page 728]
Quotations for Service Order	You send a quotation with planned costs to a customer. The quotation is informative , meaning that the customer will later be billed the actual expenses that arise. The customer accepts the quotation.	See Scenario 2 [Page 731]

See also

[Creating a Quotation for a Customer Project \(PS\) \[Page 741\]](#)

[Customer Inquiry/Quotation \(SD\) \[Ext.\]](#)

Quotation Creation in Customer Service - Scenario 1 (CS)

Quotation Creation in Customer Service - Scenario 1 (CS)

Use

You send a quotation with planned costs to a customer. The **quotation is binding**, meaning that the customer will be billed the price agreed upon in the quotation once the services have been performed. The customer accepts the quotation.

Representation in the System

- Revenue-bearing service order with or without service product
 - Enter planned costs
 - Accept quotation and put service order in process
- Quotation with or without service product
- Billing form *Flat rate*

Relevance for Billing

The table describes which objects are relevant for quotation creation in this scenario.

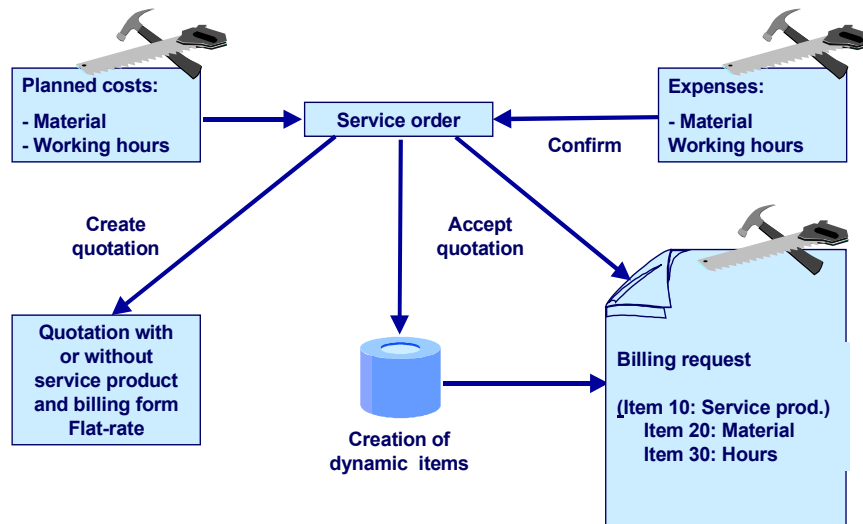
Planned costs are not considered

Relevant for Billing	Not Relevant for Billing
Service Product	Material (planned costs, actual costs)
	Working hours (planned costs, actual costs)

Planned costs are considered

Relevant for Billing	Not Relevant for Billing
Material (planned costs)	Material (actual costs)
Working hours (planned costs)	Working hours (actual costs)

Graphical Representation



Features

- If a quotation has been created for a service order, you can
 - No longer perform a selection of contracts
 - Only create pro forma items or invoices
- If a service order makes reference to a contract, you can no longer create a quotation.
- Consideration of planned costs
 - Planned costs **are not** considered

If you copy a service product into the quotation, the quotation price corresponds to the price of the service product.

You can either achieve this by copying the planned costs in the [sales price basis \[Page 747\]](#) at 0% into the quotation, or by assigning a [dynamic item processor profile \[Ext.\]](#) (DIP profile), that does not determine any costs in the event of a quotation (meaning that you do not specify a source for costs in the DIP profile).
 - Planned costs **are** considered

If you copy the dynamic items for the planned costs into the quotation, these then create the price, independent of whether a service product was copied into the quotation.
- The service order is revenue-bearing and contains the revenues during billing.

Quotation Creation in Customer Service - Scenario 1 (CS)

Quotation Creation in Customer Service - Scenario 2 (CS)

Use

You send a quotation with planned costs to a customer. The **quotation is informative**, meaning that the customer will later be billed the actual expenses that arise. The customer accepts the quotation.

Representation in the System

- Revenue-bearing service order
 - Enter planned costs
 - Accept quotation and put service order in process
 - Confirmation of expenses (actual costs)
- Quotation with or without service product
- Billing form *Resource-related*

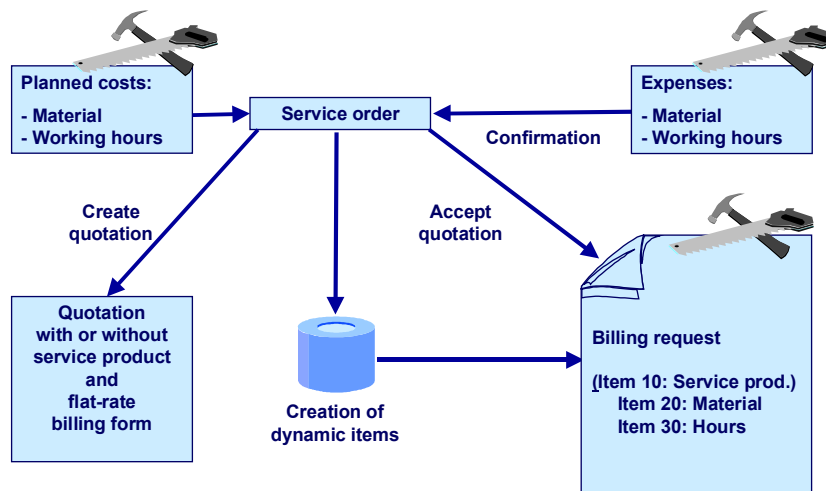
Relevance for Billing

The table describes which objects are relevant for quotation creation in this scenario.

Relevant for Billing	Not Relevant for Billing
	Service Product
Material (actual costs)	Material (planned costs)
Working hours (actual costs)	Working hours (planned costs)

Quotation Creation in Customer Service - Scenario 2 (CS)

Graphical Representation



Features

- If a quotation has been created for a service order, you can
 - No longer perform a selection of contracts
 - Only create pro forma items or invoices
- If a service order makes reference to a contract, you can no longer create a quotation.
- Planned costs are not considered.

If you copy a service product into the quotation, the quotation price corresponds to the price of the service product.

You can either achieve this by copying the planned costs in the [sales price basis \[Page 747\]](#) at 0% into the quotation, or by assigning a [dynamic item processor profile \[Ext.\]](#) (DIP profile), that does not determine any costs in the event of a quotation (meaning that you do not specify a source for costs in the DIP profile).

The customer is billed for the actual expenses incurred.
- The service order is revenue-bearing and contains the revenues during billing.

Creating a Quotation (CS)

Use

You can use quotation creation in Customer Service for different [scenarios \[Page 727\]](#).

Prerequisites

You have created a revenue-bearing service order under *Logistics → Customer service → Service processing → Order → Service order → Create (general)*. In doing so, you have taken the prerequisites that you described in [quotation creation \(CS\) \[Page 726\]](#) into account.

Procedure

Quotation for Customer Service, without service product, billing form *Resource-related*

1. You create a quotation for the service order.

To do this, choose *Logistics → Customer service → Service processing → Order → Service order → Create (quotation)*.

The quotation creation initial screen is displayed.

2. Enter the required data, and choose  *Create quotation*.

The system performs the sales pricing and generates a quotation.

Depending on the settings that you have made for the sales pricing, you reach the change mode of the quotation, or receive the message that the quotation has been successfully generated in the status line. For more information on the settings, see [Sales Pricing: Purpose \[Page 756\]](#).

3. Edit the quotation. You can choose between two views for editing:

- [Sales Price Basis \[Page 747\]](#)
- [Sales Price View \[Page 750\]](#)

You can process the costing data in both views and change the views at any time.

4. Choose *Edit → Save quotation*.

The system creates a quotation that you can, for example, send to a customer. The service order obtains the status *QUCR (Quotation created)* and cannot be released so long as it has this status.

5. Further processing by the system depends on the settings that you have made. For more information, see [Settings in the Sales Pricing \[Page 1825\]](#).

See also

[Editing Quotations \(CS\) \[Page 735\]](#)

[Document Flow \[Page 1401\]](#)

Processing a Quotation (CS)

You can use the following functions to process quotations:

Function	Menu path	What you should know
Displaying/changing a quotation	<i>Logistics → Sales and distribution → Sales and then Quotation → <Display/Change></i>	You can also display the quotation directly after creating it. For more information on the settings, see Sales Pricing: Purpose [Page 756] .
Rejecting a quotation	<i>Logistics → Sales and distribution → Sales → Quotation → Change → Edit → Fast change → Reason for rejection</i>	Call up the quotation in the change mode. The quotation obtains the status <i>Complete</i> , the service order for the quotation the status <i>Not performed</i> .
Rejecting a quotation in the service order	<i>Logistics → Customer Service → Service processing → Order → Service order → Change → Order → Functions → Close → Do not execute</i>	Call up the service order with quotation in the change mode. The quotation for the order obtains the status <i>Complete</i> , the service order the status <i>Not performed</i> .
Accepting a quotation in the service order		See Accepting a Quotation [Page 736]

See also

[Document Flow \[Page 1401\]](#)

Accepting a Quotation (CS)

Accepting a Quotation (CS)

4. Call up the service order with quotation in the change mode.

5. Choose *Order* → *Functions* → *Accept quotation*.

The system releases the quotation and the generates a billing request. The service order obtains the status *QUAC* (*Quotation accepted*).

The billing request has the following significance:

- In Sales, a quotation is first considered as accepted when a sales order has been created for a quotation. Upon quotation acceptance, the system creates the sales document that you have specified in the [dynamic item processor profile \[Ext.\]](#).
- If you perform resource-related billing, the billing request has no further purpose.
- If you perform flat-rate billing, you create the subsequent billing document on the basis of this billing request.

6. You process the service order and confirm, for example, the costs.

See also

[Document Flow \[Page 1401\]](#)

Sales Pricing in the Project System

Use

Projects are usually unique, customer-specific activities. Their uniqueness means that, in many cases, you cannot use standard prices to calculate the sales price. The sales pricing is a function offered by the Project System, which you can use to determine the price of the work done, based on the planning data from the project.

You can carry out the sales pricing in one of the following ways:

1. When you create a project because of a customer inquiry and you want to calculate a sales price for the project, access the sales pricing by choosing *Logistics* or *Accounting* → *Project System* → *Financials* → *Plan Data* → *Sales Pricing*. The system determines the sales price based on either the planned costs (totals records) or the data from Easy Cost Planning.
For more information, read [Sales Pricing for Customer Inquiries Assigned to Projects \[Page 738\]](#).
2. If you want to carry out sales pricing for projects for which there is no customer inquiry, access sales pricing in the Project Builder. In cases like this, the system determines the sales price exclusively on the basis of data from Easy Cost Planning.
For more information, read [Sales Pricing in the Project Builder \[Page 743\]](#).

Sales Pricing for Customer Inquiries Assigned to Projects

Sales Pricing for Customer Inquiries Assigned to Projects

Purpose

You have created a project in response to a customer inquiry and now want to use sales pricing to calculate the project price. Where this happens, the plan data from the project forms the basis for calculating the price.

As part of this process, you can:

- Determine the sales price for a customer project on the basis of the project plan data and with the help of the pricing tool in the Sales and Distribution (SD) application component
In the process, you can generate as many sales pricings as you want and save them in documents, **without** generating a quotation.
- Use a billing plan to update the sales price calculated to the project as planned revenue
For more information, see [Recording Planned Revenues \[Page 746\]](#).
- Use project planning as the basis for creating a detailed quotation in SD
For more information, see [Creating Quotations for Customer Projects \[Page 741\]](#).

Integration

To carry out sales pricing for a customer inquiry assigned to a project, you must have the SD application component.

You link the customer inquiry in SD to the Project System by assigning one or more inquiry items to a WBS element (billing element or account assignment element). The inquiry then supplies the SD data needed for the sales pricing.

When you assign an account assignment element to an inquiry item, the system determines the appropriate billing element within the project. The billing element and the WBS elements subordinate to it (which are not flagged as billing elements) make up the billing structure, together with the activities and inquiries.

This means that, regardless of whether you have assigned the inquiry item to a billing element or account assignment element, the system includes the whole billing structure in the sales pricing.

Prerequisites

Customizing in PS

- You have defined a DIP profile.
- In the planning profile, you have stipulated whether the system records the planned revenue from the inquiry item in the relevant billing element.

If you have not assigned a billing element to the inquiry item, the system records the planned revenue in the billing element higher up in the hierarchy.

You must choose an account assignment category that allows project account assignment.

Sales Pricing for Customer Inquiries Assigned to Projects

- If you want to maintain your own conditions for creating quotations, you must assign the conditions you maintain to the sales document type.

Customizing in SD

- You have created a customer inquiry assigned to the project (in SD)
To this end, you go to the *Account Assignment* tab page and enter the WBS element you want to assign to the inquiry item.
The inquiry item then supplies the SD data needed for the sales pricing.
- You must maintain a [dynamic item processor profile \[Ext.\]](#) (DIP profile) in the inquiry.
To this end, you go to the *Sales B* tab page in the inquiry item and enter the profile.
- In the inquiry item, you have defined a material that permits assignment to a project.
For more information on Project System customizing, go to the Project System IMG and choose *Revenues and Earnings* → *Integration with SD Documents* → *Assign Sales Orders to Project Account*.

Additional Prerequisites

- Costs in the project are planned per cost element.
- If you want to differentiate the planned costs (totals records) by material, you must set the material origin indicator in the *Costing 1* tab page when you create the material.
- If you also want to display the quantity for the material, you must set the *With quantity structure* indicator in the *Costing 1* tab page when you create the material.

Process Flow

1. Choose *Logistics* or *Accounting* → *Project System* → *Controlling* → *Planning* → *Sales Pricing*, and enter a project definition, WBS element, inquiry, or inquiry item as a selection criterion
For more information, see [Selection Criteria \[Page 745\]](#).
2. You can create a new sales pricing or edit an existing one.
When you create a sales pricing, the following occurs:
 - a. Starting from the costs planned by cost element, the system uses the DIP profile to determine the items in the sales price basis. The items in the sales price basis are designated as dynamic items.
 - b. The system sorts the dynamic items according to the SD document items and determines the sales price using [SD Price Determination \[Ext.\]](#).
The system uses the document category from the DIP profile to determine the pricing procedure. Other necessary data for the pricing procedure, such as the sold-to party, is defined in the inquiry.
3. You can choose between the following views for processing:
 - [Sales price basis \[Page 747\]](#), which shows the internal view of the sales pricing
 - [Sales price view \[Page 750\]](#), which shows the customer view of the sales pricing
4. The following processing options are available:

Sales Pricing for Customer Inquiries Assigned to Projects

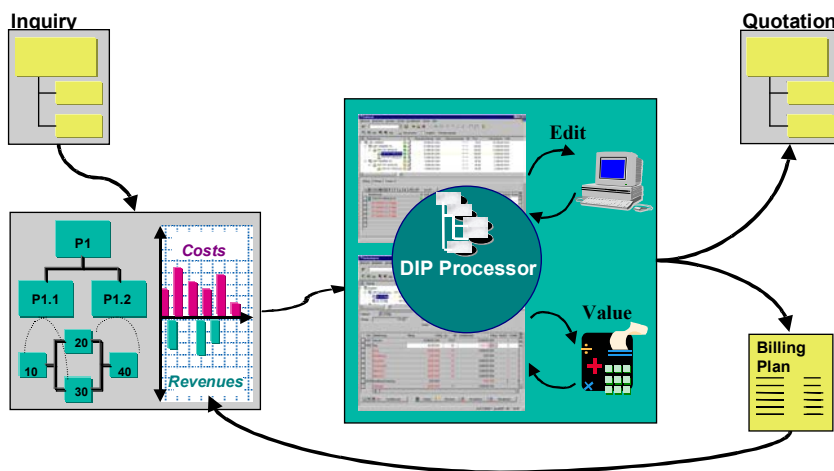
- a. Save the document for further processing
- b. Copy the sales price to the billing plan for the WBS element, where it then acts as planned revenue

The sales price is entered in the billing plan as the target value. You can distribute this target value to different dates manually.

If the sales price is changed later, the system does not automatically copy the change to the billing plan.
- c. Create a quotation

The graphic below illustrates the sales pricing process:

Sales Pricing



Result

The system saves the sales pricing in a document.

If you have adopted the sales price as the target value in the billing plan, the system records the sales price as planned revenue in the project.

If you have saved a sales price as a document, you can use it to create a quotation in SD.

Creating Quotations for Customer Projects (PS)

Use

You can use this function to determine the sales price for a customer inquiry based on detailed project planning and create a quotation in the *Sales and Distribution* (SD) application component.

For more information on quotations and customer inquiries, see [Customer Inquiries/Quotations \[Ext.\]](#) in the SD documentation.


Prerequisites

For information on the prerequisites, read [Sales Pricing \(PS\) \[Page 738\]](#) and the document in the Project System IMG under *Revenues and Earnings* → *Integration with SD Documents* → *Assign Sales Orders to Project Account*.

Procedure

1. Choose *Logistics or Accounting* → *Project System* → *Financials* → *Planning* → *Sales Pricing*.
2. Specify the inquiry for which you want to generate a quotation. If the quotation is to apply only to particular items in the inquiry, specify the items concerned.

You can also specify a project or WBS element as a selection criterion. For more information on how the system processes the various selection criteria when generating quotations, read [Selection Criteria \[Page 745\]](#).
3. If you want the system to display the quotation document for further processing, choose *Extras* → *Settings* and select *Show quotation doc. after saving* in the *General* tab page.

For more information on the settings, refer to [Settings in the Sales Pricing \[Page 1825\]](#).
4. Choose  *Quotation*.

The system may ask you to select a sales pricing document.

The system generates a quotation for the sales pricing.
 - If you do not select the *Show quotation doc. after saving* indicator, the system simply displays a message that the quotation has been created.
 - If you do select the indicator, the system displays the quotation document in change mode.
5. In the overview screen, you can, among other things:
 - Manually change the prices determined using pricing for the material
 - Enter a validity date for the quotation

Result

- The system uses the Dynamic Item Processor (DIP) to summarize the costs planned in the WBS element into dynamic items. When valuing the dynamic items, the system takes account of the conditions and prices stored in SD.



Creating Quotations for Customer Projects (PS)

If there is a quantity for the material in the DIP profile, the quantity for the material from project planning cannot be determined unless the quantities are convertible.

Price determination using the DIP is based on project planning. It does not include the overall costs planned in hierarchy planning for the WBS element.

- The currency for the individual items in the dynamic item processor is taken over from the CO document (object currency) or customer master record (transaction currency).

Choose *Extras* → *Settings* to stipulate which is relevant for the individual objects - the controlling area currency, object currency, or transaction currency.

Translation into the SD currency is at the rate obtaining on the price date named in the inquiry.



If the customer currency changes, the amount is not translated until you access the sales pricing and save it again.

- The system generates a quotation for the project in SD. The system includes the link between the inquiry and the project in the quotation.
- If you so stipulate in the IMG, the system records the quotation value as planned revenue in the relevant billing element. However, if you have maintained a billing plan for the WBS element, the system only updates the planned revenues from the billing plan to the project. Any values already recorded from the SD document are deleted.

See also: [Updating Planned Revenues \[Page 746\]](#).

Sales Pricing in the Project Builder

Use

If you want to carry out sales pricing for a project for which there is no inquiry, access sales pricing from the [Project Builder \[Ext.\]](#).

As part of this process, you can:

- Determine the sales price for a project on the basis from Easy Cost Planning and with the help of the pricing tool in the Sales and Distribution (SD) application component
In the process, you can generate as many sales pricings as you want, and save and compare them in documents.
- Use a billing plan to update the sales price calculated to the project as planned revenue
For more information, see [Recording Planned Revenues \[Page 746\]](#).

Prerequisites

Make the following settings in the Project System IMG, under *Revenues and Earnings* → *Integration with SD Documents* → *Create Quotations and Project Billing* → *Maintain Profiles for Quotations and Project Billing*.

- Define a DIP profile with Easy Cost Planning as its source.
- In the planning profile, you have stipulate whether the system records the planned revenue from the inquiry item in the billing element.
If you have not assigned a billing element to the inquiry item, the system records the planned revenue in the billing element higher up in the hierarchy.
You must choose an account assignment category that allows project account assignment.
- If you want to maintain your own conditions for creating quotations, you must assign the conditions you maintain to the sales document type.

Plan project costs using Easy Cost Planning.

Process Flow

1. Create a new project, or access an existing one, in the Project Builder.
2. You do not need to save the project before accessing the sales pricing.
3. The system determines the sales price on the basis of the data in [Easy Cost Planning \[Ext.\]](#), which you also maintain from the Project Builder. Sales price processing is described in detail in [Sales Pricing for Customer Inquiries Assigned to Projects \[Page 738\]](#).
4. The system automatically refreshes the costing data already saved when you access sales pricing again. The settings you have maintained manually remain in place. However, if you have changed the ordering party, DIP profile, or sales organization data in the meantime, the system calculates the costing data afresh. A system message tells you that your manual settings have been lost in this event.

Sales Pricing in the Project Builder**Result**

If you have adopted the sales price as the target value in the billing plan, the system records the sales price as planned revenue in the project.

The integration of the sales pricing with the project builder means that you can use just one tool to control the whole business process, from creating the project to executing sale pricing.

Selection Criteria (PS)

You will usually run the sales pricing for a customer inquiry or inquiry item. The system proceeds as follows, depending on whether a sales pricing already exists for the inquiry/inquiry item:

- **Selection for inquiry**

The system checks whether a sales pricing exists for all inquiry items.

If there is such a sales pricing, the system displays it.

If there is no sales pricing, the system creates a new one.

- **Selection for one or more inquiry items**

If a sales pricing exists for the selection, the system shows the selected items in the sales pricing.

If there are several sales pricings, the system asks you to select one.

If the number of selected inquiry items does not agree with the items in the sales pricing, the system offers all the sales pricings for you to choose from.

If there is no sales pricing, the system creates a new one.

You can also access the sales pricing via the project definition or a WBS element: The procedure is as follows:

- **Selection for a project definition or WBS element**

The system searches the billing elements in the selected WBS or WBS element for existing sales pricings.

If there is only one pricing, the system accesses it.

If there are several, the system asks you to select one.

If there is no sales pricing, the system looks for a customer inquiry. If there is one inquiry, the system creates a new sales pricing. If there are several, the system asks you to select one. If the system cannot find an inquiry, it stops processing.

Recording Planned Revenues (PS)

Recording Planned Revenues (PS)

The following scenarios are possible:

1. There is no billing plan for the WBS element:

The system records the planned revenues from the SD document.

If you create more than one quotation for a customer inquiry, the planned revenues from the SD documents are added together in the project. If you do not want this to happen, switch off the planned revenue update from quotation documents.

2. A billing plan is created later for the WBS element:

The system overwrites the existing plan values from the SD document with the planned revenues from the newly created billing plan.

3. A billing plan exists for the WBS element:

The system records the planned revenues from the billing plan.

If you are working with a billing plan in the WBS element and the sales order, the system adds the two sets of planned revenues together. For this reason, we recommend you use a billing plan in **either** the WBS element **or** the sales order.

Processing the Sales Price Basis

Use

The sales price basis view shows the planned costs from the service order or project as summarized using the [dynamic item processor \[Ext.\]](#) (DI processor). The summarized planned costs, called "dynamic items", make up the items in the sales price basis.

In the sales price basis, you determine whether the system should copy all, some, or none of the planned costs summarized as dynamic items into quotation creation or sales pricing.

The sales price basis screen is comprised of an overview tree and a table:

- The overview tree shows the hierarchy of dynamic items per the selected characteristics from the DIP profile.
- The table shows the hierarchy node selected in the overview tree and the objects subordinate to it (the dynamic items).



You can also process the items for creating quotations or the sales pricing in the [sales price view \[Page 750\]](#), and can change between the sales price view and the sales price basis.

Procedure





The following tables contain information on the processing options:

- In the overview tree
- In the table
- Using the menu bar



Processing Options in the Overview Tree

Function	Procedure	What You Should Know
Change hierarchy in the structure	<i>Edit → Change hierarchy</i>	You can change the hierarchy at any time, and display the new hierarchy immediately. These settings override the structure settings you made for a characteristic in the DIP profile.
Open and close hierarchy nodes	Click  once	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignment within the project structure or the service order.
Display detailed information for objects	Double click the symbol in front of the object	Detailed information display Choose  to return to the sales price basis.
Display objects in table	Double-click object description	The hierarchy node and its direct successors are displayed in the table.






Processing the Sales Price Basis

Lock values	Set  <i>Locked</i> indicator	You stipulate (for a node and/or its subordinate objects) that the values from the hierarchy node or the objects should be copied to quotation creation or sales pricing unchanged.
Display processing status	 – Completely  – Partly  – Not at all	The status symbols show whether or to what extent the system copies the original amount for an item to quotation creation or sales pricing.


Processing Options in the Table

Function	Procedure	What You Should Know
Process values	Process values in the <i>Amount</i> , <i>Quantity</i> , or <i>Percent</i> tab pages.	You stipulate whether the system should copy some, all, or none of the original amount for an item into quotation creation or sales pricing. The symbols in the <i>Status</i> column change accordingly (see table above).
Lock values	Set  <i>Locked</i> indicator	You stipulate (for a node and/or its subordinate objects) that the values from the hierarchy node or the objects should be copied to the calculation unchanged.
Display detailed information	Double-click table line	Detailed information display Choose  to return to the sales price basis.

Processing Options Using the Menu Bar

Function	Procedure	What You Should Know
Hide/show structure tree	Choose  .	The structure tree is hidden and the systems expands the table to fill the whole screen. Choose  to display the structure tree again.
Switch to the sales price view	Choose  <i>Sales Price</i> .	The system displays the sales price view
Save sales pricing in a document	Choose  .	The system saves the sales pricing in a document. You can process the document again later.
Generate quotation	Choose  <i>Quotation</i> .	A quotation is generated in SD.

Processing the Sales Price Basis

Create billing plan	Choose  <i>Billing plan.</i>	<p>This function is only available in the Project System.</p> <p>You use the planned values from your sales pricing to create a billing plan. The system records the values from the billing plan as planned revenues in the project.</p>
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See also:

[Settings: Sales Pricing and Billing \[Page 1825\]](#)

Processing the Sales Price Basis

Processing the Sales Price View

Use

The sales price view shows the sales price basis items combined by SD item and sorted. The system calculates the prices for the items using [SD pricing \[Ext.\]](#).

In the sales price view, you can edit the line items or header items in the sales pricing, with the help of the [SD conditions \[Ext.\]](#). Changes in the header item are automatically passed on to the line items.

The sales price view is comprised of an overview tree and a table:

- The overview tree shows the hierarchy of SD items per the selected characteristics from the [DIP profile \[Ext.\]](#).
- The table shows the hierarchy node selected in the overview tree and the objects subordinate to it (the SD document items).


You can also process the items for creating quotations or the sales pricing in the [sales price basis \[Page 747\]](#), and can change between the sales price basis and the sales price view.

Procedure


The following tables contain information on the processing options:

- In the overview tree
- In the table
- Using the menu bar






Processing Options in the Overview Tree

Function	Procedure	What You Should Know
Open and close hierarchy nodes	Click  once	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignment within the project structure or the service order.
Display objects in table	Double-click object description	The hierarchy node and its direct successors are displayed in the table.





Processing Options in the Table

Function	Procedure	What You Should Know
Display detailed information	Select line in table and choose 	The system displays the detailed information in a dialog box.

Processing the Sales Price Basis

Enter conditions for price determination	Use the input help in the <i>Condition type</i> column to choose conditions.	Choose a condition type and enter the appropriate value. The system updates the price automatically. See also: Maintaining Conditions [Ext.]
Display condition records	Select a condition record and choose  <i>Condition record</i> .	The system displays the detailed information for the condition type selected. Choose  to return to the sales price view.
Update prices	Choose  <i>Update</i> .	You can choose to update all of pricing or only some of it (for example, by determining new rebate conditions). See also: Carrying Out Price Determination Again [Ext.]
Display pricing log	Choose  <i>Analysis</i> .	A detailed log appears. Choose  to return to the sales price view. See also: Analyzing Pricing and Conditions [Ext.]

Processing Options Using the Menu Bar

Function	Procedure	What You Should Know
Switch to the sales price basis	Choose  <i>Sales price basis</i> .	The system displays the sales price basis.
Save sales pricing in a document	Choose  .	The system saves the sales pricing in a document. You can process the document again later.
Generate quotation	Choose  <i>Quotation</i> .	A quotation is generated in SD.
Create billing plan	Choose  <i>Billing plan</i> .	This function is only available in the Project System. You use the planned values from your sales pricing to create a billing plan. The system records the values from the billing plan as planned revenues in the project.

See also:

Processing the Sales Price Basis



[Settings: Sales Pricing and Billing \[Page 1825\]](#)

Settings: Sales Pricing and Billing

Features

Choose *Extras* → *Settings* to access four tab pages where you can enter the settings described below.

You can do the following with your settings:

- Store them for the duration of your current processing: choose .
- Save them in the database: choose .

If you update the settings to the database, the system automatically accesses them each time you access the sales pricing again.


The settings apply to [quotation generation or sales pricing \[Page 723\]](#) and [resource-related billing \[Page 1793\]](#).


General Tab Page


Sales Pricing or Quotation Creation

- You can choose between the sales price view or the sales price basis as the initial view for the sales pricing.

The system displays the relevant view when you choose one of the following pushbuttons in the initial screen for sales pricing or creating quotations:

 *Create new sales pricing*


 *Access sales pricing*


- If you want the system to display the quotation document for further processing once it has been created (by means of  *Create quotation*), select the indicator *Show quotation doc. after saving*.

If you do not select this indicator, the system simply displays a message, confirming that the quotation has been created.

Resource-Related Billing

- You can choose between the sales price view or the expenditure view as the initial view for the sales pricing.

To access the view you want, go to the *Create Billing Request: Initial Screen* and choose .

- If you want the system to display the billing request for further processing once it has been created (by means of  *Billing Request*), select the indicator *Show billing request after saving*.

If you do not select this indicator, the system simply displays a message, confirming that the billing request has been created.

Settings: Sales Pricing and Billing**Structure Tree Tab Page**

Here, you determine how the two screen areas (table and structure tree) are arranged in the two views.

- Sales price basis view/expenditure view
You can show or hide the structure tree at the top of the screen or at the bottom, on the left or on the right. The tree reproduces the dynamic item hierarchy.
- Sales price view
You can show the structure tree at the top of the screen or at the bottom. The tree reproduces the individual SD documents with main items and subitems.

Sales Price Basis/Expenditure Tab Page

- You can choose the currency in which the system displays the sales price basis/expenditure items. You can choose between controlling area currency, object currency, and transaction currency. This setting does not affect the currency transferred to the quotation/billing request.
The system usually transfers the transaction currency, unless the *Transaction currency* field is not filled. In this event, the controlling area currency is transferred. This happens if the *All currencies* field is not selected (in cost accounting customizing, under *Controlling* → *General Controlling* → *Maintain Controlling Area*).
- If you select the indicator *Only dynamic items will accept input*, it will only be possible to enter values for the dynamic items.
- Selecting the *Block in manual input* indicator ensures that values changed manually can be overwritten.

Description Tab Page

The system only draws on this tab page in the sales price basis view/expenditure view.

You use this tab page to stipulate how the [dynamic items \[Ext.\]](#), objects, and the selected characteristics are labeled in the structure tree and table.

- You can use any combination of posting period, material number, and material description as the description in a dynamic item.
- You can use the short or long description of an object as its description in the DIP.
- You can use an abbreviation and/or the short/long description of a characteristic as the label for that characteristic.



This tab page is the header for a variable number of subordinate tab pages. The number of tab pages depends on whether you have maintained the activity type, cost element, cost center type, and statistical key figures as structuring characteristics in the DIP profile.

The system displays one tab page for each of these structuring characteristics. In addition to the optional tab pages, the system always displays the *Dynamic Items* and *Object* tab pages.

Activities



- Depending on which component and process you are using, choose one of the following menu paths:

Sales Pricing or Quotation Creation

Component	Menu Path
CS	<i>Logistics → Customer Service → Service Processing → Order → Service Order → Create Quotation</i>
PS	<i>Logistics or Accounting → Project System → Financials → Planning → Sales Pricing.</i>

Resource-Related Billing

Component	Menu Path
SD	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>
CS	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>
PS	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>

- Choose *Extras → Settings...*
The *Settings* dialog box appears.
- Select the tab page indicators described above as required.
- Choose  to save the settings for the duration of your processing work.
- Choose  to save the data in the database.

Sales Pricing Options

Sales Pricing Options

Use

You can use the sales pricing to calculate the sales price for a customer inquiry regarding a product or service. You save the result in a document. You can run as many sales pricings as you wish and compare the results.

As a rule, you use one of your sales pricings to create a quotation.

Prerequisites

For information on the prerequisites, see:

[Quotation Creation Process \(CS\) \[Page 724\]](#)

[Sales Pricing for Customer Inquiries Assigned to Projects \[Page 738\]](#) or [Sales Pricing in the Project Builder \[Page 743\]](#)

Procedure

1. Choose the appropriate menu path:

Component	Menu Path	Screen
CS	<i>Logistics → Customer Service → Service Processing → Order → Service Order → Create Quotation</i>	This brings you to the initial screen for creating quotations.
PS	<i>Logistics or Accounting → Project System → Financials → Planning → Sales Pricing.</i>	This brings you to the initial screen for the sales pricing.

2. Specify the appropriate selection criteria:

Component	What You Should Know
CS	No special notes
PS	For more information on selection, read Selection Criteria [Page 745] .

3. If required, overwrite the pricing date defaulted by the system (today's date). The date you enter is then binding for all the items in the sales pricing.
4. In the Project System, you can also use the planned costs from a simulation version for the sales pricing. To do this, enter the appropriate simulation version.



Note that the project and the billing WBS element must both be operative, but need not have been released.





5. If you want to use your own settings to process the sales pricing, choose *Extras → Settings....*

There, for example, you can determine how the screen areas are divided or stipulate to which of the two processing views you want to branch when creating a new sales pricing. Alternatively, simply use the standard system settings.



Sales Pricing Options

For more information on the settings, refer to [Settings: Sales Pricing and Billing \[Page 1825\]](#).

6. Once you have specified your selection criteria and decided on the settings, you have the following options for further processing:

Pushbutton	Function
 <i>Sales price basis</i>	<p>This view shows the planned costs from the service order billing structure, summarized using the dynamic item processor [Ext.]. These are the sales price basis items. The summarized planned costs, called "dynamic items", make up the items in the sales price basis.</p> <p>In this view, you can edit the sales price basis items (dynamic items) and include some, all, or none of them in the sales price calculation.</p> <p>For more information, see Sales Price Basis [Page 747].</p>
 <i>Sales price</i>	<p>This view shows the sales price basis dynamic items combined by SD item and sorted. The prices are calculated using SD price determination.</p> <p>In the sales price view, you can edit the line items or header items in the sales pricing, with the help of the conditions in SD.</p> <p>For more information, see Sales Price View [Page 750].</p>
 <i>Create new sales pricing</i>	<p>The system creates a new sales pricing. Any existing sales pricings are ignored.</p> <p>Depending on the settings you entered under <i>Extras</i> → <i>Settings</i>, you jump to the sales price basis view or the sales price view.</p>
 <i>Create quotation</i>	<p>The system carries out the sales pricing and generates a quotation.</p> <p>If you have selected the <i>Show quotation doc. after saving</i> indicator in the <i>General</i> tab page (by choosing <i>Extras</i> → <i>Settings</i>), the quotation document is shown in change mode after you create it.</p> <p>If you do not select the <i>Display quotation doc. after saving</i> indicator, the system simply displays a message that the quotation has been created.</p> <p>See also:</p> <p>Quotation Creation (CS) [Page 724]</p> <p>Creating Quotations for Customer Projects [Page 741]</p>

Sales Pricing Options

 <i>Access sales pricing</i>	<p>The system accesses an existing sales pricing.</p> <p>The system may ask you to select a sales pricing from those already created.</p> <p>Depending on the settings you entered under <i>Extras</i> → <i>Settings</i>, you jump to the sales price basis view or the sales price view.</p>
 <i>Save</i>	<p>This function is only available in the Project System.</p> <p>The system creates a sales pricing and saves it.</p> <p>If a sales pricing already exists, the system overwrites it.</p> <p>If there are several, the system asks you to select one, which it then overwrites.</p> <p>The system confirms that the sales pricing has been saved.</p>

CS - Customer Interaction

Customer Interaction Center

Purpose

The R/3 Customer Interaction Center (CIC) application offers customer service organizations robust call center functionality and a highly customizable design. The CIC application enables agents to:

- Process inbound, and simple outbound, telephone calls from customers and other business partners using Computer Telephony Integration (CTI) technology as middleware
- Seamlessly process any business transaction

The ability to view the state of any call participant and extensive call logging support inbound and outbound call processing.

CIC supports business transaction processing with a full range of telephony features, such as screen pop, automatic number identification (ANI), and soft phone controls.

Agent productivity is enhanced with CIC's Action Box, Business Data Display, and the highly customizable design of CIC. The design allows personalization for agent skill and business processes.

Implementation Considerations

CIC requires CTI middleware to function as a call center. CIC supports a variety of CTI middleware products, as well as telephony servers and switches. CIC also supports interactive voice response (IVR) systems.

Integration with other R/3 System components gives agents total access to customer information and customer business transactions. Business transactions that an agent has access to are defined through customizing. Examples include creating a service notification, updating a customer address, changing employee information, and checking the status of a delivery.

Features

Primary features of CIC include:

- **Telephony controls integrated with easy access to business transactions**
As an integrated call center application, CIC provides agents complete access to R/3 business transactions. CIC supports business transaction processing and a full range of telephony features.
- **Ability to view call state**
This feature allows the agent to view the state of any party participating in a call at the agent's extension, for example, whether a party is active, on hold, muted, or participating in a conference call.
- **Extensive call logging**
CIC performs comprehensive call logging including activities performed by agents, events occurring in the background, and business transactions.
- **Total customer information access**
CIC provides agents complete access to customer information and related business transactions.

Customer Interaction Center

- Integration with interactive voice response (IVR)
CIC supports interactive voice response (IVR) systems, which capture call-attached data. Call-attached data is not only the data collected through an IVR before a call reaches an agent but also data added by a previous agent during a call.
- Increased agent productivity via Action Box and Business Data Display
These two features work together to display customer-related information for the agent and to enable the agent to navigate to and perform any business transaction in the R/3 system.

Companies can use CIC in a variety of business scenarios including sales, service, collections, or human resources. One company might use CIC in an inbound sales center, where agents enter sales orders, answer delivery inquiries, create return material authorizations, or update customer addresses. In this scenario, agents could take leads for salespeople to call.

Another company might use CIC to register service requests for internal or external customers. In an integrated call center, all of these activities mentioned above might be occurring.

Constraints

This application offers a wide range of functions. However, it is not integrated with the Internet or email for this release.

Front Office

Front Office

Definition

The Front Office is the desktop view from which the agent performs activities and transactions.

Use

Access to all CIC functionality is through this *Front Office* screen, which can be personalized to each agent's or agent group's skills and business process needs. Multiple front office views may exist within the same R/3 System.

CIC Profile

Definition

With a CIC profile, you specify what the Front Office includes and looks like for an agent or group of agents.

Use

You create a CIC profile through the IMG. On two screens, you indicate the framework ID (which determines the components included in the Front Office screen) and the component profiles for each of these components. The CIC profile enables you to link all of this information to a specific position or an entire level in an organization.

Integration

A CIC profile links together a framework ID, a set of components, and their profiles. It can be linked to an organizational unit or position in an organizational structure.

Front Office Framework

Front Office Framework

Definition

The Front Office framework is the foundation for any functional feature in the Front Office. Each feature is represented by a functional component, which is assigned to the framework, which has a framework ID.

Use

The architecture of the Front Office framework allows any composition of components, as well as extension of functionality with custom-built components.

The framework program determines the component profiles to build and process the screen. The framework program executes all component programs, both those related to visible and hidden components.

Following is a list of all CIC components:

Components	Description	Visible	Hidden	Function
ACTION_BOX	Action Box	X		Calls R/3 transactions (tabstrip presentation)
APPL_AREA	Application Area	X		Displays HTML pages started from the Action Box
BD_DISPLAY	Business Data Display	X		Displays business objects and data (visual representation)
CALL_STATE	Call State	X		Provides the state of calls at agent's telephone extension, required for telephony functionality
CCONT	Component Container	X		Holds other visible components (tabstrip presentation)
CSEARCH_DISP	Look-up Functions	X		Provides contact search and display functionality
QUICK_KEYS	Quick Keys	X		Provides pushbuttons for telephony functions
SCRIPT_DISP	Display Script	X		Displays reminder scripting
SOL_SEARCH	Solution Search	X		Provides functionality to search the Solution Database
CALLBACK	Call Back Queue		X	Creates and processes callbacks (screens not part of the framework)
CALLCTR	Call Center Component		X	Call center policy component, required for telephony functionality

Front Office Framework

CIC_TOOLBAR	CIC Application Toolbar/Excls		X	Identifies the GUI status to use and lists exclusions from the application toolbar, required
CTI	CTI		X	Provides CTI functionality, required for telephony functionality
HIDDEN_SCRPT	Script Text		X	Reminder scripting engine, required for scripting functionality
HIDDEN_ABOX	Hidden Action Box		X	Action Box engine, required for Action Box functionality.
HLOG	Logging		X	Logs activities

Structure

The framework consists of the following:

- Configuration tables
- A main *Front Office* screen, which can be configured for up to seven visible components in the seven subscreen areas
- A default empty subscreen, in case no subscreen is configured for one of the subscreen areas
- Screen titles
- Component processing

The seven subscreens in the *Front Office* screen are each 20 rows x 80 characters. A visible component is assigned to one of the seven subscreen areas.

Front Office Framework Visible Components

Definition

CIC includes a fully functional set of components to operate CIC as a call center application. Each component represents a feature in CIC.

A component can be either visible or hidden. A visible component presents a subscreen that the CIC framework includes in one of its subscreen areas. For example, the Call State component is a visible component, which presents the agent's telephony state in a subscreen.

The CIC framework has seven subscreen areas. You can place any visible component into one of these seven subscreen areas.

Call State View

Definition

This component allows the agent to view the state of any party participating in the call, such as which party the agent is actively talking to or which party is muted or participating in a conference call.

Use

The function of this component is to display the call state on the screen. In addition to the state of parties participating in the call, certain call centers require the ability to see the reason for the incoming call.

Two items can determine the reason for the call: Dialed Number Identification Service (DNIS) information and call-attached data. DNIS is the number the calling party dials, for example, the order hotline number or the services telephone number. In CIC, it is possible to display a description (translation of the number, for example, Service Hotline Number) next to the DNIS phone number.

Integration

The call state data is gathered from SAPphone.

Contact Search and Display

Definition

This component displays detailed data for a contact (caller). CIC can determine details from automatic number identification (ANI) and display them automatically when the phone call arrives. Or, the agent can search for details manually if there is no ANI or ANI could not uniquely identify the detailed data.

Structure

The *Contact Search and Display* subscreen consists of an area with input fields for search criteria and output fields for displaying search results. Some fields serve as both input and output fields.

Identifying a Contact Manually

Use

Use the *Manual identification* button to indicate that the displayed data corresponds to the contact.

Prerequisites

If *Automatic Continue* was specified in customizing, you cannot select this button, because the functions associated with the button are executed automatically.

Procedure

1. In the *Contact Search and Display* subscreen of the *Front Office* screen, select *Manual identification* when you have verified that the caller corresponds to the displayed data.
2. If CIC detects that the phone number in the contact master data (customer master record) is not the same as the number of the caller, CIC displays a popup window when you select the *Manual identification* button. This popup enables you to adjust the phone number in the master data.

Result

Choosing *Manual Identification* signals that the agent has verified the contact and causes a business object representing the contact to be added to the *Business Data Display*. It also causes all buttons in *Contact Search and Display*, except *Clear all fields*, to be inactive.

Finding a Contact

Finding a Contact

Use

Find starts a manual search with the data provided in the input fields.

Procedure

2. In the *Contact Search and Display* subscreen of the *Front Office* screen, enter any data you know about the contact.
3. Select *Find*.

Result

If a contact is found, CIC displays information about the contact in the *Contact Search and Display* subscreen.

Displaying a Contact

Use

Display shows all data for the contact, for example, the customer master record.

Procedure

After you have found a contact in the *Contact Search and Display* subscreen of the *Front Office* screen, select *Display*.

Result

CIC displays a new screen showing the master record.

Creating a Contact

Creating a Contact

Use

Create enables you to enter a new contact in R/3, for example, to create a new customer master record.

Procedure

4. In the *Contact Search and Display* subscreen of the *Front Office* screen, select *Create*.
5. Enter data as required about the new contact.

Result

R/3 creates a new customer master record.

Cancelling a Search

Use

Cancel prepares for a new search when a search results in a wrong contact. The difference between *Cancel* and *Clear all fields* is that *Cancel* signals an event indicating that a contact was not found.

Procedure

6. In the *Contact Search and Display* subscreen of the *Front Office* screen, select *Cancel*.
7. Begin a new search.

Result

CIC clears all fields in the *Contact Search and Display* subscreen to prepare for a new search.

Displaying More Information

Displaying More Information

Use

Information displays a report of further information about the contact.

Procedure

After you have found a contact in *Contact Search and Display*, select *Information*.

Result

CIC displays a new screen showing further information about the contact.

Creating a New Contact Person

Use

Create contact person enables you to enter a new contact person for a contact in R/3 master data. The *Create contact person* button is only available if you have customized your CIC profile to include a Contact Search and Display profile, which provides a contact person field in the subscreen.

Procedure

8. After you have found a contact in *Contact Search and Display*, select *Create contact person*.
9. Enter all information about the new contact person.

Result

R/3 creates a new contact person for the contact.

Clearing the Fields

Clearing the Fields

Use

Clear all fields clears all fields and reactivates all buttons to prepare for a new search. The difference between *Cancel* and *Clear all fields* is that *Cancel* signals an event indicating that a contact was not found.

Procedure

10. In the *Contact Search and Display* subscreen of the *Front Office* screen, select *Clear all fields*.
11. Begin a new search.

Result

CIC clears all fields in the *Contact Search and Display* subscreen to prepare for a new search.

Scripting

Definition

This component provides reminder scripting in CIC. Reminder scripting is scripting that appears when certain activities (events) occur. It provides basic instructions and reminders specific to that activity.

Use

There are actually two components required for scripting. The HIDDEN SCRPT hidden component determines the script to be displayed and performs variable substitution in the script. The SCRIPT_DISP visible component displays the script in CIC.

With the Scripting component, your scripting can include:

- Activity-related scripts
- Variable substitution, such as time of day (system time) or any value via a custom-built function
- Language-specific scripting

The actual scripting text is created in SAPscript and can be fully customized. Variables must be enclosed in brackets in the script text.

Example

For the text "Today is [date].," with the date defined as a variable with the system field *sy-datum*, CIC would display the translated script as "Today is 12/12/1999."

Action Box

Action Box

Definition

This component executes business transactions available to the agent via tabs and icons in the user interface. (Tabs can group specific transactions such as sales, service, shipping, material, or customer.)

Use

If the agent has highlighted a specific customer (or material number, service order number, or other object) in the Business Data Display component, the information associated with that object can be carried over and populates the appropriate fields in the transaction initiated in the Action Box. The Action Box enables the agent to navigate into any business transaction, such as sales orders, service notifications, or customer information updates.

The document flow, also known as object reference, provides the link from the telephone call to all business objects that have been involved in the processing of the call. These might include business documents that have been created during the call, such as sales orders or service notifications, or business data that simply have been viewed, such as a customer master records.

To view the document flow data, choose *Info System* → *Contact History*.

Action Box Usage

Purpose

The Action Box enables you to execute transactions available to you quickly and efficiently via tabs, icons, and other methods.

Prerequisites

The Action Box is a highly flexible component. Through customizing, you specify the types of transactions available in it, the different types being grouped by tabs. You also specify the methods by which you can access these transactions, and whether CIC displays transactions in a new session. You must complete this customizing through the IMG before you can use the Action Box.

Please note that in order for the (visible) Action Box to work, you must ensure that the Hidden Action Box component is also customized in the Framework.

Process Flow

The Action Box can include up to eight tabs, with each tab grouping transactions of the same type, such as sales orders or service notifications, or related transactions. You can customize the icons and labels for these tabs. Once in the correct tab, you can execute a transaction by clicking the icon to its left.

There are two other methods for accessing transactions; neither require using the tabs or icons of the Action Box. If you know the call code for a transaction, you can enter it in the *Call Code* field to the left of the tabs. Likewise, if you know the appropriate key combination for a transaction, you can simply enter that key combination. Both call codes and key combinations are customized through the IMG. Call codes can be one to four characters. Key combinations can include Shift and any key from F1 through F12, except F3.

In the Action Box, you can select Asynchronous if you want CIC to display a transaction in a separate session. You can select Parameter if you want CIC to display the required parameters for a transaction, thereby giving you the chance to change a parameter. Through the IMG, you can customize Asynchronous to be not selectable or always selected; you can customize Parameter to be always selected.

Solution Search

Solution Search

Definition

This component enables a Solution search from CIC. By entering free-form text you can search the Solution Database for Symptoms in order to find Solutions.

Solution Search provides two alternative search possibilities: One is a text search, the other is a search that includes criteria selection.

CIC displays any chosen Solutions in the Business Data Display and links all chosen objects to the telephone call via object references (also known as document flow).

To view the object reference data in CIC, choose Info System → Contact history.

For more information, see [Solution Database \[Ext.\]](#).

Application Area

Definition

This component displays HTML pages that are started from the Action Box. If multiple pages are started they will be displayed in separate tabs in a tabstrip screen. The Application Area can be used to display intranet, internet, or custom-developed HTML pages.

The Application Area can address an HTML page via an internet/intranet address, a file/path name, or via an SAP Web Repository ID.

It is possible to call Action Box transactions from an HTML page (requires HTML programming).

If an HTML page is started from the Action Box without having an Application Area customized in the Framework, the HTML page will be displayed in a dialog box.

SAP delivers a default image in the Application Area via the object 'CIC_APPL_AREA_BACKGROUND'. This image is displayed when there is nothing else in the Application Area.

The default image can be overridden by creating an object 'ZCIC_APPL_AREA_BACKGROUND'.

To replace the default image, follow these steps:

- 1.) Call up the SAP Web Repository (transaction SMW0)
- 2.) Choose 'Binary data for WebRFC applications'
- 3.) Create an object called 'ZCIC_APPL_AREA_BACKGROUND'
Provide the path and filename of the image

CIC-Enabled HTML Pages

Definition

A CIC transaction of type HTML operation allows you to launch an HTML page to be displayed in an HTML control of the Application Area component. You can:

- Pass data from the Business Data Display into the HTML page
- Pass data from the HTML page back into the Business Data Display
- Parameterize and launch the Action Box transaction from inside your HTML page

The following sections describe the steps necessary to design an HTML page that takes advantage of the features listed above.

Processing data passed into an HTML page

When you set up a transaction in an Action Box Profile, you also define a data flow into the called transaction. If this transaction is of type HTML operation, the called HTML page needs a mechanism to process the passed parameters. The parameters are actually part of the URL of the call. As long as you do not make any other settings in the HTML operation, the core URL is separated by a '?' from the block of arguments. The name-value pair of one argument is separated from the name value pair of another argument by a ';'. For example, such an URL could look like this:

```
http://pages/createServiceNotification.HTML?NOTIF_TYPE=S1;CUSTOMER=CB;
```

In this example, the parameters 'NOTIF_TYPE' and 'CUSTOMER' are passed to the page createServiceNotification.HTML.

To process these parameters from your page there is a JavaScript object SapUrlArgs. This object is defined in the JavaScript include CIC.JS which you can find in the R/3 Web Repository (transaction SMW0) in the development class CCMA. If you want to use the functionality you must include this code in your page by specifying the SRC argument of the <SCRIPT> tag.

SapUrlArgs provides the method getArg to access the parameters easily, as seen in the following code:

```
<script SRC="CIC1.JS">
var args = new SapUrlArgs;
...
</script>
...
<h2>Customer: <script>args.getArg("CUSTOMER_ID");</script></h2>
```

In the above, we first instantiate the object args of type SapUrlArgs. Then we call its method getArg to retrieve the value of the argument "CUSTOMER_ID". Please note that you can also access multi-line parameters with this method. You just specify an index as a second optional argument for the method call. This index starts at 0 (rather than 1 as it is in the ABAP language).

The following are methods available with the SapUrlArgs object:

getArg(argName, index)

Returns the value of an argument.

```
argName:    name of the argument as a string
index:      index of the argument if it is multi-line (optional)
returns:    value of the argument
```

length(argName)

Returns the number of elements if the element is multi-line; returns 1 otherwise.

```
argName:    name of the argument as a string
returns:    number of elements of a multi-line parameter
```

getArgList

Returns a JavaScript array holding the names of all arguments

```
returns:    names of all arguments in a JavaScript array
```

Passing data from an HTML page

There are basically two situations when you want to transfer data from your HTML page to the CIC:

- Launching an Action Box transaction
- Putting data into the Business Data Display before leaving the HTML operation

In both cases the principle is the same: you define an HTML form, assign a specific method and action, and trigger the submission of this form.

Launching an Action Box transaction

Assume that you want to launch an Action Box transaction 'Create service notification' called CSNO from your HTML page. Further assume that you just want to pass two parameters to the transaction: a CUSTOMER_ID and a TEXT which is a multi-line parameter. An Action Box profile defining the transaction CSNO also exists and is associated with the respective HTML configuration. To make the example more realistic the value of the customer is passed as an argument from the Business Data Display. Then your HTML form could look like this:

```
<script SRC="CIC1.JS">
var args = new SapUrlArgs;
...
</script>

<form name="params" method=post
```

CIC-Enabled HTML Pages

```

        action="SAPEVENT:SUBMIT_FORM_AS_POST_METHOD" >
<input type=hidden name="SapCallId" value="CSNO">

<td align="right"><font face="arial" size="2" color="navy">
    <b>Customer</b> </font>
</td>
<td align="left"><font face="arial" size="2" color="navy">
    <script>document.write(args.getArg("CUSTOMER_ID"));</script>
</td>

<td valign="top" align="right"><font face="arial" size="2"
    color="navy"><b>Problem description</b></font>
</td>

<td align="left"><textarea name="TEXT" wrap="physical"
    ROWS="3" COLS="40"> </textarea>
</td>

<button name=Send type="button" value="Send" onClick="createNotif();"
    <p>Send</p>
</button>

<button name=Exit type="button" value="Exit" onClick="exit();"
    <p>Exit</p>
</button>
</form>

```

The above code just displays the customer number and an editable text area along with two buttons for submission and exiting the form. When a button is clicked the functions `createNotif()` and `exit()` respectively are called. The action value "SAPEVENT:SUBMIT_FORM_AS_POST_METHOD" has the effect that the form data will be transferred to the CIC application. You always have to specify 'post' as the form method. Please also note the hidden field `SapCallId` holding the Action Box transaction code (CSNO in this case). This form variable is predefined. The CIC expects the transaction code in this variable.

Now let's take a look at the JavaScript function `CreateNotif()`.

```

function CreateNotif() {
    // set customer which was passed from CIC

```

CIC-Enabled HTML Pages

```
document.params.CUSTOMER.value = args.getArg("CUSTOMER_ID");  
//submit form  
document.params.submit();  
}
```

This function sets the value of the CUSTOMER_ID variable and submits the form. The way CIC handles the multi-line element TEXT is the following: The text lines in the HTML text area are separated by a <CarriageReturn><LineFeed> sequence. After submission the CIC

interprets such a sequence as a delimiter between the lines of a multi-line element. Please note that the variables CUSTOMER_ID and TEXT have to be defined in the section 'Internal parameters' of the configuration of this HTML operation.

After execution of the transaction the default behavior of the CIC is to terminate the workspace representing the HTML operation. If this behavior is not desired you can set a form variable SapExit to the value empty string (""). This causes the CIC to return to the HTML page that has launched the Action Box transaction. With this setting the page could go on to handle further user interactions after calling the transaction. The HTML statement would look like this:

```
<input type=hidden name="SapExit" value="">
```

Exiting from an HTML page

In general, any submission of a form that does not have a non-initial value for the variable SapCallId is interpreted by the CIC as a request to exit the HTML page. All other variables in the submitted form that correspond to the export elements in the section 'External parameters' of the HTML configuration can be passed back into CIC components by using the standard data flow. If you do not want to pass any data to the CIC it is sufficient just to submit an empty form. Consequently you could realize your exit routine like this:

```
<form name="empty"> </form>  
<script> document.empty.submit(); </script>
```

Further Notes

The names of the interface elements defined in the configuration of an HTML operation are case sensitive. E.g. if you specify an import parameter in the section 'External parameters' with the name 'Customer_id', you also have to use exactly this string to access an argument by using the respective JavaScript function (e.g. args.getArg("Customer_id"). A call like args.getArg("CUSTOMER_ID") or args.getArg("customer_id") would fail.

Business Data Display

Business Data Display

Definition

This component displays business objects, such as customers, sales orders, and service notifications, that an agent has displayed, created, or changed during a call.

Use

You can select objects in the Business Data Display to use as input for actions initiated via the Action Box. The most recent object is at the top of the display. The object name appears in the left column and contents of its default attribute appear to the right. With the buttons to the right of the display, you can display, change, find, deselect, delete, and clear objects.

Displaying a Business Object

Use

Display shows the business object you select in its display form. For example, if you select a customer, *Display* shows the customer master record; if you select a sales order, *Display* shows the actual sales order.

Procedure

12. Select the business object you want to display in the *Business Data Display* subscreen of the *Front Office* screen.
13. Select *Display*.

Result

CIC displays a new screen showing the business object in its display form.

Changing a Business Object

Changing a Business Object

Use

Change shows the business object you select in its change form. For example, if you select a customer, *Change* shows the customer master record, which you can modify.

Procedure

14. Select the business object you want to change in the *Business Data Display* subscreen of the *Front Office* screen.
15. Select *Change*.
16. Make your changes to the business object.

Finding a Business Object

Use

Find enables you to find a business object in R/3 and have it entered into the Business Data Display.

Procedure

1. Select *Find* in the *Business Data Display* subscreen of the *Front Office* screen.
A list of business object types recently selected appears.
2. Select a business object type.
A screen appears that allows you to select other business objects of the same type.
3. Select a business object.

Result

CIC enters the found object in the Business Data Display. Business objects found with the Find button in the Business Data Display are not tracked in the CIC Document Flow.

Quick Keys

Quick Keys

Definition

This component enables you to designate up to 12 pushbuttons as fast access keys for telephony functions of CIC.

Use

Quick keys provide quick access for an agent, minimizing mouse movement, scrolling down menus. You can place the quick keys in any subscreen area in the Front Office framework.

Component Container

Definition

This component is a customizable tab-strip subscreen, which you can place into any of the subscreen areas in the *Front Office* screen. The component container itself can hold up to five components, making it possible to have a larger number of components in the framework.

Front Office Framework Hidden Components

Definition

CIC includes a fully functional set of components to operate CIC as a call center application. Each component represents a feature in CIC.

A component can be either visible or hidden. A hidden component provides a service that has no visible interface. For example, the CTI component is a hidden one, which provides the “back office” CTI functionality.

Toolbar

Definition

This component determines the application toolbar that CIC uses. The application toolbar provides softphone control menus and buttons; specific buttons can be excluded through customizing and the exclusion list. Although the application toolbar is visible to the agent, this component is considered a hidden component, because it does not take one of the subscreen areas on the *Front Office* screen. This component is required, because without a toolbar, you cannot, for example, exit the *Front Office* screen.

Callback Queues

Callback Queues

Definition

This component enables you to schedule a call for a future point in time and then to execute that call when due.

Use

The callback may be assigned to a specific agent or a specific callback queue, such as service, sales, campaign, management, or complaint. You can define the queues through customizing. Calls are placed in a queue with the appropriate information and may be handled by the agents as per call center policy.

Through customizing, agents are authorized for the queues to which they can add calls and from which they can make calls.

Creating a Callback

Procedure

1. Select *Create callback* on the *Front Office* screen toolbar.
The *Create Callback* screen appears.
2. On the *Create Callback* screen, enter agent and callback party data as required.
3. Schedule the callback with the buttons on the right side of the screen.
4. Optionally, you can enter notes about the callback in the notes block.

Result

CIC creates the callback and adds it to appropriate callback queue.

Processing a Callback

Procedure

1. Select *Process callback* on the *Front Office* screen toolbar, or choose *Outgoing Calls* → *Process Callback*.
The *Callback List* screen appears, with a structured view of the outbound queues, as defined in the agent's callback queue process profile, and the calls to be made. Information displayed for a call, such as customer number and customer name, is fully customizable.
2. On the *Callback List* screen, select the callback you want to process.
3. If you want to change the callback, choose *Callback* → *Change*.
The *Change Callback* screen appears.
4. Make your changes to the callback, and select *Save*.
5. If you want to delete a callback, choose *Callback* → *Delete*.
The *Delete Callback* screen appears.
6. Select *Delete*.

How R/3 Assigns Status to Callbacks

Use

Each callback in a queue has a status: created, active, pending, or done. Each time the agent accesses the callback list or presses the refresh button in the *List* screen, the callback status is refreshed. After the refresh, the updated callback status appears in the list. The status changes to active if the current time is later than scheduled callback time.

CTI**CTI****Definition**

This component makes the actual calls to SAPphone when CIC soft phone functions are used. CTI provides the telephony portion of the call center functionality to CIC.

Use

The CTI component reacts to the telephony buttons.

Note: A common problem with CIC framework configurations is forgetting this component is required to subscribe to all the telephony OK codes. If CTI is not included in the framework, all the telephony menu choices are inactive, since there is no component implementing a handler for these OK codes.

Selecting a Queue

Use

An agent can select and log on to one or more CTI queues with the following procedure.

Procedure

1. In the CIC *Front Office* screen, choose *Agent* → *Login*.
2. Select the correct CTI queue.

Call Center

Call Center

Definition

This component performs additional processing for a call, triggering the ANI search functionality on an inbound call. Call Center is a hidden component and is the bridge between the CTI component and the rest of the CIC application.

Use

In many cases, the system picks up the ANI and uses that information to pull up the contact and customer associated with that phone number. In this case, the Contact Search and Display and the Call State subscreen are populated with the contact information. In addition, the DNIS and translation fields are populated with the relevant information.

When the system can not identify the incoming call, you need to execute a search to locate and load the data for the incoming call.

Call Center is a required component if automatic ANI lookup or lookup based on call-attached data or with a custom-built function module is required.

Logging

Definition

This component logs activities performed in CIC. In general, all CIC components perform a number of activities that can be logged. The data to be logged is defined in a logging profile and can be viewed by choosing *Info System* → *Logging*.

Use

CIC always logs some activities, while others are logged optionally depending on customizing. The connection ID, a unique identification of the telephone call, is an example of an activity that CIC always logs.

Hidden Action Box

Hidden Action Box

Definition

This component is the Action Box engine and handles transactions that are initiated from the visible Action Box or from an HTML page in the Application Area. The Hidden Action Box is required in the framework if the visible Action Box is in the framework.

Hidden Script

Definition

This component retrieves a script from the database and performs variable substitution where necessary. It is required in the Framework for the visible Scripting component to be able to show scripts.

Front Office Administration

Purpose

Front Office administration involves the following activities:

- Agent administration
- Agent settings for SAPHone
- CTI queue definition
- DNIS mapping
- Scripting administration
- Archiving

CIC provides a wide range of Front Office administration tools to assist you with these tasks.

Process Flow

To enable agents or groups of agents to use different CIC profiles, you need to model an organization using standard Human Resources (HR) Organizational Management functionality.

Agent settings for SAPphone involves supplying some technical information about the call center to R/3 so that an agent can use CIC telephony functionality.

The CTI queue definition deals with creating an R/3 client-independent list of the telephony queues that are valid on the switch.

Through DNIS mapping, you can customize DNIS to translate the phone number to a description and to display that description along with the phone number.

Archiving is an ongoing process. You can display, archive, and delete logging and Information Store data in CIC based on agent or date. SAP standard archiving functionality effectively manages growing application data, such as activity logs and callbacks. You can specify the archiving date to create a monthly background job, which archives the records automatically. The CIC archiving programs support optical archiving if it is specified in the SAP utility.

Reporting can also be thought of as Front Office administration. Reporting is also an ongoing process. You can navigate to all reports from the *Info Systems* menu. From this menu, you can access CIC reports:

- Organization/Agent Time Report
- Organization/Agent Call Volume (DNIS) Report
- Agent Activity Report
- Agent Profile Online Report
- Agent Profile Summary Report
- Contact History Report

Agent Administration

Purpose

To enable agents or groups of agents to use different CIC profiles, you need to model an organization using standard Human Resources (HR) Organizational Management functionality. If an organization is not modeled in this way, all agents run CIC using the same default CIC profile, profile 00000001.

Process Flow

An organization is structured using organizational units, positions (with jobs), and assignments of user names to the positions or employees to the positions. For information on maintaining an organizational structure, please see the information on HR organizational management in the R/3 Library.

Currently, there is a limitation in CIC that dictates that an organization must be structured by exactly two levels of organizational units, with positions assigned to the lower level. An agent may be assigned to more than one position. In this case, CIC prompts the agent to select one of the assignments when the Front Office starts.

A CIC profile can be specified on the position level and on organizational unit levels. Logical inheritance carries the CIC profile to the lower-level nodes in the structure, unless they contain their own CIC profile. For CIC to function correctly, CIC profiles that are above each other in the organizational structure must have the same framework ID.

By grouping agents, for example by skills or work area, and specifying a CIC profile on as high a level in the organization as possible, you save time on data maintenance by not having to apply a CIC profile to every position.

Working with an Organizational Structure

Use

You can create, change, or display an organizational structure with the following procedure.

Procedure

1. Choose *Administration* → *CIC structure* → *Organizational structure*.
 2. Choose the appropriate command for the action you want to perform.
- Alternately, choose the standard path to HR Organizational Management.

Agent Settings for SAPphone

Purpose

For an agent to use CIC telephony functions, some technical information about the call center has to be stored within R/3.

Process Flow

Specifically, each telephony server to be used for connecting the CTI system to R/3 has to be represented within R/3 as a SAPphone telephony server. Also, each agent work center has to be assigned to one of these telephony servers. Maintaining this information within R/3 is referred to as SAPphone administration. For more information, see [Configuring SAPphone \[Ext.\]](#).

An administrator can perform SAPphone administration, including user-specific settings. However, the telephone extensions have to be entered using the PC that belongs to the corresponding telephone line. This is because the information about this correspondence is stored locally in the PC registry.

Agent Initialization

Agent Initialization

Purpose

The purpose of agent initialization is to prepare the agent to receive calls from the call center telephony infrastructure. This involves supplying the CTI system with an indication of which agent is at which telephone station and what sorts of calls (for example, service calls or sales calls) the CTI system (PBX, switch) should route to the specified agent.

Process Flow

The agent login ID and the queues to which the agent may log in control agent initialization. The mechanism by which the switch interprets these parameters is quite switch dependent. For instance, some switches only require the agent login ID to be passed to the telephony layer; there is no need for a queue. For other switches, only a queue is required, and the agent login ID is automatically linked to the queue.

An agent performs login and logout to login to or logout of a queue. An agent can perform login and logout with *Agent Login* and *Agent Logout* on the *Agent* pull-down menu in CIC. If there are alternative queues set up for the agent, CIC prompts the agent to select one. Also, you can customize agent login to execute automatically during startup in the CTI component, so that the agent never has to actively use the pull-down menu to log in or log out from the telephone switch.

You specify the switch user ID, password, and extension, which are necessary for login and logout, in SAPphone administration.

Setting your Work Center Telephone Number

Use

You can set the telephone number for the work center you are using with the following procedure. This is part of providing CTI system information to R/3, which enables agents to access CIC telephony functions.

Procedure

1. Choose *Administration* → *Agent* → *Telephone Number*.
2. Select the down arrow of the left field.
3. From the list, identify your telephony server.
To identify it, choose the one that has the number prefix (the telephone number without the extension) of your telephone. If there is more than one with that number prefix, try identifying the correct entry by the description. If you cannot identify the correct entry, ask your administrator.
4. Select the required entry.
5. Enter your telephone extension in the field *Extension*.

CTI Queue Definition

Purpose

The CTI queue definition is an R/3 client-independent list of the telephony queues that are valid on the switch. For certain switches, the concept of a queue may not be valid; some CTI server vendors may choose to map other entities (such as multiple agent login-IDs) into the queue field inside of R/3. Therefore, you should consult your CTI server documentation to determine how it maps the agent-IDs and queues for a specific telephone switch.

Process Flow

However, the general concept of a queue is that it is an ACD queue (or set of queues) to which the agent can login with an agent login ID. Or, a queue is a set of multiple agent logins, which the agent can use to receive calls (For example, one login ID allows the agent to receive sales calls, and another login ID allows the agent to receive service calls). If an agent only performs one role (sales calls from one queue or one login ID only), the queue definitions for that agent can remain static, and the agent need never see the *Queue Login* or *Queue Logout* screen, depending on customizing of the CTI component.

Defining CTI Queues

Use

To customize CTI queue profiles (lists of CTI queues), you first need to define to CIC which CTI queues are available in your PBX/CTI system.

Procedure

1. Choose *Administration* → *CTI Queues* → *Define CTI Queue*.
2. Choose *New Entries*.
3. Enter a telephone number (the CTI queue number).
4. Enter a corresponding CTI queue name (descriptive text displayed with the queue number on the queue login screen).

DNIS Mapping

DNIS Mapping

Purpose

The ability to see the reason for the incoming call is required in certain call center applications. The reason for the call can be determined from two items: Dialed Number Identification Service (DNIS) information and call-attached data. DNIS is the number dialed by the calling party, for example, the order hotline telephone number or the services telephone number.

Process Flow

You can customize DNIS to translate the phone number to a description and to display that description along with the phone number.

The *Call State* subscreen has a field showing DNIS and the accompanying description field.

Entering a DNIS Translation

Procedure

1. Choose *Administration* → *DNIS* → *Translate DNIS*.
2. Choose *New Entry*.
3. Enter a phone number that matches the DNIS number.
4. Enter the language for the DNIS description.
5. Enter a description for the translated number.

Result

CIC displays the description with the phone number when an incoming call arrives.

Scripting Administration

Purpose

Scripting administration involves maintaining script texts and script variables, and assigning the actual script texts to the scripting profiles.

Process Flow

You create the actual scripting text in SAPscript. You can fully customize the text. You can also include variables in the text, which you must enclose in brackets, for example, Today is [date].

To define which activities are scripted, you need to create a profile that includes all those activities.

Maintaining Script Texts

Use

You can create, display, or change script text with the following procedure.

Prerequisites

You use the SAPscript functionality to maintain script texts.

Procedure

1. Choose *Administration* → *Scripting* → *Maintain Scripts*.
2. Enter a name in the *Text Name* field.
3. Enter **CICS** (CIC scripting standard text) in the *Text ID* field.
4. Choose a language.
5. Choose *Create*, *Display*, or *Change*.

Creating Script Variables

Creating Script Variables

Use

You can create script variables using the following procedure.

Procedure

6. Choose *Administration* → *Scripting* → *Maintain Variables*.
7. Choose *New Entries*.
8. Enter a variable name in the *Variable* field.
9. Enter a fixed value, system field name from the following list, call-attached data object and attribute, or function module name (for a custom-built function) to map to the variable in the appropriate field.

- Sy-datum (current date)
- Sy-datlo (local date for user)
- Sy-zeit (time)
- Sy-timlo (local time for user)
- Sy-uname (user name from SAP logon)

A custom-built function must have this interface:

- Importing parameter: variable_name (12 characters)
- Exporting parameter: value (255 characters)
- Exceptions: others

Assigning Scripts to Profiles

Use

You can assign a script to a scripting profile with the following procedure.

Procedure

1. Choose *Administration* → *Scripting* → *Assign Texts*.
2. Choose *New Entries*.
3. Enter a scripting profile name in the *Profile* field.
4. Enter an activity code assigned to the scripting profile in the *Activity* field.
5. Enter a valid start date for the script in the *Valid from Date* field.
6. Enter a valid end date for the script in the *Valid to Date* field.
7. Enter a script ID in the *Script ID* field.
8. Enter the text ID associated with the script text in the *Text ID* field.
9. Choose *Append Script* if the script should be appended to the previous script displayed.

Archiving

Archiving

Purpose

You can display or delete logging and Information Store data in CIC based on agent or date.

Process Flow

In general, the CIC components raise a number of activities for logging purposes. When archiving logging data, CIC provides options of agent and date, and delete or simulate mode. With the simulate option, you can see the data to be deleted. In delete mode, you actually remove the data from the database.

Information Store refers to data used internally by CIC and created during each CIC session. When archiving Information Store data, CIC gives options of date, and delete or simulation mode.

Depending on the activity in the call center, CIC may generate and store a significant amount of data in various tables, especially the logging tables. You can use the following reports to manage these tables. To access these reports, choose *Administration* → *Archiving*.

- A report to delete Information Store data based on a date range. You can execute the report in test mode to display the records to be deleted.
- A report to delete activity logging data based on agent, an agent group, or a date range. This report also has test mode and delete mode.
- A report to delete callback queue data based on a date range, using the standard SAP archiving transaction.

Deleted callbacks do not appear in the callback list. You can use the callback archiving process to archive deleted callbacks. You access the callback archiving process outside CIC, in the general SAP archiving transaction SARA. CCMCALLBCK is the archiving object for callbacks. The programs CCMCLBAA, CCMCLBAD, or CCMCLBAR are the programs in archiving management to archive, delete, and restore the callback records.

The SAP standard archiving development transaction effectively manages growing application data. The archiving date can be specified for use in a monthly background job, which archives the records automatically. The CIC archiving programs support optical archiving if it is specified in the SAP utility.

Telephony Controls and Work Modes

Definition

CIC includes the following telephony controls, also known as soft phone controls, which are available through menus, toolbar buttons and quick key buttons depending on customizing. CIC also includes a large selection of agent work modes. An agent selects one of these work modes to indicate status to CIC.

Use

The following list includes both telephony controls and agent work modes.

- Agent login - Login to queue.
- Inwait - Go into inwait mode, i.e. available ('ready') to receive calls. Screen is waiting for call.
- Cancel inwait - Cancel inwait mode (must be used from another session than the one which is actually in inwait mode).
- Answer alerting call - Answer phone call.
- Refresh callstate - Refresh the Call State window manually.
- Hold - Put party on hold.
- Unhold/retrieve - Retrieve a party that was on hold.
- Toggle held state - Toggle hold/unhold states.
- Deflect alerting call - Send an incoming call to another queue/extension without answering.
- Consultation call - Make a consultation call (if there is already a party on the line, put that party on hold).
- Transfer call - 'Warm' transfer of call (i.e. talk to the other agent first to ask if he/she will accept the call).
- Blind transfer call - Transfer party to another person without talking to the other person.
- Conference call - Join parties together to conference.
- Deflect call - Transfers an incoming call to a designated extension before being answered.
- Drop party from call - Drop the party.
- Drop self from call - Drop yourself from the call.
- Reconnect call - Used during a consult to drop the party you are consulting with and take held party of hold.
- Alternate call - Instead of using 'hold' and 'retrieve' this function allows to toggle between the held party and the active party with one button-push.
- End call - End call. No change of work mode.
- End call / inwait - End a call, go into ready work mode and wait for new call.
- End call / work / not ready - End a call, then go into 'after call' mode (for follow-up work). Not available to take calls.

Telephony Controls and Work Modes

- End call / not ready - End a call, then go into not ready mode (for other purposes, e.g. lunch break,...).
- End call / work ready - Switch work mode to work-ready, then end call.
- Work / not ready - Go into work mode. Not available to take calls.
- Not ready - Go into not ready mode. Not available to take calls.
- Ready mode - Go into work mode. Available to receive calls.
- Agent logout - Logout of queue.
- Quit call management - Leave the application.
- Inwait answer - Wait for call, then automatically answer the call.
- End call / inwait answer - End call, wait for another new call, and automatically answer it.
- Refresh from call-attached data - Refresh onscreen data (Business Data Display) from call-attached data. Must have one or more calls at extension for this to be effective.

CTI Interfaces

Definition

CIC uses the SAPphone CTI interface to communicate all soft phone controls of the Front Office screen and all different work modes and statuses of the agent.

Use

The interface is published through the RFC Interface of R/3. SAPphone currently provides an extended number of APIs, which are the central gateway between the R/3 system applications and the CTI middleware products and telephony components.

The SAP Complementary Software Program has a certification process for the SAPphone RFC interface. A list of available telephony servers is published by CSP on SAPnet.

Notifications (CS-CM-SN/PM-WOC-MN)

Here you can find information about notifications in the *Customer Service* (CS) and *Plant Maintenance* (PM) application components.

[Service Notifications \(CS-CM-SN\) \[Page 833\]](#)

[Maintenance Notifications \(PM-WOC-MN\) \[Page 823\]](#)

For more information about the simplified notification processing, see [Notifications \(CA-NO\) \[Ext.\]](#).

Maintenance Notifications (PM-WOC-MN)

Purpose

You use this application component in maintenance processing in the event of a malfunction or exceptional situation to:

- Describe the exceptional technical condition at an object
- Request the maintenance department to perform a necessary task
- Document work that has been performed

Maintenance notifications document maintenance tasks completely, and make them available for analysis in the long term. You can use them for preliminary planning and execution of tasks.

Integration

Maintenance processing for unplanned tasks can be divided into the following three major areas:

- Description of the object condition
The main element in this area is the **maintenance notification**. It is used to describe the condition of a technical object or to report a malfunction at a technical object and request that the damage be repaired.
- Execution of the maintenance tasks
The main element in this area is the **maintenance order**. It is used to plan in detail the execution of maintenance tasks, trace the progress of the work performed, and to settle the costs for the maintenance tasks.
- Completion of the maintenance tasks
The main element in this area is the **maintenance history**. It is used to store the most important maintenance data on a long-term basis. You can call up this data at any time for evaluation purposes.

You can use this instrument to process all the tasks that are executed within Plant Maintenance, and operations that do not belong directly to Plant Maintenance, such as investment, modifications, conversions, and so on.

Features

When you enter a notification for a maintenance object, the system automatically copies all the relevant object data (for example, installation location cost center).

You can use maintenance notifications as the basis for creating maintenance orders, in order to:

- Plan tasks in detail
- Track work progress
- Enter and settle costs for the maintenance tasks

When planning concrete tasks in a maintenance order, you can make reference to several maintenance notifications. If one or more notifications already exist for a maintenance order, you can also enter the technical data for the assigned object retrospectively for these notifications.

Maintenance Notifications (PM-WOC-MN)

During processing or upon completion of a maintenance order, you can also create maintenance notifications as completion confirmations in the form of activity reports.

Follow-up tasks can result from maintenance notifications, such as printing a certain paper, triggering an R/3 function, or initiating a workflow.

When a maintenance notification is technically completed, its data is entered in the maintenance history.

Maintenance Notification

Definition

Means with which company notifications are created and managed in the area of Plant Maintenance. The following notification types are predefined in the standard system:

- [Problem notification \[Page 827\]](#)
Notification of a malfunction or problem that has occurred
- [Maintenance request \[Page 828\]](#)
Request for tasks to be performed
- [Activity report \[Page 838\]](#)
Documentation of activities that have been performed

In addition to these standard notification types, you can also define your own user-specific notification types.

You can configure the screens for the individual notification types in Customizing.

Use

You can enter all of the above notification types for the following reference objects:

- Functional location
- Equipment
- Material and serial number

If functional locations or equipment are further sub-divided into assemblies and material with the help of a maintenance BOM, these assemblies can also serve as reference objects for the notification. If you use object hierarchies, the system copies all data from the higher-level technical object to the respective reference object for the notification.

However, you can also create maintenance notifications without entering an object number. This is the case, for example, when a problem notification refers to an object that is not managed under a number in the system, or when a maintenance request refers to an object that is to be set up within the framework of an investment.

The data of the maintenance notification is transferred to the history, and is of great importance when performing evaluations and future planning.

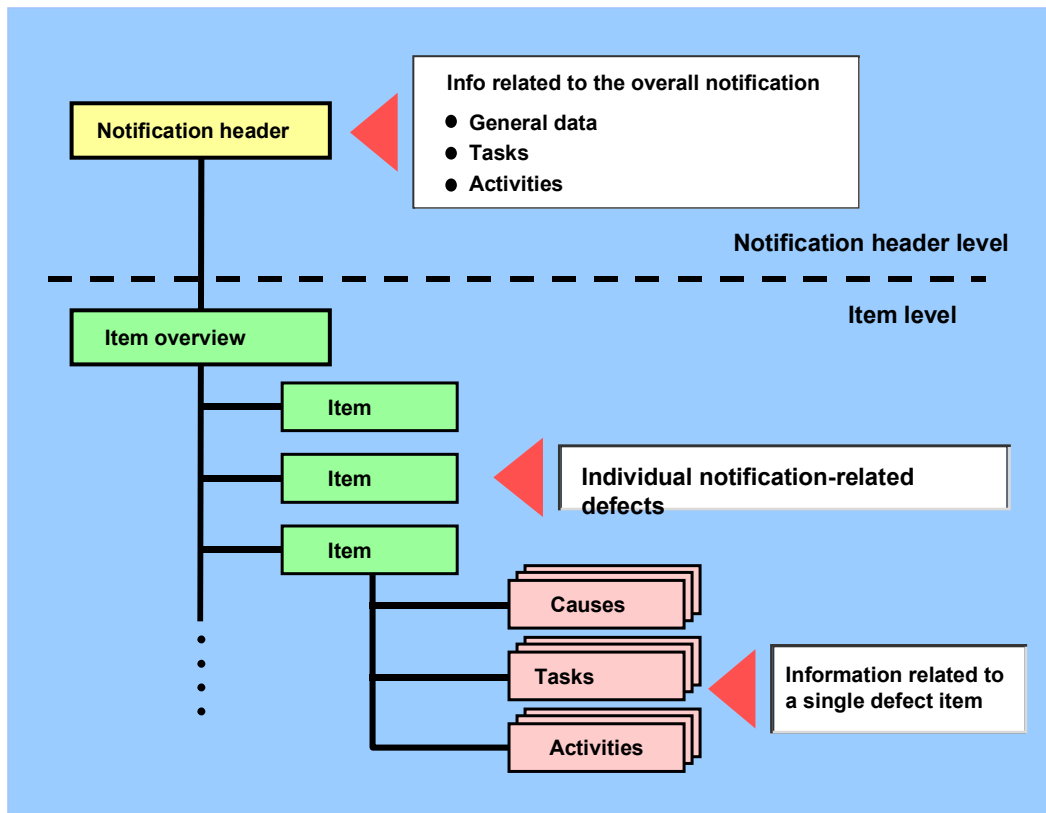
Structure

A maintenance notification consists of a notification header and one or more items.

Maintenance header data is information that is used to identify and manage the notification. It is valid for the whole maintenance notification.

Depending on the notification type, the notification items contain data describing the problem or malfunction that occurred, or the activity that was performed in greater detail.

Maintenance Notification



Malfunction Report

Definition

A malfunction report describes a malfunction at an object that affects its performance in some respect. For example, an employee from production would use a malfunction report to report that:

- A technical system is not functioning properly
- Performance has reduced for a technical system, or that the system is not functioning at all
- A production system is producing goods of poor quality

As a rule, a malfunction report requires the maintenance department to arrange for a specific repair task to be performed, for the ideal condition of the object to be restored (according to DIN norm 31051).

Use

As a rule, most companies only record the malfunction, damage or problem initially, in other words, only data relating to the malfunction are entered in the notification. Data referring to the repair and to technical findings is usually only entered as a second step in the system, that is, as changes to the notification.

A special case of malfunction report is when a machine operator determines a malfunction, immediately repairs it and subsequently documents the malfunction that occurred, its effect and the way in which it was rectified. In this case, the maintenance notification is created as a completion confirmation once the maintenance tasks have been completed.

When you create a malfunction report, you should provide the maintenance planning department with as much information as possible regarding the malfunction or problem. To do this, make the following entries where possible:

- Which malfunction or problem has occurred
- Where the malfunction or problem has occurred
- What effect it has
- Who reported the malfunction or problem
- What further damage or problems have been caused

Maintenance Request

Maintenance Request

Definition

A maintenance request is a targeted instruction to the maintenance department to perform an activity in the manner described. The decisive factor in this case is that there is no malfunction.

Use

Maintenance requests are typically used for investments, for example if an employee requires a new monitor, or if all the telephones in one part of the building in a company need replacing.

All that is initially important in the maintenance request is the maintenance activities. Data relating to the execution of the tasks is only entered in the system in a second step, by changing the maintenance notification.

When creating a maintenance request you should provide as much information as possible for maintenance planning, regarding the activities you want the maintenance department to carry out for you. To do this, make the following entries where possible:

- What is being requested
- The object or area to which the request refers
- Who requested the activity

Activity Report

Definition

An activity report describes a maintenance or service activity already performed, or one that was not the result of a malfunction or damage. It simply provides technical documentation of which activities were performed when and with what results. Activity reports are therefore used for the technical confirmation of maintenance or service activities.

A typical activity report, for example, is the inspection findings, since it describes the results of an inspection to test the actual condition of the object. In most cases, the inspection task is based upon an inspection order.

Another typical activity report is the maintenance findings. This documents the technical values of the object that are determined during and/or after planned maintenance work. This maintenance work is performed in order to maintain the ideal condition of the object, and always results from maintenance plans.

Typical examples of the activities documented in activity reports are "Fill up oil", "Check pressure" or "Tighten screws".

Use

When you create an activity report, you have already performed an activity. You want to document this activity using an activity report. To do this, enter the following information, where applicable:

- Which activity you performed
- Where you performed the activity
- What effects it may have (had)
- What the extent of the activity was

The activity report differs from the malfunction report or customer notification in that no malfunctions or problems need to be described, only the activities that were performed.

User-Specific Notification Types

User-Specific Notification Types

Definition

A user-specific notification is one that does not belong to one of the standard notification types.

This is the case if your company uses individual notification types, because, for example, certain notifications are to be evaluated separately.

A user-specific notification type is based on the standard notification type. You can configure the screens in Customizing.

Maintenance Processing for Unplanned Tasks

Purpose

The *Plant Maintenance (PM)* application component supports the planning, processing and settlement of maintenance tasks for the entire maintenance area. It gives you a clear representation of maintenance processes, providing a solid base for rational decision-making as regards cost-intensive technical systems, replacement investments and changes in maintenance strategies. It distributes up-to-date information on a regular basis to all the departments affected or concerned.

Process Flow

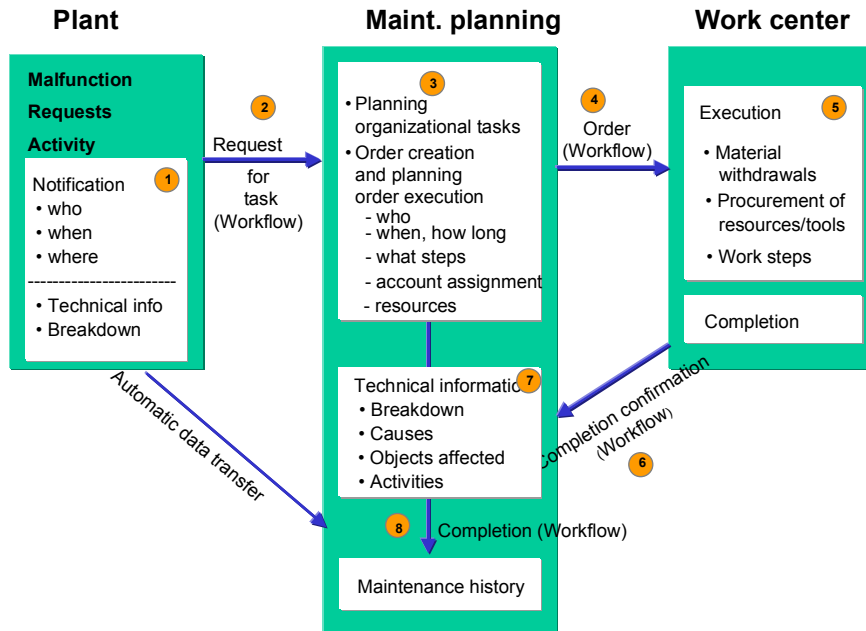
The processing of unplanned maintenance tasks can be divided into the following steps:

1. You report a malfunction or a problem at a technical system or part of a technical system, or describe the condition of the technical system, and create a maintenance notification for this.
2. You use the [maintenance notification \[Page 825\]](#) to request a maintenance task.
3. You create a [maintenance order \[Page 1068\]](#) and plan the work that is to be performed.
4. You release the maintenance order.
5. You perform the order.
6. You complete the order, and confirm it as being completed.
7. You enter technical information in the order, such as findings, causes, breakdown times and activities.
8. You close the order and the maintenance notification, and the system saves the relevant data for evaluations and for the planning of future maintenance activities.

The organization of your company, and in particular of your maintenance department, determines which employees perform these steps in which areas, and the amount of detail in which the data for the individual steps needs to be entered. For example, one company may plan a task in great detail, while another company will only plan a rough outline for the same task.

The diagram below provides an overview of the major steps in maintenance processing for unplanned tasks:

Maintenance Processing for Unplanned Tasks



Service Notifications (CS-CM-SN)

Purpose

This application component enables you to:

- Enter customer notifications
- Recognize the condition of the service object
- Request the necessary service tasks and thereby roughly plan further service processing
- Track the progress of the tasks to be performed

Integration

You can only use this component in conjunction with the *Maintenance Notifications* component.

Features

From the service notification, you can initiate all the processes involved in problem solving:

- Tasks for problem solving using the Help Desk or Hotline Support
- Creation of a service order for sending service technicians to a customer site for a service within the service center
- Delivery of spare parts

The description of the problem can be written as text or in coded form. It is not absolutely necessary to enter the service object in the service notification. However, if it is entered, the system determines the following data based on the object definition or serial number whilst the problem is being entered:

- Localization of the object
- Warranty claims, existing contracts or contact people

The system makes this data available to the processor immediately. The entry of the notification is fully integrated into contract and customer object management.

If your system has been configured accordingly, the system provides the number of the service notification as soon as you call up the create function. This is particularly useful if you enter a notification over the phone, since you can immediately inform the caller of the notification number.

If one or more service technicians are required to solve the problem, you can make a rough plan in the service notification for further processing using tasks. This can be calculated automatically based on certain settings (for example, priority, response times, and service times). Proposals for service activities to be performed using customer-specific interfaces, which are dependent on the problem screen, can also be included in task determination.

Follow-up tasks can result from service notifications, for example, printing a certain paper, or initiating a workflow.

A service order, in which you plan dates, technicians and materials in detail, can be created from a service notification.

Service Notifications (CS-CM-SN)

During service processing, you can obtain an overview of all the service requests entered and the progress of service notifications at any time.

In addition, the functions for incoming calls and service notifications in the Internet are available, which make it easier to enter service notifications.

When a service notification is completed, its data is entered in the service history.

Service Notification

Definition

Means with which customer notifications are created and managed in the areas of Plant Maintenance and Customer Service. The following notification types are predefined in the standard system:

- [Customer notification \[Page 837\]](#)
Informing a customer of a malfunction or damage that occurs
- [Service request \[Page 839\]](#)
Request for service to be performed
- [Activity report \[Page 838\]](#)
Documentation of activities that have been performed

In addition to these standard notification types, you can also define your own user-specific notification types.

You can configure the screens for the individual notification types in Customizing.

Use

If a customer device has to be repaired or maintained, the contact person on site at the customer can enter a service notification directly in the R/3 System, or inform the customer service department of the problem by telephone, fax or mail. For the latter, the customer service employee for the device vendor or manufacturer enters the notification in the system.

You can enter the following data in all notification types:

- Object and partner data
This data describes the [reference object \[Page 887\]](#) for the service notification (functional location, equipment, material and serial number), the organizational structures involved (sales organization, distribution channel and column), sold-to-party, contact person and so on.
- Problem and damage data, using catalogs and classification
This data describes the required service including the reason for the notification and the steps necessary for notification processing.
- Execution data
This data refers to the activities to be executed, for example, priority, time information, and responsibilities.

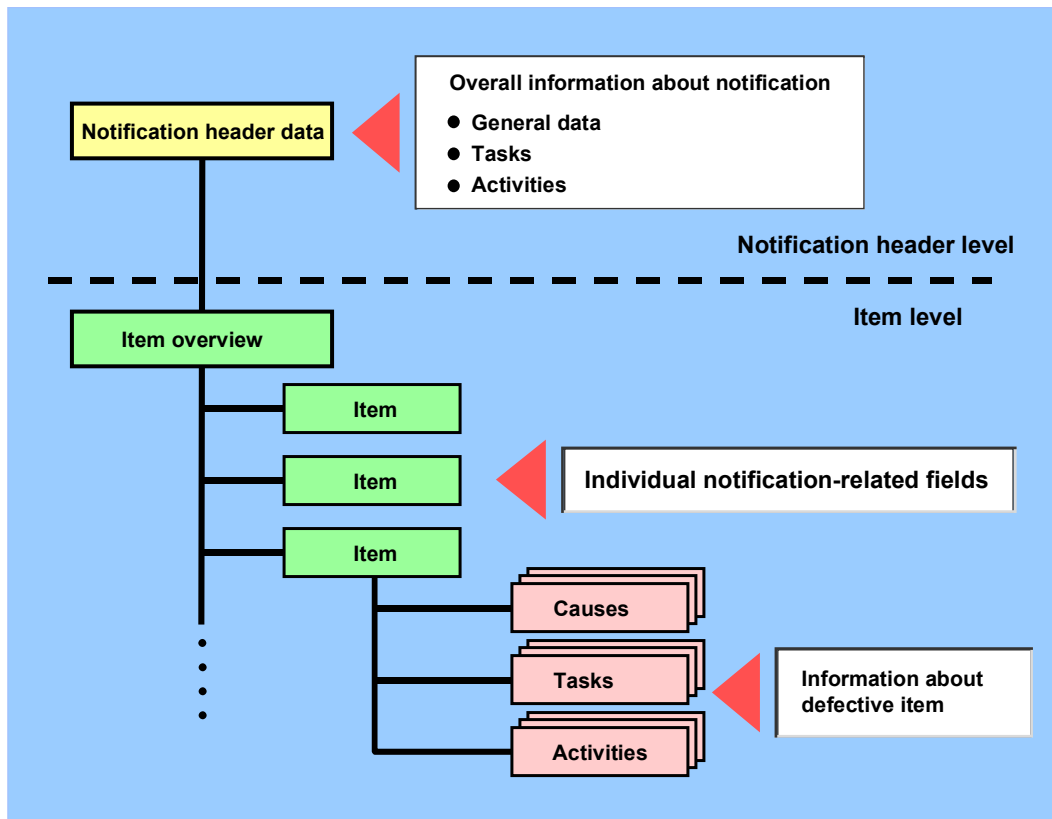
Structure

A service notification consists of a notification header and one or more items.

Notification header data is information that is used to identify and manage the notification. It is valid for the whole notification.

Depending on the notification type, the notification items contain data describing in greater detail the problem or malfunction that occurred, or the activity that was performed.

Service Notification



Customer Notification

Definition

Service notification, which describes a malfunction on a technical object at the customer site.

Use

A person, for example, a customer uses a customer notification to report that a technical system is not functioning properly, providing no output, or delivering poor results.

Activity Report

Activity Report

Definition

An activity report describes a maintenance or service activity already performed, or one that was not the result of a malfunction or damage. It simply provides technical documentation of which activities were performed when and with what results. Activity reports are therefore used for the technical confirmation of maintenance or service activities.

A typical activity report, for example, is the inspection findings, since it describes the results of an inspection to test the actual condition of the object. In most cases, the inspection task is based upon an inspection order.

Another typical activity report is the maintenance findings. This documents the technical values of the object that are determined during and/or after planned maintenance work. This maintenance work is performed in order to maintain the ideal condition of the object, and always results from maintenance plans.

Typical examples of the activities documented in activity reports are "Fill up oil", "Check pressure" or "Tighten screws".

Use

When you create an activity report, you have already performed an activity. You want to document this activity using an activity report. To do this, enter the following information, where applicable:

- Which activity you performed
- Where you performed the activity
- What effects it may have (had)
- What the extent of the activity was

The activity report differs from the malfunction report or customer notification in that no malfunctions or problems need to be described, only the activities that were performed.

Service Request

Definition

Service notification, which requests a particular activity from the service or customer service department.

Use

The activity should not be to repair damage or a malfunction; this is covered by a customer notification. The service request is intended more for modifications, conversions and so on.

User-Specific Notification Types

User-Specific Notification Types

Definition

A user-specific notification is one that does not belong to one of the standard notification types.

This is the case if your company uses individual notification types, because, for example, certain notifications are to be evaluated separately.

A user-specific notification type is based on the standard notification type. You can configure the screens in Customizing.

Special Functions in the Service Notification

Use

In service processing, there are the following special functions for the service notification:

- [Entry of Partner Data in a Service Notification \[Page 842\]](#)
- [Transfer of One-Time Customer Data \[Page 844\]](#)
- [Credit Limit Check \[Page 845\]](#)
- [Incoming Calls \[Page 846\]](#)
- [Outgoing Calls \[Page 847\]](#)
- [Notification Monitoring \[Page 853\]](#)

Entry of Partner Data in a Service Notification

Entry of Partner Data in a Service Notification

Use

A partner is a company or a person, with whom you can or must come into contact when conducting business.

To process a service notification from start to finish, you need to know the organizational structures involved. These structures are primarily of importance in a later phase of processing, for example, if you create a service order for the service notification and want to bill the costs.

Therefore, you should enter the *Sales organization*, *Distribution channel* and *Column* under location data, before you enter the following partner data in the notification header:

- **Sold-to-party**

Here you enter the master record number of the customer, where the service object is located.

- **Contact person**

If you know the person who is responsible for the service object, enter their user number (for example, the person who called because of the object).

- **Purchase order number** and **purchase order date** of the customer

Features

If a service contract exists in the technical object specified in the notification and Customizing has been maintained accordingly, the system automatically enters the number of the service contract with contract item in the field *Sales document*.

This contract is copied into the order automatically when the order is created. If a service contract exists, the system also automatically proposes a specific order type.

From the initial screen for the service notification, you can call up the partner data screen and enter any number of partner functions, depending on which service object and which type of notification is involved.

In addition, you can call up address and other contact data in a dialog box.



Depending on your requests, the fields for customer and contact person data can be set for a particular partner function in Customizing during system implementation (for example, if the equipment partner for customer notifications is always the sold-to-party).

For more information about partners, see [Partners in PM/CS Processing \[Page 1213\]](#).

See also:

[Partners \[Page 1213\]](#)

[Creating a Partner for the Notification \[Page 885\]](#)

[Calling up Partner Information \[Page 886\]](#)

Entry of Partner Data in a Service Notification

Transfer of One-Time Customer Data

Transfer of One-Time Customer Data

Use

You can also create a one-time customer as the customer in the service notification and service order, and transfer the data to subsequent functions. You use one-time customer data if you do not want to create a complete customer master record.

One-time customer data consists of a one-time customer master record and an address. A one-time customer master record is used for several customers, with whom you only have contact very occasionally.

Integration

The one-time customer master record is created in the *Sales and Distribution (SD)* component. For more information, see [One-Time Customers and Vendors \[Ext.\]](#).

Prerequisites

The central address management component must be used in SD to ensure data is transferred uniformly to the SD functions.

Features

The one-time customer data is transferred as follows:

From	To
Service notification	Service order
Service notification	Sales order
Service order	Service notification
Service order	Sales order (in resource-related billing)
Service order	Sales order (in advance shipment of spare parts)
Service order	Purchase requisition (delivery address for external processing)

Activities

The system asks you to enter a customer address when creating one-time customer data.

Credit Limit Check

Use

You can use this function at any time within service processing to call up information about the current credit status of a customer. The credit limit can be checked manually or automatically. The system generally checks the planned costs without tax.

You can define in Customizing that the check should be made automatically. If the customer has exceeded their credit limit, the system issues a warning either as soon as you:

- Release the service notification or service order, or
- Have entered the sold-to-party and chosen *Continue*

Integration

The actual credit limit check is performed in the *Sales and Distribution (SD)* component.

Prerequisites

You define the automatic credit limit check in the Customizing for *Plant Maintenance* by choosing *Maintenance Order Management*.

- For service notifications, choose *Define Partner Roles, Order Types and Additional Notification Parameters*.
- For service orders, choose *Credit Limit Check, Sales Document Types for Service Orders*.

Activities

To perform the credit limit check manually, choose *Functions → Credit limit check* from the service notification or service order.

Incoming Calls

Incoming Calls

Use

The *Incoming calls* function makes it easier to enter service notifications. When a customer calls, the system determines the technical objects assigned to the customer and proposes these to the person entering the notification as possible entries.

Prerequisites

The system administration must activate the *SAPphone* component in the Customizing for *Basis* by choosing *Basis Services* → *Communication Interfaces*, and define that Customer Service is involved. For more information, see the *SAPphone* documentation.

You must also use central address management for technical objects. This is the case if you specify addressees for pieces of equipment or functional locations.

It is possible to integrate internal search programs for pieces of equipment and functional locations in the master data.

Features

The system determines the technical objects assigned to the caller by using their telephone number. A list appears of all the technical objects assigned to the caller.

- If several technical objects are available, the user selects the required object and branches directly to the screen for entering a notification. The user creates a notification for this reference object.
- If no technical object is assigned to the caller, the system proposes a notification be created without a reference object.

If all the technical objects are assigned to the same customer, the upper part of the list provides additional customer information.

Activities

From this list, you can:

- Create a notification
- Display the reference object
- Display classification data
- Display the customer master record

Outgoing Calls

Use

The *Outgoing calls* function makes it easier to process service notifications and service orders. It enables you to initiate a phone call to the customer directly from the notification or order.

Prerequisites

The system administration must activate the *SAPphone* component in the Customizing for *Basis* by choosing *Basis Services* → *Communication Interfaces*. For more information, see the *SAPphone* documentation.

Activities

On the partner overview screen for service notifications or service orders, you can trigger the call direct to the customer using an icon. If several partners exist, you can select the telephone number of the respective customer to be used as the default.

You can use this function on the partner overview screen for functional locations and pieces of equipment, and in list editing for items, tasks, and activities.

Task Determination and Notification Monitoring

Task Determination and Notification Monitoring

Purpose

To provide good customer service, it is important to have an overview of:

- Incoming service notifications
- Services to be provided
- Progress in completing the service notifications

When entering notifications, you can use the automatic determination of standard tasks.

In the case of further processing, the function for notification monitoring always provides you with a current overview of the standard tasks. This ensures that you are up-to-date with regard to customer requests and problems do not escalate unnecessarily.

Prerequisites

The parameters [Response Profile \[Page 850\]](#), [Service Profile \[Page 850\]](#) and, if necessary, [Priority \[Page 850\]](#) must be preset in Customizing. These parameters determine the times and the time interval, at which a particular response must be made to a notification (refer to [Example: Automatic Determination of Tasks \[Page 898\]](#)).

A response profile must be assigned to a notification. This can be done in two ways:

- Using the notification type
- Using a service contract

Settings for Notification Type

You have maintained the following data in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Notifications*:

1. You have defined standard tasks using the code and catalog functions.
2. You have defined response profiles, entered the standard tasks and times, in which they must be executed.
3. You have defined service profiles and assigned a response profile, if required.
4. You have assigned response profiles and service profiles to the notification types.
5. If necessary, you have also defined priority types, priorities for each priority type, and assigned the priority types to the notification types.

Note that the response profile, which is entered in the service profile, overrides the response profile for the notification type. The response profile for the notification type is only decisive if:

- No response profile has been entered in the service profile
- The notification is entered outside of the service windows

Settings for Service Contract

In addition to the above data, you also have maintained the following data:

1. You have assigned a response profile to the service profile in Customizing.

Task Determination and Notification Monitoring

2. You have created a characteristic master record and entered it as table name **T355R** and field name **SERWI** on the additional data screen. You have thereby assigned the service profile to the characteristic and displayed the *Service profile* field in the material master record on the characteristic valuation screen.
3. You have created a service product (material master record of material type DIEN), classified and performed a characteristic valuation. You have entered the above service profile, to which a response profile is assigned, for the characteristic valuation.
4. You have created a service contract for a technical object (functional location or equipment) and entered the service product.

Process Flow

1. When entering a notification, call up the function for [automatic task determination \[Page 897\]](#).
The system copies the standard tasks into the task overview for the notification, where you can add specific information, such as text.
2. After entering the notification, you use the list editing function to create a list of all the notifications starting from a particular date.
You can use the [monitor \[Page 854\]](#) to monitor the response times for all tasks.

Parameters for Task Determination

Parameters for Task Determination

For task determination, you must preset the parameters *Response profile*, *Service profile* and, if necessary, *Priority* in Customizing.

Definition: Response Profile

The **response profile** determines the tasks to be executed and the time intervals, at which they must be executed. These standard tasks are defined using the code and catalog functions. You can define a particular person, who is proposed during task determination, to process each standard task. This person can also be changed manually.

The actual time, in which the tasks from the response profile must be executed, is calculated based on the days and times specified in the service profile.

Definition: Service Profile

The **service profile** determines the times, at which a service should be provided. You can enter as many combinations of times and days as required to cover weekdays, weekends, shifts, holidays and so on. The service windows in the service profile are the basis for the start and end of processing of the tasks to be executed.

Definition: Priority

The **priority** determines the importance of a notification.

Use

Based on the parameters *Response profile*, *Service profile*, and, if necessary, *Priority*, you can use the automatic determination of tasks when entering the notification.

The predefined parameters determine the times and the time interval within which your company should respond to a notification in a particular way.

See also:

[Example: Automatic Determination of Tasks \[Page 898\]](#)

Automatic Determination of Tasks

Use

Based on the preset parameters [Response Profile \[Page 850\]](#), [Service Profile \[Page 850\]](#) and, if necessary, [Priority \[Page 850\]](#), you can use the automatic determination of tasks when entering the notification. The predefined parameters determine the times and the time interval within which your company should respond to a notification in a particular way.

[Example: Automatic Determination of Tasks \[Page 898\]](#)

Integration

The automatic determination of tasks is particularly important for service and maintenance contracts. Specifically, if an explicit agreement is made between the contract partners that certain responses should be made at certain intervals.

For more information on task determination in maintenance planning, see [Automatic Task Determination for Notifications \[Page 556\]](#).

You can assign a response profile to the notification in two ways:

- Using the notification type
- Using a service contract

Prerequisites

Refer to the prerequisites under [Task Determination and Notification Monitoring \[Page 848\]](#).

Features

For task determination, the system proceeds as follows:

If you enter a notification with a reference object, the system checks whether:

There is a service contract for the reference object

A service product with service profile is defined as a characteristic valuation

If this is the case, the service profile forms the basis for the task determination.

If no service profile and thereby no response profile is found using the contract, or if the reference object is not contained in a contract, the system uses the service profile, which is assigned to the notification type, as a basis.

Activities

From the notification, choose *Edit → Tasks → Determine* or if you would like to simulate tasks, choose *Edit → Tasks → Simulation (Determination)*.

Example: Automatic Determination of Tasks**Example: Automatic Determination of Tasks**

A customer service department is available, for example, at the following times:

Service Profile

Counter	Days	Times	Response Profile
1	Monday - Friday	08.00 - 20.00	Local office hours
2	Thursday	20.00 - 22.00	Local office hours
3	Saturday	09.00 - 13.00	Local office hours

The response profile "Local office hours" contains the following codes and time intervals:

Response Profile "Local Office Hours"

Priority	Code	Description	Time Interval
2	PHON	Call customer back	30 minutes
2	ONSI	Service technician on site	2 hours
1	PHON	Call customer back	15 minutes
1	ONSI	Service technician on site	1 hour

The following tasks result:

- If a customer submits a notification with priority 2 (medium) at 12.00 p.m. on Saturday, you must call back within 30 minutes for an explanation of the problem, since this is agreed for the response profile in the contract. Therefore, you must have called back by 12.30 p.m. on that Saturday.
- If a technician has to be sent to the customer site, they must be there by Monday at 9 a.m. at the latest.
- If the notification has priority 1 (high), you must call back within 15 minutes of receiving the notification and the service technician must be at the customer site an hour later.



The times defined cannot exceed the daily limit. If you have to define times, which exceed the daily limit, define them, for example, as follows:

- 00.00 - 08.00
- 08.00 - 20.00
- 20.00 - 24.00

Notification Monitoring

Use

The notification monitoring function always provides you with a current overview of the standard tasks to be provided as services. This ensures that you are always up-to-date with regard to customer requests and problems do not escalate unnecessarily. For example, you need to know whether:

- The processing of a particular task has already begun
- The task has been completed at a particular time

Prerequisites

Refer to the prerequisites under [Task Determination and Notification Monitoring \[Page 848\]](#).

When entering a service notification, you must have called up the function for [automatic task determination \[Page 897\]](#).

Activities

You can use list editing to create a list of all the service notifications with a start and end date. This list can be used to monitor the response times.

The color display makes it easy to recognize which tasks:

- Are new in the system
- Are being processed
- Have exceeded the deadline

See also:

[Monitoring of Response Time \[Page 854\]](#)

Monitoring of Response Time

Monitoring of Response Time

Use

You can monitor the different processing phases for your service notifications and tasks using the function *Monitor* in the list editing function. In the monitor, you can assess the notifications and tasks using the following criteria:

- Planned start not yet reached
These tasks are marked in green.
- Planned end of processing not yet reached, but start date is in the past
These tasks are marked in yellow.
- Planned end of processing exceeded
These tasks are marked in red.

From this list, you can call up:

- The notification header from the notification
- The task overview from the task

Features

Updating the Task Status

On the task detail screen, you can assign a status to the task manually (for example, released, completed) and then update the monitor. Alternatively, you can specify a time interval in Customizing, after which the monitor is automatically updated.

Sorting the List Display

You can define the fields that should appear in the list. You can sort the list according to the entries in one of the displayed columns (for example, to see the notifications in the list sorted by entry date or reference object).

Service Notifications in the Internet (CS-CM-SN)

Use

Service notifications are the medium in which service notifications are received by the SAP System. They form the basis for service orders, by means of which the individual services can be planned in detail and subsequently performed.

Service notifications received via the Internet are processed further in the SAP Customer Service component in the same way as service notifications entered in the SAP System.

Type of Internet Application Component

Consumer-to-Business

Advantages for Your Customers:

- Your customers can send service notifications round the clock.
- Your customers can enter service notifications directly in their Web server, that is, they do not need to telephone or send a fax.
- Your customers can enter data quickly and easily using the screen layout you have designed.
- Using a list of pre-defined problem codes, your customers can limit their problem and even describe the problem in text.
- Your customers can check the processing status of their notifications at all times.

Advantages for You as Service Provider:

- You can design the screen layout in such a way that the entry of required data for the customer is quick and easy.
- You receive the notification online, that is, shortly after it is entered.
- As a result of the short time between entry and receipt of the notification, you are sometimes able to solve the problem immediately.
- You can react speedily to the notification.
- You can structure peak periods for receipt of notifications, and possibly reduce your Hotline personnel.

Prerequisites

Authorizations/Security

SAP Users

The contact person who enters the service notifications at the customer company must have authorizations for accessing the following data:

Authorization Object	Description
I_BEGRP	Authorization group

Service Notifications in the Internet (CS-CM-SN)

I_IWERK	Planning plant
I_SWERK	Maintenance plant
I_QMEL	Notification type
I_TCODE	Transaction authorization for IWWW

Internet Users

To start this Internet application component, your contact person must log on using their contact person number and a password that you assign.

- Before you create an Internet user, you must specify a contact person for the customer in the *Sales* component using transaction VD01 or VD02. In the detail screen for the contact person, enter the contact person number as the number of the customer.
- You use this number to create an Internet user with transaction SU05. Here, you can create, change, and delete passwords for Internet users. To be able to explicitly identify a contact person, enter the object type *BUS1006001*.

Standard Settings and Default Values

The start notification type for transaction IW51 (= Enter service notification) must be defined so that the service notification that your customer sends over the Internet contains all data required by the SAP System.

Features**How the Internet Application Component Differs From the R/3 Transaction**

This Internet application component does not include the following functions of the SAP standard transaction:

- Creation of several items
- Creation of causes, tasks, and actions
- Navigation options in the SAP environment (for example, displaying the material)
- Priorities, dates, internal processing

Modification Options

You can change the screen layout for this Internet application component.



Each change made to SAP development objects that are used for the Internet application component is regarded as a modification.

You should not change the development objects of the standard version under any circumstances.

Service Name

The service name of this Internet application component is IWWW. You can find all the relevant data under this service name in the SAP@Web Studio.

Service Notifications in the Internet (CS-CM-SN)

The output forms are in the subdirectory IWWW of the directory TEMPLATES. The following forms are used:

SAPMIWOW_100.HTML

SAPMIWOW_200.HTML

SAPMIWOW_210.HTML

SAPMIWOW_220.HTML

SAPMIWOW_300.HTML

The numbers in the form names correspond to the respective SAP screen numbers.

R/3 Development Objects

The data exchange over the Internet is carried out on the SAP side using transactions and function modules. The following development objects are required for the entry and transmission of service notifications:

Development class:	IWWW
Transaction:	IWWW
Function group for the screens:	SAPMIWOW
Function modules:	BAPI_CUSTOMER_EQUIPMENTLIST BAPI_CUSTOMER_NOTIFIC_LIST BAPI_SERVICENOTIFICAT_CREATE BAPI_EQMT_GETCATALOGPROFIL

Data Output Using the Internet Transaction Server

The output of the data is performed using the Internet Transaction Server (ITS). There, the data determined is mixed with output forms and made available to the Inter-/Intranet in HTML format.

Process Flow (Service Notifications)

When you use the Internet application component *Service notifications*, the process is as follows:



The process outlined below describes the Internet application component delivered with the Standard System. However, if you want to represent your own processes, you should use the Internet application component that is delivered in the Standard System as a reference for performing customer-specific development. Do not modify the development objects of the Standard System under any circumstances. Instead you should modify copies of them (in your own name range where necessary).

If your customer has a problem with a technical system or appliance, you must be informed of this as a service provider.

For this reason, the contact person at the customer company enters a service notification in the Internet. Of course, the customer must be authorized to do this. The contact person selects the object for which the service is requested from a list containing only those objects assigned to his or her company. Then the customer enters his or her order number; this is the reference number under which the service notification will be managed. The contact person then describes the problem using codes, which can be selected from a list on an object-specific basis, and with free text.

As soon as the notification is sent, the SAP System assigns a service notification number and passes this on to the customer contact person.

The service/maintenance planner at your company as the service provider receives the customer service notification online. He or she receives this directly into their pool of new notifications, that is, without any great time delay. He or she may then be in a position to react immediately by analyzing the problem, making inquiries at the customer company, sending a service technician to the customer company, or delivering a spare part.

Application Example (Service Notifications)

A company manufactures PC workstations and also provides customer service for them. The company leases several PCs to one customer and agrees a service contract with that customer, which covers maintenance work and the delivery of spare parts. The PCs are installed at the customer company. The vendor manages all leased PCs in corresponding master records. Vendor and customer have Internet access, and the vendor offers the entry of service notifications in the Internet. The customer has all necessary authorizations.

If a hard disk should break down at a customer company, for example, the customer informs the vendor customer service department by means of an Internet service notification, and requests the remedy for the problem. When the customer enters the service notification, the system gives them a list of PCs that they are leasing. With regard to the problem description, codes are proposed only for problems that can actually arise with PC workstations. This keeps data entry by the customer to a minimum, and the amount of data entry errors is very small. The customer can enter the notification immediately after the problem arises; they are not bound by the times at which the vendor hotline is manned.

The vendor receives the service request online immediately and, in this case, they can establish the fact that the hard disk needs to be replaced. In this way it is ensured that the customer receives a new hard disk at the earliest possible time. This can be installed by the internal PC service department.

Creating, Changing and Displaying a Notification

Creating, Changing and Displaying a Notification

Depending on the application component in which you are working, choose:

- *Logistics → Plant maintenance → Maintenance processing*
- *Logistics → Customer service → Service processing*

To call up the individual functions in the table, choose the corresponding menu path.

Function	Menu Path	What You Should Know:
Create a malfunction report (PM)	<i><Notification> → Create (special) → Malfunction report</i>	If you create a malfunction report after having corrected a malfunction, create the malfunction report and, at the same time, enter all the activities that were performed to rectify the problem.
Create a maintenance request (PM)	<i><Notification> → Create (special) → Maintenance request</i>	
Create a customer notification (CS)	<i><Notification> → Create (special) → Customer notification</i>	
Create a service request (CS)	<i><Notification> → Create (special) → Service request</i>	
Create an activity report (PM/CS)	<i><Notification> → Create (special) → Activity report</i>	
Create a user-specific notification (PM/CS)	<i><Notification> → Create (general)</i>	<p>Here, you enter notifications:</p> <ul style="list-style-type: none"> • For all notification types different from the standard type used in your company • For standard notification types <p>Specify the notification type and notification number on the initial screen.</p> <p>If internal number assignment for notifications is used in your company, do not enter a number.</p>

Creating, Changing and Displaying a Notification

Create a notification with reference (PM/CS)	<Notification> → <i>Create (general)</i>	<p>To reduce the amount of data entered, you can use an existing notification as a copy model. You can use any notification type as a reference, irrespective of which notification type the new notification should have.</p> <p>When you save the notification, the notification used as a reference is also saved in the notification. This means that you later have the option of selecting notifications that were created with a particular reference.</p> <p>For more information about which data is copied, see Data from the Copy Model [Page 866].</p>
Create a service notification for advance shipment (CS)		Creating a Service Notification for Advance Shipment [Page 1036]
Change a notification (PM/CS)	<Notification> → <i>Change</i>	
Display a notification (PM/CS)	<Notification> → <i>Display</i>	

Configuration of User Default Values

Configuration of User Default Values

Use

If you have to create notifications, for which particular data is always the same, you can define certain user default values. The system then copies these values to the corresponding data screens. You can overwrite these values.

Features

You can define default values for the following data:

- General data (for example, notification type, maintenance planner group)
- Reference object (equipment, functional location, assembly, material, serial number)
- Sales data, in the case of service notifications (for example, sales organization)

You can also use the screen type to set the reference object view here. For more information, see [Specifying a Reference Object \[Page 888\]](#).



The default values that are:

- Valid for all notifications (for example, reference object, plant) are copied to all notification types
- Valid for specific notifications are only copied to the appropriate notification types (for example, sales organization only to service notification)

Activities

- You want certain default values and a certain reference object view to be proposed every time you create a notification:

From the tab page for the notification, choose *Extras* → *Setting* → *Control/default values* and then *General*, *Reference object*, *Sales* or *Action box*.

- You want to change the reference object view when you create a certain notification:

From the tab page for the notification, choose *Extras* → *Setting* → *Reference object view*. You change the reference object view when you create a certain notification.

Entering a Notification Header Text

1. Call up the notification in create or change mode.
2. Enter a notification short text in the field *Description*. This text has the following meaning:

Notification type	Meaning
Malfunction report	The problem or malfunction that has occurred
Activity report	The activity performed to solve the problem or rectify the malfunction
Maintenance request	The activities requested by the maintenance department

3. If the short text line is not of adequate length for the description, select the icon *Create text*.
A word processing screen is displayed.
4. Enter a long text, and then return to the notification screen by choosing *Back*, and save the data.



If you have defined for a notification type in Customizing for Plant Maintenance that the long text may not be changed, then you can no longer change a long text entered previously when you change the notification.

The text is blocked for entry. However, you can enter the new text in a new block at the end of the existing long text.

You can also define in Customizing that changes to a long text are logged by user name and change date for particular notification types.

Entering Items

Entering Items

Use

In the notification item you enter and maintain data describing in greater detail the problem or malfunction that occurred, or the activity that was performed. A notification can have several items. Each item contains the following data:

- **For a malfunction report:**
A short description of the malfunction that occurred, at which object part the problem occurred, and what caused it
- **For an activity report:**
A short description of the activity that was performed, at which object part, and possibly at which assembly, the activity was performed
- **For a maintenance request:**
Short description of the tasks that are to be performed, to which object part the tasks should be performed by the maintenance department, and what possibly prompted the request to be made

Procedure

In each notification, you should maintain the first item so that the notification:

- Can be evaluated with reference to object parts, problems and causes
- Can be classified, if you use the SAP Classification System in your company. You can only classify at the level of notification items.
If the notification has only one item, the classification data is valid for the whole notification, even though you entered it for the item. If the notification has several items, the classification data is valid in each case for the item for which you entered it.



You should create several items if:

- More than one object part is affected, and/or
- More than one problem or damage has occurred, and/or
- There is more than one cause, and/or
- More than one class must be assigned

To call up the individual functions in the table, call up the notification in create or change mode. As the notification screen is adjustable, it is possible that the functions in your system are located on other tabstrips.

Function	Tab page/Symbol	What you should know
Entering item data	<i>Items</i>	You enter data for a single item directly in the group box <i>Item</i> on the tabstrip <i>Notification</i> .

Entering Items

Entering item data in the item overview	<i>Items</i>	For each item there is a row containing the most important data.
Entering item data in the item detail screen		<p>You can only access the fields for classification and assembly in the item detail screen.</p> <p>If you have selected several items in the item overview, select the icon  to go to the next item on the detail screen.</p> <p>To create a new item from the detail screen, choose <i>New entry</i>.</p>

Data from the Copy Model

Data from the Copy Model

When creating notifications with reference, the system copies the following data:

- Certain data from the notification header (see structure RFC_VIQMEL)
- Certain data from the notification items (see structure RFC_VIQMFE)
- Certain tasks at notification header and notification item level (see structure RFC_VIQMSM)
- Activities at notification header and notification item level (see structure RFC_VIQMMA)
- Damage causes for notification items (see structure RFC_VIQMUR)
- All partner data
- All long texts
- All classification data

Cause

Definition

A reason or event that led to the occurrence of a notification item. A cause item contains the following information:

- Code group
- Code
- Short text
- Long text

Use

You can record one or more causes for an individual defect item. You can display the cause information in varying levels of detail on the following screens:

- Cause overview
- Cause detail screen

The cause overview and the cause detail screen are the same for all notification types.

Entering Causes for an Item


Entering Causes for an Item

To use the individual functions in the table, call up a notification in the create or change mode.

Function	Tab page	What you should know
Entering the cause data for an item in the cause overview	Choose <i>Causes</i> .	You must select an item in the item overview before you can enter the cause data.
Entering the cause data for an item in the cause detail screen	Choose <i>Causes</i> . Select a cause item and then choose <i>Detail view</i> .	If you selected several causes in the cause overview, choose <i>Next cause</i> to go to the next cause detail screen. To create a new cause from the detail screen, choose <i>New cause</i> .

Processing Different Notification Data

To call up the individual functions in the list, call up the notification in create or change mode. Since the notification screen can be configured differently, the functions in your system may be located on other tab pages.

Function	Tab Page/Menu Path	What You Should Know:
Specifying system availability and condition	<i>System availability</i>	<p>Here, you can make entries regarding system availability before and after the problem occurs, as well as before and after the task is performed.</p> <p>If the problem has an effect on other systems or system parts, enter the affected object and key for the effect. You can also expand the structure list using .</p> <p>This information is not relevant for maintenance requests.</p>
Entering breakdown data and duration	<i>Notification or Malfunction, breakdown</i>	Refer to Entering Breakdown Data and Downtimes [Page 871]
Calling up location and account assignment data	<i>Notification or Location data</i>	<p>The location and account assignment data originates from the reference object. It is copied from the master data to the notification, where you can make changes if required.</p> <p>The advantage of this is that a change to the master data for the reference object does not automatically change the notification.</p>
Calling up the scheduling overview	<i>Notification or Scheduling overview</i>	The scheduling overview, for example, contains the required start and end dates for the notification. These dates can also be calculated automatically on the basis of priorities.
Changing the reporter of the problem	<i>Notification or Scheduling overview</i>	Here, you enter the name of the person who reported the malfunction.
Calling up administrative data	<i>Goto → Administrative data</i>	The administrative data records who created the notification, when, who last changed it and when.

Processing Different Notification Data

Entering Breakdown Data and Duration

Use

If there is a functional breakdown due to a problem or the execution of an activity, you note this breakdown - depending on Customizing - in one of the following two places:

- Notification header

As a rule, when you create a notification, it is sufficient to enter the malfunction start in the notification header, and flag the field *Breakdown*. This indicates that the system is broken down at the time specified.

- Breakdown data screen

The breakdown data screen is relevant mainly for entering the breakdown end and the downtime.

Entries in the Breakdown Data Screen

1. Call up the notification in create or change mode and choose the tab pages *Malfunction*, *Breakdown*.
2. Enter the start and end dates of the malfunction. Flag the field *Breakdown* to indicate that the malfunction caused a function breakdown.
3. As soon as you press *Enter*, the system automatically calculates and displays the downtime in hours.
4. If you want to use a different unit of time, enter it in the field to the right of the field *Breakdown duration* and choose *Enter*.

The system calculates and displays the duration in the new unit of time. The unit entered when you save the notification is then valid for further processing of the notification.

5. Save the notification.



If the downtime is already displayed and you subsequently change the malfunction start or end, the system recalculates the duration.

Specifying a Priority

Specifying a Priority

Use

By assigning a priority to a notification, you can specify the importance and urgency of the notification.

Prerequisites

You have defined priorities in Customizing for the Plant Maintenance and Customer Service application components. You can define an interval for performing the notification for each priority.



For example, priority 1 can mean: Execution is to start 2 hours after creating the notification and is to be finished within 2 days.

Procedure

1. Call up the notification in create or change mode.
2. Enter the required priority on the tabstrip *Notification* in the field *Priority* and choose *Continue*.

The system calculates the required start and end of the maintenance notification in the background based on the definition of the priority, and enters these dates in the relevant fields.

If you want to see the newly-calculated dates, call up the scheduling overview by choosing *Goto* → *Schedule overview*.

When you release the notification, the system also calculates the dates for the tasks. This is done on the basis of the factory calendar. The dates for the tasks are displayed on the tabstrip *Tasks*.

3. Save the data.

Entering Measurement Documents

Use

In your company, it is possible to define that the current status, usage, wear, or reduction in usage is described at particular physical and/or logical locations (that is, at functional locations and pieces of equipment).

The condition of a location (for example, temperature, pressure, number of revolutions) is recorded at measuring points in the form of **measurement readings**. Consumption, wear or reduction in utilization (for example, vehicle mileage, electricity consumption) are recorded at counters in the form of **counter readings**.

The data that is measured at a measuring point or counter must first be entered in the system in the form of a measurement document.

For a more detailed description of measurement and counter readings, see *PM - Entering Measurement and Counter Readings*.

Procedure

1. Call up the notification in create or change mode.
2. In one of the notification screens, choose *Extras* → *Measurement documents*.
The screen for multiple entry of measurement documents is displayed.
3. Enter the required measuring points for which you want to enter measurement or counter readings. Also enter the measured or read value and any other necessary data.
4. Choose *Continue*.
The system completes all other fields with data from the measuring point master record.
5. If required, select individual measuring points for detail processing. To do this, select the measuring point and choose *Goto* → *MeasDocument*.
6. If you have entered all the necessary data, return to the previous screen and save the notification.

Linking a Document From the DMS

Linking a Document From the DMS

Use

By connecting notification processing with the Document Management System (DMS), it is possible to link one or more documents that you want to manage using the DMS.

Procedure

1. Call up the notification in create or change mode.
2. Choose *Environment* → *Documents*.
A dialog box is displayed, in which you can include one or more documents from the DMS.
3. Enter the required documents.
4. Choose *Continue* and save the data.

Result

Once you have linked documents to a notification, you can display or print them from the notification.

Displaying the Action Log for a Notification

Use

Changes to the notification are recorded in the action log. This enables you to track who has made which status or data changes to which fields, and when.

Changes to tasks, items and activities as well as partners are also recorded in the action log within the framework of notification processing.

Procedure

1. Call up the notification in display or change mode.
2. Choose *Extras* → *Notification documents* → *Action log*.
The action log for the notification is displayed.
3. To display changes to tasks, items or activities, select the icon *Task/Item/Activity*, and then the icon *Detail action log*.

Displaying Changes in Notifications

Displaying Changes in Notifications

Use

The system automatically documents the changes that are made to the following data for a notification:

- Tasks
- Items
- Causes
- Activities
- Partner

The system only records changes that are made to existing data in change documents. For example, if you enter new tasks in an existing notification, then this is not recorded in the change document. Only when you make changes to the tasks will this be recorded.

Procedure

1. Call up the notification in display or change mode.
2. In a notification screen, choose *Extras → Notification documents → Changes*.

The screen *Change Documents for Object Class NOTIFICATION* is displayed. A list of change documents is displayed, created on the basis of changes to the types of notification data mentioned above.
3. To see what was changed and how, position the cursor on the required line and select *Display documents*.

A screen is displayed, showing the exact changes that were made .

Displaying an Installed Base from the Notification

Use

You can use the maintenance notification or service notification to display the installed base to which the equipment you are using as a reference object belongs. If you create a notification, you can also search for a piece of equipment about which you only know that it belongs to a particular installed base and use this as the reference object for the notification.



You create a problem notification for a pump engine, although you do not know the equipment number of the engine, only that of the pump. Enter the pump as the reference object and display the installed base. In this way, you find the equipment number of the engine using the structure display and can copy this as the reference object in the malfunction report.

Prerequisites

Your system administration has activated the screen area with installed base data for a certain tab in the Customizing function for notifications.

Procedure

3. Choose *Logistics → Plant Maintenance → Maintenance Processing* or *Logistics → Customer Service → Service Processing* and then *Notification → Create*.
4. Enter a piece of equipment as the reference object. If the equipment is assigned to an installed base as a component, you will see the installed base on the corresponding tab.
Choose *Whole installation* if you want to view the installed base in the overview.
Choose *Copy* if you want to copy another piece of equipment from the installed base as a new reference object.

Partner

Partner

Definition

Partners (business partners) are internal and/or external organizational units. For example, internal partners can be logistics and sales departments that perform services. External partners can be customers as service recipients and vendors as supporting service providers. A partner can be a natural or a legal entity. You can use partners in CS and PM processing.

Structure

Partner Type

The following partner types are delivered with the Standard System:

- Customer
- Contact person
- Vendor
- User
- Personnel number
- Organizational unit
- Position

Partner Function

You define partner functions in Customizing for Plant Maintenance and Customer Service. They are freely definable and always refer to a partner type. Standard functions exist (for example, goods recipient) and you can also define your own functions.

Partner Determination Procedure

The partner determination procedure is a grouping of partner functions. It specifies which partner functions are permitted or must always be specified for a particular business transaction (for example, for the processing of a service or maintenance order). In Customizing you define the partner determination procedure and assign partner functions to it. If functions are assigned to the partner determination procedure, you can assign the partner determination procedure to an object (for example, to a notification type).

Integration

You can assign partners to the following objects:

- [Functional location \[Page 375\]](#) and [equipment \[Page 375\]](#)

If you have defined in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Copy Partner Functions to Master and Movement Data*, which partners you want to copy, the system copies the respective partner functions when creating the notification with a technical object. For example, a particular technician, who performs a service to a piece of equipment, is assigned to a

customer. This technician can be specified as the partner in the equipment master record. In this case, the system copies the partner data into the notification.

- [Notification \[Page 885\]](#)
- [Order \[Page 377\]](#)

For more information on partner data in serial numbers see *Management of Serial Numbers* in [Partner Data \[Ext.\]](#).



The system offers you different search helps depending on the partner function. In the Standard System up to now, you could select organizational units using a search term. If the partner function of category *Employee* has been maintained in Customizing, you can search for organizational units using tasks as of Release 4.6C. The system displays a hit list of the organizational units which fulfill this task.

Customizing for Partners

Customizing for Partners

Purpose

You want to work with partners in your company.

Prerequisites

You can make the following settings in Customizing:

Function	Menu Path	What You Should Know
General settings		
You define the partner functions and the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Partner Determination Procedure and Partner Function</i>	If you want to work with partners, first define the partner functions, then define the partner determination procedure, and finally, assign the partner functions to the partner determination procedure.
You assign the partner functions to the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Movement Data</i>	
Notification		
The <i>Partner</i> tab should be visible in the notification	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Notification Types → Set Screen Templates for the Notification Type</i>	

Customizing for Partners

Assign notification type to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Partners → Define Partner Determination Procedure and Partner Function</i>	
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Processing → List Editing → Define Field Selection for Multi-Level List Displays of Notifications</i>	
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the notification. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.
Order		
Define partner determination procedure and assign order types to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Partner → Define Partner Determination Procedure and Partner Function</i>	The partner overview screen can be seen in the order by choosing the <i>Partner</i> tab. By choosing the <i>Overview</i> button, you go to a more detailed overview screen where you are able to perform further settings using the menu.
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the order. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.

Customizing for Partners

You define a transaction variant for the transaction in which an additional partner address is to be entered. Afterwards, you assign the transaction variant to the respective partner function	<i>General Settings → Field Display Characteristics → Configure Application Transaction Fields</i>	You can create a transaction variant per partner function, which defines the field selection.
You want to process the partner in the order header.		Partner Processing in the Order Header [Page 373]
Functional Locations		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Field Selection for Multi-Level List Displays of Functional Locations</i>	
The <i>Partner</i> tab should be visible in the functional location	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign functional location category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Define Category of Functional Location</i>	
Equipment		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Define Field Selection for Multi-Level List Displays of Equipment.</i>	

Customizing for Partners

The <i>Partner</i> tab should be visible in the equipment	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign equipment category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Assign Partner Determination Procedure to Equipment Category</i>	

For more information, refer to the documentation in Customizing for Plant Maintenance and Customer Service.

Partner Transfer

Partner Transfer

Use

You use this function to determine which partner the system copies from an object into the notification, order, and serial number. The system also copies the mandatory partner if one exists.

Features


Data source	Data destination
Master record of a functional location or of a piece of equipment	Notification when creating a notification for the reference object
Master record of a functional location or of a piece of equipment	Order when creating an order for the reference object
Notification	Order when creating an order for the notification
Delivery note	Serial number when posting goods issues



If you change the reference for notifications or orders at a later date, it is possible that the partner data will no longer correspond. You can then decide whether you want to copy the partner data of the new reference object.

Creating a Partner for the Notification

2. Call up a notification in Create or Change mode.

3. Choose .

The Partner screen is displayed.

5. In this screen you can enter an additional address for each partner function. To do this, select the relevant partner function and choose *Change partner address*.

A dialog box is displayed in which data from the master record is possibly proposed. You can overwrite the data; the changes will not be copied into the master record. The partner address that you have entered is valid only for this notification.

6. Choose *Copy*.

You return to the Partner screen. The indicator for an additional address is now displayed.

7. You also have the following options in the Partner screen:

- Using the function *Delete Partner Address*, you can delete the additional address.
- If you enter a one-time customer as a partner, the system automatically prompts you to specify an address. It is only possible to create a one-time customer if an address is specified. It is not possible to delete just this address, because the system will also delete the partner function.
- If you choose *Delete partner assignment*, the system deletes the assignment (for example, to the notification) and the additional address.
- You can display the main partner changes (for example, change of sold-to party) for the notification in the [Action Log \[Page 875\]](#).

8. Save the data.



If you enter the reference object in the notification and choose *Continue*, you have the following options:

If partner data already exists for the reference object in the notification, a dialog box is displayed. You can copy the partner data from the reference object.

If you replace the reference object in the notification with another one, the dialog box is only displayed if the partner is different. You can select which partner data you want to copy.

Calling Up Partner Information

Calling Up Partner Information

Use


A partner is a company or person, with whom you can or must come into contact when conducting business. Partner information is available in the:

- Maintenance notification on a separate screen
- Service notification as a subscreen in the notification header and on a separate screen

Prerequisites

You can only call up the separate screen if a partner determination procedure has been defined centrally for your company in Customizing.

Procedure

1. From a tab page for the notification, choose *Goto* → *Partners*.
The partner overview screen appears.
If partner data already exists for this notification (for example, because a partner is assigned to the equipment), the partner function, number and description are displayed here.
2. To see additional data for one of the partners displayed, choose .
3. When changing or creating the notification, you can enter the partner that should be assigned to this notification in the partner fields.
4. Save the notification with the new or changed partner data.

See also:

[Partners \[Page 1213\]](#)

[Creating a Partner for the Notification \[Page 885\]](#)

[Entry of Partner Data in a Service Notification \[Page 842\]](#)

Reference Object

Definition

A technical object (for example, piece of equipment, functional location, assembly or combination of material and serial numbers), to which a notification refers.

Notification Type	Reference Object
Malfunction report (PM) Customer notification (CS)	Object at which the problem or malfunction occurred
Activity report (PM/CS)	Object at which the activity was performed
Maintenance request (PM) Service request (CS)	Object at which activities should be performed by the maintenance department

The reference object is located on the *Notification* tab page.

Structure

The reference object view displayed in a notification depends on the following factors:

- The setting for the notification type in Customizing for Plant Maintenance and Customer Service under *Maintenance and Service Processing* → *Notifications* → *Notification Types* → *Define Notification Types*
- The field selection for notifications in Customizing for Plant Maintenance and Customer Service under *Maintenance and Service Processing* → *Notifications* → *Set Field Selection for Notifications*
- User-specific setting on the *Notification* tab page under *Extras* → *Setting* → *Control/default values*

Specifying and Changing Reference Objects

Specifying and Changing Reference Objects

To call up the individual functions in the table, call up the notification header data screen in create or change mode. As the notification screen is adjustable, it is possible that the functions in your system are located on other tabstrips.

Function	Tab page/Menu path	What you should know
Entering a reference object directly	<i>Notification</i>	<p>Enter the number of the reference object directly on the tabstrip.</p> <p>After choosing <i>Continue</i>, the system displays the text for the reference object. If you have entered a piece of equipment that is assigned to a functional location, the functional location is also displayed.</p> <p>Moreover, the system will copy the location and account assignment data for the reference object from the master data to the notification. You can modify the data here.</p> <p>This has the advantage that a change in the technical object master data does not automatically change the notification.</p>
Changing the reference object	<i>Notification</i>	<p>Enter the number of the new reference object directly on the tabstrip.</p> <p>Moreover, the system will copy the location and account assignment data of the current reference object to the notification.</p>
Updating the reference object	<i>Updating the reference object data</i>	You use this function to adjust the location and account assignment data in the notification with the data from the reference object master record.
Not specifying a reference object	<i>Location data</i>	Leave the fields for the reference object on the tabstrip <i>Notification</i> empty, and instead enter the location data as precisely as possible.

Specifying and Changing Reference Objects

Changing the reference object view	<i>Extras → Settings → Reference object view</i>	<p>You can only change the view if a reference object has not been entered.</p> <p>After saving the notification, the selected setting will only be retained for this notification.</p>
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Calling up Object Information

Use

You can display information that affects the reference object in a dialog box, which can be shown automatically. The following data, which refers to the object in the notification, is available in the *Object Information* dialog box:

- Structure data (for example, object hierarchy)
- Classification data
- Previous damage and the number of days required to solve the problem
- Previous notifications and/or orders, which have been created or completed for the object
- Maintenance plans for this object
- Documents or drawings for this object

From the dialog box, you can call up more detailed data for all these entries, for example, an individual notification. You can also branch to the information system to evaluate statistics.

Prerequisites

In Customizing for Plant Maintenance and Customer Service, you have defined an object information key by choosing *Maintenance Order Management* → *Notifications* → *Object Information*, and assigned it to the notification type.

This information can also be displayed automatically if certain conditions are met. This means, for example, that you can set in Customizing whether object information should always be displayed if a particular number of notifications are still outstanding for this object within a particular period of time, or if the object has certain characteristics.

Procedure

1. Depending on the application component in which you are working, choose:
 - *Logistics* → *Plant maintenance* → *Maintenance processing*
 - *Logistics* → *Customer service* → *Service processing*
2. Call up the notification in display or change mode.
3. If a reference object has been entered in the notification, choose *Object information*.

A dialog box appears that displays information about the reference object.
4. In the *Reference* group box, you can choose whether you want to see information about the object specified in the notification, about its superior object, or the entire object structure.

The dialog box also contains the following information:

 - The last three notifications entered for this object, with short text, date, completion and priority
 - Statistics concerning the notifications created for the object
 - Classification data for the object regarding contracts, maintenance items and maintenance dates

Time Zones

Time Zones

Use

Different time data is stored in the service notification. The system time usually forms the basis for this data. The date when the notification was created and when it was changed are thereby always displayed in the system time.

If you define a personal time zone in the user master record, the system saves particular time data for the notification in the local time zone of the user. This data consists of:

- Notification date
- Dates for notification (for example, malfunction start, malfunction end, required start)

The system also takes the local time zone of the user as the basis for calculating dates.

If detail data for the customer is displayed in the notification, the time zone of the customer is displayed there for information. However, the system does not consider this time zone during its calculations.

Prerequisites

You have maintained time zones centrally in the Customizing for *Cross-Application Components* by choosing *General Application Functions*.

You have entered the local time zone of the user in the user master record under *Personal time zone*.

You have activated the include screen *Customer/Contact Person with Detail Data* in the Customizing for *Plant Maintenance and Customer Service* under *Maintenance and Service Notification*.

Activities

Displaying a Time Zone

You can display the local time zone of the user by choosing *Goto* → *Administrative data* in the notification.

Task

Definition

Work that is planned within the framework of a notification. In contrast to an activity, the planning and organizational aspects of a notification are the most important.

Using tasks, you can plan the way in which various persons work together to process the notification and perform the activities within a specified period of time.

You can enter the following data for each task:

- Key for the task to be performed, and a brief instruction of how the work is to be performed.
- Planned start and end of the task
- Task status

A task can relate both to the notification header, as well as to the individual items. They can have different statuses.



An example of a task in a problem notification might be, for example, to inform the construction department of a defect.

In a service notification - the main area where tasks are used - frequently occurring tasks might be "Call customer back within an hour" and "Technician to be on site within a day".

Use

Data regarding tasks in the notification is displayed in varying levels of detail in two different screens:

- In the task overview
- In the task detail screen

The task overview and detail screens are the same for all notification types.



Integration

If the appropriate data is maintained in Customizing, the system can trigger certain follow-up actions on the basis of the task code (for example, printing a paper or calling up a certain SAP function). You can determine these follow-up actions in your company individually (see [Follow-Up Actions for Tasks \[Page 899\]](#)).

Entering Tasks

Entering Tasks

To call up the individual functions in the table, call up the notification in create or change mode. Since the notification screen can be configured differently, the functions in your system may be located on other tab pages.

Function	Tab Page	What You Should Know:
Entering tasks for the notification header	<i>Tasks</i>	The tasks entered here apply to the entire notification.
Entering tasks for a single item	<i>Tasks</i> on the <i>Items</i> tab page	The tasks entered here apply to the respective item.
Entering tasks for one or more items	<i>Tasks</i> on the <i>Items</i> tab page	<p>Here, you specify the planned start and finish date for the task. The dates entered may be changed, based on the status issued (see Status Management for Tasks [Page 895]).</p> <p>If you have selected more than one item on the <i>Items</i> tabstrip, choose  on the task overview screen for the item. The tasks for the next selected item are displayed.</p> <p>To call up the task detail screen, choose .</p> <p>To create a new task from the detail screen, choose <i>New entry</i>.</p>
Automatically determining tasks		Automatic Determination of Tasks [Page 897]

Status Management for Tasks

Use

Tasks are used to plan and manage notifications as a background process. For this reason, it is useful to be able to determine the various processing stages that a task has reached using statuses.

There are three statuses relevant to tasks in the system:

- Released
The task can now be performed.
- Completed
The task has been performed.
- Successful
The results of the task were positive; the problem has been solved or the damage repaired.

Integration

The task status is only used to provide the maintenance planner with information. There is little interaction between the different statuses; to a large extent they are independent of one another.

This means that, for example, a notification can be put in process, even if it contains outstanding tasks that have not yet been released. However, you cannot complete a notification while it contains outstanding tasks.

All tasks are the same from a system perspective, in other words, the system does not distinguish between tasks at notification header level and ones at notification item level. Therefore, if the status line indicates that there are tasks outstanding in the notification, these can be both header tasks and item tasks.



So long as a task is not "completed", the notification has the status "outstanding tasks", even if the task has already been released.

For more information on general status management, see [Status Management \[Page 965\]](#).

Features




You must assign a status to each task individually. To do this, you choose the appropriate symbol on either the task overview or task detail screen.

The status of each task is entered in abbreviated form in the task status line, both in the task overview and in the task detail screen. If you want to see the text for the abbreviations, select the task and choose . The screen *Change Status* is displayed.

When you assign a status to a task, the system automatically changes the relevant dates:

Status	The system completes these fields:
---------------	---

Status Management for Tasks

 Released	<i>Planned start</i> with the current time <i>Planned finish</i> with either the current time or with the required notification end time You can overwrite both fields.
 Completed	<i>Date carried out</i> <date> <i>Carried out by</i> <user name> with the current date and the current user name; You cannot overwrite these fields.
 Successful	None

The planned dates for a task must fall within the period of time specified in the notification as the required start and end dates. If you specify other dates for the task, the system issues a message to remind you of this. If no dates are maintained for the notification, the system takes 0 as a basis, so that it can still issue an information message if the dates are inconsistent.

Automatic Determination of Tasks

Use

Based on the preset parameters [Response Profile \[Page 850\]](#), [Service Profile \[Page 850\]](#) and, if necessary, [Priority \[Page 850\]](#), you can use the automatic determination of tasks when entering the notification. The predefined parameters determine the times and the time interval within which your company should respond to a notification in a particular way.

[Example: Automatic Determination of Tasks \[Page 898\]](#)

Integration

The automatic determination of tasks is particularly important for service and maintenance contracts. Specifically, if an explicit agreement is made between the contract partners that certain responses should be made at certain intervals.

For more information on task determination in maintenance planning, see [Automatic Task Determination for Notifications \[Page 556\]](#).

You can assign a response profile to the notification in two ways:

- Using the notification type
- Using a service contract

Prerequisites

Refer to the prerequisites under [Task Determination and Notification Monitoring \[Page 848\]](#).

Features

For task determination, the system proceeds as follows:

If you enter a notification with a reference object, the system checks whether:

- There is a service contract for the reference object
- A service product with service profile is defined as a characteristic valuation

If this is the case, the service profile forms the basis for the task determination.

If no service profile and thereby no response profile is found using the contract, or if the reference object is not contained in a contract, the system uses the service profile, which is assigned to the notification type, as a basis.

Activities

From the notification, choose *Edit → Tasks → Determine* or if you would like to simulate tasks, choose *Edit → Tasks → Simulation (Determination)*.

Example: Automatic Determination of Tasks**Example: Automatic Determination of Tasks**

A customer service department is available, for example, at the following times:

Service Profile

Counter	Days	Times	Response Profile
1	Monday - Friday	08.00 - 20.00	Local office hours
2	Thursday	20.00 - 22.00	Local office hours
3	Saturday	09.00 - 13.00	Local office hours

The response profile "Local office hours" contains the following codes and time intervals:

Response Profile "Local Office Hours"

Priority	Code	Description	Time Interval
2	PHON	Call customer back	30 minutes
2	ONSI	Service technician on site	2 hours
1	PHON	Call customer back	15 minutes
1	ONSI	Service technician on site	1 hour

The following tasks result:

- If a customer submits a notification with priority 2 (medium) at 12.00 p.m. on Saturday, you must call back within 30 minutes for an explanation of the problem, since this is agreed for the response profile in the contract. Therefore, you must have called back by 12.30 p.m. on that Saturday.
- If a technician has to be sent to the customer site, they must be there by Monday at 9 a.m. at the latest.
- If the notification has priority 1 (high), you must call back within 15 minutes of receiving the notification and the service technician must be at the customer site an hour later.



The times defined cannot exceed the daily limit. If you have to define times, which exceed the daily limit, define them, for example, as follows:

- 00.00 - 08.00
- 08.00 - 20.00
- 20.00 - 24.00

Follow-Up Actions for Tasks

Use

You can define tasks for one or more follow-up actions. These follow-up actions are automatically performed by the system as soon as you have processed and saved the notification.

Prerequisites

In the Customizing function for the Plant Maintenance and Customer Service application components for notifications, you have

- Set the indicator for follow-up actions in the task catalog (catalog type 2)
- Defined a follow-up action key and assigned one or more function modules **that you have programmed** to this key

The function modules determine the activities to be performed.

Features

If you enter a notification code on the tabstrip *Notification* to which one or more follow-up actions are assigned and then save the notification, the system will perform the follow-up actions.

You can display a log on the task detail screen that contains the follow-up actions performed, on condition that they are supported by the function module.

Activity

Activity

Definition

Work that is performed within the framework of a notification. In contrast to the task, the activity describes what has already been performed within the framework of solving the problem. You can enter the following data for each individual activity:

- Key for the activity that was performed, and a short text that can be changed individually
- Start and end of the activity
- Quantity factor for the activity

An activity can relate both to the header of a notification, as well as to the individual items.

Use



Activity data is displayed in various degrees of detail in two places in the maintenance notification:

- In the activity overview
- In the activity detail screen

The activity overview and detail screens are the same for all notification types.


Entering Activities

To call up the individual functions in the table, call up the notification header data screen in create or change mode. As the notification screen is adjustable, it is possible that the functions in your system are located on other tabstrips.

Function	Tab page	What you should know
Entering activities for the notification header	<i>Activities</i>	The activities entered here apply to the entire notification.
Entering activities for a single item	<i>Activities</i> on the <i>Item</i> tabstrip	The activities entered here apply to the respective item.
Entering activities for one or more items	<i>Activities</i> on the <i>Item</i> tabstrip	<p>If you have selected more than one item on the <i>Items</i> tabstrip, choose  on the activity overview screen for the item. The activity for the next selected item is displayed.</p> <p>To call up the activity detail screen, select the activity and choose .</p> <p>To create a new activity from the activity detail screen, choose <i>New entry</i>.</p>



Overwrite the activity text, if the text entered by the system based on the activity code does not really apply for this activity.

If you have entered your own activity text, you can also enter a long text for the action using .

Both texts are displayed in the activity detail screen. In evaluations, you only see the activity text that is defined in the catalog, not your own text.

Catalog Profile

Catalog Profile

Data on problems, malfunctions, damages, causes and problem solutions or malfunction corrections is recorded in the system or reported to the planner responsible in the form of technical findings after a visual check, after the object has been inspected or checked, or the problem has been determined. This data forms part of the service or maintenance notification and is entered in the maintenance history. The data needs to be formalized, so that it can be used in evaluations.

Definition: Codes and Code Groups

Codes are the means with which this data is managed in the *Customer Service* (CS) and *Plant Maintenance* (PM) application components. There is a corresponding code for each set of findings. The codes are grouped together in code groups according to particular characteristics. For example, there is

- A code group with all codes for problems and damage relating to engines
- A code group with all codes for problems and damage relating to pumps

There are also code groups for problems, causes, object parts, tasks and activities in the CS and PM application components.

Definition: Catalogs

Code groups that belong together in terms of **content** are grouped in catalogs. These catalogs are identified by the catalog type (a number or a letter). For example, in this way you combine

- All code groups for particular problems for a catalog type
- All code groups for causes for another catalog type and
- All code groups for activities for a further catalog type



The catalog functionality originates from the Quality Management (QM) application component.

You will find further information on the structure of codes, code groups, catalogs and catalog profiles in the Customizing function for Customer Service and Plant Maintenance.

Definition: Catalog Profile

Central service and maintenance planning indicates from a **functional** perspective in catalog profiles, which code groups should be used for a particular reference object or for a particular notification type. In this way, it makes available to other service and maintenance employees a basic number of codes that are relevant to the reference object.

If a particular catalog profile is valid for a particular technical object, the system displays the catalog profile name in the data screen of the corresponding functional location or piece of equipment. The equipment catalog profile is more detailed than that of the functional location.



In the notification, the system determines the catalog profile on the basis of the reference object in the following sequence:

Equipment → Construction type of equipment → Functional location → Construction type of functional location → Notification type.

This means the following:

The system checks whether a piece of equipment is specified. If so, it checks whether a catalog profile is specified for this piece of equipment. If this is the case, it copies the catalog profile to the notification; if not, it checks whether a construction type with catalog profile exists for the piece of equipment. If so, it copies the catalog profile of the construction type to the notification; otherwise, it checks whether a catalog profile exists for the functional location assigned to the piece of equipment or the functional location specified, and so on.

Copying Another Catalog Profile

Copying Another Catalog Profile

Use

In principle, a globally defined catalog profile underlies a maintenance notification on the basis of the notification type. If, for example, you specify a functional location in the notification for which a particular catalog profile has already been defined, or if a functional location with catalog profile has already been specified in the notification, and you now enter a piece of equipment with different catalog profile, you or the system must decide whether the original catalog profile should continue to be valid, or whether the new one should be copied to the notification.

Prerequisites

This decision is made in Customizing by the central service and maintenance planning department for each catalog profile as follows:

System message	Effect
Information message	The system adapts the new catalog profile.
Warning message	The system adapts the new catalog profile.
Error message	The system does not adapt the new catalog profile, but retains the original one.

If, for example, a particular catalog profile is valid for certain pieces of equipment, and this catalog profile with its code should be compulsory for the service and maintenance employee, then it should be specified in Customizing that an error message is issued whenever other catalog profiles are used in the notification. As a result of this, no other catalog profile can then be copied and only the codes of this catalog profile can be used in the notification.



If no specifications regarding catalog profiles have been made in Customizing, the system adopts the new catalog profile without issuing a system message.

Activities

To see which catalog profile is valid for a notification, choose *Extras* → *Catalog profile* → *Display*.

Changing the Catalog Profile

1. On one of the tabstrips, select *Extras* → *Catalog profile* → *Selection....*

A dialog box is displayed. The group box *Current catalog profile* contains the current or last copied catalog profile, while the group box *Default catalog profile* contains the catalog profile that was previously valid.

2. If you want to copy the catalog profile proposed by the system, press *Default transfer*.

The system displays the proposed catalog profile in the block *Current catalog profile*.

3. If you do not want to use either the current or the proposed catalog profile, you can enter another one. To do this, enter the required catalog profile in the catalog profile *Individual catalog profile*. Choose *Individual transfer*.

The system displays the individual catalog profile in the block *Current catalog profile*.



The individual catalog profile is no longer overwritten by the catalog profile of the reference object. If it is no longer to be used, you have to change it explicitly.

4. Choose *Continue* to close the dialog box, and save the changes.

Action Box

Action Box

Use

When you process quality notifications, maintenance notifications, or service notifications, you can use the **action box** to execute **follow-up functions**. Follow-up functions can help you process a notification problem and are documented as an **activity** or **task** for the notification header after being executed. Depending on your settings in Customizing for *Notification Processing*, the follow-up functions in the action box can include functions that you can execute:

- More than once and independently of other follow-up functions in the action box
- Only once and/or after certain other follow-up functions have been executed (for example, interdependent, process-related functions)



Follow-up functions in the action box are different from task-related [follow-up actions \[Ext.\]](#). Both follow-up functions and follow-up actions call function modules. With a follow-up action, however, the system executes the corresponding function module when you **save** a quality notification. With a follow-up function, the system executes the corresponding function module as soon as **you execute the follow-up function** in the action box. Also, when you process follow-up functions, you enter information in a dialog box. This is not possible with follow-up actions.

Integration

You can link the follow-up functions that are documented as **tasks** to the functions of the *SAP Business Workflow* component. This allows the system to trigger certain workflow tasks, once a function has been executed and the notification has been saved.

The action box contains follow-up functions that support the following business processes:

- [Repairs Processing Using Quality Notifications \(RMA\) \[Ext.\]](#)
- [Processing Return Deliveries to Vendors \[Ext.\]](#)

Prerequisites

The follow-up functions delivered in the standard system are ready for use. If you do not need a particular follow-up function, you can delete it in Customizing for *Notification Processing*. If you want to include your own, self-programmed functions in the action box, you must define them in Customizing for *Notification Processing*.

Features

Function	What you should know
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Action Box

Appearance of the action box	<p>In the standard system, the action box is displayed as an overview tree. In this mode, the follow-up functions are displayed in a list in different colors. The colors have the following meaning:</p> <ul style="list-style-type: none"> • Blue: The follow-up function is active and can be executed. • Black: The follow-up function is inactive and cannot be executed (yet). • Gray: The follow-up function has been executed and cannot be executed again. <p>If you set the <i>Action box: Table</i> indicator in the user default values, the system displays the action box as a table. In this mode, the system only displays the follow-up functions that can be executed (without the color coding).</p>
Standard follow-up functions	<p>The action box contains several follow-up functions that have been predefined in Customizing for <i>Notification Processing</i>. For more information about these functions, see:</p> <ul style="list-style-type: none"> • Standard Follow-Up Functions for Activities [Page 909] • Standard Follow-Up Functions for Tasks [Page 910]
Business transactions	<p>You can also assign a business transaction to each follow-up function in Customizing for <i>Notification Processing</i>. The business transaction determines whether an activity or task resulting from a follow-up function can be executed, based on the current status of a notification.</p>
Authorization check	<p>Each follow-up function is assigned a code group in Customizing for <i>Notification Processing</i>. When you process a notification, the system automatically checks whether you are authorized to access the code groups assigned to the various follow-up functions. If you do not have authorization for a particular code group, the corresponding follow-up function does not appear in the action box. This means that you can only use the follow-up functions for which you have authorization.</p>

Activities

To execute a follow-up function in the action box, click the text or double-click the symbol for a follow-up function that is displayed in blue. A dialog box appears, in which you can enter the data that is required to execute the function.



You can only execute a follow-up function if you select it from the action box. If you create an activity or task in the notification using the possible entries help for a catalog, the system will not execute a follow-up function.

Action Box

The system executes the selected function and documents it as an activity or task for the notification header.

Standard Follow-Up Functions (Activities)

Use

The action box contains several standard follow-up functions that you can use to help you process a notification problem. When you execute one of these follow-up functions, the system documents the execution of the function as an activity for the notification header.

Features

Follow-up function	What you should know
Telephone contact using <i>SAPphone</i>	<p>You can use this function to initiate a telephone call using <i>SAPphone</i>. The system logs the details of your telephone call as a notification activity.</p> <p>To be able to use this function, the telephone and computer in your office must be interconnected and the <i>SAPphone</i> component must be active.</p>
Telephone contact without <i>SAPphone</i>	<p>You can use this function to record a telephone call that you initiated while processing a notification. The system logs the details of your telephone call as a notification activity.</p>
Internal memo	<p>You can use this function to record an internal message or remark that relates to the subject matter of the notification. The system logs the memo as a notification.</p>
Solution database [Ext.]	<p>You can use this function to search the solution database for symptoms and solutions that may be similar to the problem you are currently processing.</p> <p>If you find a symptom/solution in the database that applies to the problem in your current notification, you can:</p> <ul style="list-style-type: none"> • Document your database search as an activity in the notification • Copy the tasks associated with the solution into your notification

Standard Follow-Up Functions (Tasks)

Standard Follow-Up Functions (Tasks)

Use

The action box contains several standard follow-up functions that you can use to help you process a notification problem. When you execute one of these follow-up functions, the system documents the execution of the function as a task for the notification header.

Features

Follow-up function	What you should know
Changing the quality level	<p>You can choose one or more quality levels in QM and increase the inspection severity for these levels. The selected quality levels may relate to the following criteria:</p> <ul style="list-style-type: none">• Material• Material / vendor• Material / customer• Material / manufacturer• Material / vendor / customer / manufacturer• Material / inspection type <p>You can only increase the inspection severity for a quality level by a single stage (even if you select the same quality level more than once).</p> <p>When you save the notification, the system increases the inspection severity for the selected quality levels by executing a corresponding follow-up action.</p>
Resetting the quality level	<p>You can choose one or more quality levels in QM and reset the inspection severity to the initial inspection stages.</p> <p>When you save the notification, the system resets the inspection severity for the selected quality levels by executing a corresponding follow-up action.</p>

Standard Follow-Up Functions (Tasks)

<p>Sending notices during notification processing</p>	<p>You can use this function to read and format selected data in a notification, which the system can then print, fax, or send as an e-mail to an internal or external (Internet) address.</p> <p>The standard system supports the following types of notices:</p> <ul style="list-style-type: none"> • Confirmation of receipt • Interim report • Final report <p>When you execute this function, the system retrieves and displays a standard text that is stored as a long text under the corresponding catalog task code. You can edit this text as necessary without changing the original long text. If several partners exist for the notification, you can select a partner before you process the text.</p> <p>You can view the document in a print preview before you save the notification. When you save the notification, the system sends the notice by executing a corresponding follow-up action.</p>
<p>Creating a new notification</p>	<p>You can use this function to create a new notification while you are processing an existing notification. When you create a new notification, you can copy the:</p> <ul style="list-style-type: none"> • Header data from the existing notification into the new notification and edit the data as necessary. • Defect data from the existing notification into the new notification. This defect data does not include the cause, task, activity, classification, and long text data.
<p>Requesting an 8D report (notification type Q2, complaint against vendor)</p>	<p>An 8D report is a standard form that is used in the automobile industry to document the correction of defects. For example, as an automobile manufacturer, you can use this follow-up function to request an 8D report from a vendor to receive a statement about the confirmed defects and how the vendor intends to correct the defects.</p> <p>You can use this function to create an 8D report for a defect while processing a quality notification. When you save the notification, the system prints the 8D report by means of a corresponding follow-up action.</p>

Standard Follow-Up Functions (Tasks)

<p>Creating an 8D report (notification type Q1, customer complaint)</p>	<p>If a customer submits a complaint about a product you delivered as vendor, the customer may ask you to submit an 8D report. In this case, you create a quality notification for a customer complaint to describe the defects and possible causes, and to define appropriate tasks.</p> <p>You can also create an 8D report for each defect item. The system inserts the tasks in the various sections of the 8D report, based on the task sort number.</p> <p>For example, if a task has the sort number "4," the system inserts the task in the fourth section of the 8D report. The system prints all tasks with the corresponding sort numbers in appropriate sections of the 8D report.</p> <p>The system selects the persons responsible as follows: for tasks, it specifies the person responsible for the task; for causes, the person responsible for the notification.</p> <p>The system determines dates for the tasks as follows:</p> <ul style="list-style-type: none">• If the task has already been completed, it specifies the completion date and includes the text "completed."• If the task has not been completed yet, but an end date has been planned, it specifies the planned end date and includes the text "planned."• If no date has been specified for a task, it records the text "outstanding." <p>If you want to use your own form for an 8D report, assign your form to the shop paper "8D_C" in the print control for the quality notification.</p>
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Standard Follow-Up Functions (Tasks)

<p>Permission to Deviate from Specification</p>	<p>Using this follow-up function, you can contact a notification partner to obtain permission to deviate from a specification. For example, if parts delivered by a vendor are found to be out of tolerance, you can document this as a defect in a quality notification. When you process the notification, you can execute this function to obtain permission from an internal or external notification partner, for example, to allow you to use the out-of-tolerance parts in production.</p> <p>This function starts the following workflow:</p> <ul style="list-style-type: none"> • It sends an e-mail to the partner that contains a description of the problem and an address (URL). • Using the URL, the partner can access his or her workflow inbox (provided he or she has an Internet user) where the work item can be processed. • Once the partner has processed the work item by entering a response and a decision, this information is documented as a long text in the original quality notification. • Both the processor (partner) and the person who initiated the workflow receive a confirmation mail.
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See also:

[Functions for Repairs Processing \[Ext.\]](#)

[Functions for Processing Return Deliveries \[Ext.\]](#)

Shop Papers

Shop Papers

Definition

Documents created for the processing of maintenance notifications.

Structure

The standard system provides three different types of shop papers for maintenance notifications:

- Notification overview
The maintenance overview is a complete printout of a maintenance notification, so that the maintenance planning department has an overview of the notification.
- Activity report
The activity report serves as the basis for work if a malfunction is to be repaired without a maintenance order. It comprises a list of activities for each maintenance notification item. The person repairing the malfunction simply has to check the activities that they have performed, and can confirm the completion of the work using this list.
- Breakdown report
The breakdown report is a complete printout of the information regarding downtime and system availability.

Furthermore, your company can also define user-specific shop papers. The control tables for the print functions are defined centrally within your company in such a way that you can display the relevant shop papers using the online help functions, and select the ones you require.

Printing and Faxing of Shop Papers

Use

In many cases, it is useful not only to display the shop papers for notifications on screen, but also to process them in the following ways:

- Print out a paper version
- Send as a fax
- Keep a copy in the ArchiveLink optical storage system
- Transfer to an Access database

Although a number of different media are involved here, the procedures used are similar.



When printing and faxing, remember that the first printout is always the original; all subsequent issues are treated as copies. For example, if you first send the breakdown analysis as a fax and then make a printout, the fax is the original and the paper printout is the copy.

Reasons for Printout

The following situations are possible:

- The service or maintenance planner would like an overview of all the notifications that fulfill a certain criterion, and therefore requires a printout of the screen display.
- The service or maintenance planner would like to use the printed version of notification data as shop papers, in other words, as the basis for performing certain activities, for example, because:
 - Immediate action is required for a malfunction, without the activity being planned in an order first
 - The company does not use service or maintenance orders and is therefore unable to create shop papers from them

In principle, the shop papers that are printed on the basis of the order are more detailed than those printed on the basis of the notification, since the order contains detailed service or maintenance planning.

- For verification purposes, the service or maintenance planner needs to see a notification exactly as it would appear in print, and therefore saves it in ArchiveLink.
- The service technician requires the data on site in his notebook rather than a paper printout, and therefore loads it from the SAP System to an Access database.
- The service or maintenance planner wants to send a notification to a service technician on site, who requires the shop papers urgently by fax.

Features

The following functions are available to you:

Printing and Faxing of Shop Papers

- [Printing a notification in full \[Page 917\]](#)

You use this procedure to print out a notification with all its items at once.

- [Printing a notification item \[Page 918\]](#)

You use this procedure to print out individual items for a notification.

- [Printing shop papers for several notifications \[Page 919\]](#)

You use this procedure to print shop papers for several notifications at the same time.

- [Viewing the print log \[Page 921\]](#)

You use this procedure to determine which parts of the notification have been printed.

- [Faxing shop papers \[Page 920\]](#)

You use this procedure to fax a notification or particular notification items.

- Printing shop papers for notifications and orders at the same time

If a notification and order have been assigned to one another, you can print all the shop papers for the notification and order at the same time. You can start the printing process from either order or notification processing. You can also print out all the notification and order data on one shop paper.

Additional Functions

- [Archiving shop papers in ArchiveLink \[Page 922\]](#)

You use this procedure to store a notification or particular notification items in ArchiveLink, the optical storage medium in the R/3 System.

- [Downloading notifications \[Page 924\]](#)

You use this procedure to view and process a notification using a PC on site.

Printing a Maintenance Notification in Full

1. Call up the notification in change mode.

The screen *Change Notification: <Notification type>* is displayed.

2. Choose *Notification* → *Print* → *Notification*.

The dialog box *Select Shop Papers* is displayed together with a list of all the shop papers that are possible for this notification type, and that you can print out.

3. Select the shop papers that you want to print out. Individual shop papers may already be selected on the basis of particular entries in the corresponding control tables. Check the other entries in the dialog box and change them where necessary.

If you want to fax the shop papers, you must delete the output device and enter the fax number and country key of the recipient (see [Faxing Shop Papers \[Page 920\]](#)).

4. When you have selected all required shop papers, choose *Print/Fax*.

Result

The system saves the notification and prints the selected shop papers on the specified printer. Each item is printed on a separate page that always contains the notification header data in the first section. The notification is assigned the status *printed*.



You cannot simultaneously print and fax a certain shop paper. However, in the dialog box, you can determine whether each individual shop paper should be printed or faxed (for example, you can print the notification overview and at the same time send the activity report by fax).

Printing a Notification Item

Printing a Notification Item

1. Call up the notification in change mode.

The screen *Change Notification: <Notification type>* is displayed.

2. Choose *Notification* → *Print* → *Item selection*.

The dialog box *Print item: Selection* is displayed.

3. Select the item that you want to print shop papers for, and choose *Continue*.

The dialog box *Select Shop Papers* is displayed, with a list of all the shop papers that are possible for this notification type, and that you can print out.

4. Select the shop papers that you want to print out. Individual shop papers may already be selected on the basis of particular entries in the corresponding control tables. Check the other entries in the dialog box and change them where necessary.

If you want to fax the shop papers, you must delete the output device and enter the fax number and country key of the recipient (see also [Faxing Shop Papers \[Page 920\]](#)).

5. When you have selected all required shop papers, choose *Print/Fax*.

Result

The system saves the notification and prints the selected shop papers for each selected notification item on the specified printer. Each item is printed on a separate page that always contains the notification header data in the first section. The notification is assigned the status *printed*.



If particular activities described in the activity report have already been performed and their completion has been entered in the system, the printout will contain a remark to that effect.

If an item is printed out again, the system displays a warning message informing you that the item has already been printed. If you then print it out anyway, the title of the shop paper contains the word *Copy*. In this way you know that it is not the original shop paper.

Printing/Faxing Shop Papers for Several Notifications

1. Depending on the application component in which you are working, choose:
 - *Logistics* → *Plant maintenance* → *Maintenance processing*
 - *Logistics* → *Customer service* → *Service processing*The screen for maintenance or service processing appears.
2. Choose *Notifications* → *List editing* → *Change*.
3. Create a list of all notifications according to the required selection criteria. For more information about creating lists, see [Working with Lists \[Ext.\]](#).
4. In the list generated, select the notifications, for which you want to print shop papers, and choose *Notification* → *Print notification*.
5. The dialog box *Select Shop Papers* is displayed with the shop papers that can be printed and print information.
6. Select the shop papers that you want to print.

Check all the information already entered by the system based on Customizing settings. Make changes as required.



To fax the shop papers, you must delete the output device and enter the fax number and country key of the recipient (see [Faxing Shop Papers \[Page 920\]](#)).

7. Choose *Print/fax*.

Result

The system prints or faxes the shop papers for the selected objects based on your specifications.

The selected objects are assigned the status *Printed*.

Faxing Shop Papers

Faxing Shop Papers

1. Call up the notification in change mode.

The screen *Change PM Notification: <Notification type>* is displayed.

2. Choose *Notification* → *Print* → *Notification*.

The dialog box *Select shop papers* is displayed.

3. If you want to send **individual** papers to **different** recipients, simply select the desired shop papers, delete the output device if one has been entered and enter the fax number and the country key of the respective recipient for every shop paper selected.

If you want to send **several** papers to one **particular** recipient, simply select the desired shop papers, choose *Collective fax* and enter the fax number and the country key of the recipient in the dialog box displayed.

4. Choose *Print/Fax* or *Continue*.

Result

The shop papers will be sent by fax. The notification is assigned the status *printed*.



You cannot simultaneously print and fax a certain shop paper. However, in the dialog box, you can determine whether each individual shop paper should be printed or faxed (for example, you can print the notification overview and at the same time send the activity report by fax).

Viewing the Print Log

Use

As soon as a notification has been printed in full or individual items from it have been printed or faxed, the notification has the status *printed*. The parts that have been printed are listed in the print log. Therefore, if you want to print a notification or individual items from it, and the notification already has the status *printed*, you should always check in the print log who has printed what and when.

The output device in the print log shows you whether the shop paper was printed internally or sent by fax.

Procedure

1. Call up the notification in change mode.

The screen *Change Notification: <Notification type>* is displayed.

2. Choose *Notification → Print → Display log*.

The print log is displayed.



If you delete an item from the notification, it is automatically deleted from the print log as well. If another printout of the item exists within the company, this can lead to inconsistencies under certain circumstances.


Archiving Shop Papers in ArchiveLink

Archiving Shop Papers in ArchiveLink

Use

You can archive shop papers in ArchiveLink. ArchiveLink is the optical memory of the R/3 system. For more information on ArchiveLink, see [BC - SAP ArchiveLink - Scenarios in Applications \[Ext.\]](#)

Archiving Shop Papers

1. Call up the notification in change mode.
The screen *Change Notification: <Notification type>* is displayed.
2. Choose *Notification* → *Print* → *Notification*.
The dialog box *Select shop papers* is displayed.
3. Choose  *Select*.
A dialog box is displayed.
4. Enter the archiving mode *Archive only* or *Print and archive* and choose *Continue*.
You return to the dialog box *Select shop papers*.
5. Choose *Print/fax*.
The system will archive the shop papers in ArchiveLink.

Displaying Shop Papers in ArchiveLink

1. Call up the notification in display or change mode.
2. Choose *Environment* → *Object links*.

Archiving Shop Papers in ArchiveLink

A dialog box is displayed.

3. Choose the required object link.

Downloading a Notification

Downloading a Notification

Use

Service technicians have an alternative to a paper printout of notifications. If they are using a PC on site and want to view and process the notifications that initiated their site visit, they can download notifications from the R/3 System to a Microsoft Access® database.

To do this, the relevant entry must have been made in Customizing.



For this download, the R/3 System provides the data for the notifications; the customer is responsible for the PC application used to process the data at the customer site.

Prerequisites

To make such a download, the following hardware and software requirements must be met:

- Front-end server using Windows 3.1® or Windows NT®
- Microsoft Access®, Version 2.0 or higher

Downloading a List of Notifications

1. Depending on the application component in which you are working, choose:

- *Logistics* → *Plant maintenance* → *Maintenance processing*
- *Logistics* → *Customer service* → *Service processing*

The screen for maintenance or service processing appears.

2. Choose *Notification* → *List editing* → *Change*.
3. Create a list of all the notifications according to the required selection criteria. For more information about creating lists, see [Working with Lists \[Ext.\]](#).
4. Choose *List* → *Access*.

The system loads the list into the MS Access® database. From there, additional processing depends on the tools used.

Downloading an Individual Notification

1. Call up the notification that you want to download.
2. Choose *Notification* → *Print* → *Download*.

The system downloads the notification into the MS Access® database. From there, additional processing depends on the tools used.

Sending of Short Messages Using Paging

Use

When processing notifications and orders, you can send short messages to one or more partners using paging. This is possible from various screens:

- Partner screen for the notification or order
- Notification or order header
- Graphical monitor for resource planning

Depending on where you are sending short messages from, you can reach different partners. The following partner types are available:

- Contact person
- User
- Personnel
- Customer

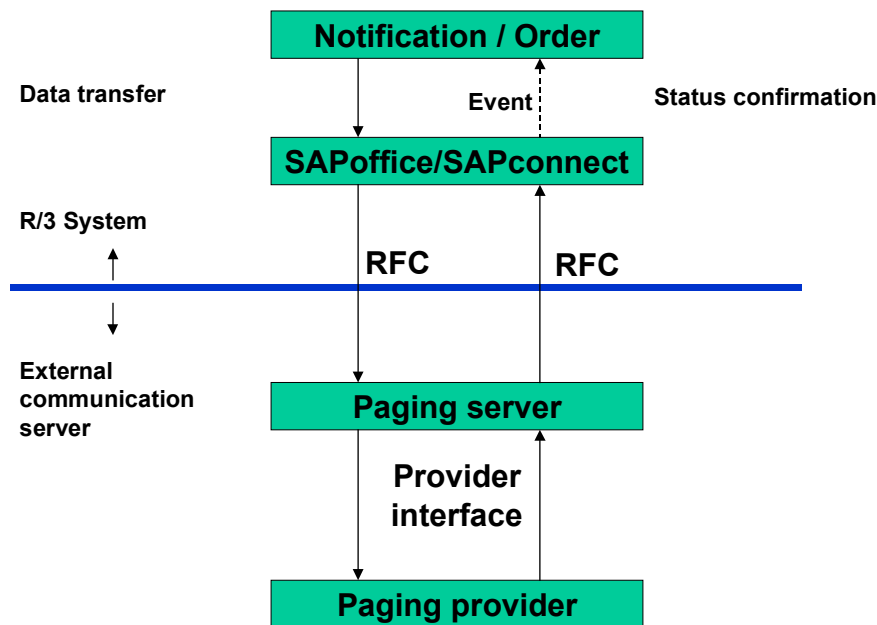
Integration

The components *SAPoffice®* and *SAPconnect* must be implemented to use the paging function. For more information, see *BC – Basis Services / Communication Interface*.

SAP provides a complete installation routine based on Install Shield. This can be used to install the required server programs on the communication server (Windows® 95, NT®). You should consult your certified SAP partner regarding extensions to ini-files.

Connection Between the Individual Components

Sending of Short Messages Using Paging



Prerequisites

General Prerequisites

To send short messages, you must define sub-types for the pager services in Customizing by choosing *Cross-Application Components* → *General Application Functions* → *Address Management*.

When defining sub-types, you should consider the information made available by the certified paging provider for the R/3 System. This includes, for example:

Country	Certified Paging Provider	Supported Paging Services
Germany	Balloon	Telekom: For example, D1 SMS, Skyper, Cityruf, Scall Mannesmann: D2 SMS
USA	RPA	MCI, Skytel

Prerequisites for Sending from the Partner Screen

From the partner screen, you can send short messages to partners of the following partner types:

- Contact person
- User
- Personnel

Sending of Short Messages Using Paging

- Customer

The partner function, which you specify on the partner data screen, must be assigned to one of these partner types using the partner determination procedure. The following data must also be defined for the partners:

Contact person Customer	These partner types are linked to the central address management function. Communication type PAG must be entered in the address data for these partners under <i>Further communication</i> .
User	Communication type PAG must be entered in the user master record under <i>Further communication</i> .
Personnel	The personnel master record must be assigned to info type 105 (communication) and a system user name. Communication type PAG must be entered in the assigned user master record under <i>Further communication</i> .

You must also define the sub-types for the pager services, which are available to the partner, in each address or user master record and select one as the standard service.

Prerequisites for Sending from the Notification Header

To send short messages from the header screen, you must define in Customizing the partner function for paging in the partner determination procedure, which is assigned to the notification or order type.

- For notification types, choose:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Basic Settings → Partner Determination Procedure → Define Partner Functions, Order Types and Other Notification Parameters

- For order types, choose:

Plant Maintenance → Maintenance and Service Processing → Maintenance and Service Orders → Partner Determination Procedure → Assign Partner Determination Procedure to Order Types

In the standard system, a short message is always sent to one user. This means that communication type PAG must be entered in the user master record under *Further communication*. You must also define the sub-types for the pager services, which are available to the partner, and select one as the standard service.

Prerequisites for Sending from the Graphical Monitor

To send short messages from the graphical monitor, you must define the following data in the personnel master record for the technician:

- You assign the personnel master record to a work center using *Organizational Assignment*.
- You enter info type 105 (communication) and assign the system user name. You must also define the sub-types for the pager services in the assigned user master record and select one as the standard service.

You enter the personnel master record in the accompanying order under *Technician*.

Sending of Short Messages Using Paging

Features

You can send short messages one after another to one or more partners. These short messages can also be predefined [standard texts \[Page 1253\]](#).

The integrated partner determination function offers the following advantages:

- When you create a notification and specify a reference object, the partners from the reference object are copied to the notification.
- When you create an order and specify a reference object or make reference to a notification, the partners are automatically copied from the reference object or notification to the order.

In both cases, you do not need to enter the partners first, but can contact them directly.

It is only possible to send short messages if the notification or order has not yet been completed. In addition, the notification or order must not be flagged for deletion. You can restrict the sending of short messages with user statuses.

When the first short message is sent, the system status PAGE is set automatically.

The short messages are only sent when the notification or order is saved. After the message has been transmitted, the pager provider confirms various communication or paging statuses. The following statuses are possible:

- Triggered
- Successful
- Warning
- Error



The pager provider does not inform the R/3 System whether the short message has reached its recipient.

The paging status can be displayed from the header screen, partner screen and graphical monitor. For the partner selected, you see all of the notifications and orders, from which short messages have been transmitted. The last status transmitted by the paging provider is displayed for each short message.

When using list editing, you can select notifications or orders according to particular paging statuses.

In the action log for a notification or an order, you can find an overview of all the short messages sent for each partner. For each address and message sent, the system generates an entry with the corresponding status.

All the short messages sent and the send history appear in the document flow for the notification and order. From there, you can also display the texts.

All short messages and their statuses are archived together with the notifications or orders.

Activities

Sending from the Header Screen

Choose *Paging*.

Sending of Short Messages Using Paging**Sending from the Partner Screen**

Select the required partner and choose *Paging*.

Sending from the Graphical Monitor

To send a short message with reference to the order, position the cursor on the order and choose *Paging*. The system proposes a standard text if one has been predefined for the order type.

To send a short message without reference to the order, position the cursor on the technician name and choose *Paging*. The system does not propose a standard text.

Sending of Messages Using the Internet and SAPoffice®

Sending of Messages Using the Internet and SAPoffice®

Use

When processing notifications and orders, you can send messages to one or more partners not only using paging, but also as:

- E-mail over the Internet
- Mail using SAPoffice®

Prerequisites

The prerequisites are the same as those for [sending short messages using paging \[Page 1248\]](#). However, note the following differences:

Depending on partner type, the following data must be entered in the address or user master record under *Further communication*:

• Paging	PAG
• E-mails over the Internet	INT
• Mails using SAPoffice®	RML

You must also define the sub-types for the pager services, which are available to the partner, in each address or user master record and select one as the standard service.

When sending messages, the system proposes this standard service automatically. If you use several different sub-types, the selection sequence is as follows:

• If sub-type PAG exists	Paging is always proposed
• If sub-type INT exists, but not sub-type PAG	The Internet is proposed
• If sub-type RML exists, but neither PAG nor INT	SAPoffice® is proposed

Use of Standard Texts

Use

You can use predefined standard texts when sending short messages. The system proposes the appropriate standard text depending on the notification or order type. You can change or supplement this standard text, and also extend it using a customer exit.

You can define one standard text for each notification or order type. The length of the text to be sent depends on the type of pager being used.

Prerequisites

1. You create standard texts using *Tools → SAPscript → Standard texts*.

You can also use variable text symbols, which are replaced automatically when the short message is sent.

2. You assign the standard texts to the notification or order types in Customizing.

- For notification types, choose:

Plant Maintenance → Maintenance and Service Processing → Notifications → Notification Types

- For order types, choose:

Plant Maintenance → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types

Putting Notifications in Process

Putting Notifications in Process

Use

Within the framework of notification processing, the meaning of the term “put in process” depends on whether the order processing component of the Customer Service or Plant Maintenance application components is active or not.

If order processing is active , the following applies:	If order processing is not active, the following applies:
<ul style="list-style-type: none"> An order can be generated for a task that has been requested in a notification, and assigned to the notification. 	<ul style="list-style-type: none"> An order cannot be generated for a task that has been requested in a notification.
<ul style="list-style-type: none"> You plan the tasks in detail in the order. The order forms the basis for performing the tasks. A notification that has been put in process means that someone has already taken over further processing of it. 	<ul style="list-style-type: none"> Since the order is missing as a means of documenting the work processing, you must document in the notification when the planning stage is finished, and that the tasks are now being or should be performed.
<ul style="list-style-type: none"> You put the notification in process manually. However, this is not absolutely necessary. A notification can be created and then assigned to an order. If an order is created from a notification, the status <i>In process</i> is set automatically. 	<ul style="list-style-type: none"> You put the notification in process manually.

Activities

Call up the notification in change mode, and choose *Notification* → *Functions* → *Put in process*.

The status field now displays the abbreviation for the status *In process*.

Assignment of Notifications to Orders

Use

To plan and execute the tasks requested in a notification in detail, you need a service or maintenance order, to which the notification must be assigned.

Detailed planning means, for example, that the individual work steps are described in detail, the required materials and production resources/tools are specified, the budget and account assignment details have been defined for subsequent cost allocation, and permits are assigned. Once all the work steps have been executed, and the order thereby completed, the costs incurred are billed to the party responsible (for example, the cost center that owns the piece of equipment) and the order is completed.

When planning concrete tasks in the order, you can refer to several notifications or technical objects. For this, you can use object lists, which contain all the relevant notifications and technical objects.

On the one hand, you can combine several notifications that refer to a particular object in a single order. This could be the case, for example, if several object defects are to be repaired on one maintenance or service date.

On the other hand, you can combine several notifications that refer to different objects in a single order. This would be advisable, for example, if connected object defects need to be repaired on one maintenance or service date.

However, you can also create an order directly, without having to create a notification first.



Technical findings, such as data regarding system downtimes, system statuses, and tasks can only be entered in the notification, not in the order. For more information, see [Entry of Technical Findings \[Page 950\]](#).

Features

To assign a notification to an order, which does not exist in the system, you can choose one of the following procedures:

- [Creating an order from a notification in the background \[Page 937\]](#)
You create an order from the notification, but do not branch into it. Usually, the order is created in the background, using the existing notification data. You access this function using: *Order* → *Create* → *In background*.
- [Creating an order from a notification for immediate processing \[Page 938\]](#)
You create an order from the notification, and branch to it in order to process it immediately. You access this function using *Order* → *Create* → *Direct*.

To assign a notification to an order, which already exists in the system, you can choose one of the following procedures:

- [Assigning an order to a notification \[Page 939\]](#)
During notification processing, you can enter the number of the existing order in the notification. You can thereby assign an order to the notification.

Assignment of Notifications to Orders

- [Assigning a notification to an order \[Page 940\]](#)

During order processing, you can enter the number of a notification. You thereby assign a notification to the order.

- [Creating a notification for the order \[Page 941\]](#)

During order processing, you can create a notification.

You are also able to delete assignments.

- [Deleting an assignment between notification and order \[Page 943\]](#)

Activities

Once you have saved the assignment between order and notification, the object list for the order contains the number of the assigned notification, and the notification contains the number of the assigned order.

Whenever the notification is called up from the order, the system reads the current notification data, but does not copy any notification data to the order. This enables you to change the notification, even though it is assigned to an order. The order always reads the current status of the notification.

Worklist for Planned Maintenance

Purpose

You can generate a worklist for planned maintenance from maintenance planning.

You can combine several notifications that were generated from maintenance plans and for which joint processing makes sense in a maintenance or service order using the list editing function for notifications ("Worklist"). For example, you can combine all notifications for a certain building or all notifications for a certain work center.



A specialist visits your company every three weeks and requires an analysis kit for some maintenance activities.

Previously, the specialist received several orders in which the activities to be performed were described. The result of this was that business requirements analysis and completion confirmations were very awkward and time-consuming (for example, through a high number of printouts and completion confirmations for individual orders).

You can combine all relevant notifications for the specialist in **one** order using the worklist. You can select the notifications according to work center, location, room or equipment, for example. The specialist receives only one order and less paper is wasted. This means that the processing and confirmation of the activities performed are greatly simplified.

Prerequisites

The following prerequisites must be fulfilled for this process:

- You have specified a [maintenance plan category \[Page 545\]](#) with a [maintenance call object \[Page 547\]](#) "maintenance or service notification" for the maintenance plan.
- You have assigned a task list to the maintenance item in the maintenance plan.
- In order to combine the notifications in an order, you must call up the notification worklist in Change mode.

Process Flow

5. You create separate maintenance plans with the maintenance call object "notification" for all planned activities in your company. To do this, you enter a task list in the maintenance item for the maintenance plan in which the activities are precisely described.
6. Using maintenance plan scheduling, the system generates a notification for each maintenance item of a maintenance plan when maintenance calls are due.
7. If you call up the list editing function for notifications in Change mode, you can display the notifications thus generated and select those that should be combined in an order ("worklist").
8. When you create an order from list editing, the selected notifications are combined as follows:

Worklist for Planned Maintenance

- The individual notifications are displayed in the object list for the order. You can identify the maintenance plan from which a notification has originated.
 - If you have specified a task list in the maintenance item of a maintenance plan, the system copies the operations of the task list to the order. The sequence of the operations corresponds to the sequence of notifications in the object list.
7. You can print out and process the order with all operations.
 8. You post a completion confirmation for the completed activities to the order.



The system will only copy the operations from the task list, if you combine the notifications together in an order using the worklist. The operations will not be copied if you manually include the notifications in an order.

Creating an Order from a Notification in the Background

1. Call up the notification in [create or change mode \[Page 860\]](#).

The screen *Create/Change Notification: <Notification Type>* appears.

2. Choose *Notification* → *Order* → *Create* → *In background*.

The system displays a dialog box containing fields for the order type and the main work center with plant. The order type is proposed based on the notification type, and the work center based on the piece of equipment or functional location entered. You can overwrite these default values.

If there is no default entry for the work center, you must enter one.

3. Choose *Continue*.

Result

The system saves the notification, creates the order, and an object list where necessary. It then displays a corresponding message.

The notification now has the statuses *Order assigned* and *In process*. The new order number appears in the field *Order* on the header data screen for the notification.

The new order contains the basic dates and the reference object that you specified in the notification. The notification number appears in its object list.



When you save, the order, notification, and object list are saved simultaneously.

Creating an Order Directly from a Notification

Creating an Order Directly from a Notification

1. Call up the notification in [create or change mode \[Page 860\]](#).

The screen *Create/Change Notification: <Notification Type>* appears.

2. Choose *Notification → Order → Create → Direct*.

The screen *Create Order* appears.

- If you have not already done so, enter the plant and main work center, and choose *Continue* to display the central header data screen for the order.
- If you have already entered the plant, choose *Continue* and the screen *Create Order: Central Header* appears.

3. Enter data as required.

The order is released using *Order → Save*.

The notification number is entered automatically in the object list for the order.

4. Save the order.

Result

The system saves the notification, order and object list. The notification is assigned the statuses *Order assigned* and *Notification in process*. The number of the assigned order appears in the field *Order* in the notification header.



If you save whilst in the notification, the order and object list are also saved and vice versa.

As soon as the notification and order have been assigned to one another, you can process the order from the notification and vice versa.

Assigning an Order to a Notification

1. Call up the notification in [change mode \[Page 860\]](#).

The screen *Change Notification: <Notification Type>* appears.

2. Choose *Notification* → *Order* → *Assign*.

The dialog box *Notification for Order* appears.

3. Enter the order number in the field *Order*. Once you have released the data, you can check the order number and view the order type and short text.

If you have the correct order number, choose *Close* to assign the order to the notification.

Result

The system informs you that it has saved the notification and assigned it to the order. As a result, the notification is automatically assigned the statuses *Assigned to order* and *In process*.

Assigning a Notification to an Order

Assigning a Notification to an Order

1. Depending on the application component in which you are working, choose:
 - *Logistics → Plant maintenance → Maintenance processing*
 - *Logistics → Customer service → Service processing*The screen for service or maintenance processing appears.
2. Choose *Orders → Change*.
The *Change Order: Initial* screen appears.
3. Enter the number of the order and choose *Header data*.
The *Change Order: Central Header* screen appears.
4. Choose *Objects*.
The *Object List for Order* screen appears.
5. Enter data as required.
6. Enter the number of the notification and choose *Enter*.
If a reference object is specified in the notification, the number and short text for the reference object now appear in the object list.
You can assign other notifications to the order. Enter one notification in each column of the object list as described above.
7. When you have entered all the notifications in the object list, save the data.

Result

The system saves the order, object list and notification. The system automatically enters the order number in the notifications, which are contained in the object list for the order. The notification also obtains the status *Assigned to order*.

Creating a Notification for the Order

Use

If you determine during the processing of an order that maintenance tasks need to be performed, for which a notification does not yet exist, you can enter a new notification from the object list for the order using the *Change order* function. This notification is automatically assigned to the order when you save it.

For more information about the functions in the object list for the order, see *PM - Maintenance Orders*.

Procedure

1. Depending on the application component in which you are working, choose:
 - *Logistics* → *Plant maintenance* → *Maintenance processing*
 - *Logistics* → *Customer service* → *Service processing*The service or maintenance processing screen appears.
2. Choose *Orders* → *Change*.
The *Change Order: Initial* screen appears.
3. Enter the number of the order and choose *Continue*.
The *Change Order: Central Header* screen appears.
4. Choose *Objects*.
The *Object List for Order* screen appears. Several blocks are displayed on this screen. Each block contains fields for the notification number and the reference object numbers.
5. To create the new notification for a particular reference object, you can enter its number in the corresponding fields for the object list. It is then copied automatically to the new notification.
6. Choose *Edit* → *Create notification*. A dialog box appears, in which you enter the required notification type.
7. Choose *Continue*. The *Create Notification: <Notification Type>* screen appears.
8. Enter the notification in the usual way and save it.

Result

When you save, the order and notification are saved simultaneously. The notification is copied to the object list for the order. If you have entered a reference object in the notification, this is copied with its number and short text to the object list.

The notification obtains the status "Assigned to order".



If you used this option to assign the notification and order to one another, you can delete the assignment (refer to [Deleting an Assignment Between Notification and Order \[Page 943\]](#)).

Creating a Notification for the Order

Deleting an Assignment Between Notification and Order

Use

It may be that a notification was inadvertently assigned to an order. If you no longer want a notification to be assigned to a particular order, you must remove this assignment from the notification.



You can only remove an assignment if the order and notification were created independently and only subsequently assigned to one another. If the order was created with reference to a notification, the system informs you of this.

You can no longer cancel an assignment once the order has been completed.

Procedure

1. Call up the notification in [change mode \[Page 860\]](#).
The *Change Notification: <Notification Type>* screen appears.
2. Choose *Notification* → *Functions* → *Order* → *Delete assignment*.
The system displays a confirmation prompt.
3. Confirm that you want to delete the assignment.

Postponement of Notifications

Postponement of Notifications

Use

A task requested using a notification should only be executed at a future date, which has already been defined. For this reason, the notification should be postponed until this date.



A task can only be performed when a technical system has been shut down. A deferred revision of the technical system could be chosen as the time when the task should be performed.

Features

If the postponed tasks for this date are to be checked, planned again, and put in process, you - as a service or maintenance planner - can use the notification status and selection functions for notifications to request and evaluate a list of all the relevant notifications.

Activities

Call up the notification in [change mode \[Page 860\]](#), and choose *Notification* → *Functions* → *Postpone*.

The status field now displays the abbreviation for the status *Postponed*.

Notification Completion

Use

During notification completion, the notification and accompanying business scenarios are completed. "Completion" means that the notification is transferred with particular data to the maintenance history. The data can be used to evaluate previous tasks and to plan future tasks.

Some companies use the term "archiving" instead of "completion".

Integration

The data from the notifications is copied to the [notification history \[Page 946\]](#).

Prerequisites

You should only complete a notification once it has been processed completely. This means the following:

- All data relating to the reference object for the notification is present and correct.
- All relevant item data is present and correct.
- All relevant task data is present and correct.
- All tasks have been completed or released; there are no more outstanding tasks.
- All technical data relating to system breakdown and availability is present and correct.

The history can only be compiled usefully for future analysis if the notifications contain this data.

Features

When you complete a notification, the following occurs:

- The reference time is defined: The system proposes this based on the data in the notification, but you can overwrite it.

The reference time is the date and time, at which the notification is listed in the history with the location and account assignment data valid specifically for the reference object.
- The system enters the notification in the history with the exact location and account assignment data that was valid for the reference object at the reference time.
- The notification is now blocked for changes, in other words, you can no longer change the notification data.

Activities

There are two ways of completing a notification:

- Directly in the change function (refer to [Completing a Notification Directly \[Page 947\]](#)).
- From the order, to which it is assigned (refer to [Completing a Notification from the Order \[Page 948\]](#)).

Notification History

Notification History

Definition

The maintenance history contains important object-related technical data. This means that it contains information for each object on,

- what malfunctions occurred
- the causes of these malfunctions
- what findings were to be noted, and
- what maintenance activities were performed

The maintenance notifications form the basis of the notification history. Technical maintenance data can only be stored for long periods of time if maintenance notifications are used.

The maintenance history, together with the usage history (master data) and the order history (processing data), form the maintenance history.

For more information on the maintenance history, see *PM - Maintenance History*.

Structure

The following table illustrates which data is transferred to which part of the maintenance history:

Data	Section of the maintenance history
Master sketches Accessories Functional location	Usage history
Order • Costs • Materials Working methods	Order history
Notification	Notification history

Completing a Notification Directly

1. Call up the notification in [change mode \[Page 860\]](#).
2. Choose *Notification* → *Functions* → *Complete*.
The *Complete* dialog box appears.
3. Check the information. Change it where necessary.
4. Choose *Complete*.
The notification now has the status *Complete*.
5. Save this change using *Notification* → *Save*.

Completing the Maintenance Notification from the Order

Completing the Maintenance Notification from the Order

1. Choose *Logistics* → *Customer service* → *Service processing* or *Logistics* → *Plant maintenance* → *Maintenance processing*.

You reach service processing or maintenance processing.

2. Choose *Orders* → *Change*.
3. Enter the order number and call up the header data screen or the operation overview.

For information on how to enter technical findings when completing the order, see [Entering Technical Findings \[Page 950\]](#).

4. Choose *Order* → *Functions* → *Complete* → *Complete (techn.)*.

The dialog box *Complete* is displayed.

5. Check the information in the dialog box and change it where necessary. If you want to complete the notifications contained in the object list at the same time, choose *Complete notifications*.

6. Choose *Complete*.

The system completes the order technically, assigns the relevant status to it, and saves it.

It completes all notifications with the appropriate status. If assigned notifications cannot be completed, a message is displayed by the system informing you of this.

7. Process these notifications accordingly and then complete them.

You can do this either directly with the change function for notifications, or from the order.

As before, call up the order using the change function, and choose

Order → *Functions* → *Complete* → *Complete notifications*

Once you save the order, the outstanding notifications are also completed.

Putting a Notification in Process Again

Use

If you have completed a notification and then later realize that data still has to be entered or changed, you can put the notification in process again.

Procedure

1. Call up the notification in [change mode \[Page 860\]](#).
2. Choose *Notification* → *Functions* → *In process again*.

Result

The system saves the notification and locks all the fields. If you call up the notification again using *Continue*, all the fields are ready for input again.

The notification now has the status *In process*.

Entering Technical Findings

Entering Technical Findings

Use

Technical findings, such as data regarding system downtimes, system statuses, and tasks are stored in the notification. However, you usually enter this data immediately before completing an order.

Notification Exists

You have created an order on the basis of a notification. When completing the order, perform the following:

1. Call up the order object list for processing from the notification.

If a notification has not yet been assigned to the order, you can find and assign the notification by selecting the pushbutton *Notif. selection*.

The system displays the notification that is assigned to the order.
2. Using *Notifications* → *Change*, you enter the technical findings in the notification and save the data.

The system saves both the notification and the order.

Notification Does Not Yet Exist

You have created an order directly, and this means that no order exists yet. When completing the order, perform the following:

1. From the order object list, choose *Edit* → *Create for notification*.

The system creates automatically a notification for the selected object in the order object list, and copies all relevant data from the order.
2. Enter the technical findings in the notification and save the data.

The system saves both the notification and the order.

See also

[Processing Different Notification Data \[Page 869\]](#)

[Entering Tasks \[Page 894\]](#)

Deletion of Notifications

Use

You may want to delete a notification (for example, because the malfunction reported is covered by another malfunction report, or an activity report was inadvertently entered twice).

However, you cannot delete a notification directly online. Usually, you set a deletion flag in the notification, which informs the system that this notification can be deleted.

At certain intervals, an archiving program will be started in your company. This program checks the notifications with deletion flags, converts the deletion flags into deletion indicators, and then deletes the notifications from the database and copies them to an archive.

Prerequisites

Before you delete a notification, you should ensure it is no longer required.

Features

You can no longer change a notification once it has a deletion flag. It obtains the statuses *Deletion flag* and *Completed*. You can now only display it. For more information about notification statuses, see [Status Management \[Page 965\]](#).

When you set the deletion flag in the notification header, the individual tasks for the notification are also flagged for deletion.

You can reset the deletion flag, provided that it has not been converted to a deletion indicator.

Activities

To set the deletion flag, call up the notification in [change mode \[Page 860\]](#), and choose *Notification* → *Functions* → *Deletion flag* → *Set*.

To reset the deletion flag, choose *Notification* → *Functions* → *Deletion flag* → *Reset*.

See also:

[Archiving of Maintenance Notifications \(PM-WOC-MN\) \[Ext.\]](#)

[Archiving of Service Notifications \(CS-CM-SN\) \[Ext.\]](#)

Selection of Notifications

Selection of Notifications

Use

There are a number of occasions when you will need system support in selecting notifications, tasks and items. For example, you may want to:

- Change or display a particular notification, but do not know the number.
- Change or display several notifications with particular characteristics.
- Perform specific functions simultaneously for several notifications with particular characteristics.
- Obtain an overview of all the notification tasks that fulfill certain criteria.
- Obtain a list of all the notification items that fulfill certain criteria.

Activities

As a result of the search you obtain either:

- A specific notification that the system offers directly for editing or displaying
- A list of several notifications, from which you can select one or more notifications for editing or displaying

You can display the notifications in either a single or multi-level list.

For more information about creating and editing lists, see [Working with Lists \[Ext.\]](#).

See also:

[Execution of Functions for Several Notifications \[Page 953\]](#)

[Selecting Items, Tasks and Activities \[Page 955\]](#)

Execution of Functions for Several Notifications

Use

In the change mode of the list editing function, you can select several notifications at once, and immediately execute a particular function for each of the notifications selected, in other words, without having to call up the individual processing screens for each notification.

Features

For example, you can perform the following functions for several notifications simultaneously:

- Printing
- Putting in process
- Completing

Activities

In the list that you generate using the [list editing function \[Ext.\]](#), select the required notifications and call up the function as follows:

Function	Menu Path	What You Should Know:
Print notifications	<i>Notification → Print notification</i>	
Put notifications in process	<i>Notification → Put in process</i>	Putting in Process of Maintenance Notifications [Page 932]
Postpone notifications	<i>Notification → Postpone</i>	
Complete notifications	<i>Notification → Complete</i>	Completion of Notifications [Page 945]
Create an order for several notifications	<i>Notification → Create order</i>	The system creates one order for all selected notifications. Creating an Order for Several Notifications [Page 954]
Download notifications	<i>Notification → Download notification</i>	

Creating an Order for Several Notifications

Creating an Order for Several Notifications

1. Call up a list of notifications that have been created using [list editing \[Ext.\]](#).
2. Select the notifications for which you want to create **an** order, and choose *Notification* → *Create order*.

The initial screen for creating orders is displayed.

3. Check the data and choose *Header data*.
4. If notifications have different reference objects, the system copies one of the reference objects in the notification header and all others automatically into the object list.

The system also automatically copies the notifications that you have selected in the list into the object list for the order.

5. Save the newly-created order using *Order* → *Save*.

Selecting Items, Tasks and Activities

- Depending on the application component in which you are working, choose:

- *Logistics* → *Plant maintenance* → *Maintenance processing*
- *Logistics* → *Customer service* → *Service processing*

The screen for maintenance or service processing appears.

- Choose the required function:

Function	Menu Path
Selecting items	<i>Notification</i> → <i>List of items</i> → <i><Change/Display></i>
Selecting tasks	<i>Notification</i> → <i>List of tasks</i> → <i><Change/Display></i>
Selecting activities	<i>Notification</i> → <i>List of activities</i> → <i><Change/Display></i>

- In the fields provided, enter the criteria that the system should use to find items, tasks or activities.

The selection process is the same as described in [Working with Lists \[Ext.\]](#).



You use the selection criterion *Reference field for monitor* to determine the criterion to which the monitor column refers in the list to be generated.

- After you have entered data as required, choose *Program* → *Execute* or, if you want the list printed out, *Program* → *Execute and print*.

A list appears, which contains all the notifications that meet the required criteria.

Result

From here you can:

- Call up notifications

To display or process data for notifications, items, tasks or activities, call up one of the menu functions available. You call up the notification data screens using *Goto*, and the functions for processing the notification using *Notification*.

- [Display a portfolio \[Page 956\]](#)
- [Call up graphics \[Page 957\]](#)

The monitor column shows which notifications, items, tasks or activities are escalating, in other words, which notifications, items, tasks or activities should already be in process or completed by now, but are not. The notifications, items, tasks or activities with a red light are critical and should be processed with top priority.

Displaying the Portfolio

Displaying the Portfolio

If you want to see the selection statistics, call *List* → *Portfolio graphics*.... The system displays a graphic illustrating the relationship between the column selected and the total number of notifications and/or notification items.

For more information, see *BC - SAP Graphics: User's Guide*.

Calling up Graphics

If you want to display a frequency distribution graphic for a particular object, select the column and select *List* → *Graphic...*. The system displays a graphic of the frequency distribution.

For more information, see *BC - SAP Graphics: User's Guide*.

Document Flow

Document Flow

Use

The document flow shows the development of a PM or CS document and provides an overview of preceding and subsequent documents and their status.

The individual documents form document chains. All preceding and subsequent documents will be shown for each document you call up.



Document	Date	Status
Contract 40000149	30.03.1998	open
. Notification 300001256	23.03.1998	in process, assigned to order
.. Order 905580	23.03.1998	open, pre-costed
.. Sales order 2155	24.03.1998	completed
... Delivery 80001132	24.03.1998	completed
.... Goods movement 49008835	24.03.1998	completed
.... Invoice 900001082	24.03.1998	completed

Integration

The document flow includes notifications and orders for the application components Customer Service (CS), Plant Maintenance (PM) and Quality Management (QM).

Within the logistics supply chain, the document flow is integrated with the application components

- Materials Management (MM)
for example, via purchase requisitions or goods receipt documents, and
- Sales and Distribution (SD)
for example, via invoices or credit memos.

Features

You can display the following objects in the document flow:

- Service contract
- Maintenance plan item
- Service notification
- Service order
- Paging object (for example, a document)

- Purchase requisition
- Purchase order
- Sales order
- Confirmation in time
- Debit memo request
- Debit memo
- Returns
- Returns delivery
- Credit memo request
- Invoice
- Invoice cancellation
- Credit memo
- Credit memo cancellation
- Delivery
- Goods movement
- Goods movement cancellation

Displaying Document Flow for Notifications or Orders

Displaying Document Flow for Notifications or Orders

2. Depending on the application component in which you are working, select one of the following menu paths:
 - *Logistics* → *Plant Maintenance* → *Maintenance Processing*
 - *Logistics* → *Customer Service* → *Service Processing*
3. Call up the notification or order in the display or change mode.
4. In the notification or order, use the menu bar sequence *Extras* → *<Notification documents/Order documents>* → *Document flow*.

The *Document Flow* screen appears.



If object links already exist for a notification or order, the dialog box *Display Object Links* will first be displayed. You can display objects that are linked to the notification or order by selecting the relevant object type and choosing *Select*.

5. You can select the desired document and display in it in the *Document Flow Display* screen using the menu bar sequence *Environment* → *Display document*.
6. If object links already exist for a notification or order, the documents are highlighted in green in the list. You can display objects that are linked to the notification or order by selecting the relevant object type and using the menu bar sequence *Environment* → *Object links*.

Document Selection

Use

This function enables you to display a specific document and its position within the document flow.

You can for example search for an invoice using the invoicing number, for a sales order using the sales document or for a service notification using customer data.

Features

In the *Document Flow Display* screen, you can specify criteria for selecting documents as well as filter criteria for displaying data.

If you select the field *Object links*, the system will display the existing links in a dialog box. This concerns documents that are not directly part of the document flow but that are assigned to a specific document (for example because they were used as a copy model or reference object).

Activities

Use the menu bar sequence *Service processing → History → Document flow list* to display the document selection.

After you have made your selection the *Document Flow* screen is displayed. You can select the desired document in this screen and use the menu bar sequence *Environment → Display document* to display the detail data or the sequence *Environment → Object links* to display the existing object links.

Obtaining Maintenance Contract Information from the Document Flow

Obtaining Maintenance Contract Information from the Document Flow

Use

Using this function you can call up all necessary information on the maintenance contract within the document flow on the screen *Display document flow*.

Integration

The system automatically branches out into the PM - Maintenance Planning function.

Prerequisites

A maintenance contract must be shown in the document flow.

Features

You can call up the following information:

- Maintenance items
- Maintenance calls
- Generated orders and notifications

Activities

Select the maintenance contract in the list of documents. Then use the menu bar sequence *Environment → Maintenance contract*.

Evaluation of Notifications

Use

The data of completed notifications and orders is of great importance for the effective planning of future maintenance activities, and for a meaningful analysis of past problems, malfunctions and activities.

This data is stored on a long-term basis in the maintenance history, where it is available for evaluations.

Features

The following options are available to you in the R/3 System for evaluating maintenance data:

- You can evaluate notifications separately (see below, and *PM - Maintenance History* for historical notifications).
- You can evaluate orders separately (see *PM - Maintenance Orders*).
- You can perform a comprehensive evaluation of maintenance processes using key figures (see *Logistics Information System*).

Advantages of Evaluating Historical Data

The analysis of past maintenance activities, especially those prompted by a malfunction, is of great importance for the smooth processing of business operations. Only in this way can weak points be recognized and the appropriate measures taken to avoid the same or similar malfunctions reoccurring.

Weak Point Analysis

If the analysis of malfunction reports reveals that among the same objects, those that were manufactured in a particular year break down the most frequently, then you should consider exchanging those objects specifically.

If the analysis of the malfunction reports reveals, for example, that the gaskets always become porous after a particular period of operation, then you should ensure that these gaskets are always replaced shortly before the end of this time period as a preventive measure.

You should perform evaluations of this sort using the Plant Maintenance Information System. There, you can obtain meaningful results with little effort, as all the important key figures are already defined.

Notifications as a Basis for Planning

Historical notifications can actively support you as a maintenance planner during the processing and planning of new notifications, as they can help you to answer the following questions:

- Has a similar malfunction occurred before?
- Has a similar request been made before?
- How was the maintenance notification processed in the corresponding order at that time?
What maintenance task lists and work centers were used? How long did it take to process?
What were the ensuing costs?

Evaluation of Notifications

If there has already been a similar malfunction report or maintenance request in the past, then you can use the notification that was created at that time as the basis for planning the new notification.

Activities

1. You have the following options for analyzing historical notifications in the *Maintenance Processing* screen:
 - *Notifications* → *List editing* → *<Required processing mode>*
 - *History* → *Notification list* → *< Required processing mode>*
2. Select the field *completed* in the first line of the selection criteria. Enter all further relevant criteria and start the evaluation.



You can perform the evaluation of maintenance data either for a particular technical object, for a number of particular objects, or also evaluate data independently of individual objects.

However, when doing this, you should note that evaluations with selection criteria other than technical objects can sometimes have very long runtimes, because the system can no longer directly access the history using the object numbers.

Status Management in Notifications

Use

The individual processing steps during the planning and execution stages for notifications and orders, represent business transactions in the system that a user performs for the notification or order. Each of these business transactions is documented in the SAP System by means of a status.

Only a few of the possible statuses need to be set at a particular point in time. If one of these statuses is missing, the system refers you to it before you can perform any further functions.

A notification can have two types of status:

- System status

System statuses are set when you perform a particular function for the notification. For example, you perform the system function "Print notification", which sets the status *printed* for the notification.

- User status

User statuses enable you to further limit the functions that are permitted for a notification due to a system status. You can assign and delete user statuses directly if you have the authorization for doing this.

Prerequisites




System statuses are preset by SAP and **cannot** be changed.

User statuses are defined by the system administrator within a status profile for notifications in Customizing for Plant Maintenance and Customer Service.




Displaying a Status

Displaying a Status

To execute the individual functions in the table, call up the notification in change or display mode.

Function	Tab page/Symbol	What you should know
Displaying the status for a notification	Status field above the tabstrip	<p>You can see the current system status to the left of the status field while the current user status is located to the right of this field. If no user statuses can be assigned for the notification, this row is not displayed.</p> <p>The current status indicates the processing phase of the notification.</p> <p>The status field also contains the task status [Page 895]. As long as at least one notification task is <i>still outstanding</i> or has been <i>released</i>, the status field contains the status <i>Outstanding task(s) exist(s)</i>. While this status is set, you cannot complete the notification.</p>
Displaying system status and user status with short text	 <i>Status detail</i>	<p>All active system statuses of the notification are displayed in the column <i>System status</i>.</p> <p>You can see the user status in the columns <i>Status with status number</i> and <i>Status without status number</i> (see Assigning User Status [Page 969]).</p>
Displaying task status	<i>Tasks</i>	<p>The current task status [Page 895] is located in the respective task line.</p> <p>If you want to see detailed information for a task, select the task and choose  for it.</p>
Displaying total status overview	 <i>Status detail</i> and then <i>Extras → Status</i> , and then <i>Extras → Overview</i>	<p>You can see which processing steps have already been performed.</p> <p>All active and inactive system and user statuses for the notification are displayed.</p>

Displaying a Status

Displaying statuses that can be assigned	 <i>Status detail</i> and then the tabstrip <i>BusMgt transactions</i>	You can see which processing steps are currently allowed or not allowed. By selecting <i>Transaction analysis</i> , you can find out which business transactions resulted in which statuses.
Displaying change documents for the status	 <i>Status detail</i> and then <i>Change documents→ To status</i> <i>Extras → Notification documents → Action log.</i>	This enables you to see who set a status when using which function.
Displaying change documents for all statuses	 <i>Status detail</i> and then <i>Change documents→ All</i> <i>Extras → Notification documents → Action log.</i>	You see a list of all the statuses that have been set or already reset.

Assigning System Statuses Automatically

Assigning System Statuses Automatically

Use

The system status of a notification is always assigned automatically when you perform the corresponding functions.

Procedure

1. Call up the notification in create or change mode.
2. The following table shows a number of statuses and the function which causes the status to be set:

Status	Menu path	See
Notification printed	<i>Notification → Print → <nn></i>	Shop Papers for Notifications [Page 914]
Notification in process	<i>Notification → Functions → Put in process</i>	Putting Notifications in Process [Page 932]
Order assigned	<i>Notification → Functions → Order → Assign</i>	Assignment of Notifications to Orders [Page 933]
Notification completed	<i>Notification → Functions → Complete</i>	Completing Notifications [Page 945]

Setting/Resetting User Status

Prerequisites

In the Customizing function for the Plant Maintenance and Customer Service application components, you have

- Defined status profiles for notifications
- Assigned the status profiles to notification types

You can define a user status that applies to the whole notification as well as to tasks. Moreover, you can also assign a status number to the user status. This defines the sequence in which you can set the user status. You will find more information on status numbers in Customizing.

Procedure

1. Call up the notification in create or change mode.

The current system status and current user status are located respectively to the left and right of the status field above the tabstrips.

2. Choose .

A dialog box is displayed. The user status for which you have assigned a status number in Customizing appears in the upper group box, while the user status without a status number appears in the lower box.

3. To set a user status, select the required status.


You can assign more than one status to a notification simultaneously, but you can only assign one status with a status number.

4. To reset a user status, cancel the selection.

You can only set a user status with a status number to inactive by setting another user status with a status number.

5. Choose .

This takes you back to the initial screen.

If you want to see both the system status and user status at the same time, choose  *Status detail*. You can also set or reset the user status here. For more information, see [Displaying Information on Status \[Page 966\]](#).

6. Save the notification.

Entering Responsibilities (Workflow Connection)

Purpose

Many areas of a company's organization are often involved in the planning and execution of maintenance tasks. The SAP Business Workflow enables these cross-functional processes to be controlled and processed automatically.

Using this tool, you can coordinate the persons involved, the steps necessary and the data to be processed in such a way that lead times and business process costs are optimized, and the quality and the transparency of processing are enhanced.

A detailed description of SAP Workflow Management can be found under *SAP Business Workflow*.

Process Flow

Maintenance notifications also play an important part within the framework of this Workflow connection. If SAP Business Workflow Management is active in your company, responsibilities and time frames are defined for particular business processes. When a certain event occurs, for example, when a maintenance notification is created, the system automatically informs the responsible company areas or persons and provides ready-defined steps.

The *Plant Maintenance (PM)* application component offers a workflow model, that represents the business process according to the following steps:

- Processing maintenance notifications
- Performing tasks
- Completing maintenance notifications

The workflow model represents the following scenario:

When a maintenance notification is created and SAP Business Workflow Management is active, the system recognizes the event "created" (= notification created) by means of status management. This event starts the workflow. For the task "Process notification", the system searches for possible responsible areas or persons and sends a work item to their inbox. A processor can display who received the notification as a work item (menu *Environment* → *Object links*) in the notification. As soon as one of the responsible persons has started processing the notification, the work items are deleted from the inboxes of the other responsible persons.

A workflow is then put in process for the processing of tasks. Once these tasks are completed, the relevant work items are deleted from the inbox. When all tasks are completed, the notification is assigned the status "all tasks completed". The event "all tasks completed" is then created. This event starts the workflow "complete notification".

The business object types available in the standard system are described online. Select *Tools* → *Business Workflow* → *Development*, and then *Definition tools* → *Object repository*. The business objects are under *Plant Maintenance - Maintenance Order Management - Maintenance Notifications*. You can obtain information on an object by clicking on it twice. BUS2038 refers to notifications while QMSM refers to tasks.

Solution Database

Purpose

The Solution Database (SDB) offers organizations a knowledge base component with a highly flexible structure to acquire and preserve enterprise knowledge. The SDB supports an environment for knowledge engineers to manage knowledge bases, and a basic interface for agents, field engineers, or other users to search the knowledge bases. The SDB contains problems (called symptoms) and solutions, and the associated data used to define them.

Implementation Considerations

The SDB requires communication with a general-purpose search engine based on a pre-compiled "corpus". The corpus is created by lexicons pre-compiled for text-indexing. Since the corpus resides in memory, the search speed is significantly improved compared to conventional database searches. The corpus is not automatically updated. Therefore, you must compile the corpus after you update the SDB in order for the changes to be available to search. You can find more information about how to do this in [Solution Database Search \[Page 988\]](#).

You can customize the attributes (code groups and codes) in a catalog. You must also customize the authorization to display different business objects.

Integration

You can use the SDB in any area of your organization where you want to preserve expertise. For example, in the Customer Interaction Center (CIC) agents access the SDB to answer customer questions. In R/3 Service Management, a notification submits queries to the SDB so that the correct solutions with task lists are delivered to the field engineers to resolve the problem. The SDB creates a knowledge framework to support various business processes throughout an organization.

Features

- Various formats for knowledge representation

You can define symptoms and solutions using various formats, such as free-text descriptions, code groups and codes from customized catalogs, business objects, file attachments, and internet or intranet addresses. For more information, see [Symptom Definition \[Page 974\]](#) and [Solution Definition \[Page 982\]](#).
- Flexible structure and navigation

You can choose whether to use a hierarchy structure to define symptoms with problem locations, problem damages, and problem causes. You can also structure multiple relationships between symptoms and solutions and navigate easily between them. For more information, see [Creating Links Between Symptoms and Solutions \[Page 986\]](#).
- Enhanced search capabilities

SDB compares the "fuzzy" search similarities from one symptom or solution to another, and matches the attributes for codes, business objects, internet or intranet addresses, for an exact search. Because the search is based on the pre-compiled text-indexing, the search speed is greatly improved. For more information, see [Solution Database Search \[Page 988\]](#).
- Multi-lingual search capabilities

Solution Database

Knowledge engineers can maintain entries for different languages in the same transaction. For more information, see [Maintaining Descriptions in Multiple Languages \[Page 983\]](#).

- Integration with SAP business object repository and Service Management

You can display different business objects linked to a symptom.

- Implementation of a [Step-by-Step Guide \(Wizard\) \[Page 989\]](#)

Constraints

This application offers basic administration and search functions for a knowledge base. It does not include archiving, reports, authority checks, complete business object methods, direct web-access, optimization, or adaptive learning.

See also:

[Symptom \[Page 973\]](#)

[Solution \[Page 981\]](#)

[User Settings \[Page 991\]](#)

Symptom

Definition

A symptom in the Solution Database (SDB) contains information to describe a problem.

Structure

The symptom design allows you to define a symptom using various information sources. Its structure is displayed on a navigation tree when you create, change, or display the symptom. The structure of a symptom is displayed when you create, change, or display a solution that is linked to it.

You can use the following information to describe a symptom:

- Detail information: basic data and classification of a symptom
- Free-text description: description in your own (free-text) format
- Problem analysis: structured description of the problem based on pre-defined code groups and codes including problem locations, problem damages, and problem causes
- Business object: link to an entity accessible through business objects, such as products and others. Symptoms and solutions are also business objects.
- Linked solutions: description of solutions linked to a symptom

For more information, see [Symptom Definition \[Page 974\]](#).

Symptom Definition

Symptom Definition

Purpose

You define a symptom using various types of information. The user later conducts searches based on this information. A comprehensive symptom explanation can greatly simplify a search for solutions, offering a variety of methods or categories by which the user can search.

Process Flow

1. You enter the basic data and classification of a symptom as detail information. The detail information includes:
 - Symptom type
The symptom type is the highest categorization level of a symptom in the SDB.
 - Symptom category
You can define various categories for each symptom type.
 - Symptom code
You can assign customized code groups and codes from a catalog to a symptom according to symptom type.
 - Priority
You create priorities in Customizing and then assign these priorities to symptoms.
 - Subject profile
The subject profile is a collection of code group profiles across multiple catalogs. The subject profile can be structured.
 - Application area
You define where or for what situation the symptom applies. You can use a table in Customizing to define your own application areas.
 - Validation category
You can customize a list of validation categories independent of the symptom type.
 - Validation dates
You enter the date range from and to which the symptom is valid.
 - Status
A symptom can have one of two statuses, created or released.
2. You enter a text description of the symptom. You can also upload texts from other sources. If necessary, you enter descriptions in multiple languages. For more information, see [Maintaining Descriptions in Multiple Languages \[Page 983\]](#).
3. If applicable, you define the following for the symptom:
 - [Problem locations \[Page 977\]](#)
 - [Problem damages \[Page 978\]](#)

- [Problem causes \[Page 979\]](#)
- [Business object links \[Page 980\]](#)

Maintaining Descriptions in Multiple Languages

Maintaining Descriptions in Multiple Languages

Use

The knowledge engineers can use this feature as a convenient way to edit the symptom and solution free-text descriptions in multiple languages without logging on to the server in the different languages.

Procedure

1. In the maintenance screen for symptoms or solutions, choose *Multi-language Long Texts* from the symptom subscreen.

The *Change Symptom Long Text* dialog box appears if you are entering a symptom description. If you are entering a solution description, the *Change Solution Long Text* dialog box appears.

2. Enter the description in the desired language(s).
3. Select the language and then choose *Enter*.

The long text icon appears.

4. Choose the long text icon and enter a long text description in the editor.
5. Save your entries.

The first line of the long text appears as the short description of the symptom or solution.

Defining a Problem Location

Use

Problem locations are possible areas where the symptom is identified or occurs. Problem locations are represented in a catalog by code groups and codes.

Procedure

1. On symptom maintenance screen, choose *Add problem locations under the selected node*.
2. Select the problem location(s) you want to add by code.
3. Choose *Copy* to finish the selection.

Result

The problem location is added to the symptom whose information is shown on the symptom subscreen.

Defining a Problem Damage

Defining a Problem Damage

Use

Problem damages describe what type of damages were observed for a problem location. If you want to create a hierarchical symptom structure, you can assign problem damages and causes to problem locations. You can also choose to have a flat structure in which the problem locations, damages, and causes are all subnodes on the same level under the problem analysis.



You cannot assign problem damages under a problem cause. If you select a problem cause before you add the problem damages, the problem damages are not added under the problem cause. Instead they are added under the problem analysis node under the symptom.

You can also use the wizard to create a symptom structure. For more information, see [Step-by-Step Guide \(Wizard\) \[Page 989\]](#).

Procedure

1. On the symptom maintenance screen, choose *Add problem damages under the selected node*.
2. Select the problem damage(s) by code.
3. Choose *Copy* to finish the selection.

Result

The problem damages are added to the symptom whose information is displayed on the symptom subscreen.

Defining a Problem Cause

Use

Problem causes describe how the damage observed for a problem location occurred. If you want to create a hierarchical symptom structure, you can assign problem damages and causes to problem locations. You can also choose to have a flat structure in which the problem locations, damages, and causes are all subnodes on the same level under the problem analysis.



You cannot assign problem damages under a problem cause. If you select a problem cause before you add the problem damages, the problem damages are not added under the problem cause. Instead they are added under the problem analysis node under the symptom.

You can also use the wizard to create a symptom structure. For more information, see [Step-by-Step Guide \(Wizard\) \[Page 989\]](#).

Procedure

1. On the symptom maintenance screen, choose *Add problem causes under selected node*.
2. Select the problem cause(s) by code on the dialog box that appears.
3. Choose *Copy* to finish the selection.

Result

The problem causes are added to the symptom whose information is displayed on the symptom subscreen.

Creating a Link to a Business Object

Creating a Link to a Business Object

Use

You can create links to existing business objects in symptoms to provide further symptom details.

Procedure

1. On the symptom maintenance screen, choose *Add business objects under the selected node*.
2. Choose a business object from the list of available business objects on the dialog box that appears.
3. Choose the identification number for the business object.
4. Choose *Enter* to complete the selection.

Result

The business object is assigned to the symptom whose information is displayed on the subscreen.

Solution

Definition

A solution in the Solution Database (SDB) contains information to describe an action or process that is intended to eliminate a symptom and the problem indicated by the symptom.

Structure

The solution design allows you to define a solution using various information sources. Its structure is displayed on a navigation tree when you create, change, or display the solution. The structure of a solution is also displayed when you create, change, or display a symptom that is linked to it.

You can use the following information to describe a solution:

- Free-text description: description in your own (free-text) format
- Basic data and classification
- Task(s): actions that must be performed
- Attachment(s): support and illustration of solution
- Linked symptoms: description of symptoms linked to a solution

For more information, see [Solution Definition \[Page 982\]](#).

Solution Definition

Solution Definition

Purpose

You define a solution using various types of information. The user later conducts searches based on this information. A comprehensive solution explanation can greatly simplify a search for solutions, offering a variety of methods or categories by which the user can search. Most importantly, a detailed solution enables the user to eliminate a problem or symptom.

Process Flow

1. You enter the basic data and classification of a solution as detail information. The detail information includes:
 - Solution type
The solution type is the highest categorization level of a solution in the SDB.
 - Solution category
You can define various categories for each solution type.
 - Priority
You create priorities in Customizing and then assign these priorities to solutions.
 - Subject profile
The subject profile is a collection of code group profiles across multiple catalogs. The subject profile can be structured.
 - Validation category
You can customize a list of validation categories independent of the symptom type.
 - Validation dates
You enter the date range from and to which the symptom is valid.
 - Status
A solution can have one of two statuses, created or released.
2. You enter a text description of the solution. You can also upload texts from other sources. If necessary, you enter descriptions in multiple languages. For more information, see [Maintaining Descriptions in Multiple Languages \[Page 983\]](#).
3. If applicable, you add tasks and attachments to the solution.

See also:

[Assigning a Task \[Page 984\]](#)

[Creating an Attachment \[Page 985\]](#)

Maintaining Descriptions in Multiple Languages

Use

The knowledge engineers can use this feature as a convenient way to edit the symptom and solution free-text descriptions in multiple languages without logging on to the server in the different languages.

Procedure

2. In the maintenance screen for symptoms or solutions, choose *Multi-language Long Texts* from the symptom subscreen.

The *Change Symptom Long Text* dialog box appears if you are entering a symptom description. If you are entering a solution description, the *Change Solution Long Text* dialog box appears.

4. Enter the description in the desired language(s).
5. Select the language and then choose *Enter*.

The long text icon appears.

6. Choose the long text icon and enter a long text description in the editor.
7. Save your entries.

The first line of the long text appears as the short description of the symptom or solution.

Assigning a Task

Assigning a Task

Use

You assign tasks to a solution to describe what actions should be performed to resolve the problem reported in the symptom. You use code groups and codes of the tasks catalog to assign tasks relevant to the solution.

Procedure

1. On the solution maintenance screen, choose *Add tasks under the selected node*.
2. Select the task(s) by code on the dialog box that appears.
3. Choose *Copy* to finish your selection.

Result

The tasks are added to the solution whose information is displayed on the solution subscreen.

Creating an Attachment

Use

You create attachments for solutions to provide additional information from "outside" sources about how to resolve problems reported in symptoms. The outside sources can be a website address, a business document that you create, a PC file, or a business object.

Procedure

1. On the solution maintenance screen, choose the *Attachment* tab in the solution subscreen and then choose *Add new attachments*.

The *Attachment: Select a Format* dialog box appears.

2. Select the format of the attachment you want to create and then choose *Enter*.
3. Add the attachment.

The procedure varies depending on the format you selected:

- If you selected *Internet Address* as the attachment format, the *Select URL* dialog box appears in which you enter the internet address and a short description of the address.
- If you selected *Business Document Service* as the attachment format, the *Business Document Navigator* screen appears from which you select an attachment of various file formats.
- If you selected *Copy Desktop Document* as the attachment format, a dialog box appears from which you select a file from your PC.
- If you selected *Business Object* as the attachment format, the *Select Business Object Type* dialog box appears. Select the object type and then choose *Continue*.

Result

The attachments are added to the solution whose information is displayed on the solution subscreen. You can view the attachment names in the navigation area on the left side of the screen and from the *Attachment* tab in the solution subscreen, where you can also see the attachment contents. You can also change and delete attachments from the *Attachment* tab.



You can display the attachments you created either in a separate window or browser or in the preview section of the screen. Double-click the attachment or choose the hotspot in the far left column to open the attachment in a separate window. The application linked to the attachment is launched in the separate window, for example Microsoft Word displays a document and a web browser displays an internet address. A single-click on the attachment displays the document in the preview section of the screen.

Creating Links Between Symptoms and Solutions

Creating Links Between Symptoms and Solutions

Use

You can create a new solution or search for an existing solution to link to a symptom. The same applies for links to symptoms from solutions. That is, you can create a new symptom or search for an existing symptom to link to a solution.

Creating and Linking Symptoms and Solutions

You can link to a solution from a symptom in either the create or change mode. On the symptom maintenance screen, choose *Create and link a solution*.

You can link to a symptom from a solution in either the create or change mode. On the solution maintenance screen, choose *Create and link a symptom*.



When you use the Step-by-Step Wizard to create a symptom or solution, you can choose to have a link created automatically. For more information about the wizard, see [Step-by-Step Guide \(Wizard\) \[Page 989\]](#).

Searching and Linking Symptoms and Solutions

To search and link a solution to a symptom:

1. On the symptom maintenance screen, choose Search and link between symptoms and solutions.
2. Select the search criteria for the solution in the dialog box that appears and then choose *Enter*.

A list of solutions matching the search criteria appears.

3. Choose the solution to which you want to link.

To search and link a symptom to a solution:

1. On the solution maintenance screen, choose *Search and link between symptoms and solutions*.
2. Select the search criteria for the symptom in the dialog box that appears and then choose *Enter*.

A list of symptoms matching the search criteria appears.

3. Choose the symptom to which you want to link.

Result

The navigation tree displays the symptoms and solutions with links. You can now navigate between the linked symptoms and solutions on the same screen. For more information, see [Setting Focus in Navigation Tree \[Page 987\]](#).

Setting Focus in Navigation Tree

Use

You can change the focus of navigation from a symptom to its linked solution or from a solution to its linked symptom without leaving the maintenance screen. This means that you can switch between symptom maintenance and solution maintenance on the same screen.

Prerequisites

You can only change the focus if a link exists between the symptom and solution. For more information about how to create a link, see [Creating Links Between Symptoms and Solutions \[Page 986\]](#).

Procedure

1. Select a linked symptom or solution in the navigation tree.
2. Choose *Focus on (navigation via links)*.

Result

The symptom or solution that you selected becomes the first (main) node on the navigation tree. For example, if you were in symptom maintenance and then set the focus to a linked solution, you are now in solution maintenance.

You can later reset the focus by using a historical list. To do this, choose the *Focus List* dropdown menu that appeared after you set the focus on a symptom or solution and then choose one of the symptoms or solutions on which you have previously set the focus.

Solution Database Search

Use

The Solution Database (SDB) offers organizations a knowledge base component with a highly flexible structure to gather and preserve knowledge for a wide range of users. Users want to search possible solutions and tasks in the SDB to resolve a problem.

Features

- "Fuzzy" search

When the user submits a query as a free-text description, it is called a fuzzy search. The query can be a sentence, a paragraph, or a document. In this case, the search engine compares the similarity between two documents (the query is considered a document) using the precompiled lexicons for each document. The fuzzy search functions similarly to our natural language processing.
- Attribute search

Attributes are predefined characteristics, such as the codes and code groups defined in tables in the Implementation Guide (IMG). In an attribute search, the search engine retrieves documents in which certain characteristics are used, and groups them in a rough where-used list that can be further integrated with both the fuzzy search and the keyword search.
- Search for special term

In this type of search, the search engine retrieves documents whose contents match the exact special term entered. The special terms can be symptom numbers, solution numbers, or business object numbers. If you apply the proper conversion rules, all attributes can also be treated as special terms. This type of search function is designed for advanced and experienced users.

Activities

To ensure that you have access to the newly created or changed symptoms and solutions when you conduct a search, you should compile the database regularly. Run report 'TEXT_INDEXING' or execute transaction IS02 to do this. You can only search symptoms and solutions that have been compiled.

SAP recommends that you schedule the report 'TEXT_INDEXING' (report accessed through transaction IS02) as a batch file to be run periodically to update the search engine.

You should compile different languages separately to avoid confusion in the construction of lexicons. However, it is technically possible to mix and compile different Indo-European languages. To compile the symptoms and solutions for different languages, you also run report 'TEXT_INDEXING', choose the language to compile, and then choose whether you want to compile symptoms, solutions, or both.

Step-by-Step Guide (Wizard)

Use

You can use the Step-by-Step Guide to perform basic functions in the Solution Database (SDB). As its name implies, the wizard guides you through each step in a procedure, and prompts you to enter data as required.

The wizard is designed not only to reduce the training required for new users but also to simplify the procedures that experienced users perform when building a symptom or solution in the SDB.

You can perform the following functions for **symptoms** with the Step-by-Step Guide:

- Create
- Create with reference to symptom
- Create with reference to notification
- Display
- Change
- Search
- Add business object
- Add problem locations
- Add problem damages
- Add problem causes
- Link to solutions

You can perform the following functions for **solutions** with the Step-by-Step Guide:

- Create
- Create with reference to solution
- Create with reference to notification
- Display
- Change
- Search
- Add solution tasks
- Add solution attachments
- Link to symptoms

Integration

When you use the create with reference to a notification function, the notification is mapped to the structure of the symptom or solution you are creating. If the content of the notification cannot be completely mapped to the symptom or solution, the information is converted to text descriptions to prevent any information loss.

Step-by-Step Guide (Wizard)**Activities**

To ensure that you have access to the newly created or changed symptoms and solutions when you conduct a search, you should compile the database regularly. Use transaction IS02 to do this.

You can access the Step-by-Step Guide from the toolbar on the initial screen of the SDB (transaction IS01). You can also access the Step-by-Step Guide from the toolbar on the maintenance screens for both symptoms and solutions.

See also:

[Symptom Definition \[Ext.\]](#)

[Solution Definition \[Page 982\]](#)

User Settings

Use

You use the *User Settings* function to set your own default values for the creation of symptoms and solutions, therefore simplifying maintenance. You can access your user settings from the maintenance screen for symptoms or solutions.

Features

The changes you make to your user settings take effect the next time you access Solution Database (SDB) maintenance. You can make the following settings:

- Specify default symptom and solution types

The default symptom and solution types are proposed for each new symptom and solution you create. However, you can use other types than the proposed ones.

- Automatically create linked symptom or solution

Some user settings also have a corresponding toggle button on the toolbar, so you can override the default for the current session. However, the default settings take effect again the next time you access the maintenance screen. These settings are as follows:

- Show all buttons on toolbar
- Show technical codes (such as symptom or solution number, codes, and code groups)
- Show details of symptoms and solutions
- Show help tips (on navigation and wizard)

Call Management

Call Management

Purpose

This component comprises a whole range of processes from call logging to planning and processing, to completion and billing of the costs incurred.

When a service is requested, you respond by using one of the following:

- **Service notification**

The service notification cannot carry costs or revenues, meaning that you can only record and process a requested service in a service notification if neither personnel costs nor material costs have to be documented. In this case you do not need to create a separate order. You can describe the condition of a technical object in the service notification.

- **Service order**

If a technician has to be sent to a customer's, and material, utilities and personnel have to be planned in order to rectify a problem, you need to use a service order to perform service processing. A sales order can be created on the basis of a maintenance plan, a service notification, or a sales order.

- **Sales order**

If spare parts and other materials have to be sent to the customer's, but no scheduling has to be performed, you use a sales order for service processing.

You can find more information on sales orders in the documentation *SD - Sales and Distribution Processing*.

Integration

You can only use this component in conjunction with the following components:

- *Maintenance processing*
- *Sales order processing*
- *Materials Management*, if you want to perform material planning

Data is entered during processing, which can be evaluated according to different criteria. The Logistics Information System, which is part of the general information system, is available for performing analyses.

Features

Call management can be divided into the following stages:

- **Call Logging**

During call logging, you request the necessary service tasks using a service notification, and can track the progress of the tasks to be performed.

- **Call processing**

The service order and the sales order are the most important instruments during call processing. A service order enables you to plan the execution of the individual activities

Call Management

in greater detail, to estimate the costs, and to monitor the work progress. You use the sales order to send the spare parts to the customer.



A service notification can also be used at this stage if the nature of the service involved is purely consultational, for example, as in the case of a hotline service that is covered by contract specifications.

- **Call monitoring**

You can monitor the progress of your service notifications and orders to ensure that deadlines determined in the response profile are met.

- **Call closure**

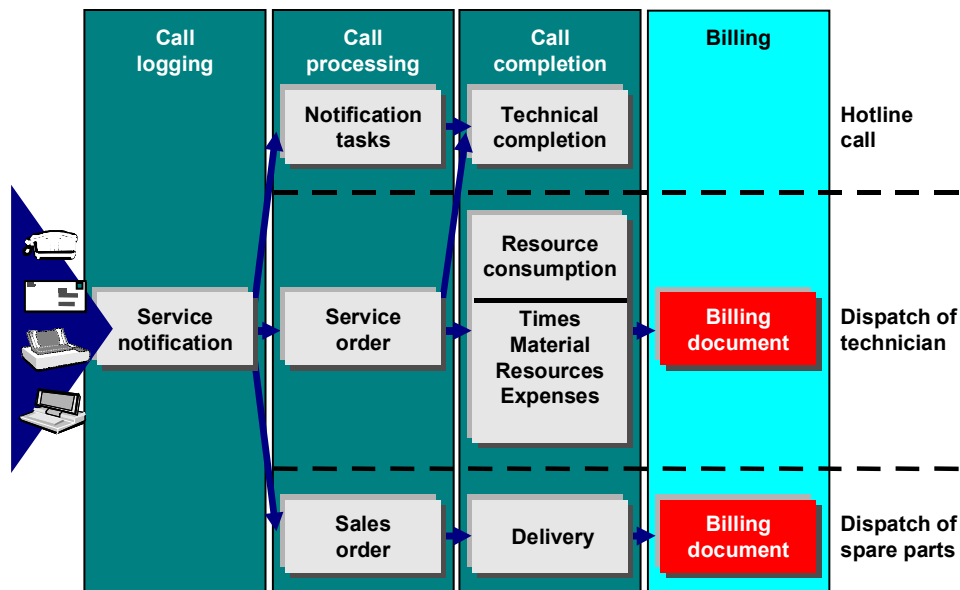
At this stage, the actual costs that have arisen as a result of materials used, and activities performed, are recorded in detail in the service order. You describe the activities that were performed and the technical findings in the service notification. You can also record any configuration changes made to the service object and also measurement documents for the object in the completion confirmation. You can close a service order once it has been completely confirmed. Its data is then available in the order history for future planning and analyses.

- **Service Order Billing**

You can create both a billing request and a billing document for a service order. The actual expenses as well as the items that were not billed (for example, because they were covered by the warranty) are listed in both documents.

The diagram below illustrates the main stages involved in call management:

Main Stages of Call Management

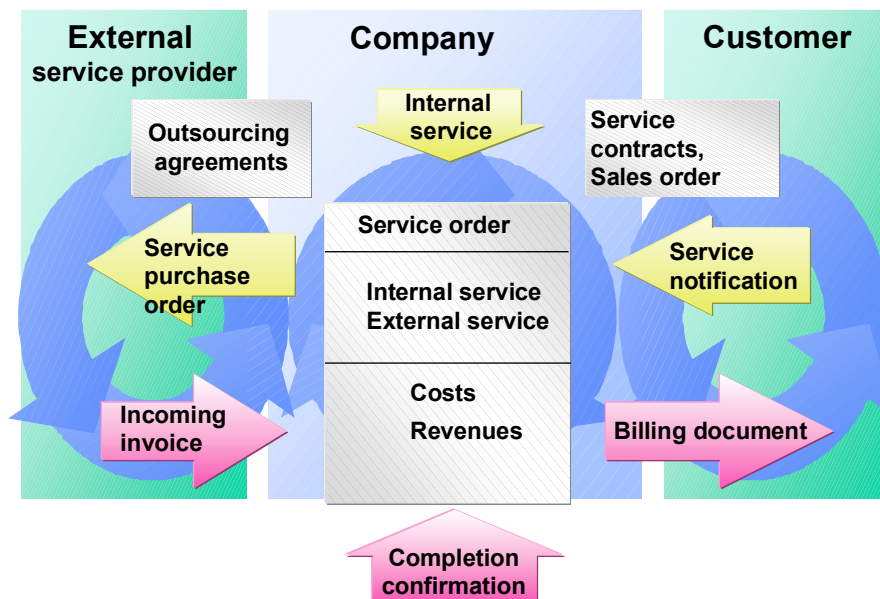


Processing of Services

Use

The Customer Service (CS) component enables you to represent complex business structures using flexible **organizational units**.

In Customer Service, service flows are managed between service providers and service recipients, whereby different internal and external organizational units are involved as partners.



Service Flow

Integration

The organizational units enable complete integration of Customer Service with Financial Accounting, Logistics, Controlling and Human Resources Management.

Features

Service providers are members of internal or external service organizations and are represented using:

- Service and sales organizations
- Service centers, service workshops
- Service technicians

Processing of Services

- External service providers (vendors, contractors)

You manage all data that is required for processing business scenarios with vendors in a vendor master record.

Service recipients are also members of internal or external organizations. Internal service recipients are internal company organizational units (for example, cost centers). External service recipients are represented using:

- Customers
- Customer employees

Customer data is managed in a customer master record. Not only the data concerning the ordering party belongs here, but also data about the goods recipient and the invoice recipient. You can represent complex customer structures as customer hierarchies.

By integrating Customer Service in the **Accounting** component, the organizational units of Financial Accounting and Controlling are linked directly to the service processes. Service organizations are represented in the finance and controlling area using:

- Company codes
- Controlling areas
- Business areas

The Logistics areas *Materials Management* and *Stockkeeping* enable you to perform resource management using organizational units such as plants and storage locations. Spare parts and external services are procured via the purchasing organizations and purchasing groups.

You can group the service technicians responsible for performing the services using **work centers**. Planner groups at a planning plant are responsible for scheduling the services to be performed by these work centers.

The units of the **sales organization** must be represented for the purchase of spare parts and services. You can represent this organization using:

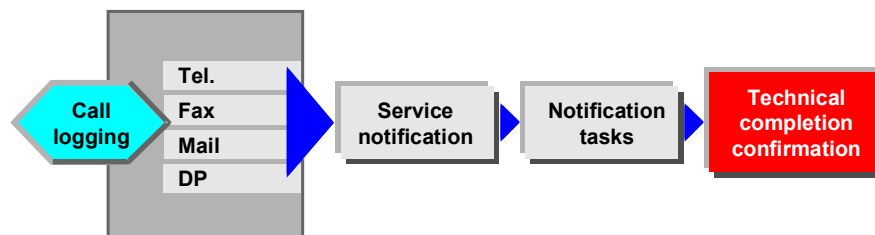
- Sales organization
- Distribution channels
- Sales areas
- Shipping and loading points

Service Processing Using a Service Notification

Use

If no costs for material or spare parts arise during service processing, and if the services requested by telephone or hotline are performed without having to send a technician to the customer company, you can use a service notification for the service processing. This is the simplest form of processing, since it does not involve costs that have to be billed.

Service Processing Using a Service Notification



Features

When you have created the service notification with all necessary and relevant data regarding the problem and processing, you can release the notification for further processing.

The service notification can have the following statuses:

- **In process**

When you call up the function "Create order" for the service notification, the system sets automatically the status "in process". You can create directly a service order or sales order from the service notification.

- **Confirmed**

You can set this status once technical findings have been entered (technical completion confirmation).

- **Completed**

When you have finished processing a service notification and all technical completion confirmation data has been correctly entered, you can close the notification. The system then assigns the status "completed" to the notification. The notification is then transferred to the maintenance history, where it is available for planning future tasks and for performing evaluations. Changes are then no longer possible.

For more detailed description of notification data and notification functions, refer to *PM - Maintenance Notifications*.

Service Processing Using a Service Order

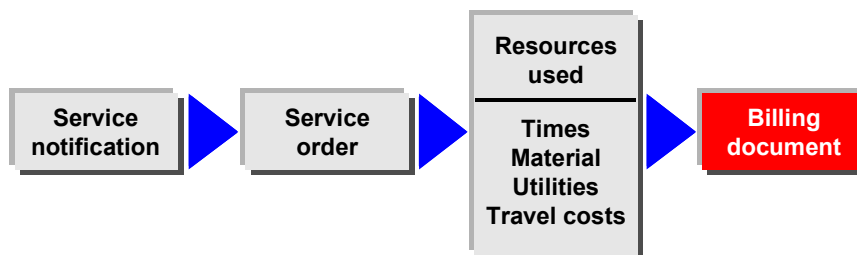
Service Processing Using a Service Order

Use

In many cases, a service technician has to go to the customer site to service the object in question. Materials, utilities and human resources must be planned and costed for this. In the R/3 System, these functions are performed in the service order.

The service order primarily contains data regarding the planning and execution of services that have to be performed at the objects concerned. It is created for short-term services that are to be performed.

Service Processing Using a Service Order



Features

Link between Notification and Order

You can create a service order on a planned or unplanned basis in one of the following ways:

- For one or more existing service notifications
- Directly from a service notification
- Automatically on the basis of a maintenance plan
- Automatically on the basis of a sales order

You can also subsequently create a service notification for an existing service order, for example to record a machine breakdown.

When creating a service order, you can base this on either a configurable service product, or on a configured technical object (equipment or serial number with evaluated configuration data). The configuration data is used to select operations and components of a super general maintenance task list, and to evaluate these in the service order.

Object List

When you create a service order, you refer directly to a particular service object or service notification.

- If you specify a **technical object** (functional location, piece of equipment, assembly), this is the reference object for the service order.
- If you specify a **service notification**, the system copies the reference object(s) from the service notification to the service order.

Service Processing Using a Service Order

- Using the object list, you can assign several technical objects and/or service notifications to the service order.

You can find more information on creating and maintaining orders in the documentation *PM - Maintenance Orders*.

Activities

Before a service order can be executed, you must perform the following functions for it:

- Costing the order
- Determining the settlement rule
- Scheduling the order
- Releasing the order

Costing the Service Order

Several different types of costs can be incurred when executing a service order. To obtain an overview of the costs incurred before performing the work, you can call up an automatic precosting function.

Determining the Settlement Rule

You need to define a settlement rule in the system, so that any costs incurred when performing maintenance tasks can be settled correctly.

You can settle a service order on one of the following account assignment objects, depending on your system settings for the order type:

- Cost center
- Order
- Project (WBS element)
- Profit center
- G/L account
- Network
- Profitability segment
- Sales document item (sales order)
- Cost object/material

The system proposes account assignment for each order type in your company. If the receiver account is specified in the order cost screen, the system creates automatically a settlement rule for the order which contains an apportionment reason of 100% for the receiving object.

Scheduling the Service Order

You can define the following scheduling data for a service order:

- Actual execution dates for the tasks listed in the order, based on the required processing dates and the times specified in the operations
- The capacity required for performing the order, based on the dates in the operations.

Service Processing Using a Service Order**Releasing the Service Order**

Before you can execute a service order, you need to release it for processing. You can only perform the following functions once you have released the order:

- Print shop papers, or download them to *Access*.
- Issue materials
- Enter completion confirmations
- Complete operations

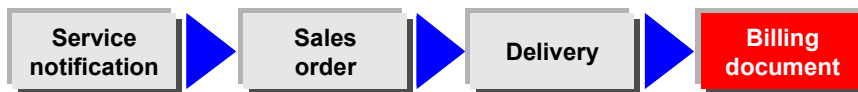
You can find a more detailed description of the functions in the order in the documentation *PM - Maintenance Orders*.

Service Processing Using a Sales Order

Use

If you do not need to send a technician to the customer site, for example because the customer can repair the machine and install any replacement parts required himself, you can process a service notification using a sales order. In this case you send parts or spares to the customer, (covered by warranty, or invoiced) but no labor costs are involved.

Service Processing Using a Sales Order



Activities

If you are using **stock material**, you will need to create a goods issue for the quantities required.

If you are using **non-stock material**, you will need to create a purchase requisition for the quantities required.

After releasing the order, you can process the delivery of the components required using the SD distribution functionality. Once the components have been delivered to the customer, you can create a request for billing. The billing request checks on the basis of condition records whether the order items are covered by one of the following:

- a) Contract conditions
- b) Warranty
- c) Good will

If the items are not covered by any of the following, then a billing document is created and sent to the customer.

You can find more information on sales orders, in the documentation *SD - Sales and Distribution Processing*.

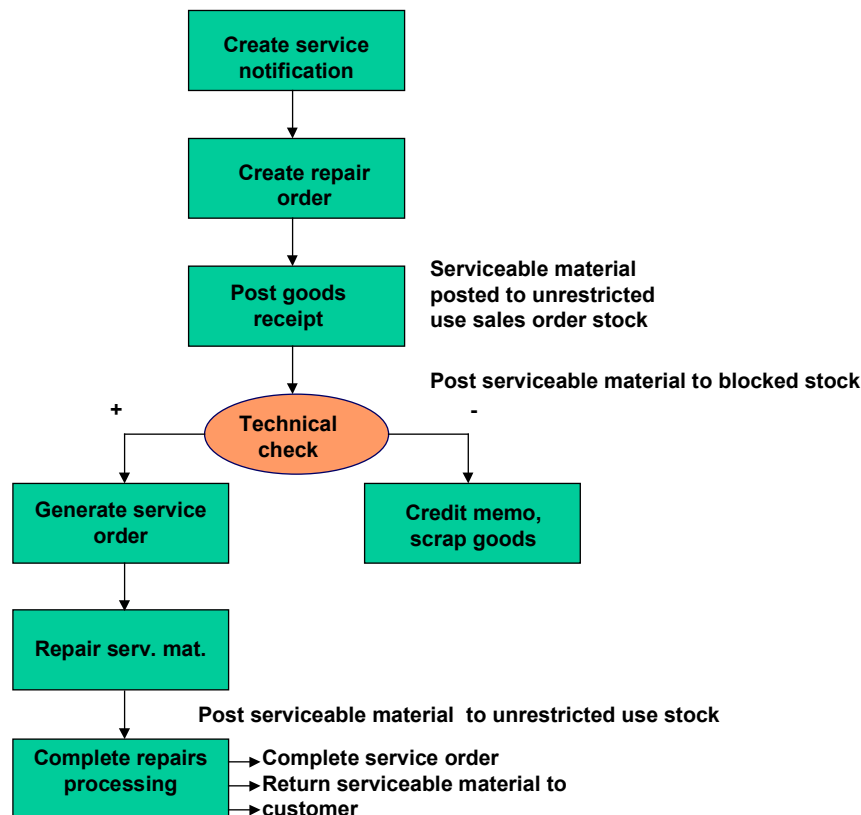
You can find more information on ordering material in the documentation *MM - Purchasing*.

Returns and Repairs Processing (CS)

Purpose

Returns and repairs processing provides you with a wide range of functions for managing all the necessary activities which repairing goods for a customer entails, from registering the repair request from the customer through to billing the customer for the services performed.

Process Flow



Repair Registration

1. Create the [Repair Order \[Page 1006\]](#):

The customer informs you that he has goods that he would like you to repair. You record the details of the customer's repair request as the main item in a repair order. You enter the [Serviceable material \[Page 1008\]](#) and, depending on the repair order type, a suitable [Service Product \[Page 1009\]](#) as well.

Repairs processing can also be initiated by a service or quality notification. You use the [Action Box \[Page 906\]](#) in the notification to create a repair order automatically. For more information on repairs processing using quality notifications, see [Repairs Processing Using Quality Notifications \[Ext.\]](#).

You can start repairs processing by sending the customer a service estimate for the costs of the repairs. For more information, see the [Service Estimate \[Ext.\]](#).

Returns and Repairs Processing (CS)

2. Create a return order item for the serviceable materials:

The return order item is created automatically on the basis of the [Repair Procedure \[Page 1012\]](#) assigned to the repair request item in the repair order.

3. [Posting Goods Receipt for Serviceable materials \[Page 1029\]](#)

The customer either sends you the serviceable materials or you arrange to pick them up. When you receive the serviceable materials, you post goods receipt for the appropriate quantity.

If inspection lot processing has been activated for the serviceable material, an inspection lot is created automatically for the repair order. For more information, see [Repairs Processing Using Inspection Lots in QM \[Ext.\]](#)

4. Post goods movement

The serviceable materials are posted as sales order stock.

If you are not using inspection lot processing, the serviceable materials are assigned to unrestricted use stock. We recommend that you post the serviceable materials to blocked stock for the duration of the repairs. Use movement type 344/E to make this posting.

If you are using inspection lot processing, the serviceable materials are assigned to inspection stock for the duration of the repairs.

5. Perform the technical check

Once you have posted goods receipt, you perform a technical check on the serviceable materials and decide what actions need to be taken to fulfill the customer's repair request.

You can perform the technical check in one of the following ways:

- If you are working with inspection lots, use the inspection lot that is created automatically when you post goods receipt.
- If you used a notification to initiate repairs processing, use the action box in the notification.
- If you are simply working with the repair order, perform the check manually.

6. Create [Actions for Managing Repairs Processing \[Page 1010\]](#)

The results of the technical check are reported back to the repair order. The actions, which need to be taken as a result of the technical check, are recorded as sub-items of the repair request item. Possible actions include:

- Perform repairs
- Scrap the goods
- Send temporary replacement

Depending on how you perform repairs processing, the switch from the repair registration stage to the repair start stage occurs:

- During inspection lot processing

The actions are generated automatically when the results of the inspection lot are reported back to the repair order unless manual intervention is required.

Returns and Repairs Processing (CS)

- During returns delivery processing

The system proposes the possible actions when you call the change order function. You select the appropriate actions for the subsequent stage of repairs processing.

Repair Start

1. The service technician repairs the serviceable materials for which a repair item has been created. He refers to the service order that was created automatically for the repair item to obtain the following essential information:
 - The materials required to perform the repairs
 - The tasks to be performed
 - The costs (for example, labor hours) involved
2. Loaner items (for example, for temporary replacements) become relevant for delivery and are included in the delivery due list.
3. The serviceable materials for which a scrap item has been created can be scrapped.

Repair Completion Confirmation

1. The service technician reports that he has completed the necessary repairs for the repair items in the repair order by:
 - Posting the repaired serviceable materials to unrestricted use stock using movement type 343/E
 - Updating the status of the service order to "technically completed"
 - The repair order status is updated accordingly.



If you perform the repairs without using a service order, you must update the repair order status manually.

2. The system creates a delivery item for returning the serviceable materials to the customer.
3. The system may also create a pick-up item to arrange the return of any temporary replacements the customer may have had.
4. When you perform resource-related billing, a debit memo request item is entered automatically in the repair order.

Results

1. Delivery items are included in the delivery due list and the repaired serviceable materials are returned to the customer. When you post goods issue, stock is adjusted accordingly.
2. Loaner items can be returned to you with a returns delivery.

For information on creating a returns delivery, see [Posting Goods Receipt for Serviceable Materials \[Page 1029\]](#).
3. The debit memo request item is included in the billing due list. The system creates a debit memo on the basis of the debit memo request item.
4. Costs collected in the service order and the repair order sub-items are settled to the repair request item. The data is forwarded to profitability analysis.

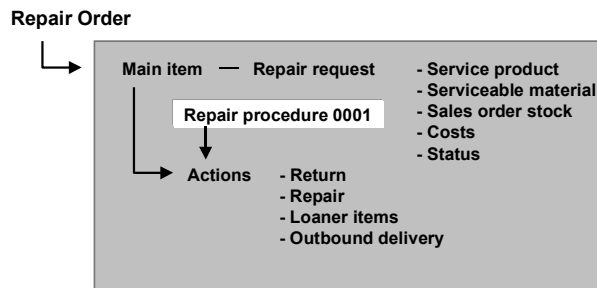
Repair Order

Repair Order

Definition

Sales document for recording all the business processes that are involved in processing faulty goods that a customer sends in for repair.

Structure



The repair order has the following structure:

- Header in which you record data that applies to the entire document
- Repair request item in which you document the customer repair request

The following information is recorded in the repair request item:

- Material number of the [Service Product \[Page 1009\]](#)
- Material number of the [Serviceable material \[Page 1008\]](#)
- Costs
- Stock information
- Configuration data
- The repair procedure which the system uses to determine which actions it needs to generate for the repair request item
- Actions that have to be performed in order to fulfill the customer repair request.
 - The [Repair Procedure \[Page 1012\]](#) that is assigned to the repair request item determines which actions are required.

Use

You require a repair order to manage repairs processing.

Depending on how repairs processing is performed in your organization, you can choose between one of the following repair order types in the standard system:

Repair Order

- **RAS** - Repair order with service product

You use this type of repair order if you want to specify the repairs to be performed at the time of order entry. A repair order of the type *RAS* is incomplete until a service product is entered. You can:

- Enter the service product directly in the *Material* field in the repair order
- Use the [material determination \[Page 1014\]](#) function to find suitable service products via the material number of the serviceable material.

When you enter the service product and serviceable material in the repair request item, the system creates a return order item automatically for the serviceable material. The repair procedure controls this.

- **RA** - Repair order

You use this type of repair order if you perform repairs according to the results of the technical check. You do not have to enter a service product at the order entry stage. After the technical check has determined what repairs need to be performed on the serviceable material, you can:

- Enter the appropriate service product on the repair screen of the repair order
- Use the [material determination \[Page 1014\]](#) function to find suitable service products via the material number of the serviceable material.



You must enter a service product in the RA repair order before the service technician can begin the repairs.

Serviceable Material

Serviceable Material

Definition

Represents the goods to be repaired in repairs processing.

Use

The serviceable material is recorded in the repair request item of the repair order. It is also added to the technical objects list for the repair request item.

The system adopts the base unit of measure as the unit of measure for the serviceable material in the repair order.

You use material determination condition records to link serviceable materials to suitable service products.

Service Product

Definition

Material that represents the customer's repair request. The service product is represented in the system by a material master record. Service products are measured in the unit of measure "piece". If required, you can define the service product as a configured or configurable material.

Use

You enter the service product in the repair request item in the repair order. You can set up material determination so that when you enter the serviceable material in the repair request item, the system proposes the appropriate service products for selection.

The service product is used to determine:

- What services the customer should pay for
- How much these services cost
- Which tasks are required to perform the services

Actions for Managing Repairs Processing

Actions for Managing Repairs Processing

Use

The system uses the [Repair Procedure \[Page 1012\]](#) that is assigned to the repair request item to determine what actions need to be taken to fulfill the customer's repair request.

The actions are represented in the system as sub-items of the repair request item. The system determines the appropriate item categories for the sub-items using the item category usage and the item category of the higher level item (repair request item). The item category usage and the item category of the higher level item are assigned to the repair order type in the Customizing activity *Assign Item Categories*.



The item category usage is the action from the repair procedure with the prefix "R". For example, 101 (Repair registration) is the underlying action for item category usage *R101*.

Features

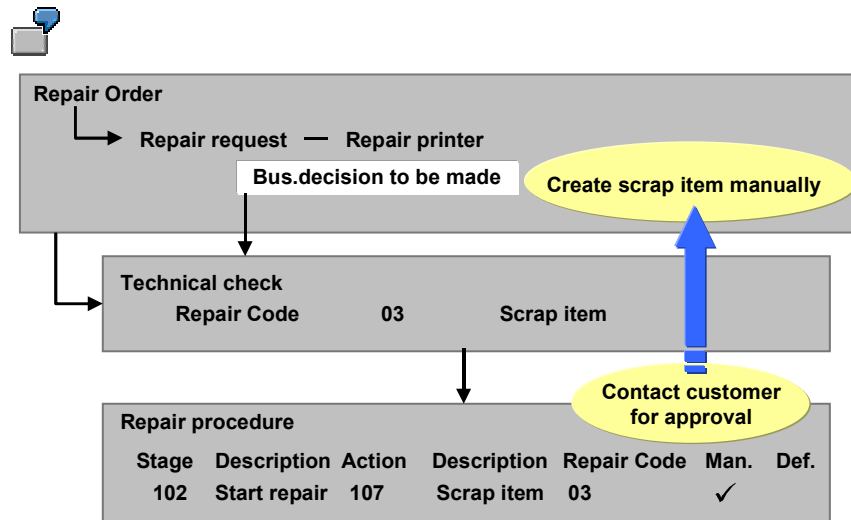
In the standard system, the following sub-item types can be created:

Sub-item	Is used to
Return order item	Manage return of goods to be repaired
Loaner item	Send temporary replacements to the customer
Repair item	Initiate repairs Depending on the requirements type, a service order may be created automatically for a repair item
Scrap item	Simply records that an item is to be scrapped. It does not manage the scrapping process.
Credit memo request item	Initiate the credit memo process for reimbursing customer for irreparable goods
Outbound delivery item	Return repaired goods to customer
Loaner pick-up item	Pick up temporary replacements from customer
Debit memo request item	Record data from resource-related billing

Activities

Where possible, the system generates the required actions automatically. If any of the actions need to be approved before they can be performed, the system does not generate any of the actions automatically. (You control this in the repair procedure with the *Manual* indicator.) You must create these actions manually when you have the necessary approval to proceed. In this case, you select the type of action that you require from proposals made by the system.

Actions for Managing Repairs Processing



The repair procedure prevents the system from generating a scrap item in the repair order automatically. The repair request item status remains "Business decision to be made" until you gain the customer's approval to scrap the serviceable material and create a scrap item manually for it.

Repair Procedure

Repair Procedure

Definition

Set of rules according to which actions are generated in the repair order.

It is assigned in Customizing to the item categories that are relevant for repairs processing and is adopted in the repair request item in the repair order.

Structure

The repair procedure contains the following control elements:

- Stages
They represent the various phases of repairs processing.
- Actions
They represent the activities that need to be performed to fulfill the customer repair request.

You define repair procedures in the Customizing activity *Define repair procedures*.

By assigning actions to stages, you set up the rules according to which the system determines what actions are required during a particular phase of repairs processing.

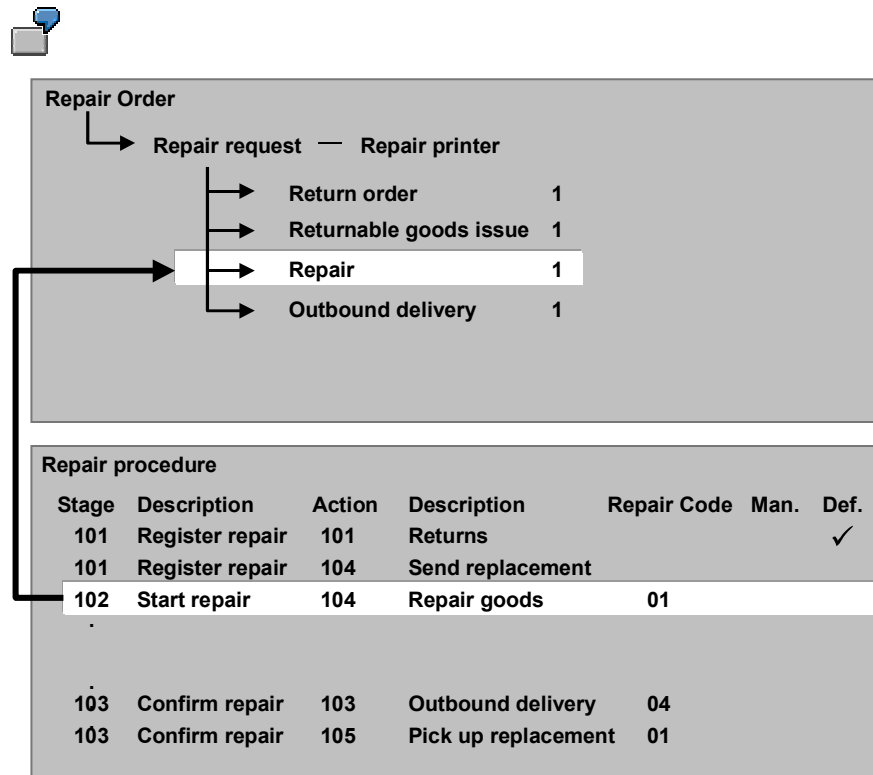
In addition, you specify for each combination of stage and action whether the required actions are

- Actions that the system proposes automatically when a particular stage of repairs processing begins
- Actions that are generated automatically on the basis of repair codes that inspection lots, notifications or service orders report back to the repair order
- Actions that require approval and must be created manually

The following indicators have been defined for these purposes:

- Default
In Customizing for the repair procedure, you set this indicator for combinations of stages and actions that do not involve inspection lots or services orders and, for which you require an action to be generated automatically. For example, at the repair registration stage, you require a return order item to be generated automatically. You activate this indicator for the stage *101* (repair registration) and the action *101* (return goods). In the repair order, a return order item is generated automatically when you create a repair request item.
- Repair code
Repair codes represent the information that the service technician reports back to the repair order after performing the technical check or completing the repairs. In Customizing for the repair procedure, they are assigned to combinations of stages and actions that involve inspection lots or service orders. The code initiates the generation of the appropriate action.

Repair Procedure



- Manual

If you use the manual indicator in the repair procedure, you always activate it in conjunction with the *Repair code* indicator. The *Manual* indicator prevents particular actions from being generated automatically when repair codes are reported back to the repair order from inspection lots, notifications and service orders. If you do not set the *Manual* indicator for a combination of stage and action to which a repair code is assigned, the system automatically generates the appropriate action on the basis of the repair code.



If the technical check determines that goods cannot be repaired and should be scrapped, you need to contact the customer to find out whether you can scrap the goods or whether he wants the goods returned to him. In this case, you do not want the system to automatically create an action for scrapping the goods. Therefore, you need to activate the *Manual* indicator for the stage 101 (repair start) and the action 107 (scrap goods). When the system reads the repair code that the inspection lot reports to the repair order, it determines that the scrap item is required. The system then checks the corresponding stage and action in the repair procedure and determines that the scrap item cannot be generated automatically. It does not generate that or any other required actions automatically. It does not update the status of the repair request item.

To continue repairs processing, you must clarify whether the customer wants you to scrap the goods or return them to him. You must then create the required actions manually on the *Repairs* screen.

Material Determination in the Repair Order

Material Determination in the Repair Order

Use

You can use material determination in the following situations in the repair order:

- When you create an order to find suitable service products for the serviceable material you enter in the repair order
- When actions are created automatically or manually
 - To find suitable service products for a serviceable material when a repair item is created
 - To find suitable temporary replacements when a loaner item is created and the material for which a temporary replacement is required is no longer produced

Prerequisites

At the Order Entry Stage

You must make sure that the appropriate material determination procedure is assigned to the sales document type in *Customizing for Sales and Distribution* in the section *Basic Functions -> Material Determination*.

You must create a material determination condition record in which you define:

- The material for which suitable service products are to be proposed
- The service products which are to be proposed in the repair order for this material
- Substitution reason 0007 for the condition record
 - The substitution type A that is defined for substitution reason 0007 controls that the service product replaces the serviceable material as the leading item in the repair order.

When Actions are Created Automatically or Manually

You must make sure that the appropriate material determination procedure is assigned to the relevant action in the Customizing activity *Maintain actions*.

To be able to perform material determination for the repair item, you must define a material determination condition record as described above.

To be able to perform material determination for the returnable item, you must create a material determination record in which you define:

- The material to be substituted
- The material(s) which may substitute the material entered in the repair order

For more information, see [Material Determination \[Ext.\]](#).

Statuses in the Repair Order

Definition

The status of the repair request item indicates the phase that repairs processing has currently reached. The status in combination with the [Repair Procedure \[Page 1012\]](#) controls what activities you can perform during a particular phase of processing.

Use

By monitoring the repair request item status, you can determine whether your intervention is required in the repair process. You can configure the repair procedure so that when particular situations arise, no actions are generated automatically and, as a result, the repair request item status is not updated. For example, you want to contact the customer before you scrap any irreparable items. Therefore, you set up the repair procedure so that no actions are generated automatically for materials that are to be scrapped.


Features

The open quantity and the stage of repairs processing control the repair request item status.

The repair request item can be assigned the following statuses:


- **Business decision to be made**

The repair request item has this status until the required action for a particular stage of repairs processing has been created.



At the repair start stage, which begins when you post goods receipt for the serviceable items, the repair request item has the status "Business decision to be made" until a repair item is created for managing the repairs.
- **Business decision made**

The repair request item acquires this status once the required action for a particular stage of repairs processing has been created.



At the repair registration stage, the repair request item acquires this status when a return order item is created for managing the return of the goods to your plant.
- **Inspection lot assigned**

The repair request item acquires this status if an inspection lot is created automatically after goods receipt has been posted for the serviceable materials that are assigned to it.
- **Usage decision made**

The repair request item acquires this status after the decision made in the inspection lot is reported back to the repair order.
- **Notification completed**

If a quality notification initiated repairs processing and the technical check has been performed and the notification completed, the repair request item acquires this status.

Statuses in the Repair Order

- Under repair/Repaired

These two statuses are assigned to the repair request item automatically. The former is set when a service order is created for an underlying repair item, the latter when the service order is completed.

Serial Number Handling in Repairs Processing

Use

You use serial numbers to keep track of serviceable materials during repairs processing.

Prerequisites

To be able to maintain serial numbers for a serviceable material in a repair order, you must define a serial number profile in the material master record for the serviceable material. You can use dummy material master records for serviceable materials that do not have a material master record in your system (for example, products from another manufacturer).

If you want the system to check that serial numbers have been maintained for the serviceable materials when you save the repair order, you must include the serial number field (VBAP-ANZSN) in the incompleteness procedure for the relevant item category.

Activities

When you receive the serviceable materials from the customer, you record the serial numbers in the returns delivery item. They are later copied into the repair item.

After performing the technical check, the technician reports his findings for each serial number back to the repair order. This means that the correct serial numbers are assigned to the actions that are created as a result of the technical check.

When the technician completes a service order for a repair item, he also reports back the serial numbers of the items he has repaired.

Worklists in Repairs Processing

Use

You can create worklists of all the repair orders that have reached a certain status. For example, you want to process all repair orders for which the system could not generate actions automatically so you create a list of all repair orders with the status "Business decision to be made".

Activities

You have the following options for creating worklists:

- To process all repair orders with a particular status manually, create a document by status list.

To create a worklist of documents by status, choose *Logistics* → *Service Management* → *Service processing* and then *Order* → *Customer repair* → *Docs. by status*.

You specify a status that is relevant for repairs processing, for example, "Business decision to be made" as a selection criterion. The system creates a list of all repair orders with this repair request item status. You can check each document in the list to determine what action needs to be taken before you can continue with repairs processing.



When you run report SDREPA01, you initiate the repair start and the generation of repair items automatically. You should only use this report if you perform the technical check manually, that is, you do not use inspection lots or notifications.

- Run report SDREPA01 in the background to automatically update all repair orders with the status "Business decision to be made" to status "Business decision made" and thus, initiate the repair start and the generation of repair items.

Pricing and Billing the Repair Order

Use

You can use and adapt the wide range of functions in pricing and billing to suit your requirements in returns and repairs processing.

Prerequisites

The following elements control how pricing and billing is performed for the repair order:

- Sales document type

The repair order RA performs pricing for the serviceable material according to the same logic as pricing in the standard order.

In repair order type RAS, there are two materials in the repair request item. You can control which for which of these materials pricing is performed.
- Item category

You control in the item category whether the results of pricing for an item are forwarded to billing to calculate the billing amount or simply used for statistical purposes. In this way, you specify whether pricing is performed at main item or sub-item level.
- Billing form

The billing form that is assigned to the repair request item controls whether you bill:

 - A fixed value or
 - According to costs incurred (resource-related billing).

The billing form also plays a role (via the item category usages *SENI* and *SEIN*) in determining the item categories for debit memo request items that are entered in the repair order when you perform resource-related billing.

Activities

[Resource-related billing \[Page 1020\]](#)

[Fixed rate billing](#)

[\[Page 1022\]](#)For more information on pricing procedures, see

[Pricing Procedures \[Ext.\]](#)

[Pricing and Conditions \[Ext.\]](#)

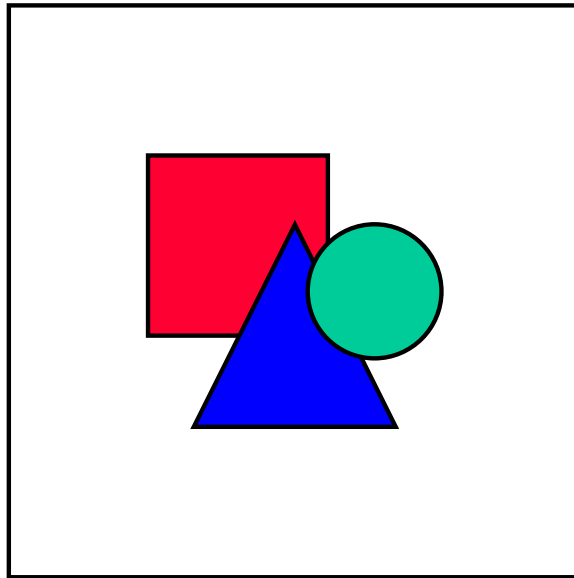
[Billing \[Ext.\]](#)

Resource-Related Billing for the Repair Order

Use

Use resource-related billing to invoice the customer for the actual costs incurred by the repairs.

When the service technician completes the service order for a repair sub-item, he records information on the costs incurred (for example, materials used or labor hours worked). When resource-related billing is initiated, the system creates separate dynamic items for each type of cost incurred. On the basis of these dynamic items, the system creates debit memo request items and enters them as actions in the repair order. This is controlled by the resource-related billing transaction and not the repair procedure.



You cannot perform resource-related billing for repair orders with reference to a service contract.

Prerequisites

Make sure that:

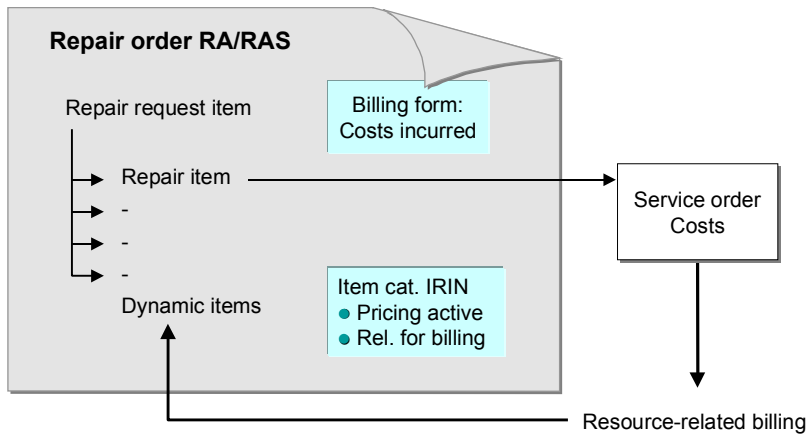
- The billing form for the repair request item is set to 02 (costs incurred).
- A dynamic item processor profile has been assigned to the repair order (*Sales B* screen for the item).

The following item categories are defined in the standard system in Customizing for debit memo request items in the repair order:

- *IRIN* - Relevant for billing
- *IRNI* - Not relevant for billing

In the repair order, the system determines the appropriate item category for the debit memo items on the basis of the item category usage and the item category of the higher level item.

Resource-Related Billing for the Repair Order



See also:

For more information, see [Resource-Related Billing \[Page 1793\]](#) under CS - Customer Service.

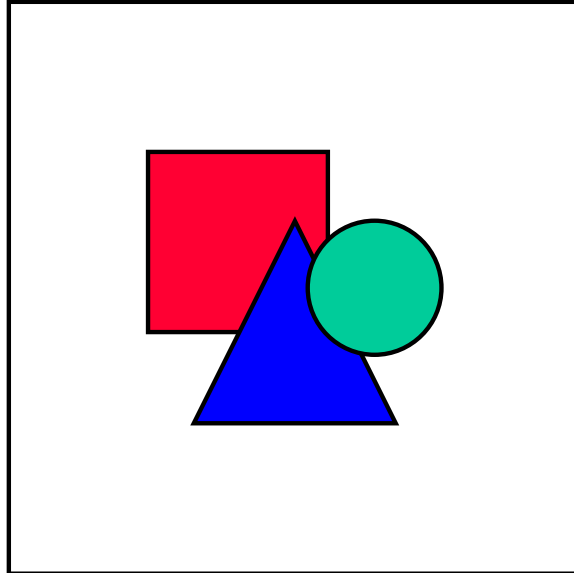
Fixed Rate Billing for the Repair Order

Fixed Rate Billing for the Repair Order

Use

Pricing is performed at service product or serviceable material level according to the standard pricing procedure *PREP01* that is defined for the repair order.

You can use fixed rate billing in conjunction with the pricing function for configurable materials.



If the quantities in the repair or delivery sub-items of your repair orders often deviates from the quantity in the repair request item, we recommend that you define a user status (for example, manual processing required) that blocks the repair order for billing. Define that this block is set when the completion of the service order is reported back to the repair order. This enables you to check the results of pricing and make any necessary adjustments manually before you release the repair order for billing. You can then create a [worklist \[Page 1018\]](#) of all repair orders with this status and adjust the prices and quantities manually before releasing them for billing.

For more information on defining a user status, see [Status Management \[Ext.\]](#).

Prerequisites

To perform pricing for the serviceable material, you must change your settings for pricing:

- Use `USEREXIT_PRICING_PREPARE_TKOMP` to define the field `VBAPD-MATNR_G` as the pricing material in the communication structure

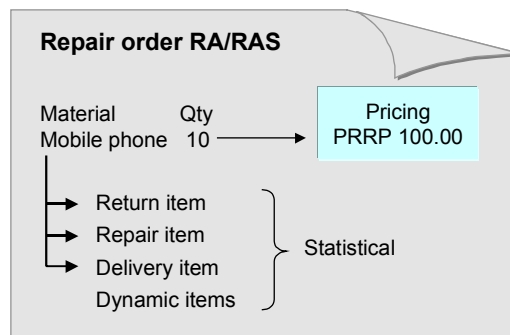
For information on how you do this, see the Customizing activity *User Exits for Pricing* (choose *Sales and Distribution* → *User Exits* → *User Exits for Pricing*).

- Define an alternative formula for calculating the condition base value. You do this in the Customizing activity *Define formulas for pricing* (choose *Sales and Distribution* → *System Modification* → *Routines* → *Define formulas for pricing*). Specify in this formula that the quantity for calculating the price should be taken from the `VBAPD-MENGE_G` field. Assign the formula to the pricing procedure.

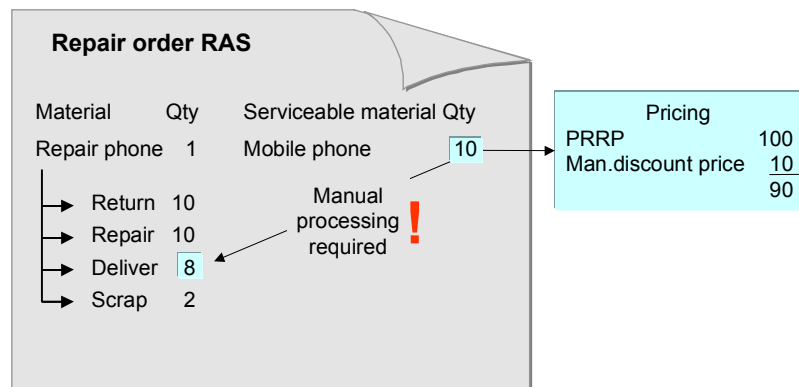
Fixed Rate Billing for the Repair Order

**Outbound delivery quantity matches repair request item quantity**

The customer sends in 10 mobile phones for repair. You enter this information in the repair request item. The system calculates the price for the repair request item using the pricing procedure *PREP01*. It finds a *PRRP* condition record for the serviceable material. When the repairs are complete, you bill the customer on the basis of the pricing information in the repair request item.

**Repair request item contains a manual discount, Outbound delivery quantity deviates from repair request item quantity**

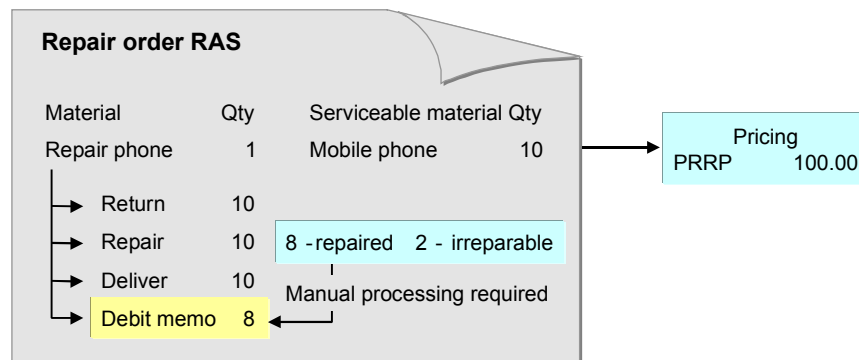
The customer sends in 10 mobile phones for repair. You enter this information in the repair request item. The system calculates the price for the repair request item using the pricing procedure *PREP01*. It finds a *PRRP* condition record for the serviceable material. You enter a manual discount for the repair request item. During repairs, the service technician determines that only 8 mobile phones can be repaired. The other 2 can only be scrapped. You want the customer to be invoiced for the repair of 8 phones only and according to the price calculated for the repair request item. In this case, it makes sense to block the repair request item for billing to enable you to check the results of pricing. You can then make the necessary manual adjustments and release the item for billing.



Fixed Rate Billing for the Repair Order

Actual quantity repaired deviates from the repair request quantity and the delivery quantity

The customer sends in 10 mobile phones for repair. You enter this information in the repair request item. The system calculates the price for the repair request item using the pricing procedure *PREP01*. It finds a *PRRP* condition record for the serviceable material. The service technician can only repair 8 phones. The remaining 2 phones are to be scrapped. The customer requests that you send all 10 phones back to them. You invoice the customer for the repair of 8 phones. In this case, it makes sense to block the repair request item for billing, as you want to adjust the prices calculated for the repair request item manually before billing the repairs.



Creating a Repair Order with a Service Product

1. Choose *Logistics* → *Customer Service* → *Service processing* → *Order* → *Customer repair* → *Create*.
2. Enter the order type *Repairs/Service* and the organizational data and then choose *Enter*.
3. Enter the customer number in the *Sold-to party* field and enter an external purchase order number in the *PO number* field.

You can use this number as the Return Material Authorization (RMA) number for tracking repairs processing. If you do not make an entry in this field, the system automatically enters the document number in this field when you save the document.

4. Enter the material number of the serviceable material in the *ServiceableMat* field and the quantity of serviceable materials in the *Qty* field and then choose *Enter*.
5. If material determination is active, the system proposes the possible service products for the serviceable material. Choose the appropriate service product. Otherwise, enter the service product manually.
6. On the basis of the repair procedure, the system creates an action (a return order item) for managing the return of the goods.
7. To view the return order item, select the repair request item and choose *Repairs*.

You reach the *Repairs* tab page. As well as information on the actions to be performed in repairs processing, you also find status and quantity information on the screen you reach.
8. If required, create an action (a loaner item) for managing the sending of a temporary replacement to the customer:
 - Enter the quantity of serviceable materials to be replaced
 - Select the relevant action type
 - Enter the material number of the temporary replacement



Later on in repairs processing, you can access other information that is relevant for the repair order from the *Repairs* tab page. For example, you can switch from the repair order to the relevant service order or inspection lot, or you can call up stock information for the serviceable material.

9. Save the repair order.

Result

The customer repair request has been documented in a repair order.

If you have agreed to pick up the serviceable material from the customer, you use the return order item to initiate this. Otherwise, the customer sends the serviceable material back to you.

If you have created a loaner item, it is included in the delivery due list and the temporary replacement is delivered to the customer.

Repairs processing continues when you receive the serviceable materials and post goods receipt for them.

Creating a Repair Order with a Service Product

Creating a Repair Order without a Service Product

Procedure

1. Choose *Logistics → Customer Service → Service processing → Order → Customer repair → Create*.
2. Enter the order type *Repair Request* and the organizational data and then choose *Enter*.
3. Enter the customer number in the *Sold-to party* field and an external purchase order number in the *PO number* field.

You can use this number as the Return Material Authorization (RMA) number for tracking repairs processing. If you do not make an entry in this field, the system automatically enters the document number in this field when you save the document.

4. Enter the material number of the serviceable material in the *ServiceableMat* field and the quantity of serviceable materials in the *Qty* field and then choose *Enter*.
5. To see details on the repairs, go to the *Repairs* tab page by selecting the repair request item and choosing *Repairs*.
6. Create the following actions as required:
 - A return order item for managing the return of the serviceable material
 - A returnable item for sending the customer a temporary replacement for the serviceable material

To do this, you

 - Enter the quantity of serviceable materials to be returned or replaced
 - Select the relevant action type.
 - Enter the material number of the serviceable materials.
7. Save the repair order.



Later on in repairs processing, you can access other information that is relevant for the repair order from the *Repairs* tab page. For example, you can switch from the repair order to the relevant service order or inspection lot, or you can call up stock information for the serviceable material.

Result

The customer repair request has been documented in a repair order.

If you have agreed to pick up the serviceable material from the customer, you use the return order item to initiate this. Otherwise, the customer sends the serviceable material to you.

If you have created a loaner item, it is included in the delivery due list and the temporary replacement is delivered to the customer.

Repairs processing continues when you receive the serviceable materials and post goods receipt for them.

Creating a Repair Order without a Service Product

Posting Goods Receipt for Serviceable Materials

Use

You post goods receipt to record that the serviceable materials have arrived at your plant. You can also record receipt of other goods such as loaner items.

Prerequisites

You require a repair order in which you have recorded the customer's repair request.

Procedure

1. Choose *Logistics* → *Customer Service* → *Service Processing* → *Order* → *Customer repair* → *Returns* delivery.
2. On the *Create Returns Delivery* screen, enter the following information:
 - Number of the repair order in the *Repair order* field
You can search for the appropriate repair order using the RMA number.
 - Delivery type in the *Delivery type* field
In the standard system, delivery type *Returns delivery (LR)* has been defined for this purpose.
 - Number of the shipping point in the *Shipping point* field
3. Choose *Enter*.
4. You reach the overview screen where you can post goods receipt by choosing *Edit* → *Post goods issue*.
5. Save the delivery.

Result

Repairs Processing Using Inspection Lots

When you post goods receipt for serviceable materials:

- The items are automatically assigned to inspection stock
- An inspection lot is created automatically and initiates the technical check

Repairs Processing Without Inspection Lots

When you post goods receipt for the serviceable materials:

- The items are automatically assigned to unrestricted use stock
We recommend that you post the serviceable materials to blocked stock (using movement type *344E*) before you start the repair process.
- You must initiate the technical check manually

Posting Goods Receipt for Serviceable Materials

You can also create returns deliveries by choosing *Outbound Delivery* → *Create* in the [Shipping menu \[Ext.\]](#).

Advance Shipment Process

Purpose

This Logistics process enables the dispatch of spare parts to the service technician or customer within the framework of Call Management. The individual functions can be implemented by all customer service organizations that have service technicians working in the field.

We recommend that you process the shipment of spare parts using a service order with a sales order. On the one hand, this is because using a service order enables:

- A service-specific earnings view from the perspective of Controlling
- Improved coordination between delivery and deployment dates for the service technician.

On the other hand, using sales orders means that a customer consignment stock can be created. This makes it possible to bill the spare parts that were actually required after the consumption posting has been performed.

The spare parts that are to be dispatched can either be located in the warehouse, or be procured from an external vendor using a purchase order (third-party order processing). They can be planned in advance within the framework of call management. The service technician can send back the spare parts that are not required.

Advance shipment with service order

This scenario differs from the standard case because the service order refers to service contract item. As a result of this, existing pricing agreements are taken into consideration within the framework of resource-related billing. You can use the contract as an account assignment object during settlement.

You can specify an accounting indicator where necessary in order to override contractual agreements.

Process Flow

1. [Creating a service notification for advance shipment \[Page 1036\]](#)

A customer phones you and reports that a device is defective. You enter the problem in a service notification.

If you simply want to send the spare parts to the customer without having to plan the deployment of a service technician, you can create directly a sales order from the service notification.

2. [Creating a service order for advance shipment \[Page 1038\]](#) and releasing it.

You create a service order in order to send the spare parts to the customer, and to deploy a service technician to install them. You can plan the spare parts that are to be delivered as components in the service order.

You can create a sales order on the basis of the service order. You have the option of copying spare parts that you have already planned into the sales order. You can assign shipping conditions and accounting indicators to the individual spare parts. If the sales order type brings about a consignment fill-up, the system creates the consignment stock.

3. Performing delivery for the sales order item

Advance Shipment Process

After releasing the service order you create the delivery note for the sales order item and post the goods issue for the delivery note.

The sales order type can be configured in such a way that the delivery is created automatically (immediate order) for the sale order item when the service order is saved.

If the item type results in third-party order processing, the system does not create a delivery note, but instead a purchase order for the third-party order processing in Purchasing.

4. Performing completion confirmation and sending back spare parts

After the repair, the service technician performs completion confirmation for the service order. For this, he specifies the spare parts used and the working times in the service order. He can change the accounting indicator (for example, goodwill) when performing completion confirmation.

The service technician sends back the spare parts that were not required and the exchanged part where necessary. Because the sending back is not dependent on billing, it can happen either before or after billing. These materials should be included as items in the sales order when sent back.

5. Posting goods withdrawals from the consignment stock

The goods withdrawal from the consignment stock for material consumption must be posted (movement type 261, special stock W) at the same time as the completion confirmation is performed. You specify the service order as the auxiliary account assignment in the posting document. When doing this, the consignment stock is reduced according to the consumption.

6. Performing resource-related billing

You perform resource-related billing. This results in the confirmed materials and working times being charged to the customer.

Advance Shipment

Use

This function triggers the dispatch of spare parts to the customer or service technician. The following processing scenarios are conceivable:

- **Dispatch of Spare Parts With Deployment of Service Technician**

The spare parts and a service technician for installing the spare parts are sent to the customer. In this case we recommend a sales order type that results in the creation of a consignment stock. After completion confirmation and consumption posting have been performed, the customer consignment stock is canceled and the parts that are not required are sent back. When resource-related billing is performed, only the parts that were actually used are charged to the customer. The revenues flow to the service order. The parts and exchanged parts that are not required are sent back.

- **Dispatch of Spare Parts Without Deployment of Service Technician**

The spare parts are sent to the customer who will install them himself. In this case you should choose a customer order of the type *standard order* or *immediate order*. You can work with or without a service order.

You can work with different sales order types for each processing scenario: The advantages and disadvantages of the corresponding processing forms are illustrated in the following table:

Dispatch of Spare Parts With Deployment of Service Technician

Processing form	Sales order type	Consequences
Using service notification with service order and sales order	Creation of a consignment stock. Items are not relevant for billing	The spare parts are sent, but resource-related billing is only performed once the completion confirmations and consumption postings have been performed. The service order is the cost collector. It can be settled in the earnings, to particular earnings or G/L account, or using a contract (service-specific controlling).
Without service notification but with service order and sales order		

Advance Shipment

Without service order but with service notification and sales order	Standard or immediate order Items are relevant for billing	The spare parts are sent and charged to the customer. The billing document is based on the delivery. A credit memo must be written for the parts that are sent back. The costs and revenues are transferred to cost accounting by the sales order.
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Dispatch of Spare Parts Without Deployment of Service Technician

Processing form	Sales order type	Consequences
Using service notification, service order and sales order	Standard or immediate order Items are relevant for billing	The spare parts are sent and charged to the customer. The billing document is based on the delivery. A credit memo must be written for the parts that are sent back. The costs and revenues are transferred to cost accounting by the sales order.
Without service order but with service notification and sales order		

Prerequisites

You have configured the necessary sales order types in Customizing for Sales and Distribution:

- Consignment stock (KB)
- Standard order (TA)
- Immediate order (SO)

Several item categories are allowed, depending on the customer order type. These control, for example, whether a consignment stock is created, whether an item is relevant for delivery and billing, or whether it is just relevant for delivery. Possible characteristics of the item categories include:

- Item for consignment stock
- Item for standard order
- Item for immediate order
- Or mixed forms

For more information on sales orders and item categories, refer to the documentation [SD - Sales \[Ext.\]](#).

Activities

[Creating a Service Notification for Advance Shipment \[Page 1036\]](#)

[Creating a Service Order for Advance Shipment \[Page 1038\]](#)

Creating a Service Notification for Advance Shipment

Creating a Service Notification for Advance Shipment

Prerequisites

If you want a particular type of sales order to be proposed when creating a service notification, you can define this as a default value in Customizing for service notifications.

Procedure

1. Choose *Logistics* → *Service management* → *Service processing* and then *Notification* → *Create (special)* → *<Notification type>*.

The notification header is displayed.

2. Complete the necessary data such as sold-to party, equipment, problem description, and tasks that the service technician may have to perform.

If you enter a piece of equipment as a reference object, the data for the sold-to party is entered automatically. Later, you will also be able to use the structure list to select the spare parts to be shipped, and copy them to the sales order.

3. You must create a service order to be able to send a service technician to install the spare parts at the customer's. To do this, choose *Service notification* → *Service order* → *Create for notification* (see [Creating a Service Order for Advance Shipment \[Page 1038\]](#)).

You must create a sales order to be able to send spare parts that the customer is to install himself.

- If you choose *Service notification* → *Create sales order* → *Standard order type*, the system copies the sales order type that is preassigned in Customizing, and branches directly to the sales order.
- If you choose *Service notification* → *Create sales order* → *Advance shipment*, you go straight to the dialog box where you enter the advance shipment parameters.

You can overwrite the sales order type. Enter a shipping condition and an accounting indicator where necessary. Choose *Continue*.

Confirm the following dialog box with *Continue*.

If you have entered a piece of equipment as a reference object, the structure list is displayed. Here, you can select the materials that you want to ship as spare parts.

Choose *Select* to copy the selected parts to the sales order.

4. In the sales order, enter the spare parts or check the parts that were selected using the structure list.
5. Complete any data required and choose *Back* to return to the service notification.
6. Save the service notification.

Result

The system saves the sales order together with the service notification. You can use [document flow \[Page 1401\]](#) to see the assignment of a service notification to the sales order.

Creating a Service Notification for Advance Shipment

Creating a Service Order for Advance Shipment

Creating a Service Order for Advance Shipment

Prerequisites

If you want a particular type of sales order to be proposed when you create a service order, you can enter this in the user master record under the set/get parameter VORAB_AUART.

To be able to send the spare parts to a service technician (instead of to a customer) when creating a consignment stock, a customer master record must be created for the service technician.

Procedure

- Depending on where you are, choose one of the following procedures:

You are	Choose
In notification processing	<i>Service notification → Service order → Create for notification</i>
Not in notification processing	<i>Logistics → Customer service → Service processing</i> and then: <ul style="list-style-type: none"> With reference to a notification <i>Order → Service order → Create (special) → For notification</i> Without reference to a notification <i>Order → Service order → Create (general)</i>

A dialog box or the initial screen for creating a service order is displayed.

- Enter the service order type **SM02** and enter the required data.

If the service order makes reference to a service contract, enter **SM01**.

- Choose *Continue*.

The order header is displayed.

- Enter the service technician who is to perform the installation of the spare parts and the repair in the field *Main work center*.

If you do not specify a piece of equipment as the reference object in the notification or order, you must enter the sales organization and the distribution channel by choosing *Extras → Sales data*. If you do not do this, the sales data is copied from the reference object.

If you want to send the spare parts to a service technician, enter the service technician as the sold-to party and the goods recipient. (Otherwise enter the customer as the sold-to party and the goods recipient).

- In order to plan the spare parts that you want to send in advance to the customer, choose *Components*.

The component overview is displayed.

Creating a Service Order for Advance Shipment

6. Enter the spare parts, the quantities and the bill of material item category (for example, stock material). Material master records with sales data must be created and have prices maintained for the spare parts.

If you have entered a reference object in the order header, you can select the spare parts to be sent by clicking on the icon *Structure list*, and copying them into the component overview.

7. Select the spare parts that you want to ship in advance and click on the icon *Advance shipment*.

The dialog box for entering the advance shipment parameters is displayed.

8. You can overwrite the sales order type. Enter a shipping condition and an accounting indicator where necessary and choose *Continue*.

In the next dialog box that is displayed, you can:

- Perform an availability check
- Perform a completeness check
- Make changes to the items proposed from the service order (these changes are **not** copied to the service order)

9. Choose *Back* to return to the service order, and save it.

Result

The system saves the sales order together with the service order. You can use the [document flow \[Page 1401\]](#) function to see the assignment of a service order to the sales order.

Both the service order and the individual spare parts are assigned the system status *Advance shipment made*. This means that you can use this status to search for service orders and components.

The current [delivery status \[Page 1040\]](#) is also recorded for the spare parts. This means that you can display the current delivery status of the sales order in the service order.

The system also sets automatically the indicator “Non-MRP-relevant” for the spare parts. This is because the materials are copied into the sales order and are planned there.

Status: Advance Shipment

Status: Advance Shipment

Use

You use this function to obtain the current status overview of the sales order. You see all system and user statuses of the sales order at a glance. This enables you to display the required status information from the service order without having to call up the sales order or the delivery note.

Furthermore, the current delivery status of the individual components is also recorded here. This means you can use this function to track the delivery dates of the spare parts with the deployment date of the service technician.

Activities

Choose *Advance shipment status* in the component overview or detail screen in the service order.

Service Processing Using Sales Order With Service Item

Purpose

If a service technician is required at the customer site to repair a defective device, you can use the sales order or the service order to process this. A service order is created automatically by specifying a [service product \[Page 1043\]](#) in the sales order item.

You can perform billing on the basis of the flat-rate price of the service product in the sales order and/or on the basis of the costs that have arisen in the service order (resource-related billing).

For more information, see [Billing \[Page 1790\]](#).

You can assign a task list of the type general task list to a service product. You can also specify a technical reference object on which the service is performed.

Process Flow

1. You create a general task list or a configurable general task list. You define the exact service procedure in this general task list.
 - You can organize general task lists differently in your company.
 - You create a general task list in advance for each service product.
 - You group service products together and create a general task list for each group.
 - To
 - You create a separate general task list for each service product.
2. You create the [service product \[Page 1050\]](#) as a material master record with the material type DIEN.
3. You create a pricing condition for your service product so that you can later perform pricing.

Logistics → Sales and distribution → Master data and then Conditions → Prices → Material price → Create
4. You [process the service product \[Page 1052\]](#).
5. You create a sales order with an item and enter the service product as the material. You have the following options:
 - Sales order with service product
 - Sales order with configurable service product
 - Sales order with service product and reference object
 - Sales order with configurable service product and configured reference object



The system cannot copy characteristics from the technical reference object into items that are created as sub-items via multi-level configuration.

If you want to copy characteristics of the technical reference object into a sub-item, you must create the item manually.

Service Processing Using Sales Order With Service Item

Service Product

Definition

The service product is a service that can be sold and that is performed within Customer Service (for example, inspection of your car). You can use the sales order and the [service order \[Page 1070\]](#) to process these service tasks.

Use

In a sales order, you can list both the service product and the material that you require in order to perform the service. The service product is entered as a service item in the sales order. A service order is created automatically for this item.

A service can be considered from two different perspectives:

- From a company-external perspective, meaning from the customer's point of view:
Which services should the customer pay for, and how much do they cost? This is defined using the sales order.
- From a company-internal view, meaning from the perspective of the technical execution:
Which tasks are required from a technical point of view in order to perform the service?
This is defined using the service order.

You can perform billing on the basis of the flat-rate price of the service product in the sales order and/or on the basis of the costs (resource-related billing) that have arisen in the service order.

You can find more information on the characteristics of service products during resource-related billing in [resource-related billing \[Page 1793\]](#).

[Configurable service products \[Page 1044\]](#) play an important role within service processing.

Structure

From a technical perspective, the service product is a material master record (material type DIEN).

Configurable Service Product

Definition

The [service product \[Page 1043\]](#) is a service (for example, the inspection of your car), that is performed within the framework of customer service. Service products can be configured, meaning that you can use the configuration for the service that is to be performed.

Use

The configurable service product is a service item in the sales order, or can be entered directly in the service order. You store the detailed description of the service product in a so-called super task list. This contains all conceivable operations. You use the configuration to select the exact operations, components and service items for the external operations that you require for performing the service task. The individual operations that are listed in the task list depend on the object to which the service is to be performed, and also on the customer involved.

The configuration data is used to select and evaluate operations, components and service items for external operations of the super task list in the sales order item, and to copy them into the service order. To do this, you assign a configuration profile to the general task list.

The configurable service product enables more detailed pricing.

You can find more information on the characteristics of service products during resource-related billing in [Resource-Related Billing \[Page 1793\]](#).

Structure

From a technical perspective, the service product is a material master record of material type DIEN. It is configurable if it is indicated as being a configurable material, and is assigned to a configuration profile.



You provide various services for the inspection or repair of a motor car. You store these in a super task list and assign this to a service product. The service product contains defaulted data (such as type of car) and data that relates to a specific car (such as engine power).

A car is brought in for an inspection. It is configured, meaning that it has special brakes and a particular engine power. This data determines which tasks must be performed: a special task list, which is tailor-made for the car concerned, is created from the super task list which is assigned to the service product.

Automatic Creation of Equipment

Use

If you want to perform a service and a new piece of equipment is to be created as a result of this service.

Prerequisites

The following requirements must be met if you want to be able to use this function with equipment:

- You have [created the service product as a material \[Page 1050\]](#). The service product controls the link between sales order, service order and equipment.
Logistics → Materials management → Material master, and then Material → Create (general) → Immediately
- You have created the sales price.
Customer service → Sales processing → Environment → Sales → Conditions → Create, and then Prices → Material price
- You have [processed the service product \[Page 1052\]](#) and entered 03 as the reference type (= technical reference object created automatically).
Logistics → Customer service → Service processing → Environment → Sales → Service products
- You have created a [sales order with service product \[Page 1053\]](#).
Logistics → Customer service → Service processing → Order → Sales order → Create

Features

During service processing using a sales order with item, when you save the sales order, a service order is generated automatically. In addition, if you enter the reference type 03 (technical reference object created automatically) when creating the service product, a piece of equipment can be generated automatically when you save the order. This piece of equipment is entered as the technical reference object in the service order. The piece of equipment is first assigned the system status 'UNCO' (= Under construction). Once the service order is technically completed, the status 'UNCO' is canceled.

The data for the new piece of equipment is copied from a master equipment. You can either enter directly the master equipment when processing the service product, or specify it when you create the order.

The system copies from the master equipment all data that has been entered. In addition, the sales data and the partner data is copied from the sales order. In the case of the partner data, it depends on the partner determination procedure as to which partners are copied. The system only copies the partner data that is suitable for this equipment profile. The technical reference object is created even if not all mandatory partner functions are provided. The missing partner functions can be added later. You can read and change the data of the master equipment where necessary using customer exit ITOB0002.

Automatic Creation of Equipment

This function is only available in the sales order, not in the service order.

If a service item is canceled or deleted, the dependent service order is then locked.

The following limitations should be noted:

If you create an SD document with reference to a sales order with item (copy reference), no configuration data is copied from the equipment and the equipment is not reserved.

If you create a sales order with reference to the item in the SD quotation (follow-on document), the service order always makes reference to the SD quotation and not to the sales order. This has the consequence that when performing technical completion of the service order, the data of the SD quotation item is copied into the configuration of the technical object, and not the data from the sales order item.



Automatic Creation of Configurable Equipment

Use

If you want to perform a service and a new piece of equipment is to be created as a result of this service.

Prerequisites

The following requirements must be met if you want to be able to use this function with configurable equipment:

- You have created characteristics and classes for the equipment and service.
Logistics → Central functions → Classification → Master data → Characteristics → 
Logistics → Central functions → Classification → Master data → Classes → 
- You have [created a material master for a service product \[Page 1050\]](#). The service product controls the link between sales order, service order and equipment.
Logistics → Materials management → Material master, and then Material → Create (general) → Immediately
- You have created a configuration profile for the service. The configuration profile controls the link between service and class.
Logistics → Materials management → Material master → Material → Environment → Configuration profile → Create
- You have created the sales price.
Customer service → Sales processing → Environment → Sales → Conditions → Create, and then Prices → Material price
- You have [processed the service product \[Page 1052\]](#) and entered 03 as the reference type (= technical reference object created automatically).
Logistics → Customer service → Service processing → Environment → Sales → Service products
- You have created a [configurable master equipment \[Page 1049\]](#), which serves as a reference when creating the new piece of equipment from the sales order.
Logistics → Customer service → Management of technical objects → Equipment → Create (general)
- You have created a [sales order with service product \[Page 1053\]](#).
Logistics → Customer service → Service processing → Order → Sales order → Create

Features

During service processing using a sales order with item, when you save the sales order, a service order is generated automatically. In addition, if you enter the reference type 03 (technical reference object created automatically) when creating the service product, a piece of equipment can be generated automatically when you save the order. This piece of equipment is entered as the technical reference object in the service order. The piece of equipment is first assigned the

Automatic Creation of Configurable Equipment

system status 'UNCO' (= Under construction). Once the service order is technically completed, the status 'UNCO' is canceled.

The data for the new piece of equipment is copied from a master equipment. You can either enter directly the master equipment when processing the service product, or specify it when you create the order.

The system copies from the master equipment all data that has been entered. In addition, the sales data and the partner data is copied from the sales order. In the case of the partner data, it depends on the partner determination procedure as to which partners are copied. The system only copies the partner data that is suitable for this equipment profile. The technical reference object is created even if not all mandatory partner functions are provided. The missing partner functions can be added later. You can read and change the data of the master equipment where necessary using customer exit ITOB0002.

If the master equipment is configured, this data is also copied and transferred where necessary as default values into the configuration of the service product. In this case, the configuration of the equipment is reserved in case you want to use a general task list for your service. The update of the configuration at the new equipment also takes place at the time of technical completion for the service order.



This function is only available in the sales order, not in the service order.

If a service item is canceled or deleted, the dependent service order is then locked.

The following limitations should be noted:

If you create an SD document with reference to a sales order with item (copy reference), no configuration data is copied from the equipment and the equipment is not reserved.

If you create a sales order with reference to the item in the SD quotation (follow-on document), the service order always makes reference to the SD quotation and not to the sales order. This has the consequence that when performing technical completion of the service order, the data of the SD quotation item is copied into the configuration of the technical object, and not the data from the sales order item.

Creating a Master Equipment

Use

The master equipment serves as a reference when [automatically creating a new piece of equipment \[Page 1045\]](#) from the sales order with service item. It can be a piece of equipment without configuration or a configurable equipment. The following explains how to create a configurable piece of equipment. For information on how to create a piece of equipment without configuration, see [Creating a Piece of Equipment \[Page 124\]](#) in PM - Structuring Technical Systems.

Prerequisites

- You have created a configurable material. You just need to process the basic data. The main requirement is that the material is configurable.

Logistics → Customer service → Service processing → Environment → Technical objects → Material → Create (general)

- You have created a configuration profile for this configurable material and assigned the classes for the equipment.

Logistics → Materials management → Material master → Material → Environment → Configuration profile

Procedure

1. *Logistics → Customer service → Management of technical objects → Equipment → Create (general)*
Use an equipment category that is permitted for the configuration. If necessary, check which equipment category is permitted for the configuration in Customizing under *Define Business Views for Equipment Categories*.
2. Choose the tabstrip *Configuration* and assign the material number of the configurable materials.
3. Choose *Maintain characteristics*. The screen *Create Equipment: Configuration* is displayed. You can define the features of the characteristics in the block *Characteristic value assignment*.
4. Save the equipment.

Creating a Material Master for a Service Product

Creating a Material Master for a Service Product

Prerequisites

You can create a task list of the type “general task list” for extensive service tasks whose operations and components are copied into the service order during service order creation. You define the exact service procedure in the general task list. The general task list can also be configurable.

For more information on creating a general task list, see [Creating Maintenance Task Lists \[Page 401\]](#).

Procedure

1. Choose *Logistics* → *Customer service* → *Service processing* → *Environment* → *Technical objects* → *Material* → *Create (special)* → *Service*
2. Choose the views and organizational data that you must at least maintain for a service product.

- Basic data 1

Enter at least the material short text and the base unit of measure.

- Basic data 2

Set the indicator “Material is configurable” for a configurable service product.

- Sales: Sales organization data 1

Enter the issuing plant (planning plant) and the tax classification.



You specify an issuing plant so that the plant is copied to the service item in the sales order. If you do not specify a plant here, the plant must be entered in the service item so that the system can create a service order.

- Sales: Sales organization data 2

Use the item category group **LEIS** for a non-configurable service product and **LEIC** for a configurable service product.

- MRP 1

Enter the MRP characteristic.

- MRP 3

Enter a strategy group for service orders. In the standard system, this is strategy group 84. This is required if a service order is to be generated automatically upon saving the sales order when creating a sales order with a service item. The system also determines the order type of the service order (for example, SM01) on the basis of the strategy group.

3. Save the data.

Creating a Material Master for a Service Product

If you create a configurable service product, you must assign it to a configuration profile.

Logistics → Materials management → Material master → Material → Environment → Configuration profile → Create

Creating/Processing a Service Product

Prerequisites

You have [created a material master for a service product \[Page 1050\]](#).

Procedure

1. Choose *Logistics* → *Service management* → *Service processing* and then *Environment* → *Sales and distribution* → *Service products*.
2. Choose *New entries*.
3. Enter the planning plant and the service product.
4. Enter the work center that will perform the service task. The work center is copied into the service order.
5. Enter the plant, which may differ from the planning plant.



If you create a business area for your company code, specify a business area. The business area is copied into the service order.

6. Enter a task list of the type "general task list".
7. Enter the reference type. You use the reference type to define whether a reference object can or must be specified. You can also define that a new reference object is to be created automatically with the service order. In this case, the reference object must be a piece of equipment.
8. Enter the reference object. The reference object can be a piece of equipment, functional location, serial number, or assembly. In the case of a configurable service product, the reference object must be a piece of equipment.



The system copies the general task list and the technical reference object into the service order. The specification of a reference object simplifies order account assignment, because the data entered in the object master record is proposed.

9. If a reference object is to be created automatically with the service order, enter a [master equipment \[Page 1049\]](#).
10. Save the data.

Creating a Sales Order With Service Product

Prerequisites

- You have created a [general task list \[Page 514\]](#).
Logistics → Customer service → Service agreements → Maintenance planning → Task lists → Task lists → General task lists → Create
- You have [created a material master for a service product \[Page 1050\]](#).
 You have defined a strategy group for the service product in the material master record. The strategy group defines that a service order is created automatically when a sales order is created for the service item.
Logistics → Customer service → Service processing → Environment → Technical objects → Material → Create (special) → Service

Procedure



1. Choose *Logistics → Service management → Service processing* and then *Order → Sales order → Create*.
2. Enter the service product that is assigned to the super task list in the item.
3. Save the sales order.

A service order that determines the costs is created automatically. The system copies the operations and components of the super task list that is assigned to the service product into the service order.

Creating a Sales Order with Configurable Service Product

Creating a Sales Order with Configurable Service Product

Prerequisites

- You have created a [configurable task list \[Page 514\]](#).
Logistics → Customer service → Service agreements → Maintenance planning → Task lists → Task lists → General task lists → Create
- You have created characteristics for the general task list and grouped the characteristics in classes. For more information, see [Classification \[Ext.\]](#).
Logistics → Central functions → Classification → Master data → Characteristics → 
Logistics → Central functions → Classification → Master data → Classes → 
- You have [created a material master for a service product \[Page 1050\]](#) and assigned it to the piece of equipment, enabling you to store configuration data for the piece of equipment.
You have defined a strategy group for the service product in the material master record. The strategy group defines that a service order is created automatically when a sales order is created for the service item.
Logistics → Customer service → Service processing → Environment → Technical objects → Material → Create (special) → Service
- You have configured a piece of equipment using this material.
Logistics → Customer service → Management of technical objects → Equipment → Create (general)

Procedure

1. You create a sales order with sales order items:
 - Enter a configurable service product in the item. This is described using a configurable material master record. A configurable general task list is also assigned to the service product. It contains a maximum number of operations and components.
You can use the configuration from the sales order or from the technical object to individually fashion and evaluate the general task list.
 - You have the option of assigning a technical reference object to a service product.
2. You perform the evaluation of the service product, and save the sales order.
The system generates automatically a service order and, when doing this, copies the configuration data of the service product making it possible to select and evaluate the operations and components in the service order.

Copying Configuration Data in Service Processing

Prerequisites

For more information on the prerequisites, see [Creating a Sales Order With Service Product \[Page 1053\]](#).

Procedure

1. You create a sales order with sales order item:
 - Enter a configurable service product in the item, described by a configurable material master record. A configurable general task list is assigned to the service product.
 - To provide additional information for the item, you can name the piece of equipment that is to be repaired. The piece of equipment is already a configured technical object (equipment master record with evaluated configuration data).
2. The system copies the configuration data of the technical object into the configuration of the service product in the sales order item. However, this is only done for characteristics that correspond in both configurations.
3. You evaluate the configuration of the service product. You can overwrite evaluations that have been copied from the technical object.
4. You save the sales order.

The system generates automatically a service order and, when doing this, copies the selected configuration data of the service product making it possible to select and evaluate the operations and components in the service order.

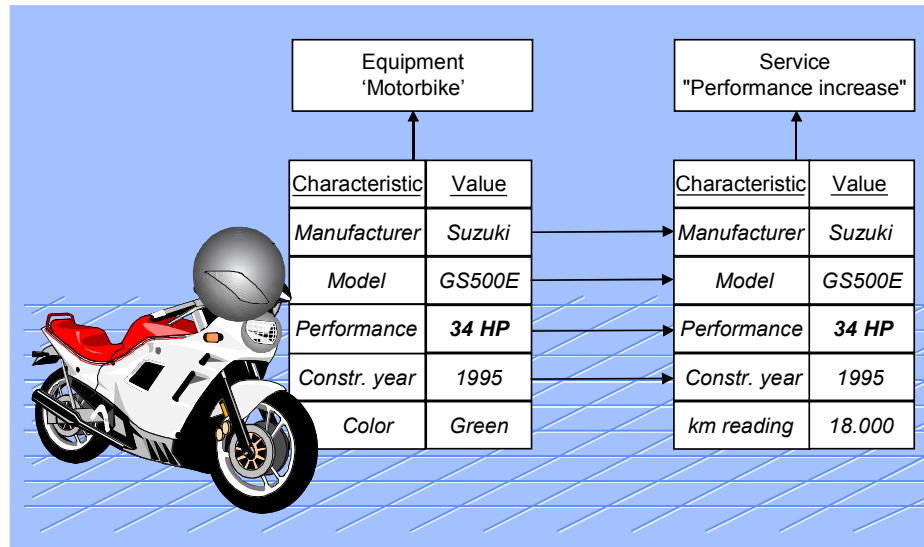
Example

The performance of a motorbike is to be increased from 34 to 48 horse power. The motorbike is the piece of equipment and the performance increase is the service product. The system copies the configuration data that is assigned to the same characteristic in the configuration of the equipment and in the configuration of the service product. The deciding factor here is simply that the characteristics are the same, not that they belong to the same class (see graphic 1).

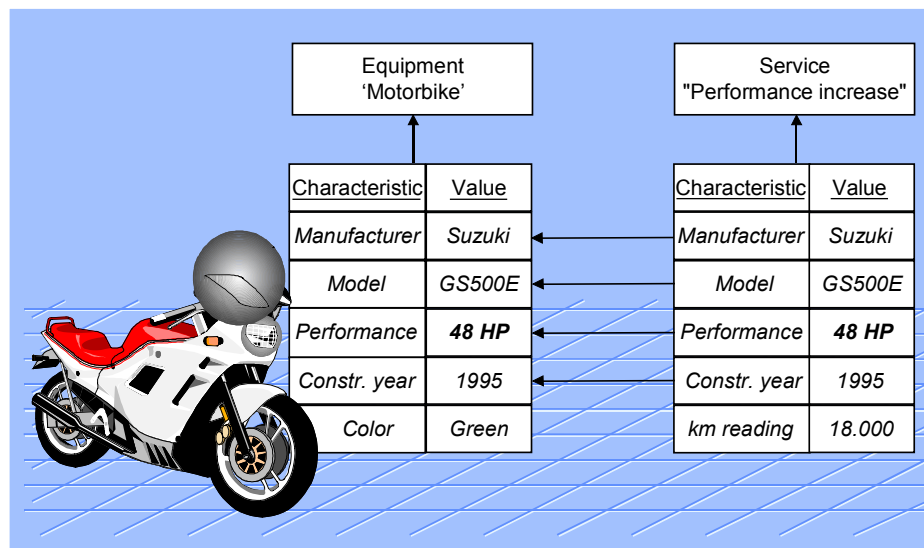
After the service task has been completed, the configuration data that has changed is updated in the configuration of the technical reference object. Access to the configuration data of the technical reference object is blocked for the duration of the service task (see graphic 2).

Graphic 1:

Copying Configuration Data in Service Processing



Graphic 2:



Controlling for Services

Definition

The aim of controlling is to manage companies based on their results. Profitability analysis and controlling need to take into consideration many aspects of business activities when representing the success of the company.

Use

In the application component Service Management (SM), controlling of services can be performed on two levels according to the requirements and perspective from which this is done:

- Controlling on the level of individual orders, contracts or projects

Depending on the business transaction, there are four ways in which values are entered into the profitability analysis:

- Using a service order
- Using a service contract
- Using a project
- Using a sales or spare part order

- Controlling of aggregated values of profitability analysis

Settled values from orders or projects are updated cumulatively in the profitability analysis according to groupings that you can structure variably and flexibly.

Structure

In Service Management, controlling is a two-step procedure:

- First, the values are posted to a controlling object (service order, service contract, project or sales order). This object is settled once the service has been performed.
- The settled values are then posted to the profitability analysis. Apart from when performing pure processing with a sales order, there is no direct interface between Service Management and Profitability Analysis. Instead, the procedure always continues with settlement.

Integration

All relevant postings are transferred to the R/3 application component *Controlling - Profitability Analysis (CO-PA)*, in which the profitability and market segment analysis takes place.

Profitability Analysis for Services

Definition

All relevant postings are collected in the profitability analysis in which the results analysis is then performed.

In the service area, the results analysis is performed depending on the type of company, product range, sales strategy or customer structure, in accordance with various characteristics and assessment methods.

The profitability analysis offers you a high level of flexibility. You have the option of freely defining variable profitability segments as combinations of characteristic values. For example, you can use the following characteristics for the formation of profitability segments:

- Product-related or service-related characteristics
For example, service and service group
- Customer-related characteristics
For example, customer, customer group and industry sector
- Transaction-related characteristics
For example, order type and order size
- Organization-related characteristics
For example, distribution channel or profit center

Use

Revenue, sales deductions and costs can be compared for profitability segments.

The profitability analysis enables you to analyze costs, revenue and profit margins for each combination of characteristics at an aggregated level. However, detail controlling takes place by means of the service contract, service order or the service project. Mixed forms are also possible.

The application component Controlling - Profitability Analysis (CO-PA) provides an information system for analyzing the data collected in the profitability analysis.

Controlling for a Service Order

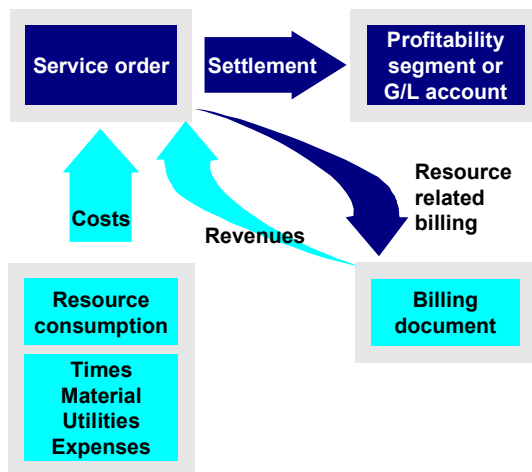
Purpose

Service orders that are not assigned to a service contract, function directly as controlling objects.

Process Flow

1. The debit memo request is created on the basis of actual resource consumption.
2. The revenues are posted to the service order, whereby the profitability of the order can be determined by comparing costs and revenues.
3. The service order is settled using profitability analysis.

Controlling for a Service Order



Controlling for a Service Contract

Controlling for a Service Contract

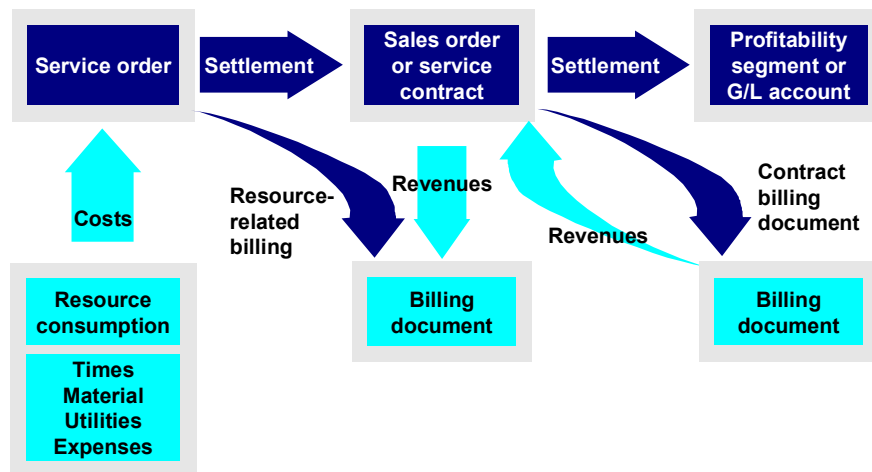
Purpose

If a service contract exists for a service, it serves as the controlling object on which costs are settled.

Process Flow

1. Resource-related billing can be performed for the service order on the basis of resources consumed (for example, materials and times).
2. The revenues from resource-related billing are posted to the service order.
3. The revenues from billing the contract are also posted to the contract.
4. The service contract is settled using profitability analysis, or on the corresponding G/L account.

Controlling for a Service Contract



Controlling for a Project

Purpose

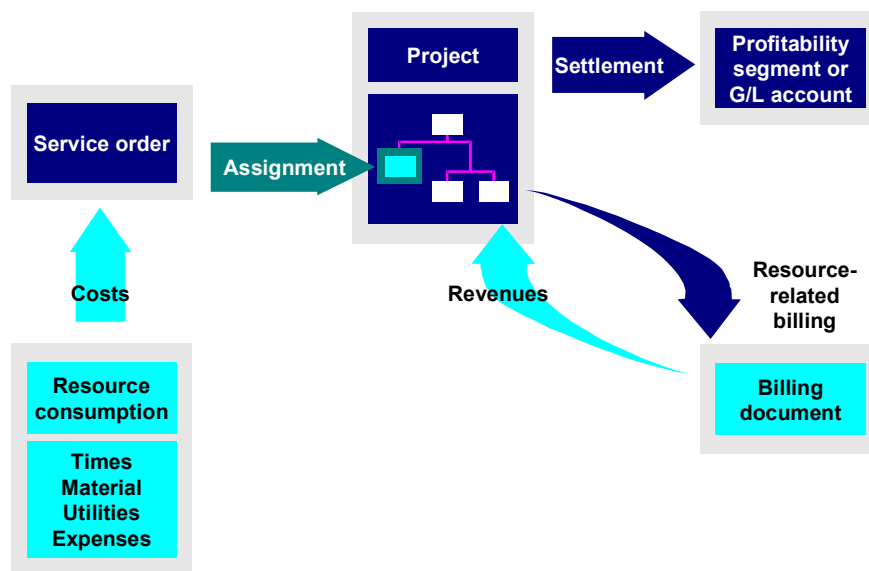
Under certain circumstances, complex service tasks necessitate processing using projects. You can structure a project according to any number of criteria using work breakdown structure elements (WBS elements), that also serve as controlling objects.

The services are processed using service orders that are assigned to a WBS element.

Process Flow

1. A debit memo request can occur on the basis of resources consumed (for example, materials, times) for a WBS element.
2. The revenues are also posted to the WBS element.
3. As costs and revenues are posted to the same WBS elements, the profitability can be determined for each WBS element.

Controlling for a Project



Controlling With a Spare Part Order

Purpose

Spare parts deliveries to customers are processed using a [spare part order \[Page 1074\]](#).

Process Flow

The costs for the products are not posted to the individual sales order. Instead, the costs and revenues are compared for each profitability segment at an aggregated level.

In this case, profitability is not determined per sales order, but just by profitability segment using profitability analysis.

Differentiation of Cost Elements

Use

In call management, it is necessary to differentiate cost elements further for the settlement of orders in profitability analysis. Both the costs incurred and the sales deductions are classified according to their source, and assigned to the appropriate cost elements. For example, the following costs are differentiated:

- Sales costs
- Warranty costs
- Good will costs
- Sales deductions due to warranty
- Sales deductions due to good will

The differentiation of costs and sales deductions enables you to assess more accurately the profitability of your products.

Integration

The differentiation of cost elements is only of use if the service orders are settled in profitability analysis.

Prerequisites

Resource-related billing must be performed for service orders.

You must have defined the accounting indicator in Customizing for Plant Maintenance.

When you create a service order, you define the accounting indicator in the header, under administrative data. Currently it is only possible to have one accounting indicator per order.



Once the order is released, the accounting indicator can no longer be changed in the order header.

Features

When actual postings are made for a service order, the system creates CO single records and a CO totals record. When doing this, it copies the accounting indicator defined in the order header, and enters it in the origin of the totals or single records.

In addition to the variance class and the cost element, the accounting indicator is a further characteristic of the PA transfer structure.

The transfer of the accounting indicator to the origin also makes it possible during the settlement of a service order in profitability analysis, to navigate more specifically in the PA transfer structure. The costs and sales deductions for warranty, good will, and sales are entered in the respective value fields.

Orders (CS-SE/PM-WOC-MO)

Purpose

Orders form an important part of the detailed planning of tasks and their accompanying documentation in Plant Maintenance or Customer Service.



A technician on site must execute tasks at a technical object. For this, materials, utilities and staff must be planned and costs estimated. The order supports you with these tasks, since it primarily contains data for planning and executing tasks, which must be performed at the technical object in question.

Implementation Considerations

You can also supplement them with [notifications \[Page 822\]](#). However, it is not necessary to use notifications in order to use orders.

Integration

The extensive functions available for orders are supplemented through integration with the following application components:

Materials Management (MM)

- Representation of all the processes required for the management of parts or materials
- Management of repairable spares to be refurbished
For more information, see [Inventory Management \[Ext.\]](#).
- External procurement of materials and services
For more information, see [Purchase Requisitions \[Ext.\]](#) and [Basic Process for Procurement of Service \[Ext.\]](#).

Project System (PS)

- Representation of complex tasks which cover several orders and for which certain dependencies exist between the orders
For more information, see [Project System \[Ext.\]](#).

Quality Management (QM)

- Automatic generation of inspection lots for the calibration inspection
For more information, see [Planning of Calibration Inspection \[Ext.\]](#).
- Management of test equipment used in QM
For more information, see [Test Equipment Management \[Ext.\]](#) and [Where-Used Lists and Central Replacement \[Ext.\]](#).
- Detailed results documentation for inspections with subsequent where-used list
For more information, see [Results Recording \[Ext.\]](#).

Production Planning and Control (PP)

- Provision of data about maintenance or repair activities at work centers in Production using the graphical planning board

For more information, see [Capacity Planning in Customer Service \[Page 1439\]](#) and [Capacity Planning in Plant Maintenance \[Page 1466\]](#).

Financial Accounting (FI)

- Management of customer and vendor data

For more information, see [Creditor Master Data \[Ext.\]](#) and [Debitor Master Data \[Ext.\]](#).

- Invoice creation and verification

For more information, see [Invoice/Credit Memo Entry \[Ext.\]](#) and [Logistics – Invoice Verification \[Ext.\]](#).

Funds Management (FI)

- Cash budget monitoring
- Completion of settlement of services, operations or material, which can lead to a commitment without special account assignment

For more information, see [Funds Management \[Ext.\]](#).

Asset Accounting (FI-AA)

- Direct settlement of activities which must be capitalized to the affected system
- Display of the connection between business and maintenance-specific views of your system

For more information, see [Asset Accounting \(Overview\) \[Ext.\]](#).

Controlling (CO)

- Definition of settlement records for work centers

For more information, see [Cost Center Planning \[Ext.\]](#).

- Settlement of orders with internal activity allocation of actual costs

For more information, see [Settlement \[Ext.\]](#).

- Evaluation of maintenance tasks, for example, by cost center

For more information, see [Information System \[Ext.\]](#).

Investment Management (IM)

- Detailed monitoring of accounts for complex measures
- Management of budgets for all measures
- Use of investment orders

For more information, see [Investment Management \(Overview\) \[Ext.\]](#).

Personnel Management (PA)

- Provision of data on the qualifications of employees, so that you can find suitable personnel for the activities required

For more information, see [Personnel Administration \[Ext.\]](#).

Workflow Management (BC-BMT-WFM)

Orders (CS-SE/PM-WOC-MO)

- Automatic control and editing of process flows for all jobs during the planning and execution of tasks

For more information, see [Maintenance and Service Orders \(PM-WOC-MO/CS-SE\) \[Page 1886\]](#).

The following interfaces to external systems are also available:

External System	Application Scenario
SAP Business-to-Business Procurement for material planning using external catalogs on the Internet	From the PC, you call up catalogs, which are stored on the Internet, choose the required materials and copy them to the order.
SAP ArchiveLink™ for optical storage of incoming documents	<p>You can assign different documents (for example, photographs of damage, the fax of a malfunction report) to the tasks and display them directly from the SAP System at any time.</p> <p>For more information, see Plant Maintenance and Customer Service [Ext.].</p>
Spare parts procurement using external catalogs with user exit EXIT_SAPLCOMK_003	From the PC, you call up spare parts catalogs, which are stored there in electronic form, choose the required materials and copy them to the order.

Features

Functions are available in the following areas:

- Specific [planning \[Page 1097\]](#) with regard to type, scope, dates and resources
- [Execution \[Page 1254\]](#) and monitoring of tasks
- Drawing up of [rules \[Page 1131\]](#) for account assignment and settlement
- Definition of budgets
- Entry, assignment and [settlement \[Page 1384\]](#) of costs incurred
- Technical and business [completion \[Page 1260\]](#)
- [Billing \[Page 1796\]](#) and [Controlling \[Page 1059\]](#) for service orders
- [Archiving \[Ext.\]](#)

Order Types

Definition

The order type is a classification characteristic for orders. It consists of control information that is important for managing orders.

The order type is client-based. This means that each order type can be used in all controlling areas.

Use

Order types are primarily used to group orders according to application components. More detailed structuring also considers the realization and subsequent processing options of individual orders.

For example, the following order types are available in the standard system:

- PM01 for maintenance orders (PM)
- PM04 for refurbishment orders (PM)
- PM06 for investment orders (PM)
- SM01 for service orders (CS)

Maintenance Order

Definition

Detailed planning assistance for maintenance tasks to be performed.



In the following documentation, the maintenance order is simply referred to as “order”, when it is clear from the context that a maintenance order (PM order) is meant.

Special order types are the [investment order \[Page 1071\]](#), the [calibration order \[Page 1072\]](#) and the [refurbishment order \[Page 1073\]](#).

Use

You can use an order to:

- Plan tasks in detail with regard to type, scope, dates and resources
- Monitor the execution of tasks
- Define rules for account assignment, settlement and budgets
- Enter, assign and settle the costs which arise from tasks

You can [process an order internally \[Page 1075\]](#), that is, have it processed by your own employees, or you can [process an order externally \[Page 1419\]](#), that is, assign it to another company for processing.

You can create an order with or without reference to the notification. It is possible to assign the order subsequently to one or more notifications.

You can also assign an order to each of the following:

- [Profit center \[Page 1191\]](#)
- [Revision \[Page 1192\]](#)
- [Project \[Page 1193\]](#)
- [Investment program position \[Page 1194\]](#)
- Account assignment in [Funds Management \[Page 1195\]](#)
- [Real estate object \[Page 1196\]](#)
- [Joint venture \[Page 1197\]](#)

The order data is entered in the maintenance history and is extremely important for evaluations and future planning.

Structure

An order consists of:

- Order header
- [Object list \[Page 1136\]](#)

- [Operation \[Page 1099\]](#)
- Material list, see [Material Scheduling \[Page 1112\]](#)
- Production resources/tools, see [Use of Production Resources/Tools \[Page 1205\]](#)
- [Settlement rule \[Page 1131\]](#)
- [Costs \[Page 1167\]](#)

An order contains operations that describe the individual work steps. For greater detail, operations can be divided into sub-operations.

Operations can be performed sequentially, in parallel or overlapping. Their sequence is defined in relationships. Operations and sub-operations can be processed internally or externally.

An operation or sub-operation to be processed internally is assigned to a work center, which is responsible for its execution. The necessary capacity requirements can be planned for performing the operation or sub-operation.

For complex and extensive maintenance work, several lower-level orders can be assigned to one order. In this way, [order hierarchies \[Page 1186\]](#) can be created.

Service Order

Service Order

Definition

Short-term agreement between service provider and service recipient, in which one-time services are ordered by the service recipient and resource-related billing performed upon completion.

A service order contains the following data groups:

- Header data
- Location and account assignment data
- Object data
- Settlement data
- Operation data
- Component data

Use

The service order is used to document service and customer service work. In particular, you can use the service order to:

- Plan services specifically with regard to usage of material, utilities and personnel
- Monitor the execution of services
- Enter and settle the costs which arise from the services

The data for the service order is entered in the history and is important for evaluations and future planning.

You can also create a one-time customer in the order and transfer the data, for example, to the sales order. For more information, see [Transfer of One-Time Customer Data \[Page 844\]](#) and [One-Time Customers and Vendors \[Ext.\]](#).

Structure

A service order contains operations that describe the individual work steps. An operation can be divided into sub-operations for greater detail.

Spare materials and utilities, which are required for service work, can be planned in the operation.

Integration

If several similar service notifications exist, they can be grouped together into a service order and completed.

Services at several similar objects installed at the customer can also be processed using a service order.

Investment Order

Definition

Special order that settles the costs of an investment measure to an asset under construction (AuC).

Investment measures are used to create new assets or maintain existing assets to increase their value, which you must then capitalize.

Use

You should assign an investment order account to an AuC if the maintenance work is to continue across a period limit (for example, end of the year) or if the asset is to be activated as a line item.



An investment order does not necessarily have to be assigned to an investment program.

You can link an investment order to a [notification \[Page 825\]](#).

The system usually creates an asset under construction automatically when the investment order is released. However, you can also create the asset under construction manually if you want to maintain data other than that proposed by the system.

After an asset under construction has been generated for the investment order, the system sets the status *AUC* (asset under construction exists).



When you flag an investment order for deletion, the AuC is automatically deactivated.

See also:

[Assets Under Construction \[Ext.\]](#)

[Creating an Investment Order \[Page 1089\]](#)

Calibration Order

Calibration Order

Definition

Special order that tests whether a specified piece of test equipment fulfills the performance criteria defined.

In the standard system, the order type for calibration orders is *PM05*.

Use

You can either create calibration orders directly or generate them automatically from maintenance plans.

Integration

When the order is released, the system generates an inspection lot. The inspection lot appears in the worklist for results recording in the *Quality Management* (QM) application component.

See also:

[Creation of a Calibration Order \[Page 1091\]](#)

Refurbishment Order

Definition

A special order, which you use for the refurbishment of repairable spares, and for which the order type must be specially selected.

Use

You use the refurbishment order to contract a work center to restore a certain number of faulty repairable spares to full working order at a certain date.

The order can refer to the following types of repairable spare:

- One or more individual repairable spares (combination of material and serial number, for which an equipment master record can also be created, if necessary)
- One or more non-individual repairable spares (material)

The repairable spares scheduled in the order are brought from a uniform initial condition to a uniform end condition. You can distinguish between these conditions using batches or different valuation types.

In the order, you document the individual phases of refurbishment:

- Planning
- Release
- Execution
- Completion confirmation
- Entry of costs and settlement

Structure

The structure of the refurbishment order corresponds in essence to the structure of the maintenance order. However, the refurbishment order also provides you with:

- An object list, in which you can identify all the repairable spares which should be refurbished by using their material serial numbers, and recognize whether equipment master records exist for them
- Fields for origin, quantity and future storage location (if necessary, with batch and valuation type) of the objects to be refurbished
- A display of the status of the refurbishment (number of objects already refurbished)
- A display of the dates for refurbishment

See also:

[Creating a Refurbishment Order \[Page 1434\]](#)

Spare Parts Order

Spare Parts Order

Definition

Sales order used to process and supply required spare parts.

Use

When creating the notification, if you determine that only one spare part must be delivered and no technician is required, you can create a spare parts order immediately from the notification, which can be used for further processing. You can use the bill of material and configuration data for the object to determine the spare parts.

Integration

When you use spare parts orders, all the functions for shipping processing and transportation are also available.

For more information, see [Advance Shipment \[Page 1033\]](#).

Order Processing: Internal Processing

Purpose

You can use the order to detail the work to be performed. This is important to minimize unproductive time, above all for central objects, whose malfunction can lead to bottlenecks or breakdowns in production.

Depending on the type of order and work planned, you can execute planning at different levels of detail:

- Small orders (quick entry)
 - You can enter the required data on the order header screen and do not have to call up a separate operation screen.
- Extensive orders (without detailed planning)
 - You can enter any number of operations in list form on the operation overview screen.
- Orders with detailed planning
 - You can call up detail data screens for each operation, to enter the following data:
 - Internal processing data (for example, wage data)
 - External processing data (for example, price, purchasing group)
 - Operation data

To plan activities, you use operations and sub-operations, in which the individual work steps are described. For more information, see [Use of Operations and Sub-Operations \[Page 1101\]](#).

Process Flow

Order processing provides a large number of functions, not all of which, however, must be used during processing. Each company can define its own process flow according to its requirements.

1. Planning with reference to:

- The operation
- Work centers and the number of persons involved
- Material, if necessary, using bills of material
- One or more objects
- Dates and execution times
- Task lists
- Costs and settlement (settlement rule)
- Relationships
- Order assignments
- The execution factor

Order Processing: Internal Processing

- User data
- The budget
- Production resources/tools (PRTs)
- Permits
- Capacities
- External assignments

2. Control

- Checking of availability of material and production resources/tools
- Release for implementation
- Printing of shop papers

3. Implementation

- Material usage period

4. Completion

- Completion confirmation
- Technical completion
- Settlement of costs
- Business completion

5. Display and processing of special order data

- Display of the action log
- Use of status
- Collective processing

Creation of an Order

Use

You begin to process an order by creating an order in the system.

Integration

In order that you can create orders for notifications, the application component *Maintenance Notifications* (PM-WOC-MN) must be used in your company.

Prerequisites

The different options are only available if the necessary settings have been made in your system in the Customizing of Plant Maintenance.

Features

An order can be created in the system in the following ways:

Create Mode	Application Scenario	Examples
Creating an order for the notification [Page 1083]	If maintenance tasks are requested for a technical object in a notification, the planner decides whether the tasks requested should be planned and executed using an order. If yes, the planner creates an order for the notification. The reference object specified in the notification automatically becomes the reference object for the order.	An employee from Production reports damage to equipment 100001234 by entering a malfunction report in the system. The planner decides to plan and perform the repair of this damage using an order. The planner creates an order for the notification. During planning, the planner assigns three further malfunction reports to the order, in which similar tasks are requested. The reference object in the order remains the equipment 100001234 from the first notification. The object list contains the first notification for which the order was created, as well as the three further notifications that were subsequently assigned to the order.

Creation of an Order

Creating an order directly from a notification [Page 1084]	<p>In particularly urgent cases, you can create an order directly from the notification, and proceed immediately with planning the necessary maintenance tasks.</p>	<p>The planner responsible checks the newly created notifications outstanding in the system. A maintenance task must be planned and performed immediately for one of the notifications. The planner therefore creates an order directly from the notification selected in change mode.</p>
Creating an order directly [Page 1081]	<p>When a malfunction is detected at a technical object, an authorized employee can immediately create an order and plan the required tasks, without first having to create a notification.</p> <p>For this, you can also use a reference order.</p> <p>The person creating the order can create a notification for this order at a later date, for example, in order to provide additional information.</p>	<p>An employee discovers some damage at a piece of equipment when a planner is present. The planner does not enter a malfunction report in the system, but instead immediately creates an order to plan the repair.</p> <p>Important data can be copied to the newly created order from an existing order by entering this order as a reference order.</p> <p>The planner subsequently enters a machine breakdown report for the order.</p>
Creating an order and notification together [Page 1086]	<p>This procedure is intended for employees authorized to create an order directly, and who want to enter an order and specific notification data (malfunction data, damage and notification dates) in one step.</p>	<p>A responsible planner detects damage at a piece of equipment personally. The planner creates the order required for repair work and simultaneously also creates a notification for the order. The planner enters the technical data determined and the relevant damage code.</p>
Creating an order with deviating planning plant [Page 1088]	<p>The planning plant responsible for planning the maintenance tasks for a technical object is indicated in the master record of the technical object. When you create an order for the technical object, the system enters the planning plant indicated in the master record automatically in the order. In certain cases, however, you may need to enter a different planning plant for a technical object contained in a particular order.</p>	<p>An aircraft needs to be repaired. It is assigned to planning plant 0001 (Frankfurt Airport) in its master record. However, the aircraft has to be repaired in Great Britain. The plant responsible for planning there is planning plant 0002 (Heathrow Airport). The planner should therefore enter the deviating planning plant 0002 in the order for the aircraft.</p>

Creation of an Order

Generating an order automatically from a maintenance plan (see Maintenance Plan Category [Page 545])	In planned maintenance, when you are using maintenance plans, orders are automatically generated at regular intervals from scheduled maintenance plans.	Environmental protection and manufacturer regulations require that a production plant is maintained at regular intervals. Therefore, the responsible planner creates a maintenance plan, which contains the required work in the form of a task list. Based on the maintenance schedule defined, the system now automatically generates an order for preventive maintenance of the production plant at regular intervals.
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You can also create the following special orders:

- [Refurbishment order \[Page 1434\]](#)
- [Investment order \[Page 1089\]](#)
- [Calibration order \[Page 1091\]](#)



If you use both orders and notifications in your company, see [Removing the Link Between Order and Notification \[Page 1087\]](#).

Use of Default Values for the Order

Use of Default Values for the Order

Use

You use this function to:

- Use certain constant data as default values for each order you create
- Configure certain user-specific process flows in the system

It enables an order to be created more quickly.

Features

You can define default values in the system for the following data groups and functional process flows:

- General default values
This is data concerning processing and organization.
- Data for the reference object
Here you can also define which view of the reference object should be provided on the initial screen of the order.
- Control data
Here you can define which system process flows should be valid if you:
 - Put the order in process
 - Maintain the settlement rule for the order
 - Copy task lists into the order
- External processing data
This is data concerning external services and procurement options.
- External procurement data
This is data concerning purchasing.
- Sales data
This is data concerning the sales organization.
In the standard system, this function is only provided for service orders.

Activities

To select the default values in the order, choose *Extras* → *Settings* → *Default values*.

Creating an Order

1. Call up the [initial screen for creating \[Page 1094\]](#) an order.
2. To change the reference object view, choose *Extras → Settings → Reference object view*.
In the standard system, different versions are entered here, for example:
 - Functional location, equipment and assembly
 - Material number and serial number
 - Equipment
 - Without reference object
3. If your entries often remain the same, you can use *Extras → Settings → Default values* to create default values for the following data:
 - Order generally
 - Reference object
 - Control
 - External processing
 - External procurement
 - Sales
4. Complete the screen according to your requirements.



To use another order as a **reference**, enter the appropriate order number.

The system copies the planning data for operations, material components, external operations, production resources/tools and purchasing from the reference order as default values for the new order.

You cannot use historical orders as a standard reference order.

5. Choose *Continue*.
The header data screen for the order appears.
6. If you have entered a specific object for the new order, for example, a functional location or piece of equipment, this is the reference object for the new order. The system completes some of the header data fields with data from the object master record. Check the data and complete any other relevant fields.
7. If you need more lines for the description than are available in the short text, you have the following options:
 - Call up the long text editor and write the long text for the order header. Save the long text and return to the header data screen.
 - Choose *Show long text dialog box* to keep the long text for the order visible on the header data screen.
8. Save the order.

Creating an Order

Creating an Order for the Notification

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Create (special)* → *Order for notification*
 - *Logistics* → *Customer service* → *Service processing* → *Order* → *Service order* → *Create (special)* → *For notification*

The *Create Order for Notification: Initial* screen appears.

2. Enter the order type and the notification number for which you want to create an order. Choose *Continue*.

The header data screen appears for the new order. The system has already entered the reference object for the notification as the reference object for the order, and copied other data such as the short text, planner group and basic dates.

3. Enter all the required header data and check the data copied from the notification.
4. You can return to the notification from the header data screen for the order or the operation overview using *Notification*.
5. Save the order.

Since you can navigate freely between order and notification, the system saves:

- The notification, if you save the order
- The order, if you save the notification

Creating an Order Directly from a Notification

Creating an Order Directly from a Notification

Use

You create an order for a notification if you want the following data for a notification (saved or unsaved) to be copied to an order to be created:

- Reference object for the notification which becomes the reference object for the order
- Descriptive short text
- Planner group
- Basic dates

Behind the number of the notification or order, you find a *Change* symbol, with which you can branch to the notification or order for further processing.

Procedure

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Maintenance processing* → *Notification* → *Create (general)*
 - *Logistics* → *Customer service* → *Service processing* → *Notification* → *Create (general)*

2. Enter the required notification type and choose *Continue*.

The initial screen for creating notifications appears.

3. Complete the screens for the notification. For more information, see [Maintenance Notifications \[Page 822\]](#).

4. To create an order, you have the following options, which are distinguished by when the order is processed:

- Processing an order **directly**

Depending on the application component in which you are working, choose one of the following menu paths:

- *Maintenance notification* → *Order* → *Create* → *Direct*
- *Service notification* → *Service order* → *Create* → *Direct*

Complete the dialog boxes that appear as required and choose *Continue*.

The header data screen appears for the new order. You can now start planning the order immediately. After you have saved the order, you return to the initial screen for creating notifications.



Only when you save the order or the notification, is:

- The order saved together with the (possibly still unsaved) notification
- The link between notification and order saved

Creating an Order Directly from a Notification

- The notification number entered in the order header, if the notification had not previously been saved
 - Processing an order **later**

Depending on the application component in which you are working, choose one of the following menu paths:

 - *Maintenance notification → Order → Create → In background*
 - *Service notification → Service order → Create → In background*

Complete the dialog boxes that appear as required and choose *Continue*.

The system saves the notification and creates an order for it. You return to the initial screen for creating notifications. You see the number of the order created in the status bar.

You can select the order later in change mode and start planning the order.

See also:

[Planning of an Order \[Page 1097\]](#)

Creating an Order and Notification Together

Creating an Order and Notification Together

Prerequisites

In your system in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types → Maintain Indicators for Notification and Order Data on One Screen*, the following must have been defined for an order type:

- Notification data can be entered on the header data screen for the order
- The type of notification which should be created in this case

Procedure

2. Call up the [initial screen for creating \[Page 1094\]](#) an order.
3. Enter the order type configured in Customizing.
4. Complete the other fields on the initial screen according to your requirements, and proceed with the creation of the order. Refer to [Creating an Order \[Page 1081\]](#).
5. Enter the required notification data on the header data screen for the order.
6. Save the order.

The system saves the order and automatically creates a notification for the order based on the data entered and the valid Customizing settings. The notification number is entered in the order header.

Removing an Assignment Between Order and Notification

Prerequisites

You can only remove the link between a notification and order if the order and notification were created independently of one another and subsequently assigned to each other.

The assignment **cannot** be removed in the following cases:

- If the order was created directly from the notification
- If the order has been completed

Procedure

1. Call up the [order in change mode \[Page 1095\]](#).
2. Select the object list for the order.
3. Select the line that contains the notification whose assignment to the order you want to remove.
4. Choose *Edit* → *Delete line*.

The system deletes the line in the order object list.

5. Save the order.

The assignment between order and notification has now been removed.

Creating an Order with Different Planning Plant

Creating an Order with Different Planning Plant

1. Call up the [initial screen for creating \[Page 1094\]](#) an order.
2. Complete the screen according to your requirements. Enter the technical object that represents the reference object.
3. In the field *Planning plant*, enter the number of the required planning plant that is different from the default value, and choose *Continue*.

The system displays a dialog box, in which you select either the planning plant entered in the master record of the technical object, or the planning plant just entered.



You **cannot** change the planning plant that you select now for the order.

4. Select the correct planning plant.
The header data screen for the order appears.
5. Enter data as required and save the order.

For more information, see [Creating an Order \[Page 1081\]](#).

Creating an Investment Order

Prerequisites

In your system in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types*, the following settings are required:

- An order type configured for investment orders
- A planning plant assigned to this order type
- An investment profile defined for investments with assets under construction (AuC) by choosing *Order Types and Investment Management*.

Procedure

1. Call up the [initial screen for creating \[Page 1094\]](#) an order.
2. Enter the order type for an investment order and additional data if required, and choose *Continue*.
3. Choose the *Investment* tab page.

The system proposes the investment profile that was entered in Customizing for the order type. Enter further data as required.

You have the following options:

- If you want to **create** an asset under construction **manually**, choose *Asset under construction*.

Enter the required values on the initial screen.

For more information, see [FI - Asset Accounting \[Ext.\]](#).

- If you want to simulate different **depreciation calculation methods**, choose *Depreciation simulation*.

For more information, see [Simulation \[Ext.\]](#).

- If you want to assign a **completed asset** to your order, choose *Completed asset*.

The system automatically generates a settlement rule.

4. Return to the order and save it.



It is not possible to settle an investment order using the *Periodic Settlement (PER)* settlement type. If you do not want to activate all the costs, you can create a settlement rule manually using the *Preliminary settlement (PRE)* settlement type.

See also:

[Investment Order \[Page 1071\]](#)

[Settlement Receiver \[Page 1134\]](#)

[Assets Under Construction \[Ext.\]](#)

Creating an Investment Order

Creation of a Calibration Order

Use

You create a [creation order \[Page 1072\]](#) if you want to check the accuracy of a piece of test equipment or a technical object.

- If you want to do this regularly (= planned), you use a maintenance plan which regularly generates calibration orders.



To ensure that a caliper gauge measures exactly, you create it in the system as a piece of equipment, and create a maintenance plan for it, which regularly generates calibration orders for the caliper gauge.

- If you do not want to do this regularly (= spontaneously), you create a calibration order directly.



You determine that a caliper gauge is no longer measuring exactly. It must be recalibrated. For this, you create a calibration order.

Integration

The calibration inspection combines functions from the *Plant Maintenance* (PM) and *Quality Management* (QM) application components.

Prerequisites

- You must define an internal order type for calibration orders in your system using the Customizing function.
In the standard system, the order type *PM05* (calibration order) is used for this.
- The equipment, for which you want to create a calibration order, must be created as a piece of test equipment. To do this, you must define a special equipment category for test equipment in your system using the Customizing function.
In the standard system, the equipment category *Q* (test equipment) is used for this.
- If you want to update the measurement documents as an automatic follow-up action for the inspection lot:
 - The characteristic entered in the measuring point/counter must have been created using the classification system
 - The measuring point/counter and the master characteristic must both be created with reference to the same general characteristic from the classification system
- You must continue to use the Customizing functions for Quality Management to create the following prerequisites in your system:
 - An inspection type for Plant Maintenance must be defined. This inspection type must be created for origin *14* (Plant Maintenance). In the standard system, inspection type *14* (inspection for Plant Maintenance) is used for this.

Creation of a Calibration Order

The inspection type must be assigned to the order type for calibration orders (order type *PM05* in the standard system) using the Customizing functions.

- An inspection point from the category *Equipment* must be defined.

Features

Order Generation

A calibration order can be created in two different ways:

- Automatically using a maintenance plan (calibration plan)
You use a maintenance plan to control how often the accuracy of a calibration device or technical object should be checked. If the maintenance plan is due, the system automatically generates an order (calibration order).
- By direct input
For this, you use the functions for creating an order.

Inspection Lot Generation

When the order is released, the system generates an inspection lot. The inspection lot appears in the worklist for the results recording in Quality Management.

Results Recording

The results recording and usage decision for the test equipment are made using the functions in Quality Management.

Enhanced Measurement Reading Functions

The calibration inspection provides you with an enhanced measurement reading function, with which you can monitor test equipment created as equipment.

The objective is to enter inspection results in addition to maintenance or calibration. You can also enter the values using measuring points and counters in Plant Maintenance, but processing from Quality Management using inspection characteristics offers additional functions for planning and entering measurement results. For example, you can:

- Enter specification limits for upper and lower tolerances
- Perform classified results recording
- Confirm multiple measurements for a characteristic
- Specify samples
- Enter control charts

Definition of Follow-Up Actions

As soon as you have made the usage decision, the system automatically executes follow-up actions, for example, status change of the test equipment ("Ready for use" → "Not ready for use") or updating measurement readings.

See also:

[Maintenance Planning \[Page 521\]](#)

[Test Equipment Management \[Ext.\]](#)

Calling Up the Initial Screen for Creating an Order

Calling Up the Initial Screen for Creating an Order

Procedure

Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Plant maintenance → Maintenance processing → Order → Create (general)*
- *Logistics → Customer service → Service processing → Order → Service order → Create (general)*

The initial screen for creating an order appears.

Calling Up an Order in Change Mode

Use

All the data and functions, which you can enter or execute in change mode, can also be entered or executed directly when creating an order.

For more information, see [Creation of an Order \[Page 1077\]](#).

Procedure

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Change*
 - *Logistics → Customer service → Service processing → Order → Service order → Change*
2. Enter the number of the order, which you want to edit.
The header data screen for the order appears.

Calling Up an Order in Display Mode

Calling Up an Order in Display Mode

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Display*
 - *Logistics → Customer service → Service processing → Order → Service order → Display*
2. Enter the number of the order, which you want to display.

The header data screen for the order appears.

Planning of an Order

Purpose

The maintenance tasks that are to be performed at a technical object often require detailed advance planning, in order to minimize the time that the object is not productive. The more accurately you plan a task, the more efficiently it can be performed by the employees on site. This is extremely important in the case of objects that cause bottlenecks and may lead to a shutdown when they are out of order.

Prerequisites

To use order planning, you must first create an order. You can also use an order that has already been created but not yet released.

Process Flow

The following planning functions are available for order planning, but not all of them must be used. Each company can define its own planning steps according to its requirements using:

- [Object list \[Page 1136\]](#)
- [Order hierarchy \[Page 1186\]](#)
- [Operations and sub-operations \[Page 1101\]](#)
- [Relationships \[Page 1172\]](#)
- [Order assignments \[Page 1189\]](#) to Funds Management, real estate object, investment program, joint venture, project or revision
- [Material planning \[Page 1112\]](#)
- [Permits \[Page 306\]](#)
- [Capacity planning in Plant Maintenance \[Page 1466\]](#)
- [Scheduling \[Page 1140\]](#) of the order
- [Estimation of costs \[Page 1168\]](#) for the work planned
- [Budget management \[Page 1203\]](#) for the work planned
- [Estimation of planned costs \[Page 1169\]](#) for the work planned
- [Settlement rule \[Page 1131\]](#) for the order
- [Partner data \[Page 1220\]](#)

Establishment of Reference Object Data

Establishment of Reference Object Data

Use

For information purposes and evaluations of the PM-IS (Plant Maintenance Information System), it may be necessary to manage location and account assignment data for the reference object of the order, which was valid when the order was created in the object master record.

You can find this data on the *Header data* tab page in the *Reference object* group box, and on the *Location* tab page in the *Location data and account assignment* group box.

Features

When an order is created, the location and account assignment data for the reference object is copied from the master data into the order and established there, so that it is stable for PM-IS evaluations.

You can change this data.

Activities

To find out the current status of the master data for the reference object, call up the function *Update reference object data* from the context menu.

To see the current status in the order at all times, you have the following option:

Set the indicator *WF event* in Customizing by choosing *Master Data in Plant Maintenance and Customer Service* → *Technical Objects* → *Equipment* → *Equipment Categories* → *Maintain Equipment Category*. Then activate the standard task *TS 16600006* with the identification code *PM LocChang*. Execute the program *RIUPDATE_ILOA* several times daily in the background. This minimizes the time between the technical object being changed and the order being adjusted.

Operation

Definition

You can describe the individual maintenance tasks to be performed in the operations. An operation specifies the time, work center and other control information required for the maintenance task. You can describe how the task is to be performed in the operation text.

Use

Operations have the following tasks in the PM component:

- Determination of capacity requirements
- Specification of whether a task should be carried out internally (internal processing) or externally (external processing)
- Maintenance of status
- Determination of deadlines on the operational level
- Specification of the required spare parts and resources (for example, special tools)
- Determination of flow in task completion through relationships between operations

You can assign service packages to both kinds of operations if this is allowed by the control key you have entered. Using service packages enables you to

- Plan services in all dimensions
- Jointly plan services to be performed in different dimensions
- Define services uniformly
- Structure services in an unlimited number of levels
- Make basic agreements
- Agree on conditions
- Use service catalogs
- Better describe work content

Control Key

The control key specifies which operations should be performed. You can specify the following, for example:

- Scheduling
- Confirmation
- Settlement
- External processing
- Printing
- Costing

Operation

- Service specifications maintenance

You define the operation type using a control key. The control key specifies:

- Operation type, that is, whether internally or externally processed
- The business functions to be performed in the operation, for example, whether a purchase order will be created for the operation
- How the operation is handled while it is being processed, for example, whether it will be taken into account in costing or whether it should be printed and confirmed

For each operation it is possible to create data for both internal and external processing.

You must first assign a control key to be able to decide whether the operation should be processed internally or externally. You can enter the control key in the *Operation overview* screen and the detail screens for the individual operations.

Integration

It is possible that you are not able to overwrite certain values that the system copies into the task list. These values originate from the master record of the work center you have entered in the task list, and are marked with a reference indicator. This indicator shows that these values are obligatory and cannot be overwritten at any point (for example, in a task list or maintenance order) where they refer to the work center.

Use of Operations and Sub-Operations

Use of Operations

You use operations to describe the individual steps in an order.

You can plan an order at different levels of detail, depending on the type of order involved and the extent of the work being planned:

- **Short orders** containing only one operation (fast entry)
For these orders, you can enter data for a single operation in the lowest section of the header data screen, without having to use any further screens. The operation can involve internal or external processing. You use the operation detail screens for this operation.
- **Long orders without detailed planning**
For these orders, you use the operation overview function. You can use this to enter as many operations as required.
- **Short or long orders with detailed planning**
For these orders, you use the operation overview and the operation detail screens.



If you initially created and saved an order with header data only and no operation, the system automatically creates the first operation for the order header when saving. This is necessary because you need at least one operation to be able to plan, schedule and confirm the order.

The operation created automatically contains the same data as the order header. You can change it as required.

Use of Sub-Operations

If several work centers are to execute an operation, you can divide the operation into **sub-operations**. You can thereby schedule a different work center for each sub-operation. The operation itself may contain a work center that, for example, coordinates the work centers in the sub-operations.

You create sub-operations in the same way as operations in the *Operation Overview*. In addition, you specify the number of the operation, to which they are assigned.

Features

The following options are available for detailed planning of an order at operation level:

- Describing [work steps \[Page 1103\]](#) to be executed
- Assigning [work centers \[Page 1107\]](#)
- Specifying where the work should be executed (for example, an [assembly \[Page 1122\]](#) of the reference object)
- Specifying a [control key \[Page 1105\]](#)
- Assigning required [material \[Page 1112\]](#)

Use of Operations and Sub-Operations

- Assigning required [utilities \[Page 1205\]](#)
- Assigning [personnel \[Page 1130\]](#)
- Specifying detail data for [internal processing \[Page 1075\]](#)
- Specifying detail data for [external processing \[Page 1419\]](#)
- Specifying [scheduling data \[Page 1142\]](#)
- Entering qualifications
For more information, see [Use of Performing Work Centers in the Operation \[Page 1109\]](#).
- Entering company-specific [user data \[Page 1201\]](#)
- Deleting operations
If the order has **not yet been released**, the operations are physically deleted. These operations can no longer be displayed.
If the order has **already been released**, deletion indicators are assigned to the operations. These operations can still be displayed.

Activities

Based on the control key, which you enter in the operation, the system automatically determines which operation detail screen must be completed. To select this detail screen, double click on the operation number.

Description of the Operations

Use

In each operation and sub-operation, you write a textual description of the individual work step to be performed.

Features

You can describe operations on the overview screen or on one of the detail screens. The header data screen contains an operation template for orders that contain only a single operation.

The following types of text are available for description purposes:

- Short text

Each operation contains a line of short text. This is the first line of text of the operation description, which can be extended using the long text. In many cases, this line of short text is sufficient to describe the work to be performed.

The short text for each operation is ready for input:

- In the operation overview
- On the detail screen for internal or external processing

- Long text

In some cases, you will need to provide a detailed description for operations that are complicated or that require particular caution. You can do this using the long text editor.

- Standard text

Certain operations and sub-operations will occur repeatedly in the same form in orders. It is therefore advisable to use a standard text for them. The use of these standard texts helps you to reduce recording time.



Standard texts are created for your system by your system administration using the Customizing function.

For more information, see [Describing an Operation \[Page 1104\]](#).

Describing an Operation

Describing an Operation

Prerequisites

To use standard texts, you must have created them first. To do this, choose one of the following ways:

- In Customizing by choosing *Quality Management* → *Quality Planning* → *Inspection Planning* → *Operation* → *Work Center* → *Maintain Standard Text Keys*
- In the application by choosing *Logistics* → *Plant maintenance* → *Planned maintenance* → *Maintenance task lists* → *Extras* → *Standard text*

Procedure

1. Call up the [order in change mode \[Page 1095\]](#).
2. You can describe operations either in the operation overview or on the detail screen for an operation, which you call up from the operation overview.



If you have described an operation on the detail screen, you can scroll to the next operation.

3. You can use the following forms of text:

- **Short text**

Enter a short text for the required operation.

- **Long text to the short text**

After you have entered a short text, choose the symbol for the long text editor.

Enter the long text for the operation and return to the initial screen.

- **Standard text**

Enter the standard text key for the required operation.

The part of the standard text that fits the predefined short text line is copied there; the rest is copied to the long text.

If you have also entered a short text for the operation and specified that this should not be overwritten by the standard text, then the short text is displayed in the first line of the long text. The following lines contain the standard text.

Check the standard text and change it if necessary.

Return to the initial screen.

4. Save the order.



The symbol for the long text editor shows that a long text is available by inserting small black lines.

Control Key

Definition

The control key is a default value which defines how an operation should be processed.

It is entered in the operation overview or on the detail screen for the operation.



If a default value for the control key was specified in your system using the Customizing function, the system proposes this as the entry. You can overwrite it, if necessary.

Use

You can define control keys in the Customizing of Plant Maintenance under *Functions and Settings for Order Types* and under *Task List Data*.

You can enter the following information for each control key:

Control Key/Indicator	Use
Schedule	Controls whether an operation is scheduled or determines the time position of a sub-operation. If you do not set the indicator, the operation or sub-operation is not scheduled.
Determine capacity requirements	Controls whether capacity requirements records are generated for an operation or sub-operation. If you set this indicator, you must also set the indicator <i>Scheduling</i> . The system only generates capacity requirements records if you maintain the relevant formulae.
Estimate costs	Controls whether the system considers an operation or sub-operation in costing.
Print	Controls whether you can print shop papers for an operation or sub-operation.
Print time ticket	Controls whether you can print time tickets for an operation or sub-operation.
Completion confirmation	Controls whether and how you confirm an operation or sub-operation.
Print confirmation tickets	Controls whether you can print confirmation tickets for an operation or sub-operation.
External processing	Controls whether an operation or sub-operation is processed externally.
Service	Controls whether you can plan services for an operation.

Control Key

Scheduling of an external operation with standard values	<p>Controls whether the system also schedules an operation using its standard values if it is processed externally.</p> <p>This setting is only considered by the system if you also mark the control key as externally processed (field <i>External processing</i>).</p>
--	---

Work Center

Definition

In the *Plant Maintenance* (PM) application component, the following work centers exist:

- Main work center
- Performing work center
- Work center as production machine

The work centers are distinguished by **work center type** (for example, production work center, maintenance work center). The work center type determines which data can be maintained in the master record for the work center.

The Main Work Center

The main work center usually represents one person or a department, responsible for ensuring that the maintenance work in an order is executed by the work centers performing the individual operations.

The Performing Work Center

The performing work center usually represents one person or a group of people who perform the maintenance work in the operations of an order.

The Work Center as Production Machine

For Plant Maintenance, this work center represents the reference object for a maintenance order: The work center can also be maintained, that is, the maintenance work described in the order operation can be performed on the work center itself.

At the same time, in Production, this work center represents a machine. Therefore, the work center can also manufacture products.



In the system, the performing work center and work center as production machine are both simply called “work center”.

Use

The Main Work Center

The main work center must be entered in the order header, whereupon its master data is copied into the order as a default.

During internal processing, the main work center is also used as a default for the performing work center.

In addition to the main work center, you can create a specific employee, who has been represented in the *Human Resources* (HR) component with their own master record, as *Person responsible*.

Work Center

The Performing Work Center

In addition to the main work center, you can create a specific employee, who has been represented in the *Human Resources* (HR) component with their own master record, as *Person responsible*. You can also assign other employees to an operation in the *Requirement assignment*.

The performing work center is managed in the operation data for the order. It is proposed as a performing work center for the operations in the order. Since capacities are assigned to the performing work center and costs assigned using the activity type, the performing work center is required primarily for capacity planning, scheduling and cost determination.

It is also possible to create operations without entering a performing work center. A control key, which is not linked to a cost center or an activity type, must then be assigned to these operations. It may be that the operations are simply used for documentation purposes, for example, operations that only contain safety instructions or specifications for the production/resources tools to be used. Operations without a specified performing work center are also used in external processing.

The Work Center as Production Machine

The work center as production machine is managed in the location data for the technical object of an order. It is only entered if the technical object at which maintenance work should be executed is a machine in Production.

Since machine capacities are assigned to the work center as production machines, the work center as production machine is required primarily for capacity planning of the machine, for example, non-operational periods for the machine must be planned as effectively as possible.

For more information about the work center in Production, see [Work Center \[Ext.\]](#).

Use of Performing Work Centers in the Operation

Use

In the *Plant Maintenance* (PM) application component, you can specify which performing [work center \[Page 1107\]](#) with which qualifications is to execute each operation or sub-operation. You can also calculate the suitability of a particular work center for executing an operation.

It is also possible to have individual operations executed by work centers in external companies (refer to [Processing with an External Company as Work Center \[Page 1421\]](#)).

Prerequisites

If you want to use individual capacities for work centers, you must have assigned a capacity category to the operation in the Customizing for *Production Planning and Control* (PP). You can choose here between the following types:

- Personnel capacities - individual capacities which are people
The time capacity here is copied from the *Human Resources* (HR) application component.
- Machine capacities - individual capacities which are not people
The time capacity here is defined in the individual capacity of the machine itself.

If you use requirements profiles for work centers, these must be entered in the *Human Resources* (HR) application component.

If you use suitability data, this must be entered in the Customizing for *Work Centers*.

Features

You can use the work center to determine the following for each operation:

- Qualification requirements for the operation
- Qualification quotation and the naming of the individual capacities for the work center
- Suitability level of a work center for executing an operation
- Suitability required to execute an operation if you do not use the *Human Resources* application component

You make these entries in the detail screen for internal processing of the operation.

Entry of Qualifications

In the *Qualifications* section, you can use a requirements profile to describe the qualification requirements of the operation for a job or planned job.



An employee who can weld is required, to repair a boiler.

The planner responsible now has the following options:

- Enter a requirements profile which includes the qualification "Welding". Example: Welding and soldering examination

Use of Performing Work Centers in the Operation

- Enter the job "Welder".
- Enter the planned job "Welder in Mechanics, plant 0001".
The planned job does not have to relate to an individual person. For example, it may be that three welders work in Mechanics in plant 0001.

Entry of Individual Capacities

For each work center, you can enter which individual capacities work there with which qualification quotation.



Work Center	Numer of Employees	Names of Employees	Qualifications
Mechanics 1	4	Frederic Bouton Yavuz Saracoglu Hans Müller Subarashi San	Welding exam, head for heights
Mechanics 2	4	Gillian Anderson Paul Hayman Andrea Boselini Manfred Leicht	Welding course
Electrics	2	Peter McPoley Mikhail Jelnikov	Electrics master diploma

Calculation of Suitability Level

If an employee with particular qualifications is required in an order operation, then the qualification requirements for the operation and the qualifications offered by the work center (person or machine) are offset with one another. The result is the suitability level of the work center.



An employee who has passed a welding exam is required for an operation in an order.

However, for the scheduled work center "Mechanics 2", only the qualification "welding course" is valid. Since none of the employees at the "Mechanics 2" work center has passed a welding exam, each of them only has a suitability level of 60% for the operation to be processed.

Entry of Suitability

Suitability is generally used if the *Human Resources* (HR) application component is not being used, so people are not linked with qualification quotations.



Suitability and a suitability level are quite different: Whereas the system must **calculate the suitability level**, you simply enter a **description of suitability**.

In the *Payment* section, you can specify for each performing work center the required suitability for each operation.

Use of Performing Work Centers in the Operation

Critical welding work is required to repair a boiler. The planner responsible defines that a person must have a welding qualification to perform this work, and therefore enters 02 for welding examination in the *Suitability* field for the relevant operation.

Materials Planning

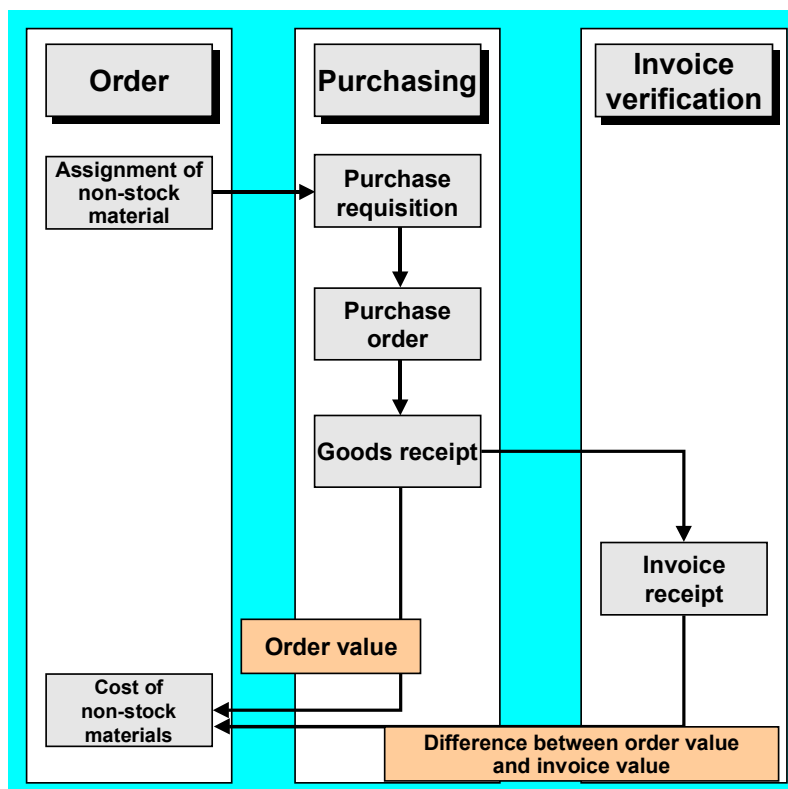
Materials Planning

Use

You can assign any number of material components to an operation. A component can be a spare part or repairable spare or describe an activity. The material that you schedule for an order is reserved for the order in the warehouse. As soon as the order is released, the materials can be withdrawn from the warehouse and delivered to the customer.

The material can be BOM components of the reference object, or material that has been created in the system in Materials Management.

External Procurement Processing



Prerequisites

If you want purchase requisitions and reservations to be generated when the order is created, you must have set the *Res/PReq.* indicator in the Customizing for *Functions and Settings for Order Types* by choosing *Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*. If you have not set this indicator, reservations and purchase requisitions are only generated when the order is released. Refer to [Material Requirements Planning \[Page 1115\]](#).

You must enter the correct item category for each material. The following item categories are available in the standard system:

- Stock material

- Non-stock material
- Variable-size items
- Material defined by its description

Features



You cannot plan material for sub-operations.

Reservations and Purchase Requisitions

The following applies for planned material:

- For **stock material**, the system generates a **reservation**.
- For **non-stock material** or where **external services** are involved, the system generates a **purchase requisition** for external procurement.

The term “reservation” can have the following meanings:

- The object *Reservation*, which is always generated automatically whenever a material component is created, that is, planned for the order.
- For non-stock material, a purchase requisition has been generated; for stock material, the object *Reservation* has become relevant for materials planning.



In contrast to the *Materials Management* (MM) application component, it is not possible to create a reservation or a purchase requisition individually in the *Plant Maintenance* (PM) application component. Both are generated automatically by the system.

Entry and Calling Up of Other Data

You can also perform the following for each component:

- Enter warehouse and batch information
- Give settlement notes
- Call up detail data screens (for example, for text items)
- Call up purchasing data
- Call up status information (for example, whether the material can be issued)

Search for Material

You can search for material that you require in the system according to the following criteria:

- Plant (by goods receiver, in other words, by customer, to whom the components are delivered)
- By vendor (based on the purchasing information in the system)

Materials Planning

Customer Exits

The following customer exits are also available:

- You can use customer exit **IWO10011** to copy data records from a local file as components into the component overview for the order.
- You can use customer exit **CNEX0013** to determine the item category for a component automatically.

For more information, see *Tools → ABAP Workbench → Utilities → Enhancements → Definition*. Enter the name of the customer exit and choose *Documentation → Display*.

See also:

- [Work Scheduling Using Bills of Material \[Page 1119\]](#)
- [Planning Stock Material \[Page 1123\]](#)
- [Displaying, Changing and Deleting Material \[Page 1128\]](#)
- [Checking Stock Material Availability \[Page 1225\]](#)

Requirements Planning

Use

You use functions for requirements planning when you want to enter the following data in the order:

- For **stock material**, the stage in order processing from when the accompanying reservation should become effective
- For **non-stock material and operations to be processed externally**, the stage in order processing from when the accompanying purchase requisition should be generated by the system

These two cases are represented together here.



Note the following:

In the system, the term “relevant for materials planning” is used for both cases.

The term “reservation” has two meanings:

On the one hand, it means the technical object, which is always generated automatically whenever a material component is created, that is, planned for the order.

On the other hand, for **stock material**, it indicates that the technical object *Reservation* generated has become relevant for requirements, and for **non-stock material and external operations**, it indicates that a purchase requisition has been generated.

Features

There are different stages in order processing at which a reservation can become effective or a purchase requisition can be generated. You can propose or define these stages for the entire material for an order, or for each individual material item in an order.

Proposing a Stage for All Material Items in an Order

In Customizing for *Functions and Settings for Order Types* under *Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*, you can choose between the following stages for the entire material for the order:

- **Immediately**

For this, set the *Res./purch.req.* indicator.

This stage can no longer be canceled, since reservations have already been indicated as effective or purchase requisitions have been generated for the order. It also applies for all materials and operations to be processed externally that you have scheduled or that you enter subsequently.

- **Only when the order is released**

For this, do **not** set the *Res./purch.req.* indicator.

Requirements Planning

On the *Administration* tab page in the order, you can display the stage set in Customizing in the section *Reservations/purchase requisitions*.

Defining a Stage for an Individual Material Item

In the component overview or on a component detail screen, the stage proposed initially for each material item in the field *Res./purch.req.* is the one set in Customizing. However, you can change this default value and choose between the following stages:

- **Immediately**
Enter the value 3 (*reservation effective immediately or purchase requisition generated*) in the *Res./purch.req.* field.
- **Only when the order is released**
Enter the value 2 (*reservation effective after release or purchase requisition generated*) in the *Res./purch.req.* field.
- **<No stage>**
Even after you have released the order, the reservations or purchase requisitions for the material item are not effective or not generated.

Enter the value 1 (*reservation not effective or purchase requisition not generated*) in the *Res./purch.req.* field.

If you subsequently want a reservation or purchase requisition to be effective or generated, you can change the value in the *Res./purch.req.* field.

Defining a Stage for All Material Items in an Order

You also have the following option at order level:

- **Any stage until release**
Choose the *Activate res./purch.req.* symbol.

The reservations or purchase requisitions for the material items in the order are then effective or generated. This does **not** apply for material items, to which the value 1 (*reservation not effective or purchase requisition not generated*) has been assigned.

Overview of the options for selecting a stage, from which reservations are effective and purchase requisitions are generated

Stage in Order Processing	Proposal for All Material Items	For an Individual Material Item
Immediately	Set the <i>Res./purch.req.</i> indicator in Customizing.	Enter the value 3 in the <i>Res./purch.req.</i> field.
Any stage	Choose the <i>Activate res./purch.req.</i> symbol.	
Only after release	Do not set the <i>Res./purch.req.</i> indicator in Customizing.	Enter the value 2 the <i>Res./purch.req.</i> field.
<No stage>		Enter the value 1 the <i>Res./purch.req.</i> field.



Requirements Planning

A motor must be checked owing to irregularities. However, it is not clear whether the irregularities actually stem from this motor. Nevertheless, a replacement motor is scheduled, which must be acquired from an external company. The replacement motor should only be procured once it has been determined that the motor must be changed. Therefore, the *Res./purch.req.* field for the material item in the order initially obtains the value 1 (*reservation not effective or purchase requisition not generated*), since the system should not generate a purchase requisition. Only when it has been determined that a replacement motor is required, can the planner responsible change the value to 3 (*reservation effective immediately or purchase requisition generated*). The system then immediately generates a purchase requisition and the procurement process is started.

Change of Purchase Requisition

Change of Purchase Requisition

Use

Sometimes it is necessary to change order data relating to a purchase order that has already been created. For example, this data could involve deadlines, quantities, quantity units or the delivery address. Sometimes entire external operations or components must also be deleted.

As a result, it can be necessary to change the corresponding purchase requisition. The following options are available for this:

- The system changes the purchase requisition automatically using a **workflow**.

A workflow can be used to send all relevant changes to order data automatically to the appropriate purchasing group. This group can then display both the old and new version of the order data and take the necessary action.

Refer to [Purchase Order Change \(PM-WOC-MO/CS-SE\) \[Page 1887\]](#).
- You change the purchase requisition manually using **customer exits**.
 - Using customer exit COZF0001, you can change purchase requisitions that result from **external operations**.
 - Using customer exit COZF0002, you can change purchase requisitions that result from **external components**.

Prerequisites

The workflow must have been configured using the Customizing function individually for each order type and user.

You should have read the documentation about customer exits.

1. From the initial SAP menu, choose *Tools* → *ABAP Workbench* → *Utilities* → *Enhancements* → *Definition*.
2. Enter the name of the enhancement.
3. Then select *Documentation* and choose *Display*.

Work Scheduling Using Bills of Material

Use

When you plan an order, you can assign material from the bill of material for the technical object, to which the operation refers, to the individual operations. Refer to [BOM Type and BOM Category \[Ext.\]](#)

The customer exit **IWO10029** is available for selecting any bill of material.

Integration

Bills of material consist of items, which are distinguished by item categories. In the standard system, you can assign the following item categories from the bill of material for the reference object to an operation:

- Stock item
- Non-stock item
- Variable-size item
- Text item

Prerequisites

Stock Item

If you assign stock items to an operation, it has the following effects:

- The reservation of parts is relevant for materials planning at the latest when the order is released (*Reservation/Purc.req.* indicator in the order header).
- If you print the shop papers after the order has been released, you can find the parts in the material pick list.
- Material issue slips for the parts, which authorize the manual workers to remove the parts from the warehouse, are also printed with the shop papers.

For more information, see [Withdrawing Stock Material \[Page 1257\]](#).

Non-Stock Item

If you assign a non-stock item from the bill of material to an operation, the system automatically generates a purchase requisition for the purchasing department directly from the order at the latest when the order is released (indicator *Reservation/Purc.req.* indicator in the order header). This triggers normal processing of external procurement.

For more information, see [Order Processing \(External Processing\) \[Page 1419\]](#).

Based on the purchase requisition, a purchase order is sent to a vendor. Upon delivery, the goods receipt is posted directly to the order for which the material was requested, that is, the order is immediately debited with the corresponding costs upon goods receipt. When the invoice is received, any changes to costs incurred are settled to the order.

Work Scheduling Using Bills of Material**Variable-Size Item**

If you assign variable-size items to an operation, this has the same effect as assigning stock items, since you also assign materials held in stock in variable-size items.

You can also specify the required dimensions.

Text Item

If you assign a text item from the bill of material to an operation, you make the information contained in the text item available to the employees who are processing the operation.

The short text for the text item appears on the material slip, in the same way as all the other material items.

When the shop papers are printed, the short text for the text item is issued on the material slip, in the same way as for all other material items. The long text appears on the job ticket.

See also:

- [Maintenance Bills of Material \[Ext.\]](#)
- [PP - Bills of Material \[Ext.\]](#)
- [Displaying and Deallocating Material \[Page 1128\]](#)

Scheduling and Displaying Bill of Material Components

Scheduling Bill of Material Components

1. Call up the component overview. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics → Plant maintenance → Maintenance processing → Order → Change*
 - *Logistics → Customer service → Service processing → Order → Service order → Change*
- To schedule new material for an operation from the bill of material for the technical object in the order, call up the component overview for the required operation.
- For the required operation, display the material from the bill of material for the reference object or from the assembly entered in the operation, either in list form using *List* or graphically using *Graphic*.
- Select the material that you want to schedule for the operation, and choose it using *Edit → Choose*.
- The component assignment screen for the operation reappears. The system has entered the selected material. Check the data and change it if necessary.
- After you have scheduled the required material for all the operations, the operation overview screen for the order reappears.
- Save the order.

For more information about displaying the BOM components assigned to the order, see [Displaying and Deallocating Material \[Page 1128\]](#).

Specifying an Assembly

Specifying an Assembly

1. Select the order and display the *Operation Overview*.
2. Select the operations for which you want to enter an assembly.
3. Choose *General* (Detail view: General data) and enter the assembly in the appropriate field.

If you do not know the number of the required assembly, you can select it from the bill of material for the reference object. To do this, on the detail screen, choose:

- For a graphical display:
Extras → Assembly operation → Structure graphic
 - For a display in list form:
Extras → Assembly operation → Structure list
4. After you have entered the required assembly for the first operation, choose the detail screen of the next operation selected.
 5. When you have edited all of the operations selected, return to the operation overview using *Goto → Back*.
 6. Save the order.

Planning Stock Material

1. Call up the order in change mode, and choose the operation overview.
2. Select the operations, for which you want to plan material, and call up the component overview. To do this, you have the following options:
 - To display the material components **for all order operations**, call up the *Component overview*.
 - To display the material components **for a particular operation**, select the required operation and then call up the *Component overview*.
3. Enter *Stock item* as the item category. Enter the stock material required and any additional information needed for the operation in the list.

If you are on the overview screen for the material components of all the order operations, you must also enter the operation for which each material is being planned. However, if there is only one operation in this order, the material is automatically assigned to this operation.
4. Save the order.

Planning Non-Stock Material

Planning Non-Stock Material

Use

You plan non-stock material if:

- The required material is not available in the warehouse, for example, because it is only rarely used
- You do not know the material number

Procedure

1. Call up the order in change mode, and choose the operation overview.
2. Select the operations, for which you want to plan material, and call up the component overview. To do this, you have the following options:
 - To display the material components **for all order operations**, call up the *Component overview*.
 - To display the material components **for a particular operation**, select the required operation and then call up the *Component overview*.
3. Enter *Non-stock item* as the item category. Enter the non-stock material required and any additional information needed for the operation in the list.

If you are on the overview screen for the material components of all the order operations, and you have used more than one material component, you must also enter the operation for which each material is being planned. However, if there is only one operation in this order, the material is automatically assigned to this operation.

Choose *Continue*.
4. To complete the purchasing data for the non-stock material selected, call up the *Purchasing detail view*, and make all the required entries.
5. Return to component assignment screen using *Goto → Back*.
6. For non-stock material, you have the following options for entering **addresses** to which the material should be delivered:

- **Automatic Determination**

On the overview screen for the material components, choose *Order → Functions → Redefine delivery address*.

The system now determines the delivery address automatically according to the specifications which were maintained in the Customizing for Plant Maintenance for the access sequence when an address is proposed in the purchasing data.

A dialog box appears in which you enter whether or not delivery addresses, which have already been entered manually, should be overwritten.

If necessary, check the delivery address determined by selecting the required non-stock component and calling up the address dialog box using *Component → Delivery address*.

Planning Non-Stock Material

- Manual Entry

Select the required component and choose the *Address* tab page. A dialog box appears in which you can enter the delivery address.



If you need to enter the same delivery address for a number of non-stock components in one order, you can use the function *Use previous* in the dialog box. The system then automatically inserts the delivery address, which was specified for the previous non-stock material in the dialog box.

The system automatically writes the delivery address to the purchase requisition for the non-stock material. If the system cannot determine any address, and you have not entered one manually, it automatically uses the plant address.

7. Save the order.

Planning Variable-Size Items

Planning Variable-Size Items

1. Call up the order in change mode, and choose the operation overview.
2. Select the operations, for which you want to plan material, and call up the component overview. To do this, you have the following options:
 - To display the material components **for all order operations**, call up the *Component overview*.
 - To display the material components **for a particular operation**, select the required operation and then call up the *Component overview*.
3. Enter *Variable-size item* as the item category. Enter all the variable-size items required, together with any further information needed for the operation in the list.

If you are on the overview screen for the material components of all the order operations, you must also enter the operation for which each material is being planned. However, if there is only one operation in this order, the material is automatically assigned to this operation.

Choose *Continue*.
4. Select the variable-size items for which you want to specify additional data. Choose *General* (Detail view: General data) → *Variable-size item data*.
5. Make all the necessary entries. Use *Next component* to reach the variable-size item data screen for the next variable-size item selected.
6. To return to the component overview, choose *Goto* → *Back*.
7. Save the order.

Planning Material Using a Description

Use

You plan material using its description if:

- The material does not have a material master record, for example, drawings or operating instructions
- You do not use the *Materials Management* (MM) application component

Procedure

1. Call up the order in change mode, and choose the operation overview.
2. Select the operations, for which you want to plan material, and call up the component overview. To do this, you have the following options:
 - To display the material components **for all order operations**, call up the *Component overview*.
 - To display the material components **for a particular operation**, select the required operation and then call up the *Component overview*.
3. Enter *Text item* as the item category. Enter the desired description, together with any further information needed for the operation in the list.

If you are on the overview screen for the material components of all the operations, you must also enter the operation for which each material is being planned. However, if there is only one operation in this order, the material is automatically assigned to this operation.

4. Save the order.

Displaying, Changing and Deleting Material

Displaying, Changing and Deleting Material

Prerequisites

If you want to change or delete material directly, you require the necessary authorization.

If you want to change material when the order is being changed, you require the authorization to change an order.



The material planner has the option of setting a user status or changing a system status for the order, for which material has been planned. This is advisable because the planner may be the last person to process an order before it is released.

If the material planner should not be allowed to change a status, the corresponding authorizations must be entered in the user profile.

Procedure

Displaying Material (Directly)

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *List of components* → *Display*.
2. Enter the order number of the order, for which you want to display the components, and choose *Continue*.

You see the overview of all the components.

3. To display all the other order data, choose *Display order*.

Changing or Deleting Material (Directly)

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *List of components* → *Change*.
2. Enter the order number of the order, for which you want to change components, and choose *Continue*.

You see the overview of all the components.

3. Select the components, which you want to change or delete.
4. Make your changes or delete components, by choosing *Edit* → *Delete*.
5. Save the list of components.
6. To display all the other order data, choose *Display order*.

Changing or Deleting Material (When Changing an Order)

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Change*.
2. Enter the order number of the order, in which you want to change or delete components.
3. You now have the following options:
 - To change or delete components for the order, choose *Continue*.

Displaying, Changing and Deleting Material

The header data screen for the order appears.

Choose the *Component* tab page.

- To change or delete components for individual operations in the order, choose the *Operations* pushbutton, select the required operations and choose *General data*.

You see the entire material, which has been scheduled for the order or an operation, in an overview list.

4. You now have the following options:

- To deallocate a material item again, select the relevant material item.

Choose *Edit* → *Delete* and confirm that the selected item should be deleted.

- To change a material item, select the relevant material item.

Make the necessary changes.

5. Save the order.



- If material has been deleted in the order **created**, the relevant material item is deleted from the list.
- If material has been deleted in the order **released**, the system assigns a deletion indicator to the relevant material item. The line continues to be displayed for documentation purposes since shop papers may have already been printed for it, or appropriate material withdrawn from the warehouse. However, you can no longer edit this line.

Personnel Planning

Personnel Planning

Use

For personnel planning, you can assign different organizational units from the personnel system in HR to the operations in an order. For example, if you need a qualified technician for a particular operation, you can specify the required technical skills (welding qualification) or the abilities contained in a requirements profile (knowledge of certain computer systems).

Features

You can also assign individual people to the operation by using the *Capacity Leveling* function to split the operation and assign personnel numbers to the splits.

For more information, see [Capacity Requirements Planning \[Page 1439\]](#).

You can assign a work center, which corresponds to a work center in the HR system, to an operation.

Activities

To plan your personnel, call up the operation detail screen for an operation. You can then make the following entries:

- Requirements profile
- Qualification
- Job
- Position

You can also enter user-specific data for the operation, for example, to display process flows. To do this, choose the *Enhancement* tab page from the operation detail screen (internal or external processing).

Settlement Rule

Definition

Defines what proportion of the costs on a sender should be settled to which receiver(s). For this, one or more distribution rules are assigned to each settlement sender.

Use

You have to enter the correct settlement rule into the system, to ensure that the costs incurred in the execution of the maintenance work can be settled correctly.



The system does not create a separate settlement rule for objects contained in the object list of an order. If you want to identify the costs individually for each object, you have to create a separate maintenance order for each object.

If you want to settle sub-orders differently to the superior main orders, you can calculate the settlement rule for these sub-orders accordingly in Customizing by choosing *Plant Maintenance* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Functions and Settings for Order Types* → *Define Settlement Rule, Time and Distribution Rule*. The account assignment proposal, which was created for the main order in the settlement profile, is then overridden.

For each order type, the system proposes a particular account assignment, which has been defined for this order type in your company. If the receiver is specified in the location and account assignment data, the system automatically creates a settlement rule for the order, containing a distribution rule of 100 percent to the respective receiver.

Different [settlement receivers \[Page 1134\]](#) are available for settling an order.

The system administration uses the Customizing functions to define at which of the following stages the settlement rule must have been specified:

- When the order is released
- Only when the order is completed

Structure

The settlement rule comprises:

- Distribution rules
- Settlement parameters for a sender object

See also:

[Settlement of an Order \[Page 1384\]](#)

[CO - Settlement \[Ext.\]](#)

Creating or Generating a Settlement Rule

Creating or Generating a Settlement Rule

Use

As a rule, the system determines the settlement rule for an order automatically from the object data.

If no object has been entered in the order, or if you do not want the order settled in the way proposed by the system, you must enter the settlement rule manually.

If you use background processing, the distribution rule can be generated as a default by the system.

Procedure

Creating a Settlement Rule Manually

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose *Settlement rule*.

The following cases can occur:

- If a settlement rule **already exists** for the order, you reach the screen *Maintain Settlement Rule: Overview* directly.

Check the settlement rule.

To change it, go to detail data on the *Maintain Settlement Rule: Distribution Rules* screen, where you can make additional entries.

- If a settlement rule does **not yet exist** for the order, you must first specify whether you want to maintain the settlement rule with or without the system proposal for the distribution rule. A screen appears where you can maintain the settlement rule.

Make all the necessary entries on this screen.

3. Return to the order and save it.

Generating a Settlement Rule with Proposal for the Distribution Rule

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose *Order* → *Functions* → *Generate settlement rule*.

The following cases can occur:

- If **all the data**, which the system requires to generate a proposal for the distribution rule, has **already been entered**, then the system automatically creates a suitable settlement rule for the order.

To display the proposal generated for the distribution rule, choose *Settlement rule* and open the detail data.

- If certain **data**, which the system requires to generate a proposal for the distribution rule, is **missing**, then the settlement rule must be entered manually, as described above.

3. Return to the order and save it.

Settlement Receiver

Settlement Receiver

Definition

Receiver of the costs which arise from the processing of an order.

The receiver of the costs is identified by the receiver category (for example, "cost center") and the receiver key (for example, "511").

Use

The receiver types that can be used include:

- Fixed asset
- Cost center
- Work breakdown structure element (WBS element)
- Order
- G/L account
- Material
- Asset under construction (AuC)

You can see a list of receiver categories if you choose *Settlement receivers* on the selection screen for list editing of an order.

Irrespective of which receiver category you have chosen, the costs are initially collected on the order and then settled to the individual receivers in a separate step.

Fixed Asset

You can settle the costs to a fixed asset and thereby increase its value. For this, you must specify a reference date in the settlement rule.

The fixed asset might be the one to which all the objects assigned to the order belong.

Cost Center

You can settle the costs to the cost center of the reference object. However, you can also settle the costs to another cost center, which you enter individually.

Work Breakdown Structure Element

You can settle the costs for funds management and project planning for maintenance tasks or special activities to a work breakdown structure element.

Order

You can settle the costs from several orders to another order.

For example, you can then settle the costs from individual orders, which have been collected on these orders themselves, collectively to the required order. The receiver order might be a collective payment order for particular activities that are only settled at the end of the year.

G/L Account

You can settle the costs to a G/L account.

The account may be one to which costs to be activated are posted if you do not use SAP Asset Accounting.

Material

You can settle the collected costs from refurbishment orders to the material to be refurbished. Depending on the settings in Customizing, the settlement rule is either generated when the order is released or when the order is completed. The order can only be settled after the settlement rule has been generated.

The order is credited after the refurbished material has been returned to the warehouse. The order balance is subsequently settled to the material account according to the current price.

If you want some of the costs to go into the costs settlement, then you can change the distribution rule manually for these costs.

Asset Under Construction (AuC)

You can settle the costs that have been collected on an investment order to an AuC. In this case, the system automatically generates a settlement rule for the AuC when the costs are first settled. If some of the costs collected on the order are to go into the costs settlement, then you can create another settlement rule (preliminary settlement) manually for these costs.



You can test particular settlements to find out which type of settlement is most suitable for you. To simulate depreciation for an order, choose the tab page *Investment* in the investment order and then *Depreciation simulation*. The system saves the data from the depreciation simulation. The order subsequently receives a corresponding status.

As soon as the fixed asset is completed, you can create and process your data from the order. In the case of full settlement, the system posts the values that were originally on the AuC to the completed fixed asset.

For more information, see [Settlement of an Asset Under Construction \[Ext.\]](#) and [Depreciation Calculation Method \[Ext.\]](#) under *FI - Asset Accounting*.

Object List

Object List

Definition

List of objects (equipment, functional locations, notifications, materials with serial number) which have been assigned to a notification, order or a maintenance item.

Use

The object list is a central part of the order. You use it to assign technical objects, notifications or objects, which are identified by a combination of material and serial numbers, to the order.

When you make entries in the object list for an order, you are linking it to the objects you enter. The order is valid for any reference object entered on the header data screen, and all other objects which you have entered in the object list.



Even if no reference object has been entered for the order on the header data screen, you can still assign technical objects, notifications or objects, which are identified by a combination of material and serial numbers, to the order in the object list.

Structure

Two features are available for the object list:

- An object list, in which you can enter technical objects (equipment, functional locations, assemblies) and notifications
- An object list, in which you can enter objects, which are identified by a combination of material and serial numbers, and notifications

Which of these two versions is used in the order depends on:

- The choice of reference object in the notification/order
- The view setting for the *Reference object* section in the notification/order

If you create the order with reference to a notification, for which a reference object has been entered, the system copies the reference object from the notification as the reference object for the order. The system writes the notification number in the order header and in the object list for the order. You can make further assignments for the order in the object list.

Working with Order Objects


Use

When working with order objects, there are rules which must be remembered if you want to:

- Make entries in the object list
- Process entries in the object list

Features

You process the objects by calling up the *Objects* tab page.

Activity	Results
Create a notification	The system displays the reference object for the notification in the other fields of the list block. If this is a piece of equipment, the functional location at which it is installed is also displayed. You cannot make entries in these fields.
Create a piece of equipment	The system displays the functional location at which it is installed. You cannot make an entry in this field. If the equipment is not installed, the field for the functional location is empty.
Create a functional location	The system does not display any other data for the functional location.
Create a combination of material and serial numbers	You can only do so if the view of the reference object has been set accordingly. You can enter a combination of material and serial numbers in an object list, in which technical objects (pieces of equipment, functional locations) have already been entered.
Create or change a notification for an object in the list	<p>Use the symbol for this in the appropriate line of the object list.</p>  <p>Do not use the <i>Notification</i> button in the order header for this function, since this button is used to assign a notification to the order header.</p> <p>If notifications already exist in the object list, but no notification has yet been assigned to the order header, the system assigns the first notification in the object list to the order header when you use this button.</p>

Working with Order Objects

Delete the link between notification and order again	<p>You can only do this if:</p> <ul style="list-style-type: none">• The order was not created directly from the notification• The order has not been completed• The notification has not been entered in the order header
--	--

Changing an Object List

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose the *Objects* tab page.
3. To process the object list, you have the following options:
 - **Enter new objects**
Enter each object and each notification in a separate line of the object list.
 - **Request new lines for additional entries**
Choose *Edit* → *New entry*.
4. Save the order.



Note the rules for working with the object list which are listed in [Working with Order Objects \[Page 1137\]](#).

Scheduling

Scheduling

Use

After you have planned an order with all its operations and components, you can use the scheduling function to determine the following data:

- The actual execution dates based on the dates specified in the order and the time specifications in the operations
- The capacity requirement needed to execute the order, based on the data in the operations
- The date at which a particular material should be available

This date is entered based on the start date for the operation, in which the material is required.

For more information, see [Scheduling Data \[Page 1142\]](#).



You cannot schedule sub-operations independently, since scheduling is performed at operation level.

For more information, see [Changing of Time Zones \[Page 892\]](#).

Integration

If you have maintained specific **relationships** for an order, you should note the following:

- As soon as you have created the first relationship for an order, the system automatically converts the scheduling from scheduling for orders **without** relationships to scheduling for orders **with** relationships.
- The reverse is also true: As soon as you have deleted all the relationships for an order, the system automatically converts the scheduling from scheduling for orders **with** relationships to scheduling for orders **without** relationships.
- As long as scheduling for orders **with** relationships is valid, the system assumes that operations, for which you have not created a relationship, start at the same time, independently of one another.

If you do not want this, you can execute the function *Generate relationships automatically*. As a result, a relationship of FS-relationship type is generated between all the operations, between which no relationship has been created manually.

For more information, see [Use of Relationships \[Page 1172\]](#).

Prerequisites

Before the system can schedule an order, you must [maintain the scheduling data \[Page 1145\]](#).

Activities

The system can be configured by your system administration using Customizing in such a way that it schedules the order each time you save it. However, you can schedule the order on a trial

basis during planning to see whether the data calculated is suitable. Refer to [Scheduling an Order \[Page 1146\]](#).

Scheduling Data

Scheduling Data

Definition

Scheduling data comprises entries that the system requires to calculate the start and finish times for an order, an operation or a material.

Structure

The scheduling data is distinguished in the following ways:

Basic Dates for the Order

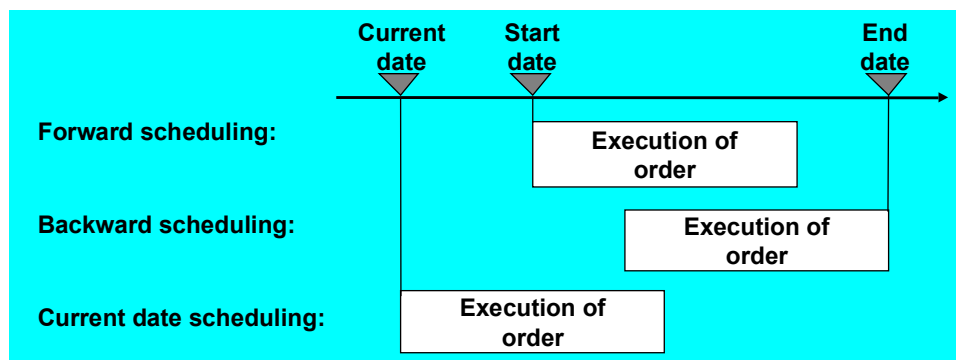
The basic dates belong to the header data for an order. The scheduling of operations is calculated from the basic dates. If no [relationships \[Page 1172\]](#) are used, then operations are executed in sequence according to their operation number. For example, the operation with operation number 020 is executed after the operation with operation number 010.

The basic dates of the operations for an order determine the sequence in which the operations are scheduled by the system.

Scheduling Type for the Order

The scheduling type determines the way scheduling is calculated. It is defined for each order type by your system administration in Customizing, and is proposed automatically when an order is created. The scheduling type can be changed.

Scheduling Types



The following scheduling types can be distinguished:

- Forward scheduling
 - Entry of basic date: Start date (with or without time)
 - The execution of the order should start at this time.
- Backward scheduling
 - Entry of basic date: End date (with or without time)
 - The execution of the order should be completed at this time.
- Scheduling for the current date

Entry of basic dates: Start and end date
The order should be executed on the current day.

- No scheduling

Entry of basic dates: None

Performing Work Center

The data from the master record for the performing work center determines the extent to which scheduling of operations is dependent on the shift system.

Data relevant to scheduling is stored as a formula in the master data for the work center.

Execution Duration

The execution duration determines how much time is required to execute an operation. Each operation that you want to include in scheduling must have an execution duration, according to the formula in the work center.

Example: Automatic Calculation

Activity	Entry
You enter the activity type for the operation in the <i>Activity type</i> field:	pm-h
You enter the time required to execute the operation in the <i>Work</i> field:	12 h
You enter the number of people who are to perform the work in the <i>Number</i> field:	3
You enter the proportion of working time that the people can use to execute the operation as a percentage in the <i>Percent</i> field:	100
You specify the key for calculating the execution duration in the <i>Calculation key</i> field:	1
You choose <i>Continue</i> . The system calculates the execution duration and enters it in the <i>Normal duration</i> field:	4 h

This entry method is suitable if the entries in the *Number* and *Normal duration* fields are inversely proportional to one another:

$Work : Number = Normal\ duration$

Example: Manual Entry

Activity	Entry
You enter the activity type for the operation in the <i>Activity type</i> field:	pm-h
You enter the execution duration in the <i>Normal duration</i> field:	4 h

This entry method is suitable if the number of people and the duration are not in any proportional relationship to one another.

Control Key with Scheduling Indicator for Each Operation

The [control key \[Page 1105\]](#) determines whether or not an operation should be included in scheduling.

Operations, to which a control key has been assigned without a scheduling indicator, are automatically excluded for scheduling purposes.

Scheduling Data

You have the following options for **external operations**:

- You can enter a control key for external processing which includes the operation based on the duration specified for it in order scheduling. This results in the dates for the subsequent operations being scheduled with reference to the duration of the external operation. For this control key, the *Scheduling external operation with standard values* parameter must be maintained. You maintain the operation duration in the operation overview.
- You can enter a control key for external processing, for which the *Scheduling external operation with standard values* parameter is **not** maintained. This results in the operation end date being defined in days based on the planned delivery time entered. The dates for the subsequent operations are then determined with reference to this operation end date.

Scheduling Restrictions

The scheduling restrictions determine the timeframe within which the operation should be executed.

Lead Times and Lead-Time Offsets for Material

If you want to define when a material should be available in relation to the start date of an operation, you have the following entry options on the component detail screen in the *Time interval* field under *General data*:

- Enter a negative value, to define the length of the lead time.
- Enter a positive value, to define the length of the lead time offset.

Changing Scheduling Data

5. Call up the [order in change mode \[Page 1095\]](#).
6. Edit the **basic dates** on the central header data screen for the order.
7. Edit the **scheduling type** on the *Additional data* tab page.
8. Edit the **control key** and the **performing work center** for an operation in the order on one of the following screens:
 - Operation overview of the order
 - Detail screen for general data
 - Detail screen for internal processing
9. Edit the **execution duration** for each operation on the detail screen for internal processing.
You have the following options:
 - The execution duration is automatically calculated by the system from other entries.
You find the result in the *Duration* field on the detail screen.
 - You enter the execution duration manually.
10. Edit the **scheduling restrictions** on the *Dates* tab page.

See also:

- [Scheduling an Order \[Page 1146\]](#)
- [Assigning an Order to a Project \[Page 1193\]](#)

Scheduling an Order

Scheduling an Order

Prerequisites

You have maintained all the necessary scheduling data on the header data screen, the operation overview and the detail data screens of the order. Refer to [Maintaining Scheduling Data \[Page 1145\]](#).

Procedure

Scheduling an Order (Normal)

1. Call up the [order in change mode \[Page 1095\]](#).
2. In the header data screen or the operation overview, choose *Order* → *Functions* → *Dates* → *Schedule*.

The following cases can occur:

- The system schedules the order.
- The system cannot perform scheduling. You can display the reason in a log. To do this, choose *Goto* → *Logs* → *Scheduling*.



The system does not take account of date entries for **sub-operations** during scheduling. However, you can specify sub-operation dates by entering the time interval with reference to the operation in the sub-operation date screen.

3. Save the order.

Scheduling an Order with Relationships

1. Call up the [order in change mode \[Page 1095\]](#).
2. In the operation overview, choose *Goto* → *Graphic* → *Network structure*.

The structure graphic appears, containing the operations for the order and its networked orders and any relationships created between the operations.



The system only schedules the order selected; the dates for the other orders are unchanged.

3. Call up the scheduling function using *Order* → *Functions* → *Schedule*.

The system schedules the order and informs you in an online message that scheduling has been completed.

4. You can display the dates determined in different ways:

- **Form of display**

In the graphic, choose *Settings* → *Display operations*. The system displays a dialog box in which you can select a method of display. Choose *Continue*.

- **Choice of dates**

Scheduling an Order

You select the required operations with *Edit* → *Select* → *<Desired option>* and then choose *Details* → *Dates*.

The system displays the dates for the selected operations.

5. Return to the graphic and save the order.

Scheduling All Orders for an Order Network Collectively

1. Depending on the application component in which you are working, choose one of the following menu paths:
 - *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Total network scheduling*
 - *Logistics* → *Customer service* → *Service processing* → *Order* → *Service order* → *Total network scheduling*

The initial screen for total network scheduling for orders appears.

2. Enter the number of an order that is part of the network you want to schedule.
3. Choose *Edit* → *Schedule*.

The screen with the valid scheduling data appears.

4. Make all the necessary entries or changes.
5. Start the scheduling function with *Order scheduling* → *Execute*.

The system now schedules all the orders that are networked with the order you entered on the initial screen. Scheduling takes place for the dates that you entered in the section *Scheduling*.

The system displays an online message to inform you that scheduling has been completed.

6. You can now call up the following display functions to check the data calculated:
 - **Comparison of the old and new dates**
To display both the old dates for the individual orders of the order network and their operations, and the new ones calculated by the system, choose *Goto* → *Date overview old/new*.
 - **Error log for dates**
If the system is unable to schedule the order, you can display the reason in a log. To do this, choose *Goto* → *Logs* → *Scheduling*.
7. Save the order network.



You schedule an individual order which is included in an order network using relationships in exactly the same way as an order that is not included in an order network. Although the system considers the dates of the other orders for the order to be scheduled, the dates of the other orders remain unchanged.

Copying Project Dates as Basic Order Dates

Copying Project Dates as Basic Order Dates

Use

When you assign an order to a project, this means that the project dates represent the definitive basic dates for this order. The order can be assigned to a work breakdown structure (WBS) element or a network operation of the project.

If you assign the order to both a WBS element and a network, the system will always copy the dates for the network operation; they have priority over the dates in the WBS element.

Procedure

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose *Additional data*.
3. Enter the WBS element or the network operation to which the order is assigned and press *Continue*.

The system displays a dialog box.

4. How you proceed now depends on your requirements:
 - If you have only entered one **WBS element**, you can decide whether or not you want to copy the WBS element dates for the order.

If you **copy** the project dates, the system changes the basic order dates in the *Dates* section into the project basic dates.

If you **do not** copy the project dates, the original order dates remain decisive for scheduling.
 - If you have entered a network operation, the system automatically copies the dates, and you can also copy the WBS element, profit center, business area and priority from the network operation into the order.



In the Project System, you can update changed dates in the order using *Copy project dates*. This function is also available in the selection function for orders (list editing), so that you can update dates from several orders in one step.

5. Save the order.

See also:

[Assigning an Order to a Project \[Page 1193\]](#)

Displaying and Creating Dates

Displaying and Creating Order Dates

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Enter the order number and choose *Continue*.

The header data screen for the order appears.

3. To display the basic dates calculated, those already entered by you and the actual dates for the order, choose *Display other scheduling data*.
4. Enter the missing order dates as parameters for scheduling the operations.
 - If scheduling is **forwards** and you have entered a basic start date, the system calculates the basic end date.
 - If scheduling is **forwards** and you have entered a basic end date, the system requests that you enter a basic start date.
 - If scheduling is **backwards** and you have entered a basic end date, the system calculates the basic start date.
 - If scheduling is **backwards** and you have entered a basic start date, the system requests that you enter a basic end date.

If you have selected a scheduling type using time of day, the system likewise calculates the second basic date using time of day.



The system schedules automatically when an order is saved. However, you can also [schedule the order \[Page 1146\]](#) before it is saved.

Displaying Operation Dates

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Enter the order number and choose *Continue*.

The header data screen for the order appears.

3. Select the operation overview of the required order.
4. Select the operation for which you want to display the scheduling data.
5. Then select the pushbutton *Dates*.

The *Operation Dates* screen appears containing the dates and times calculated for the selected operation.

Displaying the Scheduling Overview as a Graphic

1. You have the following initial entry options:
 - To display the scheduling overview for several orders, choose *Logistics → Plant maintenance → Maintenance processing → Order → List editing → Change*.

Displaying and Creating Dates

- To display the scheduling overview for different operations from several orders, choose *Logistics → Plant maintenance → Maintenance processing → Order → List of operations → Change*.
- 2. Enter the required selection data and choose *Execute*.
- 3. Select the lines containing the orders or operations, for which you want to display a scheduling overview. Keep the CTRL button held down for this.
- 4. Choose *Goto → Scheduling overview*.
The system displays the graphical scheduling overview.
- 5. Return to the list using *Graphic → Exit*.

Work with Task Lists

Purpose

You can use maintenance task lists (task lists) to plan maintenance work in the order. They are used as a reference and an input tool when processing orders and considerably reduce the time required during work scheduling.

The complete or partial planning of orders using task lists is advisable if the tasks to be planned:

- Involve work which needs to be executed frequently in a particular way and for which the same material is always required
- Consist of constant, recurring tasks and one-time, individual tasks

Prerequisites

Before you can use task lists for planning in the order, they must have been created in the system by your planner and must describe certain recurring operations in full.

Process Flow

1. You create an order. See [Creation of an Order \[Page 1077\]](#). To do this, you can [copy task list default values \[Page 1159\]](#).
2. You select a task list which you want to use for planning the order and include it directly or by using the selection function.
 In addition, the functions for selecting certain operations remain available, for example, choosing particular operations from the task lists or renumbering them. See [Selection of Operations for a Task List \[Page 1153\]](#).
3. You adapt the included task list operations to meet the individual requirements of the order. For example, you can change the work center or add further operations.
4. During the planning (and also subsequently), you can display which task lists have been included in an order.

Use of Task Lists

Use of Task Lists

Use

In many cases, the manufacturer also supplies the task lists for maintaining their technical systems. In other cases, the task lists are created within the individual company based on operational experience.

For more information, see [Maintenance Task List \[Page 604\]](#).

Prerequisites

For more information about which task list types are available in Plant Maintenance and how to create task lists in the system, see [Maintenance Task Lists \[Page 378\]](#).

Features

You can include the following task lists in orders:

- Object-specific task lists
 - General maintenance task lists
 - Configurable general maintenance task lists
- You can include one or more task lists in an order.
- You can include the same task list several times in an order.
- You can combine task lists with manually entered operations in the order.
- You can opt for a [selection of operations \[Page 1156\]](#).

Selection of Operations for a Task List

Use

You can use different functions for selecting and ordering operations in task lists. This ensures that the operations, which you use based on your choice of task lists, represent the work steps to be executed in your company and their sequence as closely as possible.



You can also organize operations into sub-operations, in order to plan in greater detail.

The selection and ordering functions simplify:

- Selection of task list and operation
- Sorting of operations in the order

Prerequisites

You must define a combination of selection and ordering functions in your system. The options available for this in the system are described in detail below:

	Operation Selection	Work Center Selection	Renumber	One-Time Complete Inclusion	Operation Sorting
Operation Selection	—	can	can	can	can
Work Center Selection	must	—	can	can	can
Renumber	can	can	—	can	not possible
One-Time Complete Inclusion	can	can	can	—	can
Operation Sorting	must	can	not possible	must	—

In general, you only define the default values once in the system. Therefore, it is important that you orient yourself towards the usual procedure used within your company for selecting and including task lists and operations.

If you do **not** activate any default values, the task list selected by you for the order is immediately copied completely, unchanged into the order.

Features

The following functions are also available as defaults:

Selection of Operations for a Task List

Operation Selection

If this default value is active, the system displays a dialog box after you have selected the required task list. You can now select the task list operations you require to be copied into the order.



You can only generate orders with included task lists by batch input if the *Operation selection* indicator is switched off and you [select the task list \[Page 1160\]](#).

For more information about batch input in Plant Maintenance, see the documentation for the program RIIBIP00.

Work Center Selection

If this default value is active, the system displays a dialog box after you have selected the required task list. Here you have a choice of all the work centers contained in the task list. After you have selected those required, the system only provides those operations that should be executed by the selected work center.



- You can only use this default value in conjunction with the function *Operation selection*.
- If a sub-operation should be executed by the selected work center, but the accompanying lower-level operation by a different work center, then **both** operations are displayed.
- You can also use this default value to change the work center for certain operations when selecting task list operations for an order.

Renumbering

If this default value is active, the system assigns an unbroken series of new numbers to the operations, after you have selected the required task list. The gap between the individual numbers corresponds to the increments you specified.



You use this default value in particular if you copy several task lists for an order using the operation selection and the highest possible operation number might be overwritten.

One-Time Complete Inclusion

If this default value is active, a task list selected by you can only be included once in the same order.



- In combination with the function *Operation selection*, this default value ensures that for each task list selection the system only offers those operations that have not yet been included in the order you are currently processing.
- The operations of the second and every subsequent selection are placed in the order **behind** the previously selected operations.

Selection of Operations for a Task List**Operation Sorting**

If this default value is active, when the same task list is selected several times for an order, the operations you select are copied into the order in such a way that they remain in the same sequence as in the task list.



It is only advisable to use this default value if the functions *Operation selection* and *One-time complete inclusion* have also been selected.

You are **not** allowed to choose the *Renumbering* default value.

See also:

[Copying Task List Default Values \[Page 1159\]](#)

Selection of Operations

Selection of Operations

Operation Selection

Task list 1234567, "Inspection":

Task List Operations	Selection	Task List Operations in Order
0010 Renew spark plugs	X	0010 Renew spark plugs
0020 Oil change		
0030 Renew oil filter	X	0030 Renew oil filter
0040 Renew air filter		
0050 Check brakes	X	0050 Check brakes
0060 Check headlamp alignment		

Renumbering of Operations

The following two task lists are included with the operation selection:

Task List	Operation Number	Selection
Task list 1	0030	X
	0060	
	0090	
	0120	X
	0150	
Task list 2	0040	
	0080	X
	0120	
	0160	X
	0200	

For a set increment of 0010, the system rennumbers the operations included in the order as follows:

Task List	Original Operation Number	New Operation Number in Order
Task list 1	0030	0010
	0120	0020

Selection of Operations

Task list 2	0080	0030
	0160	0040

One-Time Complete Inclusion

First calling up of the task list for order 90001 with the first operation selection:

Selectable Task List Operations	First Operation Selection	Task List Operations in Order
0010 Renew spark plugs	X	0010 Renew spark plugs
0020 Oil change		
0030 Renew oil filter	X	0030 Renew oil filter
0040 Renew air filter		

Second calling up of the task list for order 90001 with the second operation selection:

Selectable Task List Operations	Second Operation Selection	Task List Operations in Order
0020 Oil change	X	0010 Renew spark plugs
0040 Renew air filter		0030 Renew oil filter
		0050 Oil change

Operation Sorting

First calling up of the task list for order 900012 with the first operation selection:

Selectable Task List Operations	Selection	Task List Operations in Order
0010 Renew spark plugs	X	0010 Renew spark plugs
0020 Oil change		
0030 Renew oil filter	X	0030 Renew oil filter
0040 Renew air filter		
0050 Check brakes	X	0050 Check brakes
0060 Check headlamp alignment		

Selection of Operations

Second calling up of the task list for order 900012 with the second operation selection:

Selectable Task List Operations	Selection	Task List Operations in Order
		0010 Renew spark plugs
0020 Oil change	X	0020 Oil change
		0030 Renew oil filter
0040 Renew air filter		
		0050 Check brakes
0060 Check headlamp alignment		

Work Center Selection

The work center "Mechanics" was chosen as the work center:

Operations with Work Center	Sub-Operations with Work Center	Selection	Operations/Sub-Operations Offered for Selection
0010 Mechanics	-	X	0010 Mechanics
0020 Electrics	-		0020 Electrics
-	0020 - 0010 Mechanics	X	0020 - 0010 Mechanics
-	0020 - 0020 Electrics		-
0030 Mechanics	-	X	0030 Mechanics
0040 Electrics	-		-

Change of Work Center

In a company, task lists have been created whose operations contain dummy work centers. If one of these task lists is selected for an order, the system displays the dialog box for selecting a work center. The planner overwrites the dummy work centers with the work centers that should execute the work. Then the planner selects the operations to be executed and incorporates this special version of the task list into the order.

Copying Task List Default Values

Use

You can determine default values that enable task lists to be created more easily.

Procedure

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose *Extras* → *Settings* → *Default values*.
A dialog box appears.
3. Choose the *Control* tab page.
4. In the section *Task list transfer*, select the required functions.



You set the valid steps for automatic numbering of operations in a task list individually for each order. To do this, choose *Administration* in the order. In the section *Parameters*, you will find the field *Op. steps* (operation steps).

5. Save the settings.

These are now proposed for all task lists that you want to include in orders in future.

Selecting a Task List

Selecting a Task List

Selecting a Task List Directly

6. Call up the [order in change mode \[Page 1095\]](#).
7. From the header data screen or the operation overview of the order, choose *Extras* → *Task list selection* → *Direct entry*.

A dialog box appears, in which you can select whether to include a task list for a piece of equipment or a functional location, or a general task list.

8. Enter the task list group and the task list group counter for the task list.



- If the task list selected is a **configurable general maintenance task list**, you must enter the valuations for the characteristics, which the system displays depending on the configuration profile for this task list.
- If the reference object for the order belongs to the same class as the configurable general maintenance task list and characteristic valuations have been entered for the object, then the system also proposes these characteristic valuations here.

9. Make all the necessary entries and choose *Continue*.
10. Save the order or process the assigned task list according to the individual requirements of the order.

Selecting a Task List Relative to Object

1. Call up the [order in change mode \[Page 1095\]](#).
2. From the header data screen or the operation overview of the order, choose *Extras* → *Task list selection* → *For reference object*.

If individual operation data has already been entered for the order, or if operations for another task list have already been included, the system displays a dialog box.

3. Decide whether or not the operations already entered are to be deleted.

You see a list of all the task lists created in the system for the reference object of the order.

4. Select the required task list.



If task selection functions are used in your system, or you have selected task lists manually, additional steps, for example, entering an [execution factor \[Page 1200\]](#) may be necessary. Refer to [Selection of Operations \[Page 1156\]](#).

The system copies the task list into the order, and you return to the initial screen for the order.

5. Save the order or process the assigned task list according to the individual requirements of the order.

See also:

[Maintenance Task Lists \[Page 378\]](#)

Changing and Displaying a Task List

Changing and Displaying a Task List

Changing a Task List

1. Call up the [order in change mode \[Page 1095\]](#).
2. Select the operation overview of the order.
You see the individual operations and sub-operations of the included task list.
3. Change and make additions to the task list as required.
4. If you want to change the execution factor for an operation, proceed as described in [Changing an Execution Factor \[Page 1200\]](#).
5. Save the order.

Displaying a Task List

1. Call up the [order in change mode \[Page 1095\]](#).
2. From the header data screen or the operation overview of the order, choose *Extras* → *Task list selection* → *Display task lists*.

The system displays a dialog box containing an overview of all the task lists included in the order.

Selecting a General Task List

1. Call up the [order in change mode \[Page 1095\]](#).
2. Select one of the following options from the header data screen or from the operation overview for the order:
 - a) If you have specified an **assembly** for the order and want to select from the general maintenance task lists assigned to that assembly, choose *Extras → Task list selection → General task lists for assembly*.
 - b) If the reference object for the order is included in an **object structure** (for example, a functional location structure or an equipment hierarchy) and you want to select from the general maintenance task lists assigned to this structure, choose *Extras → Task list selection → General task lists for object structure*.
 - c) If you want to select from **all** the general maintenance task lists currently available in the system, choose *Extras → Task list selection → General task lists (general)*.

If individual operation data has already been entered for the order, or if operations for another task list have already been included, the system displays a dialog box.

3. Decide whether or not the operations already entered are to be deleted.

In case **a)** you see a list of all the general task lists for the assembly.

In case **b)** you see a list of all the general task lists for the object structure.

In case **c)** you see a selection screen to be completed. Make your selection. You then see a list of all the general task lists that satisfy your selection criteria.

4. Select the required general task list.



- If you use a [selection of operations \[Page 1156\]](#), additional steps, for example, selecting a work center, or entering an [execution factor \[Page 1198\]](#) may be necessary.
- If a configurable general maintenance task list is used for the task list selected, you must enter the valuations for the characteristics which the system displays depending on the configuration profile for this task list.

If the reference object for the order belongs to the same class as the configurable general task list and characteristic valuations have been entered for the object, then the system also proposes these characteristic valuations here.

For more information about configurable task lists, see [Maintenance Task Lists \[Page 378\]](#).

The system copies the selected general task list into the order and you return to the initial screen for the order.



If you have selected a configurable general task list, the system only copies those operations that match the characteristic valuation entered.

5. Adapt the assigned general task list to the individual requirements of the order and save the order.

Selecting a General Task List

Use of Service Specifications

Use

You can use service specifications that you enter for operations to be processed internally to:

- Plan services in units of measure of all dimensions
- Plan a number of services together which are provided in different dimensions
- Define services uniformly (entry of service master in the service specifications)
- Structure services at an unlimited number of levels
- Reach outline agreements
- Agree conditions
- Use service catalogs
- Describe the work involved more accurately

For more information, see [Configurable Service Specifications \[Page 519\]](#).

Integration

The system does **not** allow you to choose the calculation key of an operation to be processed internally with service specifications in such a way that the duration is calculated automatically from the work entered in the operation.

If you enter service specifications for an operation to be processed internally, you can **no longer** maintain the execution factor for this operation. If you had already entered the execution factor before entering the service specifications, the system automatically resets it to 1.

Prerequisites

In your system, you must create a control key that is intended for internal processing and for which the "Service" indicator is selected.

Features

To create service specifications for an operation, you have the following options:

- You select service specifications that already exist in the system as a copy model, for example, a standard service catalog, model service specifications or service specifications in a purchase order.
- You create service specifications manually by describing the services in the short text.

For operations to be processed internally which allow the assignment of service specifications, the *Work* field is not available for input. The *Work* field is calculated using the total value of all the times in the service lines.

The system automatically enters the cumulative values from the times, which it has calculated based on the services planned for this operation in this field. In each service line, you have the option of entering a value in the *Work* field.

Use of Service Specifications

Services	Calculation	Result
Dig a 3 m trench	1 m \cong 1.0 hour of work	3.0 hours
Lay 3 m of piping	1 m \cong 0.5 hours of work	1.5 hours
Weld pipes	→ In this special case	2.0 hours
Total: Operation 0010	House service connection	6.5 hours



For more information about estimating costs, see [Estimation of Planned Costs \[Page 1169\]](#).

For more information about working with service specifications in external processing, see [Processing Using Service Specifications \[Page 1425\]](#).

Costs

Definition

Value of use of materials, work hours and so on, which are required to execute maintenance tasks.

Costs are distinguished according to estimated, planned and actual costs.

Use

You can enter **estimated costs** manually for an entire order.

Planned costs are calculated automatically by the system during order planning.

Actual costs for goods issues and goods receipts are calculated automatically by the system whilst the order is being executed. The actual costs for the work performed can only be calculated once the work has been confirmed.

You can [display the costs \[Page 1391\]](#) entered or incurred in an overview.

Estimation of Costs

Estimation of Costs

Use

Estimated costs can be entered in the following ways:

- As an overall total on the header data screen
- Divided into value categories in the cost overview



The cost elements 692000 and 693000 are grouped under value category "Internal activities".

Prerequisites

To enter the estimated costs broken down into the individual value categories, you must have grouped the cost elements for these value categories in the Customizing for the Project System.

Features

You can only specify estimated costs for the order until the order is released.

In contrast to planned and actual costs, estimated costs are **not** updated in the Plant Maintenance Information System (PM-IS).

Activities

After the estimated costs have been entered, the system sets the the status *Costs estimated* for the order.

Estimation of Planned Costs

Use

Several different types of costs can be incurred when executing an order. To obtain an overview of the likely costs before actually performing the work, you can use the system to calculate automatically and then display the estimated costs for the work planned.

Order	Costs
<div>Internal processing</div> <div>Optn.10: ME 3 hrs</div> <div>Optn.20: EL 1 hr</div>	Internal processing: \$ 500
<div>External processing</div> <div>Optn.30: EXTERNAL 1 hr</div>	External processing: \$ 150
<div>Stock material</div> <div>2 pc. material ABC</div>	Stock material: \$ 300
<div>Non-stock material</div> <div>2 pc. material XYZ</div>	Non-stock material: \$ 500
	<hr/>
	Total: \$ 1,450

Prerequisites

Planned costs are only displayed for an order if you have assigned a control key to the individual operations in the order, which includes them in the costing process. Operations that do not have an appropriate control key assigned to them are not considered when the costs are estimated.



If scheduled material components are **not** to be included in the cost estimation, you must delete the *RelevCosting* indicator on the general data screen for the individual components.

Features

The work center specified in the operation is linked to a cost center. The valid activity type is also entered in this link. The valid price and cost element are contained in the activity type.

Generally, the system determines the costs, which arise for the order operation, based on the following formula:

$$\text{Cost of work performed} = \text{Working hours} \times \text{Price in the activity type}$$

The costs are then displayed in the cost overview in the order at cost element level.

Estimation of Planned Costs



Work Center	Mechanics 1
Work	3 hours
Cost Center	511
Activity type	Maintenance of machines
Cost element	452000 (maintenance costs for machines)
Price	\$ 100
Assigned costs in cost overview	Maintenance of machines: \$ 300

The following applies for services:

The system performs a cost element determination for each service that you enter for an operation. If you enter different services, for which the system determines different cost elements, then the costs for these services are listed separately in the cost overview.

For more information about services, see [MM - Service \[Ext.\]](#).

Activities

The planned costs for an order can be estimated in the following ways:

- **Automatically** when the order is being saved

After you have made all the entries in the order header and in the order operations, the system automatically determines the costs for the planned work from the order data whilst the order is being saved.

- **Specifically** by calling up the function *Determine costs*

After you have made all the entries in the order header and in the order operations, choose *Order → Functions → Determine costs* on the header data screen for the order. The system determines the costs for the work planned from the order data.



The following applies to both types of cost estimation:

If the system is unable to determine the costs, you can display the reason in a log. To do this, choose *Goto → Logs → Cost determination*.

For more information about how you can display the results of the planned costs estimate, see [Displaying Costs \[Page 1391\]](#).

Additional Planning Functions

Use

In addition to functions for planning orders, which are either obligatory or of interest to the majority of the plant, there are a series of additional functions. Their use is optional and depends greatly on the requirements of each individual plant.

Features

The additional functions refer to the following:

- [Relationships \[Page 1172\]](#)
- [Order assignments \[Page 1189\]](#)
- [Execution factors \[Page 1198\]](#)
- [User data \[Page 1201\]](#)
- [Budget management \[Page 1203\]](#)
- [Production resources/tools \(PRTs\) \[Page 1205\]](#)
- [Permits \[Page 306\]](#)
- [Capacities \[Page 1212\]](#)
- [Partner data \[Page 1220\]](#)

Use of Relationships

Use of Relationships

Use

Most orders in Plant Maintenance are planned and executed without any particular relationship between the individual operations.

However, you should consider using relationships if:

- You want to have extensive, detailed shutdown planning
- Certain operations must be executed in parallel, or in a particular sequence
- You want to use a different sequence of operations to the normal sequence automatically used in the standard system

You can create relationships manually or generate them automatically.



Note that you can only network operations together using relationships; you cannot network sub-operations together.

Integration

When you use relationships in the order, you give the order the main properties of a network from the Project System (PS).

For more information about networks, see [PS - Project System \[Ext.\]](#).

Prerequisites

Before you start networking order operations, you should consider whether the finish-start relationship generated automatically, which is valid for an order without explicit networking, is sufficient for your requirements.

You should only create networks between the individual operations if you are sure that you want a **different** relationship between the individual operations or parallel operations.

The following prerequisites must be met before you can create and maintain relationships:

- An order must be created.
- The order must have several operations.



If you want to use a profile other than the standard profile for the graphical display, you must define one using the Customizing function and assign it to the required system users.

Features

Creating Relationships Using the List Function

A list is available for entering relationships.

Creating Relationships Using the Graphic Function

In addition to the list, a graphic is also available for entering relationships.

Entering Operations for Relationships Using the Graphics Function

If you are entering or changing relationships in the graphic function, and realize that a certain operation has not yet been entered, you can enter it in the graphic.

Generating Relationships Automatically

If at least one relationship already exists between the operations of two or more orders, you can generate relationships automatically between all the operations not yet linked by relationships. The relationships generated in this way belong to the FS-relationship type.

You can thereby prevent all the operations, between which no relationship has been created, from being scheduled at the same time as the first operation.

This function can only be executed if at least two operations have already been linked together. If this is not the case, the operation number determines the scheduling sequence.

The function can be executed by choosing *Order → Functions → Dates → Generate relationships*.

Networking Orders Using Relationships

You can link the operations for several orders together using relationships. In this way, you create an operation network that links all the specified orders with one another.

The following options are available for networking several orders to one another using relationships:

- Enter all the relationships for the required orders in the list.
To do this, proceed as described in [Creating Relationships in the List \[Page 1179\]](#).
- Use the list only for the first relationships between different orders. Then use the graphics function for all other relationships between the operations for the different orders.
To do this, proceed as described in [Creating Relationships in the Graphic \[Page 1178\]](#).

Displaying, Changing and Deleting Relationships

You can display, change and also delete one-time relationships created between operations.

Performing a Loop Analysis

In Plant Maintenance, the operations linked by relationships are executed in sequence within an operation network. Individual operations cannot be networked again. They must not form a **loop**, since this results in problems when scheduling the order.

To avoid creating such loops, the PM application component provides a **loop analysis** function. This is a tool that checks whether an operation network contains a loop. You should always call up the loop analysis if you have created new relationships or changed existing ones.

Relationship

Relationship

Definition

The linking of the start and finish points between two operations in an order, an order network, a network or a standard network.

In an order, a relationship describes the processing and temporal dependencies between two operations. For example, it can specify that a particular operation can only start once another operation has been completed, or that an operation cannot be completed before another operation has been completed. The operation becomes the predecessor or the successor to another operation through the relationship.

Use

A relationship defines how two operations should be sequenced in terms of time.

In order to plan and execute extensive maintenance work efficiently, the sequence and dependencies between the individual operations are very important. It is therefore important to relate the operations for an order to one another in terms of time, in other words, to network them. You can do this using the networking functions and relationships.

You can network both the operations within a particular order and the operations from different orders with one another.



If you create an order **without** networking the operations explicitly using a particular relationship, the system automatically schedules the operations as for a start-finish relationship with a time interval of zero.

Structure

Relationships are characterized by the following:

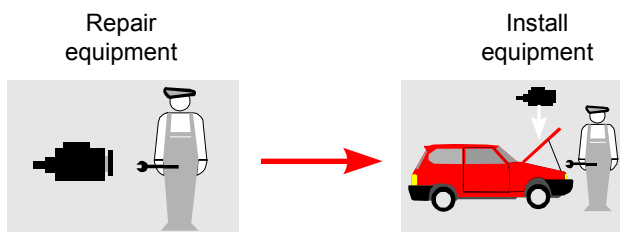
- Type
- Time interval between the operations

Relationship Types

The following relationship types are available:

Finish-Start Relationship

The end of one operation is linked to the start of the subsequent operation.



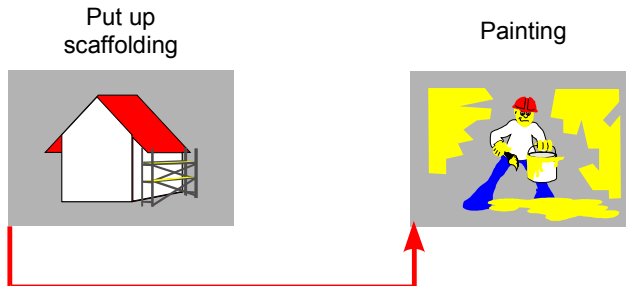
Relationship

The operation "Install equipment" can only start once the operation "Repair equipment" has been completed.

The finish-start relationship with a time interval of zero is the standard case in Plant Maintenance.

Start-Start Relationship

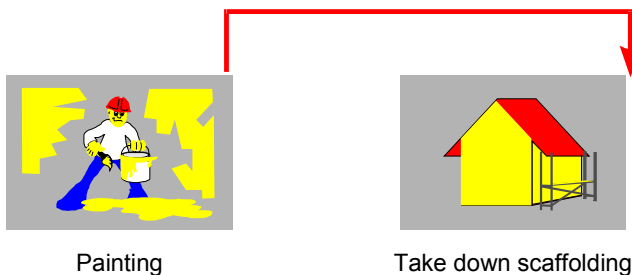
The start of an operation is linked to the start of the subsequent operation.



The operation "Painting" can only start once the operation "Put up scaffolding" has started.

Finish-Finish Relationship

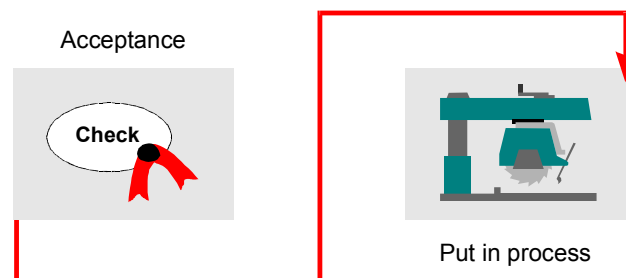
The end of an operation is linked to the end of the subsequent operation.



The operation "Take down scaffolding" can only be completed once the operation "Painting" has been completed.

Start-Finish Relationship

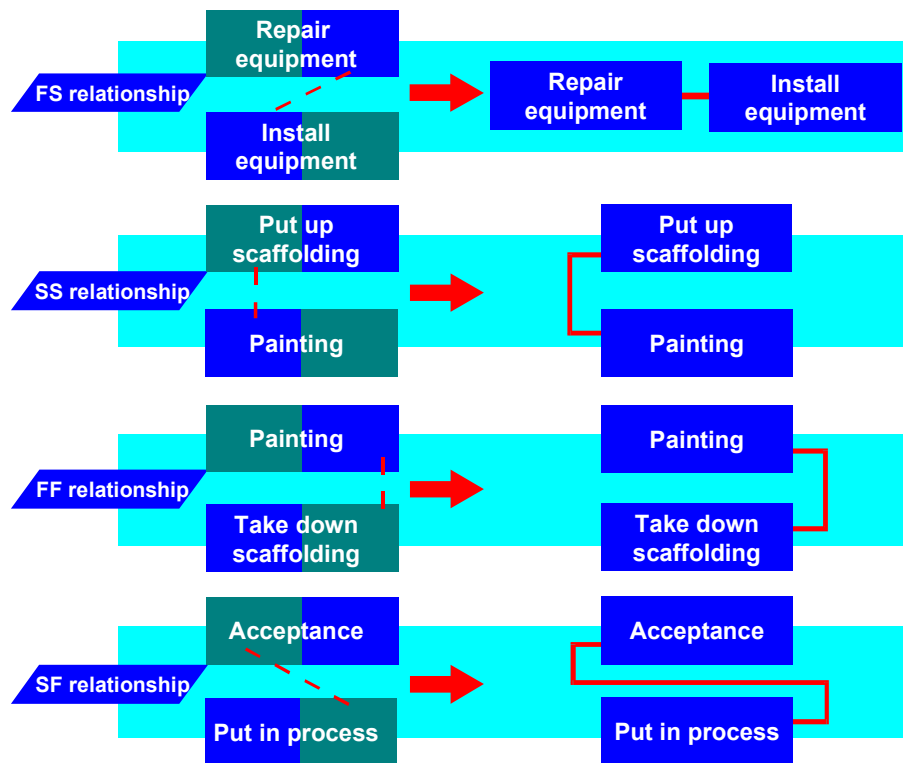
The start of one operation is linked to the end of the subsequent operation.



The operation "Put in process" can only be completed once the operation "Acceptance" has begun.

Overview of Relationship Types

Relationship



Time Interval Between Relationships

The time interval is the time between two operations which are linked by a relationship.



Operation 0020 is linked to operation 0010 by a finish-start relationship with a time interval of two days. This means that operation 0020 can only start two days after operation 0010 finishes.

You can enter the following types of time interval between linked operations:

- As positive or negative absolute values

You enter an absolute value, for example, 10 days. In the case of a finish-start relationship, this means that operation 0020 starts 10 days before the completion of operation 0010.

- As a percentage of the duration of the preceding or subsequent operation

You enter a percentage value, for example, 80 %. In the case of a start-finish relationship, where the preceding operation 0010 has a duration of 10 days, the subsequent operation 0020 starts 8 days (= 80% of 10 days) after operation 0010 has finished.

Networking Orders Using Relationships

1. Call up one of the orders to be networked using relationships in [change mode \[Page 1095\]](#).
2. Call up the operation overview of the order and select the operations that are to be networked with operations from other orders.



You cannot network sub-operations.

From each order that you want to include in the network, you only need to enter **one** operation to be networked. This operation forms the link to the order entered, and you can then enter any other relationships affecting the order in the graphic.

3. Choose the *General* detail view and then *Relationships*.

In the upper section of the screen, you see the order number and the first operation selected, from which you want to create the relationship.

4. On the tab page for relationships, enter the following data:
 - **Operations**, with which the operation entered in the top part of the screen is to be networked
 - **Order numbers of the operations**, with which the operation entered in the top part of the screen is to be networked
 - The **type of relationship**
 - **Data on the time interval**, if necessary



In the upper section of the screen, you can also call up the screens for internal and external processing of operation data simultaneously, and enter or change data.

5. To call up the next operation selected, choose *Next operation*.
6. Proceed as described above for all further operations.
7. To create additional relationships to the orders entered in the list, call up the graphic using *Goto → Graphic → Network structure*.

Refer to [Creating Relationships Using the Graphics Function \[Page 1178\]](#).

8. Save the order.

Creating Relationships Using the Graphics Function

Creating Relationships Using the Graphics Function

1. Call up the order whose operations you want to network in [change mode \[Page 1095\]](#).
2. Call up the operation overview of the order.
3. Choose *Goto* → *Graphic* → *Network structure*.
A screen appears which displays all the operations you have previously entered for the order.
4. Choose *Edit* → *Object* → *Link*.
5. Click on the operation, **from which** you want to create the relationship and keep the mouse-button depressed. The position of the mouse cursor determines the type of relationship created.
6. Draw a line with the cursor to the operation **to which** you want to create the relationship. A broken line appears on the screen. The position of the mouse cursor determines the type of relationship created.
7. Release the mouse-button.

The system links the two operations with a line and writes in the type of relationship. The line always goes from the right-hand edge of the predecessor to the left-hand edge of the successor. In other words, it only shows that a link exists; the type of relationship is shown above the line.



Once the first relationship has been created, the system automatically adjusts the scheduling for the order. The system informs you of the change in an online message.

8. If you want to enter detail data for a relationship (for example, time interval), select the relationship and choose *Relationships*.

Make all the required entries.



From the graphic, you can call up the detail views for internal and external processing of operation data, enter or change the data and then return to the relationships graphic.

You can also create new operations using the graphics function. For more information, see [Creating Operations for Relationships Using the Graphics Function \[Page 1182\]](#).

9. Use *Back* to return to the graphic display.
10. To create additional relationships, repeat these steps.
11. Choose *Goto* → *Back* to return to the operation overview of the order.
12. Save the order.

Creating Relationships Using the List Function

1. Call up the order whose operations you want to network in [change mode \[Page 1095\]](#).
2. Call up the operation overview of the order and select all the operations for which you want to create relationships.



You cannot network sub-operations with one another.

3. Choose *General* → *Relationships*.

In the upper section of the screen, you see the order number and the first operation selected.

4. On the tab page for relationships, enter the following data:
 - The **operations**, with which the above operation is to be networked
 - The **type of relationship**
 - **Data on the time interval**, if necessary

If you want to network the operation with an operation from another order, you must also enter the number of this order.



In the upper section of the screen, you can also call up the screens for internal and external processing of operation data simultaneously, and enter or change data.

Once the first relationship has been created, the system automatically adjusts the scheduling for the order. The system informs you of the change in an online message.

5. To call up the next selected operation which you want to network with the operation displayed above, choose *Next operation*.
6. Proceed accordingly for all further operations.
7. After you have networked the last selected operation, you have the following options:
 - Return to the operation overview to call up additional functions for the order. Then save the order.
 - Save the order immediately.

Displaying, Changing and Deleting Relationships

Displaying, Changing and Deleting Relationships

Displaying Relationships

1. Call up the [order in change mode \[Page 1095\]](#).
2. Select the operation overview.
3. Then call up the relationships overview as a graphic using *Goto → Graphics → Network structure* or as a list using *General → Relationships*.

Changing Relationships



Before making any changes to relationships, you should consider whether the changes are really necessary, since they may affect the scheduling of the whole order.

1. Call up the [order in change mode \[Page 1095\]](#).
2. Choose the operation overview and call up the graphic using *Goto → Graphic → Network structure*.
3. Select the relationship and choose *Relationship*.
4. Enter the changes, choose *Continue* and return to the operation overview.
5. Save the order.

Deleting Relationships



If you delete the relationships in an order, the operations affected are removed from the network structure. If you then schedule the order, the system assumes that these operations start at the same time, independent of one another.

If you delete a relationship, you change the network structure. Before you delete relationships, you should therefore make sure that execution of the order has not yet begun.

1. Call up the [order in change mode \[Page 1095\]](#).
2. Call up the operation overview of the order and select the operation for which you want to delete a relationship.
3. Call up either the graphic using *Goto → Graphic → Network structure* or the list of relationships using *General → Relationships*.
4. Select the relationship you want to delete and choose *Delete*.



Once all the relationships have been deleted, the system automatically adjusts the scheduling for the order. The system informs you of the change in an online message.

5. Save the order.

Creating Operations for Relationships Using the Graphics Function

13. Call up the order for whose relationships you want to create operations in [change mode](#) [\[Page 1095\]](#).
14. Call up the operation overview of the order.
15. Choose *Goto* → *Graphic* → *Network structure*.
A screen appears which displays all the operations you have previously entered for the order.
16. In the graphics function, choose *Insert operation*.
A schema for an operation appears in the navigation area.
17. Click on this schema.
The mouse pointer is visible in the display area.
18. Position the cursor at the point where the new operation should be and click on it.
The schema for the new operation appears here.
19. Select the new operation. Use *Modify* to call up the processing screens for the operation and enter all the relevant operation data.
20. Return to the graphic.
21. You can now link the newly entered operation with other operations by using relationships.

Performing a Loop Analysis

1. Call up the [order in change mode \[Page 1095\]](#).
2. Call up the operation overview of the order.
3. Call up the relationships graphic by choosing *Goto → Graphics → Network structure*.

The system displays the existing relationships in the graphic.

4. To start the loop analysis, choose *Order → Functions → Loop analysis → Perform*.

The system checks all the relationships to see whether they form a loop. If it finds a loop, it displays all the relationships involved in the loop in a different color.

5. Select the relationships causing the loop and choose *Delete*.



If you want to delete the color highlight of the loop, choose *Order → Functions → Loop analysis → Reset*.

6. Leave the graphic and save the change to the order.

Worklist for Planned Maintenance

Worklist for Planned Maintenance

Purpose

You can generate a worklist for planned maintenance from maintenance planning.

You can combine several notifications that were generated from maintenance plans and for which joint processing makes sense in a maintenance or service order using the list editing function for notifications ("Worklist"). For example, you can combine all notifications for a certain building or all notifications for a certain work center.



A specialist visits your company every three weeks and requires an analysis kit for some maintenance activities.

Previously, the specialist received several orders in which the activities to be performed were described. The result of this was that business requirements analysis and completion confirmations were very awkward and time-consuming (for example, through a high number of printouts and completion confirmations for individual orders).

You can combine all relevant notifications for the specialist in **one** order using the worklist. You can select the notifications according to work center, location, room or equipment, for example. The specialist receives only one order and less paper is wasted. This means that the processing and confirmation of the activities performed are greatly simplified.

Prerequisites

The following prerequisites must be fulfilled for this process:

- You have specified a [maintenance plan category \[Page 545\]](#) with a [maintenance call object \[Page 547\]](#) "maintenance or service notification" for the maintenance plan.
- You have assigned a task list to the maintenance item in the maintenance plan.
- In order to combine the notifications in an order, you must call up the notification worklist in Change mode.

Process Flow

9. You create separate maintenance plans with the maintenance call object "notification" for all planned activities in your company. To do this, you enter a task list in the maintenance item for the maintenance plan in which the activities are precisely described.
10. Using maintenance plan scheduling, the system generates a notification for each maintenance item of a maintenance plan when maintenance calls are due.
11. If you call up the list editing function for notifications in Change mode, you can display the notifications thus generated and select those that should be combined in an order ("worklist").
12. When you create an order from list editing, the selected notifications are combined as follows:

Worklist for Planned Maintenance

- The individual notifications are displayed in the object list for the order. You can identify the maintenance plan from which a notification has originated.
 - If you have specified a task list in the maintenance item of a maintenance plan, the system copies the operations of the task list to the order. The sequence of the operations corresponds to the sequence of notifications in the object list.
9. You can print out and process the order with all operations.
 10. You post a completion confirmation for the completed activities to the order.



The system will only copy the operations from the task list, if you combine the notifications together in an order using the worklist. The operations will not be copied if you manually include the notifications in an order.

Order Hierarchy

Order Hierarchy

Definition

Multi-level structure of orders and sub-orders which is used to:

- Structure extensive orders
- Combine several orders

Use

There are cases where it is not sufficient to divide an order into operations and sub-operations. These often involve very extensive orders, for which several people are responsible for different areas of planning.

In such cases, you have the option of creating sub-operations for an order, which functions as a superior order and to which a planner group can be assigned. In this way, you can build up an order hierarchy.

For more information, see [Creating and Displaying a Sub-Operation \[Page 1188\]](#).

Structure

Order hierarchies consist of the following elements:

- The leading order
The planner for the leading order bears the responsibility for executing all the lower-level orders
- One or more higher-level orders which are subordinated to the leading order
- Sub-orders which are assigned to superior orders

Integration

The following rules apply for sub-orders:

- You can create sub-orders for other sub-orders.
- The leading orders provide proposals for the basic dates for the lower-level orders.
- You can organize the dates of orders and sub-orders using [relationships \[Page 1172\]](#) in such a way that they need to be processed in a particular order.
- You can only technically complete a superior order when all the sub-orders for that order have been technically completed.

Example

The production plant XPZ has broken down. The order "Repair plant XPZ" is created to plan its repair.

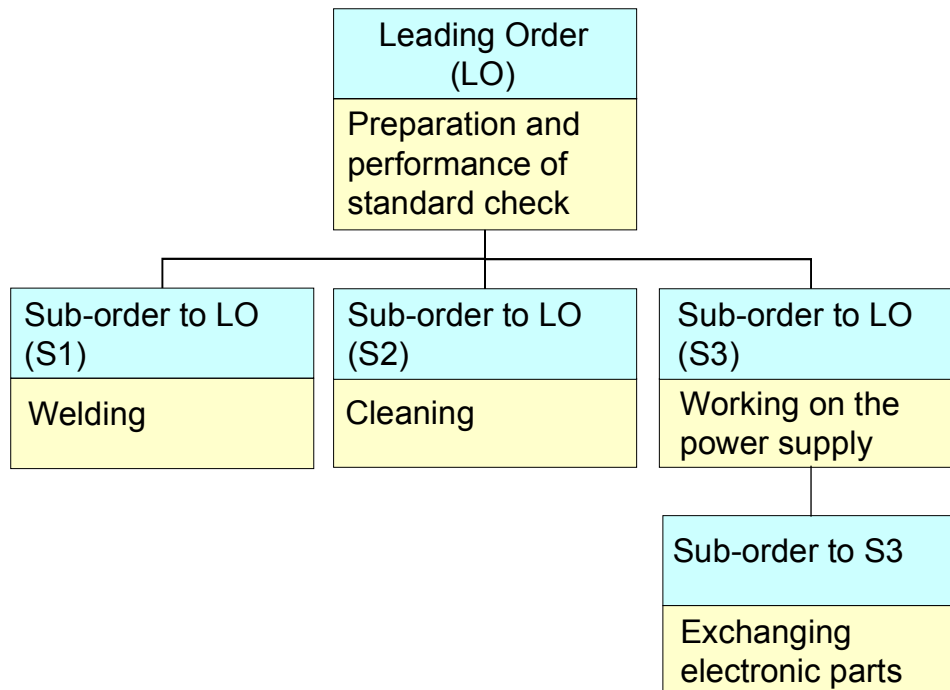
The following repair work must be performed at the plant:

- Preparing and performing an industry-standard check
- Welding

Order Hierarchy

- Working on the power supply
- Exchanging electronic components

Since this work must be processed in detail by the responsible planners, the planner responsible for the superior order creates sub-orders for the individual jobs. The planner responsible for a particular job is specified in the relevant order. This enables you to plan the tasks in the orders assigned to you at the required level of detail.



Creating and Displaying a Sub-Order

Creating and Displaying a Sub-Order

Creating Sub-Orders

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing*.
2. From the *Maintenance Processing* screen, choose *Orders* → *Create (special)* → *Create sub-order*.

You reach the initial screen for creating a sub-order.

3. Make all the necessary and required entries and enter the number of the order for which you want to create the sub-order.
4. Choose *Continue*.

You reach the header data screen for the sub-order. The system has entered the superior order in the order header and copied the reference object. You can change this, if necessary.

5. To plan the sub-order, proceed in the same way as when planning a normal order, as described in [Planning of an Order \[Page 1097\]](#).
6. Save the sub-order.

Displaying Sub-Orders in the Order

1. Call up the header data screen of the order, for which you want to display the sub-orders.
2. Choose *Extras* → *Sub-orders* → *Overview*.

If you have maintained sub-orders for the order, these are then displayed in a multi-level list.

Displaying Sub-Orders in the Multi-Level Order List

If you want to display the sub-orders for a specific number of orders, proceed as follows:

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Orders* → *List editing* → *Display (multi-level)*.

A selection screen appears.

2. Complete the selection screen according to your requirements.
3. In the section *Filter*, select the fields you require and the field *Sub-orders*.
4. Start the selection using *Program* → *Execute*.

The system creates a multi-level order list that corresponds to your selection criteria. Here you also see the sub-orders assigned to the respective orders.

Use of Order Assignments

Use

You can assign an order to the following points:

- Profit center
- Revision
- Project
- Investment program
- Funds Management
- Real estate object
- Joint venture

Features

Assignment to a Revision

Revisions are often planned in a company for certain periods during the year or during production. During these periods, certain technical system parts or even the entire company may shut down, allowing a large amount of maintenance work to be performed.

When planning orders, you determine (amongst other things) that certain activities could be performed most conveniently during the next revision. You assign these orders to one of the revisions, which are managed in the system.

Assignment to a Project

The order can be assigned to a WBS (work breakdown structure) element or a network operation from the project. In the case of assignment to a project, the project dates represent the definitive basic dates for the order.

If you assign the order to both a WBS element and a network, the system will always copy the dates for the network operation; they have priority over the dates in the WBS element.

Assignment to an Investment Program

You use this constellation primarily to control the maintenance budget centrally, independently of investments. The budget for an investment program can be distributed down to order level. Each order is then considered individually.

You assign orders, in which investment measures are described and planned in detail, to investment programs. You can therefore manage the investment budget for all measures. Refer to [Investment Management \(Overview\) \[Ext.\]](#).

Assignment to Funds Management

You can assign orders to terms from Funds Management. The account assignment terms of the order are thereby linked to those of Funds Management. Refer to [Funds Management \[Ext.\]](#).

Use of Order Assignments**Assignment to a Real Estate Object**

You can assign orders to real estate objects to clarify exactly the costs for these objects with regard to Plant Maintenance. Refer to [IS-RE - Real Estate \[Ext.\]](#).

Assignment to a Joint Venture

In order to divide risks, costs and revenues for a joint venture, also with reference to Plant Maintenance, you can assign orders to a joint venture.



The ownership of an oil rig is shared by three different companies. One of these companies is responsible for maintenance of the oil rig. The costs of maintenance work are consolidated, that is, distributed to all three companies according to their share in ownership.

Assignment to Profit Centers

Use

You can use profit centers to define particular areas of responsibility within your organization, for which an individual operating result is determined.

Individual profit centers within a company could be, for example:

- Plant Maintenance
- Production
- Administration

Activities

In the order, you can enter the profit center on the *Detail data* tab page.

The entry in this field is proposed by the system from the cost center for the main work center. However, you can overwrite this.

If you change the main work center in the order, the system does **not** automatically change the profit center on the header detail data screen. You must make any change required manually.

When you release the order, the system uses the cost center to check whether the main work center entered is assigned to a different profit center from the one entered. If this is the case, the system makes an entry in the release log.

Until the order has incurred actual costs, you can change the profit center in the order at any time.

Assigning an Order to a Revision

Assigning an Order to a Revision

Assigning an Individual Order to a Revision

1. Select the header data screen of the order.
2. Enter the revision in the section *Dates*.

The basic dates of the order are adjusted to those of the revision, and the system reschedules the order.



If you want to **update** the revision dates for an order, call up the list editing function. Select the order and choose *Order → Revision → Update dates*.

The system reschedules the order.

Assigning Several Orders to a Revision Simultaneously

1. Create an order list using *List editing*.
2. Select the required orders in the list.
3. Choose *Order → Revision → Assign revision*.

The system displays a dialog box, in which you enter specifications for the revision to which you want to assign the selected orders.

4. Choose *Continue*.

The selected orders are now assigned to the revision entered. The system adjusts the basic dates of the orders to those of the revision and reschedules the orders.

5. If you want to **update** the revision dates for several selected orders, choose *Order → Revision → Update dates*.

The system reschedules the orders.

Assigning an Order to a Project

1. Select the order in change mode.
2. Choose the *Detail data* tab page.
3. Enter the WBS element or the network operation to which you want to assign the order, and choose *Continue*.

The system displays a dialog box.

4. How you proceed now depends on your requirements:
 - If you have only entered a **WBS element**, you can decide whether or not you want to copy the WBS element dates for the order.
 - If you **copy** the project dates, the system changes the order basic dates in the section *Dates* into the project basic dates.
 - If you **do not** copy the project dates, the original order dates remain decisive for scheduling.
 - If you have entered a **network operation**, the system automatically copies the dates, and you can also copy the WBS element, profit center, business area and priority from the network operation into the order.



In the Project System, you can update changed dates in the order using *Copy project dates*. This function is also available in the selection function for orders (list editing), so that you can update dates from several orders in one operation.

5. When you want to schedule the order, return to the header data screen and choose *Order → Functions → Dates → Schedule*.
6. If the system is unable to schedule the order, you can display the reason in a log. To do this, choose *Goto → Logs → Scheduling*.
7. Save the order.

For more information about operation dates, see [Displaying Dates \[Page 1149\]](#).

Assigning an Order to an Investment Program Position

Assigning an Order to an Investment Program Position

Use

You can assign maintenance orders, in which investment measures are described and planned in detail, to investment programs. You can therefore manage the investment budget for all measures.

Primarily, you use this budget planning across all areas to control the maintenance budget centrally, independent of investments. The budget for an investment program can be distributed down to order level. Each order is then considered individually.

Prerequisites

In Customizing for the order type, the option of assigning an order to an investment program must have been configured.

Procedure

1. On the header data screen, choose *Goto → Assignments → Investment management*.
The *Assignment to Investment Program Position* screen appears.
2. Enter the name of the investment program, its position identification number and the fiscal year, in which the investment program was approved. Choose *Continue*.
3. To display more entries for the investment program, choose *Position* on the *Assignment to Investment Program* screen.

See also:

[Investment Management \(Overview\) \[Ext.\]](#)

Assigning an Order to Funds Management

Use

You can assign orders to terms from Funds Management. The account assignment terms of the order are thereby linked with those of Funds Management.

Prerequisites

In Customizing for the FM area, the option of assigning an order to Funds Management must have been configured.

Procedure

1. On the header data screen, choose *Goto → Assignments → Funds management*.
The *Object Assignment to Funds Management* screen appears.
2. Enter data as required and choose *Copy*.

See also:

[Funds Management \[Ext.\]](#)

[Assignment of Funds Center to Order \[Ext.\]](#)

Assigning an Order to a Real Estate Object

Assigning an Order to a Real Estate Object

Use

You can assign maintenance orders to real estate objects to clarify the exact costs for these objects for Plant Maintenance.

Prerequisites

In Customizing for the company code, the option of assigning an order to a real estate object must have been configured.

Procedure

1. On the header data screen, choose *Goto → Assignments → Real estate object*.
The *Assign Real Estate Object* screen appears.
2. Enter data as required and choose *Copy*.

See also:

[IS-RE - Real Estate \[Ext.\]](#)

Assigning an Order to a Joint Venture

Use

In order to divide risks, costs and revenues for a joint venture, also with reference to Plant Maintenance, you can assign maintenance orders to a joint venture.

Prerequisites

In Customizing for the company code, the option of assigning an order to a joint venture must have been configured.

Procedure

1. On the header data screen, choose *Goto → Assignments → Joint venture*.
2. Enter data as required and choose *Continue*.

Execution Factor

Execution Factor

Definition

Number of times the execution of an operation or sub-operation is repeated in order processing.

Use

You can use the execution factor to influence specific operation data for the execution of the operation. You use this factor primarily when using task lists during order planning. It can be used to enter how often an operation should be executed for order processing.



Winter tires are to be fitted to three vehicles of the same type.

To perform the work, you create an order for the three vehicles, which are managed in the system as pieces of equipment. For this, you use a task list which was created for the reference object. Four tires are assigned to operation 0030 with the text "Put on winter tires" and the work duration is 20 minutes.

You assign execution factor 3 to operation 0030.

As a result, the system increases the number of tires required to 12 and the planned work duration to 60 minutes.

Integration

The execution factor influences the following operation data:

- Work
- Duration
- Material quantity
- Operation quantity

The entries in these fields refer to the current execution factor for the operation in the order. The system multiplies the entries for work, duration, material quantity and operation quantity each time with the specified execution factor.

In the standard system, the execution factor 1 is proposed.

The execution factor for a sub-operation is defined by the execution factor for the accompanying operation.



For operations in orders, the system always sets the default value 1 initially. However, you can change this value.

As a rule, the execution factor valid for operations in task lists is 1. If a different execution factor was entered in the task list, this becomes the default value used in order processing.

If the indicator *Fixed lot quantity* is set (in the component item under *General data*), the execution factor of the components is not taken into account for the component quantity.

Execution Factor

If the indicator *Fixed op.quantity* is set (on the external processing screen of the operation), the execution factor is not taken into account.

Changing an Execution Factor

Changing an Execution Factor

1. Select the order you require in create or change mode.
2. Select the operation overview.
3. Select the operation you require and choose the *Execution factor*.

The system displays a dialog box.

4. Enter the required execution factor and choose *Continue*.
5. Check the data converted by the system for work and duration. In addition, check the material quantities for the operation in the component overview of the operation.

Make any necessary changes.

6. Save the order.

Use of User Data

Use

It may not be possible to represent certain data that is important to your company in the predefined fields in the SAP standard system. In this case, you can use the fields in the *User Enhancements* screen for each operation and sub-operation.

Features

The *User Enhancements* screen contains up to twelve fields for entering data. You assign a meaning to each of the fields using a **key word ID**. The key word ID entries are maintained by your system administration in Customizing.

Two customer exits are also available for the operation user data:

- You can use customer exit IWO10015 to request possible entries in a user data field.
- You can use customer exit IWO10016 to perform internal checks for the user data fields.

For more information, choose *Tools* → *ABAP Workbench* → *Utilities* → *Enhancements* → *Definition* from the initial SAP menu. Enter the name of the customer exit, select *Documentation*, and choose *Display*.

Entering User Data

Entering User Data

1. Select the order in change mode. Call up the operation overview.
2. Select the operation for which you want to enter user data.
3. Call up one of the detail views: *General* (general data), *Internal* (internal processing) or *External* (external processing).
4. Choose the *User Enhancements* tab page.
The user data screen appears.
5. Enter the field key valid for you and choose *Enter*.
6. The system displays the field labels valid for the field key selected.
7. Make the required entries.
8. Save the order.

Budget Management

Use

The object in budget management is the budget, that is, the approved cost ceiling which is planned for an order. The budget is distinguished from the estimated costs for project cost planning by its liability.



Even in order hierarchies, the budget is only valid for each individual order.

The method of budget allocation, budget updating and budget availability check for orders corresponds to that for projects, with the distinction that projects involve objects structured hierarchically.

For more information about budget management, see [PS - Project System \[Ext.\]](#).

Features

Budget Allocation

Whereas the project costs must only be estimated as precisely as possible in the planning phase, the funds are presented in the form of a budget in the approval phase.

Budget Update

However, unforeseen events, further tasks required, increases in external processing costs and other factors can also necessitate corrections being made to a budget. This correction is known as a budget update.

Updating can take the following forms:

- Supplement
- Return

The following budget types exist:

- **Original budget**

The original budget is the budget that was originally allocated, the one which has not been changed by correction measures.

- **Current budget**

The current budget is derived from the original budget and the budget updates made.

The system makes the following calculation:

	Original budget
+	Supplements
-	Returns
=	Current budget

Budget Management

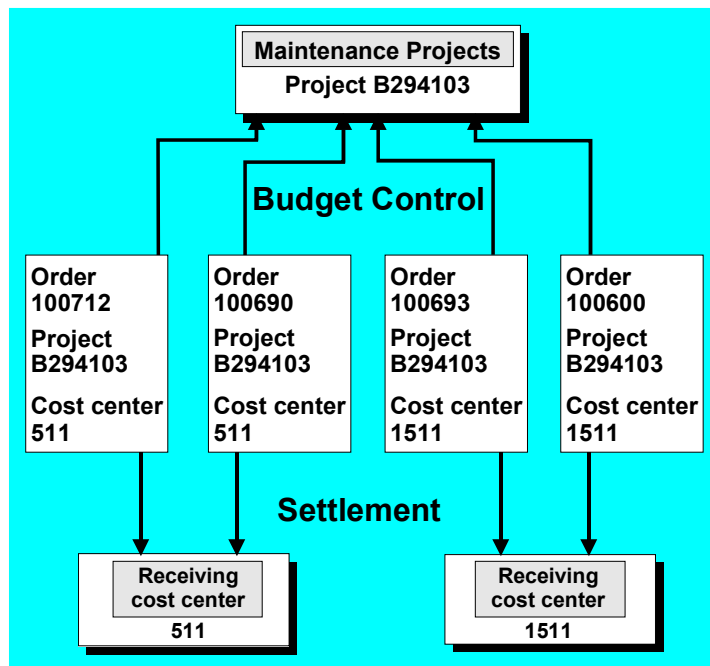
Budget Availability Check

With regard to budget availability checks for an order, you must choose between the following options:

- You assign a budget directly to the order.
- You assign a project, which can be used to control the budget, to the order.

For the purposes of funds management, you have the option of using a project as a budget object in parallel to the settlement of maintenance costs to a target account assignment (for example, a cost center). The link between Plant Maintenance and Project Management is established through the maintenance order: The planned value of the order is used in the budget control of the project management. However, the order is settled to the target account assignment.

This process is illustrated in the diagram below:



Activities

You choose the functions for budget management of an order using *Logistics → Plant maintenance → Maintenance processing → Orders → Order budget → <Desired function>*.

Use of Production Resources/Tools

Use

The utilities, which you need to execute an operation, are saved in the system as [production resources/tools \[Page 464\]](#) (PRTs). Examples of production resources and tools include:

- Tools for repairing an object
- Measurement and calibration devices
- NC programs
- Drawings

You can represent PRTs using one of the following:

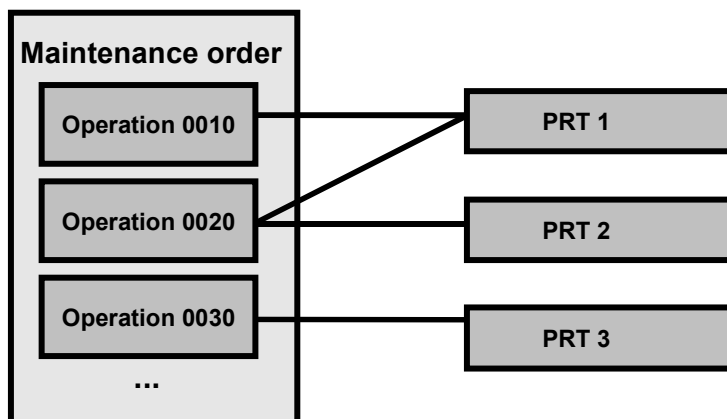
- Material master record
- Document master record
- Master record for other PRTs
- Equipment master record

However, you can also manage a production resource/tool in the system without a master record.

You assign PRTs to operations.

However, you cannot assign PRTs to sub-operations.

Assignment of PRTs to Operations



Integration

You can use [status management for PRTs \[Page 1211\]](#) to find out which business operations are allowed for a PRT, to determine, for example, whether or not you are allowed to perform an availability check.

Use of Production Resources/Tools**Features**

The system provides a function, with which you can check whether the production resources/tools that you require for the order are available. This check function is similar to the one for materials.

You can also display a log that records the availability of materials and utilities.

See also:

[Maintenance Task Lists \[Page 378\]](#)

[Technical Objects \(Structuring of Technical Systems\) \[Page 72\]](#)

Assigning PRTs to an Operation

You can assign different PRTs (production resources/tools) to the same operation, and also assign the same PRT to different operations.

1. Call up the required order in create or change mode.
2. Enter all the required data and choose the operation overview.
3. Select the operations to which you want to assign PRTs.
4. Choose *PRT* (production resource/tool).

The system processes the operations you have selected one after another. The following cases can arise:

- **Still no** PRTs have yet been assigned to the operation:
The *Change Order: PRT New Entries* dialog box appears.
If you want to add another type of PRT, choose *Equipment*, *Others* or *Document*.
 - PRTs have **already** been assigned to the operation:
The *Change Order: PRT List for Operation* dialog box appears.
If you want to assign additional PRTs, choose *Edit* → *New entries* and then choose one of the following options: *Material*, *Equipment*, *Others* or *Document*. The *PRT New Entries* screen appears.
5. Make all the necessary entries in the dialog box *PRT New Entries* and choose *Copy*.
The system writes the PRT to the *PRT List for Operation* and the dialog box *PRT New Entries* reappears ready for input. You can now assign another type of PRT.
 6. After you have entered the last PRT which you want to assign in the dialog box, choose *Continue*.
The *PRT List for Operation* screen appears with all of the production resources/tools which you have assigned.
 7. If you have selected additional operations, to which you want to assign PRTs, then choose *Operation* → *Next operation*.
 8. After you have processed all the required operations, return to the operation overview and save the maintenance order.

Deleting PRTs from an Operation

Deleting PRTs from an Operation

1. From the *Maintenance Processing* screen, call up the required order using *Orders → Change* or *List editing*.
2. Select the operation overview of the order.
3. In the operation overview, select those operations to which PRTs are assigned which you want to delete.
4. Choose *PRT* (production resource/tool).

The system processes the operations you have selected one after another.

The *PRT List for Operation* screen appears for the first operation selected.

5. Select the PRTs you want to delete and choose *Edit → Delete*. The system now performs one of the following activities:
 - If the order **has not yet been released**, the system deletes the selected PRTs from the list.
 - If the order **has already been released**, the deleted PRT remains in the list. However, it cannot be processed further.
6. After you have processed all the required operations, return to the operation overview.
7. Save the order.

Scheduling PRTs

Prerequisites

If you are using PRTs (production resources/tools) for an order, you often do not need them for the entire duration of the operation. For this reason, you can schedule single PRTs individually within the dates defined for the operation.

Procedure

1. Select the required order, call up the operation overview, and select the required operations.
2. Choose *PRT*.

The *PRT List for Operation* screen appears for the first operation selected.
3. Select the required PRTs on the screen *PRT List for Operation* and call up scheduling using *ProdRes/Tools → Dates*.

The system displays the sections *Scheduling data* and *Dates for PRT usage* for the first PRT selected.
4. Make all the necessary entries in the section *Scheduling specifications*. Then press **ENTER**.

The system places the calculated scheduling dates in the section *Dates for PRT usage*.
5. Check the dates and make any changes required to the scheduling specifications.
6. Call up any other PRTs selected using *ProdRes/Tools → Others*.
7. Return to the *PRT List for Operation* screen. Process the PRTs for additional operations, as required.
8. Return to the operation overview and save the order.

Using Quantity Management for PRTs

Using Quantity Management for PRTs

Prerequisites

If you use PRTs (production resources/tools) for an order, there may be some cases where you have to:

- Specify the quantity of PRTs of one category



You need two hammer drills to repair a building.

- Specify the usage value of the PRTs

The usage value helps you to determine the degree of wear and tear of a PRT during use. Entering a usage value is important if, for example, the PRT will be worn out after having been used a particular number of times and will need to be refurbished.



You need the two hammer drills for a total of 200 holes.

You can also manage PRTs using forms.

Procedure

1. Select the required order, call up the operation overview, and select the required operations.
2. Choose *PRT*.
The *PRT List for Operation* screen appears for the first operation selected.
3. Select the required PRTs and call up the quantity management function using *ProdRes/Tools* → *Quantities*.
The *PRT Quantities* screen appears for the first PRT selected.
4. Make all the necessary entries. Call up any other PRTs selected using *ProdRes/Tools* → *Continue*.
5. Return to the *PRT List for Operation* screen. Process the PRTs for additional operations, as required.
6. Return to the operation overview and save the order.

Using Status Management for PRTs

1. Select the required order, call up the operation overview, and select the required operations.
2. Choose *Operation → Overviews → PRT*.
The *PRT List for Operation* screen appears for the first operation selected.
3. Select the required PRTs on the *PRT List for Operation* screen and call up status management using *ProdRes/Tools → Status*.
The *Change Status* screen appears, containing a list of the active system statuses.
4. Display the business operations allowed by choosing *Details → Operations allowed*.
5. Return to the *Change Status* screen and display the status for other PRTs selected using *Edit → Next object*.
6. Return to the *PRT List for Operation* screen and display the status for PRTs in other operations if required.

Capacity Planning

Capacity Planning

[Capacity Planning for Customer Service \(CS-CP\) \[Page 1439\]](#)

[Capacity Planning for Plant Maintenance \(PM-WOC-CP\) \[Page 1466\]](#)

Partner

Definition

Partners (business partners) are internal and/or external organizational units. For example, internal partners can be logistics and sales departments that perform services. External partners can be customers as service recipients and vendors as supporting service providers. A partner can be a natural or a legal entity. You can use partners in CS and PM processing.

Structure

Partner Type

The following partner types are delivered with the Standard System:

- Customer
- Contact person
- Vendor
- User
- Personnel number
- Organizational unit
- Position

Partner Function

You define partner functions in Customizing for Plant Maintenance and Customer Service. They are freely definable and always refer to a partner type. Standard functions exist (for example, goods recipient) and you can also define your own functions.

Partner Determination Procedure

The partner determination procedure is a grouping of partner functions. It specifies which partner functions are permitted or must always be specified for a particular business transaction (for example, for the processing of a service or maintenance order). In Customizing you define the partner determination procedure and assign partner functions to it. If functions are assigned to the partner determination procedure, you can assign the partner determination procedure to an object (for example, to a notification type).

Integration

You can assign partners to the following objects:

- [Functional location \[Page 375\]](#) and [equipment \[Page 375\]](#)

If you have defined in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Copy Partner Functions to Master and Movement Data*, which partners you want to copy, the system copies the respective partner functions when creating the notification with a technical object. For example, a particular technician, who performs a service to a piece of equipment, is assigned to a

Partner

customer. This technician can be specified as the partner in the equipment master record. In this case, the system copies the partner data into the notification.

- [Notification \[Page 885\]](#)
- [Order \[Page 377\]](#)

For more information on partner data in serial numbers see *Management of Serial Numbers* in [Partner Data \[Ext.\]](#).



The system offers you different search helps depending on the partner function. In the Standard System up to now, you could select organizational units using a search term. If the partner function of category *Employee* has been maintained in Customizing, you can search for organizational units using tasks as of Release 4.6C. The system displays a hit list of the organizational units which fulfill this task.

Customizing for Partners

Purpose

You want to work with partners in your company.

Prerequisites

You can make the following settings in Customizing:

Function	Menu Path	What You Should Know
General settings		
You define the partner functions and the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Partner Determination Procedure and Partner Function</i>	If you want to work with partners, first define the partner functions, then define the partner determination procedure, and finally, assign the partner functions to the partner determination procedure.
You assign the partner functions to the partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Movement Data</i>	
Notification		
The <i>Partner</i> tab should be visible in the notification	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Notification Types → Set Screen Templates for the Notification Type</i>	

Customizing for Partners

Assign notification type to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Creation → Partners → Define Partner Determination Procedure and Partner Function</i>	
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Notifications → Notification Processing → List Editing → Define Field Selection for Multi-Level List Displays of Notifications</i>	
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the notification. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.
Order		
Define partner determination procedure and assign order types to partner determination procedure	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Partner → Define Partner Determination Procedure and Partner Function</i>	The partner overview screen can be seen in the order by choosing the <i>Partner</i> tab. By choosing the <i>Overview</i> button, you go to a more detailed overview screen where you are able to perform further settings using the menu.
You want to set the fields for the additional partner address	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partners → Define Field Selection for List Display of Address Data</i>	There is an additional partner address per partner function in the order. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed.

Customizing for Partners

You define a transaction variant for the transaction in which an additional partner address is to be entered. Afterwards, you assign the transaction variant to the respective partner function	<i>General Settings → Field Display Characteristics → Configure Application Transaction Fields</i>	You can create a transaction variant per partner function, which defines the field selection.
You want to process the partner in the order header.		Partner Processing in the Order Header [Page 373]
Functional Locations		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Field Selection for Multi-Level List Displays of Functional Locations</i>	
The <i>Partner</i> tab should be visible in the functional location	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign functional location category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Define Category of Functional Location</i>	
Equipment		
Define field selection for partner data fields	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Define Field Selection for Multi-Level List Displays of Equipment.</i>	

Customizing for Partners

The <i>Partner</i> tab should be visible in the equipment	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Set View Profiles for Technical Objects</i>	
Assign equipment category to partner determination procedure	<i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Assign Partner Determination Procedure to Equipment Category</i>	

For more information, refer to the documentation in Customizing for Plant Maintenance and Customer Service.

Partner Transfer

Use

You use this function to determine which partner the system copies from an object into the notification, order, and serial number. The system also copies the mandatory partner if one exists.

Features

Data source	Data destination
Master record of a functional location or of a piece of equipment	Notification when creating a notification for the reference object
Master record of a functional location or of a piece of equipment	Order when creating an order for the reference object
Notification	Order when creating an order for the notification
Delivery note	Serial number when posting goods issues



If you change the reference for notifications or orders at a later date, it is possible that the partner data will no longer correspond. You can then decide whether you want to copy the partner data of the new reference object.

Entering Partner Data

Entering Partner Data

Use

You can enter the partner and their functions for the order, for example, vendors, customers or contact persons that are important for this order.

Prerequisites

You must have defined a partner determination procedure in your system using the Customizing functions.

Procedure

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Choose the *Partner* tab page.

The partner overview for the order appears. If partner data already exists for this order (for example, because a partner is assigned to the equipment specified), the function, description, number and name of the partner are displayed.

3. Check the partner information already entered if necessary.

To see additional data for one of the partners displayed, select the partner and choose *Partner details* or *Display partner address*.

4. To change the partner data, you have the following options:

- Enter additional partner data.
- To delete a partner from the order, choose *Remove assignment for partner*.
- To add or change the address of a partner, choose *Change partner address*.

A dialog box appears in which data from the master record is proposed. The data can be overwritten; the changes are not copied into the master record. The partner address entered only applies for this order. Choose *Copy*.

- To delete an address, choose *Delete partner address*.

If you delete the partner itself, the partner address is also deleted.

If you enter a one-time customer as a partner, the address is automatically requested. You can only delete the address of a one-time customer if you also delete the accompanying partner function.

5. Save the order.

Control of an Order

Use

You use the functions for controlling an order after you have completed the planning phase and before you begin the execution phase. This phase is also described as “detailed planning”.

Features

[Material availability check \[Page 1222\]](#)

Capacity leveling

Scheduling using the planning board

[Order release \[Page 1228\]](#)

[Printing and faxing of shop papers \[Page 1235\]](#)

Material Availability Check

Material Availability Check

Use

When you plan materials for executing order operations, you can display whether the materials planned for the operation are available on time and in sufficient quantity.

Prerequisites

For Stock Material:

The system can only determine and display the necessary information once an availability check has been performed for the required material. You can either perform this check before the order is released (refer to [Checking Stock Material Availability \[Page 1225\]](#)), or the system can do it automatically when the order is released.

For Non-Stock Material:

The system can only determine and display the necessary information if a purchase requisition exists for the required material. Therefore, you must have saved or released the order - depending on your settings in the Customizing for Plant Maintenance - since only then does the system create a purchase requisition. Refer to [Material Requirements Planning \[Page 1115\]](#).

Features

In a list, you see the materials planned for the selected order and its sub-orders.

When you call up this list, the system compares the following data for each material planned:

- Realistic delivery date from the current procurement step (purchase requisition or purchase order)
- Earliest planned start date for the operation
- Latest planned start date for the operation

In the list, you can, for example, find answers to the following questions:

- Will the material be available for the earliest operation start date?
- Can the material be delivered before the latest operation start date?
- Why can the material no longer be delivered on time?
- Does the quantity required correspond to the quantity confirmed?

The traffic light display is used to clarify the current procurement situation:

Traffic Light Color	Meaning
---------------------	---------

Material Availability Check

Green	<p>The non-stock material has been delivered.</p> <p>or</p> <p>The non-stock material was available for the earliest operation date.</p> <p>or</p> <p>All planned dates can be kept.</p> <p>or</p> <p>The quantity of stock material required corresponds to the quantity confirmed.</p>
Yellow	<p>The material can no longer be delivered for the earliest operation start date. However, it will be available before the latest operation start date.</p> <p>or</p> <p>The material was available for the latest operation.</p>
Red	<p>The purchase requisition was not released within the period stipulated. Since the planned release date has expired, the planned dates can no longer be kept.</p> <p>or</p> <p>The purchase order was not released within the period stipulated. Since the planned release date has expired, the planned dates can no longer be kept.</p> <p>or</p> <p>The material will not be available for the latest operation start date because the planned delivery date is after the latest operation start.</p> <p>or</p> <p>The planned delivery date in the purchase requisition has expired. There is no goods receipt.</p> <p>or</p> <p>The planned delivery date in the purchase order has expired. There is no goods receipt.</p> <p>or</p> <p>The quantity required does not correspond to the quantity confirmed.</p>

You can display the particular meaning of the traffic light color in the detailed display for each line.

In addition, symbols provide the following information:

Symbol	Meaning
⊖	The goods receipt has not yet been made in full, or at all.
⊕	The goods receipt has been made. The quantity of goods received corresponds to the quantity confirmed.

Material Availability Check

Activities

Select the list from the order header with *Order → Functions → Availability → Availability list*.

Checking Stock Material Availability

1. Select the order you require in change mode.
2. From the header data screen, choose *Order → Functions → Availability → Check stock material*.

Depending on your system settings and the data entered in the material master records, the system performs an availability check for all the materials that have been assigned to the operations in the maintenance order. It displays the results in an online message.

If there is not sufficient material available, you can display the error log containing detailed information on the results of the check using *Goto → Logs → Material availability*.



When you release a maintenance order, the system performs an availability check for the planned materials depending on your Customizing settings. If this check shows that certain planned materials are not available in sufficient quantity, then it depends on your system settings whether or not you can still release the maintenance order.

See also:

[Material Planning \[Page 1112\]](#)

[Planning Stock Material \[Page 1123\]](#)

[Displaying and Deleting Material \[Page 1128\]](#)

Availability Check for PRTs

Availability Check for PRTs

Use

If you manage the PRTs used in your company at a detailed level, you can determine when assigning a PRT to an operation whether or not it is available for that operation at the time required.

Prerequisites

The checks for production resources/tools of type "Equipment" can only be made if your system administration has activated one of the following options in Customizing:

- Equipment status check
- Equipment status **and** resource pool check

To check the resource pool, the following prerequisites must also be met for the equipment master record:

- A performance-based counter, from which readings are regularly taken, must be assigned to the equipment.
- A performance-based maintenance plan must have been created for the counter.

Features

You can check the availability of PRTs for an individual operation or for an entire order.

Refer to [Checking Availability of PRTs \[Page 1227\]](#).

Activities

Depending on your Customizing settings, the system automatically checks the availability of the scheduled PRTs when the order is released.

For production resources/tools of type "**Material**", the system checks whether:

- The equipment status allows the PRT to be scheduled
- Scheduling is advisable based on the stock situation

For production resources/tools of type "**Equipment**", the system checks whether:

- The equipment status allows for scheduling in the order
- The existing resource pool is sufficient for planning

For production resources/tools, the resource pool means the difference between the actual counter reading and the next planned counter reading.

If the check reveals that certain scheduled PRTs are not available, your system settings determine whether or not you can still release the order.

Checking Availability of PRTs



If some of the PRTs are not available for either an operation or an order, you can display the error log containing detailed data on the result of the check with *Goto → Logs → PRT availability*.

Checking the PRT Availability for an Individual Operation

1. Select the required order, call up the operation overview, and select the required operations.
2. Choose *PRT*.

The *PRT List for Operation* screen appears for the first operation selected.

3. Select the PRTs required and control their availability using *ProdRes/Tools → Functions → PRT availability*.

The system checks whether the selected PRTs are available at the time required and informs you in an online message of the result of the check.

4. To check the availability of PRTs for the next operation selected, choose *Next operation*, and proceed as described above.

Checking PRT Availability for an Entire Order

1. Select the required order.
2. Choose *Order → Functions → Availability → ProdRes/Tools*.

The system checks whether the selected PRTs, which have been assigned to the order in its operations, are available at the time required, and informs you in an online message of the result of the check.

Order Release

Order Release

Use

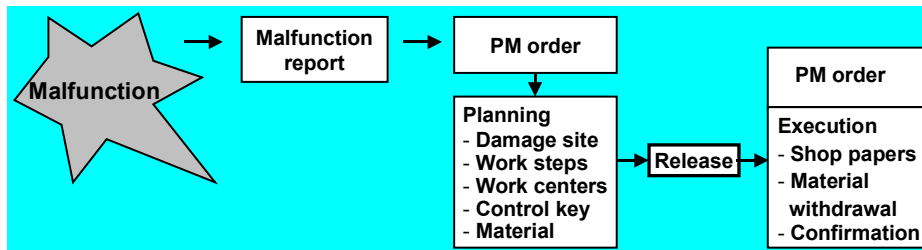
When you have finished planning with all the necessary specifications, you can [release the order](#) [Page 1230]. Only then can the employees on site start the activities described.

You also have the option of releasing orders **immediately when they are created**. This option is available for orders created automatically by the system, that is, for orders which are created:

- Using a maintenance plan (maintenance call)
- From a notification using *Maintenance notification → Functions → Order → Create* or *Maintenance notification → Functions → Order → Create for notification*

Integration

Release of the Order Within Maintenance Processing



You can only perform the following activities after you have released the order:

- Printing shop papers

Since in many companies the work steps **Release** and **Print shop papers** follow directly after one another, you can also initiate these two steps using a single system function. See [Putting an Order in Process](#) [Page 1231].
- Withdrawing material
- Posting goods receipts
- Entering time completion confirmations
- Completing a task



In many cases, the execution of the maintenance work also includes the technical completion confirmation. However, the order does **not** have to be released before the confirmation can be entered.

Prerequisites

To release these orders **immediately when they are created**, the system administration must set the indicator *Release immediately* for the required order types, using the Customizing function.

Features

When you release an order, it has the status *REL*. This status is a prerequisite for executing the dependent functions outlined above.

When you release an order, the system checks the availability of materials and production resources/tools and the necessary permits. At the latest when the order is released, the material reservations are relevant for materials planning and can be withdrawn, and the purchase requisitions generated.

The following also applies for **refurbishment orders**:

After release, you can no longer change the following entries in the refurbishment order:

- The total quantity of repairable spares to be refurbished and its unit of measure on the header data screen of the order
- All the entries in the section *Refurbishment* on the header data screen for the order
- The item for the repairable spares to be refurbished in the component list of the order

Releasing an Order

Releasing an Order

1. From the *Maintenance Processing* screen, select the order you want to release with *Orders* → *Change*.
2. From the header data screen or the operation overview, choose *Order* → *Functions* → *Release*.
3. Save the order.



If you have released an order to be performed, and subsequently enter additional operations for it, these are automatically released.

Putting an Order in Process

Use

If you want to save and release an order simultaneously and print its shop papers, you can use the function *Putting in process*.

Procedure

1. From the *Maintenance Processing* screen, select the order you want to put in process with *Orders → Change*.
2. From the header data screen or the operation overview, choose *Order → Functions → Put in process*.

The system displays a dialog box.

3. Enter whether you want to print shop papers for the order as well as releasing it. You have the option of displaying a special dialog box for the printout, in which you can check and, if necessary, change the print specifications set in the system.
4. Choose *Continue*.

Depending on the entries you made in the dialog box, the system continues in one of the ways described below:

- A dialog box for printing shop papers appears, from where you proceed as described in [Printing Shop Papers \[Page 1237\]](#).
- The system informs you that the order has been released, saved, and its shop papers printed, if required.



You can define the process flow of a function for an individual user. For more information, see [Use of Default Values for the Order \[Page 1080\]](#).

Loading Order Data from the R/3 System onto PC

Loading Order Data from the R/3 System onto PC

Prerequisites

If you work on-site with a PC and want to display and edit the data for orders which require on-site processing, you can load order data from the R/3 System into an Access™ database.

A corresponding entry must be made by the system administration in Customizing.



The R/3 System supplies the order data for downloading. The customer is responsible for providing the PC application used to process the data on-site.

Procedures

Download of Data from an Individual Order

1. In the system, call up the order whose data you want to download.
2. Choose *Order* → *Print* → *Download*.
3. Save the order.

The system loads the order data into the Access™ database on the PC. The execution of all other processing steps depends on the program on your PC.

Download of Data from a List of Orders

1. From the initial SAP menu, create a list of all the orders whose data you want to download using *Order* → *List editing*.
2. Choose *List* → *Access*™.

The system loads the list into the Access™ database on the PC. The execution of all other processing steps depends on the program on your PC.

Shop Papers

Definition

Documents which are required to process an order.

Structure

The following types of shop paper are available in the standard system:

- **Operation control ticket**

The operation control ticket provides the employee responsible in Plant Maintenance with a complete overview of the order. It also contains details of permits.

- **Job ticket**

The job ticket, which accompanies the order, provides the manual worker performing the task with a complete overview of the order.



If the Document Management System is set up in your system, you can also print graphics on the job ticket (for example, construction drawings of the technical system affected) in postscript format.

- **Staging (of material) list**

The staging list shows the warehouse clerk which materials have been scheduled for each operation in the order.

- **Material withdrawal slip**

Material withdrawal slips authorize the manual worker to issue the materials required for the order from the warehouse. A separate material withdrawal slip is printed for each material component.

- **Time ticket**

The time ticket is a means of entering work times and settling labor costs to cost centers or cost objects.

Time tickets are only printed for operations where specified by the control key. The number of time tickets specified for each manual worker involved in an order is printed out for each operation. The manual worker enters the time that he needed to perform the operation.

- **Time ticket for split records**

For this time ticket, the same conditions apply as for the normal time ticket. However, the specified number is printed for each operation split. The manual worker enters on it the time that he required to execute the split.

- **Completion confirmation ticket**

On the completion confirmation ticket, the manual workers enter the relevant confirmation data for each operation, if they themselves do not have authorization to use the system. The entries on the tickets are then entered centrally into the system.

Shop Papers

For each operation, completion confirmation tickets are issued in the planned quantity, if the control key for the operation allows the printing of completion confirmations and one of the shop papers is indicated as a completion confirmation ticket.

- **Completion confirmation ticket for split records**

The same conditions apply for this completion confirmation ticket as for the normal completion confirmation ticket. However, the specified number is printed for each operation split.

Printing and Faxing of Shop Papers

Use

You can print shop papers for an order or send them by fax. You can also print the shop papers for several orders collectively or send them by fax.

Prerequisites

You can generally only print shop papers if the control key for the operation allows this; that is, if the indicator *Print* is active for the control key.

The standard system also requires that:

- The system status *REL* is set
- The order has not been completed

To print out several shop papers collectively, you must generate an order list.

Features

Fax Function

You can print shop papers on a telefax machine. Refer to [Faxing Shop Papers \[Page 1244\]](#).

All of the shop papers that you can print, can also be faxed, provided that you have made the relevant specifications.

Printing Functions

You can print shop papers using a printer.

The following print options are available:

- Printing the shop papers for the whole order
 - Directly
 - When an order is changed
 - In conjunction with the "Putting in process" function

Refer to [Printing Shop Papers \[Page 1237\]](#).

- Printing shop papers for individual operations from an order

You can print out shop papers for particular order operations. For example, this is useful if:

- The operations in an order are scheduled for different times
- Particular work centers/maintenance groups only want to print the shop papers for the operations relevant to them
- The shop papers for an operation have been lost

Refer to [Printing Shop Papers \[Page 1237\]](#).

- Reprinting

Printing and Faxing of Shop Papers

You can reprint shop papers for an order, for example, because the original printouts have been lost or spoiled.

Refer to [Printing Shop Papers \[Page 1237\]](#).

- [Printing shop papers for several orders \[Page 1240\]](#)

You can print out shop papers for several orders together in an order list.

- [Delta printing \[Page 1241\]](#)

You can print out the shop papers for all the order operations not yet printed.

Additional Functions



You can also load orders from the R/3 System into an Access™ database. Refer to [Loading Order Data from the R/3 System onto PC \[Page 1232\]](#).

- [Displaying and archiving shop papers \[Page 1245\]](#)

You can store shop papers for an order in ArchiveLink, the optical storage medium of the R/3 System.

- [Calling up a print preview and print log \[Page 1243\]](#)

You can use the print preview to display how the printout will look before you print the shop papers.

The print log is created automatically by the system once you have printed the shop papers. You can use this to define:

- Which papers have already been printed for an order
- Who initiated the printout
- When the printout was made

Printing Shop Papers

You have the following options:

- Printing the shop papers for the whole order (directly when changing the order or when putting it "in process")
- Printing shop papers for individual operations from an order
- Reprinting

For more information about storage, see [Displaying and Archiving Shop Papers \[Page 1245\]](#).

Printing the Shop Papers for the Whole Order (Directly)

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Print*.
2. Enter the order number for the order, for which you want to print shop papers, and choose *Continue*.

You see the types of shop paper that can be printed as well as the print specifications in the *Select Shop Papers* dialog box.
3. Select the types of shop paper that you want to print.

Depending on your Customizing settings, individual papers may already have been selected by you. Check all the entries in the dialog box and change them if necessary.
4. Choose *Print/Fax*.

The system saves the order.

The shop papers for the order are now printed at the specified printer or faxed to the number you specified. The order now has the status *Printed*.

Printing the Shop Papers for the Whole Order (When Changing the Order)

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Enter the order number for the order, for which you want to print shop papers, and choose *Continue*.
3. Choose *Order → Print → Order*.

You see the types of shop paper that can be printed as well as the print specifications in the *Select Shop Papers* dialog box.
4. Select the types of shop paper that you want to print.

Depending on your Customizing settings, individual papers may already have been selected by you. Check all the entries in the dialog box and change them if necessary.
5. Choose *Print/Fax*.

The system saves the order.

The shop papers for the order are now printed at the specified printer or faxed to the number you specified. The order now has the status *Printed*.

Printing Shop Papers

Printing the Shop Papers for the Whole Order (When Putting an Order in Process)

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Enter the order number for the order, for which you want to print shop papers. This order must not have been released. Choose *Continue*.
3. Choose *Order → Functions → Put in process*.
4. The *Put Order in Process* dialog box appears, where you must choose between the following options:
 - Immediate printing of the shop papers according to the system settings: *Without dialog box*
The shop papers are printed. The order now has the status *Printed*.
 - Printing only according to selection of individual settings: *With dialog box*
Now proceed as described under *Printing the Shop Papers for the Whole Order (Directly)*.

Printing Shop Papers for Individual Operations from an Order

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
2. Enter the order number for the order, for which you want to print shop papers, and choose *Continue*.
3. Choose *Order → Print → Operation selection*.
You see all the operations for the order.
4. Select the operations for which you want to print shop papers and choose *Continue*.
You see the types of shop paper that can be printed as well as the print specifications in the *Select Shop Papers* dialog box.
6. Select the types of shop paper that you want to print.
Depending on your Customizing settings, individual papers may already have been selected by you. Check all the entries in the dialog box and change them if necessary.
7. Choose *Print/Fax*.
The system saves the order.
The shop papers for the operations selected from the order are now printed at the specified printer or faxed to the number you specified. The order now has the status *Printed*.

Reprinting Shop Papers

For reprinting shop papers, you proceed in the same way as when printing them for the first time.

If you print several copies for an order the first time, all of these copies are deemed “original”.

If you reprint shop papers, they are automatically marked with “copy” and the current number. The original is assigned number “1”.



If no shop papers appear at the appropriate device, then check whether:

Printing Shop Papers

- Your print request is in the spool
- The settings for the control key allow printing
- The print diversion is active

Printing Shop Papers for Several Orders

Printing Shop Papers for Several Orders

Prerequisites

For this procedure, you can only print out those shop papers for the orders selected which the system administration has marked as a presetting in your system using the Customizing function.

Procedure

1. Create an order list. To do this, choose *Logistics → Plant maintenance → Maintenance processing → Order → List editing → Change*.
2. In the order list created, select the orders for which you want to print shop papers. Keep the CTRL button pressed down for this.
3. Choose *Order → Print order*.

Result

- The system prints the shop papers for the selected objects according to the specifications in your system.



If no shop papers appear at the appropriate device, then check whether:

- Shop papers have been indicated as a presetting in Customizing
 - Your print request is in the spool
 - The settings for the control key allow printing
 - The print diversion is active
- The selected objects obtain the status *Printed*.



Operation Status

An operation obtains the status *Printed* from the system as soon as a shop paper, for which the indicator *Operation status* has been set in Customizing, is printed for it.

If the indicator *Operation status* has not been set in Customizing for any of the shop papers, the system can never give the operations the status *Printed*.

Order Status

An order only has the status *Partly printed* if its operations already had the status *Printed* when a new operation was added.

Delta Printing

Prerequisites

Delta printing is only intended for operations that do not yet have the status *Printed*.

You can only use delta printing if it is available in your system. Therefore, your system administration must have made the appropriate Customizing settings.



Operation Status

An operation obtains the status *Printed* from the system as soon as a shop paper, for which the indicator *Operation status* has been set in Customizing, is printed for it.

If the indicator *Operation status* has not been set in Customizing for any of the shop papers, the system can never give the operations the status *Printed*. If you then use delta printing, the system reprints the shop papers for **all** the operations.

Order Status

An order only has the status *Partly printed* if its operations already had the status *Printed* when a new operation was added.

Procedure

1. Proceed in the same way as when printing for the first time. Refer to [Printing Shop Papers \[Page 1237\]](#).

However, in the *Select Shop Papers* dialog box, select the field *Delta* for the papers you require.

The following cases can occur:

- Shop papers are printed for order operations that **do not yet** have the status *Printed*.
- Shop papers are not printed for order operations that **already** have the status *Printed*, even if they were not printed during the print operation, for which the status was set for these operations.



If required, you can change the delta print during the run-time to produce a complete printout. To do this, deactivate the *Delta* field.

Result

When you execute a delta print:

- Only new operations, in other words, operations that have not yet been printed, appear on the job ticket and the control ticket
- Time tickets are only printed if they have not been printed before
- Components are only printed if they have not previously been printed on the component slip (for example, the material withdrawal slip)

Delta Printing

- The printed papers are flagged as delta printouts

If you have changed the specifications in the fields *Quantity* or *Work* for printed operations, the system does **not** remove the *Printed* status.

Calling Up a Print Preview and Print Log

Calling Up a Print Preview

1. Choose *Logistics → Plant maintenance → Maintenance processing → Order → Change*.
Enter the required order number and choose *Continue*.
2. From the header data screen or the operation overview, choose one of the following paths:
 - *Order → Print → Order*
The system displays the *Choose Shop Papers* dialog box, containing the shop papers that you can print and other printing data.
 - *Order → Print → Operation selection*
The system displays a dialog box with a list of all the operations for the order.
Select the operations for which you want to print shop papers.
Choose *Continue*.
The system displays the *Choose Shop Papers* dialog box.
3. Select the shop papers for which you want to see the print preview.
Depending on the Customizing settings made by your system administration, individual papers may already be selected. Check all the entries in the dialog box and change them if necessary.
4. Choose *Print preview*.
You see a print preview of those papers that you have selected to be printed.
5. To return to the *Choose Shop Papers* dialog box, choose *Goto → Back*.

Calling Up a Print Log

1. Select the header data screen for the required order by choosing *Logistics → Plant maintenance → Maintenance processing → Order → <Desired editing mode>*.
2. Choose *Goto → Logs → Print*.
You see the print log.

Faxing Shop Papers

Faxing Shop Papers

1. Proceed as described in [Printing Shop Papers \[Page 1237\]](#) until the *Select Shop Papers* dialog box appears.

2. Select the relevant shop papers.

You now have the following options:

- **Fax all papers to the same receiver**

Choose *Multiple fax*.

The system displays a dialog box.

Enter the fax number of the receiver and the country in which you want to fax, then choose *Continue*.

- **Fax some papers and print others**

For those papers you want to fax, enter the *Receiver number* and the *Country*, and for those papers you want to print, enter the *Output device*.

3. Choose *Print/Fax*.

The system saves the order.

The shop papers for the order are printed at the specified printer or faxed to the number you specified. The order now has the status *Printed*.

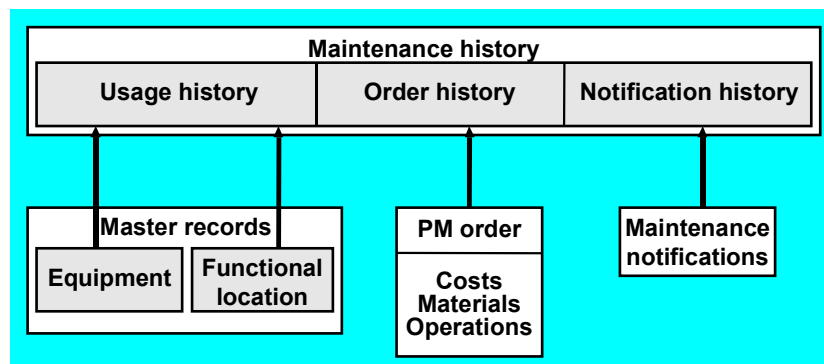
Displaying and Archiving Shop Papers

Use

An order is archived once it becomes clear that no further postings will be made, that its data will no longer be changed, and required only in summarized form for display and evaluation purposes. At this point, the order is flagged for deletion and can be transferred to the maintenance history using an archiving program.

The maintenance history contains order data, together with data from notifications and the usage history data to assist you in evaluating previous tasks and planning future ones.

Purpose of the Maintenance History



You can find more information about the maintenance history in *PM - Maintenance History*.

Procedure

Archiving Shop Papers

1. Choose *Order* → *Print* → *Operation selection*.
You see a list of all the operations for the order.
2. Select the operations for which you want to archive shop papers and choose *Continue*.
The *Select Shop Papers* dialog box appears.
3. Select the shop papers that you want to archive.
4. Use *Select* to call up the detail screen for these shop papers and enter the desired indicator in the field *Archiving mode*. Choose *Continue*.
You return to the *Select Shop Papers* dialog box.
5. Choose *Print/Fax*.
The system saves the order.
The shop papers for the order are now archived according to their entries in the ArchiveLink and/or printed.

Displaying and Archiving Shop Papers**Displaying Archived Shop Papers**

To display an object that is stored in the ArchiveLink with reference to an order, choose *Environment* → *Display original docs.* in the order.

See also:

[BC - AP - ArchiveLink - Application Scenarios \[Ext.\]](#)

Sending of Messages Using the Internet and SAPoffice®

Use

When processing notifications and orders, you can send messages to one or more partners not only using paging, but also as:

- E-mail over the Internet
- Mail using SAPoffice®

Prerequisites

The prerequisites are the same as those for [sending short messages using paging \[Page 1248\]](#). However, note the following differences:

Depending on partner type, the following data must be entered in the address or user master record under *Further communication*:

• Paging	PAG
• E-mails over the Internet	INT
• Mails using SAPoffice®	RML

You must also define the sub-types for the pager services, which are available to the partner, in each address or user master record and select one as the standard service.

When sending messages, the system proposes this standard service automatically. If you use several different sub-types, the selection sequence is as follows:

• If sub-type PAG exists	Paging is always proposed
• If sub-type INT exists, but not sub-type PAG	The Internet is proposed
• If sub-type RML exists, but neither PAG nor INT	SAPoffice® is proposed

Sending of Short Messages Using Paging

Sending of Short Messages Using Paging

Use

When processing notifications and orders, you can send short messages to one or more partners using paging. This is possible from various screens:

- Partner screen for the notification or order
- Notification or order header
- Graphical monitor for resource planning

Depending on where you are sending short messages from, you can reach different partners. The following partner types are available:

- Contact person
- User
- Personnel
- Customer

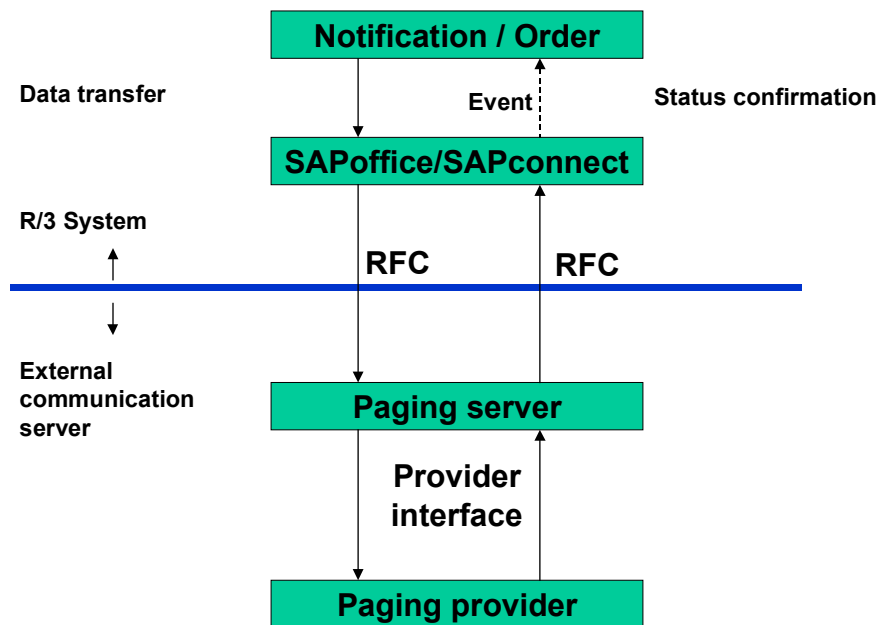
Integration

The components *SAPoffice®* and *SAPconnect* must be implemented to use the paging function. For more information, see *BC – Basis Services / Communication Interface*.

SAP provides a complete installation routine based on Install Shield. This can be used to install the required server programs on the communication server (Windows® 95, NT®). You should consult your certified SAP partner regarding extensions to ini-files.

Connection Between the Individual Components

Sending of Short Messages Using Paging



Prerequisites

General Prerequisites

To send short messages, you must define sub-types for the pager services in Customizing by choosing *Cross-Application Components* → *General Application Functions* → *Address Management*.

When defining sub-types, you should consider the information made available by the certified paging provider for the R/3 System. This includes, for example:

Country	Certified Paging Provider	Supported Paging Services
Germany	Balloon	Telekom: For example, D1 SMS, Skyper, Cityruf, Scall Mannesmann: D2 SMS
USA	RPA	MCI, Skytel

Prerequisites for Sending from the Partner Screen

From the partner screen, you can send short messages to partners of the following partner types:

- Contact person
- User
- Personnel

Sending of Short Messages Using Paging

- Customer

The partner function, which you specify on the partner data screen, must be assigned to one of these partner types using the partner determination procedure. The following data must also be defined for the partners:

Contact person Customer	These partner types are linked to the central address management function. Communication type PAG must be entered in the address data for these partners under <i>Further communication</i> .
User	Communication type PAG must be entered in the user master record under <i>Further communication</i> .
Personnel	The personnel master record must be assigned to info type 105 (communication) and a system user name. Communication type PAG must be entered in the assigned user master record under <i>Further communication</i> .

You must also define the sub-types for the pager services, which are available to the partner, in each address or user master record and select one as the standard service.

Prerequisites for Sending from the Notification Header

To send short messages from the header screen, you must define in Customizing the partner function for paging in the partner determination procedure, which is assigned to the notification or order type.

- For notification types, choose:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Basic Settings → Partner Determination Procedure → Define Partner Functions, Order Types and Other Notification Parameters

- For order types, choose:

Plant Maintenance → Maintenance and Service Processing → Maintenance and Service Orders → Partner Determination Procedure → Assign Partner Determination Procedure to Order Types

In the standard system, a short message is always sent to one user. This means that communication type PAG must be entered in the user master record under *Further communication*. You must also define the sub-types for the pager services, which are available to the partner, and select one as the standard service.

Prerequisites for Sending from the Graphical Monitor

To send short messages from the graphical monitor, you must define the following data in the personnel master record for the technician:

- You assign the personnel master record to a work center using *Organizational Assignment*.
- You enter info type 105 (communication) and assign the system user name. You must also define the sub-types for the pager services in the assigned user master record and select one as the standard service.

You enter the personnel master record in the accompanying order under *Technician*.

Sending of Short Messages Using Paging

Features

You can send short messages one after another to one or more partners. These short messages can also be predefined [standard texts \[Page 1253\]](#).

The integrated partner determination function offers the following advantages:

- When you create a notification and specify a reference object, the partners from the reference object are copied to the notification.
- When you create an order and specify a reference object or make reference to a notification, the partners are automatically copied from the reference object or notification to the order.

In both cases, you do not need to enter the partners first, but can contact them directly.

It is only possible to send short messages if the notification or order has not yet been completed. In addition, the notification or order must not be flagged for deletion. You can restrict the sending of short messages with user statuses.

When the first short message is sent, the system status PAGE is set automatically.

The short messages are only sent when the notification or order is saved. After the message has been transmitted, the pager provider confirms various communication or paging statuses. The following statuses are possible:

- Triggered
- Successful
- Warning
- Error



The pager provider does not inform the R/3 System whether the short message has reached its recipient.

The paging status can be displayed from the header screen, partner screen and graphical monitor. For the partner selected, you see all of the notifications and orders, from which short messages have been transmitted. The last status transmitted by the paging provider is displayed for each short message.

When using list editing, you can select notifications or orders according to particular paging statuses.

In the action log for a notification or an order, you can find an overview of all the short messages sent for each partner. For each address and message sent, the system generates an entry with the corresponding status.

All the short messages sent and the send history appear in the document flow for the notification and order. From there, you can also display the texts.

All short messages and their statuses are archived together with the notifications or orders.

Activities

Sending from the Header Screen

Choose *Paging*.

Sending of Short Messages Using Paging**Sending from the Partner Screen**

Select the required partner and choose *Paging*.

Sending from the Graphical Monitor

To send a short message with reference to the order, position the cursor on the order and choose *Paging*. The system proposes a standard text if one has been predefined for the order type.

To send a short message without reference to the order, position the cursor on the technician name and choose *Paging*. The system does not propose a standard text.

Use of Standard Texts

Use

You can use predefined standard texts when sending short messages. The system proposes the appropriate standard text depending on the notification or order type. You can change or supplement this standard text, and also extend it using a customer exit.

You can define one standard text for each notification or order type. The length of the text to be sent depends on the type of pager being used.

Prerequisites

3. You create standard texts using *Tools → SAPscript → Standard texts*.

You can also use variable text symbols, which are replaced automatically when the short message is sent.

4. You assign the standard texts to the notification or order types in Customizing.

- For notification types, choose:

Plant Maintenance → Maintenance and Service Processing → Notifications → Notification Types

- For order types, choose:

Plant Maintenance → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types

Execution of an Order

Execution of an Order

Use

You use the function for processing an order after you have completed the control phase. Once the order has been executed fully, you can complete it. Refer to [Completion of an Order \[Page 1260\]](#).

Features

[Use of Stock and Non-Stock Material \[Page 1255\]](#)

Use of Stock and Non-Stock Material

Use

You use this function if skilled manual workers require material to execute maintenance work.

The following types of material exist:

- **Stock material** is material that is available in stock and can be reserved by the system using a reservation.
- **Non-stock material** is material that is not available in stock and therefore must be procured externally using a purchase requisition.

Prerequisites

The order must be released for execution.

Features

Withdrawal of Stock Material

The withdrawal of stock material can be **planned** or **unplanned** (refer to [Withdrawing Stock Material \[Page 1257\]](#)).

You can [display goods movements \[Page 1259\]](#) and thereby see:

- Whether there are goods receipts for the purchase orders for the order
- Which planned goods issues for the order have taken place
- Which unplanned goods issues for the order have taken place



Which data in the list is displayed must be defined by your system administration in Customizing for *Maintenance Orders* by choosing *Functions and Settings for Order Types* → *Goods Movements*.

As soon as the settings have been made, you can generate lists for orders that already exist. To do this, use the report RIAUFM00.

Use of Non-Stock Material

If you plan non-stock material for an order, the system generates a purchase requisition for the purchase directly from the order. This triggers normal processing for procurement of non-stock material.



You can define that the net price entered in the order and copied into the purchase requisition must be copied unchanged into the purchase order. To do this, you must set the indicator *Copy net price from purch. req. into purch. order* in your system for the required order type in the Customizing for Plant Maintenance.

Based on the purchase requisition, a purchase order is sent to a vendor. Upon delivery, the goods receipt is posted directly to the order for which the material was requested, that is, the

Use of Stock and Non-Stock Material

order is immediately debited with the corresponding costs upon goods receipt. When the invoice is received, any changes to costs incurred are settled to the order.

See also:

- [Material Planning \[Page 1112\]](#)
- [Material Requirements Planning \[Page 1115\]](#)

Withdrawing Stock Material

Prerequisites

Before you can withdraw stock material for an order, the order must be released.

For the planned withdrawal of stock material, a [reservation \[Ext.\]](#) must have been created first.



The planned or unplanned withdrawal of stock material for an order is usually entered in the system by employees in inventory management.

Procedure

Withdrawing Planned Stock Material

1. From the initial SAP menu, choose *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Goods movement*.

The screen *Enter Goods Movement: Initial Screen* appears.

2. Choose *Goods movement → Create with reference → For order*.

The system displays the dialog box *Reference: Order*.

3. Enter the number of the order for which stock material is to be withdrawn in the dialog box and choose *Continue*.

The screen *Enter Goods Movement: Selection Screen* appears, on which you see a list of all the materials planned for the order specified.

4. Select the materials you are withdrawing from stock and choose *Copy*.
5. Save the withdrawal using *Goods movement → Post*.

Withdrawing Unplanned Stock Material

1. From the initial SAP menu, choose *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Goods movement*.

The screen *Enter Goods Movement: Initial Screen* appears.

2. Choose *Movement type → Consumption → To order → From warehouse*.

The system enters the relevant data (movement type, plant, and storage location) in the corresponding fields. Check these entries, change them if necessary and then confirm them.

The *Enter Goods Movement: New Items* screen appears.

3. Enter the number of the order for which you want to withdraw unplanned material, together with the required materials, quantities, and so on. Then choose *Continue*.

The *Enter Goods Movement: Collective Processing* screen appears, on which all the materials that you want to withdraw are listed.

4. Save the withdrawal using *Goods movement → Post*.

Withdrawing Stock Material

Displaying Goods Movements

1. Select the order in display or change mode.
2. On the header data screen, choose *Extras* → *Order documents* → *Goods movements*.

The system displays a list of the goods movements that have previously taken place for the order.

For more information, see [Working with Lists \[Ext.\]](#).

Completion of an Order

Use

You use the [completion confirmation \[Page 1528\]](#) functions to record how the work is progressing. For this, the order must not yet have been completed fully.

You use the remaining functions for the completion of an order, after the order has been completed fully and a final completion entered.

When you complete an order, the following occurs:

- The order is transferred with certain data to the history. This is combined from the notification, order and usage histories. It is very important for evaluating previous maintenance activities and planning future work.
- The system sets the status “Technically completed”. You can no longer change the order; it can only be displayed. It is saved in the history with the location and account assignment data, which is valid for the reference object at the time of completion.

Prerequisites

You should only complete an order if it has been executed fully. This means the following:

- All data for the reference object in the order is present and correct
- All relevant data in the operations and sub-operations is present and correct
- All the operations have been finally confirmed

Features

[Time Completion Confirmation \[Page 1559\]](#)

[Technical Completion Confirmation \[Page 1581\]](#)

[Billing \[Page 1790\]](#)

[Technical Completion of an Order \[Page 1381\]](#)

[Settlement of an Order \[Page 1384\]](#)

[Business Completion of an Order \[Page 1393\]](#)

Completing an Order

1. Call up the order that you want to complete in [change mode \[Page 1095\]](#).

2. Choose *Functions* → *Complete*.

A dialog box appears, in which you can check the completion date and time, and usage data for the reference object. If the usage data is incorrect, call up the relevant screens and change the data.

3. If all the data is correct, choose *Complete*.

The order is completed.

Completion Confirmations (CS-SE-CON/PM-WOC-JC)

Purpose

You use the *Completion Confirmations (PM-WOC-JC)* component to document the status of the processing of a service or maintenance order.

As soon as an order has been released and the work is begun, the employees involved can enter [completion confirmations \[Page 1530\]](#) in the system.

Integration

The *Completion Confirmations (PM-WOC-JC)* component is integrated with the following SAP components for different functions:

Function	Integration with the R/3 Application Component
<ul style="list-style-type: none"> Confirmation of material used 	Inventory Management (MM-IM)
<ul style="list-style-type: none"> Confirmation of external services and external material 	Purchasing (MM-PUR) Invoice Verification (MM-IV)
<ul style="list-style-type: none"> Confirmation of services 	Services (MM-SRV)
<ul style="list-style-type: none"> Entry of general data on attendance and absence Entry of time and additional data in Time Management Time collation 	Time Management (PT)

Features

The *Completion Confirmations (PM-WOC-JC)* component provides the following functions:

- [Time completion confirmation \[Page 1559\]](#)
- [Completion confirmation of material used \[Page 1568\]](#)
- [Completion confirmation of measurement and counter readings \[Page 1573\]](#)
- [Completion confirmation of installation and dismantling information \[Page 1577\]](#)
- [Technical completion confirmation \[Page 1581\]](#)
- [Completion confirmation of services \[Page 1588\]](#)
- [Completion confirmation of external services or external material \[Page 1591\]](#)
- [Cancellation of completion confirmation \[Page 1593\]](#)
- [Display of completion confirmations \[Page 1596\]](#)
- [Processing of incorrect completion confirmations \[Page 1599\]](#)
- [Cost determination and display of actual costs \[Page 1601\]](#)
- [Decoupling of completion confirmation processes \[Page 1605\]](#)

Completion Confirmation

Completion Confirmation

Definition

A completion confirmation documents the status of the processing of operations and sub-operations for a maintenance or service order. It is a part of order monitoring.

Use

You use completion confirmations to document:

- From which work center the operation was performed
- Who performed the operation
- That operations or sub-operations were started or executed
- When the work was started and when it was completed
- How the work is progressing
- How high are the costs for internal processing
- What materials were used
- Which services were executed internally
- What measurement or counter readings were entered for the technical objects during or after execution
- Whether and where pieces of equipment were dismantled from, or installed at functional locations
- The extent to which the order has been processed
- Where additional capacity is needed and where surplus capacity can be reduced
- Which technical data should be retained

Structure

You can enter completion confirmations at operation and sub-operation level.

You enter technical data in activity reports for the order or the objects to which the order refers. This part of the completion confirmation is known as the technical completion confirmation.

Partial Completion Confirmation

If completion confirmations have been entered for the operations/sub-operations of an order, but the processing has not yet been completed, the operations/sub-operations automatically receive the status “partially confirmed” from the system.

Final Completion Confirmation

As soon as **all** order operations/sub-operations, which are planned for a completion confirmation (the control key is the decisive factor), have been finally confirmed, the order itself also receives the status “finally confirmed”.

Integration

- You can only enter completion confirmations if you use the *Maintenance Orders (PM-WOC-MO)* component.
- You can only enter technical completion confirmations if you use the *Maintenance Notifications (PM-WOC-MN)* component.

Entry of Completion Confirmations for Orders

Entry of Completion Confirmations for Orders

Purpose

You use this process when you enter completion confirmations for maintenance or service orders.

Prerequisites

You can only enter completion confirmations if the order to which you are referring is released for processing.



If you enter very comprehensive completion confirmations and it is therefore important for you to improve performance, see [Decoupling of Completion Confirmation Processes \[Page 1605\]](#).

Process Flow

The maximum number of steps that a completion confirmation can contain is as follows:

1. **Selection of the required entry transaction**

According to the quantity and type of the completion confirmations, you can choose different entry transactions for the completion confirmation.

See [Entry Options \[Page 1534\]](#).

2. **Confirmation of time data**

This can also be entered in different ways, according to the type of data being entered.

See [Time Completion Confirmation \[Page 1559\]](#).

3. **Confirmation of material used**

There are also different entry methods available here.

See [Completion Confirmation of Material Used \[Page 1568\]](#).

4. **Confirmation of measurement and counter readings**

In the completion confirmation, you can enter measurement and counter readings.

See [Completion Confirmation of Measurement and Counter Readings \[Page 1573\]](#).

5. **Confirmation of installation and dismantling information**

In the completion confirmation, you can also enter information about installing and dismantling technical objects.

See [Completion Confirmation of Installation and Dismantling Information \[Page 1577\]](#).

6. **Confirmation of goods receipts for refurbished material**

In the completion confirmation, you can post the goods receipt for materials, which have been refurbished.

See [Goods Receipt for Refurbished Material \[Page 1580\]](#).

Entry of Completion Confirmations for Orders

7. Technical completion confirmation

In the completion confirmation, you can also enter technical data/findings.

See [Technical Completion Confirmation \[Page 1581\]](#).

8. Confirmation of services

In the completion confirmation, you can confirm the internal execution of services.

See [Completion Confirmation of Services \[Page 1588\]](#)

9. Confirmation of external services/external material

You can also confirm services and materials, which are purchased by external companies, on an order.

See [Completion Confirmation of External Services or External Material \[Page 1591\]](#).

10. Cancellation of a completion confirmation

For various reasons, it may be necessary for you to cancel completion confirmations.

See [Cancellation of the Completion Confirmation \[Page 1593\]](#).

11. Display of completion confirmations

Different options are available for displaying completion confirmations.

See [Display of Completion Confirmations \[Page 1596\]](#).

12. Costs display

There are various options available for displaying costs, which exist as soon as the work has been started and completion confirmations have been entered.

See [Cost Determination and Display of Actual Costs \[Page 1601\]](#).

Entry Options

Entry Options

Use

Different entry transactions are available for the completion confirmation of service and maintenance orders. Depending on the quantity and type of completion confirmations, you can choose the entry method most suitable for you.

Features

When entered, the individual confirmation transactions provide you with different function combinations:

Objects	Transaction	Overall completion confirmation	Individual time confirmation	Collective time confirmation	Time sheet
Activities		X			
Attendance/absence			(X)	(X)	
Document flow		(X)	(X)		
Install/dismantle technical objects		(X)	(X)		
Individual capacities/splits			X		
Services		X			
Tasks		X			
Notification		(X)	(X)		
Measurement/counter readings		X	(X)		
Object list		(X)	(X)		
Items		X			
Trip costs					(X)
Structure list		(X)	(X)		
Causes		X			
Goods movements		X	(X)		(X)
Goods receipt for refurbishment		(X)			
Time leveling			(X)		
Times		X	X	X	X

Legend:

X = Can be executed directly

(x) = Can be reached using *Goto* or *Environment*

The transaction you choose for the completion confirmation depends on the individual circumstances and the data that you want to confirm.



It is recommended that **either** only the **overall completion confirmation** or the **individual time confirmation** be used within an organizational unit.

For more information, see:

- [Overall Completion Confirmation \[Page 1536\]](#)
- [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#)
- [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)
- [Collective Time Confirmation with Selection \[Page 1550\]](#)
- [Collective Time Confirmation Without Selection \[Page 1552\]](#)
- [Time Sheet \[Page 1557\]](#)

See also:

[PDC Systems \[Page 1558\]](#)

Activities

Call up the transactions for overall completion confirmation, individual time confirmation, collective time confirmation and time sheet. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → **Customer service** → Service processing → Completion confirmation → Entry → <Desired entry transaction>*
- *Logistics → **Plant maintenance** → Maintenance processing → Completion confirmation → Entry → <Desired entry transaction>*

Overall Completion Confirmation

Overall Completion Confirmation

Use

You use the overall completion confirmation if, in addition to the work time required, you also regularly confirm other data, such as materials used, information about damage, the work and services performed (tasks, activities) or measurement and counter readings.

For the overall completion confirmation, each user has the option of setting the header data area and the 10 [screen areas for confirmation data \[Page 1542\]](#) individually. Fields for frequently used functions can thereby be displayed in the upper screen area and those for less frequently used functions displayed below. Functions, which are rarely used, can also be included by using pushbuttons.

See also:

[Individual Setting of Overall Completion Confirmation \[Page 1540\]](#)

Integration

For the overall completion confirmation, the time confirmation, technical completion confirmation and the confirmation of goods movements and services are combined. Without switching screens, you can enter time data, causes, activities, tasks and measurement and counter readings for order operations. Similarly, you can enter goods movements for the operations displayed without changing screens.

For the installation and dismantling of technical objects, you branch into master data processing.

To process the notification for the order header, you branch into notification processing.

Prerequisites

To use the overall completion confirmation, the following prerequisites must be fulfilled:

- In the Customizing for Plant Maintenance, a confirmation profile, which satisfies your requirements, must have been created for the layout of the overall completion confirmation.
- The required confirmation profile must be assigned to you.
For more information about assigning the confirmation profile, see [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#).
- The order to be confirmed must be released.

Features

Depending on the header data setting, the overall completion confirmation can address the following employee roles:

- Service technician
- External service employee
- Foreman
- Technician

You can use the overall completion confirmation to confirm the following data:

Overall Completion Confirmation

- Activities
- Services
- Tasks
- Measurement/counter readings
- Items
- Causes
- Goods movements
- Times



The overall completion confirmation enables you to enter and save time completion confirmations for different operations and different people in **one** step, on **one** screen.

The following functions are available by choosing the *Environment* menu option:

- [Document flow \[Page 1401\]](#)
- Installation and dismantling of technical objects
- Notification
- Structure list
- Goods receipt for refurbished material

Activities

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation*
- *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation*

Using the Overall Completion Confirmation

Using the Overall Completion Confirmation

Prerequisites

The order, for which you want to enter completion confirmations, is released.

Procedure

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Enter data as required in the header data section and choose *Continue*.

Depending on the combination of entries, the following data appears in the tables displayed below:

If you **enter the order number**, you see:

All the operations to be confirmed for the order in the time confirmation table

All measurement and counter readings which have already been entered for the order

All tasks, causes and activities already entered in the notification for the order header

If you **enter the order number and the required operation number**, you see:

The operation in the time confirmation table

The materials planned for the operation

Although materials for the operation, which have already been used for a previous completion confirmation, are displayed again in the table as ready for input, no quantity is proposed for them.

All measurement and counter readings which have already been entered for the operation

All tasks, causes and activities already entered in the notification for the order header

If you **enter the confirmation number**, you see:

The operation in the time confirmation table

The materials planned for the operation

Although materials for the operation, which have already been used for a previous completion confirmation, are displayed again in the table as ready for input, no quantity is proposed for them.

All measurement and counter readings which have already been entered for the operation

All tasks, causes and activities already entered in the notification for the order header

Choose *Continue*.

If required, use the functions [Data for the Operation \[Page 1541\]](#) and [Proposing Actual Data \[Page 1556\]](#).

Using the Overall Completion Confirmation

Enter data as required for the completion confirmation.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the confirmation data.

Individual Setting of Overall Completion Confirmation

Use

In the standard system, a default profile is set for the overall completion confirmation. If this profile does not meet your particular requirements, you have the option of adapting the user interface for the overall completion confirmation.

Prerequisites

In the Customizing for Plant Maintenance, a confirmation profile, which satisfies your requirements, has been created for the overall completion confirmation (see also [Screen Areas for Confirmation Data \[Page 1542\]](#)).

Features

You use the transaction-specific settings in the overall completion confirmation to assign the required confirmation profile to your user default values for Customer Service and Plant Maintenance.

Activities

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Choose *Extras → Settings*.

Specify the required profile in the dialog box displayed.

Save the entry.

When the overall completion confirmation is next called up, you see the user interface the way it was defined for the profile entered.

Data for the Operation

Use

You use this function if you want to display the data pertaining to the operation in the relevant tables of the overall completion confirmation.

Features

You can use the function *Data for the operation* to display the following data in the relevant tables in the overall completion confirmation:

Planned materials

Planned services

Measurement and counter readings

You can then enter the required confirmation data for them.

See also:

[Confirmation of Material Used \[Page 1568\]](#)

[Confirmation of Services \[Page 1588\]](#)

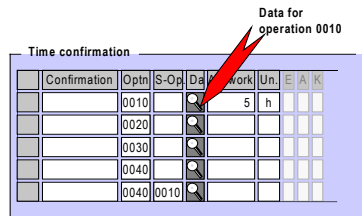
[Confirmation of Measurement and Counter Readings \[Page 1573\]](#)

Activities

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose the *Data for the operation* symbol for the required operation.



The system inserts the data pertaining to the operation in the relevant tables.

Screen Areas for Confirmation Data

Screen Areas for Confirmation Data

Setting of screen areas in Customizing

Display of screen areas in overall completion confirmation

Activation of pushbuttons in Customizing

Display of pushbuttons in the overall completion confirmation

Screen area	Not filled	Not filled
Screen area 1	not filled	not filled
Screen area 2	Not filled	Not filled
Screen area 3	Not filled	Not filled
Screen area 4	not filled	not filled
Screen area 5	Not filled	Not filled

Active pushbuttons:

- ☐ Times
- ☐ Services
- ☐ Goods movements
- ☐ Causes of damage
- ☐ Measurement/counter readings
- ☐ Tasks
- ☐ Activities
- ☐ Items

Overall completion confirmation

Screen area 1, Screen area 2, Screen area 3, Screen area 4, Screen area 5, Screen area 6, Screen area 7, Screen area 8, Screen area 9, Screen area 10

If you only use screen areas one to five, the tables in these areas are automatically widened to fill the screen.



If you select the *Time Confirmation* table for screen area one and screen area six is not used, the system automatically widens the table so that it covers both screen areas.

Individual Time Confirmation

Use

You use the individual time confirmation primarily if you want to enter detailed time confirmations for individual operations and splits, and only occasionally enter additional data, such as materials used or information about damage.

Prerequisites

The order to be confirmed must be released.

Features

The individual time confirmation can address the following employee roles:

- Service technician
- External service employee
- Foreman
- Technician

You can use the individual time confirmation to confirm the following data:

- Times
- Individual capacities/splits

The following functions are available by choosing the *Goto* and *Environment* menu options:

- Attendances and absences
- [Document flow \[Page 1401\]](#)
- Installation and dismantling of technical objects
- Services
- Notification
- Measurement/counter readings
- Object list
- Structure list
- Goods movements
- Time collation

Activities

Call up the individual time confirmation function. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics* → **Customer service** → *Service processing* → *Completion confirmation* → *Entry*
→ *Individual time confirmation*

Individual Time Confirmation

- *Logistics → **Plant maintenance** → Maintenance processing → Completion confirmation → Entry → Individual time confirmation*

Individual Time Confirmation Using Order/Operation Number

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

Enter the order number.

If the order is a standing order, you can enter the technical object, in whose master record the standing order was entered, instead of the order number.



You can use the confirmation parameters to make additional settings (for example, delimiting the operation selection, requesting logs or default values for the detail screen for the operation confirmation).

To do this, choose *Goto → Parameters* on the initial confirmation screen.

The system displays a dialog box in which you can enter the required parameters.

Choose *Continue*.

You return to the initial confirmation screen.

Choose *Continue*.

An overview appears of all the operations and sub-operations for the order that satisfy the parameters set.

Select the operations/sub-operations for which you want to enter the completion confirmation and choose *Actual data*.

Result

The confirmation detail screen appears for the first operation/sub-operation selected. Here you enter the required confirmation data.

Individual Time Confirmation Using Confirmation Number

Individual Time Confirmation Using Confirmation Number

Prerequisites

To use this entry type, you need to know the confirmation number of the operation or sub-operation to be confirmed.

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial confirmation screen appears.

Enter the confirmation number.

Choose *Continue*.

Result

The confirmation detail screen appears for the operation or sub-operation entered. Here you enter the required confirmation data.

Individual Time Confirmation for a Standing Order

Use

You use this procedure if you want to confirm the standing order that is entered in the master record for the equipment or the functional location by choosing *Account assignment data*.

Prerequisites

To use this entry type, you need to know the number of the technical object.

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial confirmation screen appears.

Enter the number of the equipment or functional location in the *Standing order for* section.

Choose *Continue*.

An overview appears of all the operations and sub-operations for the standing order that satisfy the parameters set.

Select the operations/sub-operations for which you want to enter the completion confirmation and choose *Actual data*.

The confirmation detail screen appears for the first operation/sub-operation selected.

Enter confirmation data as required and save it.

Collective Time Confirmation

Collective Time Confirmation

Use

You use the collective time confirmation if you:

Enter large numbers of time completion confirmations into the system

Rarely make entries on the confirmation detail screen

Have not planned the majority of the orders to be confirmed comprehensively

Prerequisites

The orders to be confirmed must be released.

Features

The collective time confirmation can address the following employee roles:

Employees in data entry teams from organizations, in which mainly time data is used

Service technician

External service employee

Foreman

Technician

You use the collective time confirmation to confirm times for operations and sub-operations.

The following functions are available by choosing the *Goto* and *Environment* menu options:

Attendances/absences

Time collation

When entering collective times, you are working with two tables. Note the following:

In the **upper** table, you enter data that is valid for all the operations in the list. You can save this data specific to the user so that it is proposed again when you choose the multiple entry function.

In the **lower** table, you enter the data for the individual operations.

The default data from the upper section is set in the entry fields for the lower section when you choose *Continue*.

For both tables, you can set individually which columns should be visible and in which sequence they should appear. When printing, you can also decide individually which columns should be printed.

Activities

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* →
Collective time confirmation → *<With or without selection>*

Collective Time Confirmation

*Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry
→ Collective time confirmation → <With or without selection>*

Using the Collective Time Confirmation with Selection

Using the Collective Time Confirmation with Selection

Procedure

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → With selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → With selection

The selection screen for order operations appears.

Enter the selection criteria you require.



If you select the field *Collective time confirmation*, the system lists the operation you selected directly in the entry screen for collective time confirmation without displaying an additional selection list. If you have selected this field, perform step 3 and then continue from step 6.

In addition, to select only service and maintenance orders, mark the field *Service/maintenance orders*.

Choose *Program → Execute*.

The system creates a list of all the operations corresponding to your selection criteria.

In the operation list, select the operations that you want to confirm using the collective time confirmation function.



If you do **not** want to use the collective time confirmation function, but instead want to confirm the selected operations individually on the detail screen, choose *Operation → Individual time confirmation*.

The confirmation detail screen appears for the first operation/sub-operation selected. Here you enter the required confirmation data. (Refer to [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#))

Choose *Operation → Collective time confirmation*.

The initial screen for collective time confirmation appears. The system has already copied the data from the selected operations to the list.

Enter data as required for the operations.

If required, you can have the actual data proposed completely for the selected operations. To do this, choose *Edit → Propose actual data completely*.

If you do not want to enter any additional data for the operations, save now.

However, if you want to enter additional data for particular operations on the detail screen, you select the required operations and choose *Goto → Actual data*.

Using the Collective Time Confirmation with Selection

The confirmation detail screen appears for the first operation selected.

Enter data as required on the confirmation detail screen.

Save the data entered.

Using the Collective Time Confirmation Without Selection

Using the Collective Time Confirmation Without Selection

Procedure

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → Without selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → Without selection

The list entry screen for collective time confirmation appears.



If necessary, use the [pool function \[Page 1553\]](#). This is advisable if you need to process specific orders or operations several times. You can call them up for processing again using the worklist.

Make all the necessary entries.

If required, you can have the actual data proposed completely for the selected operations. To do this, choose *Edit → Propose actual data completely*.



For collective entry, the functions *Attend./Absences* and *Time leveling* are also available under *Environment*. For more information, see [Attendances/Absences \[Ext.\]](#).

If you do not want to enter any additional data for the operations, save now.

However, if you want to enter additional data for particular operations on the detail screen, you select the required operations and choose *Goto → Actual data*.

The confirmation detail screen appears for the first operation selected.

Enter data as required on the confirmation detail screen.

Save the data entered.

Using the Pool Function

You need to distinguish between the following functions when using the pool function in the collective time confirmation:

Generating a pool

Calling up a pool for processing

Calling up a pool for postprocessing

Deleting a pool

Generating a Pool

You can generate a pool in one of two ways:

A When using the collective time entry function **without** selection.

B When using the collective time entry function **with** selection.

A Generating a Pool When Using Collective Time Entry Without Selection

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → Without selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → Without selection

The list entry screen for collective confirmations appears.

You now have the following options:

Make all the necessary entries in the screen and save the **operations entered as a pool**.

To save the pool, first select the operations you want to assign to the pool.

Then choose *Confirmation → Generate pool*.

Give the pool a name and save it.

The system generates a pool itself.

This is the case if, for example, errors occur whilst transferring PDC data. The system groups all the incorrect data records in a single worklist, which you can later call up for postprocessing.

B Generating a Pool When Using Collective Time Entry With Selection

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → With selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → With selection

The selection screen for order operations appears.

Using the Pool Function

Enter the required selection criteria.

Choose *Program* → *Execute*.

The system creates a list of all the operations corresponding to your selection criteria.

In the operation list, select the operations you want to assign to the pool.

Choose *Operation* → *Generate confirmation pool*.

The system displays a dialog box.

Give the pool a name and save it.

Calling up a Pool for Processing

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

Logistics → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

The list entry screen for collective confirmations appears.

Choose *Confirmation* → *Fetch pool*.

The system displays a dialog box.

Enter data as required.

Choose *Continue*.

The pool data is displayed in the list entry screen for collective confirmations, where you can edit it.

Deleting a Pool

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

Logistics → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

The list entry screen for collective confirmations appears.

Choose *Confirmation* → *Delete pool*.

The system displays a dialog box.

Enter the name of the pool to be deleted.

Choose *Continue*.

The system deletes the pool.

You return to the list entry screen for collective confirmations.

Proposing Actual Data

Proposing Actual Data

Use

You use this function if:

The actual data for the completion confirmation corresponds exactly to the planning data

You want to orient yourself to the planning data for the completion confirmation

This function is available in the following transactions:

[Overall Completion Confirmation \[Page 1536\]](#)

[Individual Time Confirmation \[Page 1543\]](#)

[Collective Time Confirmation \[Page 1548\]](#)

Features

If you call up the function *Propose actual data* for the completion confirmation, the system performs the following activities:

Sets the final confirmation indicator.

Proposes the remaining work as actual work.

Proposes the current day as the posting date and the current time of day as the posting time.

Copies all the other values from the operation or the work center.

Time Sheet

Use

The time sheet in the R/3 System provides a standardized and application-independent time entry function for internal and external employees.

The basic idea behind the time sheet is to enter person-related working times for different applications with a single transaction. Company employees and/or service providers maintain their attendance times, periods of absence and working times personally in the system, together with information about an order, a purchase order and so on. The data is then transferred to the corresponding applications in the R/3 System.

Integration

The time sheet is a cross-application development by SAP. Therefore, you do not need to be using any particular SAP application to be able to use the time sheet functions.

The data entered is transferred to the existing applications of Human Resources, Logistics and/or Accounting and processed in the usual way.

Prerequisites

To use the time sheet, certain settings must be made in Customizing by the system administration. For more information, see [Time Sheet \[Page 1606\]](#).

Features

The time sheet is used to enter information about the duration of the work performed, but not information about quantities (pieces, liters and so on). The user does not need to know the functions of the target applications to enter data.

The simple structure of the data entry process in the time sheet and its screen also enables inexperienced system users to maintain their data without difficulty.

The users can also enter data for the following applications:

Material withdrawal

A direct link to the MM transaction *Enter Goods Issue* is integrated into the time sheet.

Trip costs

Similarly, calling up the transaction [Maintain Trip Data: Framework Data \[Ext.\]](#) directly is integrated into the time sheet. In connection with a trip, working time performed is specially assigned by reference to a trip number.

For more information about settling trip costs, see [Trip Cost Settlement \[Ext.\]](#).

PDC Systems

PDC Systems

Use

You can also enter completion confirmations at a plant data collection (PDC) sub-system. A PDC sub-system is a data entry system used to record data. This data is copied to the SAP System at a specific time.

Prerequisites

There are standardized interfaces to PDC systems. Certain PDC system manufacturers can use these interfaces in the standard system and are certified to do so by SAP AG. For more information about these interfaces, see [PP – PDC Interface \[Ext.\]](#).

Features

Plant data collection is a cross-application function. Your system administration makes the required system settings in Customizing in order to transfer data from the SAP System to the PDC system (download) and from the PDC system to the SAP System (upload). The Customizing settings also determine, for example, which data is to be transferred and at what intervals.



How you proceed with plant data collection in the sub-system depends on the sub-system used in your company. For more information, contact your system administration.

Time Completion Confirmation

Use

You enter time completion confirmations for operations and sub-operations for maintenance and service orders to document the status of the processing for these operations.

Integration

You need to be integrated with Time Management (*Personnel Time Management* (PT) component) for the following functions:

Entry of general data on attendance and absence

Entry of time and additional data in Time Management

Time collation

Prerequisites

You can only enter time completion confirmations for an order operation if it has been released.

Features

For information on which confirmation transactions you can use for the individual functions outlined below, see [Entry Options \[Page 1534\]](#).

Confirmation of Time Data

You can confirm the following time data:

Who processed the operation/sub-operation

Example:

The operation was processed by an employee with personnel number D001760 at work center ME-01 in plant 0001.

How long the work took and the period in which it occurred

Example:

The operation required three hours work. The work was started at 9.00 on 1/12/1997 and finished at 12.00 on the same day.

What activity was performed

Example:

The activity type entered for the operation was "working time".

How much longer work must continue

Example:

The remaining work required for the operation totals five hours.

How much of the operation time was used (duration)

Example:

Time Completion Confirmation

The operation has lasted five hours (until now).

However, the work duration totals only three hours.

This scenario could occur, for example, if the operation involves painting an object:

The painting work takes three hours. The paint then needs to dry for two hours. Only then can work on the object (or the next operation) be continued.

When is the operation expected to be completed

Example:

Since this operation can only be worked on for three hours each day, the estimated completion time (*Forecast end*) is at 12.00 on 1/25/1997.

Whether the work for this operation/sub-operation is completed

Example:

Once the painting planned in the operation is finished, the employee entering the last confirmation flags the operation as "finally confirmed".

Whether the reservations still outstanding should be cleared

Several pots of paint were reserved for the painting work. However, not of all them were used. The employee entering the completion confirmation indicates that the outstanding reservations should be invalidated.

A free text

For more information about entering time data, see [Confirming Time Data \[Page 1562\]](#).

Entry of Completion Confirmations for Individual Capacities

If required, the planner can enter the following data for each individual operation during planning:

It should be processed by several persons, if necessary, at specific times

It should be processed by a single employee at specific times

This type of planning is known as **splitting**.

Splits are taken into account at the confirmation stage. You can enter individual completion confirmations for different splits.



The operation "Paint shop floor", which is planned to take 32 hours, was split by the maintenance planner into two 16-hour partial operations:

Partial operation 1: Early shift, employees performing the job: Smith and Jones

Partial operation 2: Late shift, employees performing the job: Reeves and Mortimer

Smith and Jones enter a final confirmation for their part operation at the end of the early shift. Reeves and Mortimer each confirm eight hours, plus two extra hours for remaining work.

For more information about entering completion confirmations for individual capacities, see [Entering a Completion Confirmation for Individual Capacities \[Page 1563\]](#).

Entry of General Data on Attendance and Absence

You can enter general data on attendance and absence in Time Management. General **absences** include absences that do not require any special processing. For example:

- Special leave to get married
- Illness without continued pay
- Unpaid holiday

General **attendances** include attendance which does not detract from quotas (for example, business trips).

For more information about entering general data on attendance and absence, see [Attendances/Absences \[Ext.\]](#) and [Time Management \[Ext.\]](#).

Entry of Time and Additional Data in Time Management

You can enter data that is important for Time Management.

For more information, see [List Entry of Time and Additional Data in Time Management \[Page 1566\]](#) and [Time Management \[Ext.\]](#).

Performing a Time Collation

You can define the available capacity of the employee whose personnel number is entered in the completion confirmation.

For more information, see [Time Collation \[Page 1567\]](#) and [Time Management \[Ext.\]](#).

Confirming Time Data

Confirming Time Data

Choose one of the transactions, with which you can confirm time data.



For more information about which transactions you can use for this, and how to select and use these transactions, see [Entry Options \[Page 1534\]](#).

Fill out the fields as required to confirm time data. If required, use the function [Proposing Actual Data \[Page 1556\]](#) and (in the overall completion confirmation) the function [Data for the Operation \[Page 1541\]](#).



Note for the **overall completion confirmation**:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Note for the **individual time confirmation**:

If you use the Save function during confirmation processing, you always save all the data entered so far for the operations you have processed. You always return to the initial confirmation screen.

Save the completion confirmation.

Entering a Completion Confirmation for Individual Capacities

Entering a Completion Confirmation for Individual Capacities

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

You now have the following options:

Choose the confirmation detail screen for individual capacities **directly from the initial screen** for individual time confirmation.

Enter the order number, capacity type and split number. Choose *Continue*.

The confirmation detail screen appears for the first split entered.

Choose the confirmation detail screen for individual capacities from the **operation list** for the order.

To do this, enter the order number and choose **ENTER**. A list appears of all the operations for the order. The column *Sp.* indicates whether an operation has any splits.

Select the required operation and choose *Goto → Individual capacities*. You see an overview of the splits planned for this operation.

Select the splits for which you want to enter completion confirmations. The confirmation detail screen appears for the first split selected.

Choose the confirmation detail screen for individual capacities from the **confirmation detail screen of the split operation**.

The function *Individual capacities* is active if splits exist for the operation.

Choose *Goto → Individual capacities*. You see an overview of the splits planned for this operation.

Select the splits for which you want to enter completion confirmations. The confirmation detail screen appears for the first split selected.

Enter data as required on this screen.

For details of the data you can enter, see [Time Completion Confirmation \[Page 1559\]](#).

Save the completion confirmation.



When confirming splits, you **cannot** use the functions for entering material usage, measurement readings and counter readings, invalidating outstanding reservations or entering a technical completion confirmation. You must enter this data at operation level.

Entering a Completion Confirmation for Individual Capacities

Entering General Data on Attendance and Absence

Choose the confirmation detail screen for individual time entry (see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) and [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)).

Enter the personnel number of the relevant employee.

Choose *Environment* → *Attend./Absences*.

A screen appears where you can enter general attendances and absences for a week, and also move to other weeks.

Make the required entries with regard to attendances and absences. For information on how to proceed, see [Time Management \[Ext.\]](#).

Save the attendances and absences data.

You return to the confirmation detail screen.

Save the completion confirmation.

List Entry of Time and Additional Data in Time Management

List Entry of Time and Additional Data in Time Management

Use

In addition to the confirmation functions available in the *Plant Maintenance* (PM) application component, a confirmation function is also available in the *Time Management* (PT) application component. You can use these to enter all data relevant to Time Management.

Integration

Since you enter data with reference to a maintenance order, the related data is passed on to PM.

Features

For more information about confirmation data in the Time Management system, see [Time Management \[Ext.\]](#).

Time Collation

Use

When you enter a personnel number for a completion confirmation, you can determine the available capacity of the employee with this number. To do this, you use the *Time collation* function.

Prerequisites

The functions described here are only available if your company has the R/3 Time Management System. In addition, Customizing settings are required for data transfer and processing.

Features

For more information about time collation, see [Time Management \[Ext.\]](#).

Activities

Choose the *Time collation* function from the list screen for multiple entry and from the detail screen for individual time confirmation using *Environment* → *Time collation*.

Confirmation of Material Used

Confirmation of Material Used

Use

You can confirm which materials and how many materials you have used to execute an operation. You can also enter the return of unused material to the warehouse.

The materials used can be as follows:

Unplanned materials

These are materials that were not included for the operation in the planning of the order, but which were required to execute it.

Planned materials

These are materials that were planned for the operation in the order, withdrawn from stock and used in executing the operation. These materials can be indicated in the order as backflushed (see below) by the planner.

Backflushing

Often materials, which are low-value, small parts but are nevertheless managed in inventory management, are planned for orders. To avoid making a separate posting for withdrawal for each of these materials, the planner has the option in the order of marking such materials as backflushed. This has the following effects:

Display and change functions for **overall completion confirmation** and **collective time confirmation**:

Backflushed materials are not displayed. They cannot be changed by the person making the confirmation.

Display and change functions for **individual time confirmation**:

Backflushed materials are displayed in the material overview, even if the parameter *All components* has not been set. They can be changed by the person making the confirmation.

For backflushed materials, a goods withdrawal is posted automatically after the first partial confirmation of the operation, for which you have scheduled.

Backflushed materials are also cancelled in the case of a [cancellation of a completion confirmation \[Page 1593\]](#), for which they have been posted as withdrawn.

Integration

When the withdrawal is made, the system automatically creates a goods issue document in Materials Management.

Prerequisites

The material movements possible for an order type are defined in the Customizing for Plant Maintenance.

Planned materials are only displayed in the material list if the necessary setting has been made in your system in the Customizing for Plant Maintenance.

Features

You can enter used material in the following transactions:

Overall completion confirmation

Here you can enter material used for different operations in an order without switching screens.

If you use the button *Data for the operation* for the required operation in the time confirmation table, the system displays all the materials planned for the operation in the material table.

For more information, see [Confirming Material Used \[Page 1570\]](#).

Single entry

Here you must specify on the initial screen, for which operation in the order you want to confirm the material used.

For more information, see [Confirming Material Used \[Page 1570\]](#).

Goods movements in inventory management

For more information, see [Entering Used Material Using Inventory Management \[Page 1572\]](#).

See also:

[Confirmation of External Services or External Material \[Page 1591\]](#)

Confirming Material Used

Confirming Material Used

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

You see the data corresponding to your entries in the tables for the initial screen. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))



Materials indicated as backflushed are **not** displayed in the goods movement table.

Enter data as required in the material list.

Change any material data displayed by the system as required.

For example, if you used less material than planned, correct the quantity entered in the list.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmations.

Procedure for Individual Entry and Operation List

Choose the confirmation detail screen (see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) or [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)).

Call up the material list using *Environment* → *Goods movements*.

The system displays the material list. The entries displayed can vary as follows:

No entries are displayed on the screen.

This is the case if no materials were flagged as backflushed in the order, and any further entries are not displayed owing to system settings.

Only backflushed materials are displayed on the screen.

This is the case if no further materials were assigned, or if further materials are not displayed owing to the Customizing settings in your system.

Backflushed and other materials are displayed on the screen.

This is the case if further materials can be displayed owing to the Customizing settings in your system.

Confirming Material Used

Make all the necessary entries in the list.

Change any material data displayed by the system as required.



If you used less material than planned, correct the quantity entered in the list.

Save the completion confirmation, or return to the confirmation detail screen for the operation, to enter additional data.



If you use the *Save* function during confirmation processing, you always save all the data entered so far for the operations you have processed. You always return to the initial confirmation screen.

Entering Used Material in Inventory Management

Entering Used Material in Inventory Management

You can withdraw both reserved and unreserved material with reference to an order. For this, you use the functions in inventory management (application component MM-IM).

Call up the transaction for entering goods movements. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Goods movement → Goods movement

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Goods movement → Goods movement

The initial screen appears for entering goods movements.

Then choose *Goods movement → Enter with reference → To order*.

For more information about how to withdraw material, see [Entering a Goods Issue with Reference to an Order \[Ext.\]](#).

For more information about inventory management, see [Inventory Management \[Ext.\]](#).

Confirmation of Measurement and Counter Readings

Use

Measurement and counter readings are frequently used in Customer Service and Plant Maintenance. They serve to monitor the actual condition of the technical system and are read at regular intervals by the employee responsible and entered into the system in the form of measurement documents.

Measurement or counter readings are also often entered during order processing. The employees performing the work enter the results of the readings in the form of measurement documents for the completion confirmation.

Measurement and counter readings often provide the first indication that maintenance work is required, whether planned or unplanned.



A **planned task** is due:

The vehicle mileometer shows a reading of 50,000 miles. This counter reading triggers a call for the vehicle maintenance plan, since comprehensive maintenance and inspection is planned when this figure is reached.

An **unplanned task** is due:

Despite strong wind, the rotational speed of a windmill is very low. This indicates a malfunction. An inspection of the windmill is requested by the employee reading the counter.

After the task has been completed, the restored normal condition of the technical system is often recorded with a final reading or measurement in the final confirmation.

Features

You enter measurement and counter readings in the form of measurement documents for a specific order operation.

A measurement document consists of the following data groups:

Data on the measuring point

Data on the measurement result

Additional information (short text or long text) if required

You can use a measurement document to enter the following data:

The exact time the measurement or reading was taken (time stamp)

The exact measurement or counter reading

A qualitative assessment of the measurement or counter reading

A general text on the measurement document

The name of the person who took the measurement/reading

The processing status of the measurement document

Confirmation of Measurement and Counter Readings

For more information, see [Entering Measurement and Counter Readings \[Page 1575\]](#).

See also:

[Measuring Points and Counters \[Page 252\]](#)

Entering Measurement and Counter Readings

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section (see [Using an Overall Completion Confirmation \[Page 1538\]](#)).

Choose *Continue*.

You have the following options:

You enter measurement and counter readings together for the order.

Make the entries for this directly in the measurement document table (see 4).

You enter measurement documents for individual operations.

In the line of the required operation, choose *Data for the operation*.

In the table for measurement documents and counter readings, you see all the measurement and counter readings already entered for this operation.

Enter data as required in the table for measurement and counter readings.

To enter **additional data** in the detail screen for the measurement document, select the required line and choose *Detail view for measurement documents*.

The measurement document detail screen appears.

Here you can enter additional measurement document data, for example, the indicator *Document after task*, which indicates that the measurement document records the result of a completed task.

If you want to document an **exchange of counters**, choose *Edit → Replace counter* on the measurement document detail screen. The system displays a dialog box where you can record the exchange. Then choose *Continue* to return to the measurement document detail screen.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which is displayed on the entry screen or the accompanying dialog boxes.

If you do **not** want to save certain confirmation data, you must delete these lines from the table before saving.

Save the completion confirmations.

Procedure for Individual Time Confirmation

Choose the actual data confirmation screen.

For more information about the possible ways to choose this screen, see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) and [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#).

Choose *Environment → Measurement documents*.

Entering Measurement and Counter Readings

The collective entry screen for measurement documents appears.

Enter data as required.

Choose *Continue*.

To enter **additional data** on the detail screen for the measurement document, select the required line and choose *Goto → Measurement document*.

The measurement document detail screen appears.

Here you can enter additional measurement document data, for example, the indicator *Document after task*, which indicates that the measurement document records the result of a completed task.

If you want to document an **exchange of counters**, choose *Edit → Replace counter* on this screen. The system displays a dialog box where you can record the exchange. Then choose *Continue* to return to the measurement document detail screen.

Return to the collective entry screen. To do this, choose *Goto → Back*.

Enter any other measurement documents required.

Return to the actual data confirmation screen for the operation using *Goto → Back*.



Note the following:

If you use the *Save* function during processing with the individual time confirmation, you always save all the data entered so far for the operations you have processed. You return each time to the initial confirmation screen.

Save the completion confirmation.

Confirmation of Installation and Dismantling Information

Use

You can use order operations to plan and perform the installation or dismantling of pieces of equipment at functional locations. When this work has been performed, you confirm it.

Prerequisites

You can only enter completion confirmations if the accompanying order is released for processing.

Features

For the entry of the confirmation for installation/dismantling, the following transactions are available:

[Overall completion confirmation \[Page 1536\]](#)

[Individual time confirmation \[Page 1543\]](#)

For more information, see [Confirming Installation/Dismantling Information \[Page 1578\]](#).

Confirming Installation/Dismantling Information

Confirming Installation/Dismantling Information

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Change* <equipment/functional location>.



Note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

If required, save the previously entered confirmation data.

The master record appears for the selected reference object for the order that you have just confirmed.

Make the required changes using the *Structuring* menu.

For more information, see [Installation/Dismantling from Equipment Master Record \[Page 140\]](#) and [Installation/Dismantling from Master Record of Functional Location \[Page 136\]](#).

Save the changes to the master record.

Procedure for Individual Time Confirmation

Choose the confirmation detail screen. (Refer to [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) or [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#))

Call up the structure list for the reference object for the order using *Environment* → *Structure list*.

You see the structure of the relevant technical object, and can explode this further using the menu functions available.

Select the technical object that you want to install or dismantle.



When selecting the object to be processed, note the following:

After you have entered the installation or dismantling function for the object, the structure list for the selected object is restructured. This means, for example, that:

If you select a piece of equipment and dismantle it, the structure list, which you return to after dismantling, contains only the equipment selected.

Confirming Installation/Dismantling Information

If you select a functional location and dismantle a piece of equipment from it, the structure list, which you return to after dismantling, no longer contains the dismantled equipment.

Choose *List* → *List editing* → *Change*.

The master record for the technical object appears.

Here you can enter the installation or dismantling information using the functions in the *Structuring* menu. For more information, see [Equipment at Functional Locations \[Page 134\]](#).

Save the change to the master record.

You return to the structure list.

Choose *Goto* → *Back*.

You return to the confirmation detail screen for the operation.



If you use the *Save* function during processing, you always save all the data entered so far for the operations you have processed. You always return to the initial screen for individual time confirmation.

Save the completion confirmation.

Goods Receipt for Refurbished Material

Goods Receipt for Refurbished Material

Use

In the overall completion confirmation, you can post the goods receipt for materials, which have been refurbished.

Features

The repaired/refurbished repairable spares are returned to the warehouse using the goods receipt in accordance with planning in the order, posted there and, if necessary, revaluated. They are now in full working order again, are relevant for materials planning and can be used.

The order is debited with the value arising from the quantity delivered and the current price of the refurbished material.

For more information, see [Refurbishment of Repairable Spares \[Page 1429\]](#) and [Posting a Goods Receipt for Refurbished Material \[Page 1436\]](#).

Activities

Call up the overall completion confirmation function. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation*
- *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation*

You find the function in the overall completion confirmation by choosing *Environment → Goods receipt of refurbishment*.

Technical Completion Confirmation

Use

Technical data is very important for the service and maintenance of technical objects. This is particularly the case if evaluations are to be created concerning service or maintenance. Technical data can provide information about:

Cause of damage

Exact damage location on the object

Work/activities performed and findings

Machine breakdowns

System availability during and after the task

Features

You can confirm technical data for different parts of the order. Depending on the type of entry, you can:

[Enter notification data valid for the whole order \[Page 1582\]](#)

This function is available for the overall completion confirmation and for the individual time confirmation.

[Enter notification data for an object in the object list \[Page 1584\]](#)

This function is available for the individual time confirmation.

[Assign new notifications to the order and confirm data \[Page 1586\]](#)

This function is available for the individual time confirmation.

The data from the notification is entered into the notification history when you close the notification. It is part of the history and contains data for each technical object on damage, malfunctions, causes, findings and the tasks performed.



You do not necessarily have to enter the technical data in the completion confirmation; you can also enter it directly in the required notification.

See also:

[Activity Report \[Page 838\]](#)

Entering Notification Data Valid for the Whole Order

Entering Notification Data Valid for the Whole Order

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Enter the tasks, causes, items and activities relevant for the whole order in the table from the entry screen.

The system saves this data in the notification, which is assigned to the order header.

If you want to enter additional notification data, which is valid for the whole order, choose *Notification*.

The following scenarios are possible:

A notification has already been assigned to the order header.

The header data screen for this notification appears.

No notification has yet been assigned to the order header.

If necessary, specify the required notification category in the dialog box that appears. After you have chosen *Continue*, you reach the header data screen for a new notification, which the system automatically assigns to the order header, when you save the completion confirmation.

No notification has been assigned to the order header, but notifications have been assigned in the object list for the order.

The system assigns the first notification in the object list to the order header.



You can no longer reverse this assignment after saving.

Enter data as required.

Choose *Goto* → *Back*.

You return to the initial screen for the overall completion confirmation.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmations.

Entering Notification Data Valid for the Whole Order

Procedure for Individual Time Confirmation

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

Choose the detail data screen for data entry [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

Choose *Environment → Notification*.

The following scenarios are possible:

A notification has already been assigned to the order header.

The header data screen for this notification appears.

No notification has yet been assigned to the order header.

You specify the required notification category in the dialog box that appears. After you have chosen *Continue*, you reach the header data screen for a new notification, which the system automatically assigns to the order header, when you save the completion confirmation.

No notification has been assigned to the order header, but notifications have been assigned in the object list for the order.

The system assigns the first notification in the object list to the order header.



You can no longer reverse this assignment after saving.

Enter all the required data in the notification.

Choose *Goto → Back*.

You return to the detail screen for the completion confirmation.

Save the completion confirmation.

See also:

[Activity Report \[Page 838\]](#)

Entering Notification Data for an Object in the Object List

Entering Notification Data for an Object in the Object List

Execute one of the following options:

Select the **overall completion confirmation** and enter data as required in the header data section. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Object list*.

Choose the detail data screen for **individual time confirmation** for the required operation [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

On the detail data screen for the required order operation, choose *Environment* → *Object list*.

You see the object list for the order.

In the line of the required object in the list, you see:

The *Create notification* symbol, if no notification has yet been created for the object

The *Change notification* symbol, if a notification has already been created for this object

In the line of the required object in the list, choose the symbol *Create notification* or *Change notification*.

If no notification was assigned to the object, you enter the required notification category in the dialog box that appears and then choose *Continue*.

The header data screen for the notification appears.



If no notification was assigned to the object, the assignment of the notification to the object in the object list is only saved when you save the completion confirmation.

Enter data as required in the notification.

Return to the object list using *Goto* → *Back*.

If necessary, enter additional notifications/notification data for other objects in the object list and return to the confirmation transaction, from which you called up the object list, using *Goto* → *Back*.



Before you save, note the following:

The **overall completion confirmation** saves all the data, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves proposal data.

If you do not want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmation.

See also:

Entering Notification Data for an Object in the Object List

[Activity Report \[Page 838\]](#)

Assigning a New Notification and Confirming Data

Assigning a New Notification and Confirming Data

Execute one of the following options:

Select the **overall completion confirmation** and enter data as required in the header data section. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Object list*.

Choose the detail data screen for **individual time confirmation** for the required operation [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

On the detail data screen for the required order operation, choose *Environment* → *Object list*.

You see the object list for the order.

Choose the *Notification selection* function and select the required notification in the list.

The system writes the notification number in a new line of the object list. (To see the notification number, you may have to scroll the table to the right.)



The assignment of the notification to the order is only saved when you save the completion confirmation.

Choose the *Change notification* symbol for the newly assigned notification.

The header data screen for the notification appears.

Enter data as required in the notification.

Return to the object list using *Goto* → *Back*.

If necessary, enter additional notifications/notification data for other objects in the object list and return to the confirmation transaction, from which you called up the object list, using *Goto* → *Back*.



Before you save, note the following:

The **overall completion confirmation** saves all the data, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves proposal data.

If you do not want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmation.

See also:

[Activity Report \[Page 838\]](#)

Assigning a New Notification and Confirming Data

Confirmation of Services

Confirmation of Services

Use

Within the overall completion confirmation, you can also confirm planned services, to be executed internally, in the service or maintenance order.

Integration

You require the integration of the *Service* (MM-SRV) component in Materials Management for this function.

Prerequisites

A confirmation profile, which is intended for displaying the service table, is assigned to your user default values for Customer Service and Plant Maintenance. (Refer to [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#) and [Screen Areas for Confirmation Data \[Page 1542\]](#))

An appropriate control key was assigned to the operation, for which you want to confirm services.

Features

The internal or external services planned in the order are called up in the overall completion confirmation using the function *Data for the operation* individually for each operation in the service table for the completion confirmation.

For more information, see [Confirming Services \[Page 1589\]](#).

See also:

[MM - Service \[Ext.\]](#)

Confirming Services

Prerequisites

A confirmation profile, which is intended for displaying the service table, is assigned to your user default values for Customer Service and Plant Maintenance. (Refer to [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#) and [Screen Areas for Confirmation Data \[Page 1542\]](#))

An appropriate control key was assigned to the operation, for which you want to confirm services.

Procedure

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Enter data as required in the header data section.

Choose *Continue*.

Depending on the combination of entries, the data appears in the tables displayed below.

In the time data table, choose the *Data for the operation* symbol for the required operation.

The system includes the service table in the entry screen.

Choose *Service selection*.

A dialog box appears where the order, which you process, is already entered.

Select the order line and choose *Continue*.

A selection screen appears with the services that have been planned for the operation.

Select the service lines, which you want to confirm, and choose *Copy services*.

The system inserts the selected services into the service table of the overall completion confirmation.

Change or supplement the displayed data as required.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the confirmation data entered.

Confirming Services

Confirmation of External Services or External Material

Purpose

If you schedule external material or external services in service and maintenance orders, you use external procurement processing for their completion confirmation.



There are companies, which also want to perform capacity planning for employees from external companies. In such a case, it is possible to create service or maintenance orders, in which you plan the required external capacity, in addition to the external procurement processing described here, which is processed by Purchasing. These orders are then confirmed regularly by the employees from the external company to break down the planned capacity. For these completion confirmations, the employees from the external companies can use the [entry options \[Page 1534\]](#) described.

For this type of processing, a control key, which allows capacity requirements to be determined, must be assigned to the external operations.

See also:

[Control Key \[Page 1105\]](#)

Process Flow

Based on the purchase requisition generated in the order, a purchase order for a material or an external service is sent to a vendor.



If changes, with reference to the materials/services ordered (for example, different dates or quantities), occur in the order owing to the planning and executing of maintenance work, the system automatically changes the quantities if you are using SAP Business Workflow in your system and have made the necessary settings for this.

For more information, see [Change of a Purchase Requisition \[Page 1118\]](#).

The delivery or the service performed is treated as a goods receipt and posted directly to the order for which the material or external service was requested. The order is therefore charged immediately for the goods receipt with the relevant costs.

When the invoice is received, any changes to costs incurred are settled to the order.

Especially for External Services:

The service is valued with the purchase order price and entered in the accounts of Financial Accounting. The order used to order the service is charged with this value.

After a goods receipt for an operation, which is to be executed by an external company, this operation automatically receives the status *External operation partially delivered*. The operation only receives the status *External operation delivered* when the final delivery indicator is set for the goods receipt.

Confirmation of External Services or External Material

In the order, on the external processing screen for the operation, you can see whether a goods receipt has been posted for the purchase order. You can see the goods receipt quantity posted in the field *GR qty*.

For more information about external services, see [Order Processing \(External Assignment\) \[Page 1419\]](#).

See also:

[Manual Creation of Purchase Requisitions \[Ext.\]](#)

[Change of a Purchase Requisition \[Page 1118\]](#)

Cancellation of a Time Completion Confirmation

Use

It may be that completion confirmations are entered by mistake for the wrong operations or sub-operations, or with the wrong data. You therefore have the option of canceling completion confirmations in the system.

Integration

For completion confirmations, which have been entered using the **overall completion confirmation**, the following applies:

If you cancel the completion confirmation, you thereby also cancel the backflushed materials, whose withdrawal was automatically posted. You cancel all other goods movements using the functions in Materials Management.

For more information, see [Cancellation of a Material Document \[Ext.\]](#).

For completion confirmations, which have been entered using the **individual time confirmation**, the following applies:

If you cancel the completion confirmation, you also cancel **all** the goods movements that were entered using this completion confirmation.

For completion confirmations, which have been entered using the **time sheet**, the following applies:

You use the time sheet to change the completion confirmation.

The system automatically cancels the previously entered completion confirmation for the service or maintenance order and creates a new completion confirmation.

For more information, see [Time Sheet \[Page 1606\]](#).

Features

You can use this function for:

[Canceling completion confirmations with known number \[Page 1594\]](#)

[Canceling completion confirmations with unknown number \[Page 1595\]](#)

Canceling a Completion Confirmation with Known Number

Canceling a Completion Confirmation with Known Number

Call up the cancellation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Cancel

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Cancel

The initial screen appears for canceling order confirmations.

Complete the screen and choose *Continue*.

Depending on your entries, you see one of the following screens:

The detail screen for the completion confirmation

A list of the operations and sub-operations for the maintenance order along with the completion confirmations already entered for them

The selected operation with its sub-operations and the completion confirmations already entered for them

The selected sub-operation and the completion confirmations already entered for it

Choose the detail screen of the required completion confirmation to cancel it.

To do this, select the completion confirmation in the list and choose *Goto → Actual data*.

To cancel the completion confirmation, choose *Confirmation → Save*.

The editor for the completion confirmation text appears.

Enter the reason for the cancellation and choose *Goto → Back*.

You return to the initial screen for canceling order confirmations. The system has canceled the completion confirmation.

Canceling a Completion Confirmation with Unknown Number

Canceling a Completion Confirmation with Unknown Number

Call up the cancellation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation list

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation list

A selection screen appears.

Enter the selection criteria for the completion confirmations, which you want to display.

Make the necessary entries and choose *Program → Execute*.

You see a list of completion confirmations that correspond to your selection criteria.

Select the required completion confirmation.

Choose *Confirmation → Cancel*.

The system displays the detail screen for the completion confirmation.

To cancel the completion confirmation, choose *Confirmation → Save*.

The editor for the completion confirmation text appears.

Enter the reason for the cancellation and choose *Goto → Back*.

You return to the list of completion confirmations. The system has canceled the completion confirmation.

See also:

[Working with Lists \[Ext.\]](#)

Display of Completion Confirmations

Display of Completion Confirmations

Use

You use this function if you want to display the completion confirmations entered in the system.

Features

The following methods of display are available:

To obtain an overview of the completion confirmations, you can [display all completion confirmations for an order \[Page 1597\]](#).

You can [display a list of completion confirmations \[Page 1598\]](#), which the system creates according to specific selection criteria defined by you.

You can also call up the detail screen for each of these completion confirmations.

Displaying Completion Confirmations for an Order

Call up the completion confirmation display. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation

The initial screen appears for displaying confirmations.

Complete the screen and choose *Continue*.

Depending on your entries, you see one of the following screens:

The confirmation detail screen

A list of the operations and sub-operations for the order with the completion confirmations already entered for them

The selected operation with its sub-operations and the completion confirmations already entered for them

The selected sub-operation and the completion confirmations already entered for it

You can display the detail screen for the individual completion confirmations. To do this, place the cursor on the required completion confirmation and choose *Edit → Choose*.

Displaying Completion Confirmations Generally

Displaying Completion Confirmations Generally

Call up the completion confirmation display. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation list

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation list

Enter the selection criteria for the completion confirmations, which you want to display.

Choose *Program → Execute*.

You see a list of completion confirmations that correspond to your selection criteria.

The following functions are available for processing completion confirmations:

Displaying a Completion Confirmation

You can display the detail screen for the individual completion confirmations. To do this, select the required completion confirmation and choose *Environment → Details*.

Canceling a Completion Confirmation

For more information, see [Canceling a Completion Confirmation Whose Number is Unknown \[Page 1595\]](#).

See also:

[Working with Lists \[Ext.\]](#)

Processing of Incorrect Completion Confirmations

Use

You can use this function to postprocess incorrect completion confirmations, which have been copied from a PDC system or entered using CATS (Cross Application Time Sheet). The incorrect records are generated by the system if data has been entered which cannot be posted using the processing steps in the completion confirmation. These incorrect completion confirmations must be postprocessed by experienced employees.

Features

The system generates a list of worklists, which contain incorrect completion confirmations.

In this list, you can use parameters to set which operations from the selected worklist should be provided for processing:

Only unprocessed operations (option *Outstanding operations*)

Only operations already processed (option *Processed operations*)

Both unprocessed and processed operations (option *All operations*)

To process the incorrect completion confirmations contained in a worklist, you branch from the list into the collective confirmation function. Here the system provides you with the data for the operations from the selected worklist for checking, authorization and supplementing.

If you have completed a worklist, you can delete it from the list of worklists.

See also:

[Collective Time Confirmation \[Page 1548\]](#)

Activities

Calling Up a List

To call up the list of worklists with incorrect completion confirmations, choose *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Postprocessing → Error pool*.

Setting Parameters

In the list of worklists, choose *Edit → Parameters*.

Select the required parameter.

Choose *Back*.

Calling Up an Error Record for Processing

Place the cursor in the list on the required worklist and choose *Edit → Choose*.

The system now calls up the collective confirmation function and inserts the incorrect completion confirmations from the worklist into the table for processing.

Checking a Completion Confirmation

Select the required completion confirmation on the collective confirmation screen.

Processing of Incorrect Completion Confirmations

Choose *Edit* → *Check completion confirmations*.

If the error has still not been removed, the system issues the message in the status line, which was issued when the worklist was generated. This notification specifies what is wrong with the completion confirmation.

If the error has been removed from the completion confirmation in the meantime, the system indicates in the list that the line is now correct.

Deleting a Completed Worklist

Place the cursor on the required worklist and choose *Edit* → *Delete pool*.

Cost Determination and Display of Actual Costs

Use

As soon as service or maintenance work has begun and the first completion confirmations (for example, time confirmations, material withdrawals, and so on) have been entered for the order by the employee responsible, the order will begin to incur actual costs.

You can display these costs.

Features

Display Options

The following options are available for displaying costs:

Displaying costs by cost elements

Displaying costs by value categories

You can also display the relevant key figure values at value category level for actual costs incurred by an order. To call these up, proceed as described in [Displaying Key Figure Values \[Page 1603\]](#).

For more information about displaying costs, see [Displaying Costs \[Page 1391\]](#).

Postprocessing of Errors in the Cost Determination

Occasionally, it may be that errors exist in the cost determination for the order completion confirmation, for example, if the tariff of the activity type has not been maintained at the start of a new business year.

You can still save these completion confirmations despite the presence of errors and postprocess them later once the errors have been removed. To do this, call up the function for postprocessing of actual costs. Depending on the application component in which you are working, choose one of the following menu paths:

*Logistics → Customer service → Service processing → Completion confirmation →
Postprocessing → Actual costs*

*Logistics → Plant maintenance → Maintenance processing → Completion confirmation →
Postprocessing → Actual costs*

For more information about postprocessing of actual costs, see [Postprocessing of Actual Costs \[Ext.\]](#).

Accounting Indicator in the Completion Confirmation

Accounting Indicator in the Completion Confirmation

Use



This function is provided especially for the confirmation of **service orders**.

You use the accounting indicator when confirming service orders if:

You want to further categorize the cost elements below the operation level



Operation 0010:	Repair of photocopier
Confirmation 1:	3 hours (Accounting indicator: goodwill)
Confirmation 2:	3 hours (Accounting indicator: fully billable)

Differentiation at cost element level should **not** result in an increased number of service types in the system

You want to perform resource-related billing and use the accounting indicator for price determination reasons

Integration

The system copies the accounting indicator to cost accounting, where it is stored in the line items. The accounting indicator is converted into the origin in the line item.

Prerequisites

You must have defined the accounting indicator in Customizing for Plant Maintenance.

Features

An input field for the accounting indicator is provided in the following screens.

Detail screen for individual confirmation (input field)

In the list screen for collective confirmation (column with input field per line)

In the list screen of the material overview (column with input field per line)

Cross Application Time Sheet (CATS) (column with input field per line)



If you want to enter CATS confirmations with different accounting indicators for a service order, you must create a new line for each accounting indicator.

You can specify the required accounting indicator for each completion confirmation and for each material component.

See Also:

[Reposting the Accounting Indicator \[Page 1815\]](#)

Displaying Key Figure Values

Prerequisites

If actual costs have been incurred by the order, you can display the value categories and amounts that go into each key figure used in the information system.

[Example \[Page 1604\]](#)

Procedure

Select the required order.

Choose the *Costs* tab page.

You see an overview of the costs determined for the value categories, which were created in your system during Customizing.

Choose the *Key figures* tab page.

You see the key figures that are valid for the order and the values with which they were updated.

Select the required key figure and choose *Details*.

The system displays a dialog box containing the individual value categories and amounts used to update the key figure.

Example of Key Figure Value Display

Example of Key Figure Value Display

One of your own employees performs two hours of work for a particular maintenance order and confirms this work.

The cost overview shows you that the maintenance order has been charged \$ 150 in the value category *Internal services*.

When displaying the key figure values, you see that the key figure *Internal employees* has also been charged \$ 150.

You display the detailed information for this key figure and see that the \$ 150 comes from the value category *Internal services*.

Decoupling of the Completion Confirmation Processes

Use

You can use this function to improve performance when entering completion confirmations.

Prerequisites

In Customizing, you can set when the processes, which are triggered by a completion confirmation, should be scheduled. In addition, you can set in Customizing whether these completion confirmation processes should be performed sequentially or in parallel. For this, you can define the following:

Number of parallel tasks

Server setting

Features

You can define when the processes are scheduled:

Immediately online

Immediately in an update

Later in a background job

The completion confirmation processes you can influence are:

Backflushing of components

Determination of actual costs

Resource-Related Billing

Resource-Related Billing

Use

The prices for services performed for individual customers are not always stored as fixed prices in a contract or determined using the standard pricing procedure. For example, you may be performing work that is wholly new for you. Typical examples of this are

Make-to-order production

External maintenance in the service company

Specific services, such as consulting

Orders like these are billed on a resource-related basis. In the billing document, the customer is provided with information on, for example, individual materials, internal activities, and costs. The billing document is based on the billing request .

Implementation Considerations

The resource-related billing function that was available before Release 4.5A ([static processing \[Page 1834\]](#)) has been replaced by an extended resource-related billing function. A [conversion program \[Page 1795\]](#) (report RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Features

Pricing

The system uses a pricing procedure to determine the prices for the subsequent billing request, based on the quantity and material. You can edit the billing request in the following views:

[Expenditure view \[Page 1820\]](#)

[Sales price view \[Page 1823\]](#)

For more information, see [Pricing \[Ext.\]](#) .

Application

You can use resource-related billing for the following objects:

Items in an SD document with controlling objects (that is, costs and revenues are recorded in the SD document)

Items in an SD document referencing a WBS element from a customer project

Items in an SD document referencing a production order or internal order

Non-revenue-bearing service orders referencing an item of the sales document

Revenue-bearing service orders

This means you can use resource-related billing in the Customer Service (CS), Sales and Distribution (SD), and Project System (PS) application components when processing sales and service orders.

For more information on resource-related billing in the application components, see:

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Conversion Program

Conversion Program

Use

The resource-related billing function that was available before Release 4.5A (static processing) has been replaced by an extended resource-related billing function. A conversion program (RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Prerequisites

You have maintained a [dynamic item processor profile \[Ext.\]](#) (DIP profile) with actual cost line items as the source.

Features

If you assign a DIP profile to a service order or sales document, the system checks whether the document has already been billed using static resource-related billing. If it has, you cannot assign the DIP profile manually. The conversion program must make the assignment.

If an object has been assigned to a DIP profile, you can no longer use static resource-related billing. You must use the new, flexible resource-related billing (DP90).



To avoid problems, we recommend you convert all sales document items relating to customer projects.

Billing Process (CS)

Purpose

This section describes the process flow for resource-related billing, in which you bill a customer for resources used (for example, personnel costs, material). You can use resource-related billing in Customer Service (CS) for different scenarios. For more information, see [Billing Scenarios \[Page 1801\]](#) and [Quotation Creation Scenarios \[Page 727\]](#).

Prerequisites

Customizing

You have maintained a [dynamic item processor profile \[Ext.\]](#) (DIP profile).

Service order

You have created one of the following objects:

- A revenue-bearing service order

- A non-revenue-bearing service order with reference to a sales order (for example, a repair order or a contract)

You have maintained the following sales data under *Extras* → *Sales data*:

- Sales organization

- Distribution channel

- Division

You have specified a DIP profile in the tab *Administration*.

You have specified a customer.

If you want to bill with the [service product \[Page 1043\]](#), you have specified a service product and selected the characteristic *Product* in the DIP profile.

You have released the service order and entered the costs.

Item of a Sales Document

You have created a sales document item (for example, standard order, repair order) that has a Controlling object, or that is assigned to a WBS element of a customer project.

You have assigned the item of a sales document item for which you want to perform resource-related billing to a dynamic order processing profile under *Goto* → *Item* → *Sales document*.

You have costs that are to be billed:

- Costs have been confirmed for the item of the sales document.

- A production order, internal order or work breakdown structure element (WBS element) which contains costs is assigned to the item of the sales document.

Billing Process (CS)**Material**

If the system differentiates the planned costs (totals records) in the expenditure view based on material and should show quantity specifications, select the following indicators when creating a material:

On the tab *Costing 1*: the indicator *origin of material*

On the tab *Costing 1*: the indicator *with quantity structure*

Process Flow

You define which data are to be billed and how the system should summarize the data to be billed for the billing request in the DIP profile in Customizing.

You create a service order and specify the DIP profile.

You confirm expenses (for example, work performed, material consumed) for the service order.

You create a billing request.

The system works as follows when creating a billing request:

The system determines the items in the expenditure view using the DIP profile. These items are referred to as [dynamic items \[Ext.\]](#).

Prices are determined using [SD-Price Determination \[Ext.\]](#). The pricing procedure necessary for this is determined from the document category specified in the DIP profile.

You can choose one of two views for editing:

[Expenditure view \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

You save the expenditure view if required.

You create a billing request in the expenditure view.

You generate a billing document in the component *Sales and Distribution* (SD).

See also

[Resource-Related Billing \(CS\) \[Page 1798\]](#)

[Billing Options \[Page 1828\]](#)

[Settings: Billing \[Page 1825\]](#)

Resource-Related Billing (CS)

Use

The prices for services performed for individual customers are not always stored as fixed prices in a contract or determined using the standard pricing procedure. It is possible that specific services do not have prices that are based on experience, meaning that the services cannot therefore be adequately costed before contract completion. Typical examples of this are

Make-to-order production

External maintenance in the service company

Specific services, such as consulting

In Customer Service (CS), you can bill the customer using resource-related billing for the resources consumed (for example, personnel, material) for services provided. In resource-related billing, the system generates so-called [dynamic items \[Ext.\]](#) from the resource-related information (for example, costs for material, utilities, personnel, travel).

You can choose from two views for processing the billing request that you generate before you create your own billing document:

[Expenditure view \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

You can use resource-related billing in Customer Service for different scenarios. For more information, see [Billing Scenarios \[Page 1801\]](#) and [Quotation Creation Scenarios \[Page 727\]](#).

For additional general information on resource-related billing, see [Resource-Related Billing \[Page 1793\]](#).



The resource-related billing function that was available before Release 4.5A ([static billing \[Page 1834\]](#)) has been replaced by an extended resource-related billing function. A [conversion program \[Page 1795\]](#) (report RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Prerequisites

For more information on the prerequisites, see [Resource-Related Billing: Process \(CS\) \[Page 1796\]](#).

Features

General

You can use resource-related billing in Customer Service for the following objects:

Non-revenue-bearing service orders referencing an item of the sales document

Revenue-bearing service orders

Resource-Related Billing (CS)

Usage of Service Products

When billing, you can use [service products \[Page 1043\]](#) and [configurable service products \[Page 1044\]](#).

If you decide on a **process with service product**, this presents the following advantages:

The cumulated amount is displayed in the billing request under the title of the service product (for example, bicycle assembly).

You can display the services agreed upon and described in the service product as sub-items in the billing request for information purposes.

In the case of the billing form *Flat rate*, only the main item is relevant for billing, whereas for the billing form *Resource-related*, the sub-items are relevant for billing. The scenario from assembly processing is an exception to this. Here, the expenses are returned as sub-items in the sales order item. For more information, see [Scenario 4 \[Page 1809\]](#).

You define whether a service product is copied into the billing request in the [dynamic item processor profile \[Ext.\]](#).

If you decide on a **process without service product**, only the costs that have arisen are displayed on the billing request. The customer no longer obtains information about which service (for example, standard service, service package, or service product) he specified in the order.

Features

The system does not generate a new sales document from the dynamic items during **repairs processing**. Instead it creates subitems in the repairs order which serve as the basis for the creation of billing documents.

This is true in the following cases:

For **sales order processing with service items**, if you have selected the billing form *Flat-rate*

For a **quotation with service product**, if you have selected the billing form *Flat-rate*

Accounting Indicator

The accounting indicator is a criterion that you can use to differentiate costs and revenues within the framework of call management. This enables costs incurred and revenues obtained to be identified by warranty or goodwill.

If you only want to bill a dynamic item partly or not at all, you can determine a discount for the customer on the basis of the accounting indicator. To do this, a condition type, in whose access sequence the accounting indicator is present, must be contained in the pricing procedure for pricing (in Customizing for Sales and Distribution under *Basic Functions* → *Pricing*). The dynamic item is displayed with the accounting indicator in the billing request.

You can

Change the accounting indicator in the [expenditure view \[Page 1820\]](#)

The change only applies to the resources view and the billing request. This does not affect the CO individual document.

Reposting [Page 1815]

You post a different accounting indicator for the CO individual document that the system has, for example, created for a completion confirmation.

For more information on the accounting indicator, see [Accounting Indicator in the Completion Confirmation \[Page 1602\]](#).

Apportionment Reason

If you do not want to bill a customer for a dynamic item, you can specify the reason for this (for example, warranty return) in the overview screen as an apportionment reason. The dynamic item **is not** displayed in the billing request. The reason is only used internally and can therefore be used during results analysis.

Activities

Settings in Customizing

Function	Object	Menu Path in the IMG
Define default values for DIP profile	Service order	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types → Credit Limit Checks, Sales Document Types for Service Orders</i>
Define default values for DIP profile	Sales order by item category	<i>Sales and Distribution → Sales → Sales Documents → Sales Document Item → Define Item Categories</i> When you create a sales order, the system uses the order type and the item category of the material to find the item category that you have stored in a DIP profile.
Maintain sets for DIP profile	Set	<i>Enterprise Controlling → Profit Center Accounting → Tools → Sets and Variables → Maintain Sets</i>

See also

[Billing Options \[Page 1828\]](#)

[Settings: Billing \[Page 1825\]](#)

Billing Scenarios

Billing Scenarios

Use

This scenario describes different scenarios that you can represent in the R/3 System for billing. The table provides an overview of flat rate and resource-related billing with [dynamic items \[Ext.\]](#). You can call up more detailed information for the individual scenarios:

Object to be Billed	Use	Features
Service order		
Service order	The work that was performed, the materials that were used, and the additional costs that arose within the framework of providing a service are to be billed to the customer. Resource-related billing can be performed once the service has been completed, or periodically in the case of extensive services that are performed over a long period of time. No contractual agreements exist.	See Scenario 1 [Page 1803]
Service order	A predefined service product (for example, standard service, service package) is sold to the customer.	See Scenario 2 [Page 1805]
Service order with reference to a sales document item (contract or sales order item from assembly processing)	A contract is drawn up with the customer or a standard service is sold to the customer (service package already created in the system). The service is to be billed to the customer based on the expenses that have arisen.	See Scenario 3 [Page 1807]
Service order with reference to a sales order item from assembly processing	A predefined service product is sold to the customer. A flat rate price is defined for the service product, or is agreed upon. If required, you can list the work that has been performed in the bill.	See Scenario 4 [Page 1809]
Sales document		
For example, sales order item with internal order, production order, etc.	The customer should be billed within the framework of production for services that have been performed, materials that have been used and so on.	See Scenario 5 [Page 1811]
For example, sales order item with cost collector	The customer is to be billed for services (for example, consultation service at the service provider's) that have been confirmed for a sales document item.	See Scenario 6 [Page 1813]

Billing Scenarios

For example, sales order item with WBS element (customer project)	The customer should be billed within the framework of a customer project for services that have been performed, materials that have been used and so on.	See Scenario 7 [Page 1818]
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Billing - Scenario 1 (CS)

Billing - Scenario 1 (CS)

Use

The work that was performed, the materials that were used, and the additional costs that arose within the framework of providing a service are to be billed to the customer.

Resource-related billing can be performed once the service has been completed, or periodically in the case of extensive services that are performed over a long period of time. No contractual agreements exist.

Representation in the System

Service order

No billing form, or billing form *Resource-related*

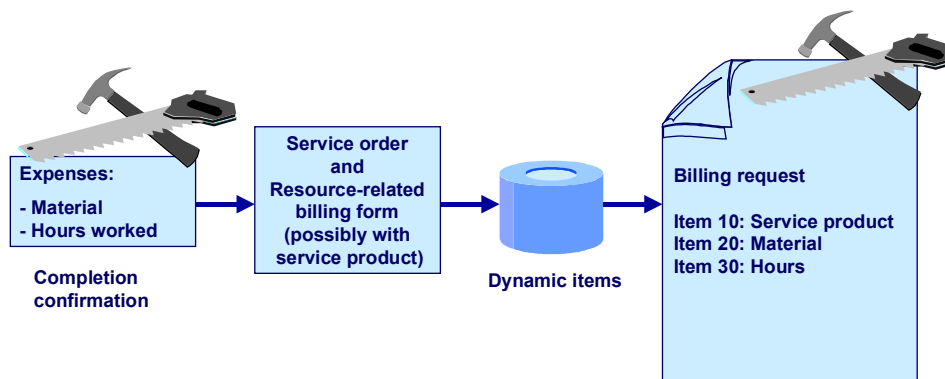
With or without service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	Service product (if available)
Hours worked	

Graphical Representation



Features

The service order carries revenues and these are posted to the order during billing.

You can copy a service product into the billing request for structuring purposes. You define whether it is copied using the [dynamic item processing profile \[Ext.\]](#).

Billing - Scenario 2 (CS)

Billing - Scenario 2 (CS)

Use

A predefined service product (for example, standard service, service package) is sold to the customer.

Representation in the System

Service order

Billing form *Flat rate*

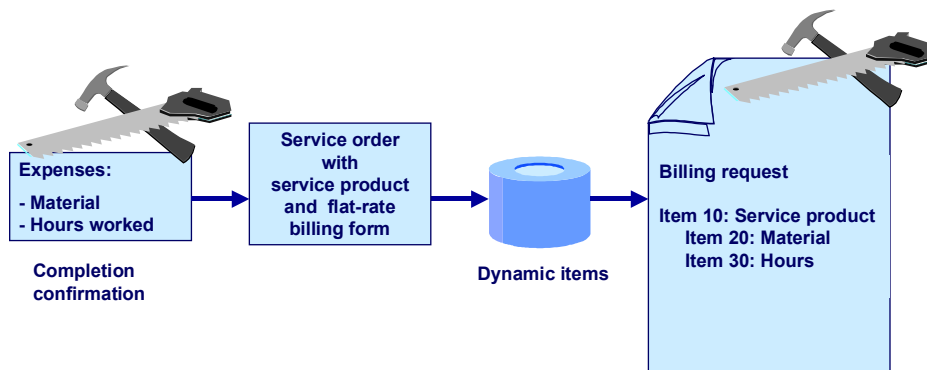
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Service product	Material
	Hours worked

Graphical Representation



Features

The service order carries revenues and these are posted to the order during billing.

The service product must be copied into the billing request because the flat rate is linked to it.

Billing - Scenario 3 (CS)

Billing - Scenario 3 (CS)

Use

A contract is drawn up with the customer or a standard service is sold to the customer (whereby the service package has already been created in the system as a service product). The service is to be billed to the customer based on the expenses that have arisen.

Representation in the System

Service order with reference to a sales document item (contract or sales order item from assembly processing)

Billing form *Resource-related*

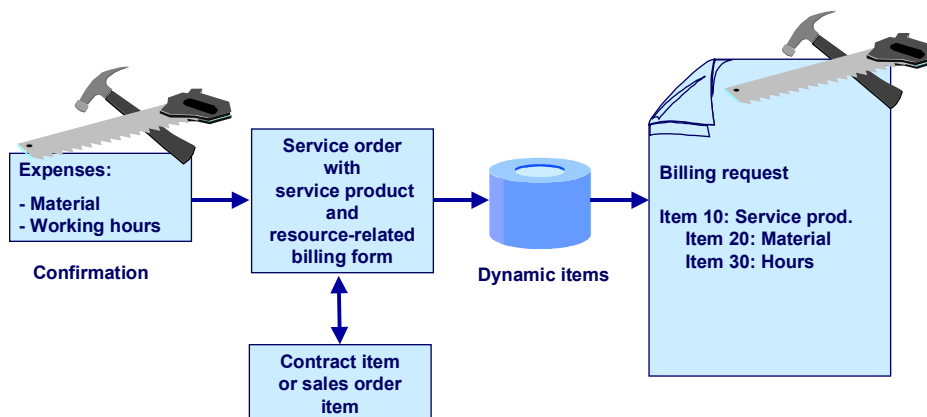
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	Service product
Hours worked	

Graphical Representation



Features

If the service order makes **reference to a contract item**, it does not carry revenues. The revenues are posted to the contract item during billing.

If the service order makes **reference to a sales order item**, it does not carry revenues. The revenues are posted to the sales order item during billing.

The system copies the service product into the service order and possibly into the billing request (setting in the [dynamic item processor profile \[Ext.\]](#)).

You can bill several items of a sales document together if the service product is not copied into the billing requests.

Billing - Scenario 4 (CS)

Billing - Scenario 4 (CS)

Use

A predefined service product is sold to the customer. A flat rate price is defined for the service product, or is agreed upon. If required, you can list the work that has been performed in the bill.

Representation in the System

Service order with reference to a sales document item from assembly processing

Billing form *Flat rate*

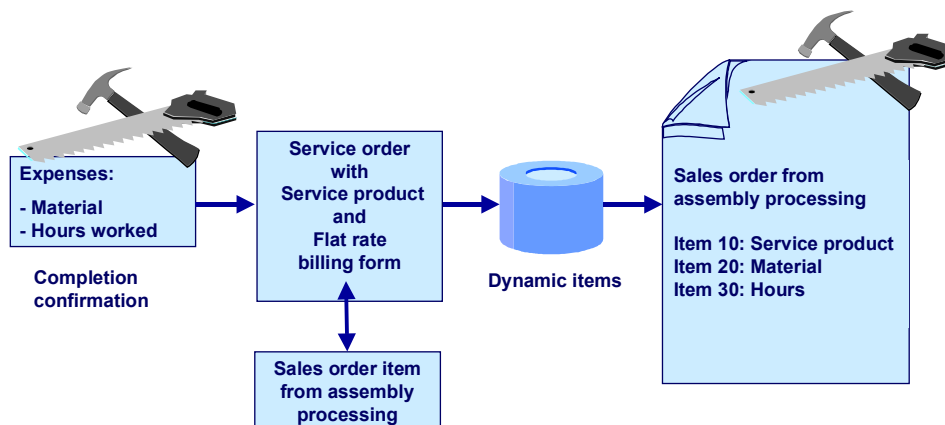
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Service product	Material
	Hours worked

Graphical Representation



Features

The service order carries revenues. The revenues are posted to the sales order during billing.

During flat rate billing, you can only bill one item. The dynamic items are copied as sub-items into the original sales order.

Billing - Scenario 5 (CS)

Billing - Scenario 5 (CS)

Use

The customer should be billed within the framework of production for services that have been performed, materials that have been used and so on.

Representation in the System

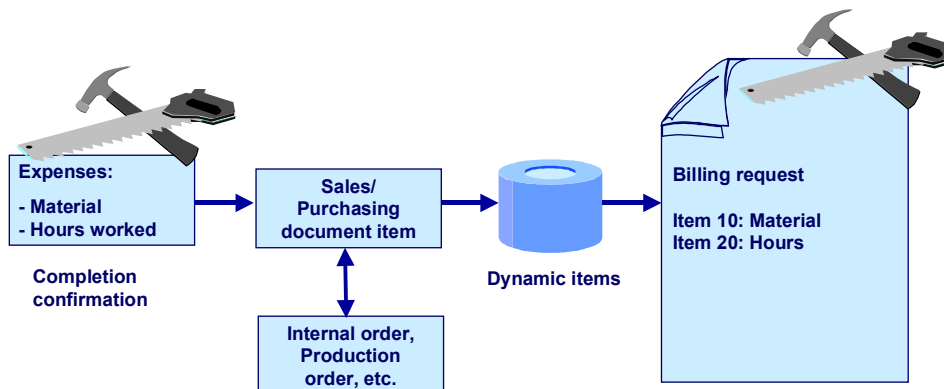
Sales document item (here, a sales order item) with reference to an internal order or production order.

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the sales document item during billing.

You can bill several items of a sales document at the same time.

Billing - Scenario 6 (CS)

Billing - Scenario 6 (CS)

Use

The customer is to be billed for services (for example, consultation service at the service provider's) that have been confirmed for a sales document item.

Representation in the System

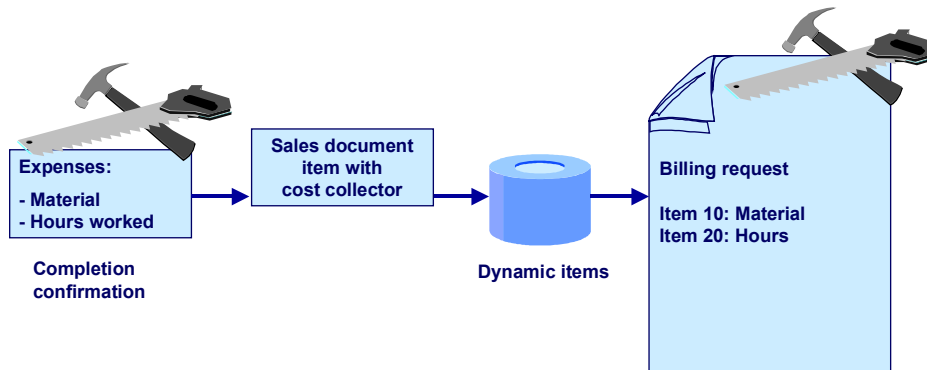
Sales document item (here, a sales order item) with cost collector

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the sales document item during billing.

You can bill several items of a sales document at the same time.

Reposting the Accounting Indicator

Reposting the Accounting Indicator

Use

You can use this function to change the accounting indicator that is specified, for example, in a completion confirmation.

Instead of canceling the completion confirmation, you can change the accounting indicator for the CO individual document that the system has created for the completion confirmation. The system posts the CO individual document with the new accounting indicator.



You can also change the accounting indicator in resource-related billing in the [expenditure view \[Page 1820\]](#). This function is **not** identical to reposting the accounting indicator. If you change the accounting indicator in the overview screen, the change only applies to the overview screen and not to the billing request. It does not affect the CO individual document.

Procedure

You can use this function for a different scenarios. The process flow is described using an example scenario and is also valid for the other objects for which you can perform resource-related billing.

Scenario:

Quotation for Service Management, without service product, billing form *Resource-related*

Choose *Logistics* → *Customer service* → *Service processing* → *Completion* → *Create billing request* → *Repost accounting indicator*.

The initial screen for reposting the accounting indicator is displayed.

Enter the necessary data and choose *Program* → *Execute*.

A list of dynamic items is displayed.

Change the accounting indicator of the appropriate dynamic item.

Save the changes.

Billing Process (PS)

Purpose

You use this process to bill the customer for work done, materials used, and other costs in customer projects. Billing is on a resource-related basis.

You use sales order items assigned to projects to process customer projects in the SAP system. You create [billing requests \[Ext.\]](#) using sales orders in the Sales and Distribution (SD) application component. The process for resource-related billing in customer projects is the same as the process used in SD.

Integration

You can only use this component in conjunction with SD because a sales order assigned to a project must exist before you can use resource-related billing.

When you assign one or more order items to a WBS element flagged as a billing element, you are linking the sales order in SD with the Project System (PS).

The billing element referenced in the sales order item is the top element in a billing structure. All objects subordinate to the billing element in the hierarchy (WBS elements, orders, networks, network activities) belong to this billing structure.

Prerequisites

Customizing in SD

You create an order item that references an element in a customer project.

To this end, you enter the WBS element to which you want to assign the order item in the *Account Assignment* tab page.

You maintain a [dynamic item processor profile \[Ext.\]](#) (DIP profile) in the order.

To this end, you enter a DIP profile for the order item in the *Sales B* tab page.

In the order item, you enter a material that permits account assignment to a project.

For more information, go to the Project System IMG and choose *Revenues and Earnings* → *Integration with Sales Documents (SD)* → *Assign Sales Orders to Project Account*.

Customizing in PS

You define a DIP profile.



If you maintain the DIP profile in such a way that the system takes actual cost summary records as the source of dynamic items, the system does not display the costs differentiated by material.

Additional Prerequisites

The WBS element assign to the sales order item is cost-bearing.

Billing Process (PS)**Process Flow**

You define which data is to be billed and how the system should summarize the data to be billed for the billing request in the DIP profile in Customizing.

You confirm expenses (for example, work performed, material consumed) for the sales order.



You have the option of using accounting indicators, as well as cost elements, to distinguish between the costs confirmed. For more information on the accounting indicator, see [Accounting Indicator in the Completion Confirmation \[Page 1602\]](#). and [Reposting Accounting Indicators \[Page 1815\]](#).

You create a billing request.

The system works as follows when creating a billing request:

The system starts with the costs and determines the items for the expenditure view, using the DIP profile (see prerequisites). These items are referred to as dynamic items.

The system sorts the dynamic items per the SD order items and uses [SD price determination \[Ext.\]](#) to calculate the price for the billing request.

The system uses the document category (from the DIP profile) to determine the pricing procedure used here.

You can choose one of two views for editing:

[Expenditure View \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

Save the billing request in a document.

The system records the revenues in the project.

Billing - Scenario 7 (PS)

Use

The customer should be billed within the framework of a customer project for services that have been performed, materials that have been used and so on.

For more information on resource-related billing in PS, see [Resource-Related Billing Process \(PS\) \[Page 1816\]](#)

Representation in the System

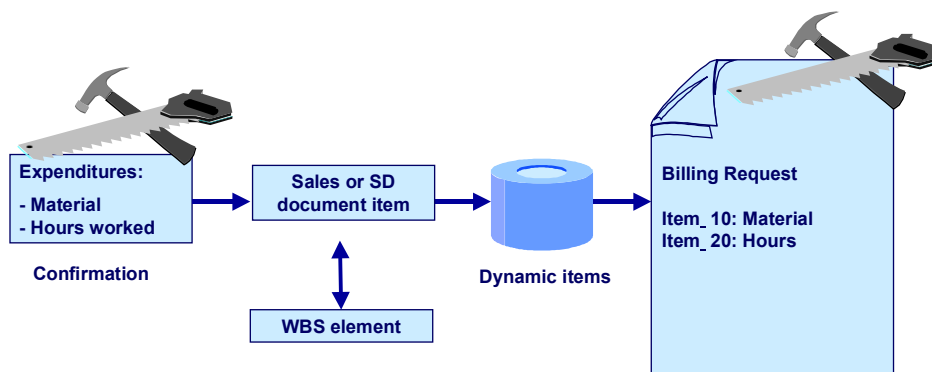
Sales document item (here, a sales order item) with reference to a WBS element.

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the WBS element during billing.

You can bill several items of a sales document at the same time.

Processing the Expenditure View

Use

You can edit the items in resource-related billing in the following views:

Expenditure view

[Sales Price View \[Page 1823\]](#)

You can switch between the views at any time.

The expenditure view shows the costs from the sales/service order or project, summarized using the DI processor. The summarized costs - called [dynamic items \[Ext.\]](#) - form the items in the expenditure view.

You use the expenditure view to determine whether the system bills the costs summarized for dynamic items in full, later, or does not include them in the billing request at all.

The screen for the expenditure view is comprised of an overview tree and a table.

The overview tree shows the hierarchy of SD items per the selected characteristics from the DIP profile.

The table displays the hierarchy node selected in the overview tree, and the objects subordinate to it (the SD document items).

Features


The tables below contain information on the processing options:

In the overview tree






In the table

Using the menu bar



Processing Options in the Overview Tree

Function	Procedure	Result
Hierarchy change in the structure	<i>Edit → Hierarchy change</i>	You can change the hierarchy at any time, and display the new hierarchy immediately. These settings override the structuring setting entered in the DIP profile for a characteristic.
Open and close hierarchy nodes	Click  once.	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignments within the project structure, or of the sales/service order.

Processing the Expenditure View






Display detailed information for the objects	Double click the symbol in front of the object	The system displays the detailed information. Choose  to return to the expenditure view.
Display objects in table	Double click the object description	The hierarchy node and its direct successors are displayed in the table.
Lock values	Set the  <i>Locked</i> indicator.	You stipulate, for a hierarchy node and/or the objects subordinate to it, that the values in the hierarchy node should be sent to the billing request unchanged.
Display processing status	 – To be billed  – To be postponed  – Rejected	The status symbols show whether and in what amount the system copies the original amount of an item into the billing request.

Processing Options in the Table

Function	Procedure	Result
Edit values	Process the values in the <i>Amount</i> , <i>Quantity</i> , or <i>Percent</i> tab page, as appropriate.	<p>You stipulate whether the system should take over some, all, or none of the original amount for an item into the billing request.</p> <p>The symbols in the <i>Status</i> column changes as appropriate (see table above).</p> <p>Apportionment Reason</p> <p>If you do not want to bill a customer for a dynamic item, you can specify the reason for this (for example, warranty return) as an apportionment reason.</p> <p>The dynamic item is not displayed in the billing request. The reason is only used internally and can therefore be used during results analysis [Ext.].</p>
Lock values	Set the  <i>Locked</i> indicator.	You stipulate, for a hierarchy node and/or the objects subordinate to it, that the values in the hierarchy node should be sent to the calculation unchanged.
Display detailed information	Double click line in table	<p>The system displays the detailed information.</p> <p>Choose  to return to the expenditure view.</p>

Processing the Expenditure View

Processing Options Using the Menu Bar

Function	Procedure	Result
Hide structure tree and display it again	Choose  .	The structure tree is hidden; the table display is expanded to fill the screen. Choose  again to restore the structure tree display.
Switch to the sales price view	Choose  <i>Sales Price</i> .	The system displays the sales price view
Save billing request in a document	Choose  .	The system saves the billing request in a document. You can edit the document later.
Generate billing request	Choose  <i>Billing Request</i> .	You generate a billing request in the <i>Sales and Distribution</i> (SD) application component.

See also:

[Settings: Sales Pricing and Billing \[Page 1825\]](#)

Editing the Sales Price View

Editing the Sales Price View

Use

You can edit the items in resource-related billing in the following views:

[Expenditure view \[Page 1820\]](#)

Sales price view

You can switch between the views at any time.

This sales price view shows the items from the expenditure view, sorted and combined per SD items. The prices for the items are calculated using [SD pricing \[Ext.\]](#).

In the sales price view, you can edit individual or header items from resource-related billing, with the help of [SD conditions \[Ext.\]](#). If you make changes in the header item, the system automatically copies them to the line items.

The screen for the sales price view is comprised of an overview tree and a table.

The overview tree shows the hierarchy of SD items per the selected characteristics from the [DIP profile \[Ext.\]](#).

The table displays the hierarchy node selected in the overview tree, and the objects subordinate to it (the SD document items).

Procedure


The tables below contain information on the processing options:

In the overview tree


In the table

Using the menu bar






Processing Options in the Overview Tree

Function	Procedure	Result
Open and close hierarchy nodes	Click  once.	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignments within the project structure, or of the sales/service order.
Display objects in table	Double click the object description	The hierarchy node and its direct successors are displayed in the table.




Processing Options in the Table

Function	Procedure	Result
Display detailed information	Select a line in the table and choose  .	The system displays detailed information in a dialog box.

Editing the Sales Price View

Enter conditions for pricing	Use the <i>Condition type</i> table column to choose conditions	You choose a condition type and enter the appropriate value. The system updates the price automatically. See also: Maintaining Conditions [Ext.]
Display condition records	Select a condition record and choose  <i>Condition Record</i> .	The system displays the detailed information for the selected condition type. Choose  to return to the sales price view.
Update prices	Choose  <i>Update</i> .	You can stipulate that the system updates all of pricing or only part of it by, for example, recalculating the rebate conditions. See also: Repeating Pricing [Ext.]
Display pricing log	Choose  <i>Analysis</i> .	The system displays a detailed log of pricing. Choose  to return to the sales price view. See also: Analyzing Pricing and Conditions [Ext.]

Processing Options Using the Menu Bar

Function	Procedure	Result
Switch to the expenditure view	Choose  <i>Expenditure</i> .	The system displays the expenditure view
Save billing request in a document	Choose  .	The system saves the billing request in a document. You can edit the document later.
Generate billing request	Choose  <i>Billing Request</i> .	You generate a billing document in the <i>Sales and Distribution (SD)</i> component.

See also:

[Settings: Sales Pricing and Billing \[Page 1825\]](#)



Settings: Sales Pricing and Billing

Settings: Sales Pricing and Billing

Features

Choose *Extras* → *Settings* to access four tab pages where you can enter the settings described below.

You can do the following with your settings:

- Store them for the duration of your current processing: choose .
- Save them in the database: choose .

If you update the settings to the database, the system automatically accesses them each time you access the sales pricing again.


The settings apply to [quotation generation or sales pricing \[Page 723\]](#) and [resource-related billing \[Page 1793\]](#).


General Tab Page


Sales Pricing or Quotation Creation

- You can choose between the sales price view or the sales price basis as the initial view for the sales pricing.

The system displays the relevant view when you choose one of the following pushbuttons in the initial screen for sales pricing or creating quotations:

 *Create new sales pricing*


 *Access sales pricing*


- If you want the system to display the quotation document for further processing once it has been created (by means of  *Create quotation*), select the indicator *Show quotation doc. after saving*.

If you do not select this indicator, the system simply displays a message, confirming that the quotation has been created.

Resource-Related Billing

- You can choose between the sales price view or the expenditure view as the initial view for the sales pricing.

To access the view you want, go to the *Create Billing Request: Initial Screen* and choose .

- If you want the system to display the billing request for further processing once it has been created (by means of  *Billing Request*), select the indicator *Show billing request after saving*.

If you do not select this indicator, the system simply displays a message, confirming that the billing request has been created.

Structure Tree Tab Page

Here, you determine how the two screen areas (table and structure tree) are arranged in the two views.

- Sales price basis view/expenditure view
You can show or hide the structure tree at the top of the screen or at the bottom, on the left or on the right. The tree reproduces the dynamic item hierarchy.
- Sales price view
You can show the structure tree at the top of the screen or at the bottom. The tree reproduces the individual SD documents with main items and subitems.

Sales Price Basis/Expenditure Tab Page

- You can choose the currency in which the system displays the sales price basis/expenditure items. You can choose between controlling area currency, object currency, and transaction currency. This setting does not affect the currency transferred to the quotation/billing request.
The system usually transfers the transaction currency, unless the *Transaction currency* field is not filled. In this event, the controlling area currency is transferred. This happens if the *All currencies* field is not selected (in cost accounting customizing, under *Controlling* → *General Controlling* → *Maintain Controlling Area*).
- If you select the indicator *Only dynamic items will accept input*, it will only be possible to enter values for the dynamic items.
- Selecting the *Block in manual input* indicator ensures that values changed manually can be overwritten.

Description Tab Page

The system only draws on this tab page in the sales price basis view/expenditure view.

You use this tab page to stipulate how the [dynamic items \[Ext.\]](#), objects, and the selected characteristics are labeled in the structure tree and table.

- You can use any combination of posting period, material number, and material description as the description in a dynamic item.
- You can use the short or long description of an object as its description in the DIP.
- You can use an abbreviation and/or the short/long description of a characteristic as the label for that characteristic.



This tab page is the header for a variable number of subordinate tab pages. The number of tab pages depends on whether you have maintained the activity type, cost element, cost center type, and statistical key figures as structuring characteristics in the DIP profile.

The system displays one tab page for each of these structuring characteristics. In addition to the optional tab pages, the system always displays the *Dynamic Items* and *Object* tab pages.

Settings: Sales Pricing and Billing**Activities**



- Depending on which component and process you are using, choose one of the following menu paths:

Sales Pricing or Quotation Creation

Component	Menu Path
CS	<i>Logistics → Customer Service → Service Processing → Order → Service Order → Create Quotation</i>
PS	<i>Logistics or Accounting → Project System → Financials → Planning → Sales Pricing.</i>

Resource-Related Billing

Component	Menu Path
SD	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>
CS	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>
PS	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>

- Choose *Extras → Settings...*
The *Settings* dialog box appears.
- Select the tab page indicators described above as required.
- Choose  to save the settings for the duration of your processing work.
- Choose  to save the data in the database.

Billing Options

Use

You use resource-related billing to calculate the price for a sales/service order or customer project on a resource-related basis, and save the result in a billing request.

Prerequisites

For information on the prerequisites, see:

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Billing in SD follows the same procedure as billing in PS.

Procedure

Choose the appropriate menu path:

Component	Menu Path	Resulting Screen
CS	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>	<i>Resource-Related Billing Request: Initial Screen</i>
PS	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>	<i>Resource-Related Billing Request: Initial Screen</i>
SD	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>	<i>Resource-Related Billing Request: Initial Screen</i>

Enter data as required.

If necessary, overwrite the pricing date defaulted by the system (today's date). The date you enter applies to all items in the billing request.

If you want to use your own settings for sales pricing, choose *Extras → Settings...*





Here, for example, you can determine how the screen areas are divided or stipulate to which of the two processing views you want to jump when you access a resource-related billing again.

For more information on the settings, see [Settings: Sales Pricing and Billing \[Page 1825\]](#).

Once you have chosen your selection criteria and decided on settings, the following additional options for further processing are available:

Pushbutton	Function
------------	----------

Billing Options

 <i>Expenditure</i>	<p>This view shows the costs from the sales/service order or project billing structure, summarized using the DI processor [Ext.] . The summarized costs form the items in the expenditure view.</p> <p>You can use this view to edit the items in resource-related billing and transfer some, all, or none of them to the billing request.</p> <p>For more information, see Editing the Expenditure View [Page 1820] .</p>
 <i>Sales price</i>	<p>This view shows the items from the expenditure view, sorted and combined per SD items. The prices for the items are calculated using SD pricing.</p> <p>In the sales price view, you can edit individual or header items from resource-related billing, with the help of SD conditions.</p> <p>For more information, see Editing the Sales Price View [Page 1823] .</p>
 <i>Create billing request</i>	<p>The system carries out resource-related billing and creates a billing request.</p> <p>If you chose <i>Extras</i> → <i>Settings...</i> and selected <i>Show billing request after saving</i> on the <i>General</i> tab page, the system creates the billing request and jumps to the change mode for it.</p> <p>If you did not select the indicator, a message appears in the status line, telling you that the billing request was created successfully.</p> <p>For more information, see Creating Billing Requests [Page 1830].</p>
 <i>Access billing request</i>	<p>The system accesses an existing billing request.</p> <p>If more than one billing request exists, the system asks you to choose one.</p> <p>Depending on the settings you entered under <i>Extras</i> → <i>Settings</i>, you then branch to the expenditure view or the sales price view.</p>

Creating Billing Requests

Use

You can use this function to create the billing request for a sales/service order or a customer project.

For more information, see [Resource-Related Billing \[Page 1793\]](#).

Prerequisites

For information on the prerequisites, see:

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Procedure

Choose one of the following menu paths:

Component	Menu Path
Customer Service (CS)	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>
Sales and Distribution (SD)	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>
Project System (PS)	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>


The system displays the *Resource-Related Billing Request: Initial Screen*.

Specify the sales order or service order for which you want to create a billing request. If you want the billing request only to cover particular items from the order, specify the items.

To display the billing request for further processing, choose *Extras → Settings...* and select *Show billing request after save*.

For more information on the settings, see [Settings: Sales Pricing and Billing \[Page 1825\]](#).

You can create the billing request in one of the following ways:

To copy data to the billing request directly from the system, choose  *Billing Request*.

The system generates a billing request for the sales/service order.

If you want to edit the data from the system copied to the billing request, choose one of the processing views.

For more information, see:

[Processing the Expenditure View \[Page 1820\]](#)

[Processing the Sales Price View \[Page 1823\]](#)

If you did not select the *Show billing request after save* indicator, a message appears in the status line, telling you that the billing request was created successfully.

Creating Billing Requests

If you did select the indicator, the system displays the *Change Billing Request: Overview* screen.

Result

The system uses the [DI processor \[Ext.\]](#) to summarize the costs from the sales/service order into dynamic items. When valuing the dynamic items, the system takes account of the conditions and prices defined in SD.

It takes the currencies from the CO documents (object currency) or customer master (transaction currency).

Choose *Extras* → *Settings* to stipulate which currency (controlling area currency, object currency, or transaction currency) is relevant for the individual items.

Changing Billing Requests


Choose *Logistics* → *Sales and Distribution* → *Sales* → *Order* → *Change*.

The *Change Sales Order: Initial Screen* appears.

Enter the billing request number in the *Order* field, then choose an overview.

The *Change Sales Order: Overview* screen appears.

Process the items as you wish.

Choose  to save the changes.

Canceling Billing Requests

Canceling Billing Requests

Use

You need to cancel billing requests if the items in it are not to be billed or need to be made available for a new billing request.

For technical reasons, cancellation is not possible. However, you can define reasons for rejecting items. Billing then ignores the items and they are available for later billing. That is, if you cancel values from a [dynamic item \[Ext.\]](#) that have already been billed, the values in question then appear in the *To be billed* column in the [expenditure view \[Page 1820\]](#) the next time you bill.

Activities

You can define rejection reasons in SD customizing by choosing *Sales and Distribution* → *Sales* → *Sales Documents* → *Sales Document Item* → *Define Reasons for Rejection* (see also: [System Settings \[Ext.\]](#)).

Technical Completion of an Order

Use

You usually complete an order technically once the maintenance work planned in the order has been performed.

Features

You use the technical completion of an order to define the following information for the order:

The order obtains the status *Technically completed*. The order is marked as complete for Plant Maintenance.

Now you can only make the following changes:

Lock and unlock the order

Set the deletion flag

Post goods receipts for the order

You can still enter confirmations for a technically completed order. In order to prevent this, you must create a user status that does not permit confirmations.

The storage location and account assignment data entered for the order are fixed and can no longer be changed. However, the order can still receive costs, for example, through incoming invoices for materials delivered and used.



If no settlement rule has yet been maintained for the order, the system creates one automatically. If missing data makes this impossible, the system takes you to the screen for maintaining the [settlement rule \[Page 1131\]](#).

All the existing purchase requisitions for the order are flagged for deletion.

All the existing reservations for the order are cleared.

All outstanding capacities which have been scheduled for the order are cleared.

All the notifications for the order are also completed, unless prevented for one of the following reasons:

The *Complete notifications* indicator was not set in the *Complete* dialog box.

One or more tasks have not been completed.

A user status in the notification prevents it from being completed.

Performing a Technical Completion

Performing a Technical Completion

1. From the header data screen or the operation overview, choose *Order* → *Functions* → *Complete* → *Complete (technical)*.

The system displays the *Complete* dialog box.

2. Check the entries in the dialog box and change them if necessary.

If you also want the notifications assigned to the order to be completed, you must select the *Complete notifications* field.

3. Choose *Complete*.

The system completes the order technically, assigns it the appropriate status and saves it.



You can also execute this function for several orders at the same time. For more information, see [Processing Orders Collectively \[Page 1412\]](#).

Canceling a Technical Completion

Procedure

From the header data screen or the operation overview, choose *Order* → *Functions* → *Complete* → *Cancel technical completion*.

The system cancels the status *Technically completed*. You can reprocess the order.

Notifications completed together with orders are **not** automatically set with the status *In process*.

If you want to reprocess individual notifications that have already been completed, you must reset them to the status *In process*.

Settlement of an Order

Settlement of an Order

Use

The costs that arise from processing an order (for example, costs for material, personnel or external services) have the individual technical objects (equipment, functional locations) as a reference object.

The costs are initially collected on the order. They are then transferred to the [settlement receiver \[Page 1134\]](#) specified in the [settlement rule \[Page 1131\]](#). The receiver of the costs is independent of the reference object, which merely provides a proposal.

Orders are mainly settled automatically at regular intervals. However, you can also settle orders in dialog, individually or in connection with an [order group \[Page 1389\]](#).

You can simulate the settlement first in a test run, without saving it.

Prerequisites

You can settle an order if:

- It is released
- It has the status *Settlement rule created*
- Costs collected for it have not yet been settled
- A business completion has not yet been performed for it

To settle an order group, you must have created one previously.

Activities

The system starts the settlement when actual costs have been updated to the order, or the order costs have been transferred to a work breakdown structure element or an operation.

If the system cannot generate the necessary settlement rule for each settlement, you must do this manually (see [Maintaining a Settlement Rule \[Page 1132\]](#)).

Call up the order settlement. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Plant Maintenance → Maintenance Processing → Environment → Order Settlement*
- *Logistics → Customer Service → Service Processing → Completion → Order Settlement*

The system settles the order to the specified receiver.

After the settlement, the balance on the order is 0.



In the case of periodic settlement, new costs for the next period can have been collected on the order at the time of settlement.

See also:

[Settlement: Example \[Page 1387\]](#)

[CO - Settlement \[Ext.\]](#)

Settling an Order and Order Group

Settling an Order and Order Group

Settling an Individual Order

1. Select the order settlement function from the *Maintenance Processing* screen using *Environment* → *Order settlement* → *Single*.
2. Make the necessary entries and choose *Continue*.
The initial settlement screen appears.
3. Enter the order number and any other required entries. If you want to perform a test run, you should specify this here.
4. Choose *Settlement* → *Execute*.
The system settles the order and displays the results.

Settling an Order Group

1. From the *Maintenance Processing* screen, choose *Environment* → *Order settlement* → *Multiple*.
2. Enter the required controlling area and choose *Continue*.
The initial settlement screen appears.
3. Select the required selection variant.
Refer to [Creating a Selection Variant for Collective Settlement \[Page 1390\]](#).
4. Enter the order group and all the required data. If you want to perform a test run, you should specify this here.
Refer to [Creating an Order Group for the Settlement \[Page 1389\]](#).
5. Choose *Settlement* → *Execute*.
The system settles all the orders belonging to the order group and displays the results.

Settlement: Example

The following example illustrates the creation and processing of an order from the point of view of order settlement.

The Order

In a clarification plant, three pumps are to be cleaned in the pumping station. All three pumps are installed at the same functional location.

Planning and Planning Data

The planner creates an order, enters the functional location C1-B01 (pumping station) as a reference object and enters the three pumps in the object list. The order is to be settled to the pumping station cost center, which has the number 511. This means that all the costs posted to the order for cleaning the three pumps will be settled to cost center 511 when the job is complete.

The order data comprises the following:

Data on the Performing Work Center "PSC" (pump fitters)	Entry
Number of persons performing the job	2
Performing cost center (= cost center of the employees performing the job)	909
Activity type	Cleaning
Planned number of work hours per person per pump	1
Cost of activity type per hour	\$ 150
Total planned work hours	6
Total labor costs	\$ 900

Data for Scheduled Material	Entry
Consumption posting to the amount of	\$ 150

Releasing and Processing the Order

Once the planning stage is complete, the planner releases the order for processing.

The employees from work center "PSC" start the work:

- They withdraw the material scheduled for the order from the warehouse. Actual costs of \$150 are incurred for the order and are debited directly from the balance sheet account.
- The employees confirm the length of time they worked on the order. It took them a little longer than planned, so that the resulting actual costs posted to the order are \$1050. These costs are credited to the performing work center.

Situation After Completion of the Work

After the work has been completed and the order settled, the debits are as follows:

Balance on the order:	\$ 0.00
-----------------------	---------

Settlement: Example

Debit to the receiver cost center 511 (pumping station):	
	\$
	1200.0
	0

Creating an Order Group for the Settlement

Use

You can create order groups if you want to process several orders at the same time.

Procedure

1. On the *Maintenance Processing* screen, choose *Environment* → *Order settlement* → *Order groups* → *Create*.
2. Enter the required controlling area and choose *Continue*.
The initial screen for creating an order group appears.
3. Enter a name for the order group and choose *Continue*.
The structure screen for the new order group appears.
4. Enter a short description of the order group.
5. Select *Same level* or *Level below* from a structure line, provided that the structure meets your requirements.
6. In each case, enter the relevant name with the short descriptions.
7. From each structure line, choose *Edit* → *Order* → *Insert order*.
A dialog box appears.
8. Assign the required orders to the order group and choose *Continue*.
The system enters the order numbers into the structure.
9. Save the order group.

Creating a Selection Variant for Collective Settlement

Creating a Selection Variant for Collective Settlement

Use

In order not to have to re-enter selection criteria for orders or operations every time, they can be saved after entry as a variant. Different variants can be used, with each individual variant providing a specific type of information.

You can use selection variants to select orders, which are collected into order groups.



If you want to use your own selection variants, make sure that you create them based on the standard *SAP&PM* selection variant.

Procedure

From the *Maintenance Processing* screen, choose *Environment* → *Order settlement* → *Multiple*.

Choose *Extras* → *Selection variant* → *Create*.

Enter a new name.

Choose *Copy*, and enter *SAP&PM* as the variant to be copied. Choose *Continue*.

Choose *Change*, and complete the selection criteria according to your requirements. Save the selection variant.

See also:

[Working with Lists \[Ext.\]](#)

Displaying Costs

Use

You can display the [costs \[Page 1167\]](#) resulting from an order from the following perspectives:

- Plant Maintenance

In the system, this display is called the **cost overview**. The cost overview lists the individual **value categories**.

A value category is a grouping of cost elements.



The cost elements 692000 and 693000 are grouped under the value category "Internal activities".

- Controlling

In the system, this display is called the **cost report**. The cost report lists the individual **cost elements**. It displays whether or not the order still contains a balance.

Prerequisites

In order to display the cost overview, the system administration must group the cost elements into value categories in the Customizing for the Project System.

Procedure

Displaying Costs By Value Categories

1. Select the required order.
2. On the header data screen or the operation overview, choose *Goto → Cost overview*.
You see an overview of the costs calculated for the value categories.
3. To display detailed information about the value category, select the required value category on the overview screen and choose *Goto → Details*.

The system displays a dialog box which includes:

- The value category number
- Whether or not the value category is relevant for key figures
- Which key figures from the *Plant Maintenance Information System* (PM-IS) are updated using the value category

Displaying Costs By Cost Elements

1. Select the required order.
2. On the header data screen or the operation overview, choose *Extras → Cost reports → <Desired cost report>*.
 - If you have selected the *Planned/actual comparison* option, you see an overview of the calculated costs on the *Analyze Costs: Result* screen.

Displaying Costs

- If you have chosen the *Budget/commitment* option, you see the budget report for the order on the *Budget Report: Orders: Result* screen.

See also:

[CO - Settlement \[Ext.\]](#)

Business Completion of an Order

Use

You usually perform the business completion of an order when no further costs are expected to be posted to the order.

You can also perform a business completion for an order even if not all the planned work steps have yet been performed. For this, you must [leave the status as 'not performed' \[Page 1396\]](#).



In contrast to the technical completion, the business completion is usually just called "completion" in the system.

Prerequisites

An order can only have business completion when:

It has been technically completed (refer to [Technical Completion of an Order \[Page 1381\]](#))

It has been settled and the order balance is 0 (refer to [Settlement of an Order \[Page 1384\]](#))

No outstanding purchase orders (commitments) exist for it

All data that refers to the reference object of the maintenance order is available and correct

All relevant data in the operations and sub-operations is available and correct

Features

You use the business completion function for an order to define the following information for the order:

The order obtains the status *Completed*. It is indicated as fully completed.

The order cannot receive any more postings, even for posting of costs. It is locked for all collective processing changes.

Activities

If the order has not yet been completed technically, the system performs the technical completion.

When the system performs the business completion, it checks whether or not the balance for the order is 0 and whether any outstanding purchase orders still exist.

If the **order balance is 0** and no more outstanding purchase orders exist, the system performs the business completion of the order.

If the **order balance is not 0** and/or outstanding purchase orders still exist, the system issues an error message and assigns the status *Technically completed* to the order. You can display the log, then process the order accordingly and repeat the function *Complete (business)*.

Performing a Business Completion

Performing a Business Completion

Use

You can perform a business completion for:

- An individual order
- Several orders using collective processing

Procedure

Business Completion of an Order

1. Select the order from the *Maintenance Processing* screen with *Orders → Change*.
2. From the header data screen or the operation overview, choose *Order → Functions → Complete → Complete (business)*.

The system completes the order, assigns it the appropriate status and saves it.

Business Completion of Several Orders

1. From the *Maintenance Processing* screen, choose *Environment → Collective processing → Complete order*.

The initial screen for collective processing for order completion appears.

2. Make all the necessary entries.
3. Choose *Status update → Execute*.

The system performs business completions for all the orders that satisfy the entry conditions and requirements. The appropriate status is assigned to each one and is then saved.

There is a log which provides you with information about these activities.

Canceling a Business Completion

Use

You can cancel the status *Completed* (= business completion) if, for example, you subsequently receive an invoice for the order.

Procedure

Select the order from the *Maintenance Processing* screen with *Orders* → *Change*.

From the header data screen or the operation overview, choose *Order* → *Functions* → *Complete* → *Cancel business completion*.

The system cancels the business completion of the order, deletes the status *Completed*, assigns it the status *Technically completed*, and saves it.

Issuing the System Status “Not Performed”

Issuing the System Status “Not Performed”

Use

You may want to perform a business completion for a planned order that has not been performed, because, for example:

- There was insufficient time to execute the order
- The order was entered incorrectly or twice

You should ensure that the system issues the system status *Not performed*, to this order, so that during evaluating and checking it is clear that the planned tasks have not been performed.

Procedure

1. Select the order in change mode.
2. On the header data screen, choose *Order → Functions → Complete → Not performed*.
3. Confirm the prompt.

The system completes the maintenance order, sets the status *Not performed* and saves the order.

Display and Processing of Special Order Data

Use

You can display special data for one or more orders. You can also process several orders collectively.

Features

Display of Special Data for an Individual Order:

- [Display of the Action Log \[Page 1400\]](#)
- [System Status for Orders \[Page 1406\]](#)
- [Displaying and Archiving Shop Papers \[Page 1245\]](#)

Display of Special Data for Several Orders:

- [Displaying Dates \[Page 1149\]](#)
- [Working with Lists \[Ext.\]](#)

Collective Processing of Several Orders:

- [Processing Orders Collectively \[Page 1412\]](#)

Screen Monitoring with Traffic Light Display

Screen Monitoring with Traffic Light Display

Use

You can monitor the following objects for the *Plant Maintenance* and *Customer Service* application components on the screen:

Orders

Operations

Notifications

Items

Tasks

Activities

You use screen monitoring when working with lists to see a traffic light display, which indicates the urgency of further processing of objects in the list.

As a planner, for example, you can clearly see which objects have actually already been processed, or where bottlenecks exist. As a technician, you can see in your worklist which objects should be processed and how urgently.

Features

The traffic light display for screen monitoring can refer to different object values. You can set the required reference value individually.

You can select the reference value **Priority** for **all** the objects listed.

The traffic light colors then signify the following:

Red	Yellow	Green
Very high	High	Important, medium and low

Depending on the object involved, you can also select different calendar dates as reference values:

For orders:

- Basic start/basic end
- Scheduled start/scheduled end

For operations:

- Earliest start date/earliest end date
- Latest start date/latest end date

For notifications:

- Required start/required end

For items:

- Required start/required end

Screen Monitoring with Traffic Light Display

For tasks:

- Required start/required end
- Task start/task end

For activities:

- Required start/required end
- Activity start/activity end

The traffic light colors then signify the following:

Red	Yellow	Green
Current date already after the <later date>.	Current date between the <earlier date> and <later date>.	Current date still before the <earlier date>.

Activities

Switch on the screen monitoring function. You can do this in the following ways:

Call up list editing for the relevant objects. On the selection screen in the *Reference value for monitor* field, enter the value to which the traffic light display should refer. Make your selection.

Call up list editing for the relevant objects. Enter the required selection criteria and make your selection. In the list of results, choose *Settings* → *Monitor on/off*. Select the value to which the traffic light display should refer.

You see the corresponding traffic light symbols in the list of results.

Display of the Action Log

Display of the Action Log

Use

You use the *Action log* function if you want to obtain an overview of all the changes that were made to fields during the processing of an order.

Prerequisites

In the Customizing for *Maintenance Orders*, you must activate the creation of status change documents and field change documents under *Functions and Settings for Order Types* → *Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*.

Features

The action log shows you:

- When changes were made (date and time)
- Who made the changes
- The sub-object to which changes were made
- Which fields were changed
- Which data the fields contained **before** the change
- Which data the fields contain **after** the change

Activities

You call up the *Action log* function in the order by choosing *Extras* → *Documents for order* → *Action log*.

Document Flow

Use

The document flow shows the development of a PM or CS document and provides an overview of preceding and subsequent documents and their status.

The individual documents form document chains. All preceding and subsequent documents will be shown for each document you call up.



Document	Date	Status
Contract 40000149	30.03.1998	open
. Notification 300001256	23.03.1998	in process, assigned to order
.. Order 905580	23.03.1998	open, pre-costed
.. Sales order 2155	24.03.1998	completed
... Delivery 80001132	24.03.1998	completed
.... Goods movement 49008835	24.03.1998	completed
.... Invoice 900001082	24.03.1998	completed

Integration

The document flow includes notifications and orders for the application components Customer Service (CS), Plant Maintenance (PM) and Quality Management (QM).

Within the logistics supply chain, the document flow is integrated with the application components

- Materials Management (MM)
for example, via purchase requisitions or goods receipt documents, and
- Sales and Distribution (SD)
for example, via invoices or credit memos.

Features

You can display the following objects in the document flow:

- Service contract
- Maintenance plan item
- Service notification
- Service order
- Paging object (for example, a document)

Document Flow

- Purchase requisition
- Purchase order
- Sales order
- Confirmation in time
- Debit memo request
- Debit memo
- Returns
- Returns delivery
- Credit memo request
- Invoice
- Invoice cancellation
- Credit memo
- Credit memo cancellation
- Delivery
- Goods movement
- Goods movement cancellation

Document Selection

Use

This function enables you to display a specific document and its position within the document flow.

You can for example search for an invoice using the invoicing number, for a sales order using the sales document or for a service notification using customer data.

Features

In the *Document Flow Display* screen, you can specify criteria for selecting documents as well as filter criteria for displaying data.

If you select the field *Object links*, the system will display the existing links in a dialog box. This concerns documents that are not directly part of the document flow but that are assigned to a specific document (for example because they were used as a copy model or reference object).

Activities

Use the menu bar sequence *Service processing → History → Document flow list* to display the document selection.

After you have made your selection the *Document Flow* screen is displayed. You can select the desired document in this screen and use the menu bar sequence *Environment → Display document* to display the detail data or the sequence *Environment → Object links* to display the existing object links.

Displaying Document Flow for Notifications or Orders

Displaying Document Flow for Notifications or Orders

3. Depending on the application component in which you are working, select one of the following menu paths:
 - *Logistics → Plant Maintenance → Maintenance Processing*
 - *Logistics → Customer Service → Service Processing*
4. Call up the notification or order in the display or change mode.
5. In the notification or order, use the menu bar sequence *Extras → <Notification documents/Order documents> → Document flow*.

The *Document Flow* screen appears.



If object links already exist for a notification or order, the dialog box *Display Object Links* will first be displayed. You can display objects that are linked to the notification or order by selecting the relevant object type and choosing *Select*.

6. You can select the desired document and display in it in the *Document Flow Display* screen using the menu bar sequence *Environment → Display document*.
7. If object links already exist for a notification or order, the documents are highlighted in green in the list. You can display objects that are linked to the notification or order by selecting the relevant object type and using the menu bar sequence *Environment → Object links*.

Obtaining Maintenance Contract Information from the Document Flow

Use

Using this function you can call up all necessary information on the maintenance contract within the document flow on the screen *Display document flow*.

Integration

The system automatically branches out into the PM - Maintenance Planning function.

Prerequisites

A maintenance contract must be shown in the document flow.

Features

You can call up the following information:

- Maintenance items
- Maintenance calls
- Generated orders and notifications

Activities

Select the maintenance contract in the list of documents. Then use the menu bar sequence *Environment* → *Maintenance contract*.

System Status for Orders

System Status for Orders

Definition

Describes the current status of an order or an operation.

The status thereby determines the activities which the system or the user can execute for an order or an operation with the current standing.

Use

For more information, see [Status Management \[Page 230\]](#).

The following statuses are among the most commonly required:

Created

Prerequisites	Effects
The order is created.	<p>Reservations may be available, but they cannot be withdrawn and are not relevant for materials planning.</p> <p>Purchase requisitions are available, but goods receipt postings are not possible.</p> <p>Technical completion is possible.</p>

Reservations and purchase requisitions can be created at a defined time (but at the latest when the order is released) if the relevant indicator is set.

It can be defined in Customizing that a default settlement rule should be created based on the reference object when the order is created.

Released

Prerequisites	Effects
The user status cannot prevent the release.	<p>The system checks the material and PRT availability.</p> <p>It checks for outstanding permits.</p> <p>It checks what was defined in customer exits.</p> <p>Reservations can now be withdrawn and are relevant for materials planning.</p> <p>Purchase requisitions are written now, at the latest.</p> <p>Goods receipt postings are possible.</p> <p>Printing is possible.</p> <p>Time completion confirmations are possible.</p> <p>Settlement is possible as from this status, for example, for a simultaneous cost display for the receiver.</p>

The checks can be set in Customizing.

System Status for Orders

It can be defined in Customizing that the order is only released if the settlement rule is maintained.

Partially Confirmed

Prerequisites	Effects
<p>The user status cannot prevent the completion confirmation.</p> <p>Individual time completion confirmations have already been entered for operations or the order header.</p>	<p>The maintenance planner sees that the maintenance work has already been started. Changes to the order should only be made if absolutely necessary and then the planner must ensure that the workers are made aware of the changes.</p>

You can enter partial completion confirmations for the order header and for individual operations.

Finally Confirmed

Prerequisites	Effects
<p>The user status cannot prevent the final completion confirmation.</p> <p>The maintenance work entered in the order has been completed by the manual workers.</p>	<p>The final completion confirmation reduces the capacity requirements and sets the status <i>Finally confirmed</i>.</p>

When the manual workers select the *Complete* field in the order, the remaining capacity requirements are reduced. The status *Finally confirmed* can only be set explicitly by the planner.

Technically Completed

Prerequisites	Effects
---------------	---------

System Status for Orders

<p>The user status cannot prevent the technical completion.</p> <p>A settlement rule must be available.</p>	<p>The order is complete for Plant Maintenance.</p> <p>You can now only make the following changes online:</p> <ul style="list-style-type: none"> • Lock and unlock it. • Post goods receipts for the order. • Change entries in the object list. • Set the deletion flag. <p>The storage location and account assignment data entered for the order are fixed and can no longer be changed.</p> <p>Costs can still be posted to the order (for example, resulting from invoice receipts for materials delivered and used).</p> <p>All the existing purchase requisitions for the order are flagged for deletion.</p> <p>All the existing reservations for the order are cleared.</p> <p>All outstanding capacities which have been scheduled for the order are cleared.</p> <p>Goods receipt postings are still possible.</p>
---	--

Completed for Business

Prerequisites	Effects
<p>The user status cannot prevent the business completion.</p> <p>The order is technically completed.</p> <p>The order is fully settled and has a balance of 0.</p>	<p>The order is indicated as fully completed.</p> <p>It can no longer receive any postings, including postings of costs.</p> <p>It is locked for all collective processing changes. Order settlement is therefore only possible if the order has not been completed for business.</p>

If you want to perform business completion for an order that has not yet been completed technically, the system first performs the technical completion. When performing the business completion, it checks whether the order has a balance of **0**. If it has, it also completes the order for business; if not, an error message is issued and the order is assigned the status *Technically completed*. You can then process the order accordingly and perform the *Complete (business)* function again.

Locked

Prerequisites	Effects
---------------	---------

System Status for Orders

The user status cannot prevent locking.	<p>The order is locked against any collective changes.</p> <p>It can only be unlocked again.</p> <p>Capacity load records are canceled.</p> <p>If purchase requisitions were created when the order was released, they still exist but purchase orders are not possible.</p>
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An order is usually locked after release so that planning changes can be made relatively easily.

Flagged for Deletion

Prerequisites	Effects
The user status cannot prevent the deletion indicator being set.	<p>The system checks whether the order can be deleted (for example, the order must have a balance of 0).</p> <p>When the reorganization program is next run, the deletion indicator is set, and the order is then deleted from the database and written to the archive.</p>

Not Performed

Prerequisites	Effects
	For evaluations and reviews, it is clear that the planned work has not been performed.

Setting a User Status

Setting a User Status

Use

You set a user status to permit or prevent certain business operations for the whole order and also separately for individual operations. The user status for the whole order and the user status for the operation do not affect one another here.

For more information, see [User Status \[Page 232\]](#).

Prerequisites

User Status for Orders

Your system administration must have maintained status profiles with the relevant user status in the Customizing of *Maintenance Orders and Service Orders* under *User Status for Maintenance Orders* → *Define User Status Profile for Maintenance Order Types*.

Your system administration must also have maintained status profiles for each order type in the Customizing for *User Status for Maintenance Orders* under *Assign User Status to Maintenance Orders*.

User Status for Operations

Your system administration must have maintained status profiles with the relevant user status in the Customizing for *Maintenance Processing and Service Processing* under *Basic Settings* → *Maintain User Status*.

In the Customizing for *User Status for Maintenance Orders* under *Assign User Status to Maintenance Orders*, your system administration can configure the system so that a particular user status profile for operations is always assigned to a particular order type.

Procedure

Setting a User Status for an Order

1. In change mode, call up the header data screen of the order, for which you want to set a user status.
2. Choose *Status*.
3. On the overview screen of all the system and user statuses for this order, you have - depending on the type of status profile assigned - the following options:
 - In the group *User status with status no.*, set a different status as the user status.
 - In the group *User status without status no.*, set additional user statuses.
4. To return to the header data screen, choose *Back*.

Setting a User Status for an Operation

1. Call up the relevant order in change mode.
2. Call up the operation overview and select the operation for which you want to set a user status.

Setting a User Status

3. Choose *Status*.

You reach the overview screen of all the system and user statuses for this operation.

4. If no status profile has been assigned to the operation, enter the required status profile, choose *Save* and confirm the confirmation prompt.
5. Depending on the type of status profile assigned, you now have the following options:
 - In the group *User status with status no.*, set a different status as the user status.
 - In the group *User status without status no.*, set additional user statuses.
6. To return to the operation overview, choose *Back*.

Processing Orders Collectively

Processing Orders Collectively

Use

You can execute the following functions for several orders collectively:

- Releasing
- Printing
- Downloading to a PC
- Confirming
- Copying project dates
- Updating dates
- Assigning to a revision
- Changing an original budget
- Performing a technical completion
- Performing and canceling a business completion

For more information about the collective settlement of orders, see [Settling an Order and Order Group \[Page 1386\]](#).

Procedure

1. Create an order list. To do this, choose *Logistics → Plant maintenance → Maintenance processing → Order → List editing → Change*.
2. Select the required orders in the list.
3. Select the function you want to perform on all the selected orders using *Order → <Desired function>*.

The system performs the function for all the selected orders and informs you in an online message.

See also:

[Working with Lists \[Ext.\]](#)

Working with Hand-Held Devices

Purpose

As a field service technician, you can use hand-held devices to call up the necessary information about the next service appointments.

From the order overview, you can branch to the details with the technical information. You can display warranty and contract information as well as address and customer data.

After the order has been completed, you can technically confirm the times required, material used and dates involved quickly and easily.

The data is transferred automatically from your hand-held device to the R/3 System and is then available for further processing and evaluation.

[Errors \[Page 1418\]](#) can be processed by the technician directly on the hand-held device or by an internal service employee after the data has been transferred to the R/3 System. The explanation of the problem in internal service means that even if there are inconsistencies on the R/3 side, the technician is not prevented unnecessarily from performing their work.

Prerequisites

To assign operations to the technicians, the following prerequisites must be fulfilled in the R/3 System:

For the technician who logs on to the Internet server, you must link the user master record to the employee master record. To do this, you enter the user as info type 0105 and communication type 0001 in the employee master record.

If the technician should also be represented as a customer, you must link the customer master record to the employee master record for the relevant company code. This is advisable if you manage the fleet object stocks as a customer consignment. To do this, choose *Logistics → Sales and Distribution → Master Data → Business Partners → Customer → Change → Complete* and enter the personnel number in the required company code on the *Account management* tab page.

Process Flow

The processor enters the personnel number of the technician in the operation for the service order and releases the order.

When you as the technician next call up your order list from the R/3 System, the associated data is transferred to your hand-held device.

You always see the released operations assigned to you on the hand-held device.

From the overview, you use a hyperlink to call up the detail screen for the operation.

You confirm the times required and material used and perform a technical completion confirmation.

You transfer the data to the R/3 System using the send button. Depending on the type of browser, there are two transfer options:

The data is transferred directly to the Internet server. This is only possible for an existing online connection.

Working with Hand-Held Devices

The data is saved on the hand-held device until the next synchronization.



In the standard system, data is sent with reference to the existing session. However, a session is only valid for a limited time. It is therefore advisable to log on to the Internet server or R/3 System again before sending. For this reason, the necessary log-on parameters must be concealed as hidden fields on the HTML page or already defined in the *Object Navigator* under *IWWO Internet Service*.

Hardware and Software Used

Hardware Used

The standard example delivered "Topic 99" is optimized for Microsoft® Hand-held PCs with VGA/2 display and runs both online in the appropriate Pocket Explorer and offline using the AvantGo browser. The AvantGo browser must be purchased separately. The HTML standard 3.2 is used for the example. This is also supported by many other browser types.

For individual customers, the HTML template can also be adapted to different screen sizes, such as Palm Pilot, Microsoft® Palm-size PCs or for WML browsers. We assume that you will optimize the scenario according to your requirements.

A suitable device can be selected depending on the features required. Suitable devices range from the WAP-enabled mobile phone to palm devices and hand-held devices to the PC.

The following table describes the functions of different hand-held devices. The table is not comprehensive, but refers merely to the devices and browsers currently tested by us.

Types of device

Hand-Held Device	Browser	Type	Possible Entries
WAP phone	Dependent on device	Online	Selection options, checkboxes, radio buttons, numbers
Palm Pilot	AvantGo	Offline	Selection options, checkboxes, radio buttons
WINDOWS® CE Palm-size PC	CE Channel	Offline	None
WINDOWS® CE Palm-size PC	AvantGo	Offline	Selection options, checkboxes, radio buttons
WINDOWS® CE Hand-held PC	Pocket Explorer	Online	Selection options, checkboxes, radio buttons, numbers, text
WINDOWS® CE Hand-held PC	AvantGo	Offline	Selection options, checkboxes, radio buttons, numbers, text

In addition to the appropriate device, the following hardware is required:

SAP R/3 server

Server for the Internet components

To spread the load, you can distribute the R/3 System and Internet components to several servers, and for access protection, to several computers.

Software Used

The following software is required:

SAP R/3, Release 4.6C

SAP Internet Transaction Server (delivered in the standard system)

Internet server

The following software is required for WAP scenarios:

Hardware and Software Used

WAP gateway (for example, Nokia WAP server)

The following software is required for scenarios using AvantGo:

AvantGo server to manage offline channels and communicate with the respective device

Integration

The solution is based on the Internet architecture of the SAP System. Internet forms in HTML or WML display the required information and are used simultaneously for the completion confirmation of the order.

You can use the HTML template delivered by SAP to work out an individual solution for each situation solely by structuring the HTML form specifically to the customer and device. Data procurement and data processing are performed using a series of [function modules \[Page 1417\]](#) that provide and process the necessary data.

The procedure for calling up functions is described in the flow logic which can also be adapted and enhanced if necessary to suit individual requirements, for example, if fields should be displayed or processed using the SAP standard system.

Prerequisites

The hand-held device in question must have a suitable Web browser. Such browsers can be divided into purely online browsers and browsers which also allow Internet pages to be processed offline. For example, when hand-held devices are selected, you should note the following points:

Which special characters do you use? Can these characters be displayed on the hand-held device?

Is the display size large enough to show the required information clearly?

Does the hand-held device only have a stylus or is there also a keyboard, for example, to enter a longer confirmation report?

Function Modules Used

Use

SAP provides a series of function modules for data procurement and data processing within the HTML template.

Features

Function Module	Function
IWWO_GET_USER_DATA	The function module determines the link between customer master record and employee master record in the HTML template OPERATION_LIST. Refer to Possible Errors [Page 1418] .
IWWO_SERVORDER_OPERATION_LIST	The function module selects the technicians, to whom the operations have been assigned, in the HTML template OPERATION_OVERVIEW. It can also be helpful to make a selection using partners, capacity requirements planning, the work center, or an assignment at the level of personnel number. If you want to make a selection different from that used in the standard system, you have to adapt the associated FLOW file individually.
IWWO_SERVORDER_GET_DETAIL BAPI_SERVNOT_GETCATALOGPROFIL IWWO_SERVORDER_INPUT_HELP_DAYS BAPI_EQMT_DETAIL	These function modules make the operation detail data available in the HTML template ORDER_CONFIRMATION. Additional data can be read into the flow logic that belongs to the HTML template by calling up other RFC function modules. The corresponding data is displayed by accessing the HTML template.
IWWO_ORDER_CONFIRM	The function module transfers data to the R/3 System. Refer to Possible Errors [Page 1418] .

Possible Errors

Possible Errors

User Errors

The HTML forms must be structured in such a way that it is not possible to make entry errors which are only noticed when the data is replicated in the R/3 System. This can be achieved, for example, through the following measures:

- Selection of only one value in checked fields

- Use of drop-down boxes

- Use of a script language for checks (depending on the browser)

Errors in Link Between Customer and Employee Master Record

The function module `IWWO_GET_USER_DATA` determines the link between customer master record and employee master record in the HTML template if the technician is also represented as a customer. During tests or where problems arise, call up this function module individually to check whether the links are correct.

Errors During Data Transfer

The function module `IWWO_ORDER_CONFIRM` transfers data to the R/3 System. Where errors occur during processing, the data is initially saved in the cluster table `IWWO`. This interim saving has the following advantages:

- If processing is terminated (for example, owing to a system crash), processing is continued immediately based on the interim data saved when the function module `IWWO_SERVORDER_GET_CONFIRM` is called up.

- Errors that occur can be corrected directly by the technician on the hand-held device. However, it is also possible for the data to be corrected by an internal service employee. This is particularly useful if the error was not caused by an external service technician, but resulted from incorrect system administration on the R/3 side.

The example template is structured in such a way that the operation detail screen is called up with the data already entered if you enter a corresponding cluster ID. You can then correct the data on the original entry screen. With a suitable browser, this can usually also be displayed on the desktop of the internal service employee, so that this employee sees the data in the same format as that entered by the technician.

The list of errors is displayed in the *Object Navigator* with *Internet Service IWWE*. When you select an incorrect completion confirmation, the order detail screen from *Internet Service IWWO* appears again.

There are two options for correction:

- Errors can be displayed and corrected in the standard system directly after the data has been transferred to the R/3 System.

- Errors can be displayed in the form of an error overview; error overviews have significant advantages over asynchronous data transfer.

Order Processing: External Processing

Purpose

Tasks can be executed by external companies, for example, if your own workshops:

- Do not have sufficient capacity
- Cannot call upon any qualified personnel for special tasks
- Would execute a task at greater cost



In the documentation about external processing, only the differences in conditions and process flows compared with [internal processing \[Page 1075\]](#) are described.

The following tasks can be processed externally (see [Processing Operations Externally \[Page 1427\]](#)):

- Individual operations or sub-operations for an order
- An entire order

To do this, you create an order that contains only one operation.

The following forms of processing are available for external processing:

- Processing with an external company as work center
- Processing with an individual purchase order
- Processing with service specifications



Tasks to be executed regularly which are the same can be combined in a task list (see [Working with Task Lists \[Page 1151\]](#)). In this task list, you can use control keys for operations to be processed externally with an individual purchase order, and for operations to be processed externally with service specifications.

Prerequisites

You mark the operations for orders to be processed externally as operations to be processed externally using a corresponding control key.

You create the external company in the vendor master record, which is maintained by the accounting and purchasing departments.

Process Flow

For detailed information about the process flow for order processing in external processing, see:

- [Processing with an External Company as Work Center \[Page 1421\]](#)
- [Processing with an Individual Purchase Order \[Page 1423\]](#)
- [Processing with Service Specifications \[Page 1425\]](#)

Processing with an External Company as Work Center

Purpose

For an external company that you regularly hire for the same tasks, you can create a special [work center \[Page 1107\]](#).

This can be advisable if the external company is not situated near to your company, and they process a large number of orders for you.

Prerequisites

You configure a cost center for each external company individually or for all the external companies collectively.

In Controlling (CO), you configure a CO activity type and a price, which reflects the conditions of the purchase order, for the cost center of the external company.

For the external company, you create a work center that is linked with the cost center and the CO activity type.

Since this form of external processing is identical with internal processing during order processing, you assign a control key for internal processing to the operations to be processed externally. In the standard system, this control key is PM01.

Process Flow

1. You configure an individual purchase order, which has a validity period (for example, one quarter, a year), in which the purchase order conditions are defined. You assign this purchase order to the cost center for the work center that has been created for the external company.
2. You create the order with operations to be processed externally in exactly the same way as an order with operations to be processed internally. See [Creation of an Order \[Page 1077\]](#).
3. Print out the order papers.
4. You hire the external company by sending the printed order papers to the external company or handing them to their employees.
5. The tasks are performed by the external company.
6. You confirm the order operations to be processed externally in exactly the same way as internally processed operations.
7. Steps two to six apply for all orders that are processed within the validity period of the purchase order.
8. The cost center of the external company is credited following the time confirmation of the operations.
9. The cost center of the external company can be debited by issuing an invoice periodically (for example, monthly). The invoice therefore includes all the orders performed during this period. After the expiration date, the balance of the cost center is 0.

The costs are first collected on the order and then settled to the receiver specified in the settlement rule.

Processing with an External Company as Work Center

Processing with an Individual Purchase Order

Purpose

You can use this form of processing to assign tasks to an external company based on individual purchase orders.

These purchase orders can either be settled relative to resources, or based on a fixed price for the total expected output. They can consist of items for material or for services.

Prerequisites

You mark the operations for orders to be processed externally as operations to be processed externally using a corresponding control key. In the standard system, this control key is PM02.

You create the external company in the vendor master record, which is maintained by the accounting and purchasing departments.

Process Flow

1. You create the order with operations to be processed externally in exactly the same way as an order to be processed internally (see [Creation of an Order \[Page 1077\]](#)).
2. The system automatically creates a purchase requisition for those operations that you selected for external processing using the control key, at the latest when the order is released. You can find the purchase requisition number on the actual data screen for the operation.



You can also configure the use of **collective purchase requisitions** in Customizing under *Functions and Settings for Order Types* → *Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*.

3. The relevant person in the purchasing department performs a source determination, if necessary, and creates a purchase order (see [Purchase Orders \[Ext.\]](#)).
4. Depending on your entries on the detail screen for external processing, the following settlement types are available:
 - You can perform a **resource-related** settlement (examples 1 and 2)
 - You can settle **based on the total expected output** (example 3)



Example 1: You have agreed a direct labor hour rate of \$ 80 and assume the work will take four hours to complete. In fact, five hours are required; a total cost of \$ 400.

Example 2: You have agreed a fixed price of \$ 10 per meter of cable laid and assume that 40 meters of cable will be used. In fact, only 35 meters are required; a total cost of \$ 350.

Example 3: You have agreed a flat-rate price of \$ 400 for the laying of 40 meters of cable, and assume the work will take four hours. In fact, 50 meters of cable were required and the work took five hours; a total cost of \$ 400.

Processing with an Individual Purchase Order

5. The tasks are performed by the external company.
6. The completion confirmation is entered by their own employees in the form of a goods receipt for the purchase order. See [Completion Confirmation of External Services or External Material \[Page 1591\]](#).
7. The costs incurred are first collected on the order and then settled to the receiver specified in the settlement rule.
8. The offsetting entry is first charged to a clearing account, and then automatically written off when the invoice is received, since the invoice from the vendor usually arrives after their delivery. Any differences between the value of the goods ordered and the invoice value are debited or credited accordingly to the order.
9. In the operation to be processed externally, the status *External operation partially delivered* is set. If you have set the final delivery indicator, the status *External operation finally delivered* is set.

See also:

[MM - Service \[Ext.\]](#)

Processing with Service Specifications

Purpose

You can assign tasks to external companies based on service specifications. Refer to [Standard Service Specifications \[Ext.\]](#).

In the case of long-lasting business relationships with particular vendors, it is advisable to create **service specifications in contracts**. Contracts are agreements about validity periods, acceptance of delivery (quantity or value) and conditions for providing the service. The individual lines in the service specifications do not have to be entered manually, but can be copied from the service master or existing service specifications.

If the expense required for an individual purchase order of services cannot be justified, or if the purchasing department can be credited owing to the frequency of tasks to be processed externally, you can also use a **framework order**, in which several purchase order operations are combined for a longer period of time, instead of the individual purchase order. Framework orders are contracts with legally recoverable commitments.

For more information, see [Configurable Service Specifications \[Page 519\]](#).

Prerequisites

You mark the operations for orders to be processed externally, which you want to process with service specifications, using a corresponding control key. In the standard system, this control key is PM03.

Process Flow

10. You create the order with operations to be processed externally in exactly the same way as an order to be processed internally (see [Creation of an Order \[Page 1077\]](#)).
11. The planner creates service specifications for the operations to be processed externally.
12. The system automatically creates a purchase requisition for each operation with service specifications. Service specifications are linked with the item from the accompanying purchase requisition.
13. The system automatically generates service entry sheets from the purchase requisition, on which services can be confirmed, as for orders processed internally.

See [Converting Maintenance Purchase Requisitions Directly into Entry Sheets \[Ext.\]](#).

14. You have the following options for purchase orders:

- **Individual purchase order**
- **Framework order**

The purchasing department leaves out all phases of the source determination and purchase order. The framework order can have a validity period over a longer period and can therefore be used more than once, notably always when services have been requested from the vendor, for whom the framework order was created.

The purchase requisitions generated are linked with the framework order.

See [Processes for Service Procurement \[Ext.\]](#).

Processing with Service Specifications

15. The tasks are performed by the external company.
16. The services provided are recorded in the service entry sheets for the purchase order.
17. An employee who has provided the services competently in the past takes charge of the services. This acceptance forms the basis for the settlement of services. An acceptance document is posted.
18. In the invoice verification, the entries from the purchase requisition are compared with those in the service entry sheets. The invoice should identify the amount that was previously signed off. If differences arise, the invoice is locked until the differences have been cleared up.
19. Operations processed externally receive the status *Partially delivered* or *Finally delivered*.

Processing Operations Externally

With Individual Purchase Order and Service Specifications

Select the operation overview of the order.

If you want to assign an **entire order** to an external company, you must create an order for this that only contains one operation.

Enter the control key for the operations or sub-operations that you want to assign to an external company. Differentiate between external processing **without service specifications** and external processing **with service specifications**.



If the *Externally processed operation* indicator has been set in the *External processing* field in Customizing for the control key used, a purchase requisition is triggered automatically by the system.

If the *Res/PReq* indicator has been set in Customizing for *Functions and Settings for Order Types → Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*, the purchase requisition is triggered immediately. If the indicator is not set, the purchase requisition is not automatically triggered when the order is released.

If you only decide later that an operation should be processed externally and the *Res/PReq* indicator is not set, you can use the *Activate res./purch.req.* function to trigger the purchase requisitions. This function can only be executed once in the order. Subsequently, all purchase requisitions are always triggered immediately.

Select the operations or sub-operations.

Select the detail screen for external processing.

The *External Processing Operation* screen appears for the first operation or sub-operation selected.

Enter the following data on this screen:

- For operations which you want to create **without service specifications**, you can, for example, enter components here.
- For operations which you want to create **with service specifications**, enter the services here.

In addition, make all the entries for the procurement options.



You have the option of defining the data for external processing in the form of default value profiles in Customizing by choosing *Functions and Settings for Order Types → Create Default Value Profiles for External Processing*. These profiles are dependent on user, plant and order types. They simplify data entry for external procurement of materials and services.

If no [default values \[Page 1080\]](#) are available in the system, it automatically calls up the external processing screen using the default value profile, so that you can enter the missing data.

Processing Operations Externally

Choose *Next operation* to process the external processing data for the next operation or sub-operation.

When you have processed all the selected operations and sub-operations, the operation overview screen reappears.

Save the order.

At the point defined in Customizing, the system creates purchase requisitions. You can find the number of the purchase requisition for the operation on the actual data screen for the operation or sub-operation.

See also:

[Purchase Orders \[Ext.\]](#)

[Change of Purchase Requisition \[Page 1118\]](#)

[MM - Service \[Ext.\]](#)

[Basic Process for the Procurement of Services \[Ext.\]](#)

Order Processing: Refurbishment of Repairable Spares

Purpose

The refurbishment of repairable spares is important for companies, for which system availability is a critical factor (for example, the process industry, oil producing and processing, steel processing) and for which repairable spares guarantee a high level of system availability. The refurbishment of - usually high value - faulty repairable spares is of considerable economic importance for these companies and is often a core process in Plant Maintenance. It is often much more cost-effective than a brand new purchase.

In production plants or other technical objects, high value components are often used (pumps, motors and so on) which are replaced in case of damage by a functional repairable spare and then refurbished using a separate order.

In addition to the functions for Plant Maintenance, functions from inventory management and materials planning are also used for the refurbishment of repairable spares.



No distinction is made between “good parts” (functional parts) and “bad parts” (non-functional parts) in materials planning.

Prerequisites

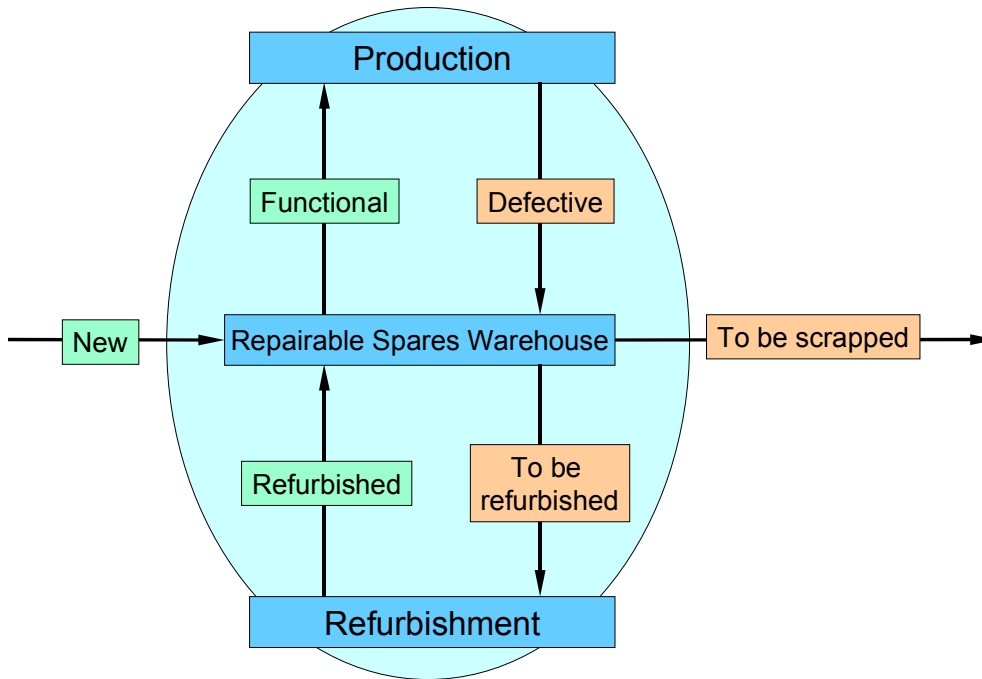
- A material master record must be created in the system for the repairable spares.
- Unique identification is only possible if the individual pieces of material have been serialized.

It is advisable to use the Customizing function in your system to define an internal order type, which you indicate for refurbishment. However, you can also use an existing order type for the refurbishment.

Process Flow

The following graphic provides an overview of the use of repairable spares:

Order Processing: Refurbishment of Repairable Spares



The process flow can be broken down as follows:

1. Procurement of new repairable spares

For certain critical and high-value components used in a technical system, you procure new repairable spares to replace components promptly in the case of a breakdown.

The procurement of new repairable spares is performed by Materials Management. The repairable spares are ordered and delivered to the repairable spares warehouse. A material master record is created in the system for the repairable spares. If desired, the repairable spares can be serialized as individual pieces of material for the goods issue in the planned storage location, assigned to a batch and valued.

For more information, see [Inventory Management \[Ext.\]](#).

2. Exchange of defective and functional repairable spares

If a piece of material managed as a repairable spare is defective in a technical system, it must be replaced by a functional repairable spare. For this, the defective repairable spare is dismantled from the technical system and returned to the warehouse, whilst a functional repairable spare is withdrawn from the warehouse and installed in the technical system.

For more information, see [Inventory Management \[Ext.\]](#).

Individual pieces of material can be registered with serial numbers when being taken to the warehouse from production, and from production to the warehouse.

If the repairable spares are pieces of equipment installed and dismantled at functional locations, then you can plan and execute the installation and dismantling with a conventional order. The installation and dismantling data is also entered in the maintenance history.

Order Processing: Refurbishment of Repairable Spares

For more information, see [Equipment \[Page 121\]](#).

3. Creation of the refurbishment order

As soon as the number of defective repairable spares in the warehouse has reached a certain level, the planner responsible creates a [refurbishment order \[Page 1073\]](#).

In this order, the planner defines how many repairable spares that are managed in stock (if necessary, these can be identified uniquely by serial number) are to be refurbished for a particular material. These can also be pieces of equipment, which are identified by their material/serial number combination. The planner determines the time frame for the refurbishment and plans all the necessary operations, materials, utilities and so on.

The order results in a status change for the repairable spares for a material. The initial status is "to be refurbished", the target status "refurbished".

4. Releasing and executing the order

After the planning activities have been completed, the refurbishment order is released. This means that the work in the order can be started.

For more information, see [Order Release \[Page 1228\]](#).

5. Withdrawal of repairable spares to be refurbished from the warehouse

The employees responsible for the refurbishment withdraw the repairable spares to be refurbished from the warehouse, along with all the other materials scheduled in the order that you require for the refurbishment. The goods issue is entered.

For more information, see [Withdrawing Stock Material \[Page 1257\]](#).

6. Completion confirmation

The employees responsible for the refurbishment enter completion confirmations for the refurbishment order. These completion confirmations provide an indication of how much work has been done.

For more information, see [Completion Confirmation \[Page 1530\]](#).



Notifications should not be maintained for the refurbishment order.

7. Return of refurbished repairable spares to the warehouse

A goods receipt is posted for the refurbished repairable spares. This automatically updates the batch/valuation type in the serial number master record. The repairable spares are now in full working order again, relevant for materials planning, and can be used.

For more information, see [Posting a Goods Receipt for Refurbished Material \[Page 1436\]](#).

When the repairable spares are returned to the warehouse, the following changes occur in the refurbishment order:

- The quantity delivered is displayed in the order header.
- The order obtains the status *Delivered* or *Partially delivered*.
- The order is credited with the value arising from the quantity delivered and the current price of the refurbished material.

Order Processing: Refurbishment of Repairable Spares

You can use the object list to identify individual repairable spares.

For more information, see [Inventory Management \[Ext.\]](#).



For repairable spares that are not to be refurbished, you cancel the reservation and post them for scrapping.

8. Order completion

As soon as the refurbishment is finished, the order can be completed.

For more information, see [Completion of an Order \[Page 1260\]](#).

9. Order settlement

Refurbishment orders can be settled to the material to be refurbished.

For more information, see [Settlement \[Page 1384\]](#) and [Settlement Recipients \[Page 1134\]](#).

Repairable Spare

Definition

An inventory-managed single unit of material which can be uniquely identified by a combination of material and serial numbers, with an additional equipment master record if necessary.

Use

Repairable spares are reserves in the warehouse for certain critical and high-value components, so that these parts can be replaced immediately in the case of a breakdown. In certain cases, fully functional repairable spares must also be available in certain quantities for legal reasons.

Repairable spares can be refurbished many times for defects or wear, and then made available again as spare parts.

Structure

Repairable spares are managed in the system in the form of material master records.

To identify single units of material, you have the option of assigning serial numbers. However, to do this, the following prerequisites must be fulfilled in your system:

A serial number profile is assigned to the material master record.

The operation *PPAU* must be assigned to the profile.

For the operation *PPAU*, the serial number allocation must be allowed in the *Serial number usage* field.

You can create an equipment master record for a serialized single unit of material.

Repairable spares can also be valuated based on their status. Possible valuation types could be:

New

Refurbished

Defective

Valuation types can be defined in the Customizing for Materials Management under *Valuation and Account Assignment* → *Split Valuation* → *Configure Split Valuation*.

Integration

Repairable spares can be managed in an inventory.

The refurbishment of defective or worn-out repairable spares is represented using [refurbishment orders \[Page 1073\]](#).

See also:

[Management of Serial Numbers \(LO-MD-SN\) \[Ext.\]](#)

Creating a Refurbishment Order

Creating a Refurbishment Order

1. Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Order* → *Create (special)* → *Refurbishment order*.

The initial screen appears for creating [refurbishment orders \[Page 1073\]](#).

2. Enter the required data and choose *Continue*.

The header data screen appears for the refurbishment order. The entry of the material number and the sections *Quantities* and *Refurbishment* are specific to this order.

3. In the section *Quantities*, enter the total number of repairable spares which should be refurbished for this order, and then choose *Continue*.

The total quantity of repairable spares specified is automatically entered in the first line of the component list for the order.

If you want to identify the repairable spares individually, choose *Objects*. A dialog box appears, in which you can enter serial numbers for the specified quantity of repairable spares to be refurbished.



- You can only call up the object list if the entry of serial numbers has been allowed for the material in your system.
For more information, see [Repairable Spare \[Page 1433\]](#).
- If it is specified in the serial number profile for the material that serial numbers **must** be assigned, then you must enter serial numbers for all of the repairable spares to be refurbished.
- If it is specified in the serial number profile for the material that serial numbers **can** be assigned, then you have the option of only entering serial numbers for some of the repairable spares to be refurbished.

4. To return to the header data screen, choose *Continue*.

5. In the section *Refurbishment*, enter the following data:

- The plant and storage location from which you want to withdraw the repairable spares to be refurbished
- The plant and storage location to which you will return the repairable spares to be refurbished

If a batch management requirement and valuation category have been defined in the material master record, you can also enter the batch and valuation type here.

6. Once you have entered all the required data on the header data screen, you can enter additional planning data for the order. See [Planning of an Order \[Page 1097\]](#).



The planning of sub-orders and the assignment to revisions are not intended for refurbishment orders.

7. Save the refurbishment order.

Creating a Refurbishment Order

The total quantity of repairable spares entered in the refurbishment order is now reserved for this order in the specified storage location.

8. To release the order and refurbish the repairable spares, proceed as described in [Order Processing: Refurbishment of Repairable Spares \[Page 1429\]](#).

Posting a Goods Receipt for Refurbished Material

Posting a Goods Receipt for Refurbished Material

Prerequisites

You can only post a goods receipt for materials not yet completely delivered.

The refurbishment order must have been released.

Procedure

Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Goods movement* → *Goods receipt for refurbishment*.

Enter the number of the refurbishment order and choose *Continue*.

The goods receipt screen appears, which proposes data from the refurbishment order that you can add.

If you only want to change the batch or valuation type, without posting a goods receipt, choose the corresponding radio button in the *Activity* group box.

Save the goods receipt or your changes.

Posting a Goods Issue for Material to be Refurbished

Choose *Logistics* → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Goods movement* → *Goods movement*.

The entry screen for a goods issue appears.

Choose the pushbutton *For order*.

Enter the relevant order number in the dialog box and choose *Continue*.

An entry screen appears.

Choose *Copy*.

The *Maintain Serial Numbers* dialog box appears.

Choose *Reference document*.

Enter the order number in the *Refurbishment order* group box and choose *Execute*.

A list appears with the planned serial numbers for the refurbishment order.

Check the selections of serial numbers, for whose material you want to post a goods issue, and choose *Copy*.

The serial numbers are copied into the *Maintain Serial Numbers* dialog box.

Choose *Exit window*.

The goods issue is posted.

Capacity Planning in Customer Service and Plant Maintenance

[Capacity Planning in Customer Service \(CS\) \[Page 1439\]](#)

[Capacity Planning in Plant Maintenance \(PM-WOC-CP\) \[Page 1466\]](#)

See also:

[PP - Capacity Planning \[Ext.\]](#)

Capacity Requirements Planning in Customer Service (CS-SE)

Purpose

Capacity requirements planning supports you in the detailed resource planning of technicians in Customer Service.

The capacities of the individual technicians must be maximized as far as possible in view of the changing daily requirements. Therefore, capacity requirements planning can help you when determining which people are available and when assigning them to order operations. You can use this component to define which persons can or should complete which activities for which date.

Integration

You can only use this component in connection with the following application components:

- *Service Orders* (CS-SE)
- *Capacity Requirements Planning* (PP-CRP)
- *Personnel Management* (PA)
- *Time Management* (PT)

To optimize the use of capacity requirements planning, certain settings must be made in the system. The system administration makes the settings in the Customizing for Production Planning and Plant Maintenance.

For more information, see [Capacity Requirements Planning \(PP-CRP\) \[Ext.\]](#) and the individual function descriptions within the unit [Capacity Planning in Customer Service and Plant Maintenance \[Page 1438\]](#).

Process for Capacity Requirements Planning in Customer Service

Process for Capacity Requirements Planning in Customer Service

Purpose

In Customer Service, you use capacity requirements planning if you want to maximize the capacities of individual technicians for work scheduling, in view of the changing daily requirements.

Prerequisites

Required Knowledge

If you want to use capacity requirements planning for Customer Service effectively in your company, you need knowledge of the following areas:

Work center in Customer Service

Refer to [Work Center \[Page 1107\]](#) (for PM/CS) and [Work Center \[Ext.\]](#) (for PP and generally).

Planning elements in Customer Service:

[Notifications \[Page 825\]](#)

[Orders \[Page 1068\]](#)

[Task lists \[Page 604\]](#)

[Maintenance plans \[Page 541\]](#)

Knowledge of [personnel administration \[Ext.\]](#) (application component PA-PA) and [time management \[Ext.\]](#).

Customizing

To optimize your use of capacity leveling, you must make certain settings in the Customizing for Plant Maintenance and Customer Service. The settings are usually made by your system administration.

For more information, see [Settings and Profiles for Capacity Leveling \[Ext.\]](#).

Process Flow

Capacity requirements arise in Customer Service as a result of tasks which are requested using service notifications, and which are planned and executed using orders. The capacity requirements scheduled match the limited available capacity of the individual persons.

The planner has the following options:

The planner enters the required **work center** in the order operation, schedules and saves the order. The system provisionally plans the requested capacity requirement to the work center. This means that initially the work is planned, but “not binding” for this work center.

The planner enters a **person** in the operation for the order. This means that initially the work is planned, but “not binding” for this person.

Process for Capacity Requirements Planning in Customer Service

For more information, see [Selection of a Suitable Person \[Page 1479\]](#).

If the planning has been completed as far as possible, the planner can check the capacity availability, which they have entered for the operations. The capacity requirement for other orders or other operations is considered for this work center.

For more information, see [Capacity Availability Check \[Ext.\]](#).

Owing to the number of orders resulting from both unplanned service and preventive maintenance, it is often not possible to utilize all of the available technicians equally when the order is created. Usually, some will have less capacity than is planned, whilst others will have more.

To utilize resources fully, the planner must regularly perform capacity leveling. To do this, the planner selects the graphical or tabular planning board, and then uses the functions available for capacity leveling.

For more information, see:

[Splitting of Operations \[Page 1481\]](#)

[Dispatching of Requirements \[Page 1486\]](#)

[Deallocation of Requirements \[Page 1487\]](#)

[Change of the Order \[Page 1489\]](#)

[Display and Change of the Available Capacity \[Page 1490\]](#)

Reconciliation of Capacity and Scheduling

Reconciliation of Capacity and Scheduling

Use

You can use different functions to reconcile the available capacity and order scheduling individually with one another.

Prerequisites

The scheduling parameters are maintained in the Customizing for Plant Maintenance.

You can find these by choosing *Plant Maintenance and Service Management* → *Maintenance Processing and Service Processing* → *Maintenance Orders and Service Orders* → *Scheduling* → *Set scheduling parameters*.

Features

The following functions are available:

- [Inclusion of External Operations in Scheduling \[Page 1470\]](#)
- [Consideration of Shift Breaks When Planning \[Page 1471\]](#)
- [Available Capacity Versions in the Work Center \[Page 1472\]](#)
- [Consideration of Existing Capacity Loads \[Page 1473\]](#)
- [Capacity Load Records for the Production Work Center \[Page 1474\]](#)

See also:

[Control Key \[Page 1105\]](#)

[Scheduling \[Page 1140\]](#)

Inclusion of External Operations in Scheduling

Use

You use this function to include external operations in the scheduling of the order.

Prerequisites

A suitable control key has been created in your system. The *Scheduling external operation* (scheduling of an external operation with standard values) parameter has been maintained for this control key.

You maintain control keys in the Customizing for Plant Maintenance and Service Management by choosing *Maintenance Plans, Work Centers, Task Lists and PRTs → Task Lists → Operation Data → Maintain control keys*.



If the *Scheduling external operation* parameter is **not** maintained for the control key, the operation end date is calculated in days based on the planned delivery time entered. The dates for the following operations are then determined with reference to this operation end date.

Features

For external operations, you have the following scheduling options:

You can include external operations based on the data entered for them in order scheduling. This results in the dates for the following operations being scheduled with reference to the duration of the external operation.

The system can calculate the operation end date in days based on the planned delivery time entered. The dates for the following operations are then determined with reference to this operation end date.

See also:

[Control Key \[Page 1105\]](#)

Consideration of Shift Breaks when Planning

Consideration of Shift Breaks when Planning

Use

You use this function to consider shift breaks when scheduling orders.

Prerequisites

- Shift sequences have been defined for the required work centers.
You can find these in the Customizing for Production by choosing *Basic Data* → *Work Center* → *Capacity Planning* → *Available Capacity* → *Define shift sequence*.
- In the scheduling parameters, scheduling including breaks has been selected.
- In the order, you can select *Breaks included* in the *Control* field on the *Additional data* tab page.

Features

You can schedule an order in such a way that the work to be performed does not occur in a break. The system considers the shift sequences for the work centers, as well as the start and end times of defined breaks (for example, breakfast, lunch and so on).

Available Capacity Versions in the Work Center

Use

You use this function to plan orders over several shifts.

Prerequisites

- The available capacity versions have been maintained for the required work centers.
You can find these in the Customizing for Production by choosing *Basic Data* → *Work Center* → *Capacity Planning* → *Available Capacity* → *Define version of available capacity*.
- In the order, the required version has been entered in the *Control* section on the *Additional data* tab page.

Features

You can plan over a period of several shifts.

A work center can have several available capacity versions with regard to its capacity (for example, normal, normal with overtime, weekends and so on). This is useful, for example, if there are two shifts each day in your company and you have to schedule an order which takes longer than a single shift to process.

Consideration of Existing Capacity Loads

Consideration of Existing Capacity Loads

Use

You use this function if you want the system to consider the existing capacity loads for the work centers/employees during scheduling.

Prerequisites

For the required order type, it is defined in your system which overall profile is used to perform a capacity availability check and whether an order of this order type should be released if insufficient capacity is available.

You make these settings in the Customizing for Plant Maintenance and Service Management by choosing *Maintenance Processing and Service Processing → Maintenance Orders and Service Orders → Functions and Settings for Order Types → Availability Check for Materials, PRTs and Capacities → Define inspection control*.

Features

When scheduling the order, the system considers the existing capacity loads for the work centers/employees. Loads with the status "Provisionally planned" are viewed here as committed capacity.

The system checks whether capacity being planned provisionally at the desired time would result in a capacity overload for the work center. If this is the case, the system delays the new order until there is no longer a capacity overload or the planning horizon has been reached. The system therefore reschedules the dates and times for this order.

If the system does not determine a capacity overload for the dates and times originally planned, it schedules the new order with the original dates as committed capacity.

Capacity Load Records for the Production Work Center

Use

You can configure the system so that the usage of a PP work center by Plant Maintenance can be seen on the planning board for Production.

Prerequisites

- The technical object in the order is assigned to a PP work center.
For this, the PP work center must be entered in the location data for the technical object. The technical object and work center must be assigned to the same plant.
- System conditions and operating conditions have been created in the Customizing for Plant Maintenance.
These are maintained by choosing *MaintenanceProcessing and Service Processing → Maintenance Orders and Service Orders → General Data → Create system conditions or operating conditions*.
- In the order, the *System condition* indicator is set at header level.
The result is that the system generates capacity requirements records.

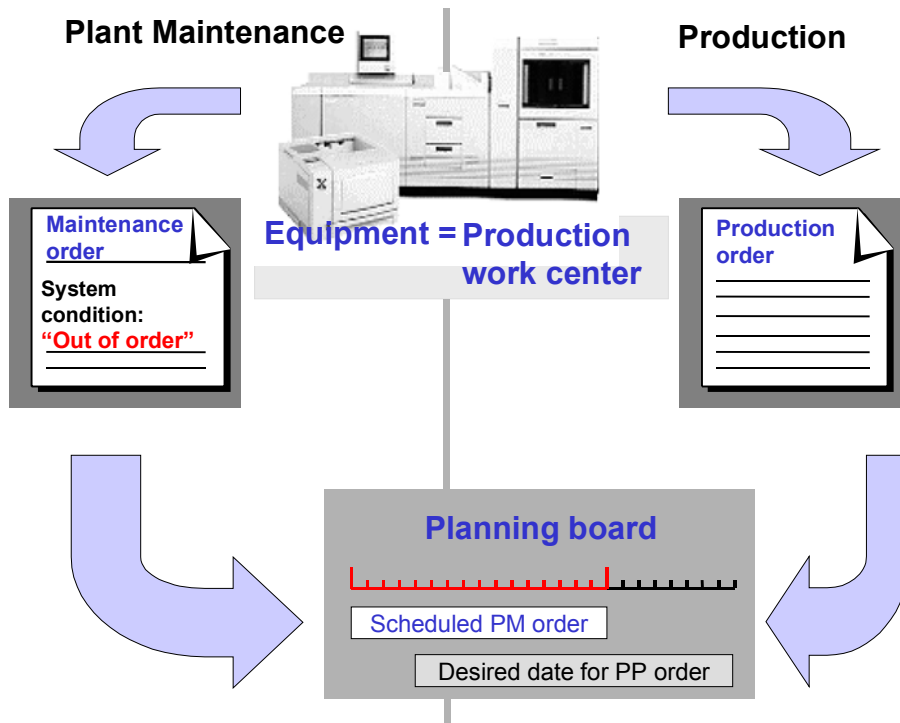


You can set the indicator for the system condition in the maintenance item (for planned orders) and in orders entered directly.

Features

The scheduled maintenance work appears as a capacity load for the Production work center on the planning board for Production. The load is fixed and cannot be changed by the production planner.

Capacity Load Records for the Production Work Center



Capacity Load from a Maintenance Order



A production planner wants to schedule a production order for equipment A1234. The order has a duration of five days. On the planning board, the planner sees that preventive maintenance work is being performed on the equipment during the desired week. This requires the shutdown of the equipment.

The production planner can display the maintenance order for the preventive maintenance work by double clicking in the planning board. Here, it indicates the planner from Plant Maintenance responsible for this order. If the production planner wants the maintenance order to be executed at another time, then they must contact the planner from Plant Maintenance.

Calling Up Planning Boards

In Customer Service

For the **graphical planning board**, choose:

Logistics → Customer service → Service processing and then Order → Capacity planning → Leveling → Work center (graphical) or Individual capacity (graphical).

For the **tabular planning board**, choose:

Logistics → Customer service → Service processing and then Order → Capacity planning → Leveling → Work center (tabular) or Individual capacity (tabular).

Perform capacity leveling using the functions provided.

In Plant Maintenance

For the **graphical planning board**, choose:

Logistics → Plant maintenance → Maintenance processing and then Capacity planning → Leveling → Work center view → Planning board (graphical).

For the **tabular planning board**, choose:

Logistics → Plant maintenance → Maintenance processing and then Capacity planning → Leveling → Work center view → Planning board (tabular).

Perform capacity leveling using the functions provided.

For more information about the tabular planning board and its functions, see [Tabular Planning Board \[Ext.\]](#).

For more information about the graphical planning board and its functions, see [Graphical Planning Board \[Ext.\]](#).

Assignment of a Person to an Operation

Assignment of a Person to an Operation

Use

You use this function to assign a person to an operation - the person who should execute the operation or who should be informed about processing of the operation.

Prerequisites

The person is managed in Personnel Management.

The assignment does **not** depend on whether there are capacity requirements records for the operation.

Prerequisites for a Default Value

In certain situations, it is advisable to have the system propose a personnel number in the operation.



In a company, a technician is assigned to each piece of equipment. The technician is responsible for preventive maintenance and maintenance of the equipment. Each technician is entered in the equipment master record as a partner with the function "Person responsible". If an order is created for this equipment, the system should automatically propose the technician responsible in the order header and in the operation.

For the system to propose a personnel number in the operation, the following prerequisites must be met:

- In the Customizing for Plant Maintenance, a default value is entered in the *Header funct.* (partner function for the order header) field by choosing *Assign partner determination procedure to order types*.

For example, this default value can be the partner function "Person responsible" or the partner function "Responsible". Entries can now be made in the relevant field for orders of this order type.

- In one of the following objects assigned to the order, a person is entered as a partner:
 - Reference object
 - Notification
 - Work center

The function of this partner corresponds to the function which was entered in the Customizing for Plant Maintenance by choosing *Assign partner determination procedure to order types* in the *Header funct.* (partner function for the order header) field.

- The person who was entered as the partner in the reference object, notification or work center is managed with a personnel number in Personnel Management.

If all the prerequisites have been met, the system proposes an entry, in the field for the person responsible in the *Responsibilities* section of the order header, which you can overwrite if necessary. It then also proposes this entry in the *Personnel number* field in the operation.

Assignment of a Person to an Operation

Subsequent changes of the partner do **not** overwrite the person entered in the operation.

A change to the person entered in the operation has **no** effect on the tasks of the partner.

Features

In addition to the work center, you enter the personnel number of the person in the required operation on the *Internal* tab page. It is possible here to enter a person who does not work on the work center entered.



Entering a person does not have any effect on the capacity requirements records that are generated by the system on the requirements assignment screen.

You can use the field as a selection criterion for operations. It is also available in the completion confirmation.

Selection of a Suitable Person

Selection of a Suitable Person

Use

You use this function when using the search help provided for the *Personnel number* field in the operation.

Prerequisites

These special search help functions are only available if you have selected the field *Special search help* for the order type when assigning the partner determination procedure in the Customizing for Plant Maintenance and Customer Service.

If you do **not** select the field, the system only provides a collective search help (for example, "Name/First name" or "Organizational assignment").

Features

Search for a Person Belonging to a Particular Work Center

The system searches for those persons who work at the work center which you have entered for the operation. You can select the person required from the list provided by the system.

Search for a Person Belonging to a Particular Work Center Who Has Certain Qualifications

The system searches in the work center, which you have entered for the operation, for persons who have particular qualifications.

For the search, the system needs a qualification requirements profile which you enter on the *Internal* (internal processing) operation detail screen or if you call up the search help. One or more qualifications belong to the qualification profile. You can specify the importance of each of the qualifications for this search.

In the list provided in a dialog box by the system, you can establish the extent to which the qualifications of the person found meet the desired qualifications. If one of the essential requirements is not fulfilled, the suitability rating is 0 anyway.

You can call up additional information in the dialog box:

- Detailed information about the qualification requirements profile (see also [Profile \[Ext.\]](#))
- Detailed information about the qualifications of individual persons
- Comparison between requirement profile and qualifications of the person selected

Alternative qualifications are also displayed. (For example, a class 3 driving licence (car) was required; alternative qualification of a class 2 (heavy goods vehicle) licence is also possible since this incorporates a car driving licence.)

If you have the necessary authorization, you can use this screen to register an employee lacking a qualification for a course which will provide them with the necessary qualification. (However, this function is only available if your R/3 personnel system has **not** been decoupled.)

If you copy an employee into the operation, the system also writes the requirements profile used for the search into the operation on the *Internal* (internal processing) tab page.

Selection of a Suitable Person

Selection of a Person and Copying

Once you have selected the required person, the system copies the personnel number and the selected date into the partner.

Creation of Employee Requirements Records (Splits)

Creation of Employee Requirements Records (Splits)

Use

The planner can use this function to split operations and generate capacity loads for individual people.

Features

The planner can enter the following information for each individual operation:

- The operation should be processed by several people, if necessary also in specific time segments.
- The operation should be processed by a single person in specific time segments.

This information, in the form of capacity requirements records, can be:

- Entered manually by the planner on the requirements assignment screen of the required operation

For more information, see [Splitting and Scheduling an Individual Operation \[Page 1482\]](#).

- Created automatically by the system

For more information, see [Creating Employee Requirements Records Automatically Using the System \[Page 1483\]](#) and [Changing Employee Requirements Records Created Automatically \[Page 1485\]](#).

Splitting and Scheduling an Individual Operation



This function is available **in the order and in the planning board**. The procedure in the order is described below:

1. Select the required operation in the operation overview of the order.
2. Select one of the detail screens for the required operation.
3. Choose the *Requirements assignment* tab page.
4. Enter the personnel and time data for the required splits. In addition, enter whether or not the system should schedule the splits.
5. Save the order.

The system creates the splits for the operation and schedules the splits indicated.

Creating Employee Requirements Records Automatically Using the System

Creating Employee Requirements Records Automatically Using the System

Use

This function enables you to save time in planning situations of this type that frequently recur: You do not have to enter the distribution of work manually for each operation; the system processes it for you. It creates requirements records (= splits) for the required employees. In this way, the system distributes the work equally between the specified people.



This function is **only** available **in the order**.

This function is executed automatically by the system if you create:

- An order

- New operations for an existing order

The function is not executed again if existing operations are changed (for example, after you have deleted all the requirements assignment records for an operation).

Prerequisites

The following must be configured in the Customizing for the order type:

A partner determination procedure has been defined in Customizing for the order type that you use.

One of the partner functions for the partner determination procedure specified has been entered in the field *Function split gen.* This function is of type *Person*.

Consequently, the system generates employee requirements records for partners automatically, which are specified in the order and have the partner function entered in Customizing. Partners with other partner functions are not considered.



An example situation could be as follows:

Order type: PM01

Partner determination procedure: PM

Partner functions in procedure:

VW (Partner type: Person)

AG (Partner type: Organization)

ZM (Partner type: Person)

Partner function in field *Split gen.*: VW

The following partners were entered in the order:

Smith (Partner function VW)

Creating Employee Requirements Records Automatically Using the System

Jones (Partner function VW)

Reeves (Partner function AG)

Mortimer (Partner function ZM)

The system generates employee requirements records automatically for partners Smith and Jones.

Procedure

Create an order.

Enter the required partners.

Create the required operations for the order.

If you enter work centers for the operations, the people, for whom you generate employee requirements records, do **not** necessarily have to work at these work centers.



You can already maintain employee requirements records manually for certain operations. These entries are **not** overwritten by the automatic function when saving.

Save the order.

Result

The system now creates requirements records (= splits) for the required employees. In this way, the work is distributed equally between the specified people. The system schedules the splits.

Further processing of the splits is made using PP Capacity Planning logic.



The capacity requirements records for the operation are scheduled based on the working times, which have been entered in the work center specified.

The requirements records for the employees (splits) are scheduled based on the working times, which have been entered in the personnel master data in HR.

If you want to check the requirements records, you can call up the order again. You can find the requirements records generated on the requirements assignment screen for the respective operation.

If you want to change the requirements records, see [Changing Employee Requirements Records Created Automatically \[Page 1485\]](#).

Changing Employee Requirements Records Created Automatically

Changing Employee Requirements Records Created Automatically

Use

The employee requirements records generated automatically by the system divide the planned work equally between the people specified as partners on the partner screen for the order. (For more information, see [Creating Employee Requirements Records Automatically Using the System \[Page 1483\]](#).)

If you do not want this type of distribution, you must change it manually.



This function for creating employee requirements records automatically is only executed by the system **when operations are created** for an order. It is not executed again when operations are changed.

For example, if you delete all the requirements records for an operation on the requirements assignment screen and save the order, no new requirements records are created by the system. The system assumes that all the changes to the requirements records are desired. Therefore, if you want employee requirements records in this situation, you must enter them manually.

Changes to the partner information in the order also have no effect on an order already saved. For example, if you add another function “Employee responsible” for an order in change mode and save it, the requirements records already created are not changed. If you require another employee requirements record for an operation in this situation, you must enter it manually.

Procedure

Call up the required order in change mode.

Call up the requirements assignment screen for the first operation that you want to change.

Change the employee requirements records as required.

Execute any other required changes.

Save the order.

Dispatching of Requirements

Use

You use this function if you want to fix the scheduling of the provisional operations and splits intended for a work center/person.

Features

From the provisionally planned, but not binding requirements for a work center or a person, the planner dispatches the individual requirements of a work center or a person in specific planning periods. The planner uses dispatching to fix the processing of the tasks by the work center and thereby reduce the available capacity of the work center.



The system does not change the data for dispatched operations/splits even if you reschedule the order.

On the planning boards, the planner can also dispatch requirements for a different work center than the one originally entered in the operation.

For more information, see [Functions in the Graphical Planning Board \[Ext.\]](#) and [Functions in the Tabular Planning Board \[Ext.\]](#).

Deallocation of Requirements

Deallocation of Requirements

Use

The planner can use this function to deallocate individual operations and splits from specific planning periods for a work center or a person. The planner uses deallocation to reverse the binding scheduling for processing tasks by the work center or the person. The deallocated operations can be replanned by rescheduling them into another planning period.

For more information, see [Functions in the Graphical Planning Board \[Ext.\]](#), [Functions in the Tabular Planning Board \[Ext.\]](#) and [Deallocating Individual Operation Splits in the Order \[Page 1488\]](#).

Deallocating Individual Operation Splits in the Order

1. Select the required operation in the operation overview of the order.
2. Select one of the detail screens for the required operation.
3. Choose the *Requirements assignment* tab page.

Here you can see all the split records which the system has created for the operation.

4. Cancel the selection for the scheduling of splits.
5. Save the order.

The system deallocates the splits no longer selected for this operation.

Change of the Order

Change of the Order

Use

It may be that during capacity leveling the planner determines when working in the planning board that entries in the order must be changed. The planner can use this function to make these changes to the order directly from the planning board.

For more information, see [Changing an Order \[Ext.\]](#) and [Planning of an Order \[Page 1097\]](#).

Display and Change of the Available Capacity

Use

You use this function if, during the planning on the planning board, you want to:

- Know how much capacity a work center has available
- Change the available capacity of a work center

Features

On the planning board, the planner can display an overview of the available capacity of a work center over several planning periods.

If necessary, the planner can also change this available capacity.

Activities

Displaying Available Capacity

In the graphical and tabular planning boards, you will find this function under *Goto → Capacity → Display capacity*.

Changing Available Capacity

In the graphical and tabular planning boards, you will find this function under *Goto → Capacity → Change capacity*.

Graphical Monitor

Graphical Monitor

Use

You use the graphical monitor to display a current overview of the work assigned to the individual people at a work center.

The graphical monitor is automatically updated by the system at specified intervals. You can therefore obtain an up-to-date overview for several people and, if necessary, several orders.

Prerequisites

In order to use the graphical monitor, people must have been assigned for the specified work center in the *Time Management* (PT) application component.

You define the selection period, update period and the data for the graphic profile on the initial screen for the graphical monitor.

You make the individual settings for the graphical display (mode, view, increment and break times) on the monitor screen by choosing *Settings*.

Features

Color Differentiation of Scheduled Jobs

The graphical monitor displays the person splits scheduled in different colors. It distinguishes between:

- Current jobs
- Jobs in the past
- Jobs in the future

Reading Help

So that you know on exactly which time position the cursor is, the graphical monitor displays a vertical line. The time is also shown in the status line.

Updating

The display is automatically updated by the system at specific intervals, which you define in the graphic profile. After the update, finally confirmed operations are no longer displayed. However, newly added operations are displayed.

Order Display

On the monitor display, you can display the accompanying order by double clicking on the required person split.

Automatic Updating After Change to Order

If you change the order data, the monitor display changes automatically after the update according to the data changed.

The paging function is available for person splits and the people listed in the monitor. For more information, see [Sending of Short Messages Using Paging \[Page 1248\]](#).

Activities

Depending on the application component in which you are working, choose one of the following menu paths to call up the graphical monitor:

Logistics → Customer service → Service processing → Order → Capacity planning → Graphical monitor

Logistics → Plant maintenance → Maintenance processing → Capacity planning → Graphical monitor

Capacity Planning in Plant Maintenance (PM-WOC-CP)

Capacity Planning in Plant Maintenance (PM-WOC-CP)

Purpose

Capacity planning supports you in detailed work scheduling for the individual maintenance work centers (maintenance groups).

The capacities available to the work centers must be utilized as fully as possible in view of the changing daily requirements. Therefore, capacity planning can help you in determining which work centers and individual persons are available, and help in assigning them to orders and order operations. You can use this component to specify which work centers or persons can or should complete which activities by which date.

Integration

You can only use this component in connection with the following application components:

Maintenance Orders (PM-WOC-MO)

Capacity Planning (PP-CRP)

To plan persons, you also require the following application components:

Personnel Management (PA)

Time Management (PT)

To optimize the use of capacity planning, certain settings must be made in the system. The system administration enters the settings in Customizing for Production Planning and Plant Maintenance.

For further information, see [Capacity Planning \(PP-CRP\) \[Ext.\]](#), and the individual function descriptions in the unit [Capacity Planning in Customer Service and Plant Maintenance \[Page 1438\]](#).

Process for Capacity Requirements Planning in Plant Maintenance

Purpose

In Plant Maintenance, you use capacity requirements planning if you want to maximize the capacity of the individual work centers for work scheduling, in view of the changing daily requirements.

Required Knowledge

If you want to use capacity requirements planning for Plant Maintenance effectively in your company, you need knowledge of the following areas:

Work center in Plant Maintenance

Refer to [Work Center \[Page 1107\]](#) (PM and CS) and [The Work Center \(PP/General\) \[Ext.\]](#).

Planning elements in Plant Maintenance:

[Notifications \[Page 825\]](#)

[Orders \[Page 1068\]](#)

[Task lists \[Page 604\]](#)

[Maintenance plans \[Page 541\]](#)

Knowledge of [personnel administration \[Ext.\]](#) (application component PA-PA) and [time management \[Ext.\]](#).

Customizing

To optimize your use of capacity leveling, you must make certain settings in the Customizing for Plant Maintenance. The settings are usually made by your system administration.

For more information, see [Settings and Profiles for Capacity Leveling \[Ext.\]](#).

Process Flow

Capacity requirements arise in Plant Maintenance from tasks that are requested in the form of orders. The capacity requirements requested and scheduled match the limited available capacity of the work centers and individual persons.

The maintenance planner has the following options:

The planner enters the required **work center** in the order operation, schedules and saves the order. The system provisionally plans the requested capacity requirement to the work center. This means that initially the work is planned, but “not binding” for this work center.

The planner enters a **person** in the operation for the order. This means that initially the work is planned, but “not binding” for this person.

For more information, see [Selection of a Suitable Person \[Page 1479\]](#).

If the planning has been completed as far as possible, the planner can check the capacity availability, which they have entered for the operations. The capacity requirement for other orders or other operations is considered for this work center.

Process for Capacity Requirements Planning in Plant Maintenance

For more information, see [Capacity Availability Check \[Ext.\]](#).

Owing to the number of orders resulting from both unplanned maintenance and preventive maintenance, it is often not possible to utilize all of the available work centers and persons equally when the order is created. Usually, some will have less capacity than is planned, whilst others will have more.

To utilize resources fully, the maintenance planner must regularly perform capacity leveling. To do this, the planner selects the graphical or tabular planning board, and then uses the functions available for capacity leveling.

For more information, see:

[Splitting of Operations \[Page 1481\]](#)

[Dispatching of Requirements \[Page 1486\]](#)

[Deallocation of Requirements \[Page 1487\]](#)

[Change of the Order \[Page 1489\]](#)

[Display and Change of the Available Capacity \[Page 1490\]](#)

Reconciliation of Capacity and Scheduling

Use

You can use different functions to reconcile the available capacity and order scheduling individually with one another.

Prerequisites

The scheduling parameters are maintained in the Customizing for Plant Maintenance.

You can find these by choosing *Plant Maintenance and Service Management* → *Maintenance Processing and Service Processing* → *Maintenance Orders and Service Orders* → *Scheduling* → *Set scheduling parameters*.

Features

The following functions are available:

- [Inclusion of External Operations in Scheduling \[Page 1470\]](#)
- [Consideration of Shift Breaks When Planning \[Page 1471\]](#)
- [Available Capacity Versions in the Work Center \[Page 1472\]](#)
- [Consideration of Existing Capacity Loads \[Page 1473\]](#)
- [Capacity Load Records for the Production Work Center \[Page 1474\]](#)

See also:

[Control Key \[Page 1105\]](#)

[Scheduling \[Page 1140\]](#)

Inclusion of External Operations in Scheduling

Inclusion of External Operations in Scheduling

Use

You use this function to include external operations in the scheduling of the order.

Prerequisites

A suitable control key has been created in your system. The *Scheduling external operation* (scheduling of an external operation with standard values) parameter has been maintained for this control key.

You maintain control keys in the Customizing for Plant Maintenance and Service Management by choosing *Maintenance Plans, Work Centers, Task Lists and PRTs* → *Task Lists* → *Operation Data* → *Maintain control keys*.



If the *Scheduling external operation* parameter is **not** maintained for the control key, the operation end date is calculated in days based on the planned delivery time entered. The dates for the following operations are then determined with reference to this operation end date.

Features

For external operations, you have the following scheduling options:

You can include external operations based on the data entered for them in order scheduling. This results in the dates for the following operations being scheduled with reference to the duration of the external operation.

The system can calculate the operation end date in days based on the planned delivery time entered. The dates for the following operations are then determined with reference to this operation end date.

See also:

[Control Key \[Page 1105\]](#)

Consideration of Shift Breaks when Planning

Use

You use this function to consider shift breaks when scheduling orders.

Prerequisites

- Shift sequences have been defined for the required work centers.
You can find these in the Customizing for Production by choosing *Basic Data* → *Work Center* → *Capacity Planning* → *Available Capacity* → *Define shift sequence*.
- In the scheduling parameters, scheduling including breaks has been selected.
- In the order, you can select *Breaks included* in the *Control* field on the *Additional data* tab page.

Features

You can schedule an order in such a way that the work to be performed does not occur in a break. The system considers the shift sequences for the work centers, as well as the start and end times of defined breaks (for example, breakfast, lunch and so on).

Available Capacity Versions in the Work Center

Available Capacity Versions in the Work Center

Use

You use this function to plan orders over several shifts.

Prerequisites

- The available capacity versions have been maintained for the required work centers.
You can find these in the Customizing for Production by choosing *Basic Data → Work Center → Capacity Planning → Available Capacity → Define version of available capacity*.
- In the order, the required version has been entered in the *Control* section on the *Additional data* tab page.

Features

You can plan over a period of several shifts.

A work center can have several available capacity versions with regard to its capacity (for example, normal, normal with overtime, weekends and so on). This is useful, for example, if there are two shifts each day in your company and you have to schedule an order which takes longer than a single shift to process.

Consideration of Existing Capacity Loads

Use

You use this function if you want the system to consider the existing capacity loads for the work centers/employees during scheduling.

Prerequisites

For the required order type, it is defined in your system which overall profile is used to perform a capacity availability check and whether an order of this order type should be released if insufficient capacity is available.

You make these settings in the Customizing for Plant Maintenance and Service Management by choosing *Maintenance Processing and Service Processing* → *Maintenance Orders and Service Orders* → *Functions and Settings for Order Types* → *Availability Check for Materials, PRTs and Capacities* → *Define inspection control*.

Features

When scheduling the order, the system considers the existing capacity loads for the work centers/employees. Loads with the status "Provisionally planned" are viewed here as committed capacity.

The system checks whether capacity being planned provisionally at the desired time would result in a capacity overload for the work center. If this is the case, the system delays the new order until there is no longer a capacity overload or the planning horizon has been reached. The system therefore reschedules the dates and times for this order.

If the system does not determine a capacity overload for the dates and times originally planned, it schedules the new order with the original dates as committed capacity.

Capacity Load Records for the Production Work Center

Capacity Load Records for the Production Work Center

Use

You can configure the system so that the usage of a PP work center by Plant Maintenance can be seen on the planning board for Production.

Prerequisites

- The technical object in the order is assigned to a PP work center.
For this, the PP work center must be entered in the location data for the technical object. The technical object and work center must be assigned to the same plant.
- System conditions and operating conditions have been created in the Customizing for Plant Maintenance.
These are maintained by choosing *MaintenanceProcessing and Service Processing → Maintenance Orders and Service Orders → General Data → Create system conditions or operating conditions*.
- In the order, the *System condition* indicator is set at header level.
The result is that the system generates capacity requirements records.

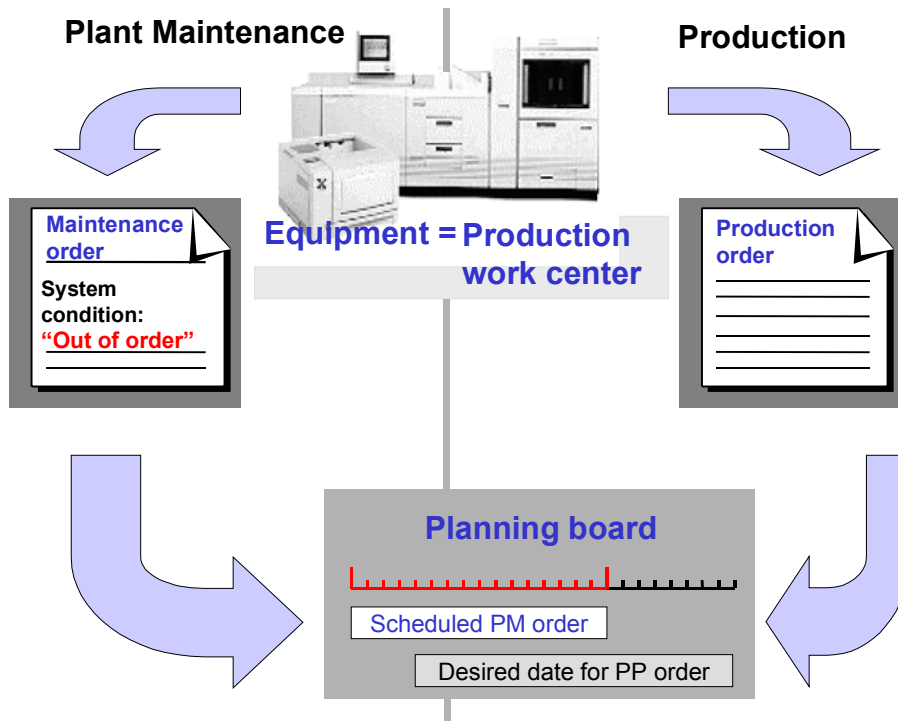


You can set the indicator for the system condition in the maintenance item (for planned orders) and in orders entered directly.

Features

The scheduled maintenance work appears as a capacity load for the Production work center on the planning board for Production. The load is fixed and cannot be changed by the production planner.

Capacity Load Records for the Production Work Center



Capacity Load from a Maintenance Order



A production planner wants to schedule a production order for equipment A1234. The order has a duration of five days. On the planning board, the planner sees that preventive maintenance work is being performed on the equipment during the desired week. This requires the shutdown of the equipment.

The production planner can display the maintenance order for the preventive maintenance work by double clicking in the planning board. Here, it indicates the planner from Plant Maintenance responsible for this order. If the production planner wants the maintenance order to be executed at another time, then they must contact the planner from Plant Maintenance.

Calling Up Planning Boards

Calling Up Planning Boards

In Customer Service

For the **graphical planning board**, choose:

Logistics → Customer service → Service processing and then Order → Capacity planning → Leveling → Work center (graphical) or Individual capacity (graphical).

For the **tabular planning board**, choose:

Logistics → Customer service → Service processing and then Order → Capacity planning → Leveling → Work center (tabular) or Individual capacity (tabular).

Perform capacity leveling using the functions provided.

In Plant Maintenance

For the **graphical planning board**, choose:

Logistics → Plant maintenance → Maintenance processing and then Capacity planning → Leveling → Work center view → Planning board (graphical).

For the **tabular planning board**, choose:

Logistics → Plant maintenance → Maintenance processing and then Capacity planning → Leveling → Work center view → Planning board (tabular).

Perform capacity leveling using the functions provided.

For more information about the tabular planning board and its functions, see [Tabular Planning Board \[Ext.\]](#).

For more information about the graphical planning board and its functions, see [Graphical Planning Board \[Ext.\]](#).

Assignment of a Person to an Operation

Use

You use this function to assign a person to an operation - the person who should execute the operation or who should be informed about processing of the operation.

Prerequisites

The person is managed in Personnel Management.

The assignment does **not** depend on whether there are capacity requirements records for the operation.

Prerequisites for a Default Value

In certain situations, it is advisable to have the system propose a personnel number in the operation.



In a company, a technician is assigned to each piece of equipment. The technician is responsible for preventive maintenance and maintenance of the equipment. Each technician is entered in the equipment master record as a partner with the function "Person responsible". If an order is created for this equipment, the system should automatically propose the technician responsible in the order header and in the operation.

For the system to propose a personnel number in the operation, the following prerequisites must be met:

- In the Customizing for Plant Maintenance, a default value is entered in the *Header funct.* (partner function for the order header) field by choosing *Assign partner determination procedure to order types*.

For example, this default value can be the partner function "Person responsible" or the partner function "Responsible". Entries can now be made in the relevant field for orders of this order type.

- In one of the following objects assigned to the order, a person is entered as a partner:
 - Reference object
 - Notification
 - Work center

The function of this partner corresponds to the function which was entered in the Customizing for Plant Maintenance by choosing *Assign partner determination procedure to order types* in the *Header funct.* (partner function for the order header) field.

- The person who was entered as the partner in the reference object, notification or work center is managed with a personnel number in Personnel Management.

If all the prerequisites have been met, the system proposes an entry, in the field for the person responsible in the *Responsibilities* section of the order header, which you can overwrite if necessary. It then also proposes this entry in the *Personnel number* field in the operation.

Assignment of a Person to an Operation



Subsequent changes of the partner do **not** overwrite the person entered in the operation.

A change to the person entered in the operation has **no** effect on the tasks of the partner.

Features

In addition to the work center, you enter the personnel number of the person in the required operation on the *Internal* tab page. It is possible here to enter a person who does not work on the work center entered.



Entering a person does not have any effect on the capacity requirements records that are generated by the system on the requirements assignment screen.

You can use the field as a selection criterion for operations. It is also available in the completion confirmation.

Selection of a Suitable Person

Use

You use this function when using the search help provided for the *Personnel number* field in the operation.

Prerequisites

These special search help functions are only available if you have selected the field *Special search help* for the order type when assigning the partner determination procedure in the Customizing for Plant Maintenance and Customer Service.

If you do **not** select the field, the system only provides a collective search help (for example, "Name/First name" or "Organizational assignment").

Features

Search for a Person Belonging to a Particular Work Center

The system searches for those persons who work at the work center which you have entered for the operation. You can select the person required from the list provided by the system.

Search for a Person Belonging to a Particular Work Center Who Has Certain Qualifications

The system searches in the work center, which you have entered for the operation, for persons who have particular qualifications.

For the search, the system needs a qualification requirements profile which you enter on the *Internal* (internal processing) operation detail screen or if you call up the search help. One or more qualifications belong to the qualification profile. You can specify the importance of each of the qualifications for this search.

In the list provided in a dialog box by the system, you can establish the extent to which the qualifications of the person found meet the desired qualifications. If one of the essential requirements is not fulfilled, the suitability rating is 0 anyway.

You can call up additional information in the dialog box:

- Detailed information about the qualification requirements profile (see also [Profile \[Ext.\]](#))
- Detailed information about the qualifications of individual persons
- Comparison between requirement profile and qualifications of the person selected

Alternative qualifications are also displayed. (For example, a class 3 driving licence (car) was required; alternative qualification of a class 2 (heavy goods vehicle) licence is also possible since this incorporates a car driving licence.)

If you have the necessary authorization, you can use this screen to register an employee lacking a qualification for a course which will provide them with the necessary qualification. (However, this function is only available if your R/3 personnel system has **not** been decoupled.)

If you copy an employee into the operation, the system also writes the requirements profile used for the search into the operation on the *Internal* (internal processing) tab page.

Selection of a Suitable Person

Selection of a Person and Copying

Once you have selected the required person, the system copies the personnel number and the selected date into the partner.

Creation of Employee Requirements Records (Splits)

Use

The planner can use this function to split operations and generate capacity loads for individual people.

Features

The planner can enter the following information for each individual operation:

- The operation should be processed by several people, if necessary also in specific time segments.
- The operation should be processed by a single person in specific time segments.

This information, in the form of capacity requirements records, can be:

- Entered manually by the planner on the requirements assignment screen of the required operation

For more information, see [Splitting and Scheduling an Individual Operation \[Page 1482\]](#).

- Created automatically by the system

For more information, see [Creating Employee Requirements Records Automatically Using the System \[Page 1483\]](#) and [Changing Employee Requirements Records Created Automatically \[Page 1485\]](#).

Splitting and Scheduling an Individual Operation

Splitting and Scheduling an Individual Operation



This function is available **in the order and in the planning board**. The procedure in the order is described below:

1. Select the required operation in the operation overview of the order.
2. Select one of the detail screens for the required operation.
3. Choose the *Requirements assignment* tab page.
4. Enter the personnel and time data for the required splits. In addition, enter whether or not the system should schedule the splits.
5. Save the order.

The system creates the splits for the operation and schedules the splits indicated.

Creating Employee Requirements Records Automatically Using the System

Use

This function enables you to save time in planning situations of this type that frequently recur: You do not have to enter the distribution of work manually for each operation; the system processes it for you. It creates requirements records (= splits) for the required employees. In this way, the system distributes the work equally between the specified people.



This function is **only** available **in the order**.

This function is executed automatically by the system if you create:

- An order

- New operations for an existing order

The function is not executed again if existing operations are changed (for example, after you have deleted all the requirements assignment records for an operation).

Prerequisites

The following must be configured in the Customizing for the order type:

A partner determination procedure has been defined in Customizing for the order type that you use.

One of the partner functions for the partner determination procedure specified has been entered in the field *Function split gen.* This function is of type *Person*.

Consequently, the system generates employee requirements records for partners automatically, which are specified in the order and have the partner function entered in Customizing. Partners with other partner functions are not considered.



An example situation could be as follows:

Order type: PM01

Partner determination procedure: PM

Partner functions in procedure:

- VW (Partner type: Person)

- AG (Partner type: Organization)

- ZM (Partner type: Person)

Partner function in field *Split gen.*: VW

The following partners were entered in the order:

- Smith (Partner function VW)

Creating Employee Requirements Records Automatically Using the System

Jones (Partner function VW)

Reeves (Partner function AG)

Mortimer (Partner function ZM)

The system generates employee requirements records automatically for partners Smith and Jones.

Procedure

Create an order.

Enter the required partners.

Create the required operations for the order.

If you enter work centers for the operations, the people, for whom you generate employee requirements records, do **not** necessarily have to work at these work centers.



You can already maintain employee requirements records manually for certain operations. These entries are **not** overwritten by the automatic function when saving.

Save the order.

Result

The system now creates requirements records (= splits) for the required employees. In this way, the work is distributed equally between the specified people. The system schedules the splits.

Further processing of the splits is made using PP Capacity Planning logic.



The capacity requirements records for the operation are scheduled based on the working times, which have been entered in the work center specified.

The requirements records for the employees (splits) are scheduled based on the working times, which have been entered in the personnel master data in HR.

If you want to check the requirements records, you can call up the order again. You can find the requirements records generated on the requirements assignment screen for the respective operation.

If you want to change the requirements records, see [Changing Employee Requirements Records Created Automatically \[Page 1485\]](#).

Changing Employee Requirements Records Created Automatically

Use

The employee requirements records generated automatically by the system divide the planned work equally between the people specified as partners on the partner screen for the order. (For more information, see [Creating Employee Requirements Records Automatically Using the System \[Page 1483\]](#).)

If you do not want this type of distribution, you must change it manually.



This function for creating employee requirements records automatically is only executed by the system **when operations are created** for an order. It is not executed again when operations are changed.

For example, if you delete all the requirements records for an operation on the requirements assignment screen and save the order, no new requirements records are created by the system. The system assumes that all the changes to the requirements records are desired. Therefore, if you want employee requirements records in this situation, you must enter them manually.

Changes to the partner information in the order also have no effect on an order already saved. For example, if you add another function "Employee responsible" for an order in change mode and save it, the requirements records already created are not changed. If you require another employee requirements record for an operation in this situation, you must enter it manually.

Procedure

Call up the required order in change mode.

Call up the requirements assignment screen for the first operation that you want to change.

Change the employee requirements records as required.

Execute any other required changes.

Save the order.

Dispatching of Requirements

Dispatching of Requirements

Use

You use this function if you want to fix the scheduling of the provisional operations and splits intended for a work center/person.

Features

From the provisionally planned, but not binding requirements for a work center or a person, the planner dispatches the individual requirements of a work center or a person in specific planning periods. The planner uses dispatching to fix the processing of the tasks by the work center and thereby reduce the available capacity of the work center.



The system does not change the data for dispatched operations/splits even if you reschedule the order.

On the planning boards, the planner can also dispatch requirements for a different work center than the one originally entered in the operation.

For more information, see [Functions in the Graphical Planning Board \[Ext.\]](#) and [Functions in the Tabular Planning Board \[Ext.\]](#).

Deallocation of Requirements

Use

The planner can use this function to deallocate individual operations and splits from specific planning periods for a work center or a person. The planner uses deallocation to reverse the binding scheduling for processing tasks by the work center or the person. The deallocated operations can be replanned by rescheduling them into another planning period.

For more information, see [Functions in the Graphical Planning Board \[Ext.\]](#), [Functions in the Tabular Planning Board \[Ext.\]](#) and [Deallocating Individual Operation Splits in the Order \[Page 1488\]](#).

Deallocating Individual Operation Splits in the Order

Deallocating Individual Operation Splits in the Order

1. Select the required operation in the operation overview of the order.
2. Select one of the detail screens for the required operation.
3. Choose the *Requirements assignment* tab page.

Here you can see all the split records which the system has created for the operation.

4. Cancel the selection for the scheduling of splits.
5. Save the order.

The system deallocates the splits no longer selected for this operation.

Change of the Order

Use

It may be that during capacity leveling the planner determines when working in the planning board that entries in the order must be changed. The planner can use this function to make these changes to the order directly from the planning board.

For more information, see [Changing an Order \[Ext.\]](#) and [Planning of an Order \[Page 1097\]](#).

Display and Change of the Available Capacity

Display and Change of the Available Capacity

Use

You use this function if, during the planning on the planning board, you want to:

- Know how much capacity a work center has available
- Change the available capacity of a work center

Features

On the planning board, the planner can display an overview of the available capacity of a work center over several planning periods.

If necessary, the planner can also change this available capacity.

Activities

Displaying Available Capacity

In the graphical and tabular planning boards, you will find this function under *Goto → Capacity → Display capacity*.

Changing Available Capacity

In the graphical and tabular planning boards, you will find this function under *Goto → Capacity → Change capacity*.

Graphical Monitor

Use

You use the graphical monitor to display a current overview of the work assigned to the individual people at a work center.

The graphical monitor is automatically updated by the system at specified intervals. You can therefore obtain an up-to-date overview for several people and, if necessary, several orders.

Prerequisites

In order to use the graphical monitor, people must have been assigned for the specified work center in the *Time Management* (PT) application component.

You define the selection period, update period and the data for the graphic profile on the initial screen for the graphical monitor.

You make the individual settings for the graphical display (mode, view, increment and break times) on the monitor screen by choosing *Settings*.

Features

Color Differentiation of Scheduled Jobs

The graphical monitor displays the person splits scheduled in different colors. It distinguishes between:

- Current jobs
- Jobs in the past
- Jobs in the future

Reading Help

So that you know on exactly which time position the cursor is, the graphical monitor displays a vertical line. The time is also shown in the status line.

Updating

The display is automatically updated by the system at specific intervals, which you define in the graphic profile. After the update, finally confirmed operations are no longer displayed. However, newly added operations are displayed.

Order Display

On the monitor display, you can display the accompanying order by double clicking on the required person split.

Automatic Updating After Change to Order

If you change the order data, the monitor display changes automatically after the update according to the data changed.

The paging function is available for person splits and the people listed in the monitor. For more information, see [Sending of Short Messages Using Paging \[Page 1248\]](#).

Graphical Monitor**Activities**

Depending on the application component in which you are working, choose one of the following menu paths to call up the graphical monitor:

Logistics → Customer service → Service processing → Order → Capacity planning → Graphical monitor

Logistics → Plant maintenance → Maintenance processing → Capacity planning → Graphical monitor

CS-SDL Interface (CS-SE-SD)

Purpose

You can use the CS-SDL interface to perform interactive scheduling for orders and field service planning with an external scheduling system. In the SAP System, the data is saved in the order and can be used by the application components *Plant Maintenance* (PM) and *Customer Service* (CS). The additional functions in comparison to the capacity planning function in the SAP System depend on the respective scheduling system.

Implementation Considerations

If the scheduling functions in the SAP System are not sufficient for your field services planning, the CS-SDL interface enables you to use an external scheduling system.

You can implement the CS-SDL interface in the following ways:

You use a partner solution. A prerequisite for this is that you have performed all the necessary [Customizing settings \[Page 1495\]](#).

You program your own solution.

SAP delivers function modules that you can use for a scheduling agreement dialog for determining dates.

The function module [PM_ORDER_EXTERN_SCHED_DIALOG \[Page 1507\]](#) delivers the dialog and calls up the interface [PM_ORDER_EXTERN_SCHED_APPOINT \[Page 1515\]](#). This results in the scheduling data being copied from the external scheduling system during order scheduling.



You will find more information on certified products in SAPNet under *Customers & Partners* → *Partners* → *Complementary Software Program*.

The implementation of external systems is not supported by SAP consultants, and the technical prerequisites for the external product must be agreed upon with competent consultants for the external system.

Features

The following scenarios are supported with this component:

Finite scheduling

You have a work center with five capacities of 40 hours per week each in your company. The external scheduling system checks the dates and schedules on the basis of capacity and not on the basis of individual technicians.

Field service planning

The external system performs checks and schedules on the basis of individual technicians.

If you use the external scheduling system for finite scheduling, the SAP System frontend is sufficient. If you want to use field service planning in the form of a planning board, you require the external scheduling system as an additional frontend.

CS-SDL Interface (CS-SE-SD)

Constraints

The following functions are not supported:

Time dependency or operational constraints (obligatory/optional/start/end)

SAP planning board

Changes to the order data in the external scheduling system are not updated in the SAP System.

External Scheduling

Purpose

You use the external scheduling function in your company to plan field services using an external system.

Prerequisites

The following prerequisites must be met:

You have defined the order types for which you want to activate external scheduling in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Define for Each Order*.

You have performed the settings for the external scheduling of the order in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Configure Communication*.

For more information on configuring communication, see the Implementation Guide (IMG) under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Configure Communication*.

You have configured the scheduling parameters for external scheduling in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Set External Scheduling Parameters*.

You have studied the basics of [remote function calls \[Ext.\]](#) and transactional remote function calls.

For more information on Remote Function Calls, see the SAP Library under *Basis Components → Basis Services/Communication Interfaces (BC-SRV) → Remote Communications (BC-SRV-RC) → The RFC API*.

Process Flow

You create an order and have agreed a start and finish date for the order with the customer. It is obvious from the problem description which tasks must be performed. You can maintain the partner manually in the order header. The system uses the partner function that you have maintained in Customizing in the function *Maintain Capacity Requirements* to propose the technician you want to perform the tasks. If there is more than one partner for this partner function, the system always copies the first partner.

For more information on the settings for partners in Customizing, see [Customizing for Partners \[Page 1215\]](#).

If you have assigned the function modules [PM ORDER EXTERN SCHED DEFAULT \[Page 1511\]](#) or [PM ORDER EXTERN SCHED DIALOG \[Page 1507\]](#) to the fixed values S or D when configuring communication in Customizing, the system finds a suitable date in the external system using the interface. The SAP system does not save the dates at this point.

External Scheduling

This first occurs when you save the order. The value "Work" is used at the interface for the effort required. Bi-directional communication occurs with the external system.

You schedule the order using *Order → Functions → Dates → Schedule*. The system updates the order using the scheduling agreements from the external scheduling system and sets the system status *EXTM* (scheduling by external system). The dates are passed on to reservation, purchase request, and so on.

If you have assigned the function module [PM_ORDER_EXTERN_BOOK_DEFAULT \[Page 1520\]](#) to the fixed value *B* when configuring communication in Customizing, the SAP System transfers the dates to the external scheduling system when you save the order so that the dates are available in both systems.

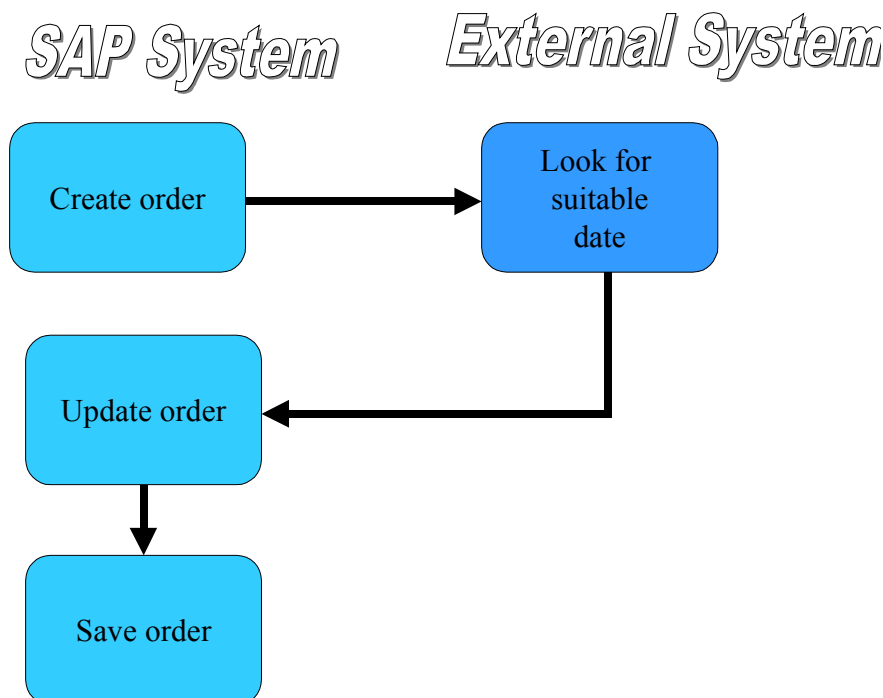
The SAP System shows you how resources are distributed in the external scheduling system by means of the [graphical monitor \[Page 1491\]](#). This is only possible if scheduling is performed for individual technicians.

Depending on which application component you are working in, choose

Logistics → Plant Maintenance → Maintenance Processing → Capacity Requirements Planning → Graphical Monitor

Logistics → Customer Service → Service Processing → Order → Capacity Planning → Graphical Monitor

The External Scheduling Process from a Business Management Viewpoint



Result

Bi-directional communication between the SAP System and the external system by means of the [CS-SDL interface \[Page 1493\]](#). The external system finds a suitable date and returns it to the SAP System.

External Scheduling

The information from the final confirmation that the task is completed is transferred to the external scheduling system as well as to the status information. The final confirmation of an operation, such as order completion for example, causes a reduction in requirements in the external scheduling system.

The SAP System forwards the following system statuses to the external scheduling system:

Created

Released

Completed

Locked

No distinction is made between technical and business completion. The SAP System sets the status *Completed* for the function *Do not execute order*.

The status can be either *Created*, *Released*, *Completed*, **or** *Locked*.

You can perform changes to the basic dates of the order and operation dates using the function *Change order*, as all the information on the order is available here.

Changes to the order data in the external scheduling system are not updated in the SAP System. However, you can display the actual situation of the external scheduling system using the graphical monitor in the SAP System.

If you change and schedule an order, the SAP System displays proposed dates from the external scheduling system for the modified dates.

If you perform changes to the dates in the SAP System or save the dates, the new dates are transferred to the external scheduling system. The dates are posted and any capacity problems displayed in the external scheduling system.

External Scheduling in the Order

External Scheduling in the Order

Use

You use this function in order processing in your company to plan field services using an external scheduling system.

Prerequisites

For more information on the prerequisites, see [External Scheduling \[Page 1495\]](#).

Features

You create an order in the SAP System and schedule it.

If you have assigned the function module [PM_ORDER_EXTERN_SCHED_DIALOG \[Page 1507\]](#) to the fixed value *D* in Customizing under *Configure Communication*, and entered the external scheduling system as the destination, the dialog box *Scheduling agreement* appears after the order has been scheduled.

You enter your desired dates and select proposed dates.

If you have assigned the function module [PM_ORDER_EXTERN_SCHED_APPOINT \[Page 1515\]](#) to the fixed value *A* in Customizing, the system calls the function module `PM_ORDER_EXTERN_SCHED_APPOINT` after you have selected the pushbutton *Proposed dates*.

The external system looks for a suitable date, and the function module `PM_ORDER_EXTERN_SCHED_APPOINT` is called up again.

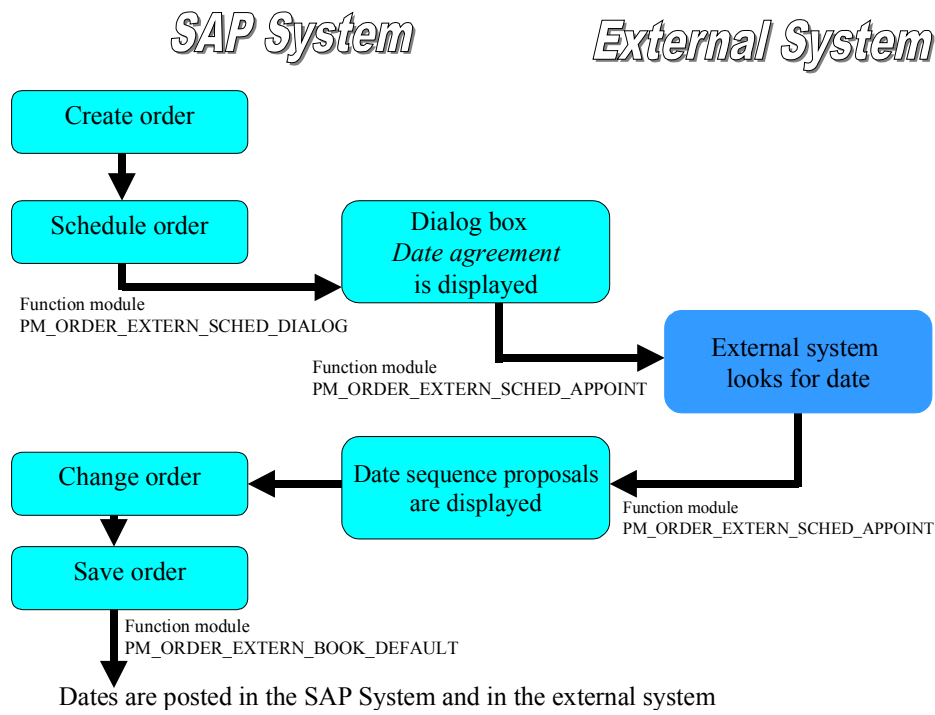
The SAP System proposes a list of dates, you select the most suitable ones, and return to the order processing screen.

After you have saved the order, the system calls up the function module [PM_ORDER_EXTERN_BOOK_DEFAULT \[Page 1520\]](#).

The system transfers the data asynchronously to the external scheduling system using transactional remote function calls. The dates are posted in the SAP System and in the external system.

The External Scheduling Process from a Technical Viewpoint

External Scheduling in the Order



External Scheduling in the Completion Confirmation

External Scheduling in the Completion Confirmation

Use

You use this function in the completion confirmation in your company to plan field services using an external system.

Prerequisites

For more information on the prerequisites, see [External Scheduling \[Page 1495\]](#).

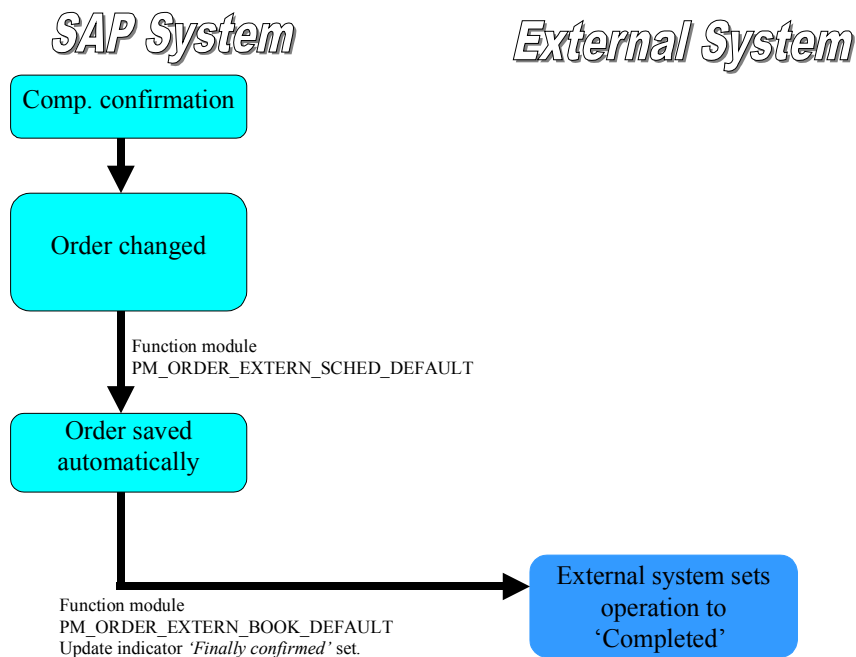
You have assigned the function module `PM_ORDER_EXTERN_BOOK_DEFAULT` to the fixed value *B* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

If you finally confirm an operation, the SAP System calls up the function module [PM_ORDER_EXTERN_BOOK_DEFAULT \[Page 1520\]](#) and sets the update indicator of the operation to *C* for 'Finally confirmed'.



In the external scheduling system, the operation must be set to *Completed* or else deleted after this function has been called.



External Scheduling in Maintenance Planning

Use

You use this function in maintenance planning in your company to plan field services using an external scheduling system.

Prerequisites

You have performed the following settings in Customizing:

You have assigned the function module [PM_ORDER_EXTERN_SCHED_DEFAULT \[Page 1511\]](#) to the fixed value S in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Configure Communication*.

You have set the indicator *Release immediately* in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Function and Settings for Order Types → Configure Order Types*.

You have set the indicator *Automatic scheduling* in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → Set Scheduling Parameters*.

Features

If you generate an order from the maintenance plan, the SAP System calls up the function module PM_ORDER_EXTERN_SCHED_DEFAULT.

Depending on the Customizing settings, scheduling automatically takes places in the external scheduling system. The external system looks for a suitable date and returns this to the order in the SAP System.

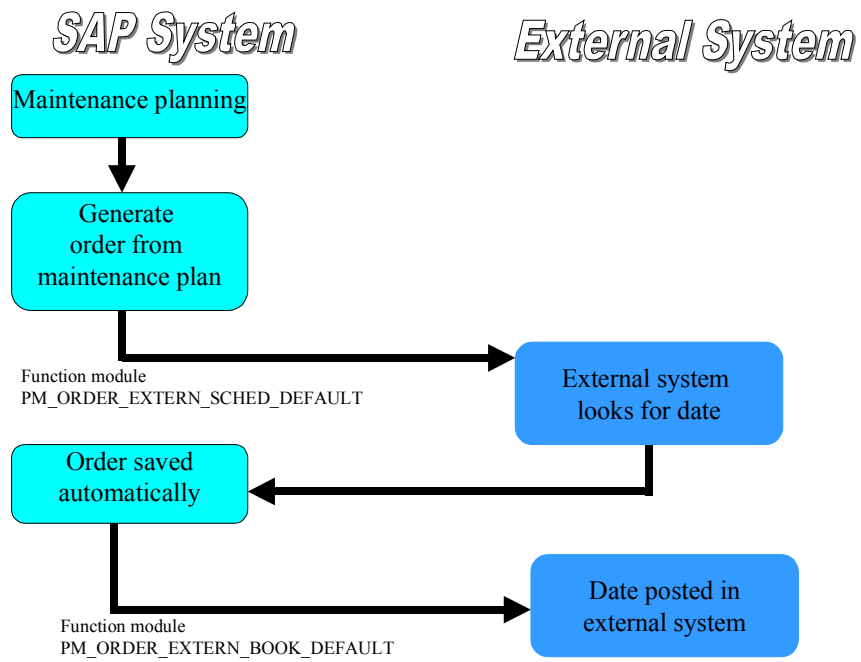
The SAP System saves the order and calls up the function module [PM_ORDER_EXTERN_BOOK_DEFAULT \[Page 1520\]](#).

The date is automatically posted in the SAP System and in the external scheduling system.

There is no dialog, and there are no proposed dates from which you can choose a suitable date.

External Scheduling in Maintenance Planning

External Scheduling in Maintenance Planning



External Scheduling in the Graphical Monitor

Use

The SAP System uses the [graphical monitor \[Page 1491\]](#) to display the distribution of resources either in the external scheduling system or in the SAP System itself. This is only possible if scheduling is performed for individual technicians.

Prerequisites

You have assigned the function module [READ_WORKLOAD \[Page 1523\]](#) to the fixed value *R* in Customizing under *Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Scheduling → External Scheduling → Configure Communication*.

This function module defines the interface that reads the actual dates for the technician from the external scheduling system when the graphical monitor is started or refreshed.

Activities

Depending on which application component you are working in, choose

Logistics → Plant Maintenance → Maintenance Processing → Capacity Requirements Planning → Graphical Monitor

Logistics → Customer Service → Service Processing → Order → Capacity Planning → Graphical Monitor

Set the indicator *External* in the screen area *Scheduling*.

The system displays the current field service planning dates from the external scheduling system in the graphical monitor.

Notes on Function Modules

Use

The following function modules define the technical part of the CS-SDL interface.

The export parameters, import parameters, and interface tables are defined in these function modules. You also find the fields and structures that are used.

As an SAP customer, you require the function modules if you want to program your own system.

As an SAP partner, you require the function modules in order to be certified for this interface.

The following function modules for current communication with the external scheduling system are delivered with the CS-SDL interface:

[PM_ORDER_EXTERN_BOOK_DEFAULT \[Page 1520\]](#)

[PM_ORDER_EXTERN_SCHED_APPOINT \[Page 1515\]](#)

[PM_ORDER_EXTERN_SCHED_DEFAULT \[Page 1511\]](#)

[PM_ORDER_EXTERN_SCHED_DIALOG \[Page 1507\]](#)

[READ_WORKLOAD \[Page 1523\]](#)

The following function module is used for reading master data from the SAP System to the external scheduling system.

[PM_ORDER_EXTERN_MASTER_DATA \[Page 1525\]](#)

Activities

Notes on individual parameter components that are used in all function modules and which you must take into account when implementing an external scheduling system:

Parameter Name	Component	Data Type	Length	Short Text
ORDER_ HEADER	ORDER_ NUMBER	CHAR	12	Order number

The component *ORDER_NUMBER* is the key field of the order.

Parameter Name	Component	Data Type	Length	Short Text
ORDER_ HEADER	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system

If a logical system has been defined in the SAP System, it will be made available to you in this component. Use of this system is optional.

Parameter Name	Component	Data Type	Length	Short Text
ORDER_ HEADER	PREFERRED_ ENGINEER	NUMC	8	Object ID

Depending on the partner settings in Customizing, this component places the desired technician at your disposal.

Parameter Name	Component	Data Type	Length	Short Text
ORDER_ HEADER	STATUS	CHAR	4	Individual object status (short form)

This component informs you of the system status. The following fixed values are possible:

CRTD = created (Order created)

REL = released (Order released)

CLSD = completed (Order completed)

LKD = locked (Order locked)

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	ID	NUMC	8	General counter for the order

The component *ID* is the key field for the operation.

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	SUB_COUNTER	CHAR	4	Sub-operation

This component is active, but will not be transferred to the interface in Release 4.6C. Only operations and no sub-operations will be transferred to the interface.

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	UPDATE_FLAG	CHAR	1	Update indicator

This component has the following fixed values:

I = insert (Insert operation)

U = update (Update operation)

C = confirm (Finally confirm operation)

D = delete (Delete operation)

Notes on Function Modules**Error Handling**

There are two ways of dealing with errors:

You can use the exceptions defined in the function modules. The SAP System displays an error message if these exceptions are triggered.

If you use the parameters *ERROR_CODE* and *ERROR_DESCRIPTION*, the SAP System displays these two parameters as an error message to the end user.

Function Module PM_ORDER_EXTERN_SCHED_DIALOG

Use

This function module is a component of the [CS-SDL interface \[Page 1493\]](#) with which an external scheduling system can be connected to the order processing function in the application areas *Plant Maintenance* and *Customer Service*.

Integration

The function module PM_ORDER_EXTERN_SCHED_DIALOG shows you how a dialog in which dates can be selected is also possible if the function module [PM_ORDER_EXTERN_SCHED_DEFAULT \[Page 1511\]](#) is used instead of automatic scheduling.

Prerequisites

You have assigned the function module PM_ORDER_EXTERN_SHED_DIALOG to the fixed value *D* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type
	CUSTOMER_NUMBER	CHAR	10	Customer number

Function Module PM_ORDER_EXTERN_SCHED_DIALOG

	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
DIALOG_POSSIBLE		CHAR	1	One-character indicator

Export Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER_RETURN	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type
	CUSTOMER_NUMBER	CHAR	10	Customer number
	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
ERROR_CODE		NUMC	4	Counter parameters
ERROR_DESCRIPTION		CHAR	70	Character field of list 70

Function Module PM_ORDER_EXTERN_SCHED_DIALOG

Tables

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	ID	NUMC	8	General counter for the order
	COUNTER	CHAR	4	Operation number
	SUB_COUNTER	CHAR	4	Sub-operation
	UPDATE_FLAG	CHAR	1	Update indicator
	DESCRIPTION	CHAR	40	Operation short text
	EARLIEST_START_DATE	DATS	8	Earliest scheduled start: Execute (date)
	EARLIEST_START_TIME	TIMS	6	Earliest scheduled start: Execute (time)
	LATEST_START_DATE	DATS	8	Latest scheduled start: Execute (date)
	LATEST_START_TIME	TIMS	6	Latest scheduled start: Execute (time)
	EARLIEST_FINISH_DATE	DATS	8	Earliest scheduled finish: Execute (date)
	EARLIEST_FINISH_TIME	TIMS	6	Earliest scheduled finish: Execute (time)
	LATEST_FINISH_DATE	DATS	8	Latest scheduled finish: Execute (date)
	LATEST_FINISH_TIME	TIMS	6	Latest scheduled finish: Execute (time)
	NUMBER_OF_CAPACITY	NUMC	2	Two-figure number
	WORKCENTER	CHAR	8	Work center
	PLANT	CHAR	4	Plant
	AMOUNT_OF_WORK	FLTP	16	
	SCHED_PARAM1	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM2	CHAR	4	Scheduling parameters for external scheduling
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Function Module PM_ORDER_EXTERN_SCHED_DIALOG

	SCHED_ PARAM3	CHAR	4	Scheduling parameters for external scheduling
REQUIREMENTS	OPERATION_ID	NUMC	8	General counter for the order
	QUALIFICATION_ ID	NUMC	8	Object ID
	RATING	NUMC	4	Characteristics of a quality scale
	ESSENTIAL	CHAR	1	Indicator: Mandatory or optional requirement

Function Module PM_ORDER_EXTERN_SCHED_DEFAULT

Use

This function module is a component of the [CS-SDL interface \[Page 1493\]](#) with which an external scheduling system can be connected to the order processing function in the application areas *Plant Maintenance* and *Customer Service*.

Integration

The system calls up this function module for the following functionality:

When generating an order from maintenance planning

During final confirmation

Prerequisites

You have assigned the function module PM_ORDER_EXTERN_SCHED_DEFAULT to the fixed value *S* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type

Function Module PM_ORDER_EXTERN_SCHED_DEFAULT

	CUSTOMER_NUMBER	CHAR	10	Customer number
	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
DIALOG_POSSIBLE		CHAR	1	One-character indicator

Export Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER_RETURN	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type
	CUSTOMER_NUMBER	CHAR	10	Customer number
	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
ERROR_CODE		NUMC	4	Counter parameters

Function Module PM_ORDER_EXTERN_SCHED_DEFAULT

ERROR_		CHAR	70	Character field of list 70
DESCRIPTION				

Tables

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	ID	NUMC	8	General counter for the order
	COUNTER	CHAR	4	Operation number
	SUB_COUNTER	CHAR	4	Sub-operation
	UPDATE_	CHAR	1	Update indicator
	FLAG			
	DESCRIPTION	CHAR	40	Operation short text
	EARLIEST_	DATS	8	Earliest scheduled start:
	START_DATE			Execute (date)
	EARLIEST_	TIMS	6	Earliest scheduled start:
	START_TIME			Execute (time)
	LATEST_	DATS	8	Latest scheduled start:
	START_DATE			Execute (date)
	LATEST_	TIMS	6	Latest scheduled start:
	START_TIME			Execute (time)
	EARLIEST_	DATS	8	Earliest scheduled finish:
	FINISH_DATE			Execute (date)
	EARLIEST_	TIMS	6	Earliest scheduled finish:
	FINISH_TIME			Execute (time)
	LATEST_	DATS	8	Latest scheduled finish:
	FINISH_DATE			Execute (date)
	LATEST_	TIMS	6	Latest scheduled finish:
	FINISH_TIME			Execute (time)
	NUMBER_OF_	NUMC	2	Two-figure number
	CAPACITY			
	WORKCENTER	CHAR	8	Work center
	PLANT	CHAR	4	Plant
	AMOUNT_OF_	FLTP	16	
	WORK			

Function Module PM_ORDER_EXTERN_SCHED_DEFAULT

	SCHED_PARAM1	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM2	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM3	CHAR	4	Scheduling parameters for external scheduling
REQUIREMENTS	OPERATION_ID	NUMC	8	General counter for the order
	QUALIFICATION_ID	NUMC	8	Object ID
	RATING	NUMC	4	Characteristics of a quality scale
	ESSENTIAL	CHAR	1	Indicator: Mandatory or optional requirement

Note

The operations to be scheduled are transferred to the interface in the table *OPERATIONS*.

After this function module has been called, the scheduled dates in the table *OPERATIONS* in the components *EARLIEST_START_DATE/TIME*, *LATEST_START_DATE/TIME*, *EARLIEST_FINISH_DATE/TIME*, *LATEST_FINISH_DATE/TIME* must be transferred to the SAP System.

Function Module PM_ORDER_EXTERN_SCHED_APPOINT

Use

This function module is a component of the [CS-SDL interface \[Page 1493\]](#) with which an external scheduling system can be connected to the order processing function in the application components *Plant Maintenance* and *Customer Service*.

Integration

The function module PM_ORDER_EXTERN_SCHED_APPOINT defines the interface in order to be able to select a suitable date from the different proposed dates delivered by the external scheduling system.

Prerequisites

You are using the function module [PM_ORDER_EXTERN_SCHED_DIALOG \[Page 1507\]](#) and have assigned the function module PM_ORDER_EXTERN_SCHED_APPOINT to the fixed value A in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type
	CUSTOMER_NUMBER	CHAR	10	Customer number

Function Module PM_ORDER_EXTERN_SCHED_APPOINT

	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
DIALOG_POSSIBLE		CHAR	1	One-character indicator
OPERATION_ID		NUMC	8	General counter for the order

Note

The parameter OPERATION_ID specifies for which operation a date should be agreed.

Export Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_HEADER_RETURN	ORDER_NUMBER	CHAR	12	Order number
	OWN_LOGICAL_SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type
	CUSTOMER_NUMBER	CHAR	10	Customer number
	POST_CODE	CHAR	10	Postal code
	CITY	CHAR	35	City
	STREET	CHAR	35	Street and house number
	STATUS	CHAR	4	Individual object status (short form)
ERROR_CODE		NUMC	4	Counter parameters

Function Module PM_ORDER_EXTERN_SCHED_APPOINT

ERROR_ DESCRIPTION		CHAR	70	Character field of length 70
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Tables

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	ID	NUMC	8	General counter for the order
	COUNTER	CHAR	4	Operation number
	SUB_ COUNTER	CHAR	4	Sub-operation
	UPDATE_ FLAG	CHAR	1	Update indicator
	DESCRIPTION	CHAR	40	Operation short text
	EARLIEST_ START_DATE	DATS	8	Earliest scheduled start: Execute (date)
	EARLIEST_ START_TIME	TIMS	6	Earliest scheduled start: Execute (time)
	LATEST_ START_DATE	DATS	8	Latest scheduled start: Execute (date)
	LATEST_ START_TIME	TIMS	6	Latest scheduled start: Execute (time)
	EARLIEST_ FINISH_DATE	DATS	8	Earliest scheduled finish: Execute (date)
	EARLIEST_ FINISH_TIME	TIMS	6	Earliest scheduled finish: Execute (time)
	LATEST_ FINISH_DATE	DATS	8	Latest scheduled finish: Execute (date)
	LATEST_ FINISH_TIME	TIMS	6	Latest scheduled finish: Execute (time)
	NUMBER_OF_ CAPACITY	NUMC	2	Two-figure number
	WORKCENTER	CHAR	8	Work center
	PLANT	CHAR	4	Plant

Function Module PM_ORDER_EXTERN_SCHED_APPOINT

	AMOUNT_OF_WORK	FLTP	16	
	SCHED_PARAM1	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM2	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM3	CHAR	4	Scheduling parameters for external scheduling
REQUIREMENTS	OPERATION_ID	NUMC	8	General counter for the order
	QUALIFICATION_ID	NUMC	8	Object ID
	RATING	NUMC	4	Characteristics of a quality scale
	ESSENTIAL	CHAR	1	Indicator: Mandatory or optional requirement
APPOINTMENTS	EARLIEST_START_DATE	DATS	8	Earliest scheduled start: Execute (date)
	EARLIEST_START_TIME	TIMS	6	Earliest scheduled start: Execute (time)
	LATEST_START_DATE	DATS	8	Latest scheduled start: Execute (date)
	LATEST_START_TIME	TIMS	6	Latest scheduled start: Execute (time)
	EARLIEST_FINISH_DATE	DATS	8	Earliest scheduled finish: Execute (date)
	EARLIEST_FINISH_TIME	TIMS	6	Earliest scheduled finish: Execute (time)
	LATEST_FINISH_DATE	DATS	8	Latest scheduled finish: Execute (date)
	LATEST_FINISH_TIME	TIMS	6	Latest scheduled finish: Execute (time)
	PERS_NUMBER	NUMC	8	Object ID
	PERS_NAME	CHAR	40	Text of length 40

Function Module PM_ORDER_EXTERN_SCHED_APPOINT

Note

The components *PERS_NUMBER* and *PERS_NAME* are active, but are not transferred to the interface in Release 4.6C.

After this function module has been called, possible dates must be transferred to the SAP System in the table *APPOINTMENTS*.

Function Module PM_ORDER_EXTERN_BOOK_DEFAULT

Function Module PM_ORDER_EXTERN_BOOK_DEFAULT

Use

This function module is a component of the [CS-SDL interface \[Page 1493\]](#) with which an external scheduling system can be connected to the order processing function in the application areas *Plant Maintenance* and *Customer Service*.

Integration

When you save the order, the system calls up the interface PM_ORDER_EXTERN_BOOK_DEFAULT in order to transfer the data to be posted to the external scheduling system. This ensures that if the external system is called exactly once, the call is a transactional [remote function call \[Ext.\]](#). In order to ensure that the correct sequence of the external system call is observed, the call occurs as a QUEUE-RFC. The queue name is composed of the fixed value CS_SDL and the order number.

Prerequisites

You have assigned the function module PM_ORDER_EXTERN_BOOK_DEFAULT to the fixed value *B* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
ORDER_ HEADER	ORDER_ NUMBER	CHAR	12	Order number
	OWN_ LOGICAL_ SYSTEM	CHAR	10	Logical system
	START_DATE	DATS	8	Order start date
	START_TIME	TIMS	6	Order start date (time)
	END_DATE	DATS	8	Order finish date
	END_TIME	TIMS	6	Order finish date (time)
	PRIORITY	CHAR	1	Order priority
	PREFERRED_ ENGINEER	NUMC	8	Object ID
	ORDER_TYPE	CHAR	4	Order type

Function Module PM_ORDER_EXTERN_BOOK_DEFAULT

CUSTOMER_NUMBER	CHAR	10	Customer number
POST_CODE	CHAR	10	Postal code
CITY	CHAR	35	City
STREET	CHAR	35	Street and house number
STATUS	CHAR	4	Individual object status (short form)

Tables

Parameter Name	Component	Data Type	Length	Short Text
OPERATIONS	ID	NUMC	8	General counter for the order
	COUNTER	CHAR	4	Operation number
	SUB_COUNTER	CHAR	4	Sub-operation
	UPDATE_FLAG	CHAR	1	Update indicator
	DESCRIPTION	CHAR	40	Operation short text
	EARLIEST_START_DATE	DATS	8	Earliest scheduled start: Execute (date)
	EARLIEST_START_TIME	TIMS	6	Earliest scheduled start: Execute (time)
	LATEST_START_DATE	DATS	8	Latest scheduled start: Execute (date)
	LATEST_START_TIME	TIMS	6	Latest scheduled start: Execute (time)
	EARLIEST_FINISH_DATE	DATS	8	Earliest scheduled finish: Execute (date)
	EARLIEST_FINISH_TIME	TIMS	6	Earliest scheduled finish: Execute (time)
	LATEST_FINISH_DATE	DATS	8	Latest scheduled finish: Execute (date)
	LATEST_FINISH_TIME	TIMS	6	Latest scheduled finish: Execute (time)

Function Module PM_ORDER_EXTERN_BOOK_DEFAULT

	NUMBER_OF_CAPACITY	NUMC	2	Two-figure number
	WORKCENTER	CHAR	8	Work center
	PLANT	CHAR	4	Plant
	AMOUNT_OF_WORK	FLTP	16	
	SCHED_PARAM1	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM2	CHAR	4	Scheduling parameters for external scheduling
	SCHED_PARAM3	CHAR	4	Scheduling parameters for external scheduling
REQUIREMENTS	OPERATION_ID	NUMC	8	General counter for the order
	QUALIFICATION_ID	NUMC	8	Object ID
	RATING	NUMC	4	Characteristics of a quality scale
	ESSENTIALX	CHAR	1	Indicator: Mandatory or optional requirement

Function Module READ_WORKLOAD

Use

This function module is a component of the [CS-SDL interface \[Page 1493\]](#) with which an external scheduling system can be connected to the order processing function in the application areas *Plant Maintenance* and *Customer Service*.

Integration

The function module READ_WORKLOAD defines the interface with which the actual dates for the technician are read from the external scheduling system when the [graphical monitor \[Page 1491\]](#) is started or refreshed.

Prerequisites

You have assigned the function module READ_WORKLOAD to the fixed value *R* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
START_DATE		DATS	8	Date and time, local date of user
END_DATE		DATS	8	Date and time, local date of user
WORKCENTER_ID		NUMC	8	Operating resources object ID

Tables

Parameter Name	Component	Data Type	Length	Short Text
PERSONS	OTYPE	CHAR	2	Object ID
	PERNR	NUMC	8	Personnel number
WORKLOAD	TYPE	CHAR	1	One-character indicator
	REFID	CHAR	40	Character, 40 figures
	ID	CHAR	70	Character field of length 70
	TEXT	CHAR	80	Char 80
	START_DATE	DATS	8	Date and time, local date of user

Function Module READ_WORKLOAD

	START_TIME	TIMS	6	Date and time, local time of user
	END_DATE	DATS	8	Date and time, local date of user
	END_TIME	TIMS	6	Date and time, local time of user

Note

When this function module is called, the system transfers the work center ID that inquires about the current technician assignments to you using the parameter *WORKCENTER_ID*. At the same time, you receive a list of the current technicians for this work center in the table *MSM_PERSON*. The components *OTYPE* has the fixed value *P*.

After the function module has been called, the list of technician assignments should be available in the table *RIGHT_HAND*. The component *REFID* must refer to a valid *PERNR* component. You transfer the order number using the component *ID*. The component *TYPE* must have the fixed value *X*.

Function Module PM_ORDER_EXTERN_MASTER_DATA

Use

This function module is a component of the CS-SDL interface with which an external scheduling system can be connected to order processing in the application areas *Customer Service* (CS) and *Plant Maintenance* (PM).

It enables you to read the necessary master data from the SAP System using one of your own programs. This function module must be called up from the external scheduling system.

Features

Import Parameters

Parameter Name	Component	Data Type	Length	Short Text
PLANT		CHAR	4	Plant
WORKCENTER		CHAR	8	Work center
ENGINEER		NUMC	8	Object ID
START_DATE		DATS	8	Field of type DATS
END_DATE		DATS	8	Field of type DATS
TIME_INFO		CHAR	1	One-character indicator
QUALIFICATION_INFO		CHAR	1	One-character indicator
WORKCENTER_CATEGORY		CHAR	4	Work center category

Tables

Parameter Name	Component	Data Type	Length	Short Text
ENGINEER_MASTERDATA_ORG_UNIT	PLANT	CHAR	4	Plant
	WORKCENTER	CHAR	8	Work center
	ENGINEER ID	NUMC	8	Personnel number
	ENGINEER NAME	CHAR	40	Object name
	ENGINEER POSTCODE	CHAR	10	Postal code
	ENGINEER CITY	CHAR	35	City
	ENGINEER STREET	CHAR	35	Street and house number
ENGINEER_MASTERDATA_QUALI	ENGINEER ID	NUMC	8	Personnel number

Function Module PM_ORDER_EXTERN_MASTER_DATA

	QUALIFICATION ID	NUMC	8	Object ID
	RATING	NUMC	4	Characteristics of a quality scale
ENGINEER_ TIMELIST	PERNR	NUMC	8	Personnel number
	DATE	DATS	8	Validity start date
	BTIME	TIMS	6	Start time
	PLPWS	CHAR	2	Time description of daily work schedule
	BREAK	CHAR	1	Break indicator
	TDATA	CHAR	1	Origin indicator of the time record
	MOABW	NUMC	2	Grouping for subtypes
	DETAIL	CHAR	4	Subtype
	AVAIL	CHAR	1	Employee availability status
	HOURS	DEC	8	Hours

For more information on interpreting the components in the table ENGINEER_TIMELIST, see the documentation on BAPI_TIMEAVAILSCHEDULE_BUILD.

Scheduling an Order Externally

Use

You want to perform scheduling for the orders in your company using an external scheduling system.

Prerequisites

For more information on the prerequisites, see [External Scheduling \[Page 1495\]](#).

The function module [PM_ORDER_EXTERN_SCHED_DIALOG \[Page 1507\]](#) must be assigned to the fixed value *D* in Customizing under *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Scheduling* → *External Scheduling* → *Configure Communication*.

Procedure

Depending on which application component you are working in, choose

Logistics → *Plant Maintenance* → *Maintenance Processing* → *Order* → *Create (General)*

Logistics → *Customer Service* → *Service Processing* → *Order* → *Service Order* → *Create (General)*

Create an order.

Choose *Schedule*.

The *Schedule agreement* dialog box appears.

Enter the following data:

Date type

Customer calendar

Scheduling rule

Select the pushbutton *Proposed Dates*.

The external scheduling system looks for suitable dates and returns the proposed dates to the SAP System.

Select a suitable date and confirm.

The order header screen is displayed.

You can either change or complete the order.

Save the order.

Result

The dates are posted in the SAP System and in the external scheduling system.

If the external scheduling system does not find any suitable dates, you can change the basic data of the order and reschedule it.

Completion Confirmations (CS-SE-CON/PM-WOC-JC)

Purpose

You use the *Completion Confirmations (PM-WOC-JC)* component to document the status of the processing of a service or maintenance order.

As soon as an order has been released and the work is begun, the employees involved can enter [completion confirmations \[Page 1530\]](#) in the system.

Integration

The *Completion Confirmations (PM-WOC-JC)* component is integrated with the following SAP components for different functions:

Function	Integration with the R/3 Application Component
<ul style="list-style-type: none"> Confirmation of material used 	Inventory Management (MM-IM)
<ul style="list-style-type: none"> Confirmation of external services and external material 	Purchasing (MM-PUR) Invoice Verification (MM-IV)
<ul style="list-style-type: none"> Confirmation of services 	Services (MM-SRV)
<ul style="list-style-type: none"> Entry of general data on attendance and absence Entry of time and additional data in Time Management Time collation 	Time Management (PT)

Features

The *Completion Confirmations (PM-WOC-JC)* component provides the following functions:

- [Time completion confirmation \[Page 1559\]](#)
- [Completion confirmation of material used \[Page 1568\]](#)
- [Completion confirmation of measurement and counter readings \[Page 1573\]](#)
- [Completion confirmation of installation and dismantling information \[Page 1577\]](#)
- [Technical completion confirmation \[Page 1581\]](#)
- [Completion confirmation of services \[Page 1588\]](#)
- [Completion confirmation of external services or external material \[Page 1591\]](#)
- [Cancellation of completion confirmation \[Page 1593\]](#)
- [Display of completion confirmations \[Page 1596\]](#)
- [Processing of incorrect completion confirmations \[Page 1599\]](#)
- [Cost determination and display of actual costs \[Page 1601\]](#)
- [Decoupling of completion confirmation processes \[Page 1605\]](#)

Completion Confirmation

Completion Confirmation

Definition

A completion confirmation documents the status of the processing of operations and sub-operations for a maintenance or service order. It is a part of order monitoring.

Use

You use completion confirmations to document:

- From which work center the operation was performed
- Who performed the operation
- That operations or sub-operations were started or executed
- When the work was started and when it was completed
- How the work is progressing
- How high are the costs for internal processing
- What materials were used
- Which services were executed internally
- What measurement or counter readings were entered for the technical objects during or after execution
- Whether and where pieces of equipment were dismantled from, or installed at functional locations
- The extent to which the order has been processed
- Where additional capacity is needed and where surplus capacity can be reduced
- Which technical data should be retained

Structure

You can enter completion confirmations at operation and sub-operation level.

You enter technical data in activity reports for the order or the objects to which the order refers. This part of the completion confirmation is known as the technical completion confirmation.

Partial Completion Confirmation

If completion confirmations have been entered for the operations/sub-operations of an order, but the processing has not yet been completed, the operations/sub-operations automatically receive the status “partially confirmed” from the system.

Final Completion Confirmation

As soon as **all** order operations/sub-operations, which are planned for a completion confirmation (the control key is the decisive factor), have been finally confirmed, the order itself also receives the status “finally confirmed”.

Integration

- You can only enter completion confirmations if you use the *Maintenance Orders (PM-WOC-MO)* component.
- You can only enter technical completion confirmations if you use the *Maintenance Notifications (PM-WOC-MN)* component.

Entry of Completion Confirmations for Orders

Entry of Completion Confirmations for Orders

Purpose

You use this process when you enter completion confirmations for maintenance or service orders.

Prerequisites

You can only enter completion confirmations if the order to which you are referring is released for processing.



If you enter very comprehensive completion confirmations and it is therefore important for you to improve performance, see [Decoupling of Completion Confirmation Processes \[Page 1605\]](#).

Process Flow

The maximum number of steps that a completion confirmation can contain is as follows:

13. Selection of the required entry transaction

According to the quantity and type of the completion confirmations, you can choose different entry transactions for the completion confirmation.

See [Entry Options \[Page 1534\]](#).

14. Confirmation of time data

This can also be entered in different ways, according to the type of data being entered.

See [Time Completion Confirmation \[Page 1559\]](#).

15. Confirmation of material used

There are also different entry methods available here.

See [Completion Confirmation of Material Used \[Page 1568\]](#).

16. Confirmation of measurement and counter readings

In the completion confirmation, you can enter measurement and counter readings.

See [Completion Confirmation of Measurement and Counter Readings \[Page 1573\]](#).

17. Confirmation of installation and dismantling information

In the completion confirmation, you can also enter information about installing and dismantling technical objects.

See [Completion Confirmation of Installation and Dismantling Information \[Page 1577\]](#).

18. Confirmation of goods receipts for refurbished material

In the completion confirmation, you can post the goods receipt for materials, which have been refurbished.

See [Goods Receipt for Refurbished Material \[Page 1580\]](#).

Entry of Completion Confirmations for Orders

19. Technical completion confirmation

In the completion confirmation, you can also enter technical data/findings.

See [Technical Completion Confirmation \[Page 1581\]](#).

20. Confirmation of services

In the completion confirmation, you can confirm the internal execution of services.

See [Completion Confirmation of Services \[Page 1588\]](#)

21. Confirmation of external services/external material

You can also confirm services and materials, which are purchased by external companies, on an order.

See [Completion Confirmation of External Services or External Material \[Page 1591\]](#).

22. Cancellation of a completion confirmation

For various reasons, it may be necessary for you to cancel completion confirmations.

See [Cancellation of the Completion Confirmation \[Page 1593\]](#).

23. Display of completion confirmations

Different options are available for displaying completion confirmations.

See [Display of Completion Confirmations \[Page 1596\]](#).

24. Costs display

There are various options available for displaying costs, which exist as soon as the work has been started and completion confirmations have been entered.

See [Cost Determination and Display of Actual Costs \[Page 1601\]](#).

Entry Options

Entry Options

Use

Different entry transactions are available for the completion confirmation of service and maintenance orders. Depending on the quantity and type of completion confirmations, you can choose the entry method most suitable for you.

Features

When entered, the individual confirmation transactions provide you with different function combinations:

Objects	Transaction	Overall completion confirmation	Individual time confirmation	Collective time confirmation	Time sheet
Activities		X			
Attendance/absence			(X)	(X)	
Document flow		(X)	(X)		
Install/dismantle technical objects		(X)	(X)		
Individual capacities/splits			X		
Services		X			
Tasks		X			
Notification		(X)	(X)		
Measurement/counter readings		X	(X)		
Object list		(X)	(X)		
Items		X			
Trip costs					(X)
Structure list		(X)	(X)		
Causes		X			
Goods movements		X	(X)		(X)
Goods receipt for refurbishment		(X)			
Time leveling			(X)		
Times		X	X	X	X

Legend:

X = Can be executed directly

(x) = Can be reached using *Goto* or *Environment*

The transaction you choose for the completion confirmation depends on the individual circumstances and the data that you want to confirm.



It is recommended that **either** only the **overall completion confirmation** or the **individual time confirmation** be used within an organizational unit.

For more information, see:

- [Overall Completion Confirmation \[Page 1536\]](#)
- [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#)
- [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)
- [Collective Time Confirmation with Selection \[Page 1550\]](#)
- [Collective Time Confirmation Without Selection \[Page 1552\]](#)
- [Time Sheet \[Page 1557\]](#)

See also:

[PDC Systems \[Page 1558\]](#)

Activities

Call up the transactions for overall completion confirmation, individual time confirmation, collective time confirmation and time sheet. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → **Customer service** → Service processing → Completion confirmation → Entry → <Desired entry transaction>*
- *Logistics → **Plant maintenance** → Maintenance processing → Completion confirmation → Entry → <Desired entry transaction>*

Overall Completion Confirmation

Overall Completion Confirmation

Use

You use the overall completion confirmation if, in addition to the work time required, you also regularly confirm other data, such as materials used, information about damage, the work and services performed (tasks, activities) or measurement and counter readings.

For the overall completion confirmation, each user has the option of setting the header data area and the 10 [screen areas for confirmation data \[Page 1542\]](#) individually. Fields for frequently used functions can thereby be displayed in the upper screen area and those for less frequently used functions displayed below. Functions, which are rarely used, can also be included by using pushbuttons.

See also:

[Individual Setting of Overall Completion Confirmation \[Page 1540\]](#)

Integration

For the overall completion confirmation, the time confirmation, technical completion confirmation and the confirmation of goods movements and services are combined. Without switching screens, you can enter time data, causes, activities, tasks and measurement and counter readings for order operations. Similarly, you can enter goods movements for the operations displayed without changing screens.

For the installation and dismantling of technical objects, you branch into master data processing.

To process the notification for the order header, you branch into notification processing.

Prerequisites

To use the overall completion confirmation, the following prerequisites must be fulfilled:

- In the Customizing for Plant Maintenance, a confirmation profile, which satisfies your requirements, must have been created for the layout of the overall completion confirmation.
- The required confirmation profile must be assigned to you.
For more information about assigning the confirmation profile, see [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#).
- The order to be confirmed must be released.

Features

Depending on the header data setting, the overall completion confirmation can address the following employee roles:

- Service technician
- External service employee
- Foreman
- Technician

You can use the overall completion confirmation to confirm the following data:

Overall Completion Confirmation

- Activities
- Services
- Tasks
- Measurement/counter readings
- Items
- Causes
- Goods movements
- Times



The overall completion confirmation enables you to enter and save time completion confirmations for different operations and different people in **one** step, on **one** screen.

The following functions are available by choosing the *Environment* menu option:

- [Document flow \[Page 1401\]](#)
- Installation and dismantling of technical objects
- Notification
- Structure list
- Goods receipt for refurbished material

Activities

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation*
- *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation*

Using the Overall Completion Confirmation

Using the Overall Completion Confirmation

Prerequisites

The order, for which you want to enter completion confirmations, is released.

Procedure

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Enter data as required in the header data section and choose *Continue*.

Depending on the combination of entries, the following data appears in the tables displayed below:

If you **enter the order number**, you see:

All the operations to be confirmed for the order in the time confirmation table

All measurement and counter readings which have already been entered for the order

All tasks, causes and activities already entered in the notification for the order header

If you **enter the order number and the required operation number**, you see:

The operation in the time confirmation table

The materials planned for the operation

Although materials for the operation, which have already been used for a previous completion confirmation, are displayed again in the table as ready for input, no quantity is proposed for them.

All measurement and counter readings which have already been entered for the operation

All tasks, causes and activities already entered in the notification for the order header

If you **enter the confirmation number**, you see:

The operation in the time confirmation table

The materials planned for the operation

Although materials for the operation, which have already been used for a previous completion confirmation, are displayed again in the table as ready for input, no quantity is proposed for them.

All measurement and counter readings which have already been entered for the operation

All tasks, causes and activities already entered in the notification for the order header

Choose *Continue*.

If required, use the functions [Data for the Operation \[Page 1541\]](#) and [Proposing Actual Data \[Page 1556\]](#).

Using the Overall Completion Confirmation

Enter data as required for the completion confirmation.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the confirmation data.

Individual Setting of Overall Completion Confirmation

Use

In the standard system, a default profile is set for the overall completion confirmation. If this profile does not meet your particular requirements, you have the option of adapting the user interface for the overall completion confirmation.

Prerequisites

In the Customizing for Plant Maintenance, a confirmation profile, which satisfies your requirements, has been created for the overall completion confirmation (see also [Screen Areas for Confirmation Data \[Page 1542\]](#)).

Features

You use the transaction-specific settings in the overall completion confirmation to assign the required confirmation profile to your user default values for Customer Service and Plant Maintenance.

Activities

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Choose *Extras → Settings*.

Specify the required profile in the dialog box displayed.

Save the entry.

When the overall completion confirmation is next called up, you see the user interface the way it was defined for the profile entered.

Data for the Operation

Use

You use this function if you want to display the data pertaining to the operation in the relevant tables of the overall completion confirmation.

Features

You can use the function *Data for the operation* to display the following data in the relevant tables in the overall completion confirmation:

Planned materials

Planned services

Measurement and counter readings

You can then enter the required confirmation data for them.

See also:

[Confirmation of Material Used \[Page 1568\]](#)

[Confirmation of Services \[Page 1588\]](#)

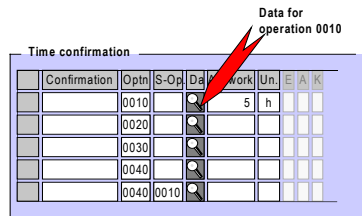
[Confirmation of Measurement and Counter Readings \[Page 1573\]](#)

Activities

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose the *Data for the operation* symbol for the required operation.



The system inserts the data pertaining to the operation in the relevant tables.

Screen Areas for Confirmation Data

Screen Areas for Confirmation Data

Setting of screen areas in Customizing

Screen area	Not filled	Not filled	Not filled
Screen area 1	not filled	not filled	not filled
Screen area 2	Not filled	Not filled	Not filled
Screen area 3	Not filled	Not filled	Not filled
Screen area 4	not filled	not filled	not filled
Screen area 5	Not filled	Not filled	Not filled

Display of screen areas in overall completion confirmation

Activation of pushbuttons in Customizing

Display of pushbuttons in the overall completion confirmation

Screen area 1, Screen area 2, Screen area 3, Screen area 4, Screen area 5, Screen area 6, Screen area 7, Screen area 8, Screen area 9, Screen area 10

If you only use screen areas one to five, the tables in these areas are automatically widened to fill the screen.



If you select the *Time Confirmation* table for screen area one and screen area six is not used, the system automatically widens the table so that it covers both screen areas.

Individual Time Confirmation

Use

You use the individual time confirmation primarily if you want to enter detailed time confirmations for individual operations and splits, and only occasionally enter additional data, such as materials used or information about damage.

Prerequisites

The order to be confirmed must be released.

Features

The individual time confirmation can address the following employee roles:

- Service technician
- External service employee
- Foreman
- Technician

You can use the individual time confirmation to confirm the following data:

- Times
- Individual capacities/splits

The following functions are available by choosing the *Goto* and *Environment* menu options:

- Attendances and absences
- [Document flow \[Page 1401\]](#)
- Installation and dismantling of technical objects
- Services
- Notification
- Measurement/counter readings
- Object list
- Structure list
- Goods movements
- Time collation

Activities

Call up the individual time confirmation function. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics* → **Customer service** → *Service processing* → *Completion confirmation* → *Entry* → *Individual time confirmation*

Individual Time Confirmation

- *Logistics → **Plant maintenance** → Maintenance processing → Completion confirmation → Entry → Individual time confirmation*

Individual Time Confirmation Using Order/Operation Number

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

Enter the order number.

If the order is a standing order, you can enter the technical object, in whose master record the standing order was entered, instead of the order number.



You can use the confirmation parameters to make additional settings (for example, delimiting the operation selection, requesting logs or default values for the detail screen for the operation confirmation).

To do this, choose *Goto → Parameters* on the initial confirmation screen.

The system displays a dialog box in which you can enter the required parameters.

Choose *Continue*.

You return to the initial confirmation screen.

Choose *Continue*.

An overview appears of all the operations and sub-operations for the order that satisfy the parameters set.

Select the operations/sub-operations for which you want to enter the completion confirmation and choose *Actual data*.

Result

The confirmation detail screen appears for the first operation/sub-operation selected. Here you enter the required confirmation data.

Individual Time Confirmation Using Confirmation Number

Individual Time Confirmation Using Confirmation Number

Prerequisites

To use this entry type, you need to know the confirmation number of the operation or sub-operation to be confirmed.

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial confirmation screen appears.

Enter the confirmation number.

Choose *Continue*.

Result

The confirmation detail screen appears for the operation or sub-operation entered. Here you enter the required confirmation data.

Individual Time Confirmation for a Standing Order

Use

You use this procedure if you want to confirm the standing order that is entered in the master record for the equipment or the functional location by choosing *Account assignment data*.

Prerequisites

To use this entry type, you need to know the number of the technical object.

Procedure

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial confirmation screen appears.

Enter the number of the equipment or functional location in the *Standing order for* section.

Choose *Continue*.

An overview appears of all the operations and sub-operations for the standing order that satisfy the parameters set.

Select the operations/sub-operations for which you want to enter the completion confirmation and choose *Actual data*.

The confirmation detail screen appears for the first operation/sub-operation selected.

Enter confirmation data as required and save it.

Collective Time Confirmation

Collective Time Confirmation

Use

You use the collective time confirmation if you:

Enter large numbers of time completion confirmations into the system

Rarely make entries on the confirmation detail screen

Have not planned the majority of the orders to be confirmed comprehensively

Prerequisites

The orders to be confirmed must be released.

Features

The collective time confirmation can address the following employee roles:

Employees in data entry teams from organizations, in which mainly time data is used

Service technician

External service employee

Foreman

Technician

You use the collective time confirmation to confirm times for operations and sub-operations.

The following functions are available by choosing the *Goto* and *Environment* menu options:

Attendances/absences

Time collation

When entering collective times, you are working with two tables. Note the following:

In the **upper** table, you enter data that is valid for all the operations in the list. You can save this data specific to the user so that it is proposed again when you choose the multiple entry function.

In the **lower** table, you enter the data for the individual operations.

The default data from the upper section is set in the entry fields for the lower section when you choose *Continue*.

For both tables, you can set individually which columns should be visible and in which sequence they should appear. When printing, you can also decide individually which columns should be printed.

Activities

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* →
Collective time confirmation → *<With or without selection>*

Collective Time Confirmation

*Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry
→ Collective time confirmation → <With or without selection>*

Using the Collective Time Confirmation with Selection

Using the Collective Time Confirmation with Selection

Procedure

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → With selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → With selection

The selection screen for order operations appears.

Enter the selection criteria you require.



If you select the field *Collective time confirmation*, the system lists the operation you selected directly in the entry screen for collective time confirmation without displaying an additional selection list. If you have selected this field, perform step 3 and then continue from step 6.

In addition, to select only service and maintenance orders, mark the field *Service/maintenance orders*.

Choose *Program → Execute*.

The system creates a list of all the operations corresponding to your selection criteria.

In the operation list, select the operations that you want to confirm using the collective time confirmation function.



If you do **not** want to use the collective time confirmation function, but instead want to confirm the selected operations individually on the detail screen, choose *Operation → Individual time confirmation*.

The confirmation detail screen appears for the first operation/sub-operation selected. Here you enter the required confirmation data. (Refer to [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#))

Choose *Operation → Collective time confirmation*.

The initial screen for collective time confirmation appears. The system has already copied the data from the selected operations to the list.

Enter data as required for the operations.

If required, you can have the actual data proposed completely for the selected operations. To do this, choose *Edit → Propose actual data completely*.

If you do not want to enter any additional data for the operations, save now.

However, if you want to enter additional data for particular operations on the detail screen, you select the required operations and choose *Goto → Actual data*.

Using the Collective Time Confirmation with Selection

The confirmation detail screen appears for the first operation selected.

Enter data as required on the confirmation detail screen.

Save the data entered.

Using the Collective Time Confirmation Without Selection

Using the Collective Time Confirmation Without Selection

Procedure

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → Without selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → Without selection

The list entry screen for collective time confirmation appears.



If necessary, use the [pool function \[Page 1553\]](#). This is advisable if you need to process specific orders or operations several times. You can call them up for processing again using the worklist.

Make all the necessary entries.

If required, you can have the actual data proposed completely for the selected operations. To do this, choose *Edit → Propose actual data completely*.



For collective entry, the functions *Attend./Absences* and *Time leveling* are also available under *Environment*. For more information, see [Attendances/Absences \[Ext.\]](#).

If you do not want to enter any additional data for the operations, save now.

However, if you want to enter additional data for particular operations on the detail screen, you select the required operations and choose *Goto → Actual data*.

The confirmation detail screen appears for the first operation selected.

Enter data as required on the confirmation detail screen.

Save the data entered.

Using the Pool Function

You need to distinguish between the following functions when using the pool function in the collective time confirmation:

Generating a pool

Calling up a pool for processing

Calling up a pool for postprocessing

Deleting a pool

Generating a Pool

You can generate a pool in one of two ways:

A When using the collective time entry function **without** selection.

B When using the collective time entry function **with** selection.

A Generating a Pool When Using Collective Time Entry Without Selection

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → Without selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → Without selection

The list entry screen for collective confirmations appears.

You now have the following options:

Make all the necessary entries in the screen and save the **operations entered as a pool**.

To save the pool, first select the operations you want to assign to the pool.

Then choose *Confirmation → Generate pool*.

Give the pool a name and save it.

The system generates a pool itself.

This is the case if, for example, errors occur whilst transferring PDC data. The system groups all the incorrect data records in a single worklist, which you can later call up for postprocessing.

B Generating a Pool When Using Collective Time Entry With Selection

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Collective time confirmation → With selection

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Collective time confirmation → With selection

The selection screen for order operations appears.

Using the Pool Function

Enter the required selection criteria.

Choose *Program* → *Execute*.

The system creates a list of all the operations corresponding to your selection criteria.

In the operation list, select the operations you want to assign to the pool.

Choose *Operation* → *Generate confirmation pool*.

The system displays a dialog box.

Give the pool a name and save it.

Calling up a Pool for Processing

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

Logistics → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

The list entry screen for collective confirmations appears.

Choose *Confirmation* → *Fetch pool*.

The system displays a dialog box.

Enter data as required.

Choose *Continue*.

The pool data is displayed in the list entry screen for collective confirmations, where you can edit it.

Deleting a Pool

Call up the collective time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → *Customer service* → *Service processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

Logistics → *Plant maintenance* → *Maintenance processing* → *Completion confirmation* → *Entry* → *Collective time confirmation* → *Without selection*

The list entry screen for collective confirmations appears.

Choose *Confirmation* → *Delete pool*.

The system displays a dialog box.

Enter the name of the pool to be deleted.

Choose *Continue*.

The system deletes the pool.

You return to the list entry screen for collective confirmations.

Proposing Actual Data

Proposing Actual Data

Use

You use this function if:

The actual data for the completion confirmation corresponds exactly to the planning data

You want to orient yourself to the planning data for the completion confirmation

This function is available in the following transactions:

[Overall Completion Confirmation \[Page 1536\]](#)

[Individual Time Confirmation \[Page 1543\]](#)

[Collective Time Confirmation \[Page 1548\]](#)

Features

If you call up the function *Propose actual data* for the completion confirmation, the system performs the following activities:

Sets the final confirmation indicator.

Proposes the remaining work as actual work.

Proposes the current day as the posting date and the current time of day as the posting time.

Copies all the other values from the operation or the work center.

Time Sheet

Use

The time sheet in the R/3 System provides a standardized and application-independent time entry function for internal and external employees.

The basic idea behind the time sheet is to enter person-related working times for different applications with a single transaction. Company employees and/or service providers maintain their attendance times, periods of absence and working times personally in the system, together with information about an order, a purchase order and so on. The data is then transferred to the corresponding applications in the R/3 System.

Integration

The time sheet is a cross-application development by SAP. Therefore, you do not need to be using any particular SAP application to be able to use the time sheet functions.

The data entered is transferred to the existing applications of Human Resources, Logistics and/or Accounting and processed in the usual way.

Prerequisites

To use the time sheet, certain settings must be made in Customizing by the system administration. For more information, see [Time Sheet \[Page 1606\]](#).

Features

The time sheet is used to enter information about the duration of the work performed, but not information about quantities (pieces, liters and so on). The user does not need to know the functions of the target applications to enter data.

The simple structure of the data entry process in the time sheet and its screen also enables inexperienced system users to maintain their data without difficulty.

The users can also enter data for the following applications:

Material withdrawal

A direct link to the MM transaction *Enter Goods Issue* is integrated into the time sheet.

Trip costs

Similarly, calling up the transaction [Maintain Trip Data: Framework Data \[Ext.\]](#) directly is integrated into the time sheet. In connection with a trip, working time performed is specially assigned by reference to a trip number.

For more information about settling trip costs, see [Trip Cost Settlement \[Ext.\]](#).

PDC Systems

PDC Systems

Use

You can also enter completion confirmations at a plant data collection (PDC) sub-system. A PDC sub-system is a data entry system used to record data. This data is copied to the SAP System at a specific time.

Prerequisites

There are standardized interfaces to PDC systems. Certain PDC system manufacturers can use these interfaces in the standard system and are certified to do so by SAP AG. For more information about these interfaces, see [PP – PDC Interface \[Ext.\]](#).

Features

Plant data collection is a cross-application function. Your system administration makes the required system settings in Customizing in order to transfer data from the SAP System to the PDC system (download) and from the PDC system to the SAP System (upload). The Customizing settings also determine, for example, which data is to be transferred and at what intervals.



How you proceed with plant data collection in the sub-system depends on the sub-system used in your company. For more information, contact your system administration.

Time Completion Confirmation

Use

You enter time completion confirmations for operations and sub-operations for maintenance and service orders to document the status of the processing for these operations.

Integration

You need to be integrated with Time Management (*Personnel Time Management* (PT) component) for the following functions:

Entry of general data on attendance and absence

Entry of time and additional data in Time Management

Time collation

Prerequisites

You can only enter time completion confirmations for an order operation if it has been released.

Features

For information on which confirmation transactions you can use for the individual functions outlined below, see [Entry Options \[Page 1534\]](#).

Confirmation of Time Data

You can confirm the following time data:

Who processed the operation/sub-operation

Example:

The operation was processed by an employee with personnel number D001760 at work center ME-01 in plant 0001.

How long the work took and the period in which it occurred

Example:

The operation required three hours work. The work was started at 9.00 on 1/12/1997 and finished at 12.00 on the same day.

What activity was performed

Example:

The activity type entered for the operation was "working time".

How much longer work must continue

Example:

The remaining work required for the operation totals five hours.

How much of the operation time was used (duration)

Example:

Time Completion Confirmation

The operation has lasted five hours (until now).

However, the work duration totals only three hours.

This scenario could occur, for example, if the operation involves painting an object:

The painting work takes three hours. The paint then needs to dry for two hours. Only then can work on the object (or the next operation) be continued.

When is the operation expected to be completed

Example:

Since this operation can only be worked on for three hours each day, the estimated completion time (*Forecast end*) is at 12.00 on 1/25/1997.

Whether the work for this operation/sub-operation is completed

Example:

Once the painting planned in the operation is finished, the employee entering the last confirmation flags the operation as "finally confirmed".

Whether the reservations still outstanding should be cleared

Several pots of paint were reserved for the painting work. However, not of all them were used. The employee entering the completion confirmation indicates that the outstanding reservations should be invalidated.

A free text

For more information about entering time data, see [Confirming Time Data \[Page 1562\]](#).

Entry of Completion Confirmations for Individual Capacities

If required, the planner can enter the following data for each individual operation during planning:

It should be processed by several persons, if necessary, at specific times

It should be processed by a single employee at specific times

This type of planning is known as **splitting**.

Splits are taken into account at the confirmation stage. You can enter individual completion confirmations for different splits.



The operation "Paint shop floor", which is planned to take 32 hours, was split by the maintenance planner into two 16-hour partial operations:

Partial operation 1: Early shift, employees performing the job: Smith and Jones

Partial operation 2: Late shift, employees performing the job: Reeves and Mortimer

Smith and Jones enter a final confirmation for their part operation at the end of the early shift. Reeves and Mortimer each confirm eight hours, plus two extra hours for remaining work.

For more information about entering completion confirmations for individual capacities, see [Entering a Completion Confirmation for Individual Capacities \[Page 1563\]](#).

Entry of General Data on Attendance and Absence

You can enter general data on attendance and absence in Time Management. General **absences** include absences that do not require any special processing. For example:

- Special leave to get married
- Illness without continued pay
- Unpaid holiday

General **attendances** include attendance which does not detract from quotas (for example, business trips).

For more information about entering general data on attendance and absence, see [Attendances/Absences \[Ext.\]](#) and [Time Management \[Ext.\]](#).

Entry of Time and Additional Data in Time Management

You can enter data that is important for Time Management.

For more information, see [List Entry of Time and Additional Data in Time Management \[Page 1566\]](#) and [Time Management \[Ext.\]](#).

Performing a Time Collation

You can define the available capacity of the employee whose personnel number is entered in the completion confirmation.

For more information, see [Time Collation \[Page 1567\]](#) and [Time Management \[Ext.\]](#).

Confirming Time Data

Confirming Time Data

Choose one of the transactions, with which you can confirm time data.



For more information about which transactions you can use for this, and how to select and use these transactions, see [Entry Options \[Page 1534\]](#).

Fill out the fields as required to confirm time data. If required, use the function [Proposing Actual Data \[Page 1556\]](#) and (in the overall completion confirmation) the function [Data for the Operation \[Page 1541\]](#).



Note for the **overall completion confirmation**:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Note for the **individual time confirmation**:

If you use the Save function during confirmation processing, you always save all the data entered so far for the operations you have processed. You always return to the initial confirmation screen.

Save the completion confirmation.

Entering a Completion Confirmation for Individual Capacities

Entering a Completion Confirmation for Individual Capacities

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

You now have the following options:

Choose the confirmation detail screen for individual capacities **directly from the initial screen** for individual time confirmation.

Enter the order number, capacity type and split number. Choose *Continue*.

The confirmation detail screen appears for the first split entered.

Choose the confirmation detail screen for individual capacities from the **operation list** for the order.

To do this, enter the order number and choose **ENTER**. A list appears of all the operations for the order. The column *Sp.* indicates whether an operation has any splits.

Select the required operation and choose *Goto → Individual capacities*. You see an overview of the splits planned for this operation.

Select the splits for which you want to enter completion confirmations. The confirmation detail screen appears for the first split selected.

Choose the confirmation detail screen for individual capacities from the **confirmation detail screen of the split operation**.

The function *Individual capacities* is active if splits exist for the operation.

Choose *Goto → Individual capacities*. You see an overview of the splits planned for this operation.

Select the splits for which you want to enter completion confirmations. The confirmation detail screen appears for the first split selected.

Enter data as required on this screen.

For details of the data you can enter, see [Time Completion Confirmation \[Page 1559\]](#).

Save the completion confirmation.



When confirming splits, you **cannot** use the functions for entering material usage, measurement readings and counter readings, invalidating outstanding reservations or entering a technical completion confirmation. You must enter this data at operation level.

Entering a Completion Confirmation for Individual Capacities

Entering General Data on Attendance and Absence

Choose the confirmation detail screen for individual time entry (see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) and [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)).

Enter the personnel number of the relevant employee.

Choose *Environment* → *Attend./Absences*.

A screen appears where you can enter general attendances and absences for a week, and also move to other weeks.

Make the required entries with regard to attendances and absences. For information on how to proceed, see [Time Management \[Ext.\]](#).

Save the attendances and absences data.

You return to the confirmation detail screen.

Save the completion confirmation.

List Entry of Time and Additional Data in Time Management

List Entry of Time and Additional Data in Time Management

Use

In addition to the confirmation functions available in the *Plant Maintenance* (PM) application component, a confirmation function is also available in the *Time Management* (PT) application component. You can use these to enter all data relevant to Time Management.

Integration

Since you enter data with reference to a maintenance order, the related data is passed on to PM.

Features

For more information about confirmation data in the Time Management system, see [Time Management \[Ext.\]](#).

Time Collation

Use

When you enter a personnel number for a completion confirmation, you can determine the available capacity of the employee with this number. To do this, you use the *Time collation* function.

Prerequisites

The functions described here are only available if your company has the R/3 Time Management System. In addition, Customizing settings are required for data transfer and processing.

Features

For more information about time collation, see [Time Management \[Ext.\]](#).

Activities

Choose the *Time collation* function from the list screen for multiple entry and from the detail screen for individual time confirmation using *Environment* → *Time collation*.

Confirmation of Material Used

Confirmation of Material Used

Use

You can confirm which materials and how many materials you have used to execute an operation. You can also enter the return of unused material to the warehouse.

The materials used can be as follows:

Unplanned materials

These are materials that were not included for the operation in the planning of the order, but which were required to execute it.

Planned materials

These are materials that were planned for the operation in the order, withdrawn from stock and used in executing the operation. These materials can be indicated in the order as backflushed (see below) by the planner.

Backflushing

Often materials, which are low-value, small parts but are nevertheless managed in inventory management, are planned for orders. To avoid making a separate posting for withdrawal for each of these materials, the planner has the option in the order of marking such materials as backflushed. This has the following effects:

Display and change functions for **overall completion confirmation** and **collective time confirmation**:

Backflushed materials are not displayed. They cannot be changed by the person making the confirmation.

Display and change functions for **individual time confirmation**:

Backflushed materials are displayed in the material overview, even if the parameter *All components* has not been set. They can be changed by the person making the confirmation.

For backflushed materials, a goods withdrawal is posted automatically after the first partial confirmation of the operation, for which you have scheduled.

Backflushed materials are also cancelled in the case of a [cancellation of a completion confirmation \[Page 1593\]](#), for which they have been posted as withdrawn.

Integration

When the withdrawal is made, the system automatically creates a goods issue document in Materials Management.

Prerequisites

The material movements possible for an order type are defined in the Customizing for Plant Maintenance.

Planned materials are only displayed in the material list if the necessary setting has been made in your system in the Customizing for Plant Maintenance.

Features

You can enter used material in the following transactions:

Overall completion confirmation

Here you can enter material used for different operations in an order without switching screens.

If you use the button *Data for the operation* for the required operation in the time confirmation table, the system displays all the materials planned for the operation in the material table.

For more information, see [Confirming Material Used \[Page 1570\]](#).

Single entry

Here you must specify on the initial screen, for which operation in the order you want to confirm the material used.

For more information, see [Confirming Material Used \[Page 1570\]](#).

Goods movements in inventory management

For more information, see [Entering Used Material Using Inventory Management \[Page 1572\]](#).

See also:

[Confirmation of External Services or External Material \[Page 1591\]](#)

Confirming Material Used

Confirming Material Used

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

You see the data corresponding to your entries in the tables for the initial screen. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))



Materials indicated as backflushed are **not** displayed in the goods movement table.

Enter data as required in the material list.

Change any material data displayed by the system as required.

For example, if you used less material than planned, correct the quantity entered in the list.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmations.

Procedure for Individual Entry and Operation List

Choose the confirmation detail screen (see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) or [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#)).

Call up the material list using *Environment* → *Goods movements*.

The system displays the material list. The entries displayed can vary as follows:

No entries are displayed on the screen.

This is the case if no materials were flagged as backflushed in the order, and any further entries are not displayed owing to system settings.

Only backflushed materials are displayed on the screen.

This is the case if no further materials were assigned, or if further materials are not displayed owing to the Customizing settings in your system.

Backflushed and other materials are displayed on the screen.

This is the case if further materials can be displayed owing to the Customizing settings in your system.

Confirming Material Used

Make all the necessary entries in the list.

Change any material data displayed by the system as required.



If you used less material than planned, correct the quantity entered in the list.

Save the completion confirmation, or return to the confirmation detail screen for the operation, to enter additional data.



If you use the *Save* function during confirmation processing, you always save all the data entered so far for the operations you have processed. You always return to the initial confirmation screen.

Entering Used Material in Inventory Management

Entering Used Material in Inventory Management

You can withdraw both reserved and unreserved material with reference to an order. For this, you use the functions in inventory management (application component MM-IM).

Call up the transaction for entering goods movements. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Goods movement → Goods movement

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Goods movement → Goods movement

The initial screen appears for entering goods movements.

Then choose *Goods movement → Enter with reference → To order*.

For more information about how to withdraw material, see [Entering a Goods Issue with Reference to an Order \[Ext.\]](#).

For more information about inventory management, see [Inventory Management \[Ext.\]](#).

Confirmation of Measurement and Counter Readings

Use

Measurement and counter readings are frequently used in Customer Service and Plant Maintenance. They serve to monitor the actual condition of the technical system and are read at regular intervals by the employee responsible and entered into the system in the form of measurement documents.

Measurement or counter readings are also often entered during order processing. The employees performing the work enter the results of the readings in the form of measurement documents for the completion confirmation.

Measurement and counter readings often provide the first indication that maintenance work is required, whether planned or unplanned.



A **planned task** is due:

The vehicle mileometer shows a reading of 50,000 miles. This counter reading triggers a call for the vehicle maintenance plan, since comprehensive maintenance and inspection is planned when this figure is reached.

An **unplanned task** is due:

Despite strong wind, the rotational speed of a windmill is very low. This indicates a malfunction. An inspection of the windmill is requested by the employee reading the counter.

After the task has been completed, the restored normal condition of the technical system is often recorded with a final reading or measurement in the final confirmation.

Features

You enter measurement and counter readings in the form of measurement documents for a specific order operation.

A measurement document consists of the following data groups:

Data on the measuring point

Data on the measurement result

Additional information (short text or long text) if required

You can use a measurement document to enter the following data:

The exact time the measurement or reading was taken (time stamp)

The exact measurement or counter reading

A qualitative assessment of the measurement or counter reading

A general text on the measurement document

The name of the person who took the measurement/reading

The processing status of the measurement document

Confirmation of Measurement and Counter Readings

For more information, see [Entering Measurement and Counter Readings \[Page 1575\]](#).

See also:

[Measuring Points and Counters \[Page 252\]](#)

Entering Measurement and Counter Readings

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section (see [Using an Overall Completion Confirmation \[Page 1538\]](#)).

Choose *Continue*.

You have the following options:

You enter measurement and counter readings together for the order.

Make the entries for this directly in the measurement document table (see 4).

You enter measurement documents for individual operations.

In the line of the required operation, choose *Data for the operation*.

In the table for measurement documents and counter readings, you see all the measurement and counter readings already entered for this operation.

Enter data as required in the table for measurement and counter readings.

To enter **additional data** in the detail screen for the measurement document, select the required line and choose *Detail view for measurement documents*.

The measurement document detail screen appears.

Here you can enter additional measurement document data, for example, the indicator *Document after task*, which indicates that the measurement document records the result of a completed task.

If you want to document an **exchange of counters**, choose *Edit → Replace counter* on the measurement document detail screen. The system displays a dialog box where you can record the exchange. Then choose *Continue* to return to the measurement document detail screen.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which is displayed on the entry screen or the accompanying dialog boxes.

If you do **not** want to save certain confirmation data, you must delete these lines from the table before saving.

Save the completion confirmations.

Procedure for Individual Time Confirmation

Choose the actual data confirmation screen.

For more information about the possible ways to choose this screen, see [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) and [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#).

Choose *Environment → Measurement documents*.

Entering Measurement and Counter Readings

The collective entry screen for measurement documents appears.

Enter data as required.

Choose *Continue*.

To enter **additional data** on the detail screen for the measurement document, select the required line and choose *Goto → Measurement document*.

The measurement document detail screen appears.

Here you can enter additional measurement document data, for example, the indicator *Document after task*, which indicates that the measurement document records the result of a completed task.

If you want to document an **exchange of counters**, choose *Edit → Replace counter* on this screen. The system displays a dialog box where you can record the exchange. Then choose *Continue* to return to the measurement document detail screen.

Return to the collective entry screen. To do this, choose *Goto → Back*.

Enter any other measurement documents required.

Return to the actual data confirmation screen for the operation using *Goto → Back*.



Note the following:

If you use the *Save* function during processing with the individual time confirmation, you always save all the data entered so far for the operations you have processed. You return each time to the initial confirmation screen.

Save the completion confirmation.

Confirmation of Installation and Dismantling Information

Use

You can use order operations to plan and perform the installation or dismantling of pieces of equipment at functional locations. When this work has been performed, you confirm it.

Prerequisites

You can only enter completion confirmations if the accompanying order is released for processing.

Features

For the entry of the confirmation for installation/dismantling, the following transactions are available:

[Overall completion confirmation \[Page 1536\]](#)

[Individual time confirmation \[Page 1543\]](#)

For more information, see [Confirming Installation/Dismantling Information \[Page 1578\]](#).

Confirming Installation/Dismantling Information

Confirming Installation/Dismantling Information

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Change* <equipment/functional location>.



Note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

If required, save the previously entered confirmation data.

The master record appears for the selected reference object for the order that you have just confirmed.

Make the required changes using the *Structuring* menu.

For more information, see [Installation/Dismantling from Equipment Master Record \[Page 140\]](#) and [Installation/Dismantling from Master Record of Functional Location \[Page 136\]](#).

Save the changes to the master record.

Procedure for Individual Time Confirmation

Choose the confirmation detail screen. (Refer to [Individual Time Confirmation Using Order/Operation Number \[Page 1545\]](#) or [Individual Time Confirmation Using Confirmation Number \[Page 1546\]](#))

Call up the structure list for the reference object for the order using *Environment* → *Structure list*.

You see the structure of the relevant technical object, and can explode this further using the menu functions available.

Select the technical object that you want to install or dismantle.



When selecting the object to be processed, note the following:

After you have entered the installation or dismantling function for the object, the structure list for the selected object is restructured. This means, for example, that:

If you select a piece of equipment and dismantle it, the structure list, which you return to after dismantling, contains only the equipment selected.

Confirming Installation/Dismantling Information

If you select a functional location and dismantle a piece of equipment from it, the structure list, which you return to after dismantling, no longer contains the dismantled equipment.

Choose *List* → *List editing* → *Change*.

The master record for the technical object appears.

Here you can enter the installation or dismantling information using the functions in the *Structuring* menu. For more information, see [Equipment at Functional Locations \[Page 134\]](#).

Save the change to the master record.

You return to the structure list.

Choose *Goto* → *Back*.

You return to the confirmation detail screen for the operation.



If you use the *Save* function during processing, you always save all the data entered so far for the operations you have processed. You always return to the initial screen for individual time confirmation.

Save the completion confirmation.

Goods Receipt for Refurbished Material

Goods Receipt for Refurbished Material

Use

In the overall completion confirmation, you can post the goods receipt for materials, which have been refurbished.

Features

The repaired/refurbished repairable spares are returned to the warehouse using the goods receipt in accordance with planning in the order, posted there and, if necessary, revaluated. They are now in full working order again, are relevant for materials planning and can be used.

The order is debited with the value arising from the quantity delivered and the current price of the refurbished material.

For more information, see [Refurbishment of Repairable Spares \[Page 1429\]](#) and [Posting a Goods Receipt for Refurbished Material \[Page 1436\]](#).

Activities

Call up the overall completion confirmation function. Depending on the application component in which you are working, choose one of the following menu paths:

- *Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation*
- *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation*

You find the function in the overall completion confirmation by choosing *Environment → Goods receipt of refurbishment*.

Technical Completion Confirmation

Use

Technical data is very important for the service and maintenance of technical objects. This is particularly the case if evaluations are to be created concerning service or maintenance. Technical data can provide information about:

Cause of damage

Exact damage location on the object

Work/activities performed and findings

Machine breakdowns

System availability during and after the task

Features

You can confirm technical data for different parts of the order. Depending on the type of entry, you can:

[Enter notification data valid for the whole order \[Page 1582\]](#)

This function is available for the overall completion confirmation and for the individual time confirmation.

[Enter notification data for an object in the object list \[Page 1584\]](#)

This function is available for the individual time confirmation.

[Assign new notifications to the order and confirm data \[Page 1586\]](#)

This function is available for the individual time confirmation.

The data from the notification is entered into the notification history when you close the notification. It is part of the history and contains data for each technical object on damage, malfunctions, causes, findings and the tasks performed.



You do not necessarily have to enter the technical data in the completion confirmation; you can also enter it directly in the required notification.

See also:

[Activity Report \[Page 838\]](#)

Entering Notification Data Valid for the Whole Order

Entering Notification Data Valid for the Whole Order

Procedure for Overall Completion Confirmation

Select the overall completion confirmation and enter data as required in the header data section.
(Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Enter the tasks, causes, items and activities relevant for the whole order in the table from the entry screen.

The system saves this data in the notification, which is assigned to the order header.

If you want to enter additional notification data, which is valid for the whole order, choose *Notification*.

The following scenarios are possible:

A notification has already been assigned to the order header.

The header data screen for this notification appears.

No notification has yet been assigned to the order header.

If necessary, specify the required notification category in the dialog box that appears. After you have chosen *Continue*, you reach the header data screen for a new notification, which the system automatically assigns to the order header, when you save the completion confirmation.

No notification has been assigned to the order header, but notifications have been assigned in the object list for the order.

The system assigns the first notification in the object list to the order header.



You can no longer reverse this assignment after saving.

Enter data as required.

Choose *Goto* → *Back*.

You return to the initial screen for the overall completion confirmation.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmations.

Entering Notification Data Valid for the Whole Order

Procedure for Individual Time Confirmation

Call up the individual time confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Individual time confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Individual time confirmation

The initial screen for individual time confirmation appears.

Choose the detail data screen for data entry [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

Choose *Environment → Notification*.

The following scenarios are possible:

A notification has already been assigned to the order header.

The header data screen for this notification appears.

No notification has yet been assigned to the order header.

You specify the required notification category in the dialog box that appears. After you have chosen *Continue*, you reach the header data screen for a new notification, which the system automatically assigns to the order header, when you save the completion confirmation.

No notification has been assigned to the order header, but notifications have been assigned in the object list for the order.

The system assigns the first notification in the object list to the order header.



You can no longer reverse this assignment after saving.

Enter all the required data in the notification.

Choose *Goto → Back*.

You return to the detail screen for the completion confirmation.

Save the completion confirmation.

See also:

[Activity Report \[Page 838\]](#)

Entering Notification Data for an Object in the Object List

Entering Notification Data for an Object in the Object List

Execute one of the following options:

Select the **overall completion confirmation** and enter data as required in the header data section. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Object list*.

Choose the detail data screen for **individual time confirmation** for the required operation [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

On the detail data screen for the required order operation, choose *Environment* → *Object list*.

You see the object list for the order.

In the line of the required object in the list, you see:

The *Create notification* symbol, if no notification has yet been created for the object

The *Change notification* symbol, if a notification has already been created for this object

In the line of the required object in the list, choose the symbol *Create notification* or *Change notification*.

If no notification was assigned to the object, you enter the required notification category in the dialog box that appears and then choose *Continue*.

The header data screen for the notification appears.



If no notification was assigned to the object, the assignment of the notification to the object in the object list is only saved when you save the completion confirmation.

Enter data as required in the notification.

Return to the object list using *Goto* → *Back*.

If necessary, enter additional notifications/notification data for other objects in the object list and return to the confirmation transaction, from which you called up the object list, using *Goto* → *Back*.



Before you save, note the following:

The **overall completion confirmation** saves all the data, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves proposal data.

If you do not want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmation.

See also:

Entering Notification Data for an Object in the Object List

[Activity Report \[Page 838\]](#)

Assigning a New Notification and Confirming Data

Assigning a New Notification and Confirming Data

Execute one of the following options:

Select the **overall completion confirmation** and enter data as required in the header data section. (Refer to [Using the Overall Completion Confirmation \[Page 1538\]](#))

Choose *Continue*.

Choose *Environment* → *Object list*.

Choose the detail data screen for **individual time confirmation** for the required operation [using order/operation number \[Page 1545\]](#) or [using confirmation number \[Page 1546\]](#).

On the detail data screen for the required order operation, choose *Environment* → *Object list*.

You see the object list for the order.

Choose the *Notification selection* function and select the required notification in the list.

The system writes the notification number in a new line of the object list. (To see the notification number, you may have to scroll the table to the right.)



The assignment of the notification to the order is only saved when you save the completion confirmation.

Choose the *Change notification* symbol for the newly assigned notification.

The header data screen for the notification appears.

Enter data as required in the notification.

Return to the object list using *Goto* → *Back*.

If necessary, enter additional notifications/notification data for other objects in the object list and return to the confirmation transaction, from which you called up the object list, using *Goto* → *Back*.



Before you save, note the following:

The **overall completion confirmation** saves all the data, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves proposal data.

If you do not want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the completion confirmation.

See also:

[Activity Report \[Page 838\]](#)

Assigning a New Notification and Confirming Data

Confirmation of Services

Confirmation of Services

Use

Within the overall completion confirmation, you can also confirm planned services, to be executed internally, in the service or maintenance order.

Integration

You require the integration of the *Service* (MM-SRV) component in Materials Management for this function.

Prerequisites

A confirmation profile, which is intended for displaying the service table, is assigned to your user default values for Customer Service and Plant Maintenance. (Refer to [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#) and [Screen Areas for Confirmation Data \[Page 1542\]](#))

An appropriate control key was assigned to the operation, for which you want to confirm services.

Features

The internal or external services planned in the order are called up in the overall completion confirmation using the function *Data for the operation* individually for each operation in the service table for the completion confirmation.

For more information, see [Confirming Services \[Page 1589\]](#).

See also:

[MM - Service \[Ext.\]](#)

Confirming Services

Prerequisites

A confirmation profile, which is intended for displaying the service table, is assigned to your user default values for Customer Service and Plant Maintenance. (Refer to [Individual Setting of Overall Completion Confirmation \[Page 1540\]](#) and [Screen Areas for Confirmation Data \[Page 1542\]](#))

An appropriate control key was assigned to the operation, for which you want to confirm services.

Procedure

Call up the overall completion confirmation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Entry → Overall completion confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Entry → Overall completion confirmation

Enter data as required in the header data section.

Choose *Continue*.

Depending on the combination of entries, the data appears in the tables displayed below.

In the time data table, choose the *Data for the operation* symbol for the required operation.

The system includes the service table in the entry screen.

Choose *Service selection*.

A dialog box appears where the order, which you process, is already entered.

Select the order line and choose *Continue*.

A selection screen appears with the services that have been planned for the operation.

Select the service lines, which you want to confirm, and choose *Copy services*.

The system inserts the selected services into the service table of the overall completion confirmation.

Change or supplement the displayed data as required.



Before you save, note the following:

The overall completion confirmation saves **all the data**, which has been displayed in one step on the entry screen or the accompanying dialog boxes. It also saves **proposal data**.

If you do **not** want to save certain confirmation or proposal data, you must delete these lines from the tables before saving.

Save the confirmation data entered.

Confirming Services

Confirmation of External Services or External Material

Purpose

If you schedule external material or external services in service and maintenance orders, you use external procurement processing for their completion confirmation.



There are companies, which also want to perform capacity planning for employees from external companies. In such a case, it is possible to create service or maintenance orders, in which you plan the required external capacity, in addition to the external procurement processing described here, which is processed by Purchasing. These orders are then confirmed regularly by the employees from the external company to break down the planned capacity. For these completion confirmations, the employees from the external companies can use the [entry options \[Page 1534\]](#) described.

For this type of processing, a control key, which allows capacity requirements to be determined, must be assigned to the external operations.

See also:

[Control Key \[Page 1105\]](#)

Process Flow

Based on the purchase requisition generated in the order, a purchase order for a material or an external service is sent to a vendor.



If changes, with reference to the materials/services ordered (for example, different dates or quantities), occur in the order owing to the planning and executing of maintenance work, the system automatically changes the quantities if you are using SAP Business Workflow in your system and have made the necessary settings for this.

For more information, see [Change of a Purchase Requisition \[Page 1118\]](#).

The delivery or the service performed is treated as a goods receipt and posted directly to the order for which the material or external service was requested. The order is therefore charged immediately for the goods receipt with the relevant costs.

When the invoice is received, any changes to costs incurred are settled to the order.

Especially for External Services:

The service is valued with the purchase order price and entered in the accounts of Financial Accounting. The order used to order the service is charged with this value.

After a goods receipt for an operation, which is to be executed by an external company, this operation automatically receives the status *External operation partially delivered*. The operation only receives the status *External operation delivered* when the final delivery indicator is set for the goods receipt.

Confirmation of External Services or External Material

In the order, on the external processing screen for the operation, you can see whether a goods receipt has been posted for the purchase order. You can see the goods receipt quantity posted in the field *GR qty*.

For more information about external services, see [Order Processing \(External Assignment\) \[Page 1419\]](#).

See also:

[Manual Creation of Purchase Requisitions \[Ext.\]](#)

[Change of a Purchase Requisition \[Page 1118\]](#)

Cancellation of a Time Completion Confirmation

Use

It may be that completion confirmations are entered by mistake for the wrong operations or sub-operations, or with the wrong data. You therefore have the option of canceling completion confirmations in the system.

Integration

For completion confirmations, which have been entered using the **overall completion confirmation**, the following applies:

If you cancel the completion confirmation, you thereby also cancel the backflushed materials, whose withdrawal was automatically posted. You cancel all other goods movements using the functions in Materials Management.

For more information, see [Cancellation of a Material Document \[Ext.\]](#).

For completion confirmations, which have been entered using the **individual time confirmation**, the following applies:

If you cancel the completion confirmation, you also cancel **all** the goods movements that were entered using this completion confirmation.

For completion confirmations, which have been entered using the **time sheet**, the following applies:

You use the time sheet to change the completion confirmation.

The system automatically cancels the previously entered completion confirmation for the service or maintenance order and creates a new completion confirmation.

For more information, see [Time Sheet \[Page 1606\]](#).

Features

You can use this function for:

[Canceling completion confirmations with known number \[Page 1594\]](#)

[Canceling completion confirmations with unknown number \[Page 1595\]](#)

Canceling a Completion Confirmation with Known Number

Canceling a Completion Confirmation with Known Number

Call up the cancellation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Cancel

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Cancel

The initial screen appears for canceling order confirmations.

Complete the screen and choose *Continue*.

Depending on your entries, you see one of the following screens:

The detail screen for the completion confirmation

A list of the operations and sub-operations for the maintenance order along with the completion confirmations already entered for them

The selected operation with its sub-operations and the completion confirmations already entered for them

The selected sub-operation and the completion confirmations already entered for it

Choose the detail screen of the required completion confirmation to cancel it.

To do this, select the completion confirmation in the list and choose *Goto → Actual data*.

To cancel the completion confirmation, choose *Confirmation → Save*.

The editor for the completion confirmation text appears.

Enter the reason for the cancellation and choose *Goto → Back*.

You return to the initial screen for canceling order confirmations. The system has canceled the completion confirmation.

Canceling a Completion Confirmation with Unknown Number

Canceling a Completion Confirmation with Unknown Number

Call up the cancellation. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation list

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation list

A selection screen appears.

Enter the selection criteria for the completion confirmations, which you want to display.

Make the necessary entries and choose *Program → Execute*.

You see a list of completion confirmations that correspond to your selection criteria.

Select the required completion confirmation.

Choose *Confirmation → Cancel*.

The system displays the detail screen for the completion confirmation.

To cancel the completion confirmation, choose *Confirmation → Save*.

The editor for the completion confirmation text appears.

Enter the reason for the cancellation and choose *Goto → Back*.

You return to the list of completion confirmations. The system has canceled the completion confirmation.

See also:

[Working with Lists \[Ext.\]](#)

Display of Completion Confirmations

Display of Completion Confirmations

Use

You use this function if you want to display the completion confirmations entered in the system.

Features

The following methods of display are available:

To obtain an overview of the completion confirmations, you can [display all completion confirmations for an order \[Page 1597\]](#).

You can [display a list of completion confirmations \[Page 1598\]](#), which the system creates according to specific selection criteria defined by you.

You can also call up the detail screen for each of these completion confirmations.

Displaying Completion Confirmations for an Order

Displaying Completion Confirmations for an Order

Call up the completion confirmation display. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation

The initial screen appears for displaying confirmations.

Complete the screen and choose *Continue*.

Depending on your entries, you see one of the following screens:

The confirmation detail screen

A list of the operations and sub-operations for the order with the completion confirmations already entered for them

The selected operation with its sub-operations and the completion confirmations already entered for them

The selected sub-operation and the completion confirmations already entered for it

You can display the detail screen for the individual completion confirmations. To do this, place the cursor on the required completion confirmation and choose *Edit → Choose*.

Displaying Completion Confirmations Generally

Displaying Completion Confirmations Generally

Call up the completion confirmation display. Depending on the application component in which you are working, choose one of the following menu paths:

Logistics → Customer service → Service processing → Completion confirmation → Display → Confirmation list

Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Display → Confirmation list

Enter the selection criteria for the completion confirmations, which you want to display.

Choose *Program → Execute*.

You see a list of completion confirmations that correspond to your selection criteria.

The following functions are available for processing completion confirmations:

Displaying a Completion Confirmation

You can display the detail screen for the individual completion confirmations. To do this, select the required completion confirmation and choose *Environment → Details*.

Canceling a Completion Confirmation

For more information, see [Canceling a Completion Confirmation Whose Number is Unknown \[Page 1595\]](#).

See also:

[Working with Lists \[Ext.\]](#)

Processing of Incorrect Completion Confirmations

Use

You can use this function to postprocess incorrect completion confirmations, which have been copied from a PDC system or entered using CATS (Cross Application Time Sheet). The incorrect records are generated by the system if data has been entered which cannot be posted using the processing steps in the completion confirmation. These incorrect completion confirmations must be postprocessed by experienced employees.

Features

The system generates a list of worklists, which contain incorrect completion confirmations.

In this list, you can use parameters to set which operations from the selected worklist should be provided for processing:

Only unprocessed operations (option *Outstanding operations*)

Only operations already processed (option *Processed operations*)

Both unprocessed and processed operations (option *All operations*)

To process the incorrect completion confirmations contained in a worklist, you branch from the list into the collective confirmation function. Here the system provides you with the data for the operations from the selected worklist for checking, authorization and supplementing.

If you have completed a worklist, you can delete it from the list of worklists.

See also:

[Collective Time Confirmation \[Page 1548\]](#)

Activities

Calling Up a List

To call up the list of worklists with incorrect completion confirmations, choose *Logistics → Plant maintenance → Maintenance processing → Completion confirmation → Postprocessing → Error pool*.

Setting Parameters

In the list of worklists, choose *Edit → Parameters*.

Select the required parameter.

Choose *Back*.

Calling Up an Error Record for Processing

Place the cursor in the list on the required worklist and choose *Edit → Choose*.

The system now calls up the collective confirmation function and inserts the incorrect completion confirmations from the worklist into the table for processing.

Checking a Completion Confirmation

Select the required completion confirmation on the collective confirmation screen.

Processing of Incorrect Completion Confirmations

Choose *Edit* → *Check completion confirmations*.

If the error has still not been removed, the system issues the message in the status line, which was issued when the worklist was generated. This notification specifies what is wrong with the completion confirmation.

If the error has been removed from the completion confirmation in the meantime, the system indicates in the list that the line is now correct.

Deleting a Completed Worklist

Place the cursor on the required worklist and choose *Edit* → *Delete pool*.

Cost Determination and Display of Actual Costs

Use

As soon as service or maintenance work has begun and the first completion confirmations (for example, time confirmations, material withdrawals, and so on) have been entered for the order by the employee responsible, the order will begin to incur actual costs.

You can display these costs.

Features

Display Options

The following options are available for displaying costs:

Displaying costs by cost elements

Displaying costs by value categories

You can also display the relevant key figure values at value category level for actual costs incurred by an order. To call these up, proceed as described in [Displaying Key Figure Values \[Page 1603\]](#).

For more information about displaying costs, see [Displaying Costs \[Page 1391\]](#).

Postprocessing of Errors in the Cost Determination

Occasionally, it may be that errors exist in the cost determination for the order completion confirmation, for example, if the tariff of the activity type has not been maintained at the start of a new business year.

You can still save these completion confirmations despite the presence of errors and postprocess them later once the errors have been removed. To do this, call up the function for postprocessing of actual costs. Depending on the application component in which you are working, choose one of the following menu paths:

*Logistics → Customer service → Service processing → Completion confirmation →
Postprocessing → Actual costs*

*Logistics → Plant maintenance → Maintenance processing → Completion confirmation →
Postprocessing → Actual costs*

For more information about postprocessing of actual costs, see [Postprocessing of Actual Costs \[Ext.\]](#).

Accounting Indicator in the Completion Confirmation

Accounting Indicator in the Completion Confirmation

Use



This function is provided especially for the confirmation of **service orders**.

You use the accounting indicator when confirming service orders if:

You want to further categorize the cost elements below the operation level



Operation 0010:	Repair of photocopier
Confirmation 1:	3 hours (Accounting indicator: goodwill)
Confirmation 2:	3 hours (Accounting indicator: fully billable)

Differentiation at cost element level should **not** result in an increased number of service types in the system

You want to perform resource-related billing and use the accounting indicator for price determination reasons

Integration

The system copies the accounting indicator to cost accounting, where it is stored in the line items. The accounting indicator is converted into the origin in the line item.

Prerequisites

You must have defined the accounting indicator in Customizing for Plant Maintenance.

Features

An input field for the accounting indicator is provided in the following screens.

Detail screen for individual confirmation (input field)

In the list screen for collective confirmation (column with input field per line)

In the list screen of the material overview (column with input field per line)

Cross Application Time Sheet (CATS) (column with input field per line)



If you want to enter CATS confirmations with different accounting indicators for a service order, you must create a new line for each accounting indicator.

You can specify the required accounting indicator for each completion confirmation and for each material component.

See Also:

[Reposting the Accounting Indicator \[Page 1815\]](#)

Displaying Key Figure Values

Prerequisites

If actual costs have been incurred by the order, you can display the value categories and amounts that go into each key figure used in the information system.

[Example \[Page 1604\]](#)

Procedure

Select the required order.

Choose the *Costs* tab page.

You see an overview of the costs determined for the value categories, which were created in your system during Customizing.

Choose the *Key figures* tab page.

You see the key figures that are valid for the order and the values with which they were updated.

Select the required key figure and choose *Details*.

The system displays a dialog box containing the individual value categories and amounts used to update the key figure.

Example of Key Figure Value Display

Example of Key Figure Value Display

One of your own employees performs two hours of work for a particular maintenance order and confirms this work.

The cost overview shows you that the maintenance order has been charged \$ 150 in the value category *Internal services*.

When displaying the key figure values, you see that the key figure *Internal employees* has also been charged \$ 150.

You display the detailed information for this key figure and see that the \$ 150 comes from the value category *Internal services*.

Decoupling of the Completion Confirmation Processes

Use

You can use this function to improve performance when entering completion confirmations.

Prerequisites

In Customizing, you can set when the processes, which are triggered by a completion confirmation, should be scheduled. In addition, you can set in Customizing whether these completion confirmation processes should be performed sequentially or in parallel. For this, you can define the following:

Number of parallel tasks

Server setting

Features

You can define when the processes are scheduled:

Immediately online

Immediately in an update

Later in a background job

The completion confirmation processes you can influence are:

Backflushing of components

Determination of actual costs

Cross-Application Time Sheet (CA-TS)

Cross-Application Time Sheet (CA-TS)

Purpose

The *Time Sheet* is a cross-application tool for recording employee working times. Working times are recorded centrally, together with cost accounting, confirmation, and external services information, and then made available to other SAP System applications for further processing.

The *Time Sheet* is a self-service application which allows both internal and external employees to enter their own working times. Alternatively, data can be recorded centrally in a data entry office.

Implementation considerations

The *Time Sheet* allows you to record employee time data for processing by other SAP components. You must therefore implement at least one other of the components listed below. You can provide data to the components individually or in combination.

Integration

With other SAP components

Required Function	Required Component
Decentralized recording of employee attendances and absences	<i>Time Management</i>
Decentralized recording of employee remuneration information	<i>Payroll</i>
Internal activity allocation and entry of statistical key figures	<i>Controlling</i>
Confirmations	<i>Plant Maintenance</i> <i>Project System</i> <i>Customer Service</i>
Recording external services	<i>External Services Management</i>
Recording travel expenses with activity reports	<i>Travel Management</i>
Recording activities for services provided	SAP Service Provider

Features

Approval Procedure

The *Time Sheet* allows you to integrate a procedure for approving the recorded working times. *SAP Business Workflow* is one option available as a means of controlling the approval procedure.

User interface

Using [profile technology \[Page 1613\]](#) and field selection, the *Time Sheet*'s self-explanatory interface can be customized to cater to the varying tasks and level of experience of its users.

Working times can be recorded either as a number of hours or with start and end clock times.

Cross-Application Time Sheet (CA-TS)

You can use wage types and statistical key figures to record amounts, quantities, and a number of pieces.

All the functions are combined in a single [interface \[Page 1608\]](#).

A special user interface enables data to be recorded centrally for several employees.

Additional information

To simplify data entry, you can define default values for your employees.

You can provide a [worklist \[Page 1611\]](#) to assist users, containing information on pools of confirmations or completed activities, for example.

In addition, you can enter trip data and information on a material withdrawal.

Additional features

To protect personal data against unauthorized access, the *Time Sheet* uses the *SAP Human Resources* [authorization concept \[Page 1767\]](#).

All data records are assigned a unique document number, which means they can be tracked at any time.

You can use SAP enhancements to extend the functions of the *Time Sheet*.

The Data Entry Screen for the Time Sheet

The Data Entry Screen for the Time Sheet

Definition

View for entering time sheet data.

Structure

The following graphic depicts the Time Sheet's data entry screen:

Time Sheet: Data Entry View

Personnel number: 288818 Joan Turner Cost ctr: CONTROL-01
 Data entry period: 11/29/1999 - 12/12/1999 Week: 48.1999

Network	Acti...	Short text	Total	MO	Tu	We	Th	Fr	Sa	Su	MO	Tu
6006383	E020	Construction	19.00	1.00	2.00	1.00	2.00	3.00			2.00	2.00
6006383	E020	Construction: Mechanics	20.00	4.00	3.00	4.00	2.00	2.00			1.00	1.00
6006383	E020	Construction: Hydraulics	18.00	1.00	1.00	2.00	2.00	2.00			2.00	2.00
6006383	E020	Construction: Electrics	30.00	1.00	2.00	5.00	4.00	3.00			2.00	3.00
6006383	E020	Construction: Production resource tool	15.00	1.00	1.00	1.00	1.00	2.00			1.00	2.00

LT	Network	Acti...	Wa...	StatKF	Curr.	Un	Total	MO	Tu	We	Th	Fr	Sa	Su	MO
							68.50	8.00	8.00	8.00	8.00	2.25	0.00	0.00	8.00
							74.00	7.50	8.00	8.50	9.00	4.00	0.00	0.00	8.00
	6006383	E010				H	5.50	3.00	1.50		1.00				
	6006383	E020				H	15.00		1.00		2.00	2.00			6.00
	6006383	E020				H	25.50	1.00	5.50	5.00	4.00				
	6006383	E020				H	15.50	3.50		2.00	2.00	2.00			2.00
		NN00				H	3.50					1.75			
		NO10			USD		0.00		150.00						
	6006383					N1	0.00	45			45				
	6006383	E020				H	12.50			1.50					

Data entry view Release view Variable view Entry 1 of 10

Under the title *Time Sheet: Data Entry View* is a toolbar, and, under that, information on the employee and the data entry period.

The Data Entry Screen for the Time Sheet

The worklist is under this information. In this example, the worklist consists of a header line, five information lines, and two scrollbars. You can copy the information from the worklist to the data entry section and thereby save yourself entering the data manually.

The data entry section is below the worklist. You enter your data in the white cells.

Pushbuttons for switching between the various time sheet views are at the bottom of the screen.



For more information, see:

[The Time Sheet Worklist \[Page 1611\]](#)

[The Data Entry View, Release View, and Variable View \[Page 1610\]](#)

The Data Entry View, Release View, and Variable View

The Data Entry View, Release View, and Variable View

Definition

Time sheet display modes for entering or displaying data according to such criteria as its release or approval status.

Structure

You can choose between the following views:

Data entry view

The data entry view appears automatically when you call the time sheet. In this view, you can display or process working times and their respective [working time attributes \[Ext.\]](#) for a specific [data entry period \[Ext.\]](#).

Release view

The release view provides an overview of data with the [processing status \[Ext.\]](#) *In process*. By releasing the recorded data, you determine that you do not intend to make any further changes to it. Once released, the data is ready for approval or for further processing in the SAP System.

The significance of the release view depends on the settings you make in Customizing, and on how you choose to release data:

You release the data on saving your new entries. In this case, you switch to the release view to obtain an overview of the data you last changed, that is, the data that will be released when you choose **Save**.

You release the data in a separate step. In this case, you switch to the release view and release the data.

For more information, see [Release of Data \[Page 1661\]](#).

Variable view

You can use the variable view to obtain an overview of all the data with a particular processing status.



You want to display all data that has been approved.

See also:

[Calling the Variable View \[Page 1681\]](#)

The Time Sheet Worklist

Definition

Section of the data entry screen for the time sheet. In the worklist you can display data, which the user can copy to simplify data entry.

Use

You can display a worklist in a separate section of the single entry screen if you have created the relevant [data entry profiles \[Page 1613\]](#) in Customizing. The worklist contains both employee-specific and object-related information. This information is only available if you are maintaining the time sheet for one employee using single entry.

Structure

The worklist can contain the following information:

Data that the employee has already entered in the time sheet

Data from *SAP Logistics*:

Resource planning (capacity splits)

Confirmation pools

Activities assigned to the employee based on his or her work center assignment

Data created in Customizing using the SAP enhancement CATS0001 (*Set up worklist*), which is displayed in the form of a customer-specific worklist.

You define the content of the worklist and the fields it displays when you maintain your profiles in Customizing.

Using the copy function, the user can copy data from the worklist to the data entry section, and overwrite it if required.

Depending on the type of data (from planning, for example), hours can also be copied. You can deactivate this function by deselecting *Copy without hours* when you maintain your profiles.

Prerequisites for Time Sheet Users

Prerequisites for Time Sheet Users

Required Authorizations

Every user who records data in the time sheet must be assigned the following authorizations:

A user ID for the SAP System

Authorizations for the *Time Sheet* transaction (CATS)

Authorizations for the personnel numbers to be processed

For more information, see [Assignment of Authorizations \[Page 1767\]](#)

Creating Personnel Numbers

Employees must have a personnel number in the system before they can record their working times in the time sheet. This applies to both internal and external employees.



You can assign one personnel number for several external employees.

See also:

[Master Data Maintenance for External Employees \[Page 1731\]](#)

You enter the personnel numbers in *SAP Human Resources* by maintaining infotype records, which are available regardless of whether or not you implement HR.

In HR, you create a personnel number using a personnel action. You use this action to create at least the following two infotypes:

Organizational Assignment (0001)

Personal Data (0002).

You should also create a *Time Sheet Defaults* infotype (0315). You can use this infotype to define default values for employees who enter time sheet data .

You should also create a *Planned Working Time* infotype (0007). This requires, however, that you implement HR.



For more information on maintaining infotypes, see the SAP Library. Choose *PA - Personnel Management* → *Personnel Administration* → *Infotypes*.

Linking the System User ID to a Personnel Number

If certain users only record their own working times in the time sheet, their personnel number should be linked to their system user name.

For more information, see: [Implementing User Parameters \[Page 1615\]](#)

Customizing Settings for Data Entry Profiles

Use

When employees record working times, they call the time sheet by specifying a **data entry profile**. The profile determines the data entry process and the layout of the time sheet. The various data entry profiles enable you to provide your employees with a data entry view that is tailored to their area of activity and that fulfils your business requirements.

To create a data entry profile, you must complete the profile maintenance and field selection steps in the Implementation Guide (IMG). In [profile maintenance \[Ext.\]](#), you define data entry profiles with the functions you require. In [field selection \[Ext.\]](#), you determine which fields are shown for each data entry profile.

Features

Profile maintenance

Before you define a data entry profile, you must consider the following:

Do you want the data entry profile to provide a daily, weekly, or monthly data entry view?

Do your employees record their own working times or are they recorded centrally, for example in a data entry office?

Do you want to set up a separate release and [approval procedure \[Page 1664\]](#) for the recorded data? If you choose to use an approval procedure, do you want to use *SAP Business Workflow*?

Which profile authorization group do you want the data entry profile to belong to?



Profile authorization groups enable you to set up authorizations for the Time Sheet. You use authorizations to determine which data entry profiles a user can use for which personnel numbers. For more information, see: [Assignment of Authorizations for the Time Sheet \[Page 1767\]](#)

Which data entry checks do you require?

If you implement *HR Payroll*, which receiver object do you want to post the personnel costs to?

Do you want to simplify data entry for the user by providing default values and a [worklist \[Ext.\]](#)?



The system reads the default values from the *Time Sheet Defaults* infotype (0315) in *Human Resources*.

Once you have answered these questions, you can create the data entry profiles you require. In addition to the options described above, there are other options that you can use to modify the time sheet layout to suit your requirements.

For example, you can choose whether users record their working times as a number of hours or with clock times. Further options enable you to make the Time Sheet more user-friendly. For more detailed information on these options, refer to the relevant field help.

Customizing Settings for Data Entry Profiles

Field selection

Users enter different information when recording their working times according to their area of activity. For this reason, you should provide your various employee groups with different fields on the data entry screen.



An employee who confirms a maintenance order requires different fields on the data entry screen to an employee who only records attendances and absences for *Human Resources*.

You control which fields appear for a particular user using the data entry profile he or she uses to call the time sheet, because you define an individual field selection for each data entry profile.

Implementing User Parameters

Use

There are various user parameters for the *Time Sheet*, which you can implement to simplify data entry for the user.

Implement user parameters if you want the system to

Enter the values you require in specific fields

Select personnel numbers for [list entry \[Page 1622\]](#) processing, based on the criteria you enter

You can implement the following user parameters for the *Time Sheet*:

User parameters	Description	List Entry Only
CAC	Controlling area	X
CVR	Data entry profile	
KOS	Cost center	X
PER	HR Personnel number	
PON	Object ID (PD)	X
SAZ	Time administrator (HR)	X
SGR	Administrator group (HR)	X
VSR	Personnel number selection report variant	X

Features

User Parameters for when the Time Sheet is Called

CVR - Data entry profile

If you implement this user parameter, the system automatically enters the data entry profile you require in the initial screen. If necessary, you can overwrite this default value.

You would implement this user parameter for users who mainly work with one data entry profile.

PER - Personnel number

If you implement this user parameter, the system automatically enters the personnel number you require in the initial screen. If necessary, you can overwrite this default value.

You would implement this user parameter for users who only enter their own data in the time sheet and, therefore, only ever call their own personnel number.

As an alternative to implementing the user parameter PER, you can maintain the user assignment in the *Communication* infotype (0105), subtype *System user name* (SY-UNAME) (0001). In the initial screen of the time sheet, the system calls the personnel number assigned to the user currently logged on to the SAP System.

Implementing User Parameters

If, when maintaining your profiles, you specified that the system skips the initial screen when you call the time sheet, you must maintain either the user parameters CVR and PER, or the user parameter CVR in combination with subtype 0001 of the *Communication* infotype (0105).

The data entry screen for the specified profile and personnel number then appears immediately when the user calls the time sheet. The user can choose *Goto -> Initial screen data* to branch from the data entry screen to the initial screen, where he or she can change the data entry profile or personnel number, if necessary.

User parameters for list entry

If you want to use list entry to enter data in the time sheet, you must implement user parameters to determine which personnel numbers may be selected.

You must have set up list entry for the relevant data entry profile. To determine which criteria the system should use to select the list of personnel numbers, complete the *Person selection* section when you maintain your profile. You can choose between *Time administrator*, *Organizational unit*, or *Cost center* for selection. Alternatively, you can run a personnel number selection report.

For the system to select according to your criteria, you must enter the relevant user parameters containing the values you require.

CAC - Controlling area/KOS - Cost center

If you want to select according to cost center, you must enter the parameters CAC (Controlling area) and KOS (Cost center).

When you call the data entry view for the time sheet, the system lists all personnel numbers assigned to the relevant cost center.

PON - Object ID

If you want to select according to organizational unit, you must enter the parameter PON.

When you call the data entry view for the time sheet, the system lists all personnel numbers assigned to the relevant organizational unit.

SAZ - Time administrator/SGR - Administrator group

If you want to select according to time administrator, you must enter the parameters SAZ (Time administrator) and SGR (Administrator group).

When you call the data entry view for the time sheet, the system lists all personnel numbers assigned to the relevant time administrator.

VSR - Personnel number selection report variant

If you want to use a selection report to select your list of personnel numbers, you can create a variant for this report. This procedure has the advantage that you do not need to enter your selection criteria every time you call the report.

Instead, you can enter the user parameter VSR along with the variant you created. When you call list entry in the time sheet, the selection report automatically selects the personnel numbers according to your variant.

Activities

Choose *System -> User profile -> Own data -> Parameters* to enter user parameters.



Implementing User Parameters

You want to select the personnel numbers assigned to cost center 999 in controlling area 0001 every time you use list entry.

Choose *System -> User profile -> Own data -> Parameters* and enter the user parameters KOS with the value 999 and CAC with the value 0001. Now when you use list entry in the time sheet, the personnel numbers assigned to cost center 999 and controlling area 0001 appear automatically.




Processing Status

Processing Status

Definition

Information on the current position of time sheet records in the processing or approval procedure. The system assigns a processing status to every record written to the CATSDB database table for the *Time Sheet*.

Structure

Status	Description	Icon	Meaning
10	In process	-	The record is being processed and is not yet ready for transfer to the target components.
20	Released for approval		The record has been released and is ready for approval or rejection by the person responsible.
30	Approved		The record has been approved [Page 1664] and is ready for transfer to the target components.
40	Approval denied		The record has been rejected [Page 1638] . It cannot be transferred to the target components.
50	Changed after approval	-	An approved record has been changed. The original record is assigned this status until the new record has been approved. A reference counter allows you to track the new record back to the original record. Once the new record has been approved, the original record is assigned status 60 (Cancelled).
60	Cancelled	-	The record was cancelled [Page 1636] after approval. You cannot cancel a record if your profile settings determine that approved data may not be changed.



If your profile settings determine that no approval procedure is required, the system skips the *Released for approval* status. Records are then assigned the *Approved* status as soon as you release them. If your profile settings also determine that data is released automatically on saving, records are assigned the *Approved* status when you save them.

Process for Creating Time Sheets

Purpose

The graphic below shows the process for creating time sheet records. Not all of the steps are always relevant, depending on the settings defined for your [data entry profile \[Page 1613\]](#).

In the data entry profile, you specify whether:

Employees record their own times or whether a time administrator records data centrally for several employees.

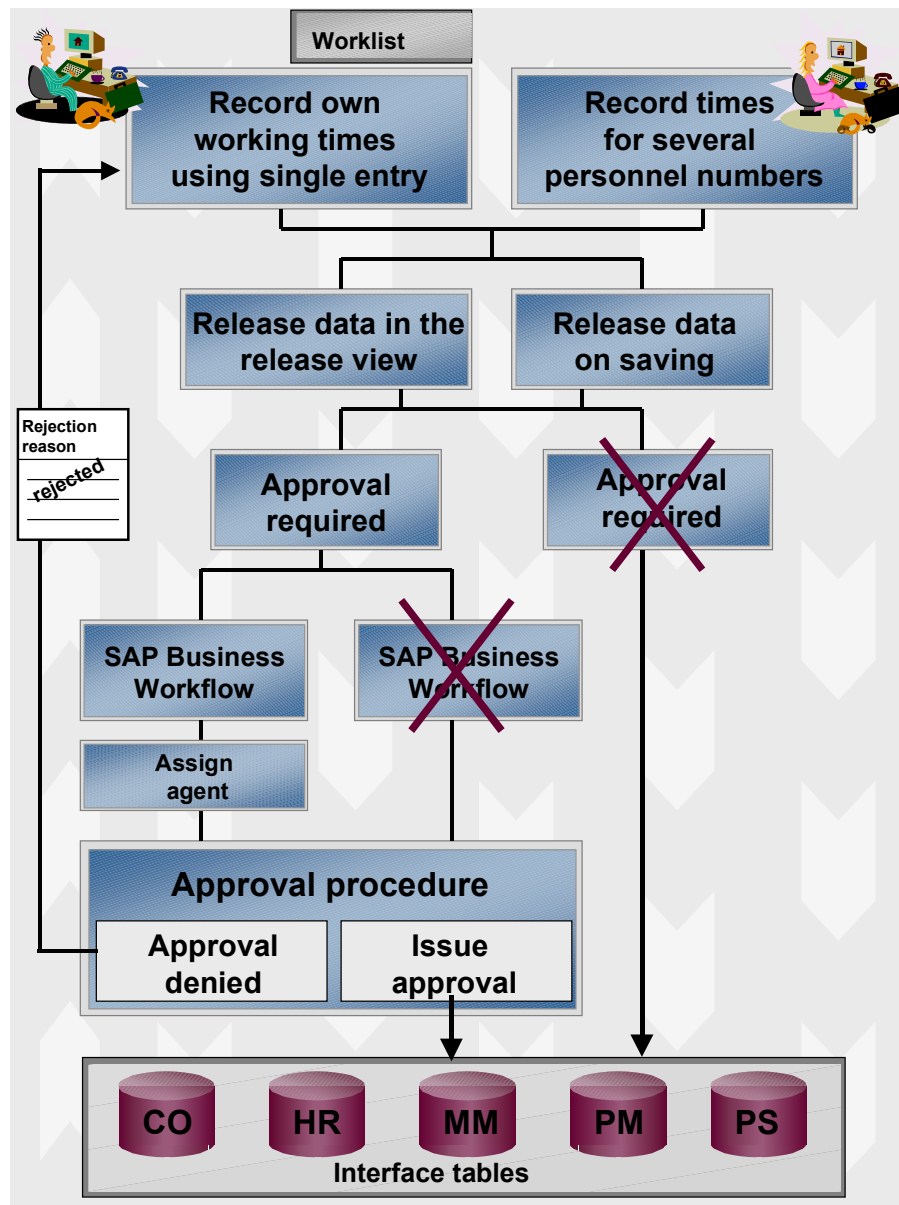
A worklist is displayed for the employee when using single entry.

Employees must release their recorded data manually or whether the data is released on saving.

The recorded data must be approved.

The approval procedure (if required) is controlled using *SAP Business Workflow*.

Process for Creating Time Sheets



Process flow

The process from entering data to making it available for transfer to the target components comprises the following required and optional stages:

You enter working times (required)

You release entered data for approval or for transfer to the target components (required)

You check data using an approval procedure (optional)

Once these steps have been completed, the system writes the data to the interface tables for the target components. Depending on whether you use an approval procedure as part of the data

Process for Creating Time Sheets

entry process, the system writes the data from the database table for the time sheet (CATSDB) to the interface tables:

Following approval of a record, if you use an approval procedure

Following the release of a record, if you do not use an approval procedure

Depending on the settings for the data entry profile, the data is released manually from the release view or automatically when the record is saved.

Correcting Time Sheets

You can correct time sheets at any time in the following ways:

If you correct the time sheet before the record is approved, the original record is changed.

If you correct the time sheet after the data has been approved or transferred to the interface tables, a new record is created. The new original record and its predecessor are linked and stored in the database table for the time sheet. The predecessor is transferred as a cancellation document.

Time Sheet Data Entry

Use

You can use the *Time Sheet* to [enter \[Page 1626\]](#) data for one employee only (for example your own working times), or for several employees at once.

Entering data for several employees

If you want to enter data for several employees, you can only enter data for the employees who were assigned to you when the system was set up. The system compiles a list of these employees for you. From the list, you only need to select the employees whose data you want to enter.

You can enter data by:

Using the list entry function to enter data for all your employees

Selecting the employee whose data you want to process from a list, and entering the data using single entry. If you choose this method for entering your data, you can use the additional [worklist \[Ext.\]](#) functions.

Features

You enter working times together with information required for the further processing of the data in other SAP System components (*Logistics, Accounting, and Human Resources*). This information is known as [working time attributes \[Ext.\]](#). You choose which working time attributes to enter based on the types of activities for which you are recording working times.

Working time attributes can vary therefore, not only from one enterprise to another, but also from one area of activity to another. The data you need to enter depends on which [data entry profile \[Ext.\]](#) you use to call the time sheet. The data entry period can also vary from user to user.

If your enterprise implements *SAP Human Resources*, you can also enter absences, such as leave. In addition, you can also enter data for the [EE Remuneration Information \[Page 1752\]](#) infotype. Depending on the wage type you enter, you can also record this data as quantities or monetary amounts.

Also, if you implement *SAP Controlling*, you can record [statistical key figures \[Page 1711\]](#).

Calling the Time Sheet for One Personnel Number

Choose *Time sheet* → *Time data* → *Enter* or *Display*.

The *Time Sheet: Initial Screen* appears.

Enter the [data entry profile \[Ext.\]](#) you require.

If the *Personnel number* field appears on the screen, enter your personnel number.
Otherwise, it has been assigned automatically.

Choose  ENTER.

When you call the time sheet for the first time after logging on to the system, the *Key date* field appears. The key date determines the period for which the time sheet is called.

Depending on your system settings, other fields may also appear on the initial screen.

If necessary, overwrite the key date.

Enter data in the other fields as required.

Choose  *Enter times* or  *Display times*.

The *Time Sheet: Data Entry View* appears.



For more information on entering data in the *Time Sheet*, see [Recording Working Times \[Page 1626\]](#).

Calling the Time Sheet to Record Data for Several Personnel Numbers Using Single Entry

Calling the Time Sheet to Record Data for Several Personnel Numbers Using Single Entry

Choose *Time sheet* → *Time data* → *Enter or Display*.

The *Time Sheet: Initial Screen* appears.

Enter the [data entry profile \[Ext.\]](#) you require.

Choose  ENTER.

A list of personnel numbers and the *Key date* field appear. The key date determines the period for which the time sheet is called.

Depending on your system settings, other fields may also appear on the initial screen.

Select the personnel number for which you want to maintain or display working times.

If necessary, overwrite the key date.

Enter data in the other fields as required.



Note that all the data you enter should be relevant for the selected personnel number.

Choose  *Enter times* or  *Display times*.

The *Time Sheet: Data Entry View* appears for the selected personnel number.



For more information on entering data in the *Time Sheet*, see [Recording Working Times \[Page 1626\]](#).

Calling the Time Sheet to Record Data for Several Personnel Numbers Using List Entry

Choose *Time sheet* → *Time data* → *Enter* or *Display*.

The *Time Sheet: Initial Screen* appears.

Enter the [data entry profile \[Ext.\]](#) you require.

Choose  ENTER.

A list of personnel numbers and the *Key date* field appear. The key date determines the period for which the time sheet is called.

Depending on your system settings, other fields may also appear on the initial screen.

If necessary, overwrite the key date.

Enter data in the other fields as required.

Select one, several or all the personnel numbers in the list.

Choose  *Enter times* or  *Display times*.

The *Time Sheet: Data Entry View* appears.



For more information on entering data in the *Time Sheet*, see [Recording Working Times \[Page 1626\]](#).

Recording Working Times

Recording Working Times

Use

This section explains how to enter your own working times or the working times of other employees in the time sheet. You can enter data in the following three ways:

You enter [your own working times \[Page 1623\]](#).

You enter working times for several employees using [single entry \[Page 1624\]](#).

You enter working times for several employees using [list entry \[Page 1625\]](#).




You can customize the data entry screen to cater to your requirements. For more information, see [Entry Screen Modification \[Page 1654\]](#).

Procedure

Call the data entry screen for the time sheet.

Enter the working time attributes required for the employee whose working times you want to record. You will normally want to enter data in all the fields in the data entry section.

To reduce the amount of data you have to enter, the system can automatically copy default values for the employee to the relevant fields. The default values are entered in the rows in which you have already recorded times. They appear when you choose  ENTER. You can overwrite the default values as required.



- There are some fields in which you must enter data before you can save your entries. The system issues a message if you fail to make an entry in one of these required fields.
- For information on the special features of some of the working time attributes, see [Displaying Detailed Information \[Page 1686\]](#).



If you are recording working times for several employees using list entry, enter the personnel number of the employee whose working times you want to maintain in the *Personnel no.* field in the data entry section of the time sheet. In the same row, enter data as required. If data has already been entered for some employees in the current data entry period, a row already exists for them in the data entry section.

Enter the times the employee has spent working on a project, order, and so on. Enter the number of hours or the clock times for each day and working time attribute.


When you enter a number of hours, you need only enter the number preceding the decimal point if you are dealing with whole hours: 4 for 4.00 hours, for example.

In the same way, when entering clock times, you need only enter 8 for 08:00 (8 am).

Enter any additional information on the records as required.

Recording Working Times

For more information, see [Entering Additional Information \[Page 1643\]](#).

 [Check \[Page 1651\]](#) the data you have entered.


If necessary, correct data that has generated an error or warning message. For more information, see [Processing Errors and Warnings \[Page 1652\]](#).

You can [change \[Page 1655\]](#) the data entry period to enter more data as required.



If you change the data entry period, the system checks some of the data you have entered.

If you are using list entry to record working times for several employees, repeat steps 2-7 for each employee.


 Release the data only when you are sure you do not want to make any further changes. The data is then ready for further processing by the person assigned to approve the data, or for transfer to the [target components \[Ext.\]](#).

Depending on the settings for your data entry profile, you use one of the following procedures to release the data:

Release on saving. In this case, the data is released automatically when you save it. Released data is assigned the [processing status \[Ext.\]](#) *Released for approval*.

The system reacts in different ways depending on whether you have chosen to use an approval procedure or not. For more information, see: [Releasing Data on Saving \[Page 1662\]](#)

Release data using the release view. For more information, see: [Releasing Data Using the Release View \[Page 1663\]](#)

 Save your data.

The initial screen reappears.

If you are using single entry to maintain data for several employees, select the next employee from the list and maintain his or her data. Do this by repeating steps 2 -9.

Result

You have recorded your own or other employees' working times in the *Time Sheet*.

Resetting Entries

Resetting Entries

Use

You can use the *Reset entries* function to cancel all data you have entered for the current data entry period.

You can only do this if you have not yet saved the data. Note that your data is saved automatically when you change the data entry period or view.

You can use this function if:

You want to undo changes without having to cancel data entry.

You have already processed several data entry periods and want to delete the last changes you made.



When entering data, you changed the [data entry period \[Page 1655\]](#) twice. You want to cancel the entries in the current data entry period.

If you choose *Reset entries*, the data in the current data entry period is deleted. The data you entered for the two previous periods remains.

Procedure

Check whether you want to delete all new entries in the current data entry period, and that all data has not yet been released or saved.

Choose  *Reset entries*.

Choose Yes when the confirmation prompt appears.

Result

You have canceled the entries in the current data entry period.

Copying Rows

Use

You will occasionally enter data with [working time attributes \[Ext.\]](#) that are almost identical to those already entered for the current [data entry period \[Ext.\]](#). If this is the case, you can speed up the data entry process by copying the existing data.

The system copies the working time attributes and times. All you have to do is make any changes required.



You can also [split rows for copying working time attributes \[Page 1630\]](#).

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Select the row(s) you want to copy.

Choose  *Copy row*.

Result

The system copies the selected row(s) of data previously recorded to the data entry section. You can change the working time attributes and times.

Splitting Rows

Splitting Rows

Use

You can use the *Split row* function to move existing data from a certain point in the data entry period to a new row.



You have entered data for a relatively long period of time. You discover that as of a certain day in the period, a different order number or cost center applies.

The quickest way to enter the changes is to split the relevant row as of the day in question. You do not have to enter the working time attributes and times again, but simply overwrite the relevant fields.

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Position the cursor on the cell from which you want a new row to begin.

Choose  *Split row*.

Result

The row is split from the day you selected. The system enters identical working time attributes in both rows.

Copying Working Time Attributes from the Previous Period

Use

When you record data, you must enter the relevant [working time attributes \[Ext.\]](#). To reduce your workload, you can copy working time attributes that have already been entered from the previous period. You then only have to enter the number of hours worked, clock times, or absences for the current period.



You can only copy working time attributes from the previous period if:

The previous period lies directly before the current [data entry period \[Ext.\]](#)

You have not yet entered data for the current period

Procedure

Call the [data entry screen \[Page 1622\]](#) for the time sheet.

Choose *Extras* → *Copy previous period*.

The system copies the working time attributes from the previous period to the data entry section.

Enter the number of hours worked or the relevant clock times.

Result

You have used the working time attributes from the previous period to maintain data for the current data entry period.

Distributing Hours Over Several Days in a Period

Distributing Hours Over Several Days in a Period

Use

To simplify data entry, the time sheet allows you to distribute a specified number of hours over several days in a period . Instead of entering the hours for each day individually, you can use the *Distribute hours* function to automatically

Distribute a total number of hours over several days in a period

Copy a certain number of hours to each cell

You can distribute hours as follows:

Distribution of hours over total area selected

Using this method, you distribute the total number of hours over a specific period, that is, they are distributed over one or more rows. There are various functions that you can use to distribute the hours according to your individual business requirements.

There is a function for distributing the total number of hours equally among all cells that are selected and assigned a [working time attribute \[Ext.\]](#), for example.



Over a period of two weeks, you have worked for a total of 90 hours on three different cost centers.

Instead of entering the exact number of hours for each cost center, you distribute the hours among all relevant cells. If it is a five-day week, the system distributes three hours to each day and cell.

Distribution of hours per selected row

Using this method, you distribute the total number of hours to the selected period in one row. You use a distribution function in this case too.



For two weeks, you have worked 40 hours per week on two orders.

Instead of entering the exact number of hours for each day, you distribute the hours over the whole period. If it is a five-day week, the system distributes four hours to each day and row.

Distribution of hours to each selected cell

Using this method, you distribute a number of hours per day (eight hours, for example) to all cells that are selected and assigned a working time attribute.

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Enter the required working time attributes.

Select the rows for which you want to distribute hours.

Distributing Hours Over Several Days in a Period

Choose *Edit* → *Propose times* → *Distribute hours*.

The *Distribute hours* dialog box appears.

Enter the hours that you want to distribute over the period.

Specify the period over which you want to distribute the hours.

Specify how you want the hours to be distributed.

Distribution of hours over total area selected

Select the *Distribution function* field.

Choose a distribution function.

Do not select the *Hours per row* field.

Distribution of hours to each selected working time attribute


Select the *Distribution function* field.

Choose a distribution function.

Select the *Hours per row* field.

Distribution of hours to each selected cell

Select the *Hours per cell* field.

Exit the dialog box by choosing  *Continue*.

The data entry view for the time sheet reappears.

Result

The specified number of hours is distributed over the selected period according to the method chosen.

Displaying Days Off

Displaying Days Off

Use

You can use the *Days off on/off* function to highlight days off when entering data. This makes it easier to distinguish between workdays and days off. This function is particularly useful if the [data entry period \[Ext.\]](#) is longer than a week.



You can only use the *Days off on/off* function if:

The days off are not already displayed automatically. If they are, you cannot enter times for days off.

Your data, or the data of the employees you are processing, has been maintained accordingly in the SAP System

Procedure

Call the [data entry screen \[Page 1622\]](#) for the time sheet.

Choose *Edit* → *Days off on/off*.

Result

The days off are highlighted and you cannot enter data for them. Choose *Days off on/off* again to reverse this setting.

Copying Information from the Worklist

Use

You can simplify the data entry process by copying data from the [worklist \[Page 1611\]](#).

The worklist contains the following [working time attributes \[Ext.\]](#):

Working time attributes with data that you have already entered in the time sheet

Working time attributes with activities scheduled for you or your colleagues

Working time attributes with pools of confirmations

The copy function allows you to copy working time attributes from the worklist to the data entry section. This speeds up the data entry process, and reduces the risk of inadvertent errors.

Depending on the type of data entered (planning data, for example) and the settings you made when the system was customized, you may also copy hours to the relevant cells in the data entry section.

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

In the worklist, select the row you want to copy to the data entry section.

Choose  *Copy row*.

The system copies the relevant line from the worklist to the data entry section.

Depending on the type of data, the hours may also be copied.

Check the data that has been copied. You should pay particular attention to any hours that were copied.

Overwrite the data, if necessary.

Result

You have copied information from the worklist, and modified it as required.

Cancelling Approved Records

Cancelling Approved Records

Use

If you notice that some of your approved data contains errors, you can cancel the records with errors. To ensure that you can still track cancelled records in future, the system does not delete them. Instead it creates a cancellation document that contains the reference to and invalidates the original record.



If your profile settings determine that approved records may not be changed, you also cannot cancel them once they have been approved.

If you change the cell content of an approved record, you are effectively cancelling the original record. The system creates a new record to reflect the changes.



Whilst a record has processing status 10 (*In process*), you can overwrite its cell content in the time sheet as often as required without cancelling the record.

If your data does not undergo an approval procedure, you can cancel it as soon as it has been released.

Procedure

Cancelling single records

Call the data entry screen for the time sheet.

Overwrite the cell content of the record you want to cancel with "0" (*zero*).



Save your entries.


Cancelling all records in a row


Call the data entry screen for the time sheet.

Select the row containing the records you want to cancel and choose  *Delete row*.

All the records in the selected row are cancelled.



If you want to cancel only some of the data in a row,  [split \[Page 1630\]](#) the relevant row.

Then select the row containing the records you want to cancel and choose  *Delete row*.



Save your entries.

Result

You have cancelled the original records.

Changing Rejected Records

Changing Rejected Records

Use

If the settings for your data entry profile specify that data entered must undergo an approval procedure, the person approving the data can either approve or reject the records. You can change any rejected records in the data entry screen for the time sheet, or you can release them unchanged for approval again.

Whether rejected records are already highlighted in the data entry screen, or just in the release view, depends on your profile settings.

Procedure

Rejected records highlighted on the data entry screen:

Call the data entry screen for the time sheet.

Any rejected records are highlighted and display-only.


Select a record that was rejected by double-clicking on it.

The *Cell Information* dialog box appears, where you can view the rejection reason.


Change the number of hours and, if necessary, enter a short text.

✓ Confirm your entries.

The data entry view reappears.

 Save your entries.



If you do not think the rejected record contains any errors, switch to the  *Release view* and release it again. The record is resubmitted to the person selected to approve the data.

Rejected records not highlighted in the data entry screen:


Call the  *Release view* for the time sheet.

Any rejected records are highlighted.

To view the rejection reason, select a record that was rejected by double-clicking on it.

Switch to the  *Data entry view*.

Change the record that was rejected.

 Save your entries.



If you do not think the rejected record contains any errors, release it again in the release view. The record is resubmitted to the person selected to approve the data.

Result

You have corrected a rejected record.

Branching to Trip Costs and Material Withdrawals

Branching to Trip Costs and Material Withdrawals

Use

You may want to enter important information in addition to time data, such as the details of a business trip or a deduction of materials used.

You can branch directly from the time sheet to the relevant transactions in the *Trip Costs* and *Goods Issue* components.

Branching to these transactions simplifies data entry. This function should not, however, be seen as a form of integration between the time sheet and these components.

Features

Branching to Trip Costs

Choose *Environment* → *Trip costs* to branch directly from the data entry screen for the time sheet to the data entry screen for trip costs. You can then create a trip. The working time attributes entered in the time sheet are copied to *Trip Costs* as default values.



You cannot use the approval procedure for the time sheet to approve business trips. *Travel Management* has its own approval processes for this.

For simplified data entry, the system proposes clock times as default values when you process trip data. These values are not related to the clock times entered in the time sheet, nor are they taken from the employee's work schedule.

After you have saved the trip data, you automatically return to the data entry screen for the time sheet. The system copies the trip number to the relevant field.

Branching to Goods Issue

You can also branch to the *Enter Goods Issue: Initial Screen* transaction to record a material withdrawal. Once again, there is no direct integration with the time sheet.

Posting a Material Withdrawal

Use

You may have used material during an activity for which you are entering working times. By branching directly to the *Materials Management (MM)* component, you can post a material withdrawal. You can only do this if your enterprise implements MM.



The time sheet data and the data on the material withdrawal are not saved together. If you do not save the data entered in the time sheet, or even if you delete it, the data entered on the material withdrawal is not affected.

Procedure

Call the data entry screen for the time sheet.

[Enter \[Page 1622\]](#) the data in the time sheet as usual.

Choose *Environment* → *Material withdrawal*.

The *Enter Goods Issue: Initial Screen* appears. You can enter all data relating to the material withdrawal on this screen.



For more information on material withdrawals, see [Goods Issues \[Ext.\]](#).



Save your entries.

The screen for maintaining the time sheet reappears. The system issues a message at the foot of the entry screen specifying the document number that has been created.

Result

You have entered information on a material withdrawal in addition to time sheet data.

Entering Basic Trip Data

Entering Basic Trip Data

Use

You can use the time sheet to enter working times you spent on a business trip. You can, therefore, branch directly to the component where you maintain trip data.



The time sheet data and the trip data are not saved together. If you do not save the data entered in the time sheet, or even if you delete it, the data entered on the trip is not affected.

The procedure for approving trip data is not the same as the one for approving time sheet data. The data must therefore undergo two separate approval procedures.

Prerequisites

Your enterprise must implement the *Travel Management* component.


Procedure

[Enter \[Page 1622\]](#) the data in the time sheet as usual.

Select the period you spent on a business trip.

Choose  *Trip costs*.

The *Trip Data Maintain: Receipts* screen appears. You can enter all data relating to the trip on this screen. The system automatically copies any working time attributes that have already been entered to the relevant fields.

 Save your entries.

The data entry view for the time sheet reappears.



The *Trip number* field may appear in the data entry section, displaying the trip number that has been assigned to your trip.

Result

You have entered information on a trip in addition to time sheet data.

Entry of Additional Information

Use

You may want to enter additional, important information on a record. There are special functions available to you for this.



Whether or not you can use one of the following functions depends on

The type of data you enter

Whether your enterprise uses the relevant SAP components

Features

You can enter the following additional data:

Documentation on particular situations that have arisen in the course of your work

Information on confirmations (*SAP Logistics*)

Information on a material withdrawal (*Materials Management* component)

Basic trip data (*Travel Management*)

Entering a Short Text for a Record

Entering a Short Text for a Record

Use

In the *Cell Information* dialog box, you can enter a short text for each time sheet record you create.



You want to document the following situations in a short text:

You have performed an activity for which you receive a special bonus (a hazard bonus, for example)

The employee for whom you are entering data was involved in an industrial accident

The short text can also be used as the header for any long text you enter for the record.

If you change the header when you [edit the long text \[Page 1645\]](#), the short text in the *Cell Information* box also changes.

Procedure

Call the data entry screen for the time sheet.


[Enter \[Page 1622\]](#) the data in the time sheet as usual.

Position the cursor on the record for which you want to enter a short text.

Double-click the left mouse button.

The *Cell Information* dialog box appears.

Enter a text in the *Short text* field.

To exit the dialog box, choose  *Continue*.

The data entry view for the time sheet reappears.

Result

You have entered a short text for a record.

Entering a Long Text for a Record

Use

The time sheet allows you to enter a long text for a record, if required.



You could not complete an activity in the allotted time, since the required materials were not delivered on schedule, for example. You want to document these circumstances.

Long texts can be accessed when entering and displaying time sheet data, and can be queried in reporting.



Note that the long texts are not the same as the short message texts that can be entered within the approval procedure as information for the person approving the data.

The long texts are **not** transferred to the [target component \[Ext.\]](#). They are, for example, not available as additional information on a confirmation in *Logistics* components.

If there is a [predecessor \[Page 1685\]](#) to a data record, the long text entered for the predecessor is automatically assigned to the new record. A predecessor is the record that is created when you make changes to a record that has already been approved.

Procedure

Call the data entry screen for the time sheet.

[Enter \[Page 1622\]](#) data in the time sheet as usual.

Select the record for which you want to enter a long text.

Choose  *Long text*.

The *Change time sheet* dialog box appears.

Enter your text or change the text for the predecessor.

Enter a header for the text in the first line of the text editor. The header appears as the short text in the [cell information \[Ext.\]](#).

For more information on how to create or change the long text, see *Help → Application help*.

Exit the text editor by choosing  *Back*. The text you have entered is now saved.

The data entry view for the time sheet reappears.

Result

You have entered a long text for a record. Depending on your system settings, the record may now be highlighted in color. Double-click on the record to see the cell information, where the first line of the long text appears as the short text.

Entering a Long Text for a Record

Entering Information on a Confirmation

Use

Confirmations report on the processing status of orders, networks, operations, suboperations, and individual capacities. This data is relevant for *Logistics* components.

You can use the *Cell Information* dialog box to enter the following additional information on a confirmation:

Indicator denoting status of confirmation

You can specify whether the confirmation is a partial or final confirmation. If it is a final confirmation, there will be no further confirmations relating to the operation.



If you do not specify otherwise, the system interprets the confirmation as a partial confirmation.

Forecast values

You can specify forecast values relating to:

The work still to be completed (remaining work)

The date on which the operation will be completed (finish date)

Forecast values are significant when planning deadlines and resources.



Note that you can only confirm times, not quantities, using the time sheet.

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Enter the working time attributes and the duration in hours of the activity (you can also enter clock times).

Double-click on the record on which you require confirmation information.

The *Cell Information* dialog box appears,

Enter the forecast values in the *Remaining work* (in hours) and *Forecast finish date* fields.

Enter an indicator to denote the status of the confirmation.

If the *Final confirmation* field is selected, the confirmation is a final confirmation. If it is not selected, it is a partial confirmation.

Exit the *Cell Information* dialog box by choosing  *Continue*.

The screen for maintaining time sheet data reappears.

Result

You have entered confirmation information on a data record. The record is now highlighted in color.

Entering Information on a Confirmation

System Checks and Messages During Data Entry

Use

The time sheet aims to make data entry as easy as possible. This includes validity checks, which the SAP System runs on all the data that you enter. If you have entered an order number that does not exist, for example, the system issues a message to bring this to your attention. You can then correct the data.

The messages appear either in a dialog box or at the foot of the screen.

See also:

[Processing Errors and Warnings \[Page 1652\]](#)

Features




Depending on the type of data, the checks are made when you:

Choose  ENTER

 Save data

 [Check \[Page 1651\]](#) data

[Change \[Page 1655\]](#) the data entry period

Switch between the different time sheet views ( *Data entry view*,
 *Release view*,  *Variable view*).



An exception is when you exit the release view. The system does not check for errors in this case, since the user is not able to correct any errors that occur at this point.

Released records undergo more thorough checks than records assigned the [processing status \[Ext.\]](#) *In process*. This means that users can also enter provisional data in the time sheet.

In the standard system, validity checks are carried out when you perform any of the above activities.

In addition, you can define the following checks in the system:

Profile-dependent checks

You can define the following checks for entered hours or clock times when you maintain your data entry profiles:

24 hours check:

This check prevents a user from being able to enter more than 24 working hours for one day.



System Checks and Messages During Data Entry

If you enter data on external services, you can assign several persons one personnel number. In this case, you should not specify the 24 hours check.

The 24 hours check is carried out when you perform any of the above actions for records assigned the processing statuses *In process* and *Released*.

Collisions with other time sheet records:

This switch is only relevant for data records that specify clock times. It checks for and prevents overlaps between the clock times you enter.

If you implement HR, the system checks that no more data is entered for a day once a full-day absence has been entered.

The system checks for collisions in the data entry period currently being processed when you perform any of the above actions. The processing status assigned to the data is irrelevant in this case.

Profile-dependent checks for users of HR Time Management (PT)

If you implement *HR Time Management*, you can also validate the data against target hours and quotas, and check for collisions between attendances and absences.

See also:

[Extended Checks for Users of HR Time Management \[Page 1743\]](#)

Customer-defined checks

The SAP enhancements CATS0003 (*Validate recorded data*) and CATS0006 (*Validate entire time sheet*) allow you to extend the standard checks by defining your own checks.

Checking Your Entries

Use

You can use this procedure to check for errors in the time sheet before saving new or changed data.

This procedure is especially recommended if you use list entry for several employees. It allows you to check the data for each employee, and make any necessary changes.

Procedure


Call the data entry screen for the time sheet.

[Enter \[Page 1622\]](#) your time sheet data as usual.

Choose  *Check entries*.

If there are messages relating to the period being checked, they are listed in a dialog box.

[Process \[Page 1652\]](#) the error messages and warnings as required.

 Check the data again.

If there are no more errors, you can continue processing the time sheet.

Processing Errors and Warnings

Processing Errors and Warnings

Use

This procedure explains how to react to errors and warnings issued by the SAP System.

Procedure

Warnings

If the system has issued a warning, you must decide whether or not a correction is necessary.

You can then correct the data if required.

If you do not want to change the data, choose  to ignore the warning and continue processing.

Error Messages

If the system has issued an error message, you must correct the error before you can continue with your work.

Find the record that contains errors.



Note that the record containing errors may not lie in the current data entry period. In this case, [change \[Page 1655\]](#) the data entry period.


Correct the data containing errors.



a) Entry XXXXXX does not exist

Check and correct your entries.

b) Target hours have been exceeded

Change the number of hours entered accordingly. If a warning is issued, you can enter a  [long text \[Page 1645\]](#) for the relevant record explaining, for example, the reason for the situation.

If you are unable to correct the data that has caused the error, you must delete the record before you can continue. Some errors may require your system administrator to change the system settings.

 [Check \[Page 1651\]](#) the data

Continue processing.

Result

You have processed a warning or error message.

Data Entry Screen Customizing

Use

You can customize the data entry screen to best suit your way of working.

As well as changing the data entry period, you can modify the screen layout, and change which fields are displayed in the data entry section and the [worklist \[Ext.\]](#) according to your requirements.

You can save the settings you make for individual fields. This means your personal entry screen is available every time you maintain time sheet data.



Any individual column settings you make apply regardless of which [data entry profile \[Ext.\]](#) you use.

Changing the Data Entry Period

Use

You always call the time sheet for a particular key date. The key date determines the week, month, and so on, which the time sheet displays.

The system selects the key date according to the current date. You define how the key date relates to the current date for each [data entry profile \[Ext.\]](#). The system can always choose the previous week as the key date, for example.

You can change the data entry period in the time sheet [views \[Page 1610\]](#) without having to call the time sheet again.



The key date is a system default value. You can overwrite the key date at any time in the *Time Sheet: Initial Screen*.



You can use your data entry profile to enter the data for a full week.

When entering data for the week December 8 through December 14, you discover that you still have data to enter for the previous week. You change the data entry period to the week December 1 through December 7.

Your data entry profile determines the earliest and latest date to which you can scroll. If you reach the upper or lower limit of the data entry period, the system notifies you with a message.

Procedure


Call the data entry screen for the time sheet.

Change the data entry period if required.


There are two ways to change the data entry period:

You can go to a previous or future data entry period by scrolling in the calendar.

To scroll to a previous data entry period, choose  *Previous screen*.

To scroll to a future data entry period, choose  *Next screen*.

You can go directly to a specific data entry period by entering the calendar week.

Overwrite the calendar week currently displayed with the data entry period you require and choose .

Displaying the Weekday or Date

Displaying the Weekday or Date

Use

Depending on your Customizing settings, the system shows either the date or the weekday and date in the cell headers in the data entry section. You can switch between the two display variants.



When you switch between the date and weekday/date display, the date display in the worklist also changes. However, if you choose to display weekdays, the system shows the weekdays only in the worklist, that is not in combination with the date.

Procedure

Call the screen for displaying or maintaining the time sheet.

Choose  *Weekdays on/off*.

Changing the Position of Columns

Use

You can change the position of individual columns in the data entry section or [worklist \[Ext.\]](#) for the time sheet. This function allows you to change the sequence of the working time attributes you maintain to better suit your way of working, for example.

If you save the settings you make, you can use your personal entry screen each time you maintain time sheet data.

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Position the cursor on the name of the column you want to change and press the left mouse button when a white cross icon appears.

Without releasing the mouse button, position the cursor where you want the field to appear.

Now release the left mouse button.

[Save \[Page 1660\]](#) your table settings as a  variant if you want them to appear the next time you call the time sheet.

Hiding and Reducing Columns

Hiding and Reducing Columns

Use

You can reduce the size of columns you do not need in the data entry section of the time sheet or in the [worklist \[Ext.\]](#), or you can hide them completely. If you save the settings you make, you can use your personal entry screen each time you maintain time sheet data.



The time sheet has certain required fields in which you must enter data. The system also checks the fields you have hidden. This means that the system may issue error messages or warnings when the cause is not obvious to you on the data entry screen.

You should show the relevant column in this case. For more information, see [Showing and Enlarging Columns \[Page 1659\]](#).

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Move the pointer to the right edge of the column you want to hide, and when the black cross appears, press the left mouse button.

Without releasing the mouse button, reduce the size of the column as required.

Now release the left mouse button.

[Save \[Page 1660\]](#) your table settings as a  variant if you want them to appear the next time you call the time sheet.

Showing and Enlarging Columns

Use

You can enlarge columns in the data entry section or in the [worklist \[Page 1611\]](#) for the time sheet. You can also show columns that you have previously [hidden \[Page 1658\]](#).

If you save the settings you make, you can use your personal entry screen each time you maintain time sheet data.



You can recognize hidden columns by a thin vertical line.

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Move the pointer to the right edge of the column you want to show or enlarge, and when the black cross appears, press the left mouse button.

Without releasing the mouse button, enlarge the column as required.

Now release the left mouse button.

[Save \[Page 1660\]](#) your table settings as a  variant if you want them to appear the next time you call the time sheet.

Saving Your Personal Column Settings

Saving Your Personal Column Settings

Use

If you have hidden, enlarged, or changed the position of columns, you can save these settings as your standard settings. Each time you call the time sheet in future, the settings you have defined appear automatically in the [worklist \[Ext.\]](#) and data entry section.

You can create several variants for your column settings, and use the one which best suits your requirements at the time. You can cancel your settings by activating the basic settings again.




The personal column settings that you save here as the standard setting apply regardless of which [data entry profile \[Ext.\]](#) you use.


Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Change the column settings as required.

Choose  (located above the right-hand scroll bar).

The *Table Settings* dialog box appears. You can now save your personal settings as a variant.

Enter a variant name and choose  *Create*.

If you want the system to use this variant each time the time sheet is called from now on, select the *Use as standard setting* field.

Choose  *Save*.

The data entry view for the time sheet reappears.

Result

The next time you call the time sheet, the worklist and data entry section are displayed as you defined. The system uses the variant you have defined as the standard setting.

Release of Data

Use

Once you have finished processing a record and do not intend making any further changes, you can release the data. You determine how you want to release the data when you maintain your profile.

Data can be released for different purposes:

You can release the data for [approval \[Page 1664\]](#). The data is checked a final time and approved by your immediate superior, for example. Approved data can then be transferred to the [target components \[Ext.\]](#) for further processing.

You can release the data without an approval procedure. Data can then be transferred to the target components without first having to undergo a final check.

Released data is assigned the [processing status \[Page 1680\]](#) *Released for approval*.

Activities

Depending on the settings for your data entry profile, you use one of the following procedures to release the data:

Release on saving. The data is released automatically.

The system reacts in different ways depending on whether you have chosen to use an approval procedure or not. For more information, see: [Releasing Data on Saving \[Page 1662\]](#)


Release data using the release view. For more information, see: [Releasing Data Using the Release View \[Page 1663\]](#)

Releasing Data on Saving

Releasing Data on Saving

Procedure

[Enter \[Page 1622\]](#) your time sheet data.

 Save your data.

The system reacts in one of two ways depending on the settings defined for your profile.

The *Time Sheet: Initial Screen* reappears. The system has released the data.

The *Time Sheet: Enter Release Information* screen appears. Enter the person responsible for approving the data.

In the *Approved by* section, specify how you want to determine who approves the data.

You do this by selecting the field you want to use to determine who approves the data. You can choose between the *Position*, *User*, *Work center*, *Job*, and *Organizational unit* fields.

In the *Recipient* field, enter for example the number of the position or the name of the user.



If there are several persons who still have your data to approve, you can use the possible entries function to display them in a list. From the list, you can choose who you would like to approve your current data.

If you want to notify the person approving the data of a particular circumstance relating to the data, enter a short message.

Note that the short message function can only be used to enter information for the person approving the data. It does not form part of the data record. If you want to attach information to the record itself, you can enter a [long text \[Page 1645\]](#).

Choose  *Continue*.

The *Time Sheet: Initial Screen* reappears.

Result

You have released and saved data, specifying a person to approve the data as required.

Releasing Data Using the Release View

Procedure


Enter [\[Page 1622\]](#) your time sheet data.

Switch to the  *Release view*.

In the release view, records which have not yet been released are highlighted.

Select the data records you want to release.

Choose  *Release*.

 Save your data.

The system reacts in one of two ways depending on the settings defined for your profile.

The *Time Sheet: Initial Screen* reappears. The system has released the data.

The *Time Sheet: Enter Release Information* screen appears. Enter the person responsible for approving the data.

In the *Approved by* section, specify how you want to determine who approves the data.

You do this by selecting the field you want to use to determine who approves the data. You can choose between the *Position*, *User*, *Work center*, *Job*, and *Organizational unit* fields.

In the *Recipient* field, enter for example the number of the position or the name of the user.



If there are several persons who still have your data to approve, you can use the possible entries function to display them in a list. From the list, you can choose who you would like to approve your current data.

If you want to notify the person approving the data of a particular circumstance relating to the data, enter a short message.

Note that the short message function can only be used to enter information for the person approving the data. It does not form part of the data record. If you want to attach information to the record itself, you can enter a [long text \[Page 1645\]](#).

Choose  *Continue*.

The *Time Sheet: Initial Screen* reappears.

Result

You have released and saved the data, specifying a person to approve the data if required.

Approval Procedure

Approval Procedure

Use

The approval procedure is an optional part of the time sheet.

Most time sheet records contain confidential data relating to, for example, an employee's payment or the progress of a project.

If employees maintain their own working time data in the system, the approval procedure can be used to check this data before it is transferred to the target components. Each time sheet record is approved on an individual basis.

The persons responsible for approving data records, such as supervisors, personnel officers, or project leaders, require special [authorizations \[Page 1767\]](#).

Prerequisites

For each data entry profile, you must determine whether data is to undergo an approval procedure or not. Activate the *Approval required* field when maintaining your profile if you want to use the approval procedure.

Working time data cannot be approved until it is assigned the [processing status \[Page 1783\]](#) *Released for approval*.

Features

In most cases, you would use *SAP Business Workflow* to approve released times and give notification of rejected data records. This triggers the report **RCATSB01** (*Time Sheet: Approve Times*).

If you use this procedure, you receive a message in your inbox informing you of data due for approval. When you choose a personnel number, the system automatically starts the approval report.

For more information, see: [Approving Data Using SAP Business Workflow \[Page 1668\]](#)

You can also issue approvals manually from the time sheet menu. You can still start the approval report manually even if you normally use workflow to approve the data. If you choose this option, the system deletes the relevant tasks from your inbox.

For more information, see: [Issuing Approvals \[Page 1666\]](#)

If you do not want to approve the data, you can enter a [rejection reason \[Ext.\]](#) for the employee or other person who entered the data. You must define the *rejection reasons* in Customizing.

Once data is assigned the status 30 - *Approved*, the system writes it to the relevant interface tables. You can then transfer the data to the required target component(s).



Time sheet records can be changed at any time by the person who entered them, even once they have been approved.

This also applies to data records that have already been transferred to the target component(s). If this is the case, a cancellation record is created from the original document and transferred to the target component(s).

Issuing Approvals

Issuing Approvals

Use

If your profile settings require time sheet data to undergo an [approval procedure \[Page 1664\]](#), you can select the necessary approval report from the time sheet menu. This is still possible even if you selected to use a workflow for the approval procedure when you maintained your profiles.

Procedure

1. Call the time sheet.
2. Choose *Time sheet -> Approval -> Selection Using Personal Data, Selection Using Organizational Structure, or Selection Using Time Sheet Data*.

The selection screen for your chosen report appears.

3. Select the data you want to approve

Select the data you want to approve according to the report you have called:

- **Selection using the *Personnel Administration (PA)* database**

This option allows you to select employees based on their organizational assignment (for example employee subgroup, cost center, and so on).

- **Selection using organizational structure:**

You can use the following *object types*:

Object type	Meaning	Object ID
O	Organizational unit	Organizational unit number
S	Position	Position number
P	Person	Personnel number

- **Selection using the time sheet database**

With this option, you can use important [working time attributes \[Ext.\]](#) to select data (network, cost center, or purchase order, for example).



You can display the relevant selection criteria by choosing *Sender parameters*, *Receiver parameters*, or *All parameters*.

Note that by selecting personnel numbers for approval, you lock them for processing in other applications. You should therefore try to keep the number of selected personnel numbers and processing time to a minimum.

Personnel numbers are not selected if:

You have no authorization for them

They are locked because they are being processed elsewhere

4. Choose  *Execute*.




Issuing Approvals

The *General Hierarchy Display* screen appears. You can expand the nodes to display an overview of the data due for approval.

The following hierarchy levels are displayed:

- *Persons from*
This level shows the data for all the personnel numbers you selected for the entire selection period.
- *Personnel number*
This level shows all the data for one personnel number for the entire selection period.
- *Date*
This level shows all the data for one personnel number for one day.

Traffic-light icons indicate the processing status of the data:



Traffic-light icon	Meaning
	Released for approval
	Approved
	Approval Denied

Records without a traffic-light icon are predecessors, which generated new records when they were changed after being approved.


5. Select the data you want to approve.

The approval view appears.

6. Approve or reject the data.

To do this, select one or more data records and choose  *Approve* or  *Reject*.

If you reject records, a dialog box appears in which you can enter a [rejection reason \[Ext.\]](#). You define the rejection reasons in your system settings.

7.  Save your entries.

Result

You have approved or rejected data records for the employees assigned to you. The approved records are ready for transfer to the [target component\(s\) \[Ext.\]](#).

Approving Data Using SAP Business Workflow

Approving Data Using SAP Business Workflow

Use

If your profile settings require the data you enter in the time sheet to undergo an [approval procedure \[Page 1664\]](#) using workflow, you can use *SAP Business Workflow* for this purpose.

Prerequisites

[SAP Business Workflow \[Ext.\]](#) must be set up in your system settings. For more information, see the SAP Library. Choose *Basis Components -> Business Management -> SAP Business Workflow*.

The units that follow contain the information you require to set up the [approval workflow \[Page 1670\]](#) for the *Time Sheet*.

Procedure

Choose *Office* → *Workplace* → *Inbox*.

Your SAP *Inbox* appears.

Choose *Workflow*.

For each personnel number, there is one entry for data due for approval.

Select the personnel number(s) you want to process.

Choose  *Execute*.

The *Time Sheet: Approve Times* screen appears. All data assigned the [processing status \[Page 1783\]](#) *Released for approval* is listed.



If you have selected several personnel numbers, you can process them consecutively.

Approve or reject the data.

To do this, select one or more data records and choose  *Approve* or  *Reject*.

If you reject any records, a dialog box appears in which you can enter a [rejection reason \[Ext.\]](#). You must define the rejection reasons in your system settings.

 Save your entries.

Choose  *Back*.

If you have selected several personnel numbers, you can process them consecutively. Repeat steps 5 - 7 until you have processed all the data.

Your *Inbox* reappears.

Result

You have approved or rejected data records for the employees assigned to you. The approved records are now ready for transfer to the [target component\(s\) \[Ext.\]](#).

Issuing Approvals (CA-TS)

Definition

The *SAP Business Workflow* workflow for issuing approvals is an optional part of the *Time Sheet*, which you can use to support and simplify the approval process.

Use

Working time data that has been recorded in the time sheet can be checked before being transferred to the target component(s). Authorized persons check the data in a separate approval procedure.

The *Issue approvals* workflow supports and simplifies this process: it assigns the unapproved records directly to the person responsible for approving them. This has the following advantages for the person approving the data:

A constant overview of the data that is ready for approval in his or her work area.

He or she can monitor the progress of orders and projects.

The workflow for issuing approvals is triggered when the data is released in the time sheet. The specified agent receives notification of records ready for approval as work items in his or her *integrated inbox*.

The workflow for issuing approvals is a single-step workflow. For technical reasons, it cannot be extended to a multistep task at present.



This documentation is only useful to you if you are familiar with the technology used to develop a workflow.

For general information on [SAP Business Workflow \[Ext.\]](#), see the SAP Library. Choose *BC - Basis* -> *Business Management* -> *SAP Business Workflow*.

Technical Implementation of the SAP Business Workflow for Issuing Approvals

The workflow for issuing approvals is a single-step workflow. For technical reasons, it cannot be extended to a multistep task at present.

Object Type

The interface between SAP functions and the workflow system is based on object technology.

The following information is technical and only relevant if you are interested in the technical aspects of implementation, or if you plan to create your own enhancements.

The SAP standard system contains the following object type:

CATS (Cross-Application Time Sheet)



If you want to modify the workflow, you must implement this object type.

Standard Tasks

There are three standard tasks that you can use to notify persons who approve data that there are times ready for approval. The agent generates the work items in his or her *integrated inbox*, starting the report **RCATSB01** (CATS: *Approve times*). The agent either approves or rejects the time sheet data.

Standard task: Approval

Standard task: TS40007901

Abbreviation: Approval

Name: CATS: Approval

Standard task: Approval2

Standard task: TS20000459

Abbreviation: Approval2

Name: CATS: Approval by Time Administrator

Standard task: Approval3

Standard task: TS20000460

Abbreviation: Approval3

Name: CATS: Approval by Superior

Technical Implementation of the SAP Business Workflow for Issuing Approvals

Referenced Object Method, Properties

Object type: CATS

Method: Approve (Approval request)

Properties: None



If you want to modify the workflow, you must use this object method.

Assigning Agents

You can assign agents by:

Assigning the standard task using an organizational plan object

Defining the standard task as a *general task*. You are advised to use this option if you have not yet maintained an organizational plan and do not intend creating one.

For more information, see [Preparation and Customizing of the Approval Workflow \[Page 1674\]](#).

Determining the agent using the SAP enhancement *Determine Workflow Recipients for Approval* (CATS0008).

For more information, see the documentation for the SAP enhancement.

Event

This workflow does not have a triggering event, only a terminating event.

Terminating event:

Object type: CATS

Event: COMPLETED

Element: _WI_OBJECT_ID

The event occurs once the agent has approved all of the records entered for a personnel number.

Recommended Activities:

You can currently:

Customize the work item text to suit your requirements

Use the parameters in the container for your copy of the standard task (TS_ENAME - employee/applicant name, for example).

Maintain the long text for the work item

In the long text for the work item, you can describe the approval procedure, for example. You can also include the parameters in the container.

There are two ways to **copy a standard task**:

Technical Implementation of the SAP Business Workflow for Issuing Approvals

Copy the **standard task** to another standard task using the *Copy* function in the *Maintain task* transaction. In this case, the task is client-independent.

Copy the standard task to create your own **customer task**. In this case, the task is client-dependent.

Preparation and Customizing of the Approval Workflow

Defining the Organizational Plan

Data is entered in the time sheet by an employee or administrator, and then approved by another person with the required authorization. You can choose which SAP users you want to approve the data. They may be the immediate superior of the person who entered the data, or project managers, for example.

If you use the standard task *Approval* (TS40007901), the person who entered the data releases it for approval, and then specifies the appropriate agent (user ID), or enters an object, which the system uses to determine the agent according to the organizational plan.

The person who entered the data can choose between the following organizational plan objects to select the agent:

Position

Work center

Job

Organizational unit

Several agents can be entered for one object. In this case, the work item appears in the *integrated inbox* of each of these agents. If one of the agents executes the work item, it is no longer displayed in the integrated inbox of the other agents.



If you use the standard tasks *Approval2* (TS20000459) or *Approval3* (TS20000460), the recipient is assigned automatically; the person who entered the data must not therefore enter the agent manually. If your profile has not been set up for the recipient to be determined automatically, the system proposes the time administrator or superior assigned to the person who entered the data as the workflow recipient. The person who entered the data can then confirm the recipient proposed or manually enter an alternative recipient as for the standard task *Approval* (TS40007901).

Assigning Users if You Use an Organizational Plan

To define a suitable organizational plan for the scenario, perform the *Edit Organizational Plan* step in the Implementation Guide (IMG). Choose *Basis* → *Business Management* → *SAP Business Workflow*.



For general information on [SAP Business Workflow \[Ext.\]](#), see the SAP Library. Choose *BC - Basis* → *Business Management* → *SAP Business Workflow*.

For more information on setting up workflow, see the [Reference Documentation \[Ext.\]](#) for SAP Business Workflow.

Preparation and Customizing of the Approval Workflow

Assigning Users if You Do Not Use an Organizational Plan

You can still use *SAP Business Workflow* even if you have not yet maintained your organizational plan. In this case, the person entering data in the time sheet specifies the appropriate agent by entering the agent's SAP user ID.

If you want to use this procedure, you must define the standard task as a *general task*. You can assign all SAP users that are set up in the system to a *general task*.

If you use this method, you can bypass *SAP HR Organizational Management*, which you use to select agents according to functional and organizational criteria. However, not just any SAP user can issue approvals with this procedure: you control who is responsible for issuing approvals using the authorization concept.

Application-Specific Customizing

The approval procedure is an optional part of the time sheet. You can determine whether data entered using a certain data entry profile must undergo an approval procedure when you maintain your profiles.

If you want to trigger the approval procedure using *SAP Business Workflow*, make the following settings for each data entry profile:

In the IMG, choose *Time Sheet -> Time Recording -> Set Up Data Entry Profiles*.

Select the data entry profile for which you want to set up *SAP Business Workflow*.

In the *General settings* section, select the *Approval required* field to activate the approval procedure.

In the *Workflow* section, select the *Workflow approval* field and enter the task ID number in the relevant field.

In the standard system, you can use the following standard tasks:

Approval (TS40007901) - The person who entered the data enters the workflow recipient manually.

Approval2 (TS20000459) - If the workflow recipient is determined automatically, he or she is the time administrator assigned to the relevant personnel number.

Approval3 (TS20000460) - If the workflow recipient is determined automatically, he or she is the superior of the employee whose times were recorded.

Using and Linking to Application Functions

Using and Linking to Application Functions

Use

SAP Business Workflow is started when data records are released in the time sheet and terminated when all released records have been approved or rejected.

Standard task: Approval (TS40007901) - CATS: Approval

Once persons entering data in the time sheet have released their records for approval, the *Time Sheet: Enter Release Information* dialog box appears. They then manually enter the agent who is assigned to them, or who is responsible for processing the data entered.

One of the agents may still have an unprocessed work item in his or her *inbox* for the person currently entering data. In this case, the person entering the data is displayed a list of the persons already assigned to approve his or her data (or assigned objects). He or she can choose a default value from the list. The record is then added to the work item already in the chosen agent's integrated inbox.

The person who entered the data can also choose the agent manually, by entering either an object from the organizational plan, or the agent's SAP user ID directly.

If the person who entered the data wants to notify the person approving the data of particular activities, special situations, and so on, he or she can enter a short message. By choosing *Continue*, the person who entered the data saves the record and starts the workflow.



If users create records that are to be approved by different agents, they must release the records separately for each agent.

Example:

A user wants to release ten records. Three are to be sent to agent XY, and seven to agent ZZ. The user should proceed as follows:

First, he or she releases the records for agent XY, saves the entries, and enters XY as the agent in the *Time Recording: Enter Release Information* dialog box. Then he or she starts the transaction again and repeats the above procedure for the seven records that are to be sent to agent ZZ.

The records appear in the chosen agent's *integrated inbox*. When the agent executes the work item, the approval report **RCATSB01** (*CATS: Approve times*) is started. The agent uses this report to approve or reject the records. If records are rejected, the agent can enter a rejection reason.

Standard task: Approval2 (TS20000459) - CATS: Approval by Time Administrator

In this standard task, the recipient is determined automatically.

In the standard task *Approval2* (CATS: Approval by time administrator), the records for approval appear in the *inbox* of the time administrator assigned to the employee whose data is to be approved. You assign employees to a time administrator in the *Organizational Assignment* infotype (0001) in *SAP Human Resources*.

Standard task: Approval3 (TS20000460) - CATS: Approval by Superior

In this standard task, the recipient is determined automatically.

Using and Linking to Application Functions

In the standard task *Approval3* (CATS: Approval by Superior) the records for approval appear in the *inbox* of the employee's superior. You assign employees to a superior in *SAP HR Organizational Management*.

If an employee is assigned to several superiors, the records for approval appear in the *inbox* of each superior. Note that in this case, the first superior to execute the work item must process all of the records contained in the work item. The other superiors are no longer able to execute the work item.

Information on Working Times Recorded

Information on Working Times Recorded

Use

There are two ways of obtaining information on the data entered in the time sheet:

When Displaying or Maintaining Recorded Data

There are a number of ways to access information when displaying or maintaining data.

Using the Information System


The Information System provides two reports that you can use to access the recorded data, according to a variety of criteria.


Obtaining Information on Icons and Colors

Use

You can obtain information on a data record or other fields from the icons in the *Line category* field, and the colors of the cells indicating the number of hours.



All data records that have not yet been released are highlighted in the  [release view \[Page 1610\]](#).


In a  totals line, you can display the total hours entered per day. The row is marked with a corresponding icon.

Procedure

Call the data entry screen for the time sheet.

Choose  *Legend*.

The *Legend* dialog box appears, showing all the colors and icons in the data entry section that are relevant for the current view.

Exit the dialog box by choosing  *Continue*.

The data entry view for the time sheet reappears.


Obtaining Information on the Processing Status, Document Number, and Rejection Reason

Obtaining Information on the Processing Status, Document Number, and Rejection Reason

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Double-click on the record on which you require information.

The *Cell Information* displays - where available - information on the [processing status \[Page 1783\]](#), document number, and [rejection reason \[Ext.\]](#).

Exit the dialog box by choosing  *Continue*.

The screen for maintaining or displaying time sheet data reappears.

Calling the Variable View

Use

The variable view allows a select view of the entered data. You can use the variable view to obtain an overview of all data with a particular [processing status \[Page 1783\]](#).




You want to use the variable view to display all approved data in the [current data entry period \[Ext.\]](#).

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Choose  *Variable view*

In the *Select status* dialog box, all the available processing statuses are displayed in a list.

Select all the processing statuses you want to be displayed in the variable view and choose  *Continue*.

The *Time Sheet: Variable View* screen appears. All data records with the relevant processing status are highlighted.

Displaying the Short Text

Displaying the Short Text

Use

In the *Cell Information* dialog box, you can enter a short text for each record you create in the time sheet.



You have documented the following situations in a short text.

You have performed an activity for which you receive a special bonus (a hazard bonus, for example)

The employee for whom you are entering data was involved in an industrial accident

Short Text as the Long Text Header

The short text can also be used as the header of any [long text \[Page 1683\]](#) you enter for the record.

Prerequisites


Your Customizing settings must determine that the *Short text* field is shown.

Procedure

Call the data entry screen for the time sheet.

Double-click on the record for which you want to display the short text.

The short text is displayed in the corresponding field in the *Cell Information* dialog box.

Exit the dialog box by choosing  *Continue*.

The data entry view for the time sheet reappears.

Displaying the Long Text

Use

The time sheet allows you to enter a long text for a data record, if required.



An activity could not be completed in the allotted time, since the required materials were not delivered as scheduled. You have documented these circumstances.

Long texts can be accessed when entering and displaying time sheet data, and can be queried in reporting.



Note that the long texts are not the same as the short message texts that can be entered within the approval procedure as information for the person approving the data.

The long texts are **not** transferred to the other SAP applications. They are not available, for example, as additional information on a confirmation in a *Logistics* application.

If there is a predecessor to a data record, the long text entered for the predecessor is automatically assigned to the new record. A predecessor is a record that is created when you make changes to a record that has already been approved.


Procedure

Call the data entry screen for the time sheet.

Select the record for which you want to display the long text.

Choose  *Long text*.

A dialog box displaying the relevant text appears.

Exit the text display by choosing  *Back*.

The data entry view for the time sheet reappears.

Displaying Confirmation Information

Displaying Confirmation Information

Use

Confirmations report on the processing status of orders, networks, operations, suboperations, and individual capacities. This data is relevant for *Logistics* components.

You can use the *Cell Information* dialog box to enter the following additional information on a confirmation:

Indicator denoting status of confirmation

You can specify whether the confirmation is a partial or final confirmation. If it is a final confirmation, there will be no further confirmations relating to the operation.

Forecast values

You can specify forecast values relating to:

The work still to be completed (remaining work)

The date on which the operation will be completed (finish date)

Forecast values are significant when planning deadlines and resources.



Note that you can only confirm times, not quantities, using the time sheet.

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Double-click on the record on which you want to display additional confirmation information.

The *Cell Information* dialog box appears.

- The forecast values are stored in the *Remaining work* (in hours) and *Forecast finish date* fields.
- The *Final confirmation* field contains the indicator showing the status of the confirmation.

If the *Final confirmation* field is selected, the confirmation is a final confirmation. If it is not selected, it is a partial confirmation.

Choose  *Continue*.

The data entry view for the time sheet reappears.

Result

You have displayed confirmation information on a data record.

Displaying the Predecessor of a Data Record

Use

The *Time Sheet* allows you to change data records even if they have already been approved or written to the interface tables for transfer to the [target components \[Ext.\]](#).

The system generates a second data record in this case. This means that there is a new original record, and a predecessor to this original.

The initial version of the record is not lost. You can still display it using the time sheet views and then make a comparison with the changed version.

The predecessor is assigned the [processing status \[Page 1783\]](#) 50 - *Changed after approval* or 60 - *Canceled*.



You can also call the predecessor of a record using the document display function. You need to know the document number to do this.

For information on the document display function, see [Displaying Records Using the Document Display Report \[Page 1695\]](#).

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).


Select the record for which you want to display the predecessor.

Choose *Extras* → *Predecessor*.

The *Time Recording Documents* screen appears. The screen displays the predecessor and its essential data.



If the record you select does not have a predecessor, the system issues a message accordingly.

Exit the screen by choosing  *Back*.

Result

You have displayed the predecessor of a data record.

Displaying Detailed Information

Displaying Detailed Information

Use

Depending on your system settings and how you customize your data entry screen, there may be more information on a record than is displayed in the data entry section.

You can use the *Detailed time data* function to display an overview of all existing data.

You receive the following information, for example:

[Working time attributes \[Ext.\]](#) that are not displayed in the data entry section of the time sheet

Texts that are available for an individual working time attribute

The [target component \[Ext.\]](#) to which the data is transferred


Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Select the row on which you require additional information.

Choose *Goto* → *Detailed time data*.

The *Time Sheet: Detail* screen appears. The screen displays all data that has been entered as part of a working time attribute. You can also see the target component to which the data has been transferred, or will be transferred.

To exit the screen, choose  *Back*.

The screen for maintaining or displaying time sheet data reappears.

Result

You have displayed detailed information specifying the target component.

Displaying Detailed Information on Working Time Attributes

Use

When entering [working time attributes \[Ext.\]](#), you may often require detailed information on an attribute before you decide whether or not to use it.




You want to know whether the specified activity type is maintained in the unit *hours*.

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Double-click on the working time attribute on which you require detailed information.

An overview screen appears, for example the *Display Activity Type: Basic Screen*. It contains all the essential information on the selected working time attribute.

To exit the screen, choose  *Back*.

The data entry view for the time sheet reappears.

Displaying Follow-on Documents and Outstanding Postings

Displaying Follow-on Documents and Outstanding Postings

Use

The *Follow-on documents* function is available for all records that are ready for transfer to the [target components \[Ext.\]](#) or that have already been transferred.

The function provides information on

The document number of the selected record

The target component to which a data record has been transferred

Outstanding transfers to other target components

You can branch to the target components to display follow-on documents for time sheet data.



If a confirmation has been entered for the *Project System (PS)* component, you branch to the *Confirmation for the network* display.

If an attendance for the *HR Time Management* component has been entered for an employee, you branch to the display of a record from the *Attendances* infotype (2002).

Procedure

Call the screen for displaying or [maintaining the time sheet \[Page 1622\]](#).

Double-click on the record on which you require transfer information.

The *Cell Information* dialog box appears. If the record selected has already been approved, the *Follow-on documents* function is displayed. You can call this function as soon as the record has been transferred to the target components.

Choose *Follow-on documents*.

The *Follow-On Documents* dialog box appears. It shows postings that have already been made to the target components, as well as any outstanding postings.

Double-click on one of the displayed rows.


You access the selected target component and can obtain detailed information on the relevant record.

To exit the target component, choose  *Back*.

The *Follow-On Documents* screen reappears.

To exit the *Follow-On Documents* screen, choose  *Continue*.

The *Cell Information* dialog box reappears,

To exit this screen, choose  *Continue*.

Displaying Follow-on Documents and Outstanding Postings

Result

You know which records have been transferred to which target components and which records are still awaiting transfer.

Information System

Use

The information system allows you to obtain an overview of the data entered in the time sheet in one of two ways.

Reporting

In reporting, you can access data records according to a variety of criteria.

Document Display

You can use the document display report to display an overview of the entered data by document number.

You can modify the list output of both reports.

Reports: Information on Time Sheet Data

Use

You can use the report CATSSHOW (*Display Time Sheet Data*) to display time sheet data for individual employees or to find specific data records.

You can use the report to:

Select records from the time sheet database based on important working time attributes, such as *order number, cost center or work center*

Obtain information on the processing status of the data

Branch to the follow-on documents for individual records in the [target components \[Ext.\]](#)

For more information, see:

[Selecting Employees for Reports \[Page 1692\]](#)

[Displaying Reports \[Page 1693\]](#)

Selecting Employees for Reports

Selecting Employees for Reports

Use

You can select personnel numbers for the report **CATSSHOW** (*Display time sheet data*) in the following ways:

Time sheet data

You can use this selection to choose data by personnel number. You can use this option to:

Display a list of personnel numbers

Display data for one employee only

Display all data entered for a specific working time attribute



You want to know how many hours were spent on customer order 2001345 up to a specific key date, and which employees performed the work.

For the selection criteria, do not make an entry in *Personnel number* field, but specify the *sales order* in the relevant field and enter the data selection period.

Time data per organizational structure

You can use this selection to choose data by organizational unit.

You can use this option to:

Display results for specific organizational units

Select personnel numbers by organizational unit

Procedure

Choose *Time Sheet* → *Information System*

Choose whether you want to select time sheet data using a personnel number or using the organizational structure.

The *Display Time Sheet Data* screen appears.

Enter your selection criteria.

You can choose *Receiver parameters*, *Sender parameters*, or *All parameters* to enter additional selection criteria.

Choose  *Execute*.

Result

You have selected employees by time sheet data or by organizational unit to display time sheet data.

Displaying Reports

Procedure

Call the time sheet.

Choose *Information system* → *Time sheet data by personnel number* or *Time sheet data by organizational structure*.

See: [Selecting Employees for Reports \[Page 1692\]](#)

Enter the evaluation period.

In the standard system, the data selection period is restricted to the current day.

Enter additional parameters as required.

You can select data based on other important working time attributes by choosing *Receiver parameters*, *Sender parameters*, or *All parameters*.



If you specify several working time attributes from the *sender*, *receiver*, and *all parameters* sections on the selection screen, you are extending rather than limiting the selection.

Example

You want to see all records for Peter Miller that have been entered relating to order 2001345 and cost center 2323.

By entering these numbers in the relevant fields and running the report, you obtain a list of all records that contain at least one of the specified working time attributes.


This is shown in the table below:

Pers.No.	Date	Order	Cost Center	Hours
12345	01.02.1997	2001345	2444	8
12345	02.02.1997	2001111	2323	7
12345	03.02.1997	2001345	2323	8

Choose  *Execute*.


The list output for the report appears. (You can customize the list output to suit your requirements.)

If required, display the follow-on documents for the data record.

To do so, select the record and choose  *Follow-on documents*.

For more information, see [Follow-On Documents and Outstanding Postings \[Page 1688\]](#).

Display the long text for a record by choosing  *Long text*.

Exit the list output by choosing  *Back*.

Displaying Reports**Result**

You have used the report CATSSHOW (*Display Time Sheet Data*) to obtain information on data entered in the time sheet according to your chosen selection criteria.


Displaying Records Using the Document Display Report

Use

Once they have been approved, time sheet records are written to one or more [target component \[Ext.\]](#) interface tables and assigned a document number. You can use the report RCATSBEL (*Time Sheet Documents and Follow-On Documents*) to display records according to their document number. You can use the integrated *Follow-On Documents* function to display information on the transfer and posting of data to the target components.

Procedure

Choose *Time sheet* → *Information system* → *Display single documents*.

Enter the document number(s) of the record(s) you want to display and choose  *Execute*.

The *Time Sheet Documents and Follow-On Documents* screen appears, displaying the basic data from the records you have selected.

You can customize the list output to suit your requirements.

If required, display the follow-on documents for the data record.

To do so, select the record and choose  *Follow-on documents*. For more information, see [Follow-On Documents and Outstanding Postings \[Page 1688\]](#).

To display the long text for a record, choose *Extras* → *Long text*.

Result

You have used the document display report to display information on a data record.

Time Sheet: Time Leveling (RCATSCMP)

Time Sheet: Time Leveling (RCATSCMP)

Use

When recording their working times, employees sometimes enter too few or too many hours, or forget to record any working times at all. You can use the report **RCATSCMP** (*Time Sheet: Time Leveling*) to find any such inconsistencies.

If there are employees whose time sheets are inconsistent, you can notify them automatically by mail. You can schedule the report as a background job that sends mails automatically. We particularly recommend this if you have several time sheets to check.

Features

Selection

If you want to select only those employees who are required to record their times in the time sheet, choose the relevant option.

You can check time sheets according to

- Days for which no times have been recorded

- A number of hours, which you specify based on the selection period

- An employee's [target hours \[Ext.\]](#)

Depending on the selection type you choose, the dates are displayed for which too few, too many, or no times have been recorded.

To select time sheets in which too few, too many, or no times have been recorded for individual workdays, choose *Apply selection criteria to each day*. When selecting based on each day, the report reads the factory calendar if:

You select time sheets in which no times have been recorded

You select time sheets in which less than the number of hours you specify has been recorded.

If you do not work with target hours, the report takes only the workdays into account for the selection. You assign an employee to a factory calendar in the *Time Sheet Defaults* infotype (0315).

When you specify the period in the *Time settings* section, you determine whether the report displays days, weeks, or months.

To select time sheets in which too few, too many, or no times have been recorded for the period specified in the *Time settings* section, choose the *Apply selection criteria to period* option.

This enables you to check cumulated time sheets for several weeks or months. In the *Time settings* section, you can choose to have the system propose the settings from the data entry profile that was used to enter the working times.

If you work with target hours, you determine these in the *Target hours* section. Once again, you can choose to have the system propose the settings from the data entry profile that was used to enter the working times.

Output

If you want to display all time sheets for the selected period, the time sheets for which too few or too many hours have been recorded (based on your selection criteria) are highlighted in color.

If you choose the *Send mail* option, the system notifies employees whose time sheets are selected automatically by mail. The mail appears in the employee's SAP *inbox*. For employees to receive the mail, you must define them as users in the *Communication* infotype (0105), subtype *System user name* (0001).

Depending on your authorization profile, you can choose a record and switch to either the display or maintenance screen for the time sheet from the report output list. The system calls the time sheet with the data entry profile you entered for proposal in the *Time settings* or *Target hours* section.



For more information, see: [Examples: Checking Time Sheets \[Page 1698\]](#)

Examples: Checking Time Sheets

Examples: Checking Time Sheets

Checking time sheets for users of HR

You want to check whether your employees fulfilled their target hours for each day, or whether any employees recorded too many hours. You want to notify by mail any employees whose time sheets contain inconsistencies.

Specify the period and criteria according to which you want the system to select the personnel numbers assigned to you.

In the *Time sheet selection* section, select *Select according to target hours* and *Too many recorded hours*.

In the *Selection control* section, choose *Apply selection criteria to each day*.

In the *Time settings* and *Target hours* sections, we recommend you have the system propose the settings from the data entry profile the employees used to enter their working times. Enter the name of the profile in the relevant field and choose *Propose*.

The system copies the required profile settings to the report.

Choose *Send mail*.

Choose  *Execute*.

The report selects time sheets in which, based on each day, too many hours have been recorded. The system notifies the employees concerned by mail.

Checking time sheets for non-users of HR

You want to check that your employees have recorded at least 20 working hours per week. You want to notify by mail any employees who have recorded less than 20 hours per week.

Specify the selection period and the criteria according to which you want the system to select the personnel numbers assigned to you.

In the *Time sheet selection* section, select *Select according to specified number of hours* and *Less than*, and enter **20** in the *recorded hours* field.

In the *Selection control* section, select *Apply selection criteria to period*.

In the *Time settings* section, enter weekly data entry as the period type .

Choose *Send mail*.

Choose  *Execute*.

The report selects time sheets in which less than 20 hours per week have been recorded. The system notifies the employees concerned by mail.

Selecting time sheets in which no times have been recorded

If any employees have forgotten to record their working times, you can use this report to select the relevant time sheets.

Specify the selection period and the criteria according to which you want the system to select the personnel numbers assigned to you.

Select *Select time sheets in which no times have been recorded*.

Examples: Checking Time Sheets

Select *Apply selection criteria to each day*.



If you choose *Apply selection criteria to period*, note that the system only displays time sheets in which hours have not been recorded for any of the days in the whole period. If hours have been recorded for just one day in the period, the period is not selected.

In the *Time settings* section, specify the period the report should use to display the selected time sheets.

Choose  *Execute*.

The report selects time sheets in which, for each workday, no times have been recorded.

Process for Transferring Data to the Target Components

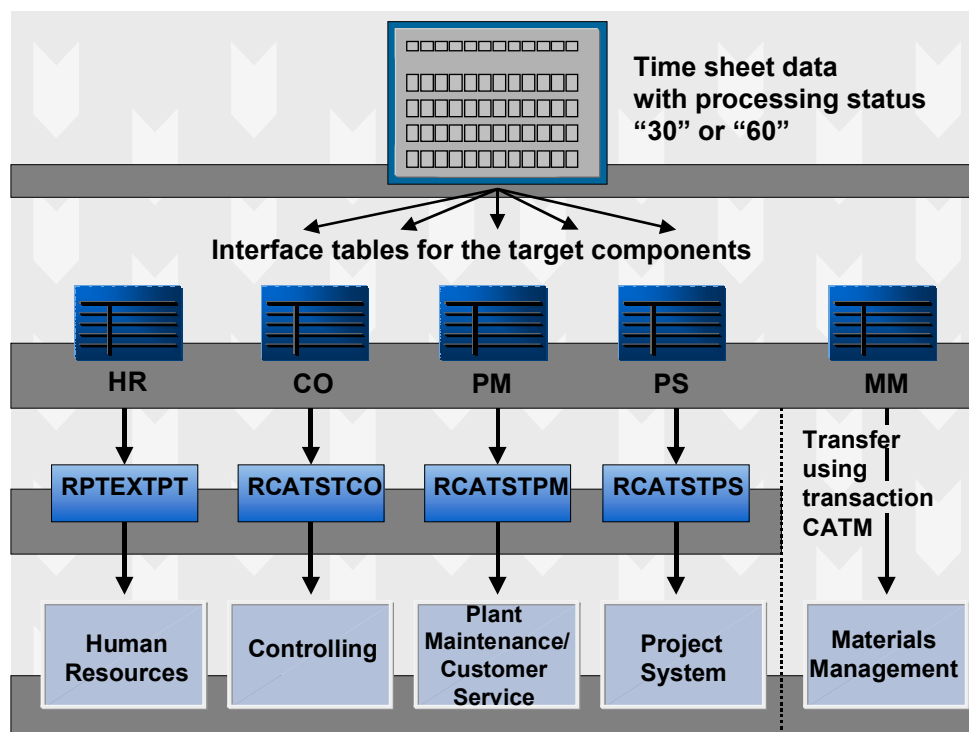
Process for Transferring Data to the Target Components

Purpose

You use the *Time Sheet* to record data that can be relevant for several SAP System components. Some employees, for example, record data confirming a *Project System* network. Others use the *Time Sheet* to enter time data for *HR Time Management*. In some cases, employees record data that is relevant for several target components at once.

You transfer time sheet data to the target components using data transfer reports or, for *Materials Management*, a transaction. The graphic below illustrates the technical processes involved in transferring data to the target components.

Process flow



The system saves time sheet data to the CATSDB database table for the *Time Sheet*.

The system writes time sheet data assigned the processing status "30" (*Approved*) and "60" (*Canceled*) to the interface tables in:

Human Resources (PTEX2000 and PTEX2010)

Controlling (CATSCO)

Plant Maintenance/Customer Service (CATSPM)

Project System (CATSPS)

Process for Transferring Data to the Target Components

Materials Management (CATSMM)

The system determines which are the relevant interface tables based on the record's [working time attributes \[Ext.\]](#).

3. When you run the data transfer reports, the time sheet data is transferred to the target components *Human Resources* (HR), *Controlling* (CO), *Plant Maintenance/Customer Service* (PM/CS), and *Project System* (PS).

You can use the following data transfer reports for individual components:

RPTEXTPT for [Human Resources \[Page 1736\]](#)

RCATSTCO for [Controlling \[Page 1709\]](#)

RCATSTPM for [Plant Maintenance/Customer Service \[Page 1717\]](#)

RCATSTPS for [Project System \[Page 1724\]](#)

To enable you to transfer data to HR, CO, PM/CS, and PS in one step, an additional [report for all components \[Page 1704\]](#) is available.

Note that you transfer data to *Materials Management* using transaction CATM.

Result

You have transferred time sheet data to the target components.



For more information on the tables affected by this process, see [Technical Background to the Time Sheet \[Page 1772\]](#).

Transfer of Time Sheet Data to the Target Components

Transfer of Time Sheet Data to the Target Components

Use

The *Time Sheet* is an independent SAP application which supplies other SAP applications with data on the duration, quantity, and reference object of work performed.

Features

The data you enter in the time sheet is not immediately transferred online to the target components but is first stored in the central database table for the time sheet CATSDB. This procedure has the following advantages:

You can control which data is transferred, when, and how

You do not require the usual authorizations for the target component transactions

Improved system performance

The [working time attributes \[Ext.\]](#) determine which records are transferred to which components.

You can use the following combinations for data transfer:

Controlling (Int. acty alloc.)	+	Human Resources	
Controlling (Stat. key figs)	+	Human Resources	
Controlling (Stat. key figs)	+	Human Resources	+ External Services Mgmt
Human Resources	+	External Services Mgmt	
Human Resources	+	Plant Maintenance/	Customer Service
Human Resources	+	Project System	
Human Resources	+	External Services Mgmt	+ Plant Maintenance/ Customer Service
Human Resources	+	External Services Mgmt	+ Project System
External Services Mgmt	+	Plant Maintenance/	Customer Service
External Services Mgmt	+	Project System	

Ability to track data records

Data which has been entered in the time sheet and transferred to the target components is assigned a unique document number as soon as it has been approved. The original documents stored in the time sheet database (CATSDB) and the document number, which is always copied to the target components, mean you can always track the data.

Transfer of Time Sheet Data to the Target Components

You can find out a record's document number by accessing the [cell information \[Page 1680\]](#) in the data entry view. If the [Follow-on document \[Page 1688\]](#) field appears, you can display additional information.

You can also view a specific document directly using the *Time Sheet Documents and Follow-On Documents* report (RCATSBEL). To access the report, choose *Information system → Display single documents*.

Transferring data

You can transfer data to each target component separately. This allows you to set different transfer intervals for the different components.



To document work progress in *SAP Logistics* and obtain dynamic results, you should transfer data daily.

You should transfer data to HR immediately after it is released or approved.

The system issues a log detailing errors that occurred during transfer. Special postprocessing functions allow you to correct errors in the target component.

In addition to the component-specific transfer reports, a [report for all components \[Page 1704\]](#) is available. Using this report, you transfer the data to several components in one step. You can currently use this report to transfer data to all target components except *Materials Management (MM-SRV)*.

Reorganizing interface tables

You should regularly delete time sheet records from their respective interface tables once they have been transferred to the target components. This ensures optimal performance of the data transfer reports you use.

For more information, see: [Reorganizing Interface Tables \[Page 1765\]](#).

Data Transfer to All Components

Data Transfer to All Components

Use

You can use report RCATSTAL (*Time Sheet: Transfer to Target Components*) to transfer time sheet records to the following target components in one step:

Human Resources (HR)

Controlling (CO)

Project System (PS)

Plant Maintenance/Customer Service (PM/CS)

At present, you cannot use the report to transfer data to *Materials Management (MM)*.

To call the report choose *Time sheet → Transfer → All components*.

Integration

Report RCATSTAL combines the functions of the data transfer reports for *Human Resources*, *Controlling*, *Project System*, and *Plant Maintenance/Customer Service*. Any selection options that apply to certain target components only are indicated accordingly.

If you have two separate systems installed, for *Human Resources (HR)* on the one hand and for *Logistics and Accounting* on the other, you must run the report for transferring data to *HR* in the *HR* system. You can then transfer data to *Controlling*, *Project System*, and *Plant Maintenance/Customer Service* in one step in the other system.

Prerequisites

To be able to run the report, you must have

Made all the component-specific Customizing settings in the target components

Been assigned authorization to execute the relevant HR, CO, PM/CS, and PS data transfer reports

Features

Selection

Report RCATSTAL enables you to select data according to your employees' organizational assignment. You can select data for all employees assigned to a specific cost center, for example. This option is not available if you use the separate data transfer reports for the individual target components.

The table below lists the other selection criteria for report RCATSTAL. In each case, the criteria are only valid for specific components.

Option	Meaning	Valid for
Order	Maintenance or service order	PM/CS
Network	Network number	PS

Data Transfer to All Components


Document number	Document number	CO, PM/CS, PS
Posting date	The transferred records are posted with the date entered.	CO, PM/CS, PS
Posting date for cancellation	The cancelled records are posted with the date entered.	PM/CS, PS
Number of tasks	For optimum performance, you can distribute the data you want to transfer over several tasks. You specify how many tasks in this field.	PM/CS, PS
Number of lock attempts	If another user is processing an order or network when you run the report, the order or network is locked. You can enter a <i>number of lock attempts</i> for the report. The report then attempts to perform the transfer as many times as you have specified.	PM/CS, PS
Log	You obtain a detailed list of the transfers made to the relevant components.	HR, PM/CS, PS
Test run	The data is read from the interface tables but not transferred.	HR, PM/CS, PS
Repeat transfer	If errors occurred during transfer, because a personnel number was locked, for example, you can transfer the records again.	HR
Transfer without dates	You want to just enter services, without this affecting the scheduling of the network.	PS
Ignore warnings	We recommend this option if you have scheduled the report as a background job. It means that data is still posted even if it causes warnings to be issued during transfer. The report displays any relevant warning messages in the transfer log. If necessary, you must postprocess the data. If you do not select this option, no more data is posted from the time the warning is issued.	CO



For more detailed information on these options, refer to the relevant field help.

Output

The report transfers the data for each component separately and consecutively.

If you execute the report online, the system displays how many records were posted in a target component once the transfer to that component is complete. If you have selected the relevant option, the system issues a detailed transfer log. Choose  *Back* to confirm the display or log and proceed with the transfer to the next target component.

Normally you will run the report as a background job however. Then you do not need to confirm each transfer. If you selected the *Log* option for your background processing, the system generates a spool list for each component.

Data Transfer to All Components

If errors occurred during transfer, you must postprocess them, either from the *Time Sheet* or in the relevant target component. For an overview of the errors that occurred, you must have selected the *Log* option.



If you postprocess errors in the relevant target component and not in the *Time Sheet*, the time sheet data is no longer consistent with the data in the target component.

Activities

Call the report by choosing *Time sheet* → *Transfer* → *All components*.

Enter the period and organizational criteria for the data you want to transfer.

Specify the *target components* to which you want to transfer the data.

Select additional selection options as required.

Choose  *Execute*.

Data Transfer to Controlling (CO)

Purpose

You can transfer time sheet data to *Controlling* (CO) for internal [activity allocation \[Ext.\]](#). A data transfer report generates [CO documents \[Ext.\]](#) from the time sheet data. Depending the Customizing settings you make in the [Fill CO Documents \[Ext.\]](#) step of the Implementation Guide, the system

Generates one CO document for each transferred record, or

Cumulates or summarizes the records and writes them to one or several CO documents



Data can be transferred to *Controlling* directly or via transfer to another component (for example, as confirmations from *Logistics*).

Prerequisites

You must be assigned authorization for the *Enter Activity Allocation* transaction (KB21)

Process flow

You must release or, if you integrate the approval procedure, approve the data.

The system writes the data to the CATSCO interface table. You must have made an entry in one or more of the following fields:

Field Name	Data Element	Short Description	
RKOSTL	EKOSTL	Receiver cost center	or
RPROJ	EPROJ	Receiver WBS element	or
RKSTR	EKSTR	Receiver cost object	or
RKDAUF	EKDAU	Receiver sales order	or
RAUFNR	EAUFNR	Receiver order	or
RNPLNR	NW_AUFNR	Receiver network	or
RPRZNR	EPRZNR	Receiver business process	

The data transfer report [Time Sheet: Transfer to Controlling \[Page 1709\]](#) (RCATSTCO) transfers the data with the above account assignment from the interface table to *Controlling*.

The report generates CO documents from the data records. Records containing errors are not posted.

The report generates a log showing which records were posted.

Result

You have transferred data from the time sheet to *Controlling* for internal activity allocation.

Transfer to Controlling

Use

You can use report RCATSTCO (*Time Sheet: Transfer to Controlling*) to post [approved \[Page 1783\]](#) or [canceled \[Page 1784\]](#) records from the *Time Sheet* to *Controlling*. The report generates [CO documents \[Ext.\]](#). The time sheet data you transfer to *Controlling* triggers internal activity allocation in *Controlling*.

If necessary, you can run several transfers in parallel. If you do this, note the following:

If you select by personnel number only, the report locks the selected personnel numbers in CATSCO. It locks up to a maximum of 100 personnel numbers. If you select more than 100 personnel numbers, the report locks the whole of CATSCO, and you cannot run any parallel transfers.

If you select by date only, you can enter different periods for each transfer. The different periods should not overlap, however. If the report selects more than 100 working days with time sheet data, the report locks CATSCO. You are then no longer able to run any parallel transfers.

If you select by personnel number and date, the entries you make under *Personnel number* override those you make under *Date*. Once again, if you select more than 100 personnel numbers, the report locks the whole of CATSCO, and you cannot run any parallel transfers.

If you change a record in the *Time Sheet* that has already been transferred, the system generates a cancellation record in CATSCO. The report posts the record as a negative record in *Controlling*.

To call the report, choose *Time sheet* → *Transfer* → *Accounting*.

Integration

Depending on your settings in the [Fill CO Documents \[Ext.\]](#) step of the Implementation Guide, the report generates one CO document per transferred record or summarizes several records into one CO document.

Activity allocation in *Controlling* can be triggered indirectly, that is even if you do not transfer records from the *Time Sheet* to *Controlling* directly. This may be the case if you transfer data to another component. Confirmations from *Logistics*, for example, trigger activity allocation in *Controlling*.

Prerequisites

You must be assigned authorization for the *Enter Activity Allocation* transaction (KB21)

Features

Selection

You select the records you want to transfer by personnel number, period, or document number.

If you do not want the current date to be the posting date of the transferred records, you can manually enter the posting date you require.

If you have scheduled the report as a background job, you should select the *Ignore warnings* option. Then the report posts the data even if the system issues warning messages. The

Transfer to Controlling

report displays these warnings in the log once the transfer is complete. If you do not select the *Ignore warnings* option and the report issues a warning during transfer, no further data is posted from the time the warning is issued. In this case, you must postprocess the relevant data in the *Time Sheet* and run the transfer again.



If necessary, you can run several transfers in parallel. For more information, see the report documentation.

Output

Once the transfer is complete, the report generates a log. You can use the log to see which records were posted. If errors occurred, you must postprocess the incorrect data in the *Time Sheet*.

Entry of Statistical Key Figures

Use

You can use the Time Sheet to enter [statistical key figures \[Ext.\]](#), which you can then transfer to *Controlling*. In *Controlling*, the statistical key figures are used as the basis for internal allocations and within the key figure analysis framework.



Some of your employees work as field employees. You pay the travel costs for these employees but want to invoice them to the relevant customer. To do this, you create the statistical key figure "Kilometers" and the wage type "Travel costs". The employees use the wage type and the statistical key figure to record their travel details in the time sheet. Your employees are reimbursed for their travel costs, which are calculated using the wage type, by payroll. You transfer the data for the "Kilometers" statistical key figure to *Controlling* (CO). The "Kilometers" statistical key figure can then be used as the basis for [resource-related billing \[Page 1793\]](#): This process enables you to invoice the customer for the travel costs.

Prerequisites

You can only use statistical key figures if you implement *Controlling*.

You must show the following fields in the [field selection \[Ext.\]](#) for each data entry profile that is to be used to enter statistical key figures:

Statistical key figure

A receiver object (for example, *Receiver cost center*, *Receiver order...*)

Optional display field: Internal unit of measure

Features

You transfer the statistical key figures entered in the time sheet to *Controlling* using the RCATSTCO (*Time Sheet: [Transfer to Controlling \[Page 1709\]](#)*) data transfer report. In *Controlling*, you can use the data for internal allocations or in key figure analysis.

For more information on statistical key figures, see the SAP Library. Choose *Financials* → *Controlling* (CO) → *Cost Center Accounting* → *Master Data in Cost Center Accounting* → [Statistical Key Figures \[Ext.\]](#).

Activities

Check whether the statistical key figures you want to use in the Time Sheet have been created in *Controlling*. If necessary, create the statistical key figures you require.

Time Sheets in Cost Object Controlling

Time Sheets in Cost Object Controlling

Use

The cross-application time sheet (CATS) enables you to transfer personnel costs to a cost object in *Cost Object Controlling*.

Integration

The time sheet is a cross-application function. It transfers data to other application components such as *Controlling*.

Prerequisites

Make the required settings in Customizing under *Cross-Application Components* → [Time Sheet \[Ext.\]](#).

Features

You can use time sheets for the following purposes:

- Processing your own working times

- Processing the working times of the employees assigned to you

- Approving working hours

- Releasing working hours

You can use time sheets to record personnel costs for the following cost objects:

- Production orders, process orders, and product cost collector

- Sales document items

- Cost object IDs

 - Cost object IDs can be used as:

 - Cost object nodes in a cost object hierarchy in *Product Cost by Period*

 - General cost objects in *Costs for Intangible Goods and Services*

Activities

Transferring the data collected on the time sheet to *Controlling* (CO) debits the cost objects with actual costs in accordance with the recorded working time.

See also:

For detailed information on time sheets, refer to the following:

The document CA - [Time Sheet \[Page 1606\]](#).

The Implementation Guide (IMG) of *Cross-Application Components*

Actual Cost Determination for Time Sheet Hours

Use

The working times entered in the time sheet are not valued until they have been transferred to *Controlling* (CO). You can transfer the data either directly or indirectly. The actual costs incurred are determined in *Controlling*.

In the time sheet, the working times entered are valued neither for individual persons nor according to exact times. It cannot determine, for example, whether the working times entered are overtime hours or public holiday work, or whether an activity should be valued using a higher rate because the employee has exceeded the requirements of his or her normal activity.

Features

For the determination of actual costs in *Controlling*, you can choose between the following variants:

Determining costs using the plan activity price of an activity type

The actual costs are determined using the plan activity price of the *activity type*. The price of the activity type can be defined per period and cost center, depending on your settings in *Controlling*. This is the standard procedure.

The standard procedure does not take account of activity prices for either individual employees or specific days. You can include activity prices in the valuation by

Entering activity prices using the time sheet

The hours worked are valued on the basis of an hourly activity price. The activity price is assigned to an activity type. This results in inconsistencies between the evaluation based on the activity price entered and the evaluation based on the plan activity price defined in *Controlling*. The system identifies these inconsistencies in *Controlling*.

Determining the activity price using an SAP enhancement

You can determine the activity price per hour using the SAP enhancement CATS0002 (*Supplement Recorded Data*), and value the actual hours based on this activity price. This results in inconsistencies between the valuation based on the activity price entered and the valuation based on the plan activity price in *Controlling*. The system identifies these inconsistencies in *Controlling*.

Depending on the SAP enhancement, the hourly activity prices can be derived from *Payroll* (if you implement *SAP Human Resources*), for example, or determined using customer-specific formulas.

Taking account of overtime, bonuses, and so on

The above information shows that activities performed by an employee can only be differentiated in *Controlling* if you have assigned them different activity prices.

If you have different categories of working hours for one day, you must enter a corresponding number of time sheet records. They are assigned different activity prices or activity types depending on the variant used to determine the actual costs.



Actual Cost Determination for Time Sheet Hours

In *SAP Human Resources*, overtime, bonuses, and so on are determined in *Time Evaluation* or *Payroll*. In these components, the valuation is based on the relevant collective agreement or company provisions.

Data Transfer to Plant Maintenance/Customer Service (PM/CS)

Purpose

Time sheet data can be transferred to *Plant Maintenance* and [Customer Service \[Page 37\]](#) for confirmations. You transfer the data using a data transfer report, which generates confirmation documents in the target components.

Prerequisites

You must have made the required settings for confirmations in Customizing for *Plant Maintenance* and *Customer Service*.

Process flow

You must release or, if you integrate the approval procedure, approve the data.

The system writes the data to the CATSPM interface table. You must have made an entry in the following fields:

Field Name	Data Element	Short Description	
RAUFNR	EAUFNR	Receiver order	and
VORNR	VORNR	Operation number	or
UVORN	UVORN	Suboperation	

The data transfer report [Time Sheet: Transfer to PM / CS \(RCATSTPM\) \[Page 1717\]](#) transfers the data with the above account assignment from the interface table to *Plant Maintenance* or *Customer Service*.

The report generates confirmations for a maintenance or service order



If *service entry* has also been performed for a record, the data is transferred to PM/CS without the relevant costs being determined. For more information, see: [Service Entry with Reference to an Operation \[Page 1732\]](#)



If data is entered together with information on a confirmable order and with a bonus wage type, the record is transferred to *Controlling* (CO) and *Human Resources* (HR), but not to PM/CS. The system posts the confirmation information as an internal activity allocation in CO and the bonus wage type is processed further in HR. The reason for this is that a record with a bonus wage type only contains additional information that is relevant for time data (for example, Sunday bonus, dirty-work bonus) and does not contain information on hours that is relevant for a confirmation.

The report generates a log showing whether all records were posted.

If there are records with errors, an error pool is generated. You must process the error pool, which is displayed in the log, as even records containing errors are marked as “transferred”.

Data Transfer to Plant Maintenance/Customer Service (PM/CS)

You must correct records that could not be posted, either in the *Time Sheet* by choosing *Transfer -> Plant maintenance/Customer service -> Postprocessing*, or directly in the *Plant Maintenance* or *Customer Service* components.



For postprocessing, you must have authorization for the transaction *PM Order Confirmation: Collective Confirmation* (IW44).

See also:

[PS/PM/CS: Creating an Index for Table AFRU \[Page 1726\]](#)

[PS/PM/CS: Postprocessing Transferred Data \[Page 1727\]](#)

Result

You have transferred time sheet data to *Plant Maintenance* or *Customer Service* for confirmations.

Transfer to Plant Maintenance/Customer Service

Use

You can use report RCATSTPM (*Time Sheet: Transfer to Plant Maintenance/Customer Service*) to transfer time sheet data to *Plant Maintenance* or *Customer Service* (PM/CS). The report generates confirmation documents for maintenance or service orders and, if necessary, goods movements for backflushes.

You can transfer time sheet data that is assigned the [processing status \[Page 1783\]](#) 30 (*Approved*) or 60 (*Canceled*). The report transfers the data from the interface table CATSPM to PM/CS.

To call the report, choose *Time sheet* → *Transfer* → *Plant maintenance/Customer service* → *Transfer*.

Integration

When the system generates confirmations for maintenance or service orders, it triggers activity allocation in *Controlling* at the same time.

Recommendation

Transferring canceled data to PM/CS can adversely affect system performance. When the report transfers canceled records, it reads all the confirmations for the relevant operation for each cell that has been changed in the time sheet. The burden on the system increases accordingly.

We recommend therefore that you

Use only orders that have been created for a relatively short period of time (for example, a standing order with a runtime of one year)

The more confirmations generated for an order, the poorer the report's performance when canceling confirmations.

Specify in the *Number of tasks* field that the report generates several tasks for each transfer, if you have performance problems

Features

Selection

Select the records you want to transfer by personnel number, date, order number or document number.

If you do not want the current date to be the posting date of the transferred records, you can manually enter the posting date you require. You can also determine the posting date you require for cancellations.

In the *Number of tasks* field, specify the number of tasks into which you want the data transfer to be divided. This applies particularly if you are processing large volumes of data.

If another user is processing an order when you run the report, the order is locked. You can enter a *number of lock attempts* for the report. The report then attempts to perform the transfer as many times as you have specified.

For a detailed list of the data that has been transferred, select the *Log* option.

Transfer to Plant Maintenance/Customer Service

If you only want to check which data can be successfully transferred and if any data could generate errors, select *Test run*.

Output

If you select the *Log* option, the system displays a log after the transfer is complete.

If some of the records could not be posted in *Plant Maintenance/Customer Service*, the report generates an error pool. The records containing errors are flagged as transferred. You can postprocess them in *Plant Maintenance/Customer Service*. Note if you do this that the data in *Plant Maintenance/Customer Service* is no longer consistent with the data in the *Time Sheet*.

PS/PM/CS: Creating an Index for Table AFRU

Use

Depending on the volume of confirmations you want to enter for *Plant Maintenance (PM)* or *Project System (PS)* using the *Time Sheet*, you may want to create an index for the document number (CATSBELNR) in table AFRU. This improves system performance when the data is transferred to the target components.



Note, if you choose to create an index, that confirmations from the *Production Planning and Control (PP)* component are also saved in table AFRU.

If there are considerably more PP confirmations than confirmations from PM, PS, and CS, it may be that your database system does not use the index.

Procedure

The index in table AFRU is not active in the standard system. To activate it, proceed as follows:

Choose *Tools* → *ABAP Workbench* → *Development* → *ABAP Dictionary*.

Enter the object name AFRU and select the *Database table* field.

Choose  *Change*.

The *Dictionary: Maintain Table* screen appears.

Choose *Goto* → *Indexes*.

The *Indexes for Table AFRU* dialog box appears.

Select the *Index with CATS doc. number* option.

The *Dictionary: Maintain Index* screen appears.

Select the *Index on all database systems* field.

Choose  *Activate*.

Result

You have created an index for table AFRU.

PS/PM/CS: Postprocessing Transferred Data

PS/PM/CS: Postprocessing Transferred Data

Prerequisites

If errors occurred when transferring data for confirmations, the data must be postprocessed in the relevant target component. The system displays records containing errors in an error pool for this purpose. For each transfer, the pool contains an entry for records that could not be posted.



Even data records containing errors are flagged as *Transferred* in the time sheet.

You can process the error pool from the target component. You can also access it directly from the time sheet however.

To postprocess records, you require authorization for the following transactions:

Project System (PS): Network Confirmation: *Collective Confirmation* (CN27)

Plant Maintenance/Customer Service (PM/CS): PM Order Confirmation: *Collective Confirmation* (IW44).



Errors that occur when determining costs and checking budgets do not feature in the error pool. The system places the errors in a separate postprocessing pool for [cost determination \[Ext.\]](#). The same applies to errors related to [goods movements \[Ext.\]](#). You process them as normal in the target component.

Procedure

Choose *Time sheet -> Transfer -> Plant maintenance/Customer service* or *Project system -> Postprocessing*, depending on which target component you want to process.



The system does not flag entries that have already been processed. We recommend you process the entries in a specific sequence so that you can keep track of your progress.

Select an entry.


The *Confirmation for Network: Collective Confirmation* or *PM Order Confirmation: Collective Confirmation* screen appears.

Select a confirmation.

Choose  *Check confirmations*.

The messages which appear provide information on the cause of the error.



Choose  *Display errors* to display the cause of, but not yet process, the error.

Correct the confirmation.


Process any other confirmations containing errors.

PS/PM/CS: Postprocessing Transferred Data

 Save the collective confirmation.

Choose  *Back*.

The error pool reappears.

 Delete the entry you have just processed.

If necessary, continue processing other entries.

Result

You have postprocessed the data you transferred to *Project System* or *Plant Maintenance/Customer Service* in the target components.

Data Transfer to Project System (PS)

Data Transfer to Project System (PS)

Purpose

Time sheet data can be transferred to [Project System \(PS\) \[Ext.\]](#) for confirmations. You transfer data using a data transfer report, which generates [confirmation documents \[Ext.\]](#) in PS.

Prerequisites

The control key must specify that the operation may be confirmed. If this is not the case, the data is written to the *Controlling (CO)* interface table CATSCO and then transferred to *Controlling*.

You must make the required settings for confirmations in Customizing for *Project System*.

Process flow

You must release or, if you integrate the approval procedure, approve the data.

The system writes the data to the CATSPS interface table. You must have made an entry in the following fields:

Field Name	Data Element	Short Description	
RNPLNR	NW_AUFNR	Network number	and
VORNR	VORNR	Operation number	or
UVORN	UVORN	Suboperation	

The data transfer report *Time Sheet: Transfer to Project System*).

The report generates network confirmations from the data.



If you have *entered a service* for a data record, the data is transferred to PS without the costs being determined. For more information, see: [Service Entry with Reference to an Operation \[Page 1732\]](#)



If data is entered together with information on a confirmable network and with a bonus wage type, the record is transferred to *Controlling (CO)* and *Human Resources (HR)*, but not to PS. The system posts the confirmation information as an internal activity allocation in CO and the bonus wage type is processed further in HR. The reason for this is that a record with a bonus wage type only contains additional information that is relevant for time data (for example, Sunday bonus, dirty-work bonus) and does not contain information on hours that is relevant for a confirmation.

The report generates a log showing whether all records were posted.

If there are records with errors, an error pool is generated. You must process the error pool, which is displayed in the log, as even records containing errors are marked as "transferred".

You must correct records that were not posted, either from the *Time Sheet* by choosing *Transfer -> Project System -> Postprocessing*, or directly from the *Project System* component.



For postprocessing, you must have authorization for the transaction *Network Confirmation: Collective Confirmation* (CN27).

See also:

[PS/PM/CS: Creating an Index for Table AFRU \[Page 1726\]](#)

[PS/PM/CS: Postprocessing Transferred Data \[Page 1727\]](#)

Result

You have transferred time sheet data to *Project System* for confirmations.

Transfer to Project System

Transfer to Project System

Use

You can use report RCATSPS (*Time Sheet: Transfer to Project System*) to transfer time sheet data to *Project System*. The report generates confirmations for networks and, if necessary, goods movements for backflushes.

You can transfer time sheet data that is assigned the [processing status \[Page 1783\]](#) 30 (*Approved*) or 60 (*Canceled*). The report transfers the data from the interface table CATSPS to *Project System*.

To call the report, choose *Time sheet* → *Transfer* → *Project system* → *Transfer*.

Integration

When the system generates confirmations for networks, it triggers activity allocation in *Controlling* at the same time.

Prerequisites

The control key must specify that the operation may be confirmed. If it does not, the data is transferred to *Controlling*.

Recommendation

Transferring canceled data to Project System can adversely affect system performance. When the report transfers canceled records, it reads all the confirmations for the relevant operation for each cell that has been changed in the time sheet. The burden on the system increases accordingly.

We recommend therefore that you

Use only networks that have been created for a relatively short period

The more confirmations generated for a network, the poorer the report's performance when canceling confirmations.

Specify in the *Number of tasks* field that the report generates several tasks for each transfer, if you have performance problems

Features

Selection

You select the records you want to transfer by personnel number, period, network number or document number.

If you do not want the current date to be the posting date of the transferred records, you can manually enter the posting date you require. You can also determine the posting date you require for cancellations.

For optimum performance, you can distribute the data you want to transfer over several tasks. You specify how many tasks in the relevant field.

Transfer to Project System

If another user is processing a network when you run the report, the network is locked. You can enter a *number of lock attempts* for the report. The report then attempts to perform the transfer as many times as you have specified.

If you want to enter services for an operation without this affecting the scheduling of the network, select *Transfer without dates*. The report then transfers the records without the actual start and finish.

For a detailed list of the data that has been transferred, select the *Log* option.

If you only want to check which data will be successfully transferred and if any data will generate errors, select *Test run*.

Output

If you select the *Log* option, the system displays a log after the transfer is complete.

If the report was not able to post some of the records in *Project System*, it also generates an error pool. The records containing errors are flagged as transferred. You can postprocess them in *Project System*. Note however if you do this that the data in *Project System* is no longer consistent with the data in the *Time Sheet*.

PS/PM/CS: Creating an Index for Table AFRU

PS/PM/CS: Creating an Index for Table AFRU

Use

Depending on the volume of confirmations you want to enter for *Plant Maintenance (PM)* or *Project System (PS)* using the *Time Sheet*, you may want to create an index for the document number (CATSBELNR) in table AFRU. This improves system performance when the data is transferred to the target components.



Note, if you choose to create an index, that confirmations from the *Production Planning and Control (PP)* component are also saved in table AFRU.

If there are considerably more PP confirmations than confirmations from PM, PS, and CS, it may be that your database system does not use the index.

Procedure

The index in table AFRU is not active in the standard system. To activate it, proceed as follows:

Choose *Tools* → *ABAP Workbench* → *Development* → *ABAP Dictionary*.

Enter the object name AFRU and select the *Database table* field.

Choose  *Change*.

The *Dictionary: Maintain Table* screen appears.

Choose *Goto* → *Indexes*.

The *Indexes for Table AFRU* dialog box appears.

Select the *Index with CATS doc. number* option.

The *Dictionary: Maintain Index* screen appears.

Select the *Index on all database systems* field.

Choose  *Activate*.

Result

You have created an index for table AFRU.

PS/PM/CS: Postprocessing Transferred Data

Prerequisites

If errors occurred when transferring data for confirmations, the data must be postprocessed in the relevant target component. The system displays records containing errors in an error pool for this purpose. For each transfer, the pool contains an entry for records that could not be posted.



Even data records containing errors are flagged as *Transferred* in the time sheet.

You can process the error pool from the target component. You can also access it directly from the time sheet however.

To postprocess records, you require authorization for the following transactions:

Project System (PS): Network Confirmation: *Collective Confirmation* (CN27)

Plant Maintenance/Customer Service (PM/CS): PM Order Confirmation: *Collective Confirmation* (IW44).



Errors that occur when determining costs and checking budgets do not feature in the error pool. The system places the errors in a separate postprocessing pool for [cost determination \[Ext.\]](#). The same applies to errors related to [goods movements \[Ext.\]](#). You process them as normal in the target component.

Procedure

Choose *Time sheet -> Transfer -> Plant maintenance/Customer service* or *Project system -> Postprocessing*, depending on which target component you want to process.



The system does not flag entries that have already been processed. We recommend you process the entries in a specific sequence so that you can keep track of your progress.

Select an entry.


The *Confirmation for Network: Collective Confirmation* or *PM Order Confirmation: Collective Confirmation* screen appears.

Select a confirmation.

Choose  *Check confirmations*.

The messages which appear provide information on the cause of the error.



Choose  *Display errors* to display the cause of, but not yet process, the error.

Correct the confirmation.


Process any other confirmations containing errors.

PS/PM/CS: Postprocessing Transferred Data

 Save the collective confirmation.

Choose  *Back*.

The error pool reappears.

 Delete the entry you have just processed.

If necessary, continue processing other entries.

Result

You have postprocessed the data you transferred to *Project System* or *Plant Maintenance/Customer Service* in the target components.

Data Transfer to Materials Management (MM-SRV)

Purpose

Time sheet data can be transferred to [Materials Management \(MM-SRV\) \[Ext.\]](#) for service entry.

Prerequisites

Time sheet data can be successfully transferred only if the purchase order *does not* have an outline.

You must be assigned authorization for the *Maintain Service Entry Sheet* transaction (ML81).

Process flow

You must release or, if you integrate the approval procedure, approve the data.

The system writes the data to the CATSMM interface table. You must have made an entry in the following fields:

Field Name	Data Element	Short Description	
SEBELN	SEBELN	Sending purchase order	or
SEBELP	SEBELP	Sending purchase order item	or
LSTNR	LSTNR	Service number	



If you specify a maintenance order or a network in addition to the account assignment, a confirmation is generated in *Plant Maintenance/Customer Service* or *Project System*, as well as the service entry sheet .

The confirmations do not contain any data on actual times because this has already been posted to *Controlling (CO)* via *Materials Management (MM-SRV)*.

For more information, see:

[Service Entry with Reference to an Operation \[Page 1732\]](#)

You transfer data with the above account assignment to *Materials Management (MM-SRV)* using the *Transfer -> External Services* transaction (CATM).

The system displays a log. You can use the log to determine whether all data records were posted.

If there are records with errors, an error pool is generated, which also details the causes of the errors. Depending on the cause of the error, you can either make the necessary corrections in the service entry sheet or in the time sheet, and then repeat the data transfer.

Time sheet data that has been posted must also be approved in service entry.



If you cancel a time sheet record, you must make sure that the sum of the service entry values you transfer is positive for each account assignment.

Data Transfer to Materials Management (MM-SRV)

The following entries would result in an error:

PERS . NO.	PO NO.	PO ITEM	Service	Cost center	Hours	Canc ellatio n
3	451	1	XX	45	2	
3	451	1	XX	45	3	X

When making your settings in Customizing, you should ensure that account assignment category X (all auxiliary account assignments) is set as an optional entry field on the purchasing document screen. The G/L account is an exception.

Result

You have transferred data from the time sheet to *Materials Management (MM-SRV)* for service entry.

Master Data Maintenance for External Employees

Use

You can also enter the working times of external employees in the time sheet but only if you create master data for them.

You should note the following when maintaining master data for external employees:

1. You do not need to assign a personnel number to each employee

One activity is often performed by several different persons at different times. Creating a separate HR mini-master record for each of a vendor's employees would therefore generate a vast amount of work.

Instead, you can assign several employees, or several groups of employees, the same personnel number.



If you assign several external employees one personnel number, and these employees work at the same time, you should set the *More than 24 hours* field in the data entry profile to **X**. The system does not then check whether you have entered more than 24 hours for one day.

We still recommend that you assign external employees their own user ID in the SAP System, however. This means that, although the personnel number is the same, you can still use the *Created by* and *Changed by* fields in reporting to check who processed a record, and perform evaluations accordingly.

2. You must maintain the *Time Sheet Defaults* infotype (0315)

You can specify default values for each employee in the *Time Sheet Defaults* infotype (0315). When working times are entered, the default values are copied automatically to the time sheet and can be overwritten if necessary. You can also use this function for internal employees but it is not obligatory.

You must maintain the *Vendor* field in infotype 0315 for external employees, otherwise they cannot enter time sheet data. This field allows you to assign an external employee to a specific vendor, and provides another means of checking data entered in the time sheet.

If a purchase order is entered in the time sheet, the system automatically checks whether the order corresponds to the supplier specified in the *Time Sheet Defaults* infotype (0315). If the two do not correspond, the system issues an error message.



Note that the *Time Sheet Defaults* infotype (0315) is time-dependent. You can set the validity period as another means of controlling data entry.

Service Entry with Reference to an Operation

Service Entry with Reference to an Operation

Purpose

You can use the time sheet to enter services, which are posted to the *Purchasing* component of *Materials Management* (MM-SRV), or to the *Plant Maintenance/Customer Service* (PM/CS) or *Project System* (PS) components in *Logistics*.

This means that you can post services entered in MM-SRV with reference to an order operation or network operation.

You can enter services performed by both internal and external employees in the time sheet and therefore detail order or network confirmations.

Prerequisites

You must maintain the *Time Sheet Defaults* infotype (0315) for external employees.

For more information, see:

[Master Data Maintenance for External Employees \[Page 1731\]](#)



You can create different data entry profiles for internal and external employees. Only external employees should be able to enter data in the fields for entering a purchase order.

Process flow

External employees enter their working times, specifying purchase order details and for a particular order or network.

If there are entries in the *Sending purchase order* and *Operation* fields, the system recognizes that a service has been entered with reference to an operation.

You transfer the data to the target components MM-SRV and PM/CS or MM-SRV and PS.

The costs are updated to the order or network based on the service entry. To prevent the activities from being allocated twice, the system transfers the data to PM/CS or PS with the number of hours set to 00.00.

The system updates the status of the operation automatically (partial confirmation, final confirmation) when the confirmation is posted.

If a service in MM-SRV is not approved, this has no effect on the confirmation in PM/CS and PS. In this case, the data record should be changed or deleted using the time sheet.

The advantage of this procedure is that cancelation records are transferred automatically to PM/CS or PS. You should consider the effects this could have on other target components however.

As an alternative, you can change or cancel the confirmation in PM/CS or PS.

Service Entry with Reference to an Operation

Data Transfer to Human Resources (HR)

Data Transfer to Human Resources (HR)

Purpose

Time sheet data can be transferred to HR as attendances, absences, or wage types. The data is transferred using a [data transfer report \[Page 1736\]](#).

Once data records due for transfer to HR have been approved, they can be transferred automatically without you having to start the transfer report manually. In this way, there is as little time as possible between entering and validating time sheet data and transferring it to HR. This is particularly important for attendance and absence records, to ensure HR always has the latest time data.



If you use the time sheet to enter only HR data, we recommend you run the report every night. If there are several application servers available for HR, you should schedule the report for different ranges of personnel numbers for each application server. This optimizes system performance.

If you transfer the data to several target components, it is better to distribute the data, by using a different server for each target component for example.

For more information, see:

[Immediate Transfer to HR \[Page 1739\]](#)

Prerequisites

You do not have to make any special Customizing settings in HR to transfer data. We recommend, however, that you check the settings for the attendance and absence types you use, to ensure they can meet the new demands placed on time recording.

Process flow

You must release or, if you integrate the approval procedure, approve the data.

The system writes the data to the interface tables PTEX2000 (infotypes 2001 and 2002) and PTEX2010 (infotype 2010). You must have entered the attendance or absence type, or wage type:

Field Name	Data Element	Short Description	Required Components
AWART	AWART	Attendance or absence type <i>Attendances (2002) and Absences (2001) infotypes</i>	<i>Time Management and Personnel Management (HR Master Data)</i>
LGART	LGART	Wage type <i>EE Remuneration Info (2010) infotype</i>	<i>Payroll and Personnel Management (HR Master Data)</i>

For more information, see:

Data Transfer to Human Resources (HR)

[Attendances/Absences \[Ext.\]](#) and [Employee Remuneration Information \[Ext.\]](#)

You can transfer the data from the interface table to HR using the data transfer report **RPTTEXTPT** (*Transfer External -> Human Resources*).

The report generates infotype records for the *Attendances* (2002), *Absences* (2001), or *EE Remuneration Info* (2010) infotypes from the data.

If errors occur during transfer, the report generates an error pool *Background* mode.

You process the records containing errors in the *Time Sheet* and restart the report.



If you choose *Repeat transfer* in the *Fore* or *Error* mode, you can correct the data in HR. Note that this means the data entered in the time sheet no longer corresponds to the data in *Human Resources*.

If the data has been transferred to other target components, it may be better to correct the data in the *Time Sheet*, depending on which data you want to correct.

For more information, see the documentation for this report.

Result

You have transferred time sheet data to HR.

Transfer to Human Resources

Transfer to Human Resources

Use

When you transfer records from the *Time Sheet* or an external time recording system to *Human Resources*, you are supplying this component with attendance and absence data, and data on employee remuneration and substitutions. The transferred data is then available for transfer to *Payroll* for further processing. You transfer the data using report RPTXTPT (*Transfer External Data → Human Resources*).

Report RPTXTPT transfers data from the interface tables PTEX2000, PTEX2010, PTEX2003GEN, and PTEX2003SPEC to the corresponding infotypes *Attendances/Absences* (2002/2001), *EE Remuneration Info* (2010), and *Substitutions* (2003) in *Human Resources*.



You **cannot** use the Time Sheet to supply the *Substitutions* infotype (2003).

To ensure that *Human Resources* is always provided with the most up-to-date time data, you should schedule the report to run daily.

To call the report, choose *Time sheet → Transfer → Human resources*.

Prerequisites

Data from the *Time Sheet* is ready for transfer to *Human Resources* when it is assigned the [processing status \[Page 1783\]](#) 30 (*Approved*).

Integration

If you enter data using an external application, insert BAPIs ensure that the data is converted as required. These insert BAPIs belong to the business objects PTManagerExtAttAbs, PTMGrExtRemunSpec, or PTMGrExtWoSched. The BAPIs take data with a predefined external format and convert the fields into the SAP internal formats of structures PTEX2000, PTEX2010, or PTEX2003GEN/PTEX2003SPEC. In addition, the PTEX20xx-UNAME1, DATUM1, UZEIT1, PGMID1 fields are filled with the user name, date, time, and program, ensuring that the process is documented, and the PTEX20xx-STATU2 and PTEX20xx-STATU3 status fields are reset. These status fields are used to transfer the record to the infotype.

If you use the upload report RPTEX2010, you should coordinate this with the data transfer report. The same applies if you use BAPIs for the upload.

Features

You can run the report in three different modes. The mode determines the how the data is transferred:

Background

This is the standard mode if you schedule the report as a background job. The report runs immediately; the posting is performed via transaction PA61.

Foreground

Transfer to Human Resources

The report runs immediately, displaying all the screens active for the transfer. You would want to select this mode in combination with the *Repeat transfer* option if errors occurred during the first transfer, for example.

Error

If some records could not be transferred, you should select this mode and the *Repeat transfer* option. The report runs immediately and displays any records that could not be transferred.


Direct

If you choose this mode, the system writes the data records that are to be posted directly to the corresponding infotypes. Unlike the other modes, the posting is not performed via transaction PA61, but instead using a function module. Posting is significantly quicker when you use this mode.

You cannot use this mode in combination with the *Repeat transfer* option.

Selection

The following selection options are available for selecting data for transfer:

Option	Meaning
<i>Initial transfer</i>	You select according to personnel number and date. The report transfers data that has not previously been transferred.
<i>Repeat transfer</i>	<p>You want to transfer records that could not be successfully transferred during the initial transfer again. Incorrectly transferred records are records which could not be posted to <i>Human Resources</i>. Select this option in combination with either the <i>Error</i> or <i>Foreground</i> mode.</p>  <p>If you correct errors from the report itself, the data in the time recording system is no longer consistent with the changed data that is transferred to <i>Human Resources</i>.</p>
<i>Transfer/delete</i>	You want to transfer records and delete them from the relevant interface tables as soon as they have been transferred. The system only deletes records that are flagged as transferred. If you also want to delete locked data, select the relevant option.
<i>Only delete</i>	You only want to delete the data from the interface tables that has already been transferred. The system only deletes records that are flagged as transferred. If you also want to delete locked data, select the relevant option.

Transfer to Human Resources

<i>Lock/unlock</i>	<p>You want to exclude some data from the transfer run. This is the case, for example, if you do not want to correct the records containing errors in the source system but would rather enter them manually in the SAP System. You can lock the records containing errors in the interface tables. Select the records you want to lock and choose the locked padlock icon.</p> <p>To unlock the locked records, select them and choose the unlocked padlock icon. The records are then once again ready for transfer.</p> <p>In addition to selecting by personnel number and date, you can select according to the data containing errors, new data, and locked data.</p> <p>You cannot use this option for posting substitutions.</p>
--------------------	--

In addition, you must specify which infotypes you want your records to supply: *Attendances/Absences* (2002/2001), *Substitutions* (2003), *EE Remuneration Info* (2010). Select the options you require.



You **cannot** use the Time Sheet to supply the *Substitutions* infotype (2003).

Additional options are:

Output log

Send mail

Test run

Output

Once the transfer is complete, the report generates the standard log. You can use the log to see which data was transferred and how many records generated errors during transfer. If you have also selected the *Log* option, the log contains additional detailed information.

If a record collides with a record in *Human Resources*, you must verify which record is the correct one. Correct or delete the incorrect record accordingly. This situation may arise if the *Human Resources* record was created after the record in the source system.

If a record in the source system collides with an *HR* record and the *HR* record was created first, proceed as follows:

If you implement the *Time Sheet*, check your Customizing settings for collision checks. For more information, see the Implementation Guide (IMG) for *Personnel Time Management*. Choose *Time Data Recording and Administration* → *Specify System Reaction to Overlapping Time Infotypes*.

If you use insert BAPIs, check the settings for the CheckCollision method of the business object PTManagerExtAttAbs.

Immediate Transfer to HR

Use

We recommend you transfer data to HR immediately after entering it in the time sheet, to ensure HR always has the most up-to-date time data. You therefore have the option of transferring time sheet data to HR automatically after the data has been released or approved.

If you transfer data immediately to HR, all records due for transfer for one personnel number are transferred. This is particularly important for attendance and absence records, to ensure HR always has the latest time data.

Features

You can set up the immediate transfer of data to HR depending on if, when, and how you approve working times:

Immediate transfer on release of records

If you do not use the integrated approval procedure, the data records are transferred to HR immediately after being released.

Select the *Immediate transfer to HR* field when you maintain your profile.

Immediate transfer after approval process without workflow

If you trigger the [approval \[Page 1666\]](#) procedure from the time sheet menu, you use one of the following reports to approve the data: **RCATSA01**, **RCATSC01** or **CATSSHOW**. Select the *Immediate transfer to HR* option on the report selection screen for all the report variants you require.

Immediate transfer after approval process with *SAP Business Workflow*

If you use the SAP predefined [workflow \[Page 1668\]](#), the approval report **RCATSB01** *Time Sheet: Approve Times* is started automatically. To transfer the data immediately to HR, you must create a report variant and select the *Immediate transfer to HR* option.



For more information, see the Implementation Guide (IMG) for the *Time Sheet*.
Choose *Cross-Application Components -> Time Sheet -> Time Recording -> Determine Variant of Approval Report for Workflow*

Entry of Attendances and Absences for HR Time Management

Entry of Attendances and Absences for HR Time Management

Use

If you enter time data in the time sheet together with an attendance or absence type, you can transfer it to *HR Time Management*.

The system writes the time data entered to the HR interface table PTEX2010, from which it is transferred to *Time Management*. In *Time Management*, the system creates records in the *Attendances* (2002) and *Absences* (2001) infotypes for this time data.



When recording working times, you cannot enter data that encompasses several days.

If the absence duration forms the basis for further calculations in payroll, you should enter the absence in HR using the *Absences* infotype (2001). This includes continued pay in cases of illness, for example.

Prerequisites

The following are prerequisites for entering attendances and absences using the time sheet, and transferring the data to *Time Management*:

There must be a valid *Planned Working Time* record (infotype 0007) for the employee

If you record time data in hours, and not in clock times, you must set the feature HRSIF to the value 1 in the Customizing for *Time Management*. This prevents the system generating clock times automatically after the data is transferred to the *Attendances* (2002) and *Absences* (2001) infotypes, which can lead to data collisions.

Note that changing the feature HRSIF affects time evaluation with clock times and the processing of time data in payroll. If you process time data with clock times, we recommend that you also enter times in the time sheet with clock times.

However, if you wish to continue recording time data in hours and evaluating it with clock times, the standard schema TM04 (Time evaluation) contains solutions for generating the necessary clock times in *Time Evaluation*. When you customize the standard schema, you should note in particular the effect this may have on processing breaks. In *Payroll*, you can use the standard schema TC04 to process time data that has been entered without clock times.

For more information on the feature HRSIF, see the Implementation Guide (IMG) for *Time Management*. Choose *Time Data Recording and Administration -> Permit Att./Absences to be Recorded Without Clock Times*.

You must set up the relevant authorizations for all employees who are to enter data for *Time Management*. In the authorizations, you can specify for which subtypes of the *Attendances* (2002) and *Absences* (2001) infotypes the user is allowed to enter data.

For more information, see:

[Assignment of Authorizations for the Time Sheet \[Page 1767\]](#)

Entry of Attendances and Absences for HR Time Management

Extended Functions for Users of HR Time Management

Use

If you implement *HR Time Management*, you can use the time sheet as follows:

To supplement the options provided by the *Maintain time data* menu in *Time Management*. You then have the advantage of a higher degree of integration between *Time Management* and other SAP applications.

To allow employees to enter their own working times in the system and reduce the workload in the central data entry office

The integration of target hours and extended data entry checks allows even inexperienced system users to enter their working times efficiently and in a way that caters to the requirements of *Time Management*.

Extended Checks for Users of HR Time Management

Use

If you implement *HR Time Management*, there are extended checks available when you enter time sheet data. They allow you to validate the data entered against target hours and attendance/absence quotas, and to check for collisions with existing *SAP Human Resources* data.

Features

Validating the Data Against Target Hours

The target hours can be taken from the specifications in the employee's personal work schedule or from the results of time evaluation (time type 0050 - productive hours, for example).

When you maintain your profiles, you can define upper and lower tolerances. The system then checks that the attendance times entered observe these tolerances.



When you set up a profile, note that the system cannot take account of attendance quotas (for overtime, for example) when checking that tolerances have been observed. It cannot be guaranteed that the correct amount of time would be deducted from the quotas.

The system checks the tolerances for all released data in the current data entry period whenever you perform an [action \[Page 1649\]](#) that merits a check.

When you save or check the data, the system additionally validates all data within the data entry period.



You set the data entry period in the *Upper limit relative* and *Lower limit relative* fields when you maintain your profile.

In addition, the [check \[Page 1651\]](#) function checks all data assigned the processing status *In process*.

To simplify data entry, the system only checks for a deficit in target hours when you save or check data, and only up to the current system date. It always checks that the target hours have not been exceeded, however.

Validating Data Against Quotas

If an attendance or absence type is deducted from a quota, the system can check whether sufficient quota is available as soon as data is entered in the time sheet. The system takes account of the quotas for the *Attendance Quotas* (2007), *Absence Quotas* (2006), and *Leave Entitlement* (0005) infotypes.

All data within the data entry period is checked, since a new or changed entry can affect quota deduction for existing records.

The system only carries out these comprehensive checks when you:

Save records that are assigned the status *Released*

Extended Checks for Users of HR Time Management

Check all records (regardless of their status)

Checking for Collisions with Attendances and Absences in HR

The system only checks for collisions between new or changed time sheet records and existing HR data records, and only for the current data entry period .

Released records are always checked whenever you perform an action meriting a system check. When you check data, data assigned the status *In process* is also checked.

Using Information from HR Time Management

Use

There are certain *Time Sheet* functions that you can only use if your enterprise implements the *SAP HR Time Management* component. If your enterprise does, the system has access to information on your working times, or the working times you enter for persons assigned to you.

You can use the following information from *HR Time Management*:

Planned working time from the personal [work schedule \[Ext.\]](#)

The day's attendance hours (if your enterprise implements [Time Evaluation \[Ext.\]](#))

This information is available in the *Time Sheet* as target hours.

If you integrate target hours, you can implement extended data entry checks. They enable you to monitor the working times entered by less experienced users and ensure that the data recorded meets the requirements of *Time Management*.

Features

Referencing and validating target hours

The planned specifications from an employee's personal work schedule or results from time evaluation, such as relevant attendance hours (time type 0050 - productive hours, for example) can be displayed as target hours in the data entry section. You can reference the target hours when validating time sheet data. Users can show or hide the target hours as required when entering time sheet data.

The [Documenting Remaining Hours \[Page 1749\]](#) function allows you to copy the difference between the target hours and the hours that have already been entered to a row in the data entry section.

You can also reference the target hours to check that users satisfy their minimum daily working hours, and do not work more than the specified target hours. For more information, see [Extended Checks for Users of HR Time Management \[Page 1743\]](#).

You can activate the integration and validation of target hours when you maintain your profiles. In addition, you can specify whether attendances and absences that have already been entered in HR should be taken into account when the target hours are determined.

Calculating working hours automatically

If users enter time data using clock times, the number of hours worked is calculated automatically in the time sheet. If you implement *Time Management*, the system also takes into account specifications in the work break schedule and automatically deducts the unpaid break duration.

Entering absences

When you enter an absence record, the system does not allow the day's target hours to be exceeded. If more absence hours are recorded than allowed according to the target hours, the system overwrites the recorded absence hours with the target hours.

If you record working times using clock times, any absence times must lie within the planned working time interval (normal working time). The system reads the planned working time interval from the employee's work schedule. If the absence does not fall within the defined interval, the

Using Information from HR Time Management

system overwrites the start and end of work time to comply with the planned or normal working time interval.

Validating data against quotas

The times entered in the time sheet can be validated against quotas from the *Attendance Quotas* (2007) and *Absence Quotas* (2006) infotypes.

Showing or Hiding Target Hours

Use

The target hours show how many hours must be worked in a day. You can display them in the data entry section, in the row marked with a small clock icon.

Depending on your system settings, the target hours may already be displayed when you call the time sheet.

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Choose  *Target hours on/off*.


Result

The target hours are now displayed or hidden, depending on whether they were initially switched on or off.

Copying Target Hours

Copying Target Hours

Use

The target hours show how many hours must be worked in a day. You can [display \[Page 1747\]](#) them in the data entry section, in the row marked .

In order to simplify data entry, you can copy the target hours to a row in the data entry section. You may want to do this if you (or the employee whose data you are processing) have worked on an order over a relatively long period of time.



The following procedure explains how to copy the target hours to a row. You can also determine the difference between the entered hours and the target hours, and copy the value to the data entry part. For more information, see [Documenting Remaining Hours \[Page 1749\]](#).

Procedure

Call the [data entry view \[Page 1622\]](#) for the time sheet.

Select the cells to which you want to copy the target hours.

Choose  *Target hours*.

Result

The system copies the target hours to the cell(s) selected. You can overwrite the copied hours and enter additional working time attributes if required.

Documenting Remaining Hours

Use

If you have already entered times for a particular day or period, you can use the *Target hours* function to settle automatically the difference between the entered times and the target hours.

The target hours determine how many hours you can and must enter for one day. You can [display \[Page 1747\]](#) the target hours in the data entry section, in the row marked with ⌚.



You may want to use this function if you (or the employee whose data you are entering data) work on a different cost center for a certain period of time, and want to post the remaining hours to the master cost center.

Procedure


Call the [data entry view \[Page 1622\]](#) for the time sheet.

Enter the working times that you do not want the system to enter based on the target hours.

Select the cells in a row that you want to settle using remaining hours.



The target hours are copied to the selected cells for which you have not yet entered times.

Choose  *Target hours*. You can also choose *Edit* → *Propose times* → *Target hours*.

Result

The system enters the difference between the entered times and the target hours in the selected cells. You can overwrite the copied hours and enter additional working time attributes if required.

Determining a Different Payment

Determining a Different Payment

Use

If you implement SAP *Human Resources*, you can enter a different payment in the *Time Sheet* for certain activities that an employee performs. This option is available if you are entering data on an attendance or remuneration information. This enables you to determine that certain attendance types or wage types are not valued using their regular value in *Payroll* but, instead, according to the different value you have defined.



Note for US customers:

If necessary, you can enter a different tax area for an employee, which overrides the tax area entered for the employee in the *Work Tax Area* infotype (0208). For more information, see: [Work Tax Area Overrides \[Ext.\]](#).

Prerequisites

You must show the relevant fields in the [field selection \[Ext.\]](#) of each data entry profile that is to be used to enter data on a different payment.

Features

Assigning a premium

You can assign an employee a premium for particular work activities or working conditions. You select the premium according to a *premium number* and a *premium indicator*.

You can also assign a premium in addition to the following options:

Payment according to a different pay scale

You can use the *Pay scale group* and *Pay scale level* options to redefine the payment for a particular work activity. In *Payroll*, the prices defined in the *Basic Pay* infotype (0008) are not selected. Instead, the payment for the period of the different payment is based on the prices you specify here.

Payment according to the specifications for a different position

You can use the *Object type* and *Position* options to assign the payment for the work activity according to the specifications for a different position.

Correcting payroll results

You can use the *Extra pay* and *Valuation* options to correct the *Payroll* results.

Not every wage type is valued using a fixed amount in payroll. The payroll program calculates a *valuation basis* during the payroll run which is used to value a wage type. The valuation basis is derived from the basic pay and the payments and deductions. You can change the valuation basis for the specified period using the *Valuation* and *Extra pay* options.

Enter an amount in the *Valuation* field. The *extra pay indicator* determines how the new valuation basis is formed:

If you enter a "+" in the *Extra pay* field, the amount in the *Valuation* field is added to the valuation basis calculated in payroll.

Determining a Different Payment

If you enter a "-" (*minus*) in the *Extra pay* field, the amount in the *Valuation* field is deducted from the valuation basis calculated in payroll.

If you do not make an entry under *Extra pay*, the valuation basis calculated for the wage type in payroll is replaced by the specified amount.



Note that you should only ever use one of the options for assigning a different rate of payment. An exception is the premium, which you can assign in addition to one of the other options.

Entry of Employee Remuneration Information

Entry of Employee Remuneration Information

Use

In addition to just recording attendances and absences, you can also use the *Time Sheet* to enter data for the *EE Remuneration Info* infotype (2010) in *Human Resources*. To do this, you must enter the data together with a wage type. You can code wage types individually according to your business requirements.

For example, you can create a wage type which your employees use to enter the number of kilometers they have traveled. Also, you can create wage types which your employees can use to enter monetary amounts, for example an "expenses" wage type. Employees could use this wage type to enter amounts they unexpectedly had to spend on purchasing materials (cable, screws, and so on). Your employees' expenses can then be reimbursed in *Payroll*. Of course, you can also create regular hour and overtime wage types.

The data is available for *Payroll* after it has been transferred to *Human Resources*.



If you allow your employees to enter their own times in the time sheet, you should use an [approval procedure \[Page 1664\]](#) to check their entries before they are transferred to *Human Resources*.

Prerequisites

You should include the following fields in the [field selection \[Ext.\]](#) for each data entry profile that is used to enter employee remuneration information.

Wage type

Currency

Internal unit of measure

You have to set up the appropriate authorizations for all employees who enter wage types. In the authorizations, you determine which wage types the user is allowed to enter.

Maintain the assignment of internal SAP units to HR units in the Implementation Guide (IMG) for Personnel Management. Choose *Personnel administration* → *Basic settings* → *Create units of time/measurement*.

You must code your wage types when you make your settings in Customizing.

Features

The system writes data entered with wage types to the HR interface table PTEX2010, from which it is transferred to *Human Resources*. After successfully transferring the time sheet records, the system generates records for the [EE Remuneration Info \[Ext.\]](#) infotype (2010). These are processed in *Payroll*.

The following wage types are available for the *Time Sheet*: Hour wage types, overtime wage types, and bonus wage types.

Entry of Employee Remuneration Information

The totals column in the time sheet adds up the hour wage types and overtime wage types. The bonus wage types are excluded from the total because they only represent additional information on the time worked, and not the time itself.



If you change the employee remuneration information after it has been transferred to HR, the reference to the corresponding record in the time sheet is lost. You are no longer able to display a [follow-on document \[Page 1688\]](#) for this record.

If you want to record a different payment, see: [Determining a Different Payment \[Page 1750\]](#).

Constraints

You cannot use the Time Sheet to supply the *Work center* field in the *EE Remuneration Info* infotype (2010).

For Users of HR: Data Entry Scenarios for Cost Accounting

Use

In standard processing, the employee's master cost center is debited with the personnel costs that *Payroll* has calculated for the employee.

In this scenario, two important aspects of cost accounting cannot be taken into account:

The receiver of a service cannot be debited with the personnel costs determined in *Payroll*.

If an activity allocation for cost accounting or a confirmation for Logistics is entered in the time sheet, one of the following applies:

A sender cost center is specified or proposed

For confirmations, the sender cost center from the operation of the planned work center is proposed.

In this scenario, the sender cost center may be different from the employee's master cost center specified in the *Organizational Assignment* (0001) or *Cost Distribution* (0027) infotypes. This causes an imbalance in cost accounting, since the costs cannot be allocated between the master and sender cost centers and receiver object of an activity.

You can therefore use three additional scenarios to control your cost accounting, in addition to standard processing.

The scenarios are run according to which data entry profile an employee used to enter his or her working times. Each record is assigned to the scenario specified in the data entry profile. A data record can only be changed at a later time using a data entry profile that specifies the assigned scenario. The only exceptions are records in which only one attendance or absence or wage type is entered.

Prerequisites

This function is only relevant if you implement *SAP Payroll*, which determines the actual personnel costs and transfers them to *Controlling*.

The field selection for the data entry profiles must correspond to the relevant scenarios to prevent employees making incorrect entries.

Features

You can use the following data entry scenarios for cost accounting:

Standard processing: Cost assignment to the employee's master cost center

See also: [Assignment of Personnel Costs to the Master Cost Center \[Page 1756\]](#)

Cost assignment to the receiver object

See also: [Assignment of Personnel Costs to the Receiver Object \[Page 1758\]](#)

Cost assignment to the sender cost center, activity allocation between the sender cost center and the receiver object

For Users of HR: Data Entry Scenarios for Cost Accounting

See also: [Assignment of Personnel Costs to the Sender \[Page 1760\]](#)

Cost assignment to the master cost center, activity allocation between the receiver object and the sender cost center, and between the sender and master cost center

See also: [Activity Allocation Between the Master and Sender Cost Center \[Page 1762\]](#)

Activities

For each data entry profile, specify the scenario you want to use for cost accounting.

For more information, see the Implementation Guide (IMG) for the *Time Sheet*. Choose:

Time Sheet → *Time Recording* → *Set Up Data Entry Profiles*.

Time Sheet → *Time Recording* → *Choose Fields*.

Assignment of Personnel Costs to the Master Cost Center

Assignment of Personnel Costs to the Master Cost Center

Purpose

This data entry scenario for cost accounting assumes that employees always work for their master cost center and that the receiver of an activity is not debited with the personnel costs. This is the standard scenario if you do **not** implement *SAP Payroll* (PY).

If you do use *SAP Payroll*, you should not use this scenario in the following cases:

You want to debit the receiver object of an activity with the personnel costs

You want to perform activity allocation

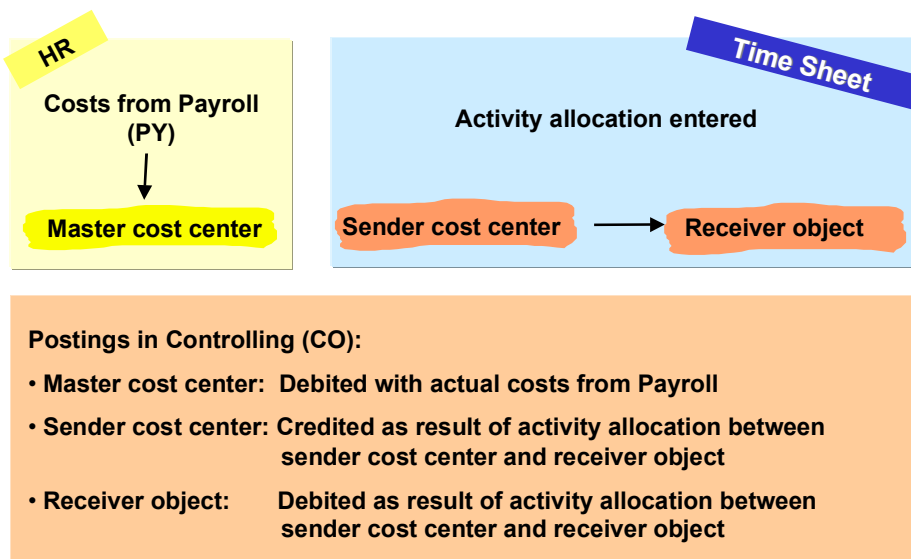
The sender cost center is not the employee's master cost center

This would cause an imbalance in cost accounting, since the sender cost center would be credited with the entered hours and the master cost center debited with the personnel costs.

Prerequisites

Employees who enter their working times using a data entry profile specifying their cost center must always work for the same master cost center(s), as specified in the *Organizational Assignment* (0001) or *Cost Distribution* (0027) infotypes.

Process flow



You enter an activity allocation or confirmation in the time sheet.

Assignment of Personnel Costs to the Master Cost Center

In *Controlling*, the activity allocation credits the sender cost center and debits the receiver cost center.

If an attendance, absence or wage type is entered at the same time, the system writes the working time information to the *Attendances* (2002), *Absences* (2001), or *EE Remuneration Info* infotype (2010) in HR.

The *Payroll* component determines the personnel costs for the times.

In *Controlling*, the employee's master cost center is debited according to what was specified in the *Organizational Assignment* (0001) or *Cost Distribution* (0027) infotypes.

Assignment of Personnel Costs to the Receiver Object

Assignment of Personnel Costs to the Receiver Object

Purpose

In this data entry scenario, you assign the personnel costs for the working times entered in the time sheet to the receiver object of an activity.

The personnel costs are determined in *Payroll*. If you enter a confirmation using this scenario, the system does not determine the costs for the activities in *Logistics*. The receiver object is only debited with the personnel costs.

Use this scenario if you:

Want to debit the receiver object with the personnel costs

Do not perform activity allocation

This scenario is equivalent to entering cost assignment specifications in *Human Resources* when processing an attendance or absence, or employee remuneration information.

Prerequisites

Data must be recorded for one of the following receiver account assignment objects:

Cost center

Work breakdown schedule (WBS) element

Order

Sales order

Network number

Cost object

Business process

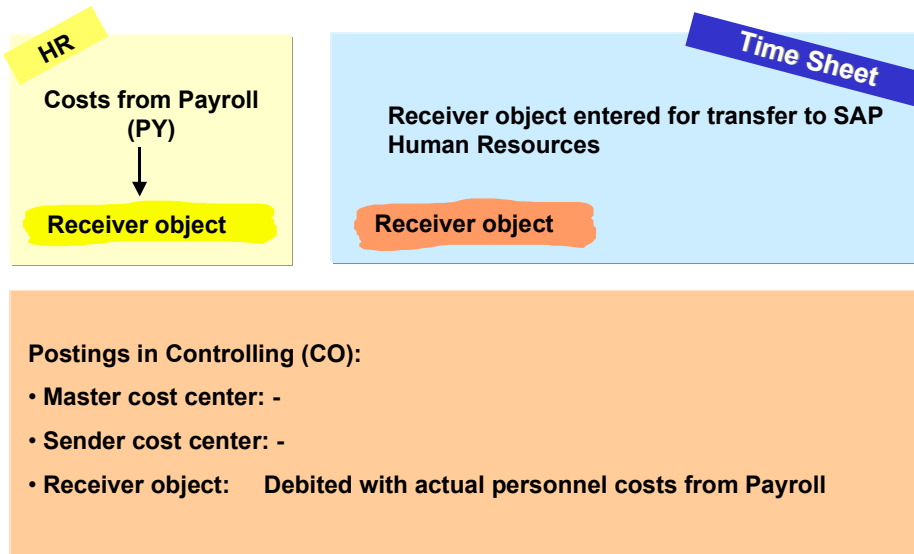
Primary cost assignment to the receiver object must be permitted.

You must enter an attendance/absence type, or a wage type.

Activity allocation is not permitted, that is, you must not enter a sender cost center and activity type.

Assignment of Personnel Costs to the Receiver Object

Process flow



You enter the receiver object of an activity, and an attendance/absence type or wage type in the time sheet.

In *Human Resources*, the system writes the information on the receiver object and on working time to the *Attendances* (2002) or *Absences* (2001), or *EE Remuneration Info* (2010) infotypes.

The *Payroll* component determines the personnel costs for the times.

In *Controlling*, the receiver object is debited with the personnel costs.

Assignment of Personnel Costs to the Sender

Assignment of Personnel Costs to the Sender

Purpose

In this data entry scenario, you assign the personnel costs determined in *Payroll (PY)* for the working times entered in the time sheet to the sender cost center of the activity. In addition, the system allocates activities.

This scenario is equivalent to entering activity allocation specifications in *Human Resources* when processing an attendance, absence, or wage type.

In *Human Resources*, you also have the option of assigning an account to the activity type. In *Controlling (CO)*, you can link the cost assignment and the activity allocation.

See also: [Actual Postings to Activity Type \[Ext.\]](#).

Prerequisites

Entering data in the time sheet triggers activity allocation, that is, one of the following target components is supplied with information on the sender cost center and activity type:

Controlling (CO)

Project System (PS)

Plant Maintenance (PM)

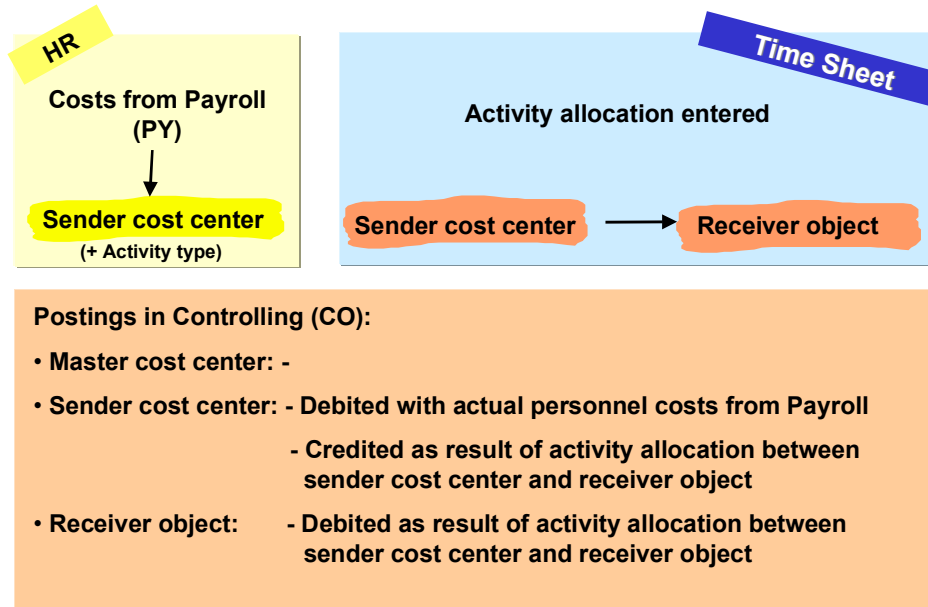
Customer Service (CS)

A primary costs posting to the sender cost center (and activity type) must be permitted.

You must enter an attendance or absence type, or a wage type.

Assignment of Personnel Costs to the Sender

Process flow



In the time sheet, you enter an activity allocation or a confirmation and an attendance/absence type, or wage type.

In *SAP Human Resources*, the system writes activity allocation and working time information to the *Attendances* (2002), *Absences* (2001), or *EE Remuneration Info* (2010) infotypes.

The *Payroll* component determines the personnel costs for the times.

In *Controlling*, the sender cost center is debited with the personnel costs. The activity is allocated between the sender cost center and the receiver object; the sender cost center is credited and the receiver object is debited in the process.

Activity Allocation Between Master and Sender Cost Center

Activity Allocation Between Master and Sender Cost Center

Purpose

This data entry scenario is used to allocate the activities between the sender cost center and the receiver object. The personnel costs determined by *Payroll* are assigned to the employee's master cost center. If the sender cost center is not the employee's master cost center, an additional activity allocation is generated between the employee's master and sender cost center.

In *Human Resources*, you also have the option of assigning an account to the activity type. This means you have the option in *Controlling* of linking the cost assignment and activity allocation.

See also: [Actual Postings to Activity Type \[Ext.\]](#).

Entering data in the time sheet triggers an activity allocation, that is, one of the following target components is supplied with information on the sender cost center (or work center) and activity type:

Controlling (CO)

Project System (PS)

Plant Maintenance (PM)

Customer Service (CS)

You can set a default activity type to be used for the activity allocation in the *Time Sheet Defaults* infotype (0315).

Prerequisites

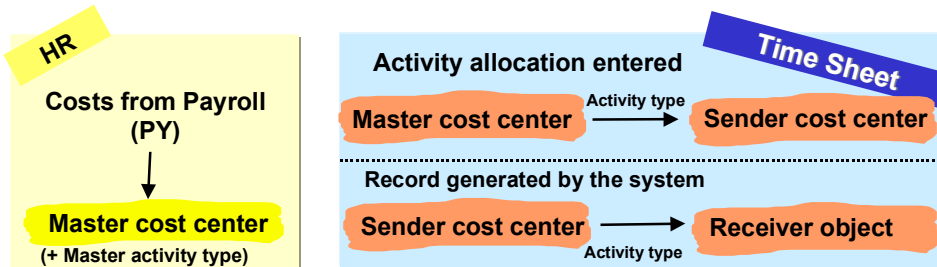
You must define the employee's master activity type in the *Time Sheet Defaults* infotype (0315).

The master activity type contains the average rate that is used to calculate the employee's activity. The system enters the master activity type in the background as a default. You cannot maintain it in the time sheet. The master activity type must be scheduled for the master cost center.

If you want to use the *Account assignment to activity type* option, you must enter an attendance or absence type, or a wage type.

Activity Allocation Between Master and Sender Cost Center

Process flow



Postings in Controlling (CO):

- **Master cost center:**
 - Debited with actual personnel costs from Payroll
 - Credited as result of activity allocation generated between sender cost center and master cost center
- **Sender cost center:**
 - Debited as result of activity allocation generated between sender cost center and master cost center
 - Credited as result of activity allocation entered between sender cost center and receiver object
- **Receiver object:**
 - Debited as result of activity allocation entered between sender cost center and receiver object

Scenario without account assignment to activity type

You enter an activity allocation or confirmation in the time sheet.

In *Controlling*, the activity allocation credits the sender cost center and debits the receiver cost center. The employee's master cost center is debited with the personnel costs.

If the sender cost center is not the master cost center, the system generates a second activity allocation in the background. The activity is then allocated in *Controlling* using the rate specified in the master activity type. The master cost center is credited and the sender cost center is debited.

Scenario with account assignment to activity type

You enter an activity allocation or confirmation and an attendance/absence type or wage type in the time sheet.

When data is transferred to *Human Resources*, the working time information, together with the master cost center/activity type or master cost center/master activity type, is written to the *Attendances* (2002), *Absences* (2001), or *EE Remuneration Info* (2010) infotype.

If the sender cost center is the employee's master cost center, the activity type is transferred to *Human Resources*.

If the sender cost center is not the employee's master cost center, the system generates a second activity allocation record in the background, which is used to transfer the master activity type *Human Resources*.

The *Payroll* component determines the personnel costs for the working times.

Activity Allocation Between Master and Sender Cost Center

In *Controlling*, the master cost center/activity type or the master cost center/master activity type is debited with the personnel costs.

The activity is allocated between the sender cost center and the receiver cost center using the rate specified in the activity type. The sender cost center is credited, and the receiver object debited.

If the sender cost center is not the master cost center and a second activity allocation was generated, the activity is allocated between the master and the sender cost center using the rate specified in the master activity type. The master cost center is credited and the sender cost center is debited.

Reorganization of Interface Tables

Use

Reorganizing interface tables improves the performance of data transfer reports. We therefore recommend that you periodically schedule report RCATSRIF (*Reorganize Time Sheet Interface Tables*) as a background job.

Integration

If you only want to reorganize the *Human Resources* (HR) interface tables, you can do so directly from the HR data transfer report RPTEXTPT (*External Transfer → Human Resources*). The *Transfer/delete* and *Only delete* options are available for this report.

Features

Report RCATSRIF (*Reorganize Time Sheet Interface Tables*) deletes time sheet data that has already been transferred to the target components from the interface tables.

You can use report RCATSRIF to reorganize the following *Time Sheet* interface tables:

CATSCO (*Controlling*)

PTEX2000 (*Human Resources*, infotypes 2001 and 2002)

PTEX2010 (*Human Resources*, infotype 2010)

CATSMW (*Materials Management*)

CATSPM (*Plant Maintenance/Customer Service*)

CATSPS (*Project System*)



You can reorganize several interface tables in one step by selecting all the interface tables you want to reorganize on the selection screen.

Reorganizing Interface Tables

Reorganizing Interface Tables

Procedure

Call report RCATSRIF (*Reorganizing Time Sheet Interface Tables*) by choosing *Time sheet* → *Tools* → *Reorganize interface tables*.

If you want to delete records from the relevant interface tables for certain personnel numbers only, enter them in the *Personnel number* field.

Specify the period for the reorganization.

Select the interface tables you want to reorganize. You can select more than one interface table.

If you want the system to display a *Log* once the reorganization is complete, select the relevant option.



To prevent errors occurring during reorganization, perform a *test run* first.

Choose  *Execute*.

Result

The system deletes records that have already been transferred to the target components from the relevant interface tables.

Assignment of Authorizations for the Time Sheet

Use

Many employees, who perform a variety of different tasks, work with the *Time Sheet*. You can ensure the protection of personal data by using the authorization concept for the *Time Sheet*.

Features

Roles

Authorizations for the *Time Sheet* are assigned using roles. In a role, you can determine

Which data entry profiles the user is permitted to use to enter data

Whether the user is permitted to approve data and start evaluation reports

The Human Resources authorization concept

The authorization concept for the *Time Sheet* is based on the concept used in *Human Resources*. In HR, you can assign authorizations in very fine degrees to meet your exact requirements.

Profile authorization groups for entering working times

The role assigned to users contains all of the required authorization objects for the *Time Sheet*. Authorizations for entering and reading data are assigned according to the data entry profile. This enables you to control that

Employees enter only their own personal data

Central time administrators or data entry personnel can only maintain data for employees assigned to them

Users can only choose from data entry profiles that are relevant to their area of work

When you maintain your profiles for the Time Sheet, you can organize them into *profile authorization groups*. Using all of the options available in *Human Resources*, you can assign the groups authorizations to read or maintain data.

Using dummy infotypes

The HR authorizations required to display and maintain personal data are supplemented by two other types of authorizations for the *Time Sheet*, for

Displaying and entering data in the time sheet

Displaying and approving data using time sheet reports

Time sheet data is represented in dummy infotypes for this purpose.

Dummy infotype 0316	Infotype 0316 represents the authorization for data entry profiles. The subtypes of this infotype are the profile authorization groups.
Dummy infotype 0328	Infotype 0328 represents the authorization for reporting and approval.



Assignment of Authorizations for the Time Sheet

It is very important to note that these infotypes do not actually exist in the system. They are only used to access the HR authorization concept in order to assign authorizations to read, change, or approve time sheet data.

For more information, see the Implementation Guide for the *Time Sheet*. Choose *Time Sheet* → *Authorizations*.

See also: [Example: HR Authorizations for Entering Data in the Time Sheet \[Page 1769\]](#)

Example: HR Authorizations for Entering Data in the Time Sheet

Example: HR Authorizations for Entering Data in the Time Sheet

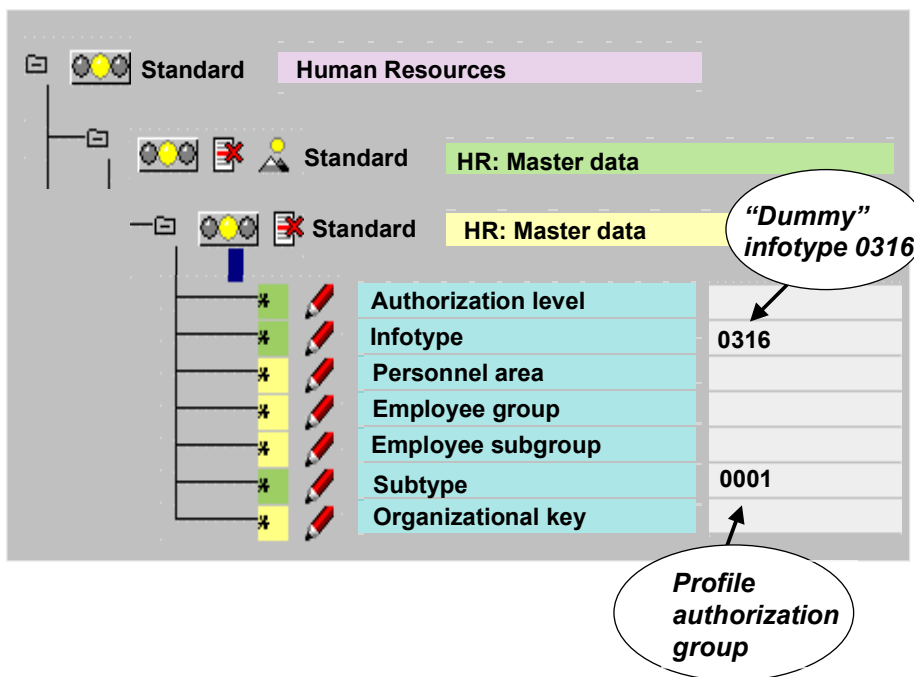
The system automatically provides you with the authorization objects you require for the *Time Sheet* when you maintain your roles.

Authorization object: HR master data

You use this authorization object to maintain the authorizations that a user requires to enter data for his or her own personnel number.

Assigning authorization for a Human Resources infotype

Authorizations for reading and entering data in *Human Resources* infotypes containing employee data are assigned on an infotype or, for some infotypes, on a subtype level.



Users are authorized to use all data entry profiles assigned to profile authorization group 0001.

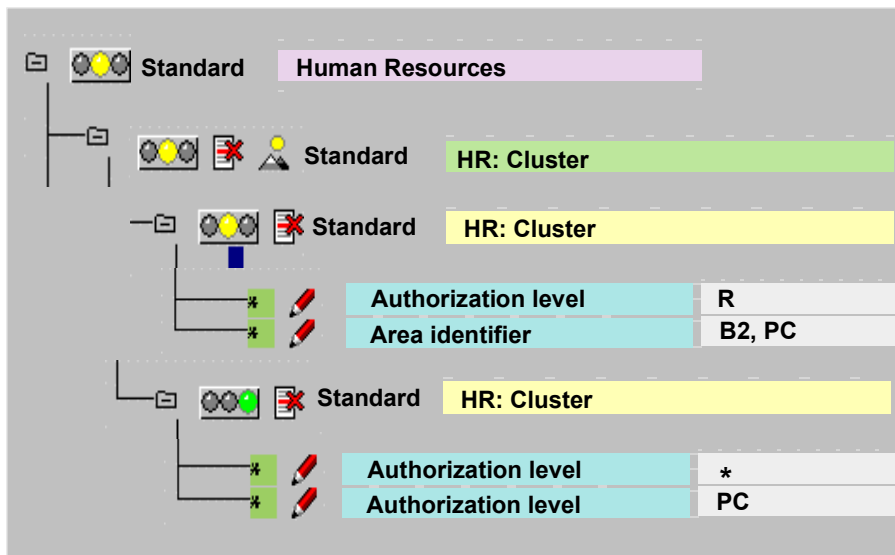
Authorization object: HR clusters

You only need to maintain this authorization object if you implement HR and if you:

Record absences using the *Time Sheet*. This authorization is required for absences to be validated against leave quota.

Determine target hours based on the results of time evaluation They are read from cluster B2.

Example: HR Authorizations for Entering Data in the Time Sheet



Time Sheet Data Archiving

Use

By archiving time sheet data, you can remove time sheet data you no longer immediately require to an external file and improve the performance of the CATSDB database table for the *Time Sheet*. You archive time sheet data using the [archiving object \[Ext.\]](#) CATS_DATA, which is provided as part of *SAP Data Archiving*.

For more general information on *Archiving*, see the [Introduction \[Ext.\]](#).

For more specific information on archiving data from the *Time Sheet*, see the SAP Library. Choose Cross-Application Components → CA Application Data Archiving → CA Cross-Application Functions → [Time Sheet Data Archiving \(CA-TS\) \[Ext.\]](#).

Activities

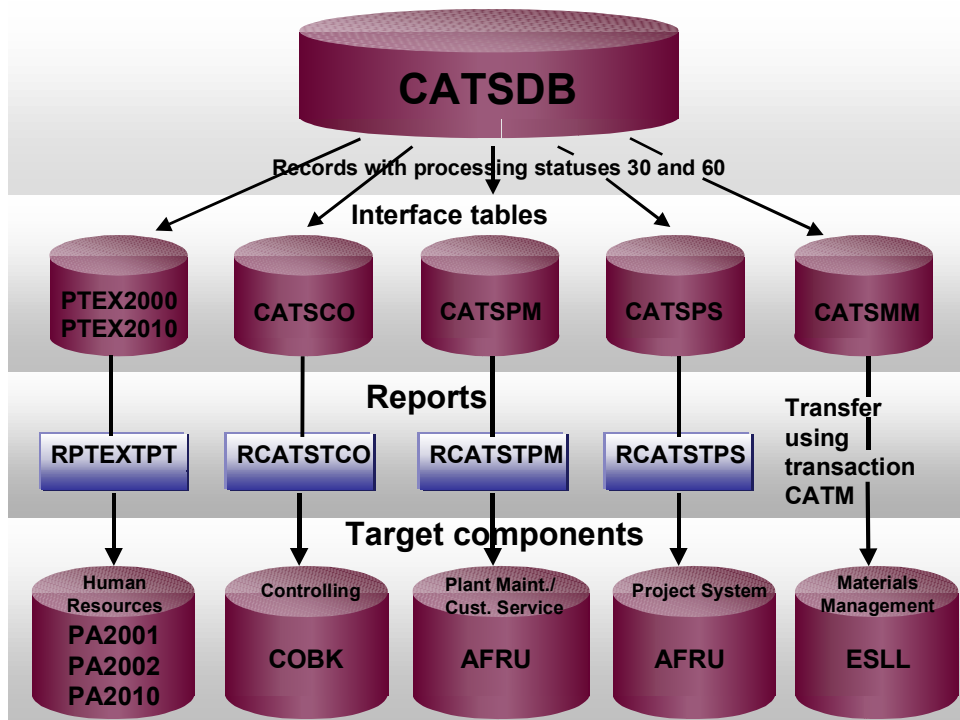
To call *Archiving*, choose *Time Sheet* → *Tools* → *Archiving*.

Technical Background to the Time Sheet

Technical Background to the Time Sheet

The purpose of this section is to familiarize you with the technical processes in the Time Sheet. The graphic below shows which tables the system uses to process the recorded time sheet data.

Technical Processes of the Time Sheet



1. All recorded time sheet data is stored in the database table for the Time Sheet, [CATSDB](#) [Page 1776].

2. The system automatically writes time sheet data that has the status 30 or 60 to the relevant [interface tables](#) [Page 1780].

Human Resources (PTX2000 and PTX2010)

Controlling (CATSCO)

Plant Maintenance/Customer Service (CATSPM)

Project System (CATSPS)

Materials Management (CATSMM)

The system determines which data belongs in which interface tables based on the [working time attributes](#) [Ext.] entered for the record.

3. When the [data transfer report](#) [Page 1702] is executed, the data is transferred from the interface tables to the corresponding target components. Data is transferred to Materials

Technical Background to the Time Sheet

Management using transaction CATM. The data is transferred from the interface tables to the following tables for the target components:

Human Resources	PA2001 (<i>Absences</i> infotype); PA2002 (<i>Attendances</i> infotype); PA2010 (<i>EE Remuneration Info</i> infotype).
Controlling	COBK (<i>CO Object: Document Header</i>)
Plant Maintenance/Customer Service	AFRU (<i>Order Completion Confirmations</i>)
Project System	AFRU (<i>Order Completion Confirmations</i>)
Materials Management	ESLL (<i>Lines of Service Package</i>)

Each of these tables contains a key, which corresponds to the BELNR (document number) field in table CATSDB. The system uses this key to form a link with the record in table CATSDB. The keys have the following names in the tables:

PA2001, PA2002, PA2010	AWREF
COBK	REFBN
AFRU	CATSBELNR
ESLL	BELNR

More information on the target components

Controlling

Two other tables are important for Controlling: CATSCOSUM (*Data Transfer: Time Sheet → CO Summarization Table*) and CCATSCOSUM (*Settings: Summarization Time Sheet Data → CO*). You use these tables to control how records are summarized when [filling CO documents \[Ext.\]](#).

Table CCATSCOSUM is the Customizing table in which you enter whether and, if so, how the time sheet data is summarized.

The system uses table CATSCOSUM to form a link between a record of table CATSDB and the CO document to which the record is transferred. Table CATSCOSUM is only filled if you have determined that records are to be summarized for transfer.

If your Customizing settings determine that the transferred time sheet data is summarized, the *Counter* field in CATSCOSUM corresponds to the field with the same name in CATSCO. However, when the records are summarized, there is no longer a 1:1 relationship between the *Counter* (COUNTER) and *Document number* (TRANS_NO) fields in CATSCOSUM. A value in the *Document number* field (TRANS_NO) refers in most cases to several counters (COUNTER) in CATSCOSUM.

Table COBK (*CO Object: Document Header*) is the table in Controlling to which the time sheet data is transferred. This table contains one entry in the *Reference document number* field (REFBN) for each different *document number* (TRANS_NO) in CATSCOSUM.



Technical Background to the Time Sheet

In the CATSCOSUM table, *counters* 100, 101, 102, 110, 114, and 120 are stored with the *document number* (TRANS_NO) 10 and *counters* 103 to 109 and 113 and 122 with *document number* (TRANS_NO) 11. In table COBK then, there are two entries in the *Reference document number* field (REFBN): 10 and 11.

If you specified in your Customizing settings that time sheet data is not summarized for transfer to Controlling, CATSCOSUM is not filled with these records. In this case, there is a 1:1 relationship between the *Document number* field (BELNR) in table CATSDB and the *Reference document number* field (REFBN) in table COBK.



If there are inconsistencies in the data in Controlling, we recommend you call the *Display CO Cost Segments* transaction (RKACSHOW). You can use this transaction to display information on data statuses and totals records in Controlling tables.

For information on how to proceed if confirmations lead to CO documents with errors, see note 0155282 (CO Docs for Confirmations: Correction Programs).

Other tables in Controlling that you should be familiar with in this context are:

COEP (*CO Object: Line Items (by Period)*)

COSS (*CO Object: Cost Totals for Internal Postings*)

COEPL (*CO Object: Line Items for Activity Types (by Period)*)

COSL (*CO Object: Activity Type Totals*)

A CO document consists of line items, which represent the values of a record. The line items are stored in tables COEP or COEPL. Tables COSS and COSL contain the period totals of all the actual postings to a CO object.

Materials Management

When time sheet data is transferred to *Materials Management*, table ESLL (*Lines of Service Package*) and table ESSR (*Service Entry Sheet Header Data*) are supplied with data. The *Package number* (PACKNO) field forms the link between the two tables.

The time sheet record is referenced in table ESLL by the *Document number* (BELNR) field. However, in *Materials Management*, you can only identify the record uniquely in connection with table ESSR.

Plant Maintenance/Customer Service and Project System

If you transfer data to *Plant Maintenance/Customer Service* (PM/CS) or to *Project System* (PS), you trigger an internal activity allocation. For this reason, the data is also transferred to *Controlling*. If goods movements are defined in your order, the data can also be relevant for *Materials Management* (MM).

If data is transferred successfully, the system writes it to the relevant tables in the target components. For PM/CS and PS the relevant table is AFRU. For *Controlling* the table is COBK and for *Materials Management*, tables MKPF and MSEG.

If errors occur when data is transferred to PM/CS or PS, the system stores the data containing errors in the following tables:

Confirmations with errors	AFRH, AFRV
Actual costs with errors	AFRC

Technical Background to the Time Sheet

Goods movements with errors	AFFW
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Once you have processed the errors, the system posts the data in the target components.

The Database Table for the Time Sheet (CATSDB)

The Database Table for the Time Sheet (CATSDB)

Definition

The database table for the Time Sheet (CATSDB) contains all the data that has been recorded using the Time Sheet.

Use

As soon as a user has entered and saved data in the time sheet, the system writes the record to table CATSDB. When the records have the processing status 30 (*Approved*) or 60 (*Canceled*), the system writes them to the relevant [interface tables \[Page 1780\]](#) in *Human Resources, Controlling, Plant Maintenance/Customer Service, Project System, and Materials Management*, based on the [working time attributes \[Ext.\]](#) that have been entered.

Structure

Listed below are important fields which are filled for each record regardless of its working time attributes or in the case of the reference counter, can be filled:

Personnel number

[Processing status \[Page 1783\]](#)

Counter

Each record that is stored in table CATSDB is assigned a counter. The counter is assigned by the system and is 12 digits long.

Reference counter

If a record with the processing status 30 (*Approved*) is changed, the system also assigns it a reference counter. The reference counter is also 12 digits long.

A reference counter is assigned as follows: The original record is retained and its processing status is changed from 30 (*Approved*) to 50 (*Changed after approval*) or 60 ([Canceled \[Page 1784\]](#)). At the same time, the system creates a new record to reflect the changes. The new record is assigned the processing status 10 (*In process*), 20 (*Released*), or 30 (*Approved*), depending on your profile settings. The new record is assigned a reference counter to link it to the original record, which now has the status 50 or 60. The reference counter corresponds to the counter of the original record.

Document number

As soon as a record has the processing status 30 (*Approved*), the system assigns it a document number. The document number is assigned sequentially and is 10 digits long. The document number represents the key for identifying the record, even after it has been transferred to the target components.

In addition, the system also provides information on the person who created the record, when the record was created, and, if necessary, on the person who changed the record and when it was changed. You can also see whether a short or long text exists for the record.

The Database Table for the Time Sheet (CATSDB)

Connections between the processing status, counter, reference counter, and document number

The four graphics below show in detail the connections between the processing status, counter, reference counter, and document number. The graphics illustrate the processes that take place in table CATSDB when a record is created or changed, according to the settings for the data entry profile. To make the graphics clearer, the field values for the counter, reference counter, and document number are shown in a shorter form.

Scenario 1: Release and approval not required

Action	Data record	Hours	Status	Counter	Ref.counter	Doc.no.
	CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR	
Record	New	8	30	1000	-	100
Change*	Original	8	60	1000	-	100
	Changed	6	30	1001	1000	101

Scenario 2: Release required, approval not required

Action	Data record	Hours	Status	Counter	Ref.counter	Doc. no.
	CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR	
Record	New	8	10	2000	-	-
Release	Original	8	30	2000	-	200
Change*	Original	8	50	2000	-	200
	Changed	6	10	2001	2000	-
Release	Original	8	60	2000	-	200
	Changed	6	30	2001	2000	201

The Database Table for the Time Sheet (CATSDB)

Scenario 3: Release not required, approval required

Approval granted

Action	Data record	Hours	Status	Counter	Ref.counter	Doc. no.
		CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR
Record	New	8	20	3000	-	-
Approve	Original	8	30	3000	-	300
Change*	Original	8	50	3000	-	300
	Changed	6	20	3001	3000	-
Approve	Original	8	60	3000	-	300
	Changed	6	30	3001	3000	301

Approval denied

Record	New	8	20	3010	-	-
Reject	Original	8	40	3010	-	-
Change rej. recs	Original	6	20	3010	-	-

Scenario 4: Release and approval required

Approval granted

Action	Data record	Hours	Status	Counter	Ref.counter	Doc.no.
		CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR
Record	New	8	10	4000	-	-
Release	Original	8	20	4000	-	-
Approve	Original	8	30	4000	-	400
Change*	Original	8	50	4000	-	400
	Changed	6	10	4001	4000	-
Release	Original	8	50	4000	-	400
	Changed	6	20	4001	4000	-
Approve	Original	8	60	4000	-	400
	Changed	6	30	4001	4000	401

Approval denied

Record	New	8	10	4010	-	-
Release	Original	8	20	4010	-	-
Reject	Original	8	40	4010	-	-
Change rej. recs	Original	6	10	4010	-	-

*If a record is canceled, the number of hours it contains is changed to zero. Therefore, when a record is canceled, the same processes are started in table CATSDB as if the record had been changed.

The Database Table for the Time Sheet (CATSDB)

The Interface Tables for the Time Sheet

The Interface Tables for the Time Sheet

Definition

The interface tables for the Time Sheet are used to provide time sheet data for transfer to the corresponding target components.

Use

The system writes data that has the processing status 30 (*Approved*) or 60 (*Canceled*) from the database table [CATSDB \[Page 1776\]](#) to the interface tables for the Time Sheet. This data is then available for transfer to the target components.

The system determines which are the relevant interface tables for the data based on the [working time attributes \[Ext.\]](#) used when the record was created. Data that is entered with an attendance, for example, is written to the *Human Resources* interface table, PTEX2000. A record is often written to more than one interface table because it has been created with working time attributes that belong to different [target components \[Page 1702\]](#).

Structure

Human Resources interface tables (PTEX2000, PTEX2010, and PTEXDIR)

PTEX2000 (*Interface Table for Attendances/Absences Infotypes (2002/2001)*) and PTEX2010 (*Interface Table for EE Remuneration Info. Infotype (2010)*) contain the time sheet data that you can transfer to *Human Resources*. The report generates infotype records for the *Attendances* (2002), *Absences* (2001), or *EE Remuneration Info* (2010) infotypes from the transferred records.

The important fields in the interface tables are:

AWKEY	Object key	Corresponds to the BELNR field in table CATSDB.
STOKZ	Cancellation indicator	A record is assigned a cancellation indicator when it has the processing status 60 (Canceled [Page 1784]) in table CATSDB.
AWART	Attendance/absence type	Field in table PTEX2000. Specifies the attendance or absence type for the recorded hours.
LGART	Wage type	Field in table PTEX2010. Contains the wage type for the record.
DATUM1	Date	Specifies the date on which the record was written to the interface table.*
DATUM2	Date	Specifies the date of the record's initial transfer to <i>Human Resources</i> .*
DATUM3	Date	Specifies the date on which the record was last accessed.*
DATUM4	Date	Specifies the date of the record's first successful transfer to <i>Human Resources</i> .*

The Interface Tables for the Time Sheet

STATU2/STATU 3	Status	<p>The system assigns a record in PTEX2000/2010 a log status for its first and last transfer. You use this status to see whether the transfer was successful or whether errors occurred.</p> <p>The system assigns the following statuses:</p> <p>0 or blank: Record is new; it has not yet been transferred.</p> <p>1: Record has been successfully transferred.</p> <p>2: Errors occurred during transfer; the record could not be posted.</p> <p>3: Record is locked.</p> <p>4: A record has been canceled. The original and changed (canceled) record cancel each other out. They are not transferred but remain in the interface table.</p>
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*The same is true of the *User* (UNAME1-4), *Time* (UZEIT1-4), and *Program* (PGMID1-4) fields.

Human Resources directory table PTEXDIR

Table PTEXDIR is a directory table. The system uses it to check whether the combination of *Logical system of source* (LOGSYS), *Reference procedure* (AWTYP), and *Object key* (AWKEY) is unique. If the combination is not unique, the system excludes the relevant records from the transfer. The system does not transfer data from table PTEXDIR to other components.

Interface tables for the other target components

The interface tables in *Controlling* (CATSCO), *Plant Maintenance/Customer Service* (CATSPM), *Project System* (CATSPS), and *Materials Management* (CATSMM) each contain the following fields, which are filled with time sheet data:

Document number (BELNR)

Counter (COUNTER)

Hours (CATSHOURS)

These three fields (BELNR, COUNTER, CATSHOURS) correspond to the fields with the same names in table CATSDB.

Transfer indicator (TRANSFER)

The transfer indicator specifies whether a record has already been transferred from an interface table to the corresponding target component. You can [delete \[Page 1765\]](#) these records from the interface table.

Cancellation indicator (STOKZ)

A record is assigned a cancellation indicator when it has the processing status 60 ([Canceled \[Page 1784\]](#)) in table CATSDB.




The Interface Tables for the Time Sheet

Processing Status

Definition

Information on the current position of time sheet records in the processing or approval procedure. The system assigns a processing status to every record written to the CATSDB database table for the *Time Sheet*.

Structure

Status	Description	Icon	Meaning
10	In process	-	The record is being processed and is not yet ready for transfer to the target components.
20	Released for approval		The record has been released and is ready for approval or rejection by the person responsible.
30	Approved		The record has been approved [Page 1664] and is ready for transfer to the target components.
40	Approval denied		The record has been rejected [Page 1638] . It cannot be transferred to the target components.
50	Changed after approval	-	An approved record has been changed. The original record is assigned this status until the new record has been approved. A reference counter allows you to track the new record back to the original record. Once the new record has been approved, the original record is assigned status 60 (Cancelled).
60	Cancelled	-	The record was cancelled [Page 1636] after approval. You cannot cancel a record if your profile settings determine that approved data may not be changed.



If your profile settings determine that no approval procedure is required, the system skips the *Released for approval* status. Records are then assigned the *Approved* status as soon as you release them. If your profile settings also determine that data is released automatically on saving, records are assigned the *Approved* status when you save them.

Cancellation of Time Sheet Data

Cancellation of Time Sheet Data

Use

A user can cancel data that has already been recorded and saved in the time sheet by deleting, or changing to zero ("0"), the cell contents (hour, unit of measurement, amount) and, if necessary, the start and end clock times and the full day indicator. If you want the system to treat the record as canceled, the following fields must be blank in the database table for the Time Sheet ([CATSDB \[Page 1776\]](#)).

CATSHOURS (hours)

CATSQUANTITY (number (unit of measure))

CATSAMOUNT (amount)

BEGUZ (start time)

ENDUZ (end time)

ALLDF (entire day)

If a time sheet record is canceled, the following processes are triggered in the relevant tables:

The database table for the Time Sheet (CATSDB)

The original record is assigned the [processing status \[Page 1783\]](#) 50 (*Changed after approval*) or 60 (*Canceled*). Which of these statuses the system assigns depends whether or not the record must be approved. If approval is required, the system first assigns the record status 50 and then 60 once it has been approved. If no approval is required for the record, it is assigned status 60 straight away.

The system creates a new record for the canceled record. The new record is linked to the original record by a *reference counter*. The *reference counter* of the new (canceled) record corresponds to the *counter* of the original record. Depending on your Customizing settings, the new record may also need to be released or approved.



The same principle applies to records whose cell content (number of hours, unit of measurement, amount) is changed after approval to an amount other than zero.

The interface tables of CO, HR, PM/CS, PS

In the [interface tables \[Page 1780\]](#), the system creates an almost identical record with *cancellation indicator* (STOKZ) for a record in table CATSDB with the processing status 60 (*Canceled*). The new record has the same number of hours and *document number* in the interface tables as the original record and, in addition, a *cancellation indicator*.

The system uses the *document number* to form the link between the original and the cancellation record. The document number is stored in the *Human Resources* interface tables (PTEX2000 and PTX2010) in the AWKEY field. In the other interface tables, you can find the document number in the BELNR field.

If you cancel a record before it is transferred to the target components, the system transfers neither the original nor the cancellation record. In *Human Resources*, both records remain in the interface tables for *Human Resources*. In the other target components, the system deletes the original record and the cancellation record from the interface tables.

Cancellation of Time Sheet Data

If you cancel a record that has already been transferred to the target components, the system also transfers the cancellation record, that is the record assigned the cancellation indicator.



The following applies for *Materials Management*: If a record is canceled **after** it has been transferred, the cancellation record cannot be transferred to *Materials Management*. In this case, the record must be canceled in *Materials Management*.

Posting canceled records in the target components

If a record is canceled before it is transferred to the target components, the system transfers neither the original nor the cancellation record to the target components.

If the record is canceled after it has been transferred, the cancellation records are posted in the target components as follows:

Controlling

The system posts the cancellation record as a negative record. If the original record contains, for example, 8 hours, the system posts the cancellation record with - 8 hours.

Human Resources

The *cancellation indicator* enables the system to recognize that both original records cancel each other out. The system deletes the original record from the relevant infotypes (PA2001, PA2002, and PA2010) based on this information.

Plant Maintenance/Customer Service (PM/CS) and Project System (PS)

The system creates a reversal document in the relevant target component.

Transferring canceled data to PM/CS can adversely affect system performance. For more information, see the documentation for the data transfer reports RCATSTPM or RCATSTPS.

Materials Management

A cancellation record cannot be transferred to *Materials Management*. For this reason, you should only make changes to records that have already been transferred in the *Materials Management* component.

Example: Recording Attendances for Human Resources**Example: Recording Attendances for Human Resources**

An employee, David Andersen, records eight attendance hours for last Thursday and for last Friday. His data entry profile determines that he does not have to release her data in a separate step. As soon as David has saved the data, it is made available to his superior, Joy Flanders, for approval.

Joy approves the recorded data the same day. Every evening, attendance and absence data recorded in the time sheet is transferred to *Human Resources*. This means that the next day both records have already been transferred. David Andersen notices, however, that he recorded one hour too few for Friday. He changes the record for Friday to nine hours. He informs his superior, who then approves the changed record.

That evening, the time sheet data is transferred to *Human Resources* as usual. However, David's changed record cannot be transferred because his payroll area is locked during the transfer. The next morning, the data records that could not be posted to *Human Resources* are transferred again. This time, David's record is transferred successfully.

Processes in the tables

The above example is represented in the [database table for the Time Sheet \[Page 1776\]](#) CATSDB as follows:

CATSDB: Database Table for the Time Sheet

Action	Date	Hours	Status	Counter	Ref.counter	Doc. No.
		CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR
Record	Thursday	8	20	5000	-	-
	Friday	8	20	5001	-	-
Approve	Thursday	8	30	5000	-	500
	Friday	8	30	5001	-	501

Record was changed after being it was successfully transferred

Action	Date	Hours	Status	Counter	Ref.counter	Doc.no.
		CATSHOURS	STATUS	COUNTER	REFCOUNTER	BELNR
Change	Friday (orig.)	8	50	5001	-	501
	Friday (new)	9	20	5002	5001	-
Approve	Friday (orig.)	8	60	5001	-	501
	Friday (new)	9	30	5002	5001	502

David Andersen records eight hours for Thursday and for Friday. He does not have to release the data in a separate step, which means that when he saves the data, the system assigns it the [processing status \[Page 1783\]](#) 20 (*Released for approval*) and writes it to CATSDB.

Example: Recording Attendances for Human Resources

As soon as Joy Flanders approves the recorded data, it is assigned the processing status 30 (*Approved*). As soon as a record has the processing status 30 (*Approved*), the system assigns it a document number. To make the example clearer, the document number is not shown in its full 12-digit form (as in table CATSDB).

David Andersen now changes the data record from Friday, which has already been approved. You can recognize a record that has already been approved by its processing status and reference counter. The original record (in this example, the record from Friday with eight hours, counter 5001, and document number 501) is assigned the processing status 50 (*Changed after approval*). At the same time, the system creates a new record with the following specifications: Nine hours, status 20, counter 5002, and **reference counter** 5001. The reference counter forms the link with the original record. Once the changed record has been approved, the original record is assigned the processing status 60 ([Canceled \[Page 1784\]](#)) and the new record the processing status 30 (*Approved*) and a document number (502).

Transferring data to a target component has no effect on the dataset of table CATSDB.

Now we want to know what has happened in the interface table for attendances/absences (PTEX2000) during these processes. This is represented in the graphic below:

PTEX2000 - Interface Table for the Attendances and Absences infotypes (2002/2001)

Action	Date	Hours STDAZ	Obj. Key AWKEY	Canc. Ind. STOKZ	Status STATU2	Status STATU3
Approve	Thursday	8	500	-	-	-
	Friday	8	501	-	-	-
Transfer	Thursday	8	500	-	1	1
	Friday	8	501	-	1	1
Change	Friday	8	501	-	1	1
Approve	Friday (orig.)	8	501	-	1	1
	Friday (orig.)	8	501	X	-	-
	Friday (new)	9	502	-	-	-
Transfer	Friday (orig.)	8	501	-	1	1
	Friday (orig.)	8	501	X	2	2
	Friday (new)	9	502	-	2	2
Repeat	Friday (orig.)	8	501	-	1	1
Transfer	Friday (orig.)	8	501	X	2	1
	Friday (new)	9	502	-	2	1

In this example, David Andersen has recorded two attendances. He entered an attendance type as a working time attribute for the working hours. Based on this working time attribute, the system determines that the recorded data is relevant for the *Human Resources* interface table.

Once Joy Flanders has approved the recorded attendances, the system writes them to the interface table PTEX2000. In the interface table PTEX2000, the *Object key* field (AWKEY) is used to form a link with the record of table CATSDB, because the *object key* corresponds to the *document number* in CATSDB.

After the data has been transferred successfully, the system assigns two further statuses. Based on these statuses, you can see whether the transfer was successful or, if errors occurred, what

Example: Recording Attendances for Human Resources

type of errors they were. In this example, the initial transfer was successful, an error occurred during the second, and the third was again successful.

For more information, see: [The Interface Tables for the Time Sheet \[Page 1780\]](#)

If a record has been changed after approval, the interface table PTEX2000 contains three records for the changed record: The original record **without** the cancelation indicator, the original record **with** the cancelation indicator, and the new record. The cancelation indicator enables the system to recognize that both original records cancel each other out. Since the original record had already been transferred, the system also transfers the original record **with** the cancelation indicator during the next transfer, so that the original records cancel each other out in *Human Resources*. If the original record had not yet been transferred, both original records would remain in the interface table and neither would be transferred to *Human Resources*.

A directory table exists in addition to the two *Human Resources* interface tables. In this example, the following information is stored in this table:

**PTEXDIR - Interface Table for Infotypes
(Directory Table)**

Action	Date	Obj. Key	Canc. ind.
		AWKEY	STOKZ
Approve	Thursday	500	-
	Friday	501	-
Transfer	Thursday	500	-
	Friday	501	-
Change	Friday	501	-
Approve	Friday (orig.)	501	X
	Friday (new)	502	-
Transfer	Friday (orig.)	501	X
	Friday (new)	502	-
Repeat	Friday (orig.)	501	X
Transfer	Friday (new)	502	-

The system stores the approved attendance data in table PTEXDIR, as for PTEX2000. This table also contains an *object key* (AWKEY), which corresponds to the *document number* in table CATSDB and forms the link with the record in CATSDB.

For more information, see: [The Interface Tables for the Time Sheet \[Page 1780\]](#).

After the data has been transferred, the system writes the following records to the *Attendances* infotype (table PA2002):

Example: Recording Attendances for Human Resources

PA2002 - Attendances infotype (2002)

Action	Date	Att. hrs STDAZ	Ref. doc. AWREF
Transfer	Thursday	8	500
	Friday	8	501
Change	Friday	8	501
Approve	Friday	8	501
Transfer	Friday (new)	8	501
Repeat transfer	Friday (new)	9	502

As the graphic shows, this table also contains a link to table CATSDB: The CATSDB *document number* is stored as the *reference document* in table PA2002. At the same time, the *reference document* in table PA2002 corresponds to the *object key* in the *Human Resources* interface table.

In this example, the original record from Friday remains in table PA2002 until the changed record has been posted in *Human Resources* during the repeat transfer.

The original record is then deleted from table PA2002 because, during the repeat transfer, the original record is transferred with the cancelation indicator. The cancelation indicator enables the system to recognize that the original record must be deleted. The new record is then stored in its place. If the change to the record had been a cancelation, there would now no longer be a record stored in table PA2002 for that Friday.

Billing**Billing****Use**

Generally, billing represents the completion of a business transaction. You create debit memos in which you bill the customer for costs that have arisen as a result of services that have been performed or materials that have been used. Bills can also be created periodically (for example, monthly). In this case, a business transaction has not necessarily been completed when billing is performed.

Features

You have various options for billing services or materials.

Billing Actual Costs**Periodic Billing**

For more information, see [Periodic Billing \[Page 1792\]](#).

Flat Rate Billing

Prices for customer-specific services can be stored in the R/3 System as fixed prices. In the case of a standard service (for example, car inspection every 10,000 km), the fixed price can be stored in a [service product \[Page 1043\]](#) or in a [configurable service product \[Page 1044\]](#).

Resource-Related billing

The prices for some customer-specific services (for example, make-to-order production, external maintenance in service business, or specific services such as consulting) are billed using resource-related billing. The customer is charged for individual materials, internal company services and costs in the billing document.

Two different types can be distinguished in the case of resource-related billing:

[Static Resource-Related Billing \[Page 1834\]](#)

(up to Release 4.5A)

[Flexible Resource-Related Billing \[Page 1793\]](#)

(from Release 4.5A)

Billing Planned Costs**Flat Rate Billing of a Quotation**

The customer has received a quotation. You bill the customer for the delivery of materials or for performing a service using flat rate billing, according to the prices stipulated in the quotation.

Resource-Related Billing of a Quotation

The customer has received a cost proposal. You bill the customer for the delivery of materials or for performing a service using resource-related billing, and not according to the prices stipulated in the quotation.

For more information on quotations, see [Quotation Creation and Sales Pricing \[Page 723\]](#).

Periodic Billing

Periodic Billing

Purpose

For some customers, billing is performed periodically so that all deliveries that become due up to a certain date are grouped in a collective bill and then sent off together.

Maintenance contracts do not only define the customer's entitlement to services, but also describe the periodic payments for the contract items. The billing plan enables a flexible definition of the terms of payment:

Base date for the start of billing (for example, start of contract, installation date)

Horizon for the billing dates (for example, 3 months in the future, 1 year in the future)

Periodicity of the billing dates

Billing in advance or in retrospect

The system generates automatically the due billing documents on the basis of these parameters.

Prerequisites

A factory calendar must be created, containing special regulations instead of working days.

These special regulations indicate the days for which billing creation should be used.

For example, if a bill is to be created on the last working day of the month, you enter this day as both the "Valid from" day and as the "Valid to" day. This day must be indicated as being the only working day.

The number of the factory calendar must be specified in the customer master record in the field *Billing dates*.

Process Flow

You create a sales document.

The system copies the billing date from the factory calendar and enters it in the following way as the date of the bill in the corresponding document:

For order-based documents that are to be billed (credit and debit memo requests and returns) the billing date is copied into the sales document.

For delivery-based documents that are to be billed (for example, standard orders) the billing date is first copied to the delivery. However, it is not displayed there.

When the next billing date has been reached according to the factory calendar, the system displays the orders and deliveries that have accumulated in a billing due list.

You can now perform billing.

Resource-Related Billing

Use

The prices for services performed for individual customers are not always stored as fixed prices in a contract or determined using the standard pricing procedure. For example, you may be performing work that is wholly new for you. Typical examples of this are

Make-to-order production

External maintenance in the service company

Specific services, such as consulting

Orders like these are billed on a resource-related basis. In the billing document, the customer is provided with information on, for example, individual materials, internal activities, and costs. The billing document is based on the billing request .

Implementation Considerations

The resource-related billing function that was available before Release 4.5A ([static processing \[Page 1834\]](#)) has been replaced by an extended resource-related billing function. A [conversion program \[Page 1795\]](#) (report RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Features

Pricing

The system uses a pricing procedure to determine the prices for the subsequent billing request, based on the quantity and material. You can edit the billing request in the following views:

[Expenditure view \[Page 1820\]](#)

[Sales price view \[Page 1823\]](#)

For more information, see [Pricing \[Ext.\]](#) .

Application

You can use resource-related billing for the following objects:

Items in an SD document with controlling objects (that is, costs and revenues are recorded in the SD document)

Items in an SD document referencing a WBS element from a customer project

Items in an SD document referencing a production order or internal order

Non-revenue-bearing service orders referencing an item of the sales document

Revenue-bearing service orders

This means you can use resource-related billing in the Customer Service (CS), Sales and Distribution (SD), and Project System (PS) application components when processing sales and service orders.

For more information on resource-related billing in the application components, see:

Implementation Considerations

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Conversion Program

Use

The resource-related billing function that was available before Release 4.5A (static processing) has been replaced by an extended resource-related billing function. A conversion program (RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Prerequisites

You have maintained a [dynamic item processor profile \[Ext.\]](#) (DIP profile) with actual cost line items as the source.

Features

If you assign a DIP profile to a service order or sales document, the system checks whether the document has already been billed using static resource-related billing. If it has, you cannot assign the DIP profile manually. The conversion program must make the assignment.

If an object has been assigned to a DIP profile, you can no longer use static resource-related billing. You must use the new, flexible resource-related billing (DP90).



To avoid problems, we recommend you convert all sales document items relating to customer projects.

Billing Process (CS)

Billing Process (CS)

Purpose

This section describes the process flow for resource-related billing, in which you bill a customer for resources used (for example, personnel costs, material). You can use resource-related billing in Customer Service (CS) for different scenarios. For more information, see [Billing Scenarios \[Page 1801\]](#) and [Quotation Creation Scenarios \[Page 727\]](#).

Prerequisites

Customizing

You have maintained a [dynamic item processor profile \[Ext.\]](#) (DIP profile).

Service order

You have created one of the following objects:

- A revenue-bearing service order

- A non-revenue-bearing service order with reference to a sales order (for example, a repair order or a contract)

You have maintained the following sales data under *Extras* → *Sales data*:

- Sales organization

- Distribution channel

- Division

You have specified a DIP profile in the tab *Administration*.

You have specified a customer.

If you want to bill with the [service product \[Page 1043\]](#), you have specified a service product and selected the characteristic *Product* in the DIP profile.

You have released the service order and entered the costs.

Item of a Sales Document

You have created a sales document item (for example, standard order, repair order) that has a Controlling object, or that is assigned to a WBS element of a customer project.

You have assigned the item of a sales document item for which you want to perform resource-related billing to a dynamic order processing profile under *Goto* → *Item* → *Sales document*.

You have costs that are to be billed:

- Costs have been confirmed for the item of the sales document.

- A production order, internal order or work breakdown structure element (WBS element) which contains costs is assigned to the item of the sales document.

Material

If the system differentiates the planned costs (totals records) in the expenditure view based on material and should show quantity specifications, select the following indicators when creating a material:

On the tab *Costing 1*: the indicator *origin of material*

On the tab *Costing 1*: the indicator *with quantity structure*

Process Flow

You define which data are to be billed and how the system should summarize the data to be billed for the billing request in the DIP profile in Customizing.

You create a service order and specify the DIP profile.

You confirm expenses (for example, work performed, material consumed) for the service order.

You create a billing request.

The system works as follows when creating a billing request:

The system determines the items in the expenditure view using the DIP profile. These items are referred to as [dynamic items \[Ext.\]](#).

Prices are determined using [SD-Price Determination \[Ext.\]](#). The pricing procedure necessary for this is determined from the document category specified in the DIP profile.

You can choose one of two views for editing:

[Expenditure view \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

You save the expenditure view if required.

You create a billing request in the expenditure view.

You generate a billing document in the component *Sales and Distribution* (SD).

See also

[Resource-Related Billing \(CS\) \[Page 1798\]](#)

[Billing Options \[Page 1828\]](#)

[Settings: Billing \[Page 1825\]](#)

Resource-Related Billing (CS)

Resource-Related Billing (CS)

Use

The prices for services performed for individual customers are not always stored as fixed prices in a contract or determined using the standard pricing procedure. It is possible that specific services do not have prices that are based on experience, meaning that the services cannot therefore be adequately costed before contract completion. Typical examples of this are

Make-to-order production

External maintenance in the service company

Specific services, such as consulting

In Customer Service (CS), you can bill the customer using resource-related billing for the resources consumed (for example, personnel, material) for services provided. In resource-related billing, the system generates so-called [dynamic items \[Ext.\]](#) from the resource-related information (for example, costs for material, utilities, personnel, travel).

You can choose from two views for processing the billing request that you generate before you create your own billing document:

[Expenditure view \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

You can use resource-related billing in Customer Service for different scenarios. For more information, see [Billing Scenarios \[Page 1801\]](#) and [Quotation Creation Scenarios \[Page 727\]](#).

For additional general information on resource-related billing, see [Resource-Related Billing \[Page 1793\]](#).



The resource-related billing function that was available before Release 4.5A ([static billing \[Page 1834\]](#)) has been replaced by an extended resource-related billing function. A [conversion program \[Page 1795\]](#) (report RDPFLOW00) is provided to enable you to convert from the old to the new billing functions.

Prerequisites

For more information on the prerequisites, see [Resource-Related Billing: Process \(CS\) \[Page 1796\]](#).

Features

General

You can use resource-related billing in Customer Service for the following objects:

Non-revenue-bearing service orders referencing an item of the sales document

Revenue-bearing service orders

Usage of Service Products

When billing, you can use [service products \[Page 1043\]](#) and [configurable service products \[Page 1044\]](#).

If you decide on a **process with service product**, this presents the following advantages:

The cumulated amount is displayed in the billing request under the title of the service product (for example, bicycle assembly).

You can display the services agreed upon and described in the service product as sub-items in the billing request for information purposes.

In the case of the billing form *Flat rate*, only the main item is relevant for billing, whereas for the billing form *Resource-related*, the sub-items are relevant for billing. The scenario from assembly processing is an exception to this. Here, the expenses are returned as sub-items in the sales order item. For more information, see [Scenario 4 \[Page 1809\]](#).

You define whether a service product is copied into the billing request in the [dynamic item processor profile \[Ext.\]](#).

If you decide on a **process without service product**, only the costs that have arisen are displayed on the billing request. The customer no longer obtains information about which service (for example, standard service, service package, or service product) he specified in the order.

Features

The system does not generate a new sales document from the dynamic items during **repairs processing**. Instead it creates subitems in the repairs order which serve as the basis for the creation of billing documents.

This is true in the following cases:

For **sales order processing with service items**, if you have selected the billing form *Flat-rate*

For a **quotation with service product**, if you have selected the billing form *Flat-rate*

Accounting Indicator

The accounting indicator is a criterion that you can use to differentiate costs and revenues within the framework of call management. This enables costs incurred and revenues obtained to be identified by warranty or goodwill.

If you only want to bill a dynamic item partly or not at all, you can determine a discount for the customer on the basis of the accounting indicator. To do this, a condition type, in whose access sequence the accounting indicator is present, must be contained in the pricing procedure for pricing (in Customizing for Sales and Distribution under *Basic Functions* → *Pricing*). The dynamic item is displayed with the accounting indicator in the billing request.

You can

Change the accounting indicator in the [expenditure view \[Page 1820\]](#)

The change only applies to the resources view and the billing request. This does not affect the CO individual document.

[Reposting \[Page 1815\]](#)

You post a different accounting indicator for the CO individual document that the system has, for example, created for a completion confirmation.

Resource-Related Billing (CS)

For more information on the accounting indicator, see [Accounting Indicator in the Completion Confirmation \[Page 1602\]](#).

Apportionment Reason

If you do not want to bill a customer for a dynamic item, you can specify the reason for this (for example, warranty return) in the overview screen as an apportionment reason. The dynamic item **is not** displayed in the billing request. The reason is only used internally and can therefore be used during results analysis.

Activities**Settings in Customizing**

Function	Object	Menu Path in the IMG
Define default values for DIP profile	Service order	<i>Plant Maintenance and Customer Service → Maintenance and Service Processing → Maintenance and Service Orders → Functions and Settings for Order Types → Credit Limit Checks, Sales Document Types for Service Orders</i>
Define default values for DIP profile	Sales order by item category	<i>Sales and Distribution → Sales → Sales Documents → Sales Document Item → Define Item Categories</i> When you create a sales order, the system uses the order type and the item category of the material to find the item category that you have stored in a DIP profile.
Maintain sets for DIP profile	Set	<i>Enterprise Controlling → Profit Center Accounting → Tools → Sets and Variables → Maintain Sets</i>

See also

[Billing Options \[Page 1828\]](#)

[Settings: Billing \[Page 1825\]](#)

Billing Scenarios

Use

This scenario describes different scenarios that you can represent in the R/3 System for billing. The table provides an overview of flat rate and resource-related billing with [dynamic items \[Ext.\]](#). You can call up more detailed information for the individual scenarios:

Object to be Billed	Use	Features
Service order		
Service order	The work that was performed, the materials that were used, and the additional costs that arose within the framework of providing a service are to be billed to the customer. Resource-related billing can be performed once the service has been completed, or periodically in the case of extensive services that are performed over a long period of time. No contractual agreements exist.	See Scenario 1 [Page 1803]
Service order	A predefined service product (for example, standard service, service package) is sold to the customer.	See Scenario 2 [Page 1805]
Service order with reference to a sales document item (contract or sales order item from assembly processing)	A contract is drawn up with the customer or a standard service is sold to the customer (service package already created in the system). The service is to be billed to the customer based on the expenses that have arisen.	See Scenario 3 [Page 1807]
Service order with reference to a sales order item from assembly processing	A predefined service product is sold to the customer. A flat rate price is defined for the service product, or is agreed upon. If required, you can list the work that has been performed in the bill.	See Scenario 4 [Page 1809]
Sales document		
For example, sales order item with internal order, production order, etc.	The customer should be billed within the framework of production for services that have been performed, materials that have been used and so on.	See Scenario 5 [Page 1811]
For example, sales order item with cost collector	The customer is to be billed for services (for example, consultation service at the service provider's) that have been confirmed for a sales document item.	See Scenario 6 [Page 1813]

Billing Scenarios

For example, sales order item with WBS element (customer project)	The customer should be billed within the framework of a customer project for services that have been performed, materials that have been used and so on.	See Scenario 7 [Page 1818]
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Billing - Scenario 1 (CS)

Use

The work that was performed, the materials that were used, and the additional costs that arose within the framework of providing a service are to be billed to the customer.

Resource-related billing can be performed once the service has been completed, or periodically in the case of extensive services that are performed over a long period of time. No contractual agreements exist.

Representation in the System

Service order

No billing form, or billing form *Resource-related*

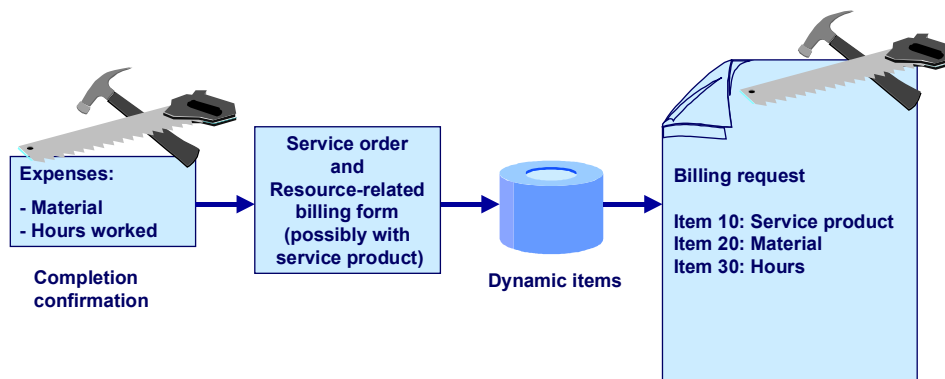
With or without service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	Service product (if available)
Hours worked	

Graphical Representation



Billing - Scenario 1 (CS)**Features**

The service order carries revenues and these are posted to the order during billing.

You can copy a service product into the billing request for structuring purposes. You define whether it is copied using the [dynamic item processing profile \[Ext.\]](#).

Billing - Scenario 2 (CS)

Use

A predefined service product (for example, standard service, service package) is sold to the customer.

Representation in the System

Service order

Billing form *Flat rate*

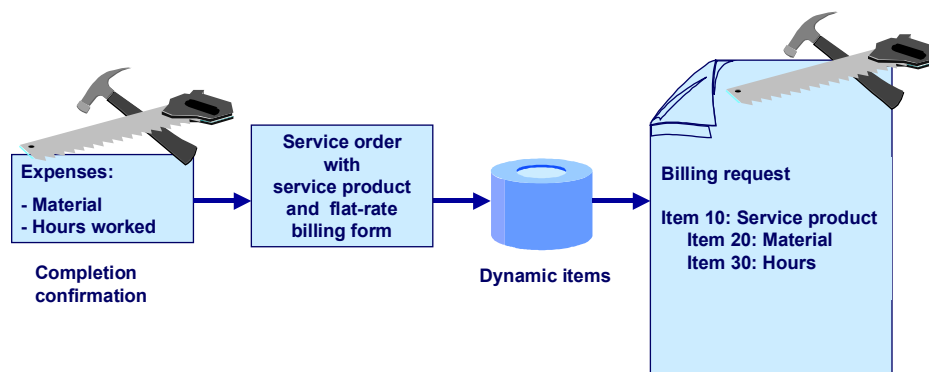
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Service product	Material
	Hours worked

Graphical Representation



Features

The service order carries revenues and these are posted to the order during billing.

The service product must be copied into the billing request because the flat rate is linked to it.

Billing - Scenario 3 (CS)

Use

A contract is drawn up with the customer or a standard service is sold to the customer (whereby the service package has already been created in the system as a service product). The service is to be billed to the customer based on the expenses that have arisen.

Representation in the System

Service order with reference to a sales document item (contract or sales order item from assembly processing)

Billing form *Resource-related*

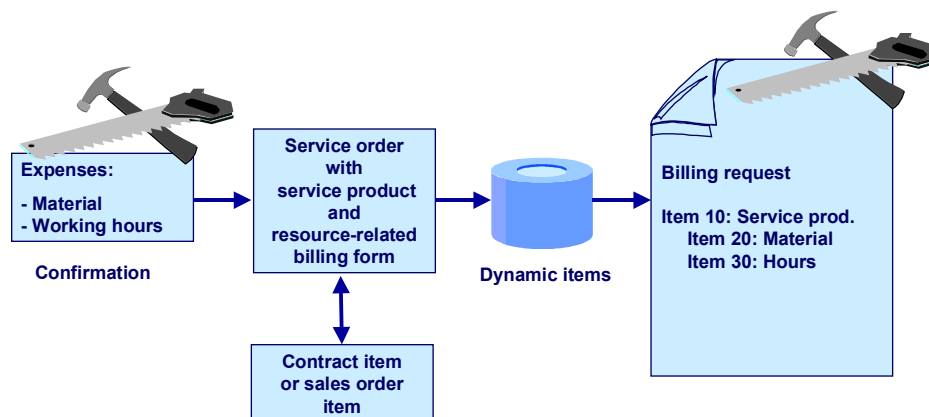
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	Service product
Hours worked	

Graphical Representation



Billing - Scenario 3 (CS)**Features**

If the service order makes **reference to a contract item**, it does not carry revenues. The revenues are posted to the contract item during billing.

If the service order makes **reference to a sales order item**, it does not carry revenues. The revenues are posted to the sales order item during billing.

The system copies the service product into the service order and possibly into the billing request (setting in the [dynamic item processor profile \[Ext.\]](#)).

You can bill several items of a sales document together if the service product is not copied into the billing requests.

Billing - Scenario 4 (CS)

Use

A predefined service product is sold to the customer. A flat rate price is defined for the service product, or is agreed upon. If required, you can list the work that has been performed in the bill.

Representation in the System

Service order with reference to a sales document item from assembly processing

Billing form *Flat rate*

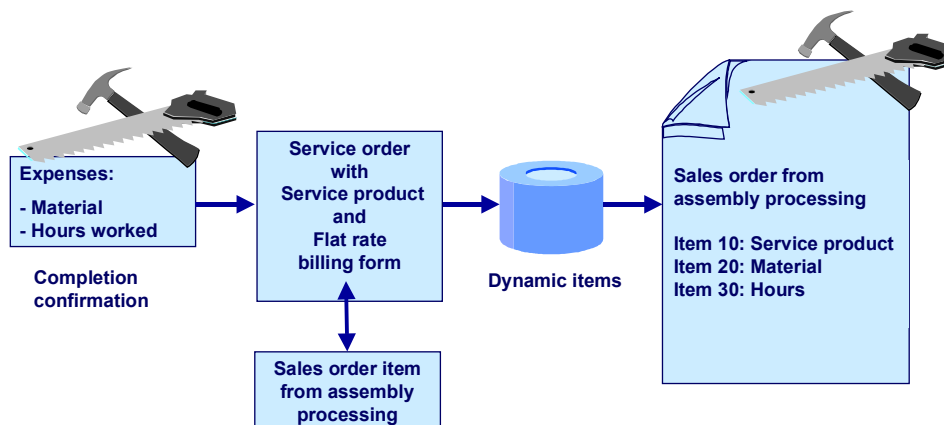
With service product

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Service product	Material
	Hours worked

Graphical Representation



Features

The service order carries revenues. The revenues are posted to the sales order during billing.

Billing - Scenario 4 (CS)

During flat rate billing, you can only bill one item. The dynamic items are copied as sub-items into the original sales order.

Billing - Scenario 5 (CS)

Use

The customer should be billed within the framework of production for services that have been performed, materials that have been used and so on.

Representation in the System

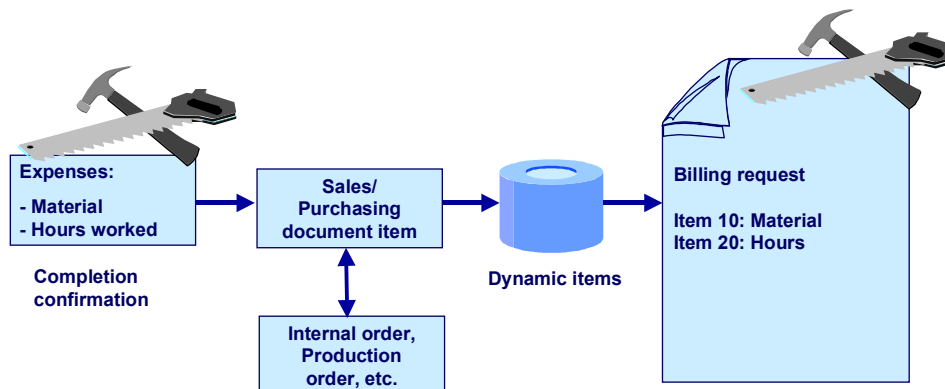
Sales document item (here, a sales order item) with reference to an internal order or production order.

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the sales document item during billing.

You can bill several items of a sales document at the same time.

Billing - Scenario 6 (CS)

Use

The customer is to be billed for services (for example, consultation service at the service provider's) that have been confirmed for a sales document item.

Representation in the System

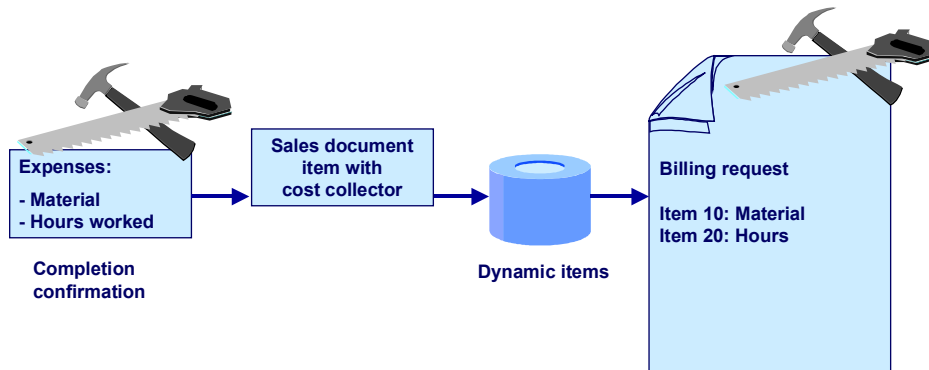
Sales document item (here, a sales order item) with cost collector

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the sales document item during billing.

You can bill several items of a sales document at the same time.

Reposting the Accounting Indicator

Use

You can use this function to change the accounting indicator that is specified, for example, in a completion confirmation.

Instead of canceling the completion confirmation, you can change the accounting indicator for the CO individual document that the system has created for the completion confirmation. The system posts the CO individual document with the new accounting indicator.



You can also change the accounting indicator in resource-related billing in the [expenditure view \[Page 1820\]](#). This function is **not** identical to reposting the accounting indicator. If you change the accounting indicator in the overview screen, the change only applies to the overview screen and not to the billing request. It does not affect the CO individual document.

Procedure

You can use this function for a different scenarios. The process flow is described using an example scenario and is also valid for the other objects for which you can perform resource-related billing.

Scenario:

Quotation for Service Management, without service product, billing form *Resource-related*

Choose *Logistics* → *Customer service* → *Service processing* → *Completion* → *Create billing request* → *Repost accounting indicator*.

The initial screen for reposting the accounting indicator is displayed.

Enter the necessary data and choose *Program* → *Execute*.

A list of dynamic items is displayed.

Change the accounting indicator of the appropriate dynamic item.

Save the changes.

Billing Process (PS)

Billing Process (PS)

Purpose

You use this process to bill the customer for work done, materials used, and other costs in customer projects. Billing is on a resource-related basis.

You use sales order items assigned to projects to process customer projects in the SAP system. You create [billing requests \[Ext.\]](#) using sales orders in the Sales and Distribution (SD) application component. The process for resource-related billing in customer projects is the same as the process used in SD.

Integration

You can only use this component in conjunction with SD because a sales order assigned to a project must exist before you can use resource-related billing.

When you assign one or more order items to a WBS element flagged as a billing element, you are linking the sales order in SD with the Project System (PS).

The billing element referenced in the sales order item is the top element in a billing structure. All objects subordinate to the billing element in the hierarchy (WBS elements, orders, networks, network activities) belong to this billing structure.

Prerequisites

Customizing in SD

You create an order item that references an element in a customer project.

To this end, you enter the WBS element to which you want to assign the order item in the *Account Assignment* tab page.

You maintain a [dynamic item processor profile \[Ext.\]](#) (DIP profile) in the order.

To this end, you enter a DIP profile for the order item in the *Sales B* tab page.

In the order item, you enter a material that permits account assignment to a project.

For more information, go to the Project System IMG and choose *Revenues and Earnings* → *Integration with Sales Documents (SD)* → *Assign Sales Orders to Project Account*.

Customizing in PS

You define a DIP profile.



If you maintain the DIP profile in such a way that the system takes actual cost summary records as the source of dynamic items, the system does not display the costs differentiated by material.

Additional Prerequisites

The WBS element assign to the sales order item is cost-bearing.

Process Flow

You define which data is to be billed and how the system should summarize the data to be billed for the billing request in the DIP profile in Customizing.

You confirm expenses (for example, work performed, material consumed) for the sales order.



You have the option of using accounting indicators, as well as cost elements, to distinguish between the costs confirmed. For more information on the accounting indicator, see [Accounting Indicator in the Completion Confirmation \[Page 1602\]](#). and [Reposting Accounting Indicators \[Page 1815\]](#).

You create a billing request.

The system works as follows when creating a billing request:

The system starts with the costs and determines the items for the expenditure view, using the DIP profile (see prerequisites). These items are referred to as dynamic items.

The system sorts the dynamic items per the SD order items and uses [SD price determination \[Ext.\]](#) to calculate the price for the billing request.

The system uses the document category (from the DIP profile) to determine the pricing procedure used here.

You can choose one of two views for editing:

[Expenditure View \[Page 1820\]](#)

[Sales Price View \[Page 1823\]](#)

Save the billing request in a document.

The system records the revenues in the project.

Billing - Scenario 7 (PS)

Billing - Scenario 7 (PS)

Use

The customer should be billed within the framework of a customer project for services that have been performed, materials that have been used and so on.

For more information on resource-related billing in PS, see [Resource-Related Billing Process \(PS\) \[Page 1816\]](#)

Representation in the System

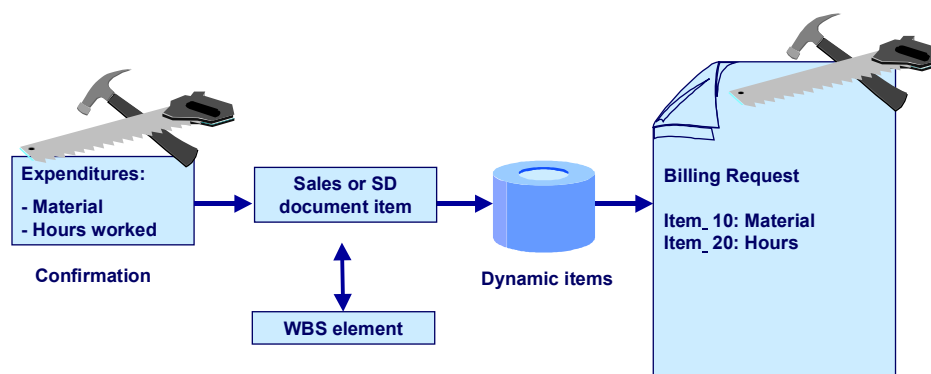
Sales document item (here, a sales order item) with reference to a WBS element.

Relevance for Billing

The table describes which objects are relevant for billing in this scenario.

Relevant for Billing	Not Relevant for Billing
Material	
Hours worked	

Graphical Representation



Features

The revenues are posted to the WBS element during billing.

You can bill several items of a sales document at the same time.

Processing the Expenditure View

Processing the Expenditure View

Use

You can edit the items in resource-related billing in the following views:

Expenditure view

[Sales Price View \[Page 1823\]](#)

You can switch between the views at any time.

The expenditure view shows the costs from the sales/service order or project, summarized using the DI processor. The summarized costs - called [dynamic items \[Ext.\]](#) - form the items in the expenditure view.

You use the expenditure view to determine whether the system bills the costs summarized for dynamic items in full, later, or does not include them in the billing request at all.

The screen for the expenditure view is comprised of an overview tree and a table.

The overview tree shows the hierarchy of SD items per the selected characteristics from the DIP profile.

The table displays the hierarchy node selected in the overview tree, and the objects subordinate to it (the SD document items).

Features


The tables below contain information on the processing options:

In the overview tree






In the table

Using the menu bar



Processing Options in the Overview Tree

Function	Procedure	Result
Hierarchy change in the structure	<i>Edit → Hierarchy change</i>	You can change the hierarchy at any time, and display the new hierarchy immediately. These settings override the structuring setting entered in the DIP profile for a characteristic.
Open and close hierarchy nodes	Click  once.	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignments within the project structure, or of the sales/service order.

Processing the Expenditure View






Display detailed information for the objects	Double click the symbol in front of the object	The system displays the detailed information. Choose  to return to the expenditure view.
Display objects in table	Double click the object description	The hierarchy node and its direct successors are displayed in the table.
Lock values	Set the  <i>Locked</i> indicator.	You stipulate, for a hierarchy node and/or the objects subordinate to it, that the values in the hierarchy node should be sent to the billing request unchanged.
Display processing status	 – To be billed  – To be postponed  – Rejected	The status symbols show whether and in what amount the system copies the original amount of an item into the billing request.

Processing Options in the Table

Function	Procedure	Result
Edit values	Process the values in the <i>Amount</i> , <i>Quantity</i> , or <i>Percent</i> tab page, as appropriate.	<p>You stipulate whether the system should take over some, all, or none of the original amount for an item into the billing request.</p> <p>The symbols in the <i>Status</i> column changes as appropriate (see table above).</p> <p>Apportionment Reason</p> <p>If you do not want to bill a customer for a dynamic item, you can specify the reason for this (for example, warranty return) as an apportionment reason.</p> <p>The dynamic item is not displayed in the billing request. The reason is only used internally and can therefore be used during results analysis [Ext.] .</p>
Lock values	Set the  <i>Locked</i> indicator.	You stipulate, for a hierarchy node and/or the objects subordinate to it, that the values in the hierarchy node should be sent to the calculation unchanged.
Display detailed information	Double click line in table	<p>The system displays the detailed information.</p> <p>Choose  to return to the expenditure view.</p>

Processing the Expenditure View

Processing Options Using the Menu Bar

Function	Procedure	Result
Hide structure tree and display it again	Choose  .	The structure tree is hidden; the table display is expanded to fill the screen. Choose  again to restore the structure tree display.
Switch to the sales price view	Choose  <i>Sales Price</i> .	The system displays the sales price view
Save billing request in a document	Choose  .	The system saves the billing request in a document. You can edit the document later.
Generate billing request	Choose  <i>Billing Request</i> .	You generate a billing request in the <i>Sales and Distribution</i> (SD) application component.

See also:

[Settings: Sales Pricing and Billing \[Page 1825\]](#)

Editing the Sales Price View

Use

You can edit the items in resource-related billing in the following views:

[Expenditure view \[Page 1820\]](#)

Sales price view

You can switch between the views at any time.

This sales price view shows the items from the expenditure view, sorted and combined per SD items. The prices for the items are calculated using [SD pricing \[Ext.\]](#).

In the sales price view, you can edit individual or header items from resource-related billing, with the help of [SD conditions \[Ext.\]](#). If you make changes in the header item, the system automatically copies them to the line items.

The screen for the sales price view is comprised of an overview tree and a table.

The overview tree shows the hierarchy of SD items per the selected characteristics from the [DIP profile \[Ext.\]](#).

The table displays the hierarchy node selected in the overview tree, and the objects subordinate to it (the SD document items).

Procedure


The tables below contain information on the processing options:

In the overview tree


In the table

Using the menu bar






Processing Options in the Overview Tree

Function	Procedure	Result
Open and close hierarchy nodes	Click  once.	Opening and closing hierarchy nodes gives you an overview of the dynamic items and their assignments within the project structure, or of the sales/service order.
Display objects in table	Double click the object description	The hierarchy node and its direct successors are displayed in the table.




Processing Options in the Table

Function	Procedure	Result
Display detailed information	Select a line in the table and choose  .	The system displays detailed information in a dialog box.

Editing the Sales Price View

Enter conditions for pricing	Use the <i>Condition type</i> table column to choose conditions	You choose a condition type and enter the appropriate value. The system updates the price automatically. See also: Maintaining Conditions [Ext.]
Display condition records	Select a condition record and choose  <i>Condition Record</i> .	The system displays the detailed information for the selected condition type. Choose  to return to the sales price view.
Update prices	Choose  <i>Update</i> .	You can stipulate that the system updates all of pricing or only part of it by, for example, recalculating the rebate conditions. See also: Repeating Pricing [Ext.]
Display pricing log	Choose  <i>Analysis</i> .	The system displays a detailed log of pricing. Choose  to return to the sales price view. See also: Analyzing Pricing and Conditions [Ext.]

Processing Options Using the Menu Bar

Function	Procedure	Result
Switch to the expenditure view	Choose  <i>Expenditure</i> .	The system displays the expenditure view
Save billing request in a document	Choose  .	The system saves the billing request in a document. You can edit the document later.
Generate billing request	Choose  <i>Billing Request</i> .	You generate a billing document in the <i>Sales and Distribution (SD)</i> component.



See also:[Settings: Sales Pricing and Billing \[Page 1825\]](#)

Settings: Sales Pricing and Billing

Features

Choose *Extras* → *Settings* to access four tab pages where you can enter the settings described below.

You can do the following with your settings:

- Store them for the duration of your current processing: choose .
- Save them in the database: choose .

If you update the settings to the database, the system automatically accesses them each time you access the sales pricing again.


The settings apply to [quotation generation or sales pricing \[Page 723\]](#) and [resource-related billing \[Page 1793\]](#).


General Tab Page


Sales Pricing or Quotation Creation

- You can choose between the sales price view or the sales price basis as the initial view for the sales pricing.

The system displays the relevant view when you choose one of the following pushbuttons in the initial screen for sales pricing or creating quotations:

 *Create new sales pricing*

 *Access sales pricing*

- If you want the system to display the quotation document for further processing once it has been created (by means of  *Create quotation*), select the indicator *Show quotation doc. after saving*.


If you do not select this indicator, the system simply displays a message, confirming that the quotation has been created.

Resource-Related Billing

- You can choose between the sales price view or the expenditure view as the initial view for the sales pricing.

To access the view you want, go to the *Create Billing Request: Initial Screen* and choose



- If you want the system to display the billing request for further processing once it has been created (by means of  *Billing Request*), select the indicator *Show billing request after saving*.

If you do not select this indicator, the system simply displays a message, confirming that the billing request has been created.

Settings: Sales Pricing and Billing**Structure Tree Tab Page**

Here, you determine how the two screen areas (table and structure tree) are arranged in the two views.

- Sales price basis view/expenditure view
You can show or hide the structure tree at the top of the screen or at the bottom, on the left or on the right. The tree reproduces the dynamic item hierarchy.
- Sales price view
You can show the structure tree at the top of the screen or at the bottom. The tree reproduces the individual SD documents with main items and subitems.

Sales Price Basis/Expenditure Tab Page

- You can choose the currency in which the system displays the sales price basis/expenditure items. You can choose between controlling area currency, object currency, and transaction currency. This setting does not affect the currency transferred to the quotation/billing request.
The system usually transfers the transaction currency, unless the *Transaction currency* field is not filled. In this event, the controlling area currency is transferred. This happens if the *All currencies* field is not selected (in cost accounting customizing, under *Controlling* → *General Controlling* → *Maintain Controlling Area*).
- If you select the indicator *Only dynamic items will accept input*, it will only be possible to enter values for the dynamic items.
- Selecting the *Block in manual input* indicator ensures that values changed manually can be overwritten.

Description Tab Page

The system only draws on this tab page in the sales price basis view/expenditure view.

You use this tab page to stipulate how the [dynamic items \[Ext.\]](#), objects, and the selected characteristics are labeled in the structure tree and table.

- You can use any combination of posting period, material number, and material description as the description in a dynamic item.
- You can use the short or long description of an object as its description in the DIP.
- You can use an abbreviation and/or the short/long description of a characteristic as the label for that characteristic.



This tab page is the header for a variable number of subordinate tab pages. The number of tab pages depends on whether you have maintained the activity type, cost element, cost center type, and statistical key figures as structuring characteristics in the DIP profile.

The system displays one tab page for each of these structuring characteristics. In addition to the optional tab pages, the system always displays the *Dynamic Items* and *Object* tab pages.

Activities



- Depending on which component and process you are using, choose one of the following menu paths:

Sales Pricing or Quotation Creation

Component	Menu Path
CS	<i>Logistics → Customer Service → Service Processing → Order → Service Order → Create Quotation</i>
PS	<i>Logistics or Accounting → Project System → Financials → Planning → Sales Pricing.</i>

Resource-Related Billing

Component	Menu Path
SD	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>
CS	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>
PS	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document</i>

- Choose *Extras → Settings...*
The *Settings* dialog box appears.
- Select the tab page indicators described above as required.
- Choose  to save the settings for the duration of your processing work.
- Choose  to save the data in the database.

Billing Options

Billing Options

Use

You use resource-related billing to calculate the price for a sales/service order or customer project on a resource-related basis, and save the result in a billing request.

Prerequisites

For information on the prerequisites, see:

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Billing in SD follows the same procedure as billing in PS.

Procedure

Choose the appropriate menu path:

Component	Menu Path	Resulting Screen
CS	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>	<i>Resource-Related Billing Request: Initial Screen</i>
PS	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>	<i>Resource-Related Billing Request: Initial Screen</i>
SD	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>	<i>Resource-Related Billing Request: Initial Screen</i>

Enter data as required.

If necessary, overwrite the pricing date defaulted by the system (today's date). The date you enter applies to all items in the billing request.

If you want to use your own settings for sales pricing, choose *Extras → Settings...*





Here, for example, you can determine how the screen areas are divided or stipulate to which of the two processing views you want to jump when you access a resource-related billing again.

For more information on the settings, see [Settings: Sales Pricing and Billing \[Page 1825\]](#).

Once you have chosen your selection criteria and decided on settings, the following additional options for further processing are available:

Pushbutton	Function
------------	----------

Billing Options

 <i>Expenditure</i>	<p>This view shows the costs from the sales/service order or project billing structure, summarized using the DI processor [Ext.]. The summarized costs form the items in the expenditure view.</p> <p>You can use this view to edit the items in resource-related billing and transfer some, all, or none of them to the billing request.</p> <p>For more information, see Editing the Expenditure View [Page 1820].</p>
 <i>Sales price</i>	<p>This view shows the items from the expenditure view, sorted and combined per SD items. The prices for the items are calculated using SD pricing.</p> <p>In the sales price view, you can edit individual or header items from resource-related billing, with the help of SD conditions.</p> <p>For more information, see Editing the Sales Price View [Page 1823].</p>
 <i>Create billing request</i>	<p>The system carries out resource-related billing and creates a billing request.</p> <p>If you chose <i>Extras</i> → <i>Settings...</i> and selected <i>Show billing request after saving</i> on the <i>General</i> tab page, the system creates the billing request and jumps to the change mode for it.</p> <p>If you did not select the indicator, a message appears in the status line, telling you that the billing request was created successfully.</p> <p>For more information, see Creating Billing Requests [Page 1830].</p>
 <i>Access billing request</i>	<p>The system accesses an existing billing request.</p> <p>If more than one billing request exists, the system asks you to choose one.</p> <p>Depending on the settings you entered under <i>Extras</i> → <i>Settings</i>, you then branch to the expenditure view or the sales price view.</p>

Creating Billing Requests

Creating Billing Requests

Use

You can use this function to create the billing request for a sales/service order or a customer project.

For more information, see [Resource-Related Billing \[Page 1793\]](#).

Prerequisites

For information on the prerequisites, see:

[Billing Process \(CS\) \[Page 1796\]](#)

[Billing Process \(PS\) \[Page 1816\]](#)

Procedure

Choose one of the following menu paths:

Component	Menu Path
Customer Service (CS)	<i>Logistics → Customer Service → Service Processing → Completion → Create Billing Request → Individual Processing.</i>
Sales and Distribution (SD)	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>
Project System (PS)	<i>Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Resource-Related Billing Document.</i>


The system displays the *Resource-Related Billing Request: Initial Screen*.

Specify the sales order or service order for which you want to create a billing request. If you want the billing request only to cover particular items from the order, specify the items.

To display the billing request for further processing, choose *Extras → Settings...* and select *Show billing request after save*.

For more information on the settings, see [Settings: Sales Pricing and Billing \[Page 1825\]](#).

You can create the billing request in one of the following ways:

To copy data to the billing request directly from the system, choose  *Billing Request*.

The system generates a billing request for the sales/service order.

If you want to edit the data from the system copied to the billing request, choose one of the processing views.

For more information, see:

[Processing the Expenditure View \[Page 1820\]](#)

[Processing the Sales Price View \[Page 1823\]](#)

If you did not select the *Show billing request after save* indicator, a message appears in the status line, telling you that the billing request was created successfully.

Creating Billing Requests

If you did select the indicator, the system displays the *Change Billing Request: Overview* screen.

Result

The system uses the [DI processor \[Ext.\]](#) to summarize the costs from the sales/service order into dynamic items. When valuing the dynamic items, the system takes account of the conditions and prices defined in SD.

It takes the currencies from the CO documents (object currency) or customer master (transaction currency).

Choose *Extras* → *Settings* to stipulate which currency (controlling area currency, object currency, or transaction currency) is relevant for the individual items.

Changing Billing Requests

Changing Billing Requests


Choose *Logistics* → *Sales and Distribution* → *Sales* → *Order* → *Change*.

The *Change Sales Order: Initial Screen* appears.

Enter the billing request number in the *Order* field, then choose an overview.

The *Change Sales Order: Overview* screen appears.

Process the items as you wish.

Choose  to save the changes.

Canceling Billing Requests

Use

You need to cancel billing requests if the items in it are not to be billed or need to be made available for a new billing request.

For technical reasons, cancellation is not possible. However, you can define reasons for rejecting items. Billing then ignores the items and they are available for later billing. That is, if you cancel values from a [dynamic item \[Ext.\]](#) that have already been billed, the values in question then appear in the *To be billed* column in the [expenditure view \[Page 1820\]](#) the next time you bill.

Activities

You can define rejection reasons in SD customizing by choosing *Sales and Distribution* → *Sales* → *Sales Documents* → *Sales Document Item* → *Define Reasons for Rejection* (see also: [System Settings \[Ext.\]](#)).

Static Billing

Static Billing

Use

If no sales order or service contract exists for the service order and the order type allows revenues to be posted to the order, you can create a request for resource-related billing directly for the service order.

The revenues from the billing document are posted to the service order, where the net revenue is determined as the difference between the revenue and the costs. The service order can then be settled to a profitability segment or to a G/L account.

The type of billing described here is static resource-related billing. From Release 4.5A, you can perform [flexible resource-related billing \[Page 1793\]](#).

Prerequisites

You can only create a billing request directly for a service order that is settled to a G/L account or a profitability segment, that is, to account assignment objects with a revenue account.

In resource-related billing, the materials, activities and costs are itemized in the billing document. The billing document is sent to the customer. The activities and costs are represented by **activity numbers**, that form the basis for determining prices and texts in the billing document.

An authorized system user defines the activity numbers when configuring the system for the company. If you have the necessary authorization, you can also define or display the activity numbers. To do this, choose *Completion* → *Determine activity* in the *Service Processing* screen.

To perform resource-related billing, you need to define activity numbers for the following during system configuration:

Cost elements

Cost center activity types

During billing, the cost elements and cost center activity types contained in the line items are converted to the corresponding activity number and entered in the billing request.

Features

For more information on general billing functions in the R/3 System, refer to the documentation *SD - Sales and Distribution Processing*.

See Also:

[Billing Document \[Ext.\]](#)

Workflow Scenarios (PM/CS)

PM/CS - Plant Maintenance & Customer Service: Workflow Scenarios

See also:

[BC - Workflow Scenarios in Applications \[Ext.\]](#)

Maintenance Notifications (PM-WOC-MN)

This workflow scenario supports you when processing maintenance notifications in the *Plant Maintenance* (PM) application component.

Processing of a Maintenance Notification (PM-WOC-MN)**Processing of a Maintenance Notification (PM-WOC-MN)****Purpose**

This workflow scenario supports your business processes for maintenance processing. In this scenario, the *SAP Business Workflow* component helps you to process, monitor and complete newly created maintenance notifications efficiently. This process is represented in a workflow template, which triggers and controls the execution of the following standard tasks:

Notifying a person responsible (for example, the notification coordinator) that a new maintenance notification has been created or put in process, and that tasks must be defined for the notification

Notifying a person responsible that tasks, which must be processed, have been created for the maintenance notification

Notifying a person responsible (for example, the notification coordinator) that all the tasks for the maintenance notification have been completed, and the maintenance notification must either be completed or additional tasks must be defined for the notification

SAP Business Workflow

If the appropriate system settings have been made, the *SAP Business Workflow* automatically sends a work item to the person(s) or department(s) responsible and informs them that certain tasks need to be executed. The following tasks and triggering events belong to this process:

Task	Triggering Event
Processing of an outstanding maintenance notification without tasks	The person responsible is notified when a maintenance notification has been created manually in the system.
Processing of a maintenance notification with outstanding tasks	The person responsible is notified as soon as the tasks have been created in the notification and the notification has been saved.
Completion of a maintenance notification with completed tasks	The person responsible is notified as soon as the tasks have been completed in the notification and the notification has been saved.

Determination of the Person(s) or Department(s) Responsible

For each of the above tasks, the system notifies the following people or departments in the order listed below:

Notification coordinator

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

Prerequisites

Refer to [Preparation and Customizing \(PM-WOC-MN\) \[Page 1842\]](#)

Process Flow

Refer to [Process for Workflow Template WS20000317 \[Page 1841\]](#)

Technical Realization (PM-WOC-MN)

Technical Realization (PM-WOC-MN)

The interface between the R/3 functions and the *SAP Business Workflow* is realized using object technology. In this workflow scenario, the system processes the following objects:

Objects	What You Should Know:
Task group TG20000015	The task group contains all the workflow objects, which belong to the workflow scenarios for maintenance notifications.
Business object <i>BUS2038</i> (maintenance notification)	A maintenance notification corresponds to business object type <i>BUS2038</i> . A maintenance notification is identified by the notification number (key field). You can find the attributes, methods and events for business object <i>BUS2038</i> in the <i>Business Object Repository</i> of the R/3 System.
Standard tasks: TS20000545 (process new notification) TS20000544 (notification is processed) TS20000546 (complete notification)	These are single-step tasks, which refer to an object method. This task is assigned to the people or departments that are authorized to process the object.
Workflow template WS20000317	This template contains the definitions of the workflow task for this workflow scenario. You can use this workflow template to notify the people responsible that a maintenance notification has been created. The triggering events for this workflow template are <i>CREATED</i> and <i>INPROCESSAGAIN</i> .
Standard role AC00000171	This is the standard role for maintenance notifications. The role resolution (defined in the standard role definition) is used to determine who is responsible for the processing of a maintenance notification.

Process for Workflow Template WS20000317

Purpose

The workflow template for this process is started when you create a new maintenance notification.

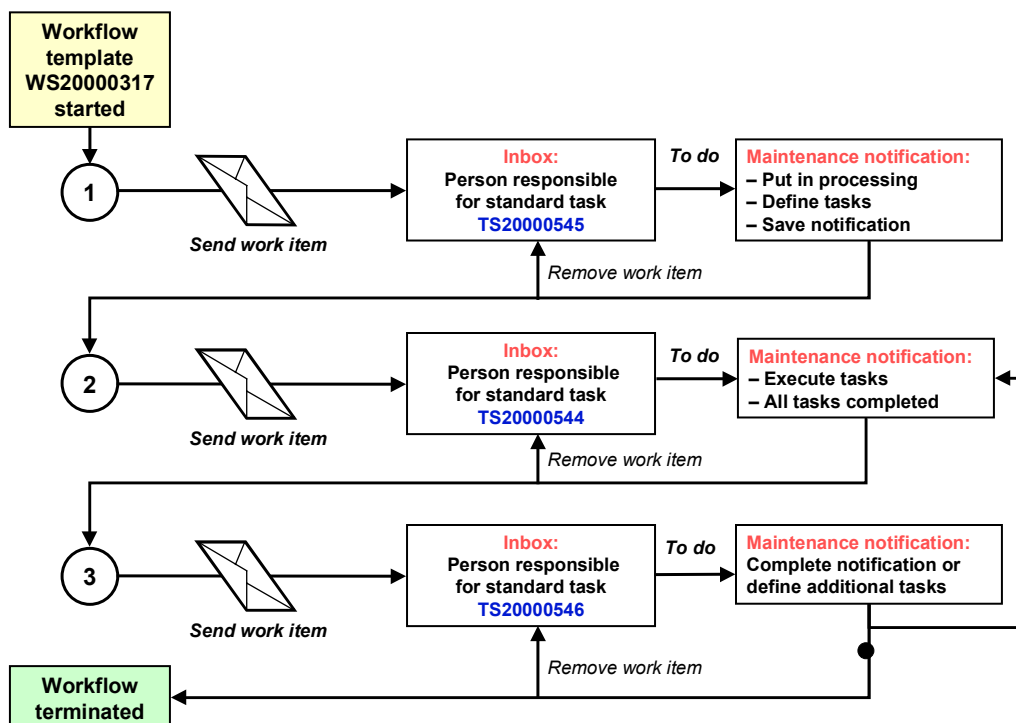
Process Flow

The system triggers one of the following events for business object BUS2038 (maintenance notification):

CREATED (maintenance notification created)

INPROCESSAGAIN (maintenance notification in process again)

The triggering event starts the workflow template WS20000317 and the linked process as described in the following graphic.



The standard tasks in this process are valid from Release 4.6.

Preparation and Customizing (PM-WOC-MN)

Preparation and Customizing (PM-WOC-MN)

Use

The **application-specific** Customizing settings, which you must make to process this workflow template, are described here.

Prerequisites

All the **general** Customizing settings, which are required for the *SAP Business Workflow* component to be used, have been made.

Activities

Make the following settings in Customizing:

Set up the organizational structure and thereby determine your organizational units:

Basis → Business Management → SAP Business Workflow → Edit Organizational Structure

Assign the organizational units to the standard tasks:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Maintenance Notifications → Assign Agents to Tasks

Activate the link between triggering event (CREATED, INPROCESSAGAIN) and workflow template WS20000317:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Maintenance Notifications → Activate Event Linkage



For step three, make sure that you activate the event linkage for the workflow template and **not** for the standard task.

For more information, see the Implementation Guide.

Operation and Link to Application Functions (PM-WOC-MN)

Use

This workflow is used to inform the people or departments responsible automatically that a series of tasks must be executed in the following order:

Processing of a newly created maintenance notification (notification status *Outstanding*)

Processing of a maintenance notification with outstanding tasks (notification status *In process*)

Completion of a maintenance notification (status of all tasks *Completed*)

The person(s) or department(s) responsible receive a mail (work item) in their inbox informing them of the tasks to be performed.

Activities

System Activities

If a maintenance notification is created or put in process again, then the *SAP Business Workflow* automatically ensures that:

The workflow-triggering event *CREATED* or *INPROCESSAGAIN* is generated

The workflow template WS20000317 is started

A work item is sent to the work center for the person(s) or department(s) responsible

User Activities

As the person responsible for a work item, you have the following options:

Options	What You Should Know:
Processing a work item as a workflow	<p>To see the work item, choose <i>Office</i> → <i>Inbox</i>. You have the following processing options:</p> <p>You can process the work item by double clicking on it. The transaction for changing a maintenance notification appears.</p> <p>You can call up another screen for the work item, to obtain an overview of outstanding and completed tasks.</p> <p>You can set a work item for resubmission as a reminder to process it later.</p> <p>You can navigate from the maintenance notification to the workflow log, to define who has performed which activities.</p> <p>You can receive a work item using another mail system client (for example, Lotus Notes™ or MS Outlook™).</p>

Operation and Link to Application Functions (PM-WOC-MN)

Processing a maintenance notification manually using a worklist	If you process a maintenance notification manually (outside of the workflow), all the changes to the notification are also considered in the workflow process.
---	--

Completion of a Task (PM-WOC-MN)

Purpose

In a maintenance notification, you can define one or more tasks to solve the problem recorded in the notification. A task can refer both to the notification header and the individual notification items. It has a particular status.

If you create a task in a notification, the person responsible for completing the task can use the workflow to indicate this. If no person has been specified, then the system notifies all the people who are assigned to the task.

SAP Business Workflow

If the appropriate system settings have been made, the *SAP Business Workflow* automatically sends a work item to the integrated inbox of the person(s) responsible. It states that a new task has been created in a notification. The person(s) informed can process the work item directly from their inbox. The change transaction for the task is called up automatically during processing.

Prerequisites

Refer to [Preparation and Customizing \(PM-WOC-MN / Completing a Task\) \[Page 1849\]](#)

Process Flow

Refer to [Process for Workflow \(PM-WOC-MN / Completing a Task\) \[Page 1847\]](#)

Technical Realization (PM-WOC-MN / Completing a Task)

The interface between the R/3 functions and the *SAP Business Workflow* is realized using object technology. In this workflow scenario, the system processes the following objects:

Objects	What You Should Know:
Task group TG20000015	This task group contains the standard tasks and the workflow template required for this workflow scenario.
Object type QM/SM (task)	A task corresponds to object type QMSM. You can find the attributes, methods and events for object type QMSM in the <i>Business Object Repository</i> of the R/3 System.
Standard tasks TS00008318 (<i>Complete task</i>)	This is a single-step task, which refers to an object method. In this standard task, a task is completed in a maintenance notification. This task is assigned to the people or departments that are authorized to process the object.
Workflow template WS00200074 (<i>PM ComplTask</i>)	This workflow template contains the definitions of the workflow task for this workflow scenario. You can use this workflow template to notify the people responsible that a critical error must be processed. The triggering event for this workflow is <i>CREATED</i> .

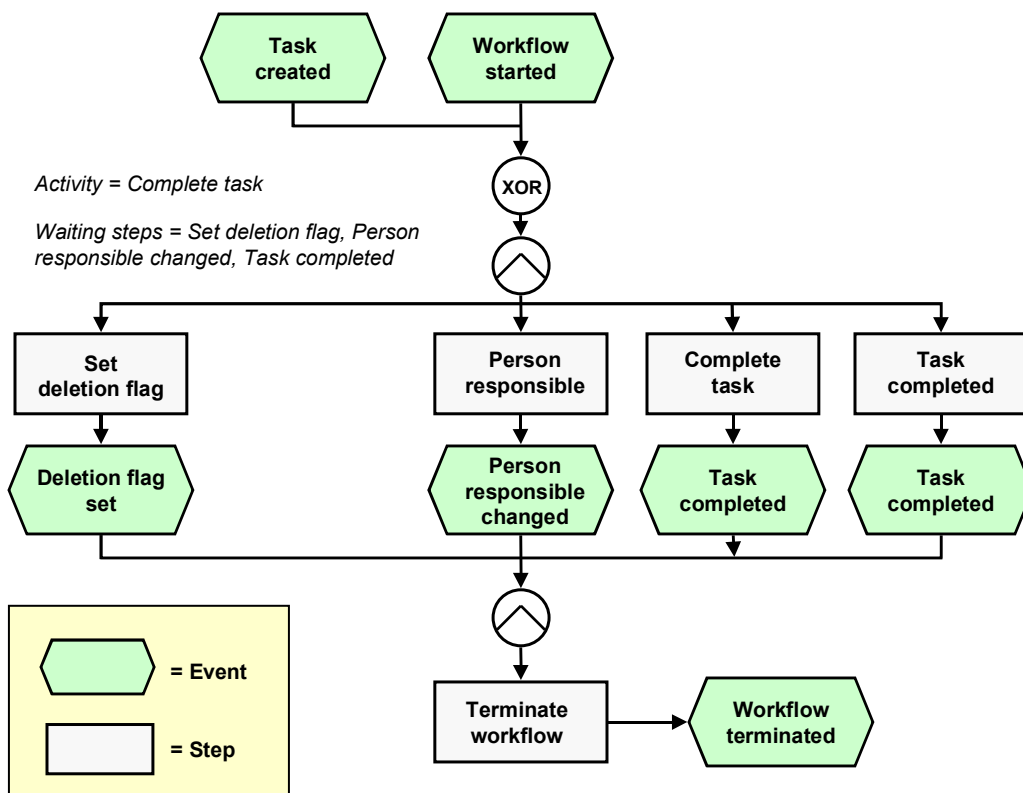
Process for Workflow (PM-WOC-MN / Completing a Task)

Purpose

If a task has been created in a maintenance notification, a workflow is started based on the template *PM Complete Task*.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps (see graphic). The structure is defined so that the system only has to process one of the branches. The standard task is specified in the activity.



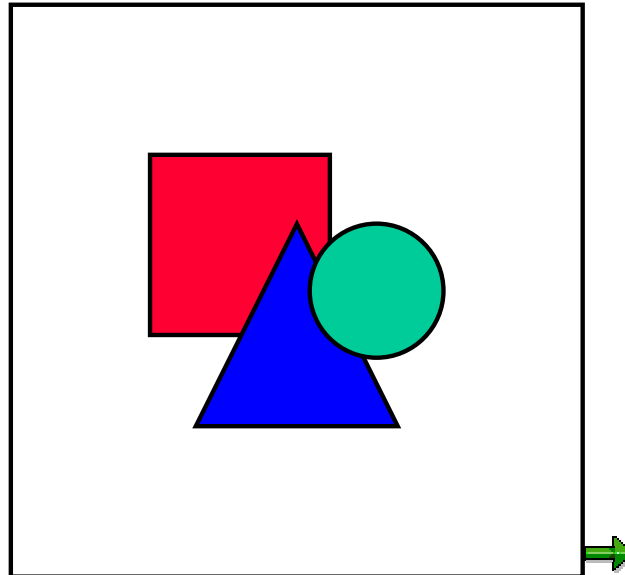
Determination of Agent

To determine the agent, the system searches in the maintenance notification for the person responsible for the tasks. If no person has been specified for this task, then the system notifies all the people who are assigned to this standard task.

The agent is determined using a role resolution. The role 175 **PM_TASK_ROLE** (standard role for maintenance notification) is defined as the default role for this task.

Process for Workflow (PM-WOC-MN / Completing a Task)**Result of Processing and Termination of Workflow**

The processing of the work item terminates the task and the entire workflow. The workflow is also terminated if one of the waiting steps occurs.



The terminating events *Deletion flag set*, *Person responsible changed* and *Task completed* can also occur outside of the workflow process.

Once the task has been processed, it obtains the status *Task completed*.

Preparation and Customizing (PM-WOC-MN / Completing a Task)

Use

The **task-specific** Customizing settings, which you must make to process this workflow template, are described here.

Prerequisites

All the **general** Customizing settings, which are required for the *SAP Business Workflow* component to be used, have been made.

Activities

Make the following settings in Customizing:

Set up the organizational structure and thereby determine your organizational units:

Basis → Business Management → SAP Business Workflow → Edit Organizational Structure

Assign the organizational units to the standard tasks:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Maintenance Notifications → Assign Agents to Tasks

Activate the link between triggering event (CREATED) and workflow template WS00200074:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Maintenance Notifications → Activate Event Linkage



For step three, make sure that you activate the event linkage for the workflow template and **not** for the standard task.

For more information, see the Implementation Guide.

Operation/Link to Application Functions (PM-WOC-MN/Complete Task)

Operation/Link to Application Functions (PM-WOC-MN/Complete Task)

Use

This workflow is used to inform all the responsible people or departments that:

A new task has been created in a maintenance notification (task status *Outstanding*)

The task must be processed

Activities

System Activities

If an existing maintenance notification is put in process, then the *SAP Business Workflow* automatically ensures that:

The workflow-triggering event *CREATED* is generated

The workflow template WS00200074 is started

A work item is sent to the work center for the person(s) or department(s) responsible

User Activities

As the person responsible for a work item, you have the following options:

Options	What You Should Know:
Processing a work item as a workflow	<p>To see the work item, choose <i>Office</i> → <i>Inbox</i>.</p> <p>You have the following processing options:</p> <p>You can process the work item by double clicking on it. The transaction for changing a maintenance notification appears.</p> <p>You can call up another screen for the work item, to obtain an overview of outstanding and completed tasks.</p> <p>You can set a work item for resubmission as a reminder to process it later.</p> <p>You can navigate from the maintenance notification to the workflow log, to define who has performed which activities.</p> <p>You can receive a work item using another mail system client (for example, Lotus Notes™ or MS Outlook™).</p>
Processing a maintenance notification manually using a worklist	<p>If you process a maintenance notification manually (outside of the workflow), all the changes to the notification are also considered in the workflow process.</p>

Processing an Outstanding Maintenance Notification (PM-WOC-MN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Maintenance Notification \(PM-WOC-MN\) \[Page 1838\]](#).

Definition

If a maintenance notification is created in the system, it initially obtains the status "Outstanding". This means that the notification is entered in the system, and is ready to be processed. [To ensure that the notification is processed, the person or department responsible is notified automatically that the maintenance notification must be processed. The system informs the following people or departments in the order listed below:](#)

Coordinator of maintenance notification

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

SAP Business Workflow

[If a maintenance notification has been created with the status "Outstanding", a person or group of people can be notified by workflow using the corresponding system setting.](#) These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the maintenance notification is called up automatically during processing.

Technical Realization (PM-WOC-MN / Outstanding PM Notification)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2038 \(Maintenance Notification\) \[Page 1854\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008314 \(Processing an Outstanding Maintenance Notification\) \[Page 1855\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200065 \(PM: Processing a Notification\) \[Page 1856\]](#)

Object Type BUS2038 (Maintenance Notification)**Object Type BUS2038 (Maintenance Notification)**

In this scenario, the system processes a business application object of the type **BUS2078 (maintenance notification)**. This means that a maintenance notification with the status "Outstanding notification" will be processed.

Location in object repository:

Plant Maintenance and Service Management → Maintenance processing → Maintenance notifications

Standard Task TS00008314 (Process Outstanding PM Notification)

Standard Task TS00008314 (Process Outstanding PM Notification)

In this standard task, you process a maintenance notification that has the status “Outstanding notification”.

Standard task: TS00008314

ID: Outstanding

Description: *PM task: Process notification*

Referenced object method and attributes

Object type: BUS2038 (*PM notification*)

Method: Edit (*Change*)

Attributes: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200065 (PM: Processing a Notification)

Workflow Template WS00200065 (PM: Processing a Notification)

If a maintenance notification is created with the status "Outstanding", a workflow is started from the template `Process PM`.

Workflow template: 00200065

ID: `Process PM`

Description: *PM: Process notification*

Triggering Event for Workflow Template

The events **ACTIVATED** (*notification activated*) and **CREATED** (*notification created*) have been entered as the triggering event for object type **BUS2038** (*maintenance notification*).



This "linkage" between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the maintenance notification to be processed (`_EVT_OBJECT`), the name of the creator of the notification (`_EVT_Creator`) and the sort key (`_WI_Group_ID`). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container "per data flow".

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container	
<code>_WF_Initiator</code>	<-	<code>_EVT_Creator</code>	
<code>_WI_Group_Id</code>	<-	<code>_EVT_OBJECT</code>	
<code>NOTIFICATION</code>	<-	<code>_EVT_OBJECT</code>	

The element `_WF_Initiator` is available in the workflow container in the standard system. The element `NOTIFICATION` has been created in addition to the existing standard elements.

Steps in a Workflow

If a maintenance notification is created with the status "Outstanding", a workflow is started from the template **Process PM**.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined so that the system only has to process one of the branches. The activity makes reference to the standard task.

Determination of Agent

To determine the agent, the system searches for the person responsible in the maintenance notification. The following two roles are defined in the maintenance notification:

Coordinator

Department responsible

The system searches first for the coordinator. If a coordinator has not been specified, it searches for the responsible department. If no department has been specified, then all the people, who are assigned to the task in the system, are notified.

This agent determination is based on a role resolution. The role 171 **PM_NOTIF_ROL** (*Person responsible for processing the maintenance notification*) is defined as the default role for the standard task.

Role Container		Task Container
NOTIFICATION	<-	NOTIFICATION

Binding

The following binding is defined for the step "Process Maintenance Notification".

Task Container		Workflow Container
<u>WI_Object_ID</u>	<-	NOTIFICATION
NOTIFICATION	<-	NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Maintenance notification processed*. This event terminates the task and the complete workflow.

After the user has processed the maintenance notification, it can either have the status "In process" or "Completed".



The terminating events *Deletion flag set*, *Maintenance notification completed*, *Maintenance notification in process* and *All tasks completed* can also occur outside of the workflow process.

Steps in a Workflow

Preparation and Customizing (PM-WOC-MN / Outstanding Maintenance Notification)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1860\]](#)

[Performing Task-Specific Customizing \[Page 1861\]](#)

[Activating Event-Receiver Linkage \[Page 1862\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who will be responsible for processing an outstanding maintenance notification must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process an outstanding maintenance notification.

To assign the Plant Maintenance tasks, proceed as follows:

From the main menu, select *Tools → Business Engineering → Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis → Workflow Management → Perform task-specific customizing*.

In the overview for task customizing, select *Plant Maintenance and Service Management → Maintenance processing → Maintenance notifications → Assign tasks to agents*.

Assign the persons who will carry out this task in your company to the standard task **TS00008314** (*PM task process notification*).

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The events **ACTIVATED** and **CREATED** for object type **BUS2038** (PM notification) are the triggering events for workflow template **WS00200065**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **Process PM** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: *BUS2038*

Event: *CREATED*

Receiver type: *WS00200065*

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-WOC-MN / Outstanding PM Notification)

The following description assumes that a maintenance notification with the status “outstanding” has been created in the system and the notification has not yet been processed.

Generate event

The workflow-triggering events **ACTIVATED** or **CREATED** are generated automatically if a maintenance notification is created without being processed.

Process outstanding maintenance notification

The person or persons responsible for this task will find a work item that represents the standard task *Process maintenance notification* in their integrated inbox. Processing this work item makes it possible to put the notification “in-process”.

You can access the integrated inbox via the menu path *Office* → *Inbox*.

Processing an "In Process" Maintenance Notification (PM-WOC-MN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Maintenance Notification \[Page 1838\]](#).

Definition

You can use this workflow scenario to process maintenance notifications that have the status "In process", but which have not yet been completed. For example, a certain person in an organization may be responsible for putting all outstanding maintenance notifications in process (see [Processing Outstanding Maintenance Notifications \(PM-WOC-MN\) \[Page 1852\]](#)). However, another person may actually be responsible for processing a notification.

The system informs the following people or departments in the order listed below:

Coordinator of maintenance notification

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

SAP Business Workflow

If a maintenance notification obtains the status "In process", the person or group of people responsible can be notified by *SAP Business Workflow* using the corresponding system setting. These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the maintenance notification is called up automatically during processing.

Technical Realization (PM-WOC-MN / PM Notification in Process)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2038 \(Maintenance Notification\) \[Page 1866\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008314 \(Processing a Notification\) \[Page 1867\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200065 \(PM: Putting a Notification in Process\) \[Page 1868\]](#)

Object Type BUS2038 (PM Notification)**Object Type BUS2038 (PM Notification)**

In this scenario, the system processes a business application object of the type **BUS2038 (PM notification)**. This means that a maintenance notification with the status "Notification in process" will be edited.

Location in object repository:

Plant Maintenance and Service Management → Maintenance Processing → Maintenance Notifications

Standard Task TS00008314 (PM Task Process Notification)

Standard Task TS00008314 (PM Task Process Notification)

In this standard task, you process a maintenance notification that has the status “Notification in process.”

Standard task: TS00008314

ID: Process

Description: *PM task process notification*

Referenced object method and attributes

Object type: BUS2038 (*PM notification*)

Method: Edit (*Change*)

Attributes: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200095 (PM: Putting a Notification in Process)

Workflow Template WS00200095 (PM: Putting a Notification in Process)

If a maintenance notification is created with the status "In process", a workflow is started from the template **PM: Put notification in process**.

Workflow template: 00200095

ID: PM InProcess

Description: PM: Put notification in process

Triggering Event for Workflow Template

The event **INPROCESS** (*notification in process*) for object type **BUS2038** (*maintenance notification*) has been entered as the triggering event for the workflow template.



This "linkage" between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the maintenance notification to be processed (**_EVT_OBJECT**), the name of the creator of the notification (**_EVT_Creator**) and the sort key (**_WI_Group_ID**). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container "per data flow".

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container	
_WF_Initiator	<-	_EVT_Creator	
_WI_Group_Id	<-	_EVT_OBJECT	
NOTIFICATION	<-	_EVT_OBJECT	

The element **_WF_Initiator** is available in the workflow container in the standard system. The element **NOTIFICATION** has been created in addition to the existing standard elements.

Steps in a Workflow

If a maintenance notification receives the status “Notification in process,” a workflow based on the template **PM InProcess** is started.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined in such a way that the system processes only one of the branches. The activity makes reference to the standard task.

Determination of Agent

To identify the agent, the system searches for the person responsible in the maintenance notification. The following two partner functions are defined in the maintenance notification:

Coordinator

Department responsible

The system first searches for the coordinator. If a coordinator is not specified, the system then searches for the responsible department. If a responsible department cannot be found, then all persons in the system assigned to this task will be notified.

The system identifies the agent on the basis of a role resolution. The role **171 PM_NOTIF_ROL** (*Person responsible for processing the PM notification*) is defined as the default role for this standard task.

Role container

NOTIFICATION

<-

Task container

NOTIFICATION

Binding

The following binding is defined for the step “Process PM notification”.

Task container

WI Object ID

NOTIFICATION

<-

<-

Workflow container

NOTIFICATION

NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Maintenance notification processed*. This event terminates the task and the entire workflow.

After the user has processed the maintenance notification, it will have the status “Notification completed”.



The terminating events *Deletion flag set*, *Maintenance notification completed*, *All tasks completed* can also occur outside of the workflow process.

Preparation and Customizing (PM-WOC-MN / Maintenance Notification in Process)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1871\]](#)

[Performing Task-Specific Customizing \[Page 1872\]](#)

[Activating Event-Receiver Linkage \[Page 1873\]](#)

Processing the Organizational Structure

All persons who will be responsible for processing maintenance notifications that have the status "Notification in process" must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process an maintenance notification with the status "in process".

To assign the Plant Maintenance tasks, proceed as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Perform task-specific customizing*.

In the overview for task customizing, select *Plant Maintenance and Service Management* → *Maintenance processing* → *Maintenance notifications* → *Assign tasks to agents*.

Assign the persons who will carry out this task in your company to the standard task **TS00008314**.

Activate Event-Receiver Linkage

The event **INPROCESS** (notification in process) for object type **BUS2038** (maintenance notification) is the triggering event for workflow template **WS00200065**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **PM: Set notification is process** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: **BUS2038**

Event: **CREATED**

Receiver type: **WS00200095**

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-WOC-MN / In-process PM notification)

The following description assumes that a maintenance notification has been set to the status "Notification in process."

Generate event

The workflow-triggering event **INPROCESS** are generated automatically if a maintenance notification is put "in-process."

Edit "in-process" maintenance notification

The person or persons responsible for this task will find a work item that represents the standard task *Edit in-process maintenance notification* in their integrated inbox. Processing this work item makes it possible to complete the notification.

You can access the integrated inbox via the menu path *Office → Inbox*.

Completing a Maintenance Notification (PM-WOC-MN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Maintenance Notification \[Page 1838\]](#).

Definition

If a maintenance notification contains one or more tasks, and all of these tasks have been completed, the maintenance notification obtains the status "All tasks completed". When this status is set, the system automatically informs the coordinator of the maintenance notification (specified in the notification header) that one of the following processing steps must be executed:

Complete the maintenance notification (if all the other notification processing steps have been completed)

Define additional tasks (if, for example, the problem has not been resolved)

SAP Business Workflow

If a maintenance notification obtains the status "All tasks completed", the person or group of people responsible can be notified by *SAP Business Workflow* using the corresponding system setting. These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the maintenance notification is called up automatically during processing.

Technical Realization (PM-WOC-MN / Completing PM Notification)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2038 \(Maintenance Notification\) \[Page 1877\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008316 \(PM: Completing a Notification\) \[Page 1878\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200075 \(PM: Completing a Notification\) \[Page 1879\]](#)

Object Type BUS2038 (Maintenance Notification)

In this scenario, the system processes a business application object of the type **BUS2038** (**maintenance notification**). This means that a maintenance notification will be completed.

Location in object repository:

Plant Maintenance and Service Management → Maintenance Processing → Maintenance Notifications

Standard Task TS00008316 (Complete)

Standard Task TS00008316 (Complete)

In this standard task, you complete a maintenance notification.

Standard task: TS00008316

ID: Complete

Description: *PM task: Complete notification*

Referenced object method and attributes

Object type: BUS2038 (*maintenance notification*)

Method: Edit (*Change*)

Attributes: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200075 (PM: Completing a Notification)

If all the tasks for a maintenance notification have been completed, a workflow is started from the template **PM Complete notification**.

Workflow template: 00200075

ID: PM Complete

Description: PM: Complete notification

Triggering Event for Workflow Template

The event **ALLTASKSCOMPLETED** (*all tasks completed*) for object type **BUS2038** (*maintenance notification*) has been entered as the triggering event for the workflow template.



This "linkage" between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the maintenance notification to be processed (**_EVT_OBJECT**), the name of the creator of the notification (**_EVT_Creator**) and the sort key (**_WI_Group_ID**). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container "per data flow".

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container	
_WF_Initiator	<-	_EVT_Creator	
_WI_Group_Id	<-	_EVT_OBJECT	
NOTIFICATION	<-	_EVT_OBJECT	

The element **_WF_Initiator** is available in the workflow container in the standard system. The element **NOTIFICATION** has been created in addition to the existing standard elements.

Steps in a Workflow

Steps in a Workflow

If all the tasks in a maintenance notification have been completed, a workflow is started from the template **PM Complete notification**.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined so that the system only has to process one of the branches. The activity makes reference to the standard task.

Determination of Agent

To determine the agent, the system searches for the person responsible in the maintenance notification. The following two roles are defined in the maintenance notification:

Coordinator

Department responsible

The system searches first for the coordinator. If a coordinator has not been specified, it searches for the responsible department. If no department has been specified, then all the people, who are assigned to the task in the system, are notified.

This agent determination is based on a role resolution. The role 171 **PM_NOTIF_ROL** (*Person responsible for processing the maintenance notification*) is defined as the default role for the standard task.

Role Container		Task Container
NOTIFICATION	<-	NOTIFICATION

Binding

The following binding is defined for the step "Complete Maintenance Notification".

Task Container		Workflow Container
<u>WI_Object_ID</u>	<-	NOTIFICATION
NOTIFICATION	<-	NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Maintenance notification processed*. This event terminates the task and the complete workflow.

After the user has processed the maintenance notification, it has the status "Completed".



The terminating events *Maintenance notification completed*, *Maintenance notification in process again* and *Deletion flag set* can also occur outside of the workflow process.

Preparation and Customizing (PM-WOC-MN / Completing a Maintenance Notification)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1882\]](#)

[Performing Task-Specific Customizing \[Page 1883\]](#)

[Activating Event-Receiver Linkage \[Page 1884\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who will be responsible for completing a maintenance notification must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process an outstanding task in a maintenance notification.

To assign the Plant Maintenance tasks, proceed as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Perform task-specific customizing*.

In the overview for task customizing, select *Plant Maintenance* → *Maintenance notifications* → *Assign tasks to agents*.

Assign the persons who will carry out this task in your company to the standard task **TS00008316**.

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The event **ALLTASKSCOMPLETED** (all tasks completed) for object type **BUS2038** (maintenance notification) is the triggering event for workflow template **WS00200075**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **PM Complete notification** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: **BUS2038**

Event: **ALLTASKSCOMPLETED**

Receiver type: **WS00200075**

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-WOC-MN / Complete PM Notification)

The following description assumes that all tasks in a maintenance notification have been completed.

Generate event

The workflow-triggering event **ALLTASKSCOMPLETED** is generated automatically if all tasks in a maintenance notification have been completed.

Complete maintenance notification

The person or persons assigned to this task will find a work item that represents the standard task *Complete maintenance notification* in their integrated inbox. Processing this work item makes it possible to complete and possibly archive the quality notification.

You can access the integrated inbox via the menu path *Office* → *Inbox*.

Maintenance and Service Orders (PM-WOC-MO / CS-SE)

These workflow scenarios support you when processing maintenance and service orders.

Purchase Order Change (PM-WOC-MO / CS-SE)

Purpose

The workflow is used to notify employees in purchasing of all the changes to order data, which result in purchase order requisitions being changed automatically. Where the purchase requisitions have been changed automatically, the purchase orders must also be changed.

The following changes in the order result from changes to the purchase requisitions:

The requirement quantity of an external material or external service has been changed.

The requirement date of an external material or external service has been changed.

An external material item or an external service operation has been deleted.

An external service operation has been changed in an internally processed operation.

The order has been technically completed; that is, the external material or external service is no longer required.

Purchase orders have already been created.

The employee notified can check the purchase orders and purchase requisitions concerned. They can also change purchase orders manually or create new purchase orders.

Process Flow

If plans are made in an order to procure external material or an external service, a purchase requisition is generated by the system for this. This is processed by the employee responsible from the purchasing department. Then one or more purchase orders are created. It is noted in the order that a purchase order has been created.

If changes in an order occur to the material/services ordered (for example, if dates or quantities change) owing to planning and execution of work, the system automatically amends the purchase requisition.

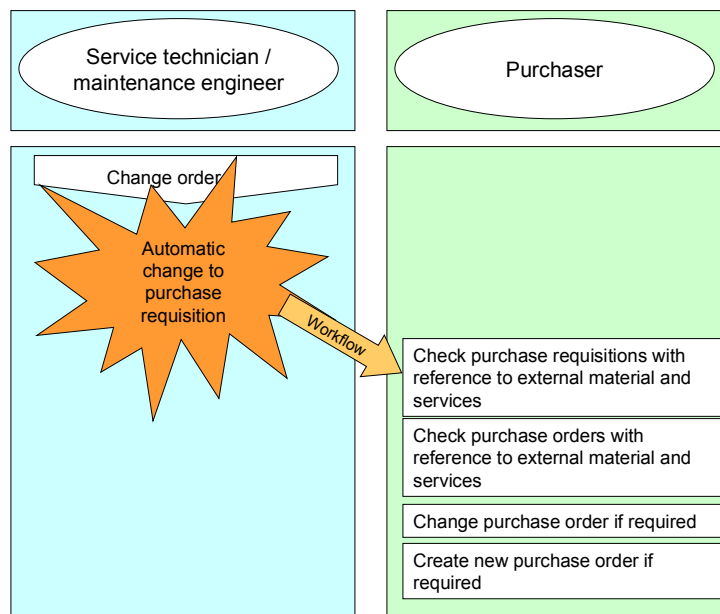
Since in this case, the existing purchase order must be changed, the person or department responsible is informed automatically through the workflow that the purchase order for the order needs to be processed. The system sends a work item to the integrated inbox of all the people, who are assigned to the task in the system.

It can be processed directly from the inbox.

For more information, see [Operation & Link to Application Functions \(PM-WOC-MO\) \[Page 1893\]](#).

The graphic shows the workflow with all the employees involved:

Purchase Order Change (PM-WOC-MO / CS-SE)



Technical Realization (PM-WOC-MO / CS-SE)

The interface between the SAP functions and the SAP business scenario is realized using object technology. In this workflow scenario, the system processes the following objects:

Workflow Elements	What You Should Know:
<p>Object types:</p> <p>BUS2007 (maintenance order)</p> <p>BUS2088 (service order)</p> <p>T024 (purchasing group)</p>	<p>Both the maintenance order and service order are identified using the order number.</p> <p>You can find the object types in the <i>Business Object Browser</i> (<i>Tools → ABAP Workbench → Overview</i>) by choosing <i>Plant maintenance → Maintenance processing → Maintenance orders</i> or by choosing <i>Materials management → Purchasing</i>.</p>
<p>Standard tasks:</p> <p>TS20000650 (purchase order change for maintenance order)</p> <p>TS20000652 (purchase order change for service order)</p>	<p>The tasks are assigned to the employees or departments that are authorized to process the objects.</p>
<p>Methods:</p> <p>DisplayPurchaseOrderChange</p>	<p>DisplayPurchaseOrderChange runs synchronously and in a dialog.</p>
<p>Event PurchaseOrderChange</p>	<p>This event is the triggering event for standard tasks TS20000650 and TS20000652. Its parameters are PurchasingGroup and TodoList (internal table with the changed materials and services).</p>
<p>Standard role:</p> <p>00900010 (purchasing group)</p>	<p>The definition of the standard role determines who is responsible for processing a purchase order change. If no users are linked to the purchasing group using Organizational Management, all the agents assigned to the standard task (TS20000650 or TS20000652) receive a work item.</p>

The following data flow is defined between the event PurchaseOrderChange and the task TS20000650 or TS20000652:

Task Container	Event Parameter Container
Order	<i>_Evt_Object</i>
Start date	<i>_Evt_Creation_Date</i>
Start time	<i>_Evt_Creation_Time</i>
Trigger	<i>_Evt_Creator</i>

Technical Realization (PM-WOC-MO / CS-SE)

Simple to do list	<i>ToDoList</i>
Purchasing group	<i>PurchasingGroup</i>

Preparation and Customizing (PM-WOC-MO / CS-SE Purchase Order Change)

Prerequisites

All the general Customizing settings for the *SAP Business Workflow* component have been made.

Use

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps (standard task TS20000650 or TS20000652) are required for this workflow template.

For more information, see the Customizing documentation in [Setting Up Workflow for Orders \[Ext.\]](#).

Alternatively, you can also set up some assignments using the SAP menu.

Maintaining Agent Assignment

Assign the users or organizational units that should process the task in your company to the standard task TS20000650 or TS20000652.

Choose *Tools* → *Business Workflow* → *Development* → *Definition tools* → *Tasks/task groups* → *Change*.

Enter the standard task 20000650 or 20000652.

Choose *Additional data* → *Agent assignment* → *Maintain*.

Choose *Create agent assignment*.

Linking the Purchaser to Organizational Management

If you do not want all possible agents assigned to standard task TS20000650 or TS20000652 to receive a work item, just the purchaser responsible, then link the purchaser to the SAP Organizational Management.

Choose *Tools* → *ABAP Workbench* → *Development* → *Workflow* → *Definition tools* → *Organizational management* → *SAP organizational objects* → *Create assignments*.

Enter the organizational object type T024 and assign the required organizational unit to it.

Activating Event Linkage

The event PurchaseOrderChange for object type BUS2007 or BUS2088 is the triggering event for standard task TS20000650 or TS20000652. To start the standard task, the event linkage must be activated.

Choose *Tools* → *Business Workflow* → *Development* → *Definition tools* → *Tasks/task groups* → *Display*.

Enter the standard task 20000650 or 20000652 and choose *Display*.

On the *Triggering events* tab page, click on the color symbol to activate the assignment.

Preparation and Customizing (PM-WOC-MO / CS-SE Purchase Order Change)**Maintaining Order Type-Based Parameters**

In Customizing, you must define for each order type and plant whether the standard task TS20000650 or TS20000652 should be started.

Choose *Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *Functions and Settings for Order Types* → *Define Change Docs, Collective Purc. Req. Indicator, Operation No. Interval*.

Set the indicator *Workflow for purchase order change*.

Operation & Link to Application Functions (PM-WOC-MO / CS-SE Purchase Order Change)

Use

When you execute a work item for the standard task TS20000650 or TS20000650, you see a split screen:

On the left side of the screen, there is an overview list with the materials or services. Behind each material or service is a checkbox. You can use this checkbox to indicate which materials or services you have already processed.

If a red LED appears before a material or service, this means that a new work item has been generated for this material or service after the present work item was generated.

By double clicking on a material or service in the overview list, you can display the detail data on the right side of the screen.

You have the option of processing the existing purchase orders for creating new purchase orders. After you have created a new purchase order, this does not appear immediately in the table with the other purchase orders already created. The purchase order must first be updated in the database. After the update, you can display the purchase order in the following ways:

Press the *Refresh* pushbutton

Double click on the material or service in the overview list

You can stop processing the work item at any time using *Cancel*, *Back* or *Exit*, and resume at a later date. If you choose *Complete workflow*, the workflow is terminated.

Notifying the Order Creator(PM-WOC-MO)

Notifying the Order Creator(PM-WOC-MO)

Purpose

You use this workflow if you want the creator of a maintenance order to be notified when the maintenance order is opened or released, or when final confirmation, technical completion, or business completion is performed for it. By using this workflow, the author is always able to:

- See in which phase of processing the orders that he created are in, by looking in his integrated inbox

- Branch immediately into the corresponding orders

This scenario has been implemented in the standard system for the application component *Plant Maintenance (PM)*. You can also use it for the component *Service Management (SM)*. To do this, you can copy this scenario and change the check for maintenance orders into a check for service orders.

Prerequisites

You can only implement this workflow if you use maintenance or service orders in your system.

To be able to use the workflow successfully, you must have made all the necessary settings for it in your R/3 System.

Process Flow

The order creator creates an order.

The creator of the order will be notified via workflow in the following circumstances:

- Order release

- Final confirmation of the order

- Technical completion of the order

- Business completion of the order

- In these circumstances, the order creator sees a work item in his integrated inbox, that can be processed directly from the inbox.

- When the order creator processes the work item, the change transaction for the order is called up automatically.

- The work item is terminated when the maintenance order enters the next processing phase.

Technical Realization (PM-WOC-MO / Notification of the Order Creator)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2007 \(Maintenance Order\) \[Page 1911\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS20000004 \(PMO Order Created\) \[Page 1897\]](#)

[Standard Task TS20000005 \(PMO Order Released\) \[Page 1898\]](#)

[Standard Task TS20000006 \(PMO Order Completely Confirmed\) \[Page 1899\]](#)

[Standard Task TS20000007 \(PMO Order Technically Completed\) \[Page 1900\]](#)

[Standard Task TS20000031 \(PMO Order Completed for Business\) \[Page 1901\]](#)

Object Type BUS2007 (Maintenance Order)

Object Type BUS2007 (Maintenance Order)

In this scenario, a business application object of type BUS2007 (*maintenance order*) is processed. This means that a maintenance order is created.

Location in object repository:

Plant Maintenance and Service Management

Standard Task TS20000004 (PMO Order Created)

In this standard task, a maintenance order is changed.

Standard task: TS20000004

Abbreviation: PMO CRTD

Task name: *PMO order created*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: `edit` (*edit*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000005 (PMO Order Released)**Standard Task TS20000005 (PMO Order Released)**

In this standard task, a maintenance order is changed.

Standard task: TS20000005

Abbreviation: PMO RELSD

Task name: *PMO order released*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: `edit` (*edit*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000006 (PMO Order Completely Confirmed)

Standard Task TS20000006 (PMO Order Completely Confirmed)

In this standard task, a maintenance order is changed.

Standard task: TS20000006

Abbreviation: PMO CONFR

Task name: *PMO order completely confirmed*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: `edit` (*edit*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000007 (PMO Order Technically Completed)

Standard Task TS20000007 (PMO Order Technically Completed)

In this standard task, a maintenance order is changed.

Standard task: TS20000007

Abbreviation: PMO TCOMP

Task name: *PMO order technically completed*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: `edit` (*edit*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000031 (Business Completion for PMO Order)

Standard Task TS20000031 (Business Completion for PMO Order)

In this standard task, a maintenance order is changed.

Standard task: TS20000031

Abbreviation: PMO CMPD

Task name: *Business completion for PMO order*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: `display` (*display*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS20000021 (PMO Author)

Workflow Template WS20000021 (PMO Author)

When a maintenance order is created, a workflow is started by the PMO author template.

Workflow template: WS20000021

ID: PMO author

Description: PM author

Triggering Event for Workflow Template

The event `created` for object type `BUS2007` (*maintenance order*) has been entered as the triggering event for the workflow template.



This “linkage” between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Scenario Procedure

This workflow template enables the creators of maintenance orders to track in which phase of processing their maintenance orders are.

When the order is created, the standard task TS20000004 is started by an event. This event starts work item X. When the order is released, the work item X is terminated, as it has the release as a terminating event.

Now, the standard task TS20000005 is started by the event *PMO order released*. This task starts work item Y. The maintenance order is now processed, and final confirmation has been performed. Now work item Y is terminated, as it has the final confirmation as a terminating event.

Now, the standard task TS20000006 is started by the event *PMO order completely confirmed*. This task starts work item Z. The maintenance order is now technically complete. Now work item Z is terminated, as it has the technical completion as a terminating event.

Now, the standard task TS20000007 is started by the event *PMO order technically completed*. This task starts work item Q. Business completion has now been performed for the maintenance order. Now work item Q is terminated, as it has the business completion as a terminating event.

Now, the standard task TS20000031 is started by the event *Business completion for PMO order*. This task starts work item R. To complete this work item (mail in integrated inbox), the work item R must be terminated manually.

Preparation and Customizing (PM-WOC-MO / Notification of Order Creator)

Use

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this standard task.

Features

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1905\]](#)

[Performing Task-Specific Customizing \[Page 1906\]](#)

[Activating Event-Receiver Linkage \[Page 1907\]](#)

Processing the Organizational Structure

All persons who are responsible for processing an order in a particular phase, must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all the persons individually, or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

Choose *Implement. projects → SAP Reference IMG*.

The system displays the screen *Display Structure: SAP Reference IMG*.

In the IMG structure, choose *Basis Components → Business Management → SAP Business Workflow → Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period). Then choose *Organizational plan → <Create/Change>*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to the appropriate units or positions using the available menu functions.

Performing Task-Specific Customizing

Performing Task-Specific Customizing

List all organization management objects that will be authorized to process an order.

To assign the Plant Maintenance tasks, proceed as follows:

From the main menu, select *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

Choose *Implement. projects → SAP Reference IMG*.

The system displays the screen *Display Structure: SAP Reference IMG*.

In the IMG structure, choose *Basis Components → Business Management → SAP Business Workflow → Perform task-specific Customizing*.

In the screen for task-specific customizing, choose *Plant Maintenance → Maintenance Order Management → Maintenance Orders → Assign tasks to agent*.

Assign the person or persons who will perform the respective tasks in your company to the standard tasks **TS20000004** to **TS20000007** and **TS20000031**.

Activating Event-Receiver Linkage

The event `created` for object type `BUS2007` (*maintenance order*) is the triggering event for the workflow template `WS20000021` (*PMO author*) and is entered as such in the event linkage table in the standard system. To ensure that the workflow is started, the linkage between the triggering event and the standard task as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the linkage in your system, proceed as follows:

From the initial menu, choose *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

Choose *Implementation projects → SAP Reference IMG*.

The system displays the screen *Display Structure: SAP Reference IMG*.

In the structural display, choose *Basis → Business Management → SAP Business Workflow → Perform task-specific Customizing*.

On the screen for task-specific Customizing, choose *Plant Maintenance and Customer Service → Maintenance Processing → Maintenance Orders → Activate Event Linkage*.

Activate the event linkage for workflow template `WS20000021` (*PMO author*).

Operation and Link to Application Functionality (PM-WOC-MO / Notifying the Order Creator)

Operation and Link to Application Functionality (PM-WOC-MO / Notifying the Order Creator)

Create event

The standard task is started by an event when the order enters a new processing phase.

Process order

The person or persons responsible for this standard task will find a work item that represents the *Order phase change* in their integrated inbox. Executing this work item makes it possible to process the order.

You can access the integrated inbox via the menu path *Office → Inbox*.

Notifying the Employee Responsible (PM-WOC-MO)

Purpose

You use this workflow if you want the maintenance planner (PM planner for short) to be notified when an order is created and needs to be released. By using this workflow, he sees a work item in his integrated inbox, that he can process directly from the inbox. When the work item is processed, the change transaction for the order is automatically called up.

This scenario has been implemented in the standard system for the application component *Plant Maintenance (PM)*. You can also use it for the component *Service Management (SM)*. To do this, you can copy this scenario and change the check for maintenance orders into a check for service orders.

Prerequisites

You can only implement this workflow if you use maintenance or service orders in your system.

To be able to use the workflow successfully, you must have made all the necessary settings for it in your R/3 System.

Process Flow

The order creator creates an order.

The maintenance planner is notified that the order needs to be released. In these circumstances, he sees a work item in his integrated inbox, that he can process directly from the inbox.

When the maintenance planner processes the work item, the change transaction for the order is called up automatically.

The work item is terminated when the maintenance order is released or if it is not executed.

Technical Realization (PM-WOC-MO / Notification of the Employee Responsible)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2007 \(Maintenance Order\) \[Page 1911\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS20000064 \(PMO Order to be Released by Maintenance Planner\) \[Page 1912\]](#)

Object Type BUS2007 (Maintenance Order)

In this scenario, a business application object of type BUS2007 (*maintenance order*) is processed. This means that a maintenance order is created.

Location in object repository:

Plant Maintenance and Service Management

Standard Task TS20000064 (PMO Order is Released by PM Planner)

Standard Task TS20000064 (PMO Order is Released by PM Planner)

In this standard task, a maintenance order is changed.

Standard task: TS20000064

Abbreviation: PMO PMPlannr

Task name: *PMO order is released by PM Planner*

Referenced Object Method and Attributes

Object type: BUS2007 (*Maintenance order*)

Method: edit (*edit*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS20000014 (PM: PMO Maintenance Planner)

When a maintenance order is created, a workflow is started by the PMO maintenance planner template.

Workflow template: WS20000014

ID: PMO PMPlanner

Description: PMO maintenance planner

Triggering Event for Workflow Template

The event **created** for object type **BUS2007** (*maintenance order*) has been entered as the triggering event for the workflow template.



This “linkage” between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Scenario Procedure

Scenario Procedure

When the order is created, the standard task TS20000064 is started by an event.

After the user has released the maintenance order, a terminating event **released** is triggered. With this, the work item is terminated and no longer appears in the integrated inbox of the employee responsible.

Preparation and Customizing (PM-WOC-MO / Notification of Employees Responsible)

Use

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this standard task.

Features

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1916\]](#)

[Performing Task-Specific Customizing \[Page 1917\]](#)

[Activating Event-Receiver Linkage \[Page 1918\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who are responsible for processing an order in a particular phase, must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all the persons individually, or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineer* → *Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*.

The system displays the screen *Display Structure: SAP Reference IMG*.

In the IMG structure, choose *Basis Components* → *Business Management* → *SAP Business Workflow* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period). Then choose *Organizational plan* → *<Create/Change>*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to the appropriate units or positions using the available menu functions.

Performing Task-Specific Customizing

List all organization management objects that will be authorized to process an order.

To assign the Plant Maintenance tasks, proceed as follows:

From the main menu, select *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*.

The system displays the screen Display Structure: *SAP Reference IMG*.

In the IMG structure, choose *Basis Components → Business Management → SAP Business Workflow → Perform task-specific Customizing*.

In the screen for task-specific customizing, choose *Plant Maintenance → Maintenance Order Management → Maintenance Orders → Assign tasks to agent*.

Assign the person or persons who will perform this task in your company to the standard task TS20000014 (*PMO operation created*).

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The event created for the object type BUS2007 (*maintenance order*) is the triggering event for the workflow template WS20000014 and is entered in the event linkage table in the standard system as such. To ensure that the workflow can be started, the linkage between the triggering event and the standard task as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the linkage in your system, proceed as follows:

From the main menu, select *Tools* → *Business Engineer* → *Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*.

The system displays the screen Display Structure: *SAP Reference IMG*.

In the IMG structure, choose *Basis Components* → *Business Management* → *SAP Business Workflow* → *Perform task-specific Customizing*.

In the screen for task-specific customizing, choose *Plant Maintenance* → *Maintenance Order Management* → *Maintenance Orders* → *Activate event linking*.

Activate the event linkage for the workflow template WS20000014 (*PMO maintenance planner*).

Operation and Link to Application Functionality (PM-WOC-MO / Notifying the Employee Responsible)

Create event

The standard task is started by an event when an order is created.

Process order

The person or persons responsible for this standard task will find a work item that represents the *Creation of order* in their integrated inbox. Executing this work item makes it possible to process the order.

You can access the integrated inbox via the menu path *Office → Inbox*.

Notifying the Work Centers Involved (PM-WOC-MO)

Notifying the Work Centers Involved (PM-WOC-MO)

Purpose

You use this workflow if you want the work centers that are involved in the processing of an order to be notified when their operations are released, partially confirmed, or completely confirmed. By using the workflow functionality, the person or persons who are assigned to the work centers involved, see a work item in their integrated inbox. They can process the work item directly from their inbox. When the work item is processed, the display transaction for the order is automatically called up for the order or completion confirmation.

This scenario has been implemented in the standard system for the application component *Plant Maintenance (PM)*. You can also use it for the component *Service Management (SM)*. To do this, you can copy this scenario and change the check for maintenance orders into a check for service orders.

Prerequisites

You can only implement this workflow if you use maintenance or service orders in your system.

To be able to use the workflow successfully, you must have made all the necessary settings for it in your R/3 System.

Process Flow

The order creator creates an order and plans the work to be executed by assigning the individual operations to specific work centers.

The maintenance planner releases the order.

The person or persons assigned to the work centers responsible for the released operations then find a work item "PM operation was released" for each relevant operation in their integrated inbox.

Those employees responsible process the work items directly from their inbox. The display transaction for the order is called up automatically when doing this.

The work item "PM operation was released" is terminated when the operation is partially or completely confirmed.

When partial completion of an operation is performed, the employees of the work center involved receive the work item "PM operation partially confirmed". This work item can also be processed directly from the inbox by the employees assigned to the work center involved. The display transaction for the order is called up automatically when doing this.

The work item "PM operation was partially confirmed" is terminated when the operation is completely confirmed.

When final completion of an operation is performed, the employees of the work center involved receive the work item "PM operation completely confirmed". This work item can also be processed directly from the inbox. The display transaction for the completion confirmations is called up automatically when doing this.

After displaying the completion confirmations, the processor specifies whether processing has been finished. If so, the system deletes the work item "PM operation completely confirmed".

Notifying the Work Centers Involved (PM-WOC-MO)

If you want to implement this workflow as described above, you must ensure that the work centers entered for the operations are not changed after the order is released. When the work center is changed, the system continues sending the work items to the person or persons assigned to the work centers that were originally entered.

Technical Realization (PM-WOC-MO / Notification of Work Centers Involved)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type AFVC PM \(Maintenance Order Operation\) \[Page 1923\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS20000015 \(PMO Operation Released\) \[Page 1924\]](#)

[Standard Task TS20000016 \(PMO Operation Completely Confirmed\) \[Page 1926\]](#)

[Standard Task TS20000056 \(PMO Operation Partially Confirmed\) \[Page 1925\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS20000031 \(PMO Operation\) \[Page 1927\]](#)

Object Type AFVC_PM (Maintenance Order Operation)

In this scenario, the system processes a business application object of the type AFVC_PM (*Maintenance order operation*). This means that the operation of a maintenance order is released/partially confirmed/completely confirmed.

Location in object repository:

Plant Maintenance and Service Management

Standard Task TS20000015 (PMO Order Released)

Standard Task TS20000015 (PMO Order Released)

In this standard task, a maintenance order is displayed.

Standard task: TS20000015

Abbreviation: PMO OP RLSD

Task name: *PMO operation released*

Referenced Object Method and Attributes

Object type: AFVC_PM (*PM order operation*)

Method: DISPLAYORDER (*Display order*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000056 (PMO Operation Completely Confirmed)

Standard Task TS20000056 (PMO Operation Completely Confirmed)

In this standard task, a maintenance order is displayed.

Standard task: TS20000056

Abbreviation: PMO OP PCON

Task name: *PMO operation partially confirmed*

Referenced Object Method and Attributes

Object type: AFVC_PM (*PM order operation*)

Method: DISPLAYORDER (*Display order*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Standard Task TS20000016 (PMO Operation Completely Confirmed)

Standard Task TS20000016 (PMO Operation Completely Confirmed)

In this standard task, a completion confirmation is displayed.

Standard task: TS20000016

Abbreviation: PMO OP CONF

Task name: *PMO operation completely confirmed*

Referenced Object Method and Attributes

Object type: AFVC_PM (*PM order operation*)

Method: DISPLAYCONFIRMATION (*Display confirmation*)

Maintain Agent Assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS20000031 (PMO Operation)

When an operation is released, a workflow is started by the **PMO operation** template.

Workflow template: WS20000031

ID: PMO operation

Description: PMO operation

Triggering Event for Workflow Template

The event **RELEASED** for object type **AFVC_PM** (*maintenance order operation*) has been entered as the triggering event for the workflow template.



This “linkage” between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Scenario Procedure

Scenario Procedure

This workflow template makes it possible to inform the person or persons at the work centers involved in the execution of an order, about the processing status of the operations.

When the operation of an order is released, the standard task **TS20000015** is started by the event *Operation released*. This task starts work item X. When the order is partially or completely confirmed, the work item X is terminated, as it has partial or final completion as a terminating event.

When partial confirmation is performed for the operation, the standard task **TS20000056** is started by the event *Operation partially confirmed*. This task starts work item Y. The operation is now processed further, and final confirmation is performed for it. Now work item Y is terminated, as it has the final confirmation as a terminating event.

Now the standard task **TS20000016** is started by the event *Operation completely confirmed*. This task starts work item Z. To close work item Z it must be ended manually.

Preparation and Customizing (PM-WOC-MO / Notification of Work Centers Involved)

Use

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this standard task.

Features

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1930\]](#)

[Performing Task-Specific Customizing \[Page 1931\]](#)

[Activating Event-Receiver Linkage \[Page 1932\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who are responsible for processing an order in a particular phase, must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all the persons individually, or you can assign entire organizational units (for example, departments) to the task.

Procedure

From the main menu, select *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*.

The system displays the screen Display Structure: *SAP Reference IMG*.

In the IMG structure, choose *Basis Components → Business Management → SAP Business Workflow → Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period). Then choose *Organizational plan → <Create/Change>*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to the appropriate units or positions using the available menu functions.

Performing Task-Specific Customizing

List all organization management objects that will be authorized to process an order.

Procedure

From the main menu, select *Tools* → *Business Engineer* → *Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*.

The system displays the screen Display Structure: *SAP Reference IMG*.

In the IMG structure, choose *Basis Components* → *Business Management* → *SAP Business Workflow* → *Perform task-specific Customizing*.

In the screen for task-specific customizing, choose *Plant Maintenance* → *Maintenance Order Management* → *Maintenance Orders* → *Assign tasks to agent*.

Assign the persons or work centers that should perform the tasks in your company to the standard tasks TS20000015 (*Operation released*), TS20000056 (*PMO Operation partially confirmed*) and TS20000016 (*PMO Operation completely confirmed*).

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The event RELEASED for the object type AFVC_PM (*Maintenance order operation*) is the triggering event for the workflow template WF20000031 and is entered in the event linkage table in the standard system as such. To ensure that the workflow can be started, the linkage between the triggering event and the workflow template task as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

Procedure

From the main menu, select *Tools → Business Engineer → Customizing*.

The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*.

The system displays the screen Display Structure: *SAP Reference IMG*.

In the IMG structure, choose *Basis Components → Business Management → SAP Business Workflow → Perform task-specific Customizing*.

In the screen for task-specific customizing, choose *Plant Maintenance → Maintenance Order Management → Maintenance Orders → Activate event linking*.

Activate the event linkage to the workflow template WS20000031 (*PMO Operation*).

Operation and Link to Application Functionality (PM-WOC-MO / Notifying the Work Centers Involved)

Create event

The standard task TS20000015 is started by an event when a operation is released.

The standard task TS20000056 is started by an event when an operation is partly confirmed.

The standard task TS20000016 is started by an event when an operation is completely confirmed.

Display order

The person or persons who are responsible for the standard tasks TS20000015 and TS20000056 will find a work item in their integrated inbox that represents the *Release of an order operation* or the *Partial confirmation of an order operation*. Executing this work item makes it possible to display the order.

The person or persons responsible for the standard task TS20000016 will find a work item in their integrated inbox that represents the *Final confirmation of an order operation*. Executing this work item makes it possible to display the completion confirmation.

You can access the integrated inbox via the menu path *Office → Inbox*.

Service Notifications (CS-PM-SN)

Service Notifications (CS-PM-SN)

These workflow scenarios support you when processing service notifications in the *Customer Service* (CS) application component.

Processing of a Service Notification (CS-CM-SN)

Purpose

This workflow scenario supports your business processes for service processing. In this scenario, the *SAP Business Workflow* component helps you to process, monitor and complete newly created service notifications efficiently. This process is represented in a workflow template, which triggers and controls the execution of the following standard tasks:

Notifying a person responsible (for example, the notification coordinator) that a new service notification has been created or put in process, and that tasks must be defined for the notification

Notifying a person responsible that tasks, which must be processed, have been created for the service notification

Notifying a person responsible (for example, the notification coordinator) that all the tasks for the service notification have been completed, and the service notification must either be completed or additional tasks must be defined for the notification

SAP Business Workflow

If the appropriate system settings have been made, the *SAP Business Workflow* automatically sends a work item to the person(s) or department(s) responsible and informs them that certain tasks need to be executed. The following tasks and triggering events belong to this process:

Task	Triggering Event
Processing of an outstanding service notification without tasks	The person responsible is notified when a service notification has been created manually in the system.
Processing of a service notification with outstanding tasks	The person responsible is notified as soon as the tasks have been created in the notification and the notification has been saved.
Completion of a service notification with completed tasks	The person responsible is notified as soon as the tasks have been completed in the notification and the notification has been saved.

Determination of the Person(s) or Department(s) Responsible

For each of the above tasks, the system notifies the following people or departments in the order listed below:

Notification coordinator

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

Prerequisites

Refer to [Preparation and Customizing \(CS-CM-SN\) \[Page 1939\]](#)

Processing of a Service Notification (CS-CM-SN)

Process Flow

Refer to [Process for Workflow Template WS20000318 \[Page 1938\]](#)

Technical Realization (CS-CM-SN)

The interface between the R/3 functions and the *SAP Business Workflow* is realized using object technology. In this workflow scenario, the system processes the following objects:

Objects	What You Should Know:
Task group TG20000016	The task group contains all the workflow objects, which belong to the workflow scenarios for service notifications.
Business object <i>BUS2080</i> (service notification)	A service notification corresponds to business object type <i>BUS2080</i> . A service notification is identified by the notification number (key field). You can find the attributes, methods and events for business object <i>BUS2080</i> in the <i>Business Object Repository</i> of the R/3 System.
Standard tasks: TS20000549 (process new notification) TS20000548 (notification is processed) TS20000555 (complete notification)	These are single-step tasks, which refer to an object method. This task is assigned to the people or departments that are authorized to process the object.
Workflow template WS20000318	This template contains the definitions of the workflow task for this workflow scenario. You can use this workflow template to notify the people responsible that a service notification has been created. The triggering events for this workflow template are <i>CREATED</i> and <i>INPROCESSAGAIN</i> .
Standard role AC00000178	This is the standard role for service notifications. The role resolution (defined in the standard role definition) is used to determine who is responsible for the processing of a service notification.

Process for Workflow Template WS20000318

Process for Workflow Template WS20000318

Purpose

The workflow template for this process is started when you create a new service notification.

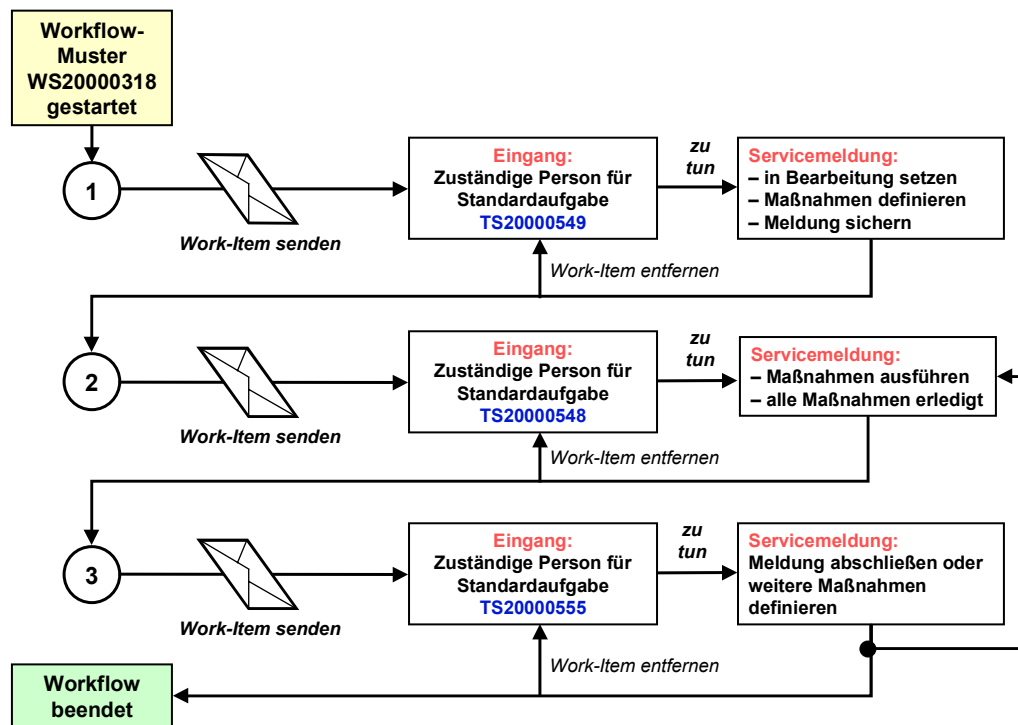
Process Flow

The system triggers one of the following events for business object BUS2080 (service notification):

CREATED (service notification created)

INPROCESSAGAIN (service notification in process again)

The triggering event starts the workflow template WS20000318 and the linked process as described in the following graphic.



The standard tasks in this process are valid from Release 4.6.

Preparation and Customizing (CS-CM-SN)

Use

The **application-specific** Customizing settings, which you must make to process this workflow template, are described here.

Prerequisites

All the **general** Customizing settings, which are required for the *SAP Business Workflow* component to be used, have been made.

Activities

Make the following settings in Customizing:

Set up the organizational structure and thereby determine your organizational units:

Basis → Business Management → SAP Business Workflow → Edit Organizational Structure

Assign the organizational units to the standard tasks:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Service Notifications → Assign Agents to Tasks

Activate the link between triggering event (CREATED, INPROCESSAGAIN) and workflow template WS20000318:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Service Notifications → Activate Event Linkage



For step three, make sure that you activate the event linkage for the workflow template and **not** for the standard task.

For more information, see the Implementation Guide.

Operation and Link to Application Functions (CS-CM-SN)

Operation and Link to Application Functions (CS-CM-SN)

Use

This workflow is used to inform the people or departments responsible automatically that a series of tasks must be executed in the following order:

Processing of a newly created service notification (notification status *Outstanding*)

Processing of a service notification with outstanding tasks (notification status *In process*)

Completion of a service notification (status of all tasks *Completed*)

The person(s) or department(s) responsible receive a mail (work item) in their inbox informing them of the tasks to be performed.

Activities

System Activities

If a service notification is created or put in process again, then the *SAP Business Workflow* automatically ensures that:

The workflow-triggering event *CREATED* or *INPROCESSAGAIN* is generated

The workflow template WS20000318 is started

A work item is sent to the work center for the person(s) or department(s) responsible

User Activities

As the person responsible for a work item, you have the following options:

Options	What You Should Know:
Processing a work item as a workflow	<p>To see the work item, choose <i>Office</i> → <i>Inbox</i>. You have the following processing options:</p> <p>You can process the work item by double clicking on it. The transaction for changing a service notification appears.</p> <p>You can call up another screen for the work item, to obtain an overview of outstanding and completed tasks.</p> <p>You can set a work item for resubmission as a reminder to process it later.</p> <p>You can navigate from the service notification to the workflow log, to define who has performed which activities.</p> <p>You can receive a work item using another mail system client (for example, Lotus Notes™ or MS Outlook™).</p>

Operation and Link to Application Functions (CS-CM-SN)

Processing a service notification manually using a worklist	If you process a service notification manually (outside of the workflow), all the changes to the notification are also considered in the workflow process.
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Completion of a Task (CS-CM-SN)

Purpose

In a service notification, you can define one or more tasks to solve the problem recorded in the notification. A task can refer both to the notification header and the individual notification items. It has a particular status.

If you create a task in a notification, the person responsible for completing the task can use the workflow to indicate this.

If no person has been specified, then the system notifies all the people who are assigned to the task.

SAP Business Workflow

If the appropriate system settings have been made, the *SAP Business Workflow* automatically sends a work item to the integrated inbox of the person(s) responsible. It states that a new task has been created in a notification. The person(s) informed can process the work item directly from their inbox. The change transaction for the task is called up automatically during processing.

Prerequisites

Refer to [Preparation and Customizing \(CS-CM-SN / Completing a Task\) \[Page 1946\]](#)

Process Flow

Refer to [Process for Workflow \(CS-CM-SN / Completing a Task\) \[Page 1944\]](#)

Technical Realization (CS-CM-SN / Completing a Task)

The interface between the R/3 functions and the *SAP Business Workflow* is realized using object technology. In this workflow scenario, the system processes the following objects:

Objects	What You Should Know:
Task group TG20000016	This task group contains the standard tasks and the workflow template required for this workflow scenario.
Object type QM/SM (task)	A task corresponds to object type <i>QMSM</i> . You can find the attributes, methods and events for object type <i>QMSM</i> in the <i>Business Object Repository</i> of the R/3 System.
Standard tasks TS00008340 (<i>Complete task</i>)	This is a single-step task, which refers to an object method. In this standard task, a task is completed in a service notification. This task is assigned to the people or departments that are authorized to process the object.
Workflow template WS00200097 (<i>SM ComplTask</i>)	This workflow template contains the definitions of the workflow task for this workflow scenario. You can use this workflow template to notify the people responsible that a critical error must be processed. The triggering event for this workflow is <i>CREATED</i> .

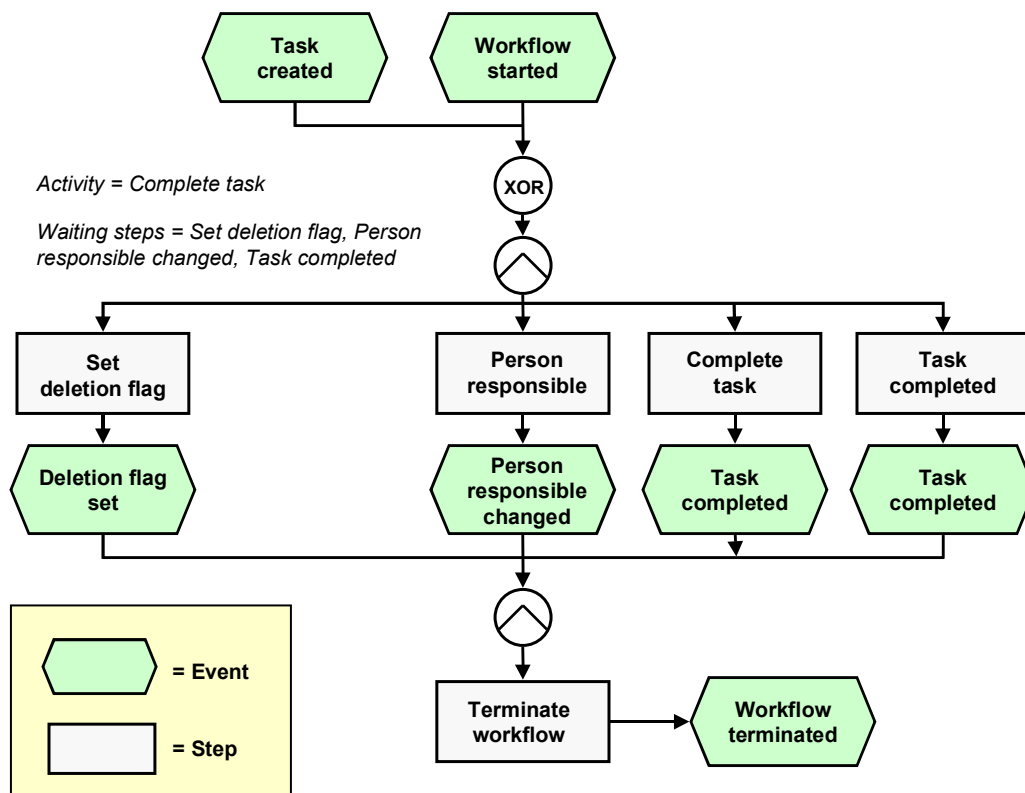
Process for Workflow (CS-CM-SN / Completing a Task)

Purpose

If a task has been created in a service notification, a workflow is started based on the template *SM Complete Task*.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps (see graphic). The structure is defined so that the system only has to process one of the branches. The standard task is specified in the activity.



Determination of Agent

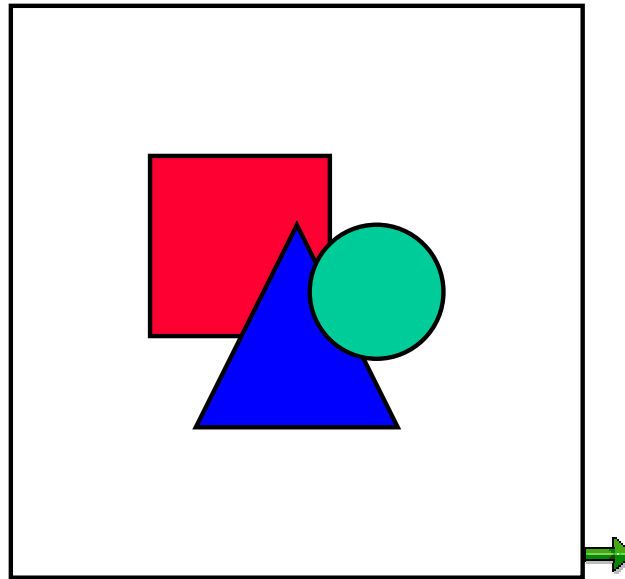
To determine the agent, the system searches in the service notification for the person responsible for the tasks. If no person has been specified for this task, then the system notifies all the people who are assigned to this standard task.

The agent is determined using a role resolution. The role 178 `SM_TASK_ROLE` (standard role for service notification) is defined as the default role for this task.

Result of Processing and Termination of Workflow

The processing of the work item terminates the task and the entire workflow. The workflow is also terminated if one of the waiting steps occurs.

Process for Workflow (CS-CM-SN / Completing a Task)



The terminating events *Deletion flag set*, *Person responsible changed* and *Task completed* can also occur outside of the workflow process.

Once the task has been processed, it obtains the status *Task completed*.

Preparation and Customizing (CS-CM-SN / Completing a Task)

Use

The **task-specific** Customizing settings, which you must make to process this workflow template, are described here.

Prerequisites

All the **general** Customizing settings, which are required for the *SAP Business Workflow* component to be used, have been made.

Activities

Make the following settings in Customizing:

Set up the organizational structure and thereby determine your organizational units:

Basis → Business Management → SAP Business Workflow → Edit Organizational Structure

Assign the organizational units to the standard tasks:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Service Notifications → Assign Agents to Tasks

Activate the link between triggering event (CREATED) and workflow template WS00200097:

Plant Maintenance and Customer Service → Maintenance and Service Processing → Notifications → Set Workflow for Service Notifications → Activate Event Linkage



For step three, make sure that you activate the event linkage for the workflow template and **not** for the standard task.

For more information, see the Implementation Guide.

Operation and Link to Application Functions (CS-CM-SN / Completing a Task)

Use

This workflow is used to inform all the responsible people or departments that:

A new task has been created in a service notification (task status *Outstanding*)

The task must be processed

Activities

System Activities

If an existing service notification is put in process, then the *SAP Business Workflow* automatically ensures that:

The workflow-triggering event *CREATED* is generated

The workflow template WS00200097 is started

A work item is sent to the work center for the person(s) or department(s) responsible

User Activities

As the person responsible for a work item, you have the following options:

Options	What You Should Know:
Processing a work item as a workflow	<p>To see the work item, choose <i>Office</i> → <i>Inbox</i>. You have the following processing options:</p> <p>You can process the work item by double clicking on it. The transaction for changing a service notification appears.</p> <p>You can call up another screen for the work item, to obtain an overview of outstanding and completed tasks.</p> <p>You can set a work item for resubmission as a reminder to process it later.</p> <p>You can navigate from the service notification to the workflow log, to define who has performed which activities.</p> <p>You can receive a work item using another mail system client (for example, Lotus Notes™ or MS Outlook™).</p>
Processing a service notification manually using a worklist	<p>If you process a service notification manually (outside of the workflow), all the changes to the notification are also considered in the workflow process.</p>

Processing an Outstanding Service Notification (CS-CM-SN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Service Notification \[Page 1935\]](#).

Definition

When a service notification is created in the system, it obtains the initial status "Outstanding". This means that the notification is entered in the system, and is ready to be processed. To ensure that the notification is processed, the person or department responsible is notified automatically that the service notification must be processed. The system informs the following people or departments in the order listed below:

Coordinator of service notification

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

SAP Business Workflow

If a service notification has been created with the status "Outstanding", a person or group of people can be notified by workflow using the corresponding system setting. These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the service notification is called up automatically during processing.

Technical Realization (CS-CM-SN / Outstanding Service Notification)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2080 \(Service Notification\) \[Page 1951\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008336 \(Processing an Outstanding Service Notification\) \[Page 1952\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200096 \(Processing a Service Notification\) \[Page 1953\]](#)

Object Type BUS2080 (Service Notification)

In this scenario, the system processes a business application object of the type `BUS2080` (`Service notification`). This means that a service notification with the status "Outstanding notification" will be processed.

Location in object repository:

Plant Maintenance and Service Management → Service Management → Service processing

Standard Task TS00008336 (Process Outstanding Service Notification)

Standard Task TS00008336 (Process Outstanding Service Notification)

In this standard task, you process a service notification that has the status “Outstanding notification.”

Standard task: TS00008336

ID: Outsanding

Description: *Service task: Process notification*

Referenced object method and attributes

Objektyp: BUS2080 (*Service notification*)

Methode: Edit (*Change*)

Eigenschaften: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200096 (Processing a Service Notification)

If a service notification is created with the status "Outstanding", a workflow is started from the template **Process SM**.

Workflow template: 00200096

ID: **Process SM**

Description: *SM: Process service notification*

Triggering Event for Workflow Template

The events **ACTIVATED** (*notification activated*) and **CREATED** (*notification created*) for object type **BUS2080** (*service notification*) have been entered as the triggering event for the workflow template.



This "linkage" between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the service notification to be processed (**_EVT_OBJECT**), the name of the creator of the notification (**_EVT_Creator**) and the sort key (**_WI_Group_ID**). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container "per data flow".

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container
_WF_Initiator	<-	_EVT_Creator
_WI_Group_Id	<-	_EVT_OBJECT
NOTIFICATION	<-	_EVT_OBJECT

The element **_WF_Initiator** is available in the workflow container in the standard system. The element **NOTIFICATION** has been created in addition to the existing standard elements.

Steps in a Workflow

Steps in a Workflow

If a service notification is created in the system with the status “Outstanding notification,” a workflow based on the template **Process SM** is started.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined in such a way that the system processes only one of the branches. The activity makes reference to the standard task..

Determination of Agent

To identify the agent, the system searches for the person responsible in the service notification. The following two partner functions are defined in the service notification:

Coordinator

Department responsible

The system first searches for the coordinator. If a coordinator is not specified, the system then searches for the responsible department. If a responsible department cannot be found, then all persons in the system assigned to this task will be notified.

The system identifies the agent on the basis of a role resolution. The role **178 SM_NOTIF_ROL** (*Person responsible for processing the service notification*) is defined as the default role for this standard task.

Role container

NOTIFICATION

<-

Task container

NOTIFICATION

Binding

The following binding is defined for the step “Process service notification”.

Task container

WI_Object_ID
NOTIFICATION

<-

<-

Workflow container

NOTIFICATION
NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Service notification processed*. This event terminates the task and the entire workflow.

After the user has processed the service notification, it can either have the status “Notification in process” or “Notification completed.”



The terminating events *Deletion flag set*, *Service notification completed*, *Service notification in process* and *All tasks completed* can also occur outside of the workflow process.

Preparation and Customizing (CS-CM-SN / Outstanding Service Notification)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1956\]](#)

[Performing Task-Specific Customizing \[Page 1957\]](#)

[Activating Event-Receiver Linkage \[Page 1958\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who will be responsible for processing an outstanding service notification must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the desired organizational units and/or positions. Assign the desired persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process an outstanding service notification.

To assign the Service Management tasks, proceed as follows:

From the main menu, select *Tools → Business Engineering → Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis → Workflow Management → Perform task-specific customizing*.

In the overview for task customizing, select *Plant Maintenance and Service Management → Service Management → Service processing → Assign tasks to agents*.

Assign the persons who will carry out this task in your company to the standard task **TS00008336** (*Process outstanding service notification*).

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The events **ACTIVATED** and **CREATED** for object type **BUS2080** (Service notification) are the triggering events for workflow template **WS00200096**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **Process service notification** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: *BUS2080*

Event: *CREATED*

Receiver type: *WS00200096*

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-SMA-SC / Outstanding Service Notification)

The following description assumes that a service notification with the status “outstanding” has been created in the system and the notification has not yet been processed.

Generate event

The workflow-triggering events **ACTIVATED** or **CREATED** are generated automatically if a service notification is created without being processed.

Process outstanding maintenance notification

The person or persons responsible for this task will find a work item that represents the standard task *Process outstanding service notification* in their integrated inbox. Processing this work item makes it possible to put the notification “in-process”.

You can access the integrated inbox via the menu path *Office* → *Inbox*.

Processing a Service Notification in Process (CS-CM-SN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Service Notification \[Page 1935\]](#).

Definition

You can use this workflow scenario to process service notifications that have the status "In process", but which have not yet been completed. For example, a certain person in an organization may be responsible for putting all outstanding service notifications in process (refer to [Processing Outstanding Service Notifications \(CS-CM-SN\) \[Page 1949\]](#)). However, another person may actually be responsible for processing a notification.

The system informs the following people or departments in the order listed below:

Coordinator of service notification

Department responsible (if no coordinator has been specified)

All the people, who are assigned to the task (if neither a coordinator, nor a department has been specified)

SAP Business Workflow

If a service notification obtains the status "In process", the person or group of people responsible can be notified by *SAP Business Workflow* using the corresponding system setting. These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the service notification is called up automatically during processing.

Technical Realization (CS-CM-SN / Service Notification in Process)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2080 \(Service Notification\) \[Page 1962\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008336 \(Processing a Service Notification\) \[Page 1963\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200099 \(Putting a Service Notification in Process\) \[Page 1964\]](#)

Object Type BUS2080 (Service Notification)

Object Type BUS2080 (Service Notification)

In this scenario, the system processes a business application object of the type **BUS2080 (Service notification)**. This means that a service notification with the status "Notification in process" will be edited.

Location in object repository:

Plant Maintenance and Service Management → Service Management → Service processing

Standard Task TS00008336 (Process Service Notification)

Standard Task TS00008336 (Process Service Notification)

In this standard task, you process a service notification that has the status "Notification in process."

Standard task: TS00008336

ID: Process

Description: *SM task process notification*

Referenced object method and attributes

Object type: BUS2080 (*Service notification*)

Method: Edit (*Change*)

Attributes: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200099 (Putting a Service Notification in Process)

Workflow Template WS00200099 (Putting a Service Notification in Process)

If a service notification is created with the status "In process", a workflow is started from the template **SM: Put service notification in process**.

Workflow template: 00200099

ID: SM InProcess

Description: SM: Put service notification in process

Triggering Event for Workflow Template

The event **INPROCESS** (*notification in process*) for object type **BUS2080** (*service notification*) has been entered as the triggering event for the workflow template.



This "linkage" between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the service notification to be processed (**_EVT_OBJECT**), the name of the creator of the notification (**_EVT_Creator**) and the sort key (**_WI_Group_ID**). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container "per data flow".

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container	
_WF_Initiator	<-	_EVT_Creator	
_WI_Group_Id	<-	_EVT_OBJECT	
NOTIFICATION	<-	_EVT_OBJECT	

The element **_WF_Initiator** is available in the workflow container in the standard system. The element **NOTIFICATION** has been created in addition to the existing standard elements.

Steps in a Workflow

If a service notification receives the status “Notification in process,” a workflow based on the template **SM inProcess** is started.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined in such a way that the system processes only one of the branches. The activity makes reference to the standard task.

Determination of Agent

To identify the agent, the system searches for the person responsible in the service notification. The following two partner functions are defined in the service notification:

Coordinator

Department responsible

The system first searches for the coordinator. If a coordinator is not specified, the system then searches for the responsible department. If a responsible department cannot be found, then all persons in the system assigned to this task will be notified.

The system identifies the agent on the basis of a role resolution. The role **178 SM_NOTIF_ROL** (*Person responsible for processing the service notification*) is defined as the default role for this standard task.

Role container		Task container
NOTIFICATION	<-	NOTIFICATION

Binding

The following binding is defined for the step “Process service notification”.

Task container		Workflow container
<u>WI_Object_ID</u>	<-	NOTIFICATION
NOTIFICATION	<-	NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Service notification processed*. This event terminates the task and the entire workflow.

After the user has processed the service notification, it will have the status “Notification completed”.



The terminating events *Deletion flag set*, *Service notification completed*, *All tasks completed* can also occur outside of the workflow process

Preparation and Customizing (CS-CM-SN / Service Notification in Process)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1967\]](#)

[Performing Task-Specific Customizing \[Page 1968\]](#)

[Activating Event-Receiver Linkage \[Page 1969\]](#)

Processing the Organizational Structure

All persons who will be responsible for processing service notifications that have the status "Notification in process" must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows::

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process a service notification with the status "in process".

To assign the Service Management tasks, proceed as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Perform task-specific customizing*.

Auf dem Bild zum aufgabenspezifischen Customizing wählen Sie In the overview for task customizing, select *Plant Maintenance and Service Management* → *Service Management* → *Service processing* → *Assign tasks to agents*.

Assign the persons who will carry out this task in your company to the standard task **TS00008336** (*SM task: Process notification*).

Activate Event-Receiver Linkage

The event **InProcess** (notification in process) for object type **BUS2080** (service notification) is the triggering event for workflow template **WS00200099**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **SM: Set service notification is process** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: **BUS2038**

Event: **CREATED**

Receiver type: **WS00200095**

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-SMA-SC / In-process Service Notification)

Operation and Link to Application Functionality (PM-SMA-SC / In-process Service Notification)

The following description assumes that a service notification has been set to the status "Notification in process."

Generate event

The workflow-triggering event **INPROCESS** are generated automatically if a service notification is put "in-process."

Edit "in-process" service notification

The person or persons responsible for this task will find a work item that represents the standard task *Edit in-process service notification* in their integrated inbox. Processing this work item makes it possible to complete the notification.

You can access the integrated inbox via the menu path *Office → Inbox*.

Completing a Service Notification (CS-CM-SN)



This workflow scenario is **obsolete and should no longer be used**. The functions for this scenario have been integrated into the new workflow scenario [Processing of a Service Notification \[Page 1935\]](#).

Definition

If a service notification contains one or more tasks, and all of these tasks have been completed, the service notification obtains the status "All tasks completed". When this status is set, the system automatically informs the coordinator of the service notification (specified in the notification header) that one of the following processing steps must be executed:

Complete the service notification (if all the other notification processing steps have been completed)

Define additional tasks (if, for example, the problem has not been resolved)

SAP Business Workflow

If a service notification obtains the status "All tasks completed", the person or group of people responsible can be notified by *SAP Business Workflow* using the corresponding system setting. These people see a work item in their integrated inbox, and it can be processed directly from there. The change transaction for the service notification is called up automatically during processing.

Technical Realization (CS-CM-SN / Completing a Service Notification)

Object Types Used

Object technology is used to realize the interface between the R/3 functions and the *SAP Business Workflow*. For this reason, the following information is primarily of a technical nature and is not required for an initial overview.

[Object Type BUS2080 \(Service Notification\) \[Page 1973\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP, which describe elementary business activities from an organizational standpoint. In each case, a single-step task relates to one object method (= technical link to R/3 functions) and is linked to the people in the organization who can process the object.

[Standard Task TS00008338 \(Completing a Service Notification\) \[Page 1974\]](#)

Workflow Template

The actual process flow is implemented in the form of a workflow template. You can find this workflow template in your R/3 system.

[Workflow Template WS00200098 \(Completing a Service Notification\) \[Page 1975\]](#)

Object Type BUS2080 (Service Notification)

In this scenario, the system processes a business application object of the type `BUS2080` (`service notification`). This means that a service notification will be completed.

Location in object repository:

Plant Maintenance and Service Management t → Service Management → Service Processing

Standard Task TS00008338 (Complete Service Notification)

Standard Task TS00008338 (Complete Service Notification)

In this standard task, you complete a service notification.

Standard task: TS00008338

ID: abschließen

Description: *SM task: Complete notification*

Referenced object method and attributes

Object type: BUS2080 (*service notification*)

Method: Edit (*Change*)

Attributes: *Confirm end of processing*

Maintain agent assignment

All persons or organizational units assigned to this standard task can be notified.

Workflow Template WS00200098 (Completing a Service Notification)

If all the tasks for a service notification have been completed, a workflow is started from the template **SM Complete notification**.

Workflow template: 00200098

ID: SM Complete

Description: SM: Complete notification

Triggering Event for Workflow Template

The event **ALLTASKSCOMPLETED** (*all tasks completed*) for object type **BUS2080** (*service notification*) has been entered as the triggering event for the workflow template.



This “linkage” between the event and the workflow template to be started is normally inactive in the standard system. If the workflow template is to be started, it must first be activated in the Customizing for the SAP Business Workflow.

Workflow Container and Data Flow

The most important information that must be available during the workflow is the object reference to the service notification to be processed (**_EVT_OBJECT**), the name of the creator of the notification (**_EVT_Creator**) and the sort key (**_WI_Group_ID**). This information is available as event parameters in the container for the triggering event and must be transferred to the workflow container “per data flow”.

In the standard system, the following data flow definition has been established between the triggering event and workflow container:

Workflow Container		Event Parameter Container	
_WF_Initiator	<-	_EVT_Creator	
_WI_Group_Id	<-	_EVT_OBJECT	
NOTIFICATION	<-	_EVT_OBJECT	

The element **_WF_Initiator** is available in the workflow container in the standard system. The element **NOTIFICATION** has been created in addition to the existing standard elements.

Steps in a Workflow

Steps in a Workflow

If all tasks in a maintenance notification have been completed, a workflow based on the template **SM Complete notification** is started.

Workflow Structure

The workflow structure has several parallel branches to an activity and several wait steps. The structure is defined in such a way that the system processes only one of the branches. The activity makes reference to the standard task.

Determination of Agent

To identify the agent, the system searches for the person responsible in the service notification. The following two partner functions are defined in the service notification:

Coordinator

Department responsible

The system first searches for the coordinator. If a coordinator is not specified, the system then searches for the responsible department. If a responsible department cannot be found, then all persons in the system assigned to this task will be notified.

The system identifies the agent on the basis of a role resolution. The role **178 SM_NOTIF_ROL** (*Person responsible for processing the service notification*) is defined as the default role for this standard task.

Role container

NOTIFICATION

<-

Task container

NOTIFICATION

Binding

The following binding is defined for the step "Complete service notification".

Task container

WI_Object_ID
NOTIFICATION

<-

<-

Workflow container

NOTIFICATION
NOTIFICATION

Result of Processing and Termination of Workflow

The processing of the work item results in the event *Service notification processed*. This event terminates the task and the entire workflow.

After the user has processed the service notification, it has the status "Notification completed."



The terminating events Complete service notification, Service notification in process again and Deletion flag set can also occur outside of the workflow process.

Preparation and Customizing (CS-CM-SN / Completing a Service Notification)

In addition to general Customizing, which ensures that the workflow system functions properly, several other Customizing steps are required for this workflow template.

Customizing of SAP Business Workflow

[Editing the Organizational Structure \[Page 1978\]](#)

[Performing Task-Specific Customizing \[Page 1979\]](#)

[Activating Event-Receiver Linkage \[Page 1980\]](#)

Processing the Organizational Structure

Processing the Organizational Structure

All persons who will be responsible for completing a service notification must be identified in the Customizing application for the SAP Business Workflow. For this purpose, you can either list all of the persons individually or you can assign entire organizational units (for example, departments) to the task.

Set up your organizational structure in the Customizing application as follows:

From the main menu, select *Tools* → *Business Engineering* → *Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects* → *SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis* → *Workflow Management* → *Edit organizational plan*.

In the initial screen for changing the organizational plan, enter the required data (for example, organizational unit and processing period) and then select *Organizational plan* → *Create or Change*.

In the subsequent screen, create or change the required organizational units and/or positions. Assign the required persons to these units or positions using the available menu functions.

Perform Task-Specific Customizing

List all organization management objects that will be authorized to process an outstanding task in a service notification.

To assign the Service Management tasks, proceed as follows:

From the main menu, select *Tools → Business Engineering → Customizing*. The system displays the initial screen for the Customizing application.

From the menu bar, select *Implement. projects → SAP Reference IMG*. The system displays the SAP Reference IMG.

In the IMG structure, select *Basis → Workflow Management → Perform task-specific customizing*.

In the overview for task customizing, select *Plant Maintenance and Service Management → Service processing → Assign tasks to agents..*

Assign the persons who will carry out this task in your company to the standard task **TS000008338** (*Complete service notification*).

Activate Event-Receiver Linkage

Activate Event-Receiver Linkage

The event **ALLTASKSCOMPLETED** (all tasks completed) for object type **BUS2080** (service notification) is the triggering event for workflow template **WS00200098**. As such, it is entered in the event linkage table in the standard system. To ensure that the workflow template can be started, the linkage between the triggering event and the workflow template as the receiver of the event must be activated in the development environment for the SAP Business Workflow.

To activate the workflow template **SM Complete notification** in your system, proceed as follows:

Call up the SAP Business Workflow from the main menu by selecting *Tools Business Engineering → Business Workflow → Development*.

Select *Utilities → Other tools → Event linkage*. The system displays a screen for viewing the event linkage for various objects.

Select *Goto → Detail* to display the detail screen for the following object type, event and receiver type:

Object type: **BUS2080**

Event: **ALLTASKSCOMPLETED**

Receiver type: **WS00200098**

Mark the *Enabled* field to activate the event linkage.

(Alternatively, you can also activate the event-receiver linkage by processing the workflow template directly.)

Operation and Link to Application Functionality (PM-SMA-SC / Complete Service Notification)

The following description assumes that all tasks in a service notification have been completed.

Generate event

The workflow-triggering event **ALLTASKSCOMPLETED** is generated automatically if all tasks in a service notification have been completed.

Complete maintenance notification

The person or persons assigned to this task will find a work item that represents the standard task *Complete service notification* in their integrated inbox. Processing this work item makes it possible to complete and possibly archive the quality notification.

You can access the integrated inbox via the menu path *Office* → *Inbox*.

SAP ArchiveLink - Storage Scenarios (PM)

SAP ArchiveLink - Storage Scenarios (PM)

The following sections describe the storage scenarios in the R/3 application component PM (Plant Maintenance and Service Management):

Maintenance Orders (PM-WOC-MO)

Maintenance Notifications (PM-WOC-MN)

Service Processing (PM-SMA-SC)

See also:

General [introduction \[Ext.\]](#) to this scenario documentation

[SAP ArchiveLink \[Ext.\]](#)

[Maintenance Orders \(PM-WOC-MO\) \[Page 1064\]](#)

[Maintenance Notifications \[Page 822\]](#)

[Service Processing \[Ext.\]](#)

Storage of Outgoing Documents (PM-WOC-MO)

Use

In the *Plant Maintenance* (PM) application component, you can use the SAP ArchiveLink to store outgoing documents in external content servers.

See also [Business Background \(PM-WOC-MO\) \[Page 1985\]](#).

Prerequisites

Technical Realization (PM-WOC-MO)

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology.

In this scenario, the system processes the business application object, [Object Type BUS2007 \(Maintenance Order\) \[Ext.\]](#). You can find the features, methods and events defined for the object type in the object repository in the R/3 System.

When you store an outgoing document, the document is automatically assigned to the maintenance order currently being processed.

Document Types

In the PM application component, a document type is predefined for outgoing documents:

PMOWORKPAP: Maintenance order print - Shop paper

Preparation and Customizing (PM-WOC-MO)

General Customizing for SAP ArchiveLink

In order that you can store outgoing documents, you must first define global document types for SAP ArchiveLink in Customizing. For more information, see the SAP ArchiveLink documentation in [Special Customizing \[Ext.\]](#).

Customizing in the PM Application Component

When you make Customizing settings for maintenance orders in the PM application component, you must define the **print control** for the shop papers. This comprises the following:

- Definition of the shop papers
- Definition of the printer destination and the form of storage for the individual shop papers
- Assignment of the shop papers to maintenance order types

When you define the **shop papers**, you must assign **global document types** to them.

You define the print control in the Implementation Guide (see *Plant Maintenance and Service Management* → *Maintenance Processing and Service Processing* → *Maintenance Orders and Service Orders* → *Print Control*).

Storage of Outgoing Documents (PM-WOC-MO)

Activities

To store outgoing documents in the PM application component, you must first create a maintenance order or call up an existing maintenance order using the change function. Then you can:

- Store the shop papers for a maintenance order
- Display previously stored shop papers in the SAP ArchiveLink Viewer

Storing Outgoing Documents

To store a shop paper, choose the function for **printing** the maintenance order. Several dialog boxes appear, in which you can select the required shop papers and define the appropriate print parameters and form of storage. When you select and save a shop paper for storage, the system stores the shop paper in the SAP ArchiveLink.

For more information about printing maintenance orders, see the section [Printing/Faxing of Shop Papers \[Page 1235\]](#) in *PM - Maintenance Orders*.

Displaying Stored Documents in the SAP ArchiveLink Viewer

When you process a maintenance order, for which one or more documents have been stored, you can display this document in the SAP ArchiveLink Viewer. To do this, choose Environment → *Display original documents*. A dialog box appears, in which you can select the object link for the stored documents.

If only one document is stored for the maintenance order, it is displayed automatically in the SAP ArchiveLink Viewer. If several documents are stored for the maintenance order, you can select the required document in a second dialog box.

Business Background (PM-WOC-MO)

Plant Maintenance and SAP ArchiveLink

In the PM application component, you can use **maintenance orders** (PM orders) to document maintenance tasks. You use the maintenance order to plan tasks in detail, monitor their execution, then enter and settle the costs which arise from the tasks. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of maintenance orders. This tool enables outgoing documents to be stored quickly and efficiently in external content servers.

Shop Papers for Maintenance Orders

When you process a maintenance order in the PM application component, you can print and store different **shop papers** for this maintenance order. A shop paper is an outgoing document that contains information about the maintenance order or the contents of the order. In the PM application component, the following shop papers have been predefined for the **maintenance orders**:

- Operation control ticket
The operation control ticket provides the maintenance employee responsible with a complete overview of the maintenance order. It also contains information about permits.
- Job ticket
The job ticket is a paper that accompanies the order and provides the manual worker performing it with a complete overview of the order.
- Material staging list
The material staging list shows the warehouse clerk which materials have been scheduled for each operation in this order.
- Material withdrawal slip
Material withdrawal slips authorize the manual worker responsible to withdraw the materials required for the order from the warehouse. A material withdrawal slip is printed for each material component.
- Time ticket
Time tickets are only printed for operations where indicated to by the control key. The number of time tickets specified per operation is then printed for each manual worker involved with the order. The worker records on the ticket the time that was required to perform the operation.
- Completion confirmation slip
The employee responsible enters the technical report and, where necessary, relevant measurement and/or counter readings on the completion confirmation slip.
- Order object list
A list of technical objects (equipment or functional locations) which have been assigned to the maintenance order.

In the system, you can set which shop papers are available for which order types.

Business Background (PM-WOC-MO)**When Can the “Storage of Outgoing Documents” Scenario be Used?**

When you create or change a maintenance order, you can print shop papers for the maintenance order. Depending on the **storage mode** that you have defined for shop papers, you can use the print function to select one of the following output modes:

- **Printing** the selected shop papers
- **Storing** the selected shop papers
- **Printing and storing** the selected shop papers simultaneously

When you store a shop paper, the system stores the document in the SAP ArchiveLink. As soon as a shop paper is stored, you can display it using the SAP ArchiveLink Viewer.

Storage of Incoming Documents (PM-WOC-MO)

Use

In the *Plant Maintenance* (PM) application component, you can use the SAP ArchiveLink to store incoming documents in an external content server.

See also [Business Background \(PM-WOC-MO\) \[Page 1990\]](#).

Prerequisites

Technical Realization (PM-WOC-MO)

General Settings for Document Types

Field Description	Content
Document type:	PMIAUFTRAG
Description:	Order
Operation category:	NCI_INPUT
Object type:	BUS2007
Method:	CREATE
Task:	TS00007869
Document type:	PMICONFIRM
Description:	Completion confirmation
Operation category:	NCI_INPUT
Object type:	BUS2007
Method:	CREATE
Task:	TS00007869

Document Types for Maintenance Orders

In the standard system, the following document types are predefined for maintenance orders:

- Documents for maintenance order processing - completion confirmation
- Documents for maintenance order processing - document for order

Storage of Incoming Documents (PM-WOC-MO)

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology. In this SAP ArchiveLink scenario, the system processes the following application object:

[Object Type BUS2007 \(Maintenance Order\) \[Ext.\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP which describe simple business activities from an organizational viewpoint. In each case, a single-step task refers to **one** object method (technical link to R/3 functions) and is linked to the people who can process the object.

[Standard Task TS00007869 \(ImageAssign\) \[Ext.\]](#)

Preparation and Customizing (PM-WOC-MO)

The Customizing for storage for subsequent entry for incoming documents comprises the following areas:

- General Customizing for **SAP ArchiveLink**
- Customizing for the **SAP Business Workflow**

General Customizing for SAP ArchiveLink

In order that you can store incoming documents, you must first make Customizing settings for SAP ArchiveLink to maintain the following:

- Global document types
- Links
- Presettings

For more information, see the section [Basic Customizing \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

Customizing for the SAP Business Workflow

The SAP Business Workflow plays an important role in the scenario “storage for subsequent entry”. The SAP Business Workflow automatically informs the people responsible that an incoming document has been stored and that a maintenance order must be created. The Customizing for the SAP Business Workflow includes the following:

- Maintaining workflow document types

The SAP Business Workflow automatically informs the people responsible that a maintenance order must be created. In order that the workflow can be triggered, the global document types must be defined as workflow document types. For the scenario of storage for subsequent entry in PM, the object type is [BUS2007 \[Ext.\]](#) (maintenance order).

- Maintaining workflow parameters

In the workflow document type for PM, the workflow parameters specify the category of maintenance order which is created by the system.

Storage of Incoming Documents (PM-WOC-MO)**See also:**

The section [Special Customizing \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

Activities

The scenarios for storage for subsequent entry usually include two or more people who work at different locations within the company. Each of these people must execute the relevant storage functions depending on their task area.

When storing for subsequent entry, one person scans the incoming documents in a storage unit and assigns them to document types. This is performed using the storage functions in the *Office* menu.

When storing for subsequent entry, a second person (in a different department) processes the work items which have been generated by the storage operation and the SAP Business Workflow. In the PM application component, this is usually the person who created and/or processed the maintenance orders.

For more information, see the following documentation:

- **Storage for Subsequent Entry: Assigning Document Types and Processing Work Items:**

The section [Storage for Subsequent Entry \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

- **Processing of Maintenance Orders:**

[PM - Maintenance Orders \[Page 1064\]](#)

Business Background (PM-WOC-MO)

Business Background (PM-WOC-MO)

This section describes the business background of “storage for subsequent entry” for incoming documents in the R/3 application component, Plant Maintenance (PM).

Plant Maintenance and SAP ArchiveLink

In the PM application component, you can use **maintenance orders** (PM orders) to document maintenance tasks. You use the maintenance order to plan tasks in detail, monitor their execution, then enter and settle the costs which arise from the tasks. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of maintenance orders. This tool enables incoming documents to be stored quickly and efficiently in external content servers.

The SAP ArchiveLink interface supports a storage scenario for incoming documents in the PM application component:

- Storage for subsequent entry for incoming documents

When Can the “Storage for Subsequent Entry” Scenario be Used?

When storing for subsequent entry, the original paper documents relating to a problem are stored in the R/3 System **before** the document (in this case, the maintenance order) is created. When the incoming document is stored, the system triggers the **SAP Business Workflow**, which notifies the person responsible that a maintenance order must be created. When this person creates and saves the maintenance order, the incoming document is automatically assigned to the order.

[Process Flow for Storage for Subsequent Entry \(PM-WOC-MO\) \[Page 1991\]](#)

Process Flow for Storage for Subsequent Entry (PM-WOC-MO)

The following steps describe a typical scenario for “storage for subsequent entry” for incoming documents **before** a maintenance order has been created:

A clerk receives a document (for example, a car inspection report).

The clerk scans the document into a dedicated scanning system. The document is then displayed in the scan dialog window of the external system.

The clerk (or another designated person) calls up the function for storing for subsequent entry and selects the document type to which the scanned document should be assigned (for example, “Documents for car inspection reports”).

The clerk confirms the assignment to the document type. This triggers a workflow, in which the person responsible for processing the work item is informed (for example, Mrs Jones in Plant Maintenance).



The people who are notified by the SAP Business Workflow must first be defined in the organizational structure for the company (see Customizing for SAP Business Workflow).

Mrs Jones receives the corresponding work item in her integrated inbox. When she processes the work item, the system automatically calls up the create transaction for maintenance orders and the SAP ArchiveLink Viewer. The SAP ArchiveLink Viewer displays the scanned incoming document.

Mrs Jones creates a maintenance order based on the contents of the car inspection report and saves it. The document is then automatically assigned to the maintenance order using an internal link table.

When Mrs Jones or another authorized person calls up the order again later, they can display the archived document in the SAP ArchiveLink Viewer by choosing *Environment → Display original documents*.

Storage of Incoming Documents (PM-SMA-SC)

Storage of Incoming Documents (PM-SMA-SC)

Use

In the *Service Management* (SM) application component, you can use the SAP ArchiveLink to store incoming documents in external content servers.

See also [Business Background \(PM-SMA-SC\) \[Page 1995\]](#).

Prerequisites

Technical Realization (PM-SMA-SC)

Document Type

The following global document type for “storage for subsequent entry” in the SM application component is already defined in the standard system:

Field Description	Content
Document type:	PMISERVICE
Description:	Service notification
Operation category:	NCI_INPUT
Object type:	BUS2080
Method:	CREATE
Task:	TS00007869

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology. In this SAP ArchiveLink scenario, the system processes the following application object:

[Object Type BUS2080 \(Service Notification\) \[Ext.\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP which describe simple business activities from an organizational viewpoint. In each case, a single-step task refers to *one* object method (technical link to R/3 functions) and is linked to the people who can process the object.

[Standard Task TS00007869 \(ImageAssign\) \[Ext.\]](#)

Preparation and Customizing (PM-SMA-SC)

General Customizing for SAP ArchiveLink

In order that you can store incoming documents, you must first make Customizing settings for SAP ArchiveLink to maintain the following:

- Global document types
- Links
- Presettings

For more information, see the sections [Special Customizing \[Ext.\]](#) and [Presettings for Storage Strategies \[Ext.\]](#) in the SAP ArchiveLink documentation.

Customizing for the SAP Business Workflow

The SAP Business Workflow automatically informs the people responsible that an incoming document has been stored and that a service notification must be created. The Customizing for the SAP Business Workflow includes the following:

- Maintaining a workflow document type

For the scenario of storage for subsequent entry in SM, the object type is [BUS2080 \[Ext.\]](#) (service notification).
- Maintaining workflow parameters

In the standard system, the following workflow parameters have been defined for storage for subsequent entry in the SM application component:

 - Method parameter
TYPE (for service notification type)
 - + (value which is assigned to the method parameter)
 - M2 for notification type “Service notification”

See also:

The section [Special Customizing \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

Activities

The scenarios for storage for subsequent entry usually include two or more people who work at different locations within the company. Each of these people must execute the relevant storage functions depending on their task area.

When storing for subsequent entry, one person scans the incoming documents in a storage unit and assigns them to document types. This is performed using the storage functions in the *Office* menu.

When storing for subsequent entry, a second person (in a different department) processes the work items which have been generated by the storage operation and the SAP Business Workflow. In the SM application component, this is usually the person who created and/or processed the service notifications.

For more information, see the following documentation:

Storage of Incoming Documents (PM-SMA-SC)

- **Storage for Subsequent Entry: Assigning Document Types and Processing Work Items:**

The section [Storage for Subsequent Entry \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

- **Processing of Service Notifications:**

PM - Service Management: [Service Processing \[Page 992\]](#)

Business Background (PM-SMA-SC)

Service Management and SAP ArchiveLink

In the SM application component, you can use **service notifications** to enter, process and monitor different types of problems, malfunctions or service requests. These problems may, for example, involve malfunctions whose causes are related to internal or external factors. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of service notifications. This tool enables problem-related documents to be entered quickly and efficiently, and stored in external content servers.

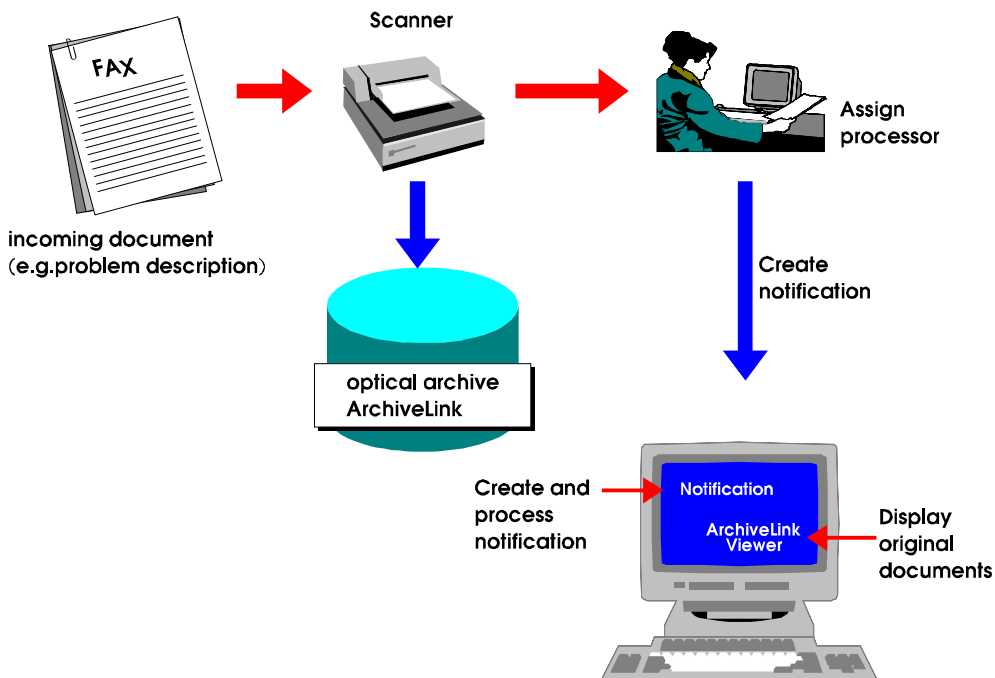
The SAP ArchiveLink interface supports a storage scenario for incoming documents in the SM application component:

- “Storage for subsequent entry” for incoming documents

When Can the “Storage for Subsequent Entry” Scenario be Used?

When storing for subsequent entry, the original paper documents relating to a problem are stored in the R/3 System **before** the document (in this case, the service notification) is created. When the incoming document is stored, the system triggers the **SAP Business Workflow**, which notifies the person responsible that a service notification must be created. When this person creates and saves the service notification, the incoming document is automatically assigned to the notification. Storage is usually in a central mailroom, where incoming post is opened, presorted, prepared and entered (scanned).

Storage for Subsequent Entry for Incoming Documents



[Process Flow for Storage for Subsequent Entry \(PM-SMA-SC\) \[Page 1997\]](#)

Process Flow for Storage for Subsequent Entry (PM-SMA-SC)

The following steps describe a typical scenario for “storage for subsequent entry” for incoming documents **before** a service notification has been created:

A clerk in the central mailroom receives a malfunction report from a customer.

The clerk scans the malfunction report into a dedicated scanning system. The letter is then displayed in the scan dialog window of the external system.

The clerk (or another designated person) calls up the function for storing for subsequent entry and selects the document type to which the scanned document should be assigned (for example, “Documents for service notifications”).

The clerk confirms the assignment to the document type. This triggers a workflow, in which the person responsible for processing the work item is informed (for example, Mrs Brown in Plant Maintenance).



The people who are notified by the SAP Business Workflow must first be defined in the organizational structure for the company (see Customizing for SAP Business Workflow).

Mrs Brown receives the corresponding work item in her integrated inbox. When she processes the work item, the system automatically calls up the create transaction for service notifications and the SAP ArchiveLink Viewer. The SAP ArchiveLink Viewer displays the scanned incoming document.

Mrs Brown documents the problem in the service notification and saves it. The incoming document is then automatically assigned to the service notification using an internal link table.

When Mrs Brown or another authorized person calls up the notification again later, they can display the incoming document in the SAP ArchiveLink Viewer by choosing *Environment* → *Original links*.

Storage of Outgoing Documents (PM-SMA-SC)

Storage of Outgoing Documents (PM-SMA-SC)

Use

In the *Service Management* (SM) application component, you can use the SAP ArchiveLink to store outgoing documents in an external content server.

See also [Business Background \(PM-SMA-SC\) \[Page 2000\]](#).

Prerequisites

Technical Realization (PM-SMA-SC)

Predefined Shop Papers for Service Notification Types

Service Notification Type	Shop Papers
Notification type S1	Service notification overview
Notification type S2	Service notification overview
Notification type S3	Service notification overview

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology.

In this scenario, the system processes the business application object, [Object Type BUS2080 \(Service Notification\) \[Ext.\]](#). You can find the features, methods and events defined for the object type in the object repository in the R/3 System.

When you store an outgoing document, the document is automatically assigned to the service notification currently being processed.

Document Types

In the standard system, the following global document type is predefined for storing outgoing documents in the SM application component:

- PMOSERVPAP: Service notification print - Shop paper

Preparation and Customizing (PM-SMA-SC)

General Customizing for SAP ArchiveLink

In order that you can store outgoing documents, you must first define global document types for SAP ArchiveLink in Customizing. For more information, see the SAP ArchiveLink documentation in [Special Customizing \[Ext.\]](#).

Storage of Outgoing Documents (PM-SMA-SC)

Customizing in the SM Application Component

When you make Customizing settings for service notifications in the SM application component, you must define the **print control** for the shop papers. This comprises the following:

- Definition of the shop papers
- Definition of the printer destination and the form of storage for the individual shop papers
- Assignment of the shop papers to service notification types

When you define the **shop papers**, you must assign **global document types** to them.

You define the print control in the Implementation Guide (see *Plant Maintenance and Service Management* → *Maintenance Processing and Service Processing* → *Notifications* → *Notification Print Control*).

Activities

To store outgoing documents in the SM application component, you must first create a service notification or call up an existing service notification using the change function. Then you can:

- Store the shop papers for a service notification
- Display previously stored shop papers in the SAP ArchiveLink Viewer

Storing Outgoing Documents

To store a shop paper, choose the function for **printing** the service notification. Several dialog boxes appear, in which you can select the required shop papers and define the appropriate print parameters and form of storage. When you select and save a shop paper for storage, the system stores the shop paper in the SAP ArchiveLink.

Displaying Stored Documents in the SAP ArchiveLink Viewer

When you process a service notification, for which one or more outgoing documents have been stored, you can display this document in the SAP ArchiveLink Viewer. To do this, choose *Environment* → *Object links* in the notification header. A dialog box appears, in which you can select the object link for the stored documents. If only one document is stored for the service notification, it is displayed automatically in the SAP ArchiveLink Viewer. If several documents are stored for the service notification, you can select the required document in a second dialog box.

Business Background (PM-SMA-SC)

Service Management and SAP ArchiveLink

In the SM application component, you can use **service notifications** to enter, process and monitor different types of problems. These problems may, for example, involve malfunctions whose causes are related to internal or external factors. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of service notifications. This tool enables outgoing documents to be stored quickly and efficiently in external content servers.

Shop Papers for Service Notifications

When you process a service notification in the SM application component, you can print and store different **shop papers** for this service notification. A shop paper is an outgoing document that contains information about the service notification or the contents of the notification. In the SM application component, the following shop paper has been predefined for the different **service notification types**:

- **Service notification overview (version 1 and version 2)**

The notification overview contains a summary of the relevant information in a service notification (for example, data relating to the notification header and the items).

An overview of the shop papers which are available for the different service notification types is provided in the table of predefined shop papers under “Technical Realization” in [Storage of Outgoing Documents \(PM-SMA-SC\) \[Page 1998\]](#).

When Can the “Storage of Outgoing Documents” Scenario be Used?

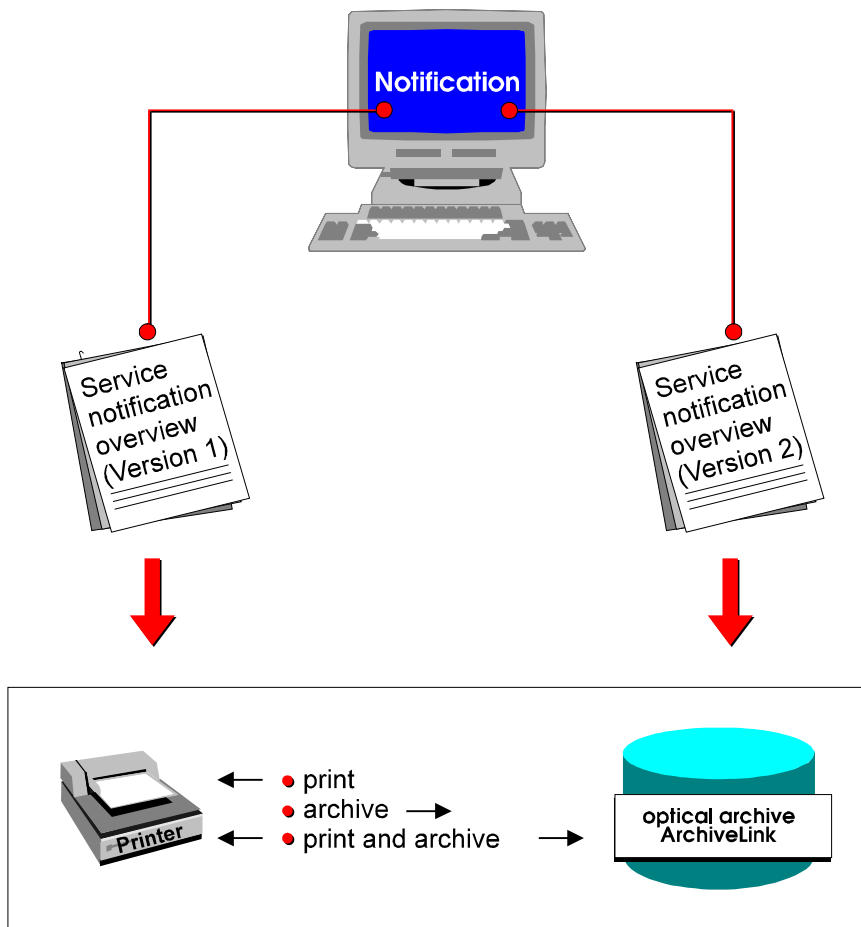
When you create or change a service notification, you can print shop papers for the service notification. Depending on the **storage mode** that you have defined for shop papers, you can use the print function to select one of the following output modes:

- **Printing** the selected shop papers
- **Storing** the selected shop papers
- **Printing and storing** the selected shop papers simultaneously

When you store a shop paper, the system stores the document in the SAP ArchiveLink. As soon as a shop paper is stored, you can display it using the SAP ArchiveLink Viewer.

Storage of Outgoing Documents

Business Background (PM-SMA-SC)



Storage of Incoming Documents (PM-WOC-MN)

Storage of Incoming Documents (PM-WOC-MN)

Use

In the *Plant Maintenance* (PM) application component, you can use the SAP ArchiveLink to store incoming documents in external content servers.

See also [Business Background \(PM-WOC-MN\) \[Page 2006\]](#).

Prerequisites

Technical Realization (PM-WOC-MN)

General Settings for Document Types

Field Description	Content
Document type:	PMIDAMAGE
Description:	Malfunction report
Operation category:	NCI_INPUT
Object type:	BUS2038
Method:	CREATE
Task:	TS00007869
Document type:	PMIREQUEST
Description:	Notification
Operation category:	NCI_INPUT
Object type:	BUS2038
Method:	CREATE
Task:	TS00007869
Document type:	PMITECHCNF
Description:	Technical completion confirmation
Operation category:	NCI_INPUT
Object type:	BUS2038
Method:	CREATE
Task:	TS00007869

Storage of Incoming Documents (PM-WOC-MN)

Document Types for Maintenance Notifications

In the standard system, the following document types (document category FAX) are predefined for maintenance notifications:

- **PMIDAMAGE**
Documents for maintenance notification processing - malfunction report
- **PMIREQUEST**
Documents for maintenance notification processing - notification
- **PMITECHCNF**
Documents for maintenance notification processing - technical completion confirmation

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology. In this SAP ArchiveLink scenario, the system processes the following application object:

[Object Type BUS2038 \(Maintenance Notification\) \[Ext.\]](#)

Standard Tasks

Standard tasks are single-step tasks provided by SAP which describe simple business activities from an organizational viewpoint. In each case, a single-step task refers to *one* object method (technical link to R/3 functions) and is linked to the people who can process the object.

[Standard Task TS00007869 \(ImageAssign\) \[Ext.\]](#)

Preparation and Customizing (PM-WOC-MN)

The Customizing for storage for subsequent entry for incoming documents comprises the following areas:

- General Customizing for **SAP ArchiveLink**
- Customizing for the **SAP Business Workflow**

General Customizing for SAP ArchiveLink

In order that you can store incoming documents, you must first make Customizing settings for SAP ArchiveLink to maintain the following:

- Global document types
- Presettings
- Links

For more information, see the sections [Special Customizing \[Ext.\]](#), [Basic Customizing \[Ext.\]](#) and [Presettings for Storage Strategies \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

Customizing for the SAP Business Workflow

The SAP Business Workflow plays an important role in the scenario “storage for subsequent entry”. The SAP Business Workflow automatically informs the people responsible that an

Storage of Incoming Documents (PM-WOC-MN)

incoming document has been stored and that a maintenance notification must be created. The Customizing for the SAP Business Workflow includes the following:

- Maintaining workflow document types
For the scenario of storage for subsequent entry in PM, the object type is [BUS2038 \[Ext.\]](#) (maintenance notification).
- Maintaining workflow parameters
After you have defined the workflow document types, you must assign workflow parameters to the methods entered in the document types. In the workflow document type for PM, the workflow parameters specify the category of maintenance notification which is created by the system. In the standard system, the following workflow parameters have been defined for storage for subsequent entry in the PM application component:
 - Method parameter *TYPE* (for maintenance notification type)
 - + (value which is assigned to the method parameter)
 - M2 for notification type “Malfunction report”

For more information, see [Special Customizing \[Ext.\]](#) in the *SAP ArchiveLink* documentation.

Activities

The scenarios for storage for subsequent entry usually include two or more people who work at different locations within the company. Each of these people must execute the relevant storage functions depending on their task area.

When storing for subsequent entry, one person scans the incoming documents in a storage unit and assigns them to document types. This is performed using the storage functions in the *Office* menu.

When storing for subsequent entry, a second person (in a different department) processes the work items which have been generated by the storage operation and the SAP Business Workflow. In the PM application component, this is usually the person who created and/or processed the maintenance notifications.

For more information, see the following documentation:

- **Storage for Subsequent Entry: Assigning Document Types and Processing Work Items:**
The section [Storage for Subsequent Entry \[Ext.\]](#) in the *SAP ArchiveLink* documentation.
- **Processing of Maintenance Notifications:**
The section [Maintenance Notifications \[Page 922\]](#) in the *PM - Maintenance Notifications* documentation.

Business Background (PM-WOC-MN)

Plant Maintenance and SAP ArchiveLink

In the PM application component, you can use **maintenance notifications** (PM notifications) to enter, process and monitor different types of problems. These problems may, for example, involve malfunctions whose causes are related to internal or external factors. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of maintenance notifications. This tool enables problem-related documents to be entered quickly and efficiently, and stored in external content servers.

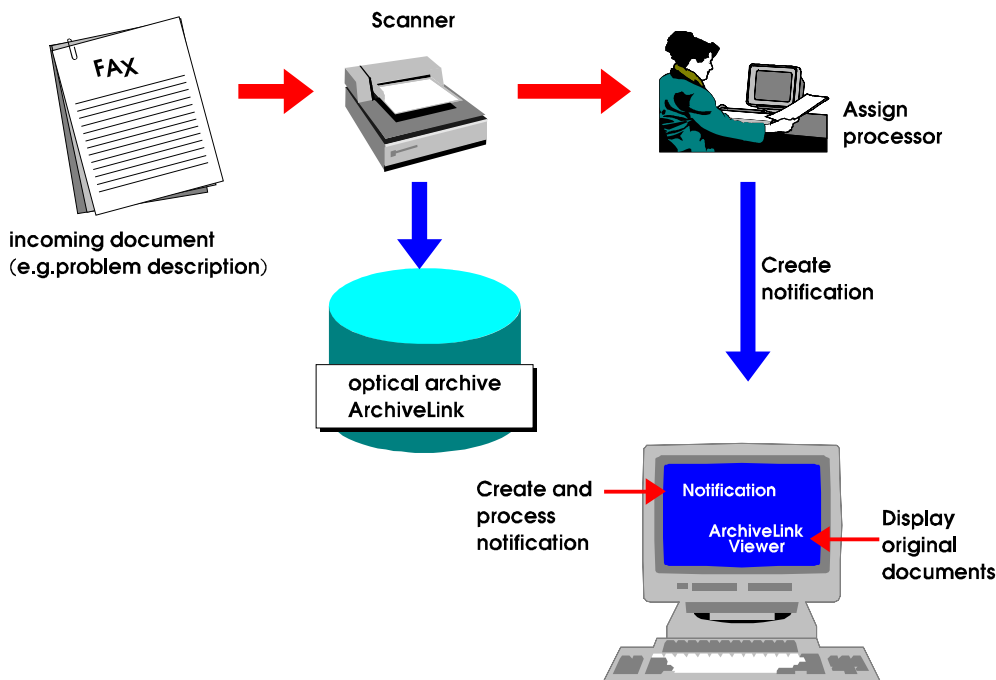
The SAP ArchiveLink interface supports a storage scenario for incoming documents in the PM application component:

- “Storage for subsequent entry” for incoming documents

When Can the “Storage for Subsequent Entry” Scenario be Used?

When storing for subsequent entry, the original paper documents relating to a problem are stored in the R/3 System **before** the document (in this case, the maintenance notification) is created. When the incoming document is stored, the system triggers the **SAP Business Workflow**, which notifies the person responsible that a maintenance notification must be created. When this person creates and saves the maintenance notification, the document is automatically assigned to the notification. Storage is usually in a central mailroom, where incoming post is opened, presorted, prepared and scanned.

Storage for Subsequent Entry for Incoming Documents



[Process Flow for Storage for Subsequent Entry \(PM-WOC-MN\) \[Page 2008\]](#)

Process Flow for Storage for Subsequent Entry (PM-WOC-MN)

Process Flow for Storage for Subsequent Entry (PM-WOC-MN)

The following steps describe a typical scenario for “storage for subsequent entry” for incoming documents **before** a maintenance notification has been created:

A clerk in the central mailroom receives a malfunction report from a customer.

The clerk scans the malfunction report into a dedicated scanning system. The letter is then displayed in the scan dialog window of the external system.

The clerk (or another designated person) calls up the function for storing for subsequent entry and selects the document type to which the scanned document should be assigned (for example, “Documents for malfunction reports”).

The clerk confirms the assignment to the document type. This triggers a workflow, in which the person responsible for processing the work item is informed (for example, Mrs Brown in Plant Maintenance).



The people who are notified by the SAP Business Workflow must first be defined in the organizational structure for the company (see Customizing for SAP Business Workflow).

Mrs Brown receives the corresponding work item in her integrated inbox. When she processes the work item, the system automatically calls up the create transaction for maintenance notifications and the SAP ArchiveLink Viewer. The SAP ArchiveLink Viewer displays the scanned document.

Mrs Brown documents the problem in the maintenance notification and saves it. The document is then automatically assigned to the maintenance notification using an internal link table.

When Mrs Brown or another authorized person calls up the notification again later, they can display the document in the SAP ArchiveLink Viewer by choosing *Environment* → *Original links*.

Storage of Outgoing Documents (PM-WOC-MN)

Use

In the *Plant Maintenance* (PM) application component, you can use the SAP ArchiveLink to store outgoing documents in external content servers.

See also [Business Background \(PM-WOC-MN\) \[Page 2011\]](#).

Prerequisites

Technical Realization (PM-WOC-MN)

Predefined Shop Papers for Maintenance Notification Types

Maintenance Notification Type	Shop Papers
Notification type M1	Notification overview, items
Notification type M2	Breakdown report
Notification type M3	Activity report

Object Types Used

The interface between the R/3 functions and **SAP ArchiveLink** is realized using object technology.

In this scenario, the system processes the business application object, [Object Type BUS2038 \(Maintenance Notification\) \[Ext.\]](#). You can find the features, methods and events defined for the object type in the object repository in the R/3 System.

When you store an outgoing document, the document is automatically assigned to the maintenance notification currently being processed.

Document Types

In the standard system, the following global document type is predefined for storing outgoing documents in the PM application component:

- PMONOTFPAP: Maintenance notification print - Shop paper

Preparation and Customizing (PM-WOC-MN)

General Customizing for SAP ArchiveLink

In order that you can store outgoing documents, you must first define global document types for SAP ArchiveLink in Customizing. For more information, see the SAP ArchiveLink documentation in [Special Customizing \[Ext.\]](#).

Storage of Outgoing Documents (PM-WOC-MN)

Customizing in the PM Application Component

When you make Customizing settings for maintenance notifications in the PM application component, you must define the **print control** for the shop papers. This comprises the following:

- Definition of the shop papers
- Definition of the printer destination and the form of storage for the individual shop papers
- Assignment of the shop papers to maintenance notification types

When you define the **shop papers**, you must assign **global document types** to them.

You define the print control in the Implementation Guide (see *Plant Maintenance and Service Management* → *Maintenance Processing and Service Processing* → *Notifications* → *Notification Print Control*).

Activities

To store outgoing documents in the PM application component, you must first create a maintenance notification or call up an existing maintenance notification using the change function. Then you can:

- Store the shop papers for a maintenance notification
- Display previously stored shop papers in the SAP ArchiveLink Viewer

Storing Outgoing Documents

To store a shop paper, choose the function for **printing** the maintenance notification. Several dialog boxes appear, in which you can select the required shop papers and define the appropriate print parameters and form of storage. When you select and save a shop paper for storage, the system stores the shop paper in the SAP ArchiveLink.

For more information about printing maintenance notifications, see the section [Printing of Maintenance Notifications \[Page 917\]](#) in *PM - Maintenance Notifications*.

Displaying Stored Documents in the SAP ArchiveLink Viewer

When you process a maintenance notification, for which one or more documents have been stored, you can display this document in the SAP ArchiveLink Viewer. To do this, choose *Environment* → *Object links* in the notification header. A dialog box appears, in which you can select the object link for the stored documents. If only one document is stored for the maintenance notification, it is displayed automatically in the SAP ArchiveLink Viewer. If several documents are stored for the maintenance notification, you can select the required document in a second dialog box.

Business Background (PM-WOC-MN)

Plant Maintenance and SAP ArchiveLink

In the PM application component, you can use **maintenance notifications** (PM notifications) to enter, process and monitor different types of problems. These problems may, for example, involve malfunctions whose causes are related to internal or external factors. **SAP ArchiveLink** is a cross-application tool which supports you during the processing of maintenance notifications. This tool enables outgoing documents to be stored quickly and efficiently in external content servers.

Shop Papers for Maintenance Notifications

When you process a maintenance notification in the PM application component, you can print and store different **shop papers** for this maintenance notification. A shop paper is an outgoing document that contains information about the maintenance notification or the contents of the notification. In the PM application component, the following shop papers have been predefined for the different **maintenance notification types**:

- **Notification overview**

The notification overview contains a summary of the relevant information in a maintenance notification (for example, data relating to the notification header and the items).

- **Breakdown report**

The breakdown report contains detailed information about the breakdown data (for example, start of malfunction, end of malfunction, breakdown duration) in a maintenance notification.

- **Activity report**

The activity report includes the activities from the notification header and the notification items.

An overview of the shop papers which are available for the different maintenance notification types is provided in the table of predefined shop papers under “Technical Realization” in [Storage of Outgoing Documents \(PM-WOC-MN\) \[Page 2009\]](#).

When Can the “Storage of Outgoing Documents” Scenario be Used?

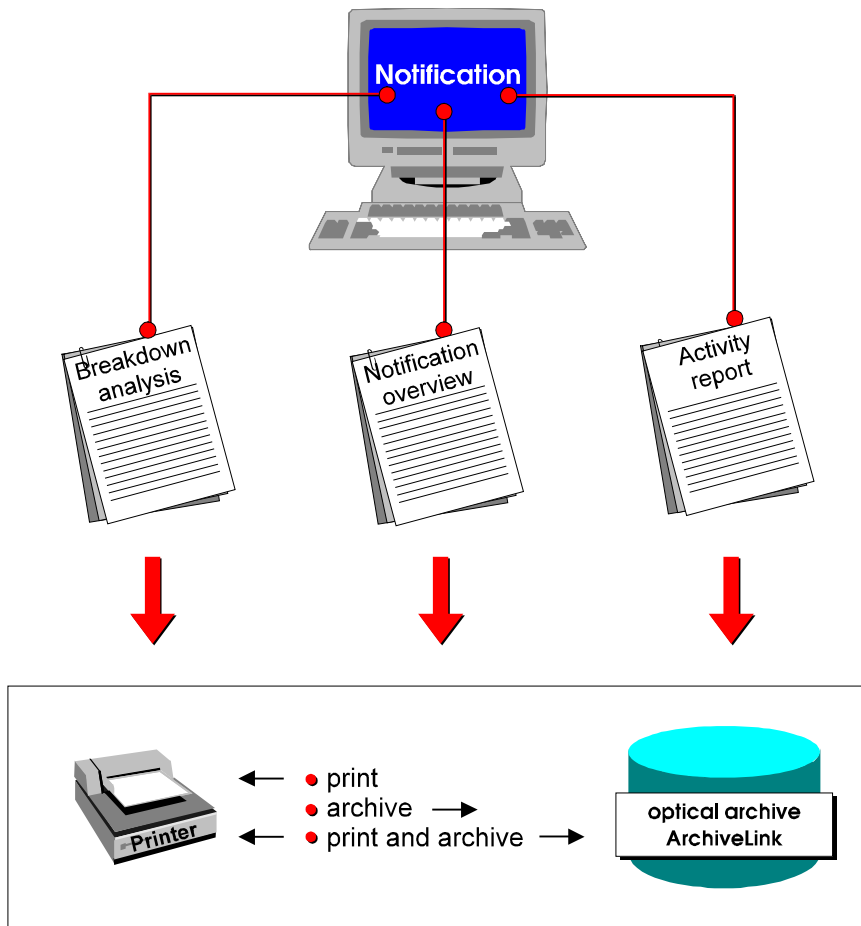
When you create or change a maintenance notification, you can print shop papers for the maintenance notification. Depending on the **storage mode** that you have defined for shop papers, you can use the print function to select one of the following output modes:

- **Printing** the selected shop papers
- **Storing** the selected shop papers
- **Printing** and **storing** the selected shop papers simultaneously

When you store a shop paper, the system stores the document in the SAP ArchiveLink. As soon as a shop paper is stored, you can display it using the SAP ArchiveLink Viewer.

Business Background (PM-WOC-MN)

Storage of Outgoing Documents



Data Transfer (PM/CS)

PM/CS - Data Transfer in Plant Maintenance and Customer Service

PM/CS: Data Transfer

Use

To transfer large amounts of data for Plant Maintenance and Customer Service from an external system into the SAP System without dialog, you use the data transfer transaction for Plant Maintenance and Customer Service or the program RIIBIP00. The following data transfer options are available:

Direct input

Batch input

Call transaction

Prerequisites

You have created source data. The file with this data is accessible from an SAP System and contains the required structure.

You have defined the mode of data transfer (direct input, batch input or call transaction).

You have defined a source file.

You have defined a target file if you want to:

Save missing data records

Copy the source file

You have completed the Customizing of the SAP System when the data is transferred.
Required partners entered once in the equipment can, for example, no longer be deleted during a realignment run of RIIBIP00.

You have selected a logical sequence for data transfer:

Within the component

For example, notifications for a piece of equipment can only be created in the system after the equipment has been created.

A piece of equipment, for example, can only be installed at a functional location after the functional location has been created in the system.

For all components

For example, a piece of customer equipment can only be created in the system after the relevant customer has been created in Sales and Distribution.

Features

Batch Input and Call Transaction

Batch input is the standard way to transfer large amounts of data into the SAP System. Batch input folders are generated from the data in the input file and then processed in the background. When you process batch input folders, the screens for the corresponding transactions are not visible to the user, and the data is transferred to the system in the same way as for normal posting.

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For **call transaction**, the data is copied by calling up the transactions and processing the screens into the system. No batch input folder is created. This method provides the same functions as batch input.

Program RIIBIP00 enables you to use batch input and call transaction to copy the following objects and their data into the SAP System:

- Equipment (create/change)
- Functional location (create/change)
- Object link for equipment (create/change)
- Object link for functional locations (create/change)
- Maintenance plan item (create)
- Maintenance plan (create/schedule)
- Task list for equipment (create)
- Task list for functional location (create)
- General maintenance task list (create)
- Measuring point (create)
- Goods movement (enter)

Direct Input

With direct input, the data is entered directly into the SAP System. No batch input folder is created. The individual screens are not processed. The documents are posted directly using function modules. This is the fastest method of data transfer.

Program RIIBIP00 enables you to use direct input to copy the following objects and their data into the SAP System:

- Notification (create)
- Equipment (create)
- Completion confirmation for order (create/cancel)
- Measurement document (create)



For more information about data transfer in Plant Maintenance and Customer Service, see the report documentation for RIIBIP00 and the documentation for the data transfer transaction.

For more information about the data transfer workbench, see [CA - Data Transfer Workbench \[Ext.\]](#).

Activities**Data Transfer Transaction**

Call up the data transfer transaction. Depending on the application component in which you are working, choose one of the following menu paths:

Plant Maintenance:

Logistics → Plant maintenance → Management of technical objects → Environment → Data transfer

Logistics → Plant maintenance → Maintenance processing → Environment → Data transfer

Logistics → Plant maintenance → Planned maintenance → Task lists → Environment → Data transfer

Customer Service:

Logistics → Customer service → Management of technical objects → Environment → Data transfer

Logistics → Customer service → Service processing → Environment → Data transfer

The initial screen for the data transfer transaction appears.

Call up the **documentation** for data transfer by pressing the right mouse button and choosing *Documentation*.

Data Transfer Report

Call up the data transfer report program RIIBIP00:

Choose *Tools → ABAP Workbench → Development → ABAP Editor*.

Enter the report name **RIIBIP00** in the *Program* field.

Choose *Execute*.

The initial screen for data transfer appears.

Call up the **documentation** for data transfer by pressing the right mouse button and choosing *Program documentation*.