Goods Receipt Process for Inbound Deliveries

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Icons

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Goods Receipt Process for Inbound Deliveries

Purpose

The goods receipt process for inbound deliveries is an essential part of the supply chain. This process includes the steps after creation of the purchase order: notification, the inbound delivery, subsequent putaway of goods, and the goods receipt posting of the ordered goods.

The significant advantage of depicting the goods receipt process through the inbound delivery function is that you can execute many processes in advance, even before the actual goods receipt posting takes place. You have all the necessary information beforehand because the supplier notifies you of the inbound delivery ahead of time. The inbound delivery describes exactly which materials or pallets can be received on what date and at what time.

The following functions are available with the goods receipt process for inbound deliveries:

- Transfer order for inbound delivery

    Like the outbound delivery, the inbound delivery is a request for putaway that is sent to the warehouse. You can create a transfer order for putaway from an inbound delivery.

- Batch information

    The batch split that is already possible for outbound deliveries is also available for inbound deliveries, since batches are often first identified in the inbound delivery.

- Inventory management of packaging materials

- Goods receipt for inbound deliveries

- Define order confirmation for inbound delivery

    You can use this key to configure your settings such that planned inbound deliveries are automatically created through a collective processing run.

- Inbound delivery monitor

- Determination of goods receiving point

- Incompletion log

- Change documents

- Document flow for inbound delivery

    ⚠️

    Make absolutely sure that you do **not** mix up the goods receipt process for inbound delivery (for example, transaction VL32N) with the functions you already know, such as goods receipt (post) for unknown purchase order (transaction MBOA/MIGO), or cancellation of the goods receipt (transaction VL09 as opposed to MBST/MB0A). You must organize your tasks in such a way that the goods receipt posting is only executed using one of the two ways described.

Process flow

The inbound delivery process starts when the goods are staged at the vendor's shipping point, and it ends when the ship-to party makes an acquisition posting for the goods.

1. Create a purchase order or a scheduling agreement.

2. The system can determine a goods receiving point.

3. The system creates an inbound delivery automatically if you receive a shipping notification via Electronic Data Interchange (EDI).

   You can also create an inbound delivery manually if you do not use EDI to communicate with your supplier.

4. Repack the goods, if necessary.

5. Put the materials away by creating a transfer order in the warehouse.

6. Post the goods receipt.
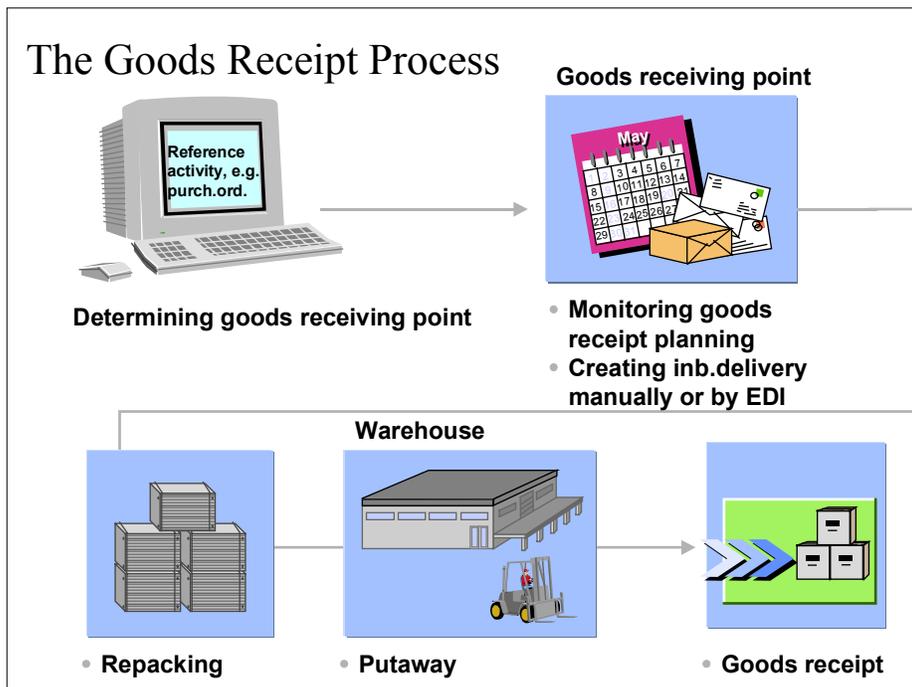
Creating Inbound Deliveries

Implementation Options

In its role as central object of the inbound process, the inbound delivery supports all activities such as putaway, packing, transportation and goods receipt. During the inbound delivery process, planning information is recorded, the status of different activities is monitored, and data accumulated during inbound shipment processing is documented. When the inbound delivery is created, activities such as putaway or scheduling are initiated, and data that is generated during processing of the inbound delivery is included in the delivery.

Prerequisites

Define the order acknowledgements for inbound deliveries [Ext.] in the Implementation Guide (IMG) under *Logistics Execution → Shipping → Deliveries.* You can set the system so that inbound deliveries are created automatically only for a certain combination of plant / storage location.

1. Check which warehouse number the decentralized Warehouse Managing System is active for.

2. Check for which order type inbound deliveries are to be created automatically.

3. Assign an order confirmation to each combination of order type and plant/storage location so that inbound deliveries can be created automatically.

Process flow

An inbound delivery can be created as follows:

- With reference to a purchase order

- With collective processing for several purchase orders

- With reference to a stock transport order

- With reference to a customer return

Depending on your requirements, you can create inbound deliveries automatically using work lists, or manually. Overviews allow you to monitor [Page 129] the inbound deliveries that were created and activities relating to those deliveries that are due to be carried out.

The system carries out the following activities when an inbound delivery is created:

- Checks the order and materials to make sure an inbound delivery is possible

- Determines the delivery quantity of an item

- Calculates the weight and volume of the delivery

- Calculates work expenditure

- Assigns a storage location for putaway

- Updates order processing

You can subsequently make changes in a delivery in order to report the quantity that was put away or if the delivery situation changes in any way. In addition, you can use the display function to access inbound-delivery information in a delivery.

Ways of Creating an Inbound Delivery

Purch.Order

Collective processing run

EDI

Manually
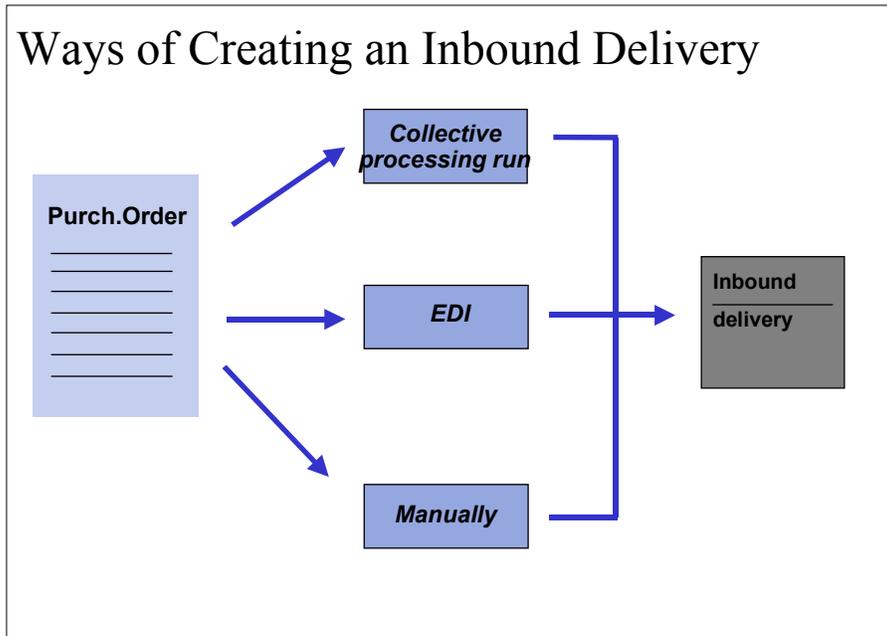
Inbound delivery

Inbound Delivery Structure

The inbound delivery is made up of a document header and any number of items. The following figure shows the structure of the inbound delivery.

Header	▶	Goods receiving point, route, or a vendor for example
Item 1	▶	Material or quantity, for example
Item 2		
Item 3		
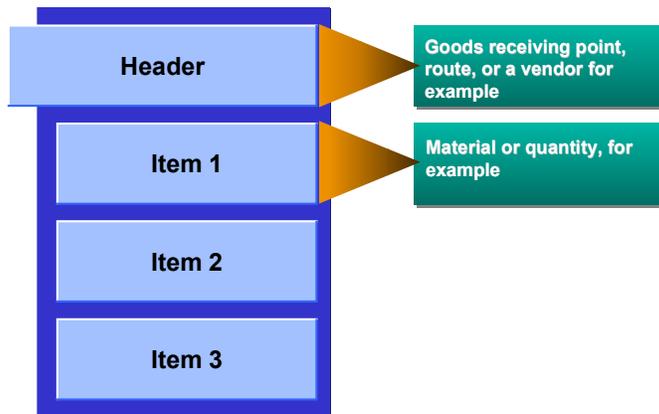
Document Header

The general data relevant for the inbound delivery is stored in the document header. This data is valid for the entire document. This data may include:

- Goods receiving point
- Scheduling data (goods receipt date or delivery date, for example)
- Weights and volumes for the entire inbound delivery
- Vendor number
- Route

Document Items

In the items, you find data that applies to one particular item. This data may include:

- Material number
- Delivery quantity
- Plant and storage location specifications
- Putaway date
- Weights and volumes of the individual items

Delivery Data and Screens

The user interface for processing deliveries gives you the following advantages:

- Intuitive navigation among various processing screens results in a user-friendly interface

- Fewer screen changes necessary during processing

- Easily comprehensible data presentation

- Clear presentation of processing screens even when the screen is small

Since the new interface works with flexible tables, you can tailor screen appearance to your needs even during processing. You can change the width and sequence of the columns as you see fit simply by dragging them with the mouse. You can also save various display variants.

Tab pages are an important element of the interface. They represent a file of index cards and make the interface easier to use. Each tab page has a title that is always visible. By simply clicking on the tab page title, you can move a tab page to the front of the stack and begin editing it.

This tab page method of organization allows related data to be displayed in one place despite limited screen space.

Shipping data generally appears on the following three screens on which multiple tab pages can be found:

- Overview screen

- Header screen

- Item screen

You can switch quickly from one screen to another by using icons.

Tab pages are arranged according to delivery process, which makes it easier to figure out which of the three overview screens you should switch to in order to find the data you are looking for.

The stage that the processing of a delivery item has reached is displayed on the *Status Overview* tab page on the *Overview* screen.

Delivery Types

You can use the various delivery types to deal with the different kinds of business transactions necessary for delivery processing. In the standard version of the SAP System, delivery types include:

Name	Delivery type
Outbound delivery	LF
Outbound delivery without reference	LO
Returns delivery	LR
Replenishment delivery	NL
Outbound deliveries from projects	LP
Outbound delivery for subcontractor	LB
Inbound delivery	EL
WMS outbound delivery	WOD
WMS inbound delivery	WID
Replenishment WMS	WNL
Customer returns WMS	WRD
Delivery for stock transfer	UL
R/2-R/3 Link	LD

When you enter an outbound delivery with reference to a sales order, for example, the system automatically proposes the delivery document type on the basis of the underlying order.

Control Elements

Specific functions can be defined for each delivery document type. This is done using control elements that are specified in tables. The document types can be tailored to meet the needs of your company. New document types can also be defined if you find that your business needs a wider selection than those specified in the standard version of the SAP System. Your system administrator is responsible for maintaining control elements.

You can distinguish between delivery document types according to the following criteria:

- Which **number range** does the document number come from for internal and external number assignment?

- Which **partner functions** are allowed and which must be entered?

- Does an order have to be based on a preceding document?

- Which requirements must items fulfill to be included in the delivery?

- Should the **route** be redetermined? Should a check then be carried out to determine whether the new route is permissible?

- According to which rule should the **storage location** be determined for an item if a storage location is not specified?

- Which **output types** are allowed for the business transaction and according to which procedure are they proposed?

Creating Inbound Deliveries

Use

When you create an inbound delivery individually, you create exactly one inbound delivery for a purchase order. You can make changes to the inbound delivery, if necessary.

Procedure

Proceed as follows to create an individual inbound delivery:

1. From inbound delivery [Ext.], choose *Inbound Delivery → Create → Single Documents*.

    The initial screen for creating inbound deliveries appears.

2. Enter the appropriate vendor.

3. Enter the delivery date.

    The system automatically proposes the current date as the delivery date.

4. If you want to select only one particular purchase order, enter its number. Otherwise, the system automatically finds all purchase orders due for inbound delivery.

5. Choose *Enter*.

    The outbound delivery is put together according to your specifications. The inbound delivery overview screen appears. Data is copied into the inbound delivery from the purchase order to which it refers. On the header screens and item screens, you can enter additional specifications (for example, how the goods are to be transported). You can also change the specifications from the purchase order.

    A note is entered in the error log if inconsistencies occur in a schedule line.

    If you select a purchase order whose items are to be put away in different warehouse complexes (warehouse numbers), the system automatically creates several inbound deliveries in the background.

6. Save the inbound delivery by choosing *Inbound delivery → Save*.

    When the system has saved the document, it informs you of the inbound delivery's number.

From the delivery creation screen, you can use the *Subsequent functions* menu to print or to create a transfer order in warehouse management. When you call up one of these functions, the system saves the inbound delivery automatically and calls up the corresponding subsequent function.

Error logs

If errors occur while a delivery is being created, the system notes them in a log. The system issues a message if any errors have occurred.

To find out the cause of the error, you can branch to the log from any of the overview screens in the delivery by choosing *Edit → Error log*. From there, you can make changes directly to the document.

Determination of goods receiving point

The system determines the goods receiving point according to the receiving plant and receiving storage location that were specified in the inbound delivery. You can define several entries for the goods receiving point and assign a priority to each one.

Changing Inbound Deliveries

In addition to changing header and item data, you can also make structural changes to inbound deliveries. For example, you can delete individual items from the inbound delivery or add new items that exist in the purchase order to it.

There are several methods that you can use to change inbound deliveries in the inbound process for inbound deliveries [Ext.] :

- By choosing *Inbound Delivery → Change → Single Document*, you can access the delivery overview screen directly using the document number.

- By choosing *Inbound Delivery → Lists →* Inbound Delivery Monitor [Page 129], you can create a list of deliveries. You can then select the delivery that you want to change from this list.

Changing inbound deliveries directly

To change an inbound delivery, proceed as follows:

1. From inbound delivery [Ext.], choose *Inbound Delivery → Change ### Single Document*.

    The *Change Inbound Delivery* screen appears.

2. Enter the number of the inbound delivery you want to change or select it by using a matchcode.

    From the *Goto* menu on this screen, you can call up a specific view of the inbound delivery and make changes there.

3. Choose *Enter*.

    The overview screen that you chose appears.

4. Make your changes to the inbound delivery.

5. Save the changes by choosing *Inbound delivery → Save*.

    A message appears informing you that the inbound delivery has been saved.

Changing inbound deliveries by using a list

If you want to use a deliveries list to access a delivery that you want to change, proceed as follows:

1. From inbound delivery [Ext.] , choose *Inbound Delivery → Lists →* Inbound Delivery Monitor [Page 129].

    The *Inbound Delivery Monitor* initial screen appears.

2. Choose *List inbound deliveries*.

3. Enter your selection criteria and also decide whether you want to display all deliveries or only the open ones.

    If you want to display a list of open deliveries, make an entry other than c in the *Total gds mvt stat.* field in the *Status deliveries* section of the screen.

4. Choose *Execute*.

    The system displays a list of inbound deliveries that meet your selection criteria.

5. Select the inbound delivery you wish to change from the list by selecting the appropriate line and choosing *Subsequent functions → Change inbound deliveries*.

    The overview screen of the delivery you selected appears.

6. Enter your changes.

7. Save the changes by choosing *Inbound delivery → Save*.

    A message appears informing you that the inbound delivery has been saved.

Displaying Inbound Deliveries

Use

You use the display mode to look for specific information. For example, you can use the display mode to check which materials are in the inbound delivery. You **cannot** make changes to the inbound delivery in display mode .

Procedure

If you want to display an inbound delivery, proceed as follows:

1. From inbound delivery [Ext.] , choose *Inbound Delivery* → *Display* → *Single Document*.

    The *Display Inbound Delivery* screen appears.

2. Enter the number of the inbound delivery that you want to display or select it using a matchcode.

    On this screen, you can use the menu options under *Goto* to call up a specific view of the inbound delivery.

3. Choose *Enter*.

    The overview screen appears.

    You can access various functions from this screen. For example, by selecting an item and then choosing *Goto* → *Item* followed by the detail screen of your choice, you can obtain further information about that particular item.

Deleting Inbound Deliveries

You can delete the following:

- Entire inbound deliveries

- Individual inbound delivery items

Deleting entire inbound deliveries

It is possible to delete an entire inbound delivery. To do this, proceed as follows:

1. From inbound delivery [Ext.], choose *Inbound Delivery → Change ### Single Document*.

    The *Change Inbound Delivery* screen appears.

2. Enter the number of the inbound delivery you want to delete or select it by using a matchcode.

3. Choose *Enter.*

    You see the data screen for the inbound delivery.

4. Select *Inbound delivery → Delete*.

    The *Delete Delivery Processing* dialog box appears. The system asks you to confirm that you really want to delete the delivery.

5. Choose *Yes* and press *Enter.*

    You receive a message informing you that the delivery has been deleted.

Deleting inbound delivery items

To delete individual items from inbound deliveries, proceed as follows:

1. Select the item or the items in the inbound delivery that you want to delete on an overview screen.

2. Choose *Delete item(s)*.

    A dialog box appears in which you must confirm that you want to delete the items.

3. Choose *Yes*.

    The items that you selected are deleted and no longer appear on the overview screen.

4. Save the inbound delivery by choosing *Inbound delivery → Save*.

Executing Batch Splits in Deliveries

Batch split describes the situation when you want to specify quantities from more than one batch for a particular delivery item. The batch split function in the delivery includes a batch selection screen and an availability check. In addition, batch processing is linked to the SAP Classification System, enabling you to select batches according to classes and characteristics. For more information about the Classification System, see the CA Classification System [Ext.] documentation.

Master data

In Materials Management (MM), you can specify basic data for each batch, such as Available from and Expiry dates, and data about the origin of the batch. For more information about creating master data for batches, see the batch handling [Ext.] documentation.

Splitting Batches in a Delivery

To carry out batch split in a delivery, proceed as follows:

1. In the delivery, mark the item for which you want to split batches and choose *Goto →
   Item → Batch split*.

   You see the following overview screen for batch split items.

2. Choose a batch by using batch determination [Ext.].

   The system proposes the corresponding quantity, which can be assigned to a delivery item.

3. Select the batches that you want for the delivery item and press *Copy*.

4. Either copy the quantities the system suggested or enter the appropriate quantities for each batch.

   The open quantity is decreased by the assigned quantity.

5. Choose *Back* to return to the delivery overview screen.

   ⇨

   For delivery items with a batch split, the picked- or putaway quantities are determined individually for each split item. If you want to maintain or check this quantity for split items, go to the batch structure view of the main item in question by selecting the '+' button.

Incompleteness in the Delivery

Use

When you are creating and processing deliveries, it is often necessary to check the completeness of the delivery. A delivery is considered to be incomplete if fields relevant for the delivery have not been filled, or if certain settings defined in Customizing have not been taken into account. The delivery incompletion log ensures that this completion check is executed **automatically**.

In the delivery, you can check the following levels for completeness:

- Header data of the delivery

- Item data of the delivery

- Partner data

- Texts

You can either display a list of all incomplete deliveries or go directly from delivery processing to the incompletion log. See also Processing Incompletion Log [Page 22]

Integration

The incompletion log controls whether the next subsequent functions are allowed in the case of an incomplete delivery:

Inbound delivery	Outbound delivery
Putaway	Picking
Packing	Packing
Goods receipt	Goods issue
	Billing document

Also, it is possible to set the system so that incomplete deliveries cannot be saved to the database. If, in such a case, the delivery is created in a collective processing run, the reasons for the incompleteness are printed in the collective processing log and the delivery is not created by the system.

For example, you can detect the following situations through the incompletion log:

- Batches for an item were not assigned completely

- Too many items were picked or put away

- Required description texts are missing

Editing the Incompletion Log

1. For an outbound delivery, start at shipping [Ext.] and choose *Outbound Delivery → Lists and Logs → Incomplete Outbound Deliveries*.
   For an inbound delivery, start at inbound delivery [Ext.] and choose *Inbound Delivery → Lists → Incomplete Inbound Deliveries*.

   The system displays the selection screen for incomplete sales documents. The respective selection criteria for the overview of all incomplete deliveries already appear as defaults. By specifying further selection criteria, you can limit the delivery display even more.

2. Choose *Program → Execute*.

3. Position your cursor on the delivery document you want to process and choose *Edit → Change document*.

   The *Change: Overview* screen appears.

4. Choose *Edit → Incompletion*.

   A screen with the incompletion list for the selected delivery appears. This screen lists the data that the system still requires to complete the document.

5. Select the lines that you want to edit and choose *Edit data*.

   Now you can process all the selected items, one after the other, from the list of incomplete data. The program automatically goes to the field that is still incomplete.

6. Enter the missing data and choose *Next incompl. data field*.

   This takes you to one of the following screens:

- If you selected additional items from the incompletion log, the next screen that has data missing appears.

- If you did not select any other incomplete items in the incompletion log, the system takes you to the original screen from which you accessed the incompletion data. You have finished processing incomplete data.

7. As soon as you have entered all missing data, choose *Save*.

   If you have changed the settings in Customizing for the incompletion log, you can have the system redetermine the incompletion data by choosing *Edit → Redetermine incompletion.*

Packing

Implementation Options

Packing is part of delivery- and shipment processing. When you process a delivery, you can select delivery items for packing and assign them to handling units [Ext.] **(HUs)**.

Range of Functions

As an example, you could pack delivery items in boxes, pack the boxes on pallets for delivery to the customer, and load the pallets onto a truck.

The *Packing* component and related packing information enables you to:

- Update the stock situation of packing materials

- Monitor returnable packaging stocks at the customer's or forwarding agent's place of business

- Help you find you what was in a particular container (for example, if a customer maintains that they have received an incomplete delivery)

- Make sure that the weight and volume limits have been adhered to

- Ensure that products have been packed correctly

Packing for Inbound and Outbound Deliveries

Use

Packing delivery items is carried out right in the delivery itself. From the overview screen, choose *Edit → Pack* in order to access the packing screen.

Features

The following functions are available during packing:

- Packing delivery items [Page 28] in handling units (HUs) and allocating individual items to several handling units.

   In addition to the standard packing of delivery items in handling units, you have the option of automatically packing a specific quantity into several different handling units.

- Multi-level packing

   You can pack handling units in one another. In this case, packing is multi-level. The number of possible packing levels is 999999.

- Unpacking [Page 50] items that were already packed

   Items that have already been packed can be unpacked again. This is also the case for handling units that were packed in multiple levels.

- Responses to exceeding weight or volume

   If the weight or volume limit is reached when packing items in handling units, then only the maximum packable partial quantity [Page 46] is packed. If you have selected another handling unit that has space for packing, the remaining quantities are packed into that handling unit.

- Deleting [Page 52] handling units

   Handling units can be deleted in the delivery. First, the handling unit that is to be deleted is unpacked and then it is removed from any higher-level handling units (if applicable) before it is actually deleted.

- Emptying [Page 51] handling units

   Handling units can be emptied out. Unlike unpacking, where only selected items are removed from the HU, here the handling unit in question is emptied completely.

- Handling unit single entry [Page 49]

   You can enter HUs and HU contents manually by using the single entry function.

- Changing packing quantities [Page 44]

   Changing the packing quantities is possible in various overviews. However, the packing quantities can no longer be changed after goods issue has been posted. In Customizing for packing, you can specify further conditions under which packing is not to be possible.

- Creating delivery items from handling units

   Delivery items can be created from handling units. In this way, it is possible to keep inventory for packaging materials and also to include packaging material in the invoice. To accomplish this, the system must generate delivery items for packaging materials,

which must be set for the delivery type in Customizing, and the packaging material type must suggest delivery item generation as a default.

- Displaying the Allowed packaging materials [Page 60]

   You can display a list of all allowed packaging materials for an item to be packed, as long as the material group *Packaging material* is maintained in the packaging data in the material master for the material concerned.

- Checking for allowed packaging materials

   A check is carried out to make sure that the packaging material is intended for packing a certain material. Customizing for packing is used to control which packaging materials are allowed for packing.

- Packing proposals in sales orders [Ext.] and scheduling agreements

   It is possible to enter packing proposals in sales orders and scheduling agreements. These specifications automatically lead to a packing proposal in the delivery if a special data transfer routine is maintained in Customizing for copying control between the sales documents and the delivery. The packing proposal can be changed in the delivery. It is also possible to pack the delivery according to the packing proposal in the preceding document by using the *Use proposal* function in delivery processing.

   Packing and decentralized Warehouse Management

   If you are working with decentralized Warehouse Management [Ext.], packing takes place in several steps.

   a) The packing proposal that was determined in the central system is reported to the decentralized system.

   b) The packing proposal can be copied or changed in the decentralized system, depending on the actual packing process.

   c) With confirmation of the delivery to the central system, the original packing proposal is deleted and is replaced by the actual packing from the decentralized system.

   Automatic packing and batch split

   For a batch split in the delivery, you can set the item category in Customizing to indicate whether the entire batch quantity or only an individual batch item is to be packed.

   If you enter " " in the *Pack batch main item* field and no split items are available, then no items are proposed for packing. If the delivery item contains an HU-managed storage location, this delivery item must be packed at the split level. In this case, the indicator (pack batch main item) is overridden.

   If a packing proposal has been defined in the order for materials that are handled in batches, and if automatic batch determination is not carried out when a delivery is created, then this delivery is **not** automatically packed.

   You must then pack this delivery manually (see also Automatic packing in the delivery [Page 32]).

Packing for Inbound and Outbound Deliveries

Example for packing with batch split, taking the *Batch main item* indicator into consideration:

Item	Material	Delivery qty.	Accum.batch qty	Batch main item	Result
10	Mat1	10 pcs			Nothing packed
10	Mat1	10 pcs		X	10 pcs
10	Mat1	0 pcs	10	X	10 pcs
900001	Mat1	4 pcs		X	Batch 1 not packed
900002	Mat1	6 pcs		X	Batch 2 not packed
10	Mat1	0 pcs	10		Not packed
900001	Mat1	4 pcs			Batch 1 = 4 pcs
900002	Mat1	6 pcs			Batch 2 = 6 pcs

- Creating packing data from subsystems [Page 34]

  It is possible to copy packaging data from subsystems to the delivery.

- Cross-delivery packing in shipment processing [Page 39]

  In shipment processing you can pack in the following ways:

  – Delivery items that have not been packed in the delivery and which are not required to be packed in the delivery can be packed.

  – Highest-level handling units in the delivery can be packed in shipment handling-units.

  Since the packing depends on the shipment, different packing methods can be used in a follow-up shipment with the same deliveries. If a delivery HU is packed in a shipment HU, the entire contents of the handling unit in the delivery can no longer be changed. No storage units are created for shipment HUs.

The following diagram shows how handling units are packed in the delivery.

Delivery

Box 1   Box 2   Box 3   Box 4

Pallet 1   **Pallet 2**

Container 1
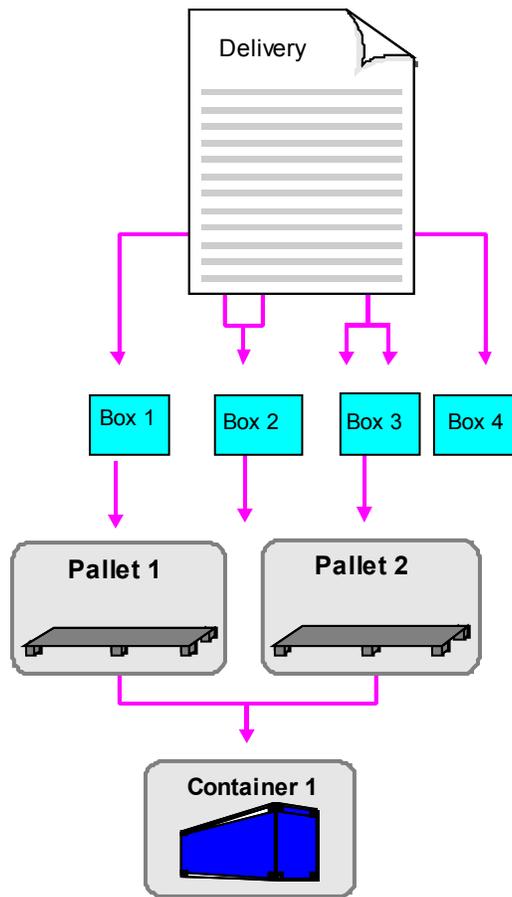
Packing Delivery Items

To pack delivery items into handling units (HUs), proceed as follows:

1. Choose *Edit* → *Pack* in the quantities overview of the delivery.

2. Create the handling units that you will need on the *All existing HUs (available for packing)* screen. You can also access handling units that were created previously (Non-Assigned Handling Units [Ext.]). For more information about creating handling units, see Working with Handling Units [Page 42].

3. In the *Material to be packed* (or *All HUs that can be packed*) section of the screen, select the items that you want to pack. Also select the handling units into which the materials are to be packed in the *All existing HUs* section of the screen. Then, select *Pack*. (See also: Packing If Full [Page 47], New HU per x HUs [Page 48] and Packing per Partial Quantity [Page 46].)

   The system sends you either a success message or notifies you of problems, if the weight or volume limit was reached and not all the items could be packed, for instance.

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   If you have selected several handling units for packing, then the selected handling unit that is highest in the list is packed first. If not all items to be packed fit in this handling unit, the packing operation is automatically continued with the following selected handling units.

   If only a partial quantity of a delivery item is to be packed, you must specify this in the *Partial qty* field for the corresponding item in the *Material to be packed* (or *All HUs that can be packed*) section of the screen.

   The weight of the packaging is not added to the total weight of the delivery.

The following illustration shows one delivery item and the partial quantity of another delivery item being packed into a handling unit.

Deliveries that have not yet been packed

Ship-to party: K1   Delivery: 80000327

X   M1   10 pcs
    M3   20 kg
X   M4   40   50 pcs

fill

Handling unit

M1   10 pcs
M4   40 pcs
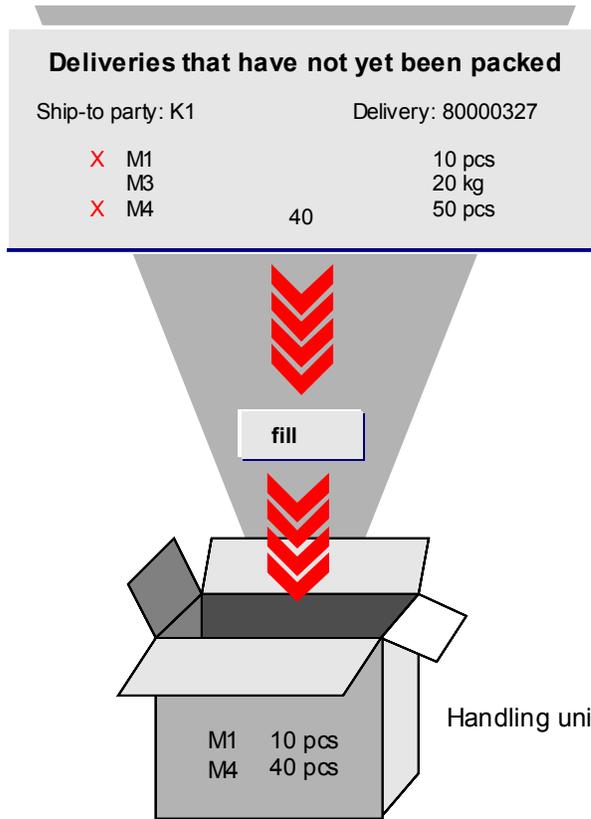
Generation of Delivery Items for Packaging Materials

Purpose

You can automatically generate separate delivery items with defined quantities for packaging materials. This is especially important if you:

- Manage packaging materials in Inventory Management

- Pick packaging materials in the warehouse

- Charge customers for packaging materials

- Make packaging materials available to customers as returnable packaging, which you also manage

Prerequisites

For this automatic generation to take place, you must make the following settings in the Implementation Guide (IMG):

- In the *Logistics Execution → Shipping → Delivery section*, use the Define Item Category Determination in Deliveries [Ext.] activity to set up an item category assignment for the delivery type, an item category group for the packaging material, and make usage-indicator settings for **PACK**.

- In the *Logistics Execution → Shipping → Packing* section, use the Define Packaging Material Types [Ext.] activity to set the plant determination rule for packaging material types.

If the system recognizes the plant and the item category in the handling unit, it generates a delivery item for the packaging material automatically.

Process Flow

1. Maintain the corresponding item category group [Ext.] for the packaging material in the material master record.

2. The system determines an item category according to the item category determination settings. For example, the system determines item category **HUPM** for item category group **VERP** in a sales order delivery.

3. Depending on the Customizing settings of the item category that was determined, the delivery item is relevant for picking, billing or stock and is transferred into the corresponding document (goods issue document or billing document, for example).

   ➡

   Processing of Returnable Packaging

   The system processes returnable packaging (item category **TAL**) by automatically recording a posting change (into the customer's special stock, for instance) as it posts goods issue. These items are not transferred to billing documents.

   Subsequent processing of the returnable packaging occurs via sales order type `Ret. Packaging Pickup (AT)` and completes the process with a `Returns delivery (LR)` delivery type.

If the customer is to keep the packaging materials, you can bill them to the customer by using the `Ret. Packaging Issue (RPI)` sales order type.

Generating Delivery Items for Packaging Materials

Delivery 80000637

10   Material 1   100 PC

20   Pallet   5 PC

**Packing:
Material 1 in packaging
material "pallet"**

**System generates a separate
item for the packaging material**

VERP   LEIH ← **Item category group for
packaging materials**

**Invoicing the
packaging
material**

**Returnable packaging
processing**

SAP AG
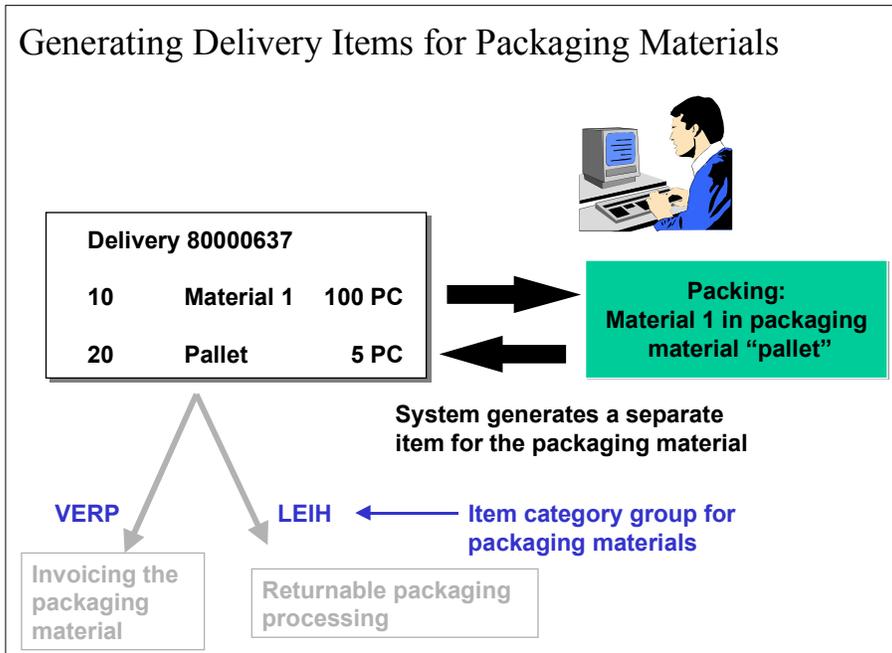
Automatic Packing in the Delivery

Packing Automatically when Creating Deliveries

Use

For each delivery type, you can define whether the automatic packing [Page 61] function is to be called up during delivery creation. With this option, all the material items of the delivery are automatically packed during delivery creation via the Create handling units automatically in the background [Page 63] function.

Prerequisites

If you want the automatic packing proposal to be called up during delivery creation, change the parameter settings for the delivery type in Customizing as follows:

1. In the *Logistics Execution → Shipping → Deliveries* section of Customizing, select the Define delivery types [Ext.] activity.

2. Position the cursor on one of the delivery types, such as delivery type `LF-Delivery`.

3. Choose *Details* and select the *Autom. packing* field.

Procedure

If you have completed the settings as described above, the system will automatically create handling units and pack all material items (for which it can determine packing proposals) when Creating deliveries [Ext.].

Pack Using External Systems

Use

The delivery interface [Ext.] makes it possible to pack deliveries by using external systems.

Integration

The following diagram illustrates the implementation of packing-specific segments in the delivery interface:

```
Delivery header                      Handling Units
                                     (E1EDL37)
        ├── Controls
        │                                    ├── Controls
        ├── Partners                         │   (E1EDL39)
        │
        ├── .................                ├── HU header description
        │                                    │   (E1EDL38)
        ├── Routes
        │                                    ├── ...............
        ├── ............
        │                                    └── HU item
        ├── Delivery items                       (E1EDL44)
        │                                            └── HU serial number
        ├── [Handling units]                             (E1EDL46)
        │
        └── Repacking HUs
```
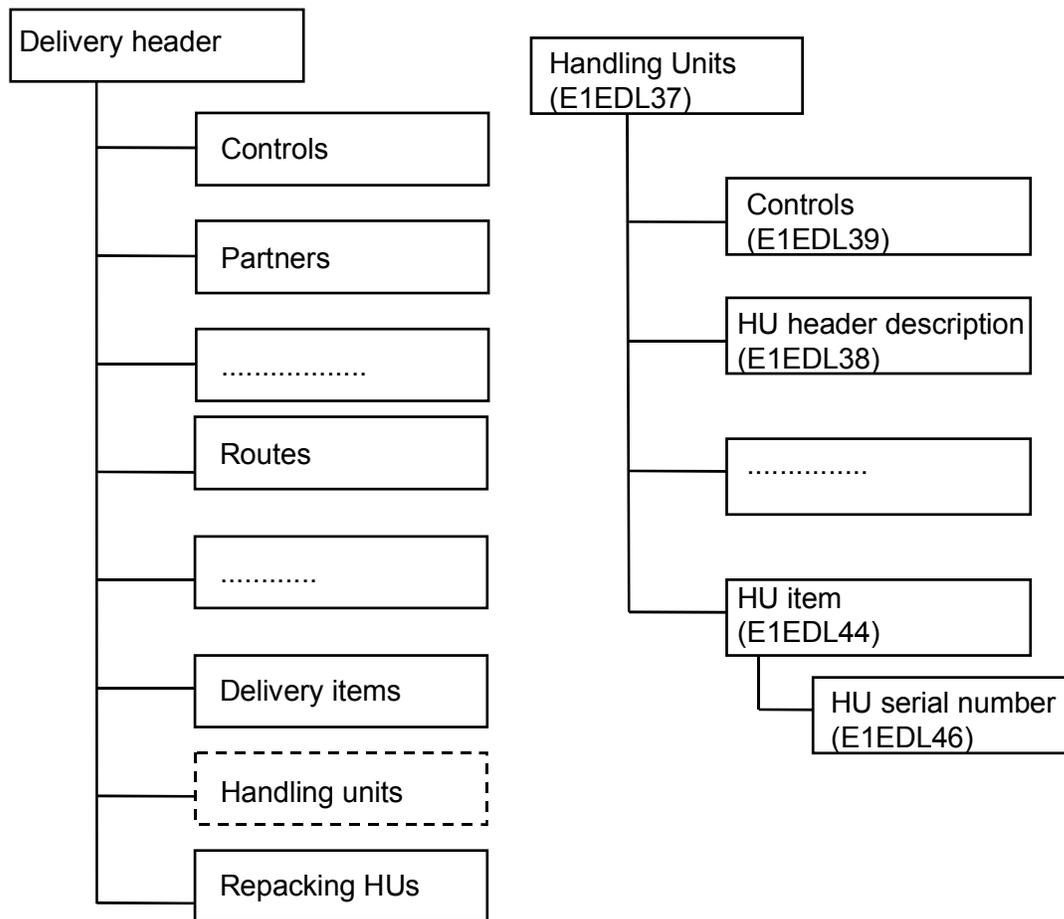
Features

Outgoing messages contain the complete structure; that is, all the fields in the individual segments are supplied with data.

In the case of incoming messages, only the handling unit segment and the repacking handling unit segments are relevant for handling units (HUs). In the handling unit segment, only a few fields pertaining to handling unit creation are relevant.

The more important segments and fields include the following:

E1EDL37	**Handling unit header**	
Segment field		**Table field**
EXIDV	External handling unit identifier	VEKP-EXIDV
EXIDA	Type of external HU identification	VEKP-EXIDA
TARAG	Tare weight of the handling unit	VEKP-TARAG
GWEIT	Unit of weight (tare)	VEKP-GEWEI
BRGEW	Total weight	VEKP-BRGEW
NTGEW	Net weight	VEKP-NTGEW
MAGEW	Allowed weight of the handling unit	VEKP-MAGEW
GWEIM	Unit of weight	VEKP-GEWEI_MAX
BTVOL	Total volume of the handling unit	VEKP-BTVOL
NTVOL	Loading volume of the handling unit	VEKP-NTVOL
MAVOL	Allowed loading volume	VEKP-MAVOL
VOLEM	Unit of volume	VEKP-VOLEH_MAX
TAVOL	Tare volume of the handling unit	VEKP-TAVOL
VOLET	Unit of volume (tare)	VEKP-VOLEH
VEGR1	Handling unit group 1	VEKP-VEGR1
VEGR2	Handling unit group 2	VEKP-VEGR2
VEGR3	Handling unit group 3	VEKP-VEGR3
VEGR4	Handling unit group 4	VEKP-VEGR4
VEGR5	Handling unit group 5	VEKP-VEGR5
VHILM	Packaging materials	VEKP-VHILM
LAENG	Length	VEKP-LAENG
BREIT	Width	VEKP-BREIT
HOEHE	Height	VEKP-HOEHE
MEABM	Unit for length/width/height	VEKP-MEABM
INHALT	Description of the handling unit	VEKP-INHALT
EXIDV2	Second external identification	VEKP-EXIDV2
E1EDL44	**Handling unit item**	

Pack Using External Systems

Segment field		Table field
VBELN	Sales document number	VEPO-VBELN
VELIN	Handling unit contents	VEPO-VELIN
POSNR	Item number of the sales document	VEPO-POSNR
EXIDV	External identification	VEKP-EXIDV
VEMNG	Delivery item quantity	VEPO-VEMNG
VEMEH	Base unit of measure for the packed quantity	VEPO-VEMEH
E1EDL54	**Repacking handling units**	
SOURCEHU	External HU identification of the source HU	HUM_REPACK-SOURCEHU
DESTHU	External HU identification of the destination HU	HUM_REPACK-DESTHU
PACKHU	Handling unit that is to be packed	HUM_REPACK-PACKHU
PACK_QTY	Base quantity that is packed in the HU item	HUM_REPACK-PACK_QTY
BASE_UOM	Base unit of measure	HUM_REPACK-BASE_UOM
DELIV_NUMB	Delivery	HUM_REPACK-DELIV_NUMB
DELIV_ITEM	Delivery item	HUM_REPACK-DELIV_ITEM

You have the following options in this segment:

1. Packing verification (only for creating handling units)

    When you verify handling units, you must always transfer the (external) identification and the packaging material.

    E1EDL37-EXIDV

    E1EDL37-VHILM

    If a handling unit is to be created, no contents data (items) needs to be transmitted. If you pack a delivery item, the item number and the packed quantity must be transmitted. If there is a batch split, use its own (external) item number.

    E1EDL44-POSNR

    E1EDL44-VEMNG

    If a handling unit is to be verified to a handling unit (multi-level packing), the (external) identification of the lower-level handling unit must be specified.

    E1EDL44-EXIDV

2. Repacking handling units in the delivery

Fill in all segment fields of segment E1EDL54.

Example

Figure 1 (below) illustrates a packing hierarchy with several handling units. It represents a container with three pallets, each of which have a certain number of various materials packed on them. Consult the list following this illustration to learn how to send these packing hierarchies via the delivery interface with the packing segments.
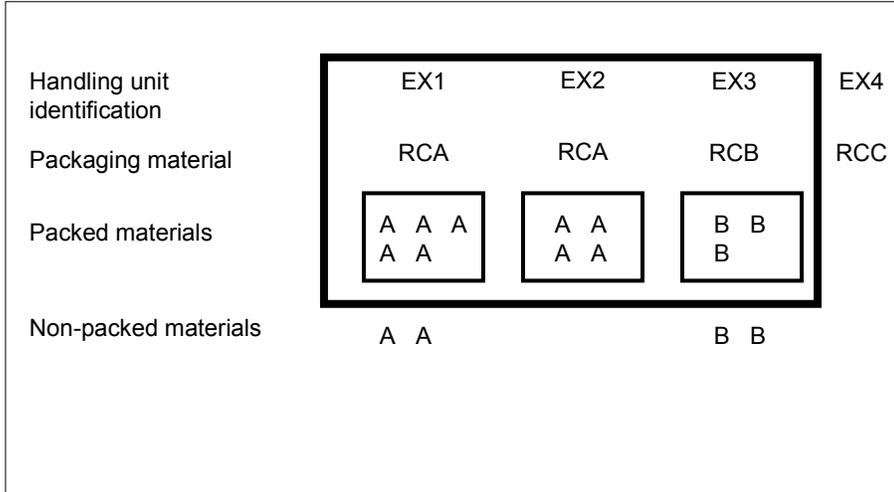
	POSNR	KDMTA	LFIMG	VRKME
E1EDL24	1	A	11	PC
E1EDL24	2	B	5	PC
	EXIDV	**VHILM**		
E1EDL37	EX1	RCA		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**
E1EDL44	1	5		PC
	EXIDV	**VHILM**		
E1EDL37	EX2	RCA		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**
E1EDL44	1	4		PC
	EXIDV	**VHILM**		
E1EDL37	EX3	RCB		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**

Pack Using External Systems

E1EDL44	2	3		PC
	EXIDV	**VHILM**		
E1EDL37	EX4	RCC		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**
E1EDL44			EX1	
E1EDL37	EX4	RCC		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**
E1EDL44			EX2	
E1EDL37	EX4	RCC		
	POSNR	**VEMNG**	**EXIDV**	**VEMEH**
E1EDL44			EX3	

Packing Deliveries in Shipments

To pack several deliveries for a shipment at once, proceed as follows:

1. Create a shipment document or change an existing shipment document. To do so, start at the initial shipment [Ext.] menu.

   The initial screen for processing shipments appears. You can create or edit shipments here.

2. Select *Shipment → Create* or *Shipment → Change.*

   The *Change Shipment* screen appears.

3. In the shipment document, choose *Goto → Means of transport and packaging matl.*

   If the items in these deliveries have not been fully packed, the deliveries of the shipment will be displayed in the *Materials to be packed* section of the screen with the individual items.

   If packing has already taken place in the delivery, the individual handling units are displayed and you can pack these further if necessary.

4. Pack the desired delivery items or handling units. To pack in shipment documents, proceed exactly as with packing delivery items [Page 28].

For more information, see Delivery item generation in the shipment [Ext.].

Overviews That Are Relevant for Packing

There are different overviews available during packing in which the necessary information is presented. You can use the following overviews to edit handling units:

- Tab overview

   This overview displays all functions that are relevant for packing for each sub-view. Automatic packing in the background is available in this overview. You can select this overview in any of the following sub-views:

   - Pack material
   You can use this overview to pack materials into handling units, delete handling units, or empty handling units. You can go directly to an existing handling unit and edit it by entering its ID and then selecting the detailed view for that handling unit.

   - Pack HUs
   You can use this overview to pack handling units in other handling units (10 crates onto one pallet, for example), empty and delete handling units, and assign handling units for processing. You can also access a detailed display of the handling units.

   - Packing proposal
   You can use this overview to pack materials and handling units by using previously-defined packing instructions or manually-defined packing proposals.

   - Single entry
   You can use this overview to pack one material per activity with a specific quantity or you can pack one handling unit into another handling unit. This overview is intended primarily for batch activities.

      Since all function modules for the packing function are available to you, you should avoid using batch input.

   - Total content
   You can use this overview to display a total overview of all the handling units with the corresponding hierarchy levels. All functions except generation of new items can be executed from this overview. You can also access a detailed display of the handling units.

   - General header data
   You can use this overview to display the delivery header data, deadlines, and the routes within document processing. When you pack without object reference, this tab contains general header data that is used as default values for creating handling units. For example, you could use this screen to define whether you want to plan handling units, generate handling units that already exist (whose contents was not yet posted to goods receipt) or generate handling units that exist and are already in the warehouse (whose contents was posted to goods receipt).

      In the *Pack material* sub-view, all materials that are to be packed appear in the lower half of the screen and all handling units that can be packed into appear in the upper half of the screen. If you would like to go to the hierarchy layout, choose *Goto → General overview*.

- Hierarchy layout

The general overview clearly displays all materials, packaging materials and handling units that were already assembled. You can use this overview to pack, unpack and repack intuitively, for example. All changes to the contents of individual handling units appear immediately. If you want to go to the tab layout, either select *Goto → All data → Pack material* or *Goto → All data → Pack HUs*. The respective partial overview appears. In addition, you can display all available detailed views by selecting *Goto → Detailed HU data → (Detailed view of your choice)*.

Working with Handling Units

Creating Empty Handling Units

To be able to pack materials, you must first create an empty handling unit. In a second step, you can then assign materials to this handling unit; the materials are then packed.

1. In the packing dialog [Ext.], select the *Pack material* or *Pack HUs* tab.

2. In the *All existing HUs (available for packing)* section, enter an allowed packaging material into the *Pack. matl* field (see also Displaying allowed packaging materials [Page 60]).

   If you work with external identification numbers, enter these in the *Handling unit* field.

   If you only enter one packaging material, the handling unit number is assigned internally according to the settings in Customizing.

   ➡

   During packing within delivery processing, you can also enter a customer's packaging material (in the outbound delivery) or a vendor's packaging material (in the inbound delivery) in the *CustPackMat.* field as an alternative to the packaging material.

Pack

Use

If you want to pack a particular quantity of a material or a handling unit into another handling unit, use the *Pack* function.

Features

Using the *Pack* function, you have different options for packing materials or handling units that already exist. In the *Pack materials* overview, you can pack a particular quantity of a material into a handling unit; in the *Pack HUs* overview, you can pack handling units into other handling units. You can use the following packing functions for packing:

- Packing (see below)

- Changing packing quantities in handling units (see below)

- Packing handling units (see below)

- Packing per partial quantity [Page 46]

- Packing if full [Page 47]

- New HU per x HUs [Page 48]

Depending on which function you use for packing, the *Partial qty* and *Total quantity* input fields have certain effects on the quantity to be packed.

Activities

To pack materials using the *Pack* function, proceed as follows:

1. In the packing dialog [Ext.], select the item that you want to pack in the *Material to be packed* (or *Material that is packed*) section of the screen and enter the quantity to be packed in the *Partial qty* field.

2. Select the handling unit into which you want to pack the material and choose *Edit → Pack → Pack.*

The system sends you either a success message or notifies you of problems, such as the weight or volume limit was reached and not everything could be packed.

Changing packing quantities in handling units

1. In the packing dialog [Ext.], select the handling unit in question and choose *Goto → Detailed HU data → Contents.* The header data of the selected handling unit is also displayed.

2. Change the quantity accordingly in the *Packed quantity* field of the handling unit concerned.

➡

The packing quantities can no longer be changed in the delivery once goods issue is posted.

Packing handling units

If you want to reflect packing levels, such as a material that is packed in a box, which is in turn packed into a create or onto a pallet, then you must pack these handling units in one another.

1. In the packing dialog [Ext.], select the *Pack HUs* tab.

2. In the *All HUs that can be packed* section, select those handling units that you would like to pack and in the *All existing HUs (available for packing)* section, select the handling unit that you would like to pack and choose *Edit → Pack → Pack.*

The system sends you either a success message or notifies you of problems, such as the weight or volume limit was reached and not everything could be packed.

>
>
> If you have selected several handling units for packing, then the handling unit that is highest in the list is packed first. If not all items to be packed fit in this handling unit, the packing operation is automatically continued with the following selected handling units.

If you want to pack a specific constant number of handling units into a higher-level handling unit, then choose the New HU per x HUs [Page 48] function.

When packing handling units, a maximum of 999999 packing levels is possible. For information on reflecting packing levels in handling units, see Editing detailed data for handling units [Page 57].

Packing per Partial Quantity

If you are packing a delivery item completely, but want to distribute the quantity in equal amounts over several handling units, proceed as follows:

1. In the packing dialog [Ext.], select the *Pack material* tab.

2. In the *All existing HUs (available for packing)* section of the screen, create a handling unit with the desired properties, or use a handling unit that has already been created (for further information about creating handling units, see Creating Empty Handling Units [Page 43]).

3. In the *Material to be packed* or *already packed* section of the screen, enter the total quantity you want to pack for the item to be packed in the *Total quantity* field. In the *Partial quantity* field, enter the quantity that is to be packed into one handling unit, and select this item.

4. In the *All existing HUs (available for packing)* part of the screen, select the desired handling unit and then choose *per part. qty* (or use the following menu path: *Edit → Pack → New HU for partial qty of material*).

   The system will then continue to create new handling units, using the partial quantity you have defined as the content of these HUs, until the total quantity of the selected item is packed. This simplifies entry, if, for example, you want to pack 100 pieces of a material in 50 boxes with 2 pieces each.

Packing If Full

If you want to pack items completely, but do not know in advance how many handling units you require, proceed as follows:

5. In the packing dialog [Ext.], select the *Pack material* or *Pack HUs* tab.

6. In the *All existing HUs (available for packing)* section of the screen, create a handling unit with the desired properties (weight and volume restrictions), or use a handling unit that has already been created (for further information about creating handling units, see Creating Empty Handling Units [Page 43].

7. In the *Material to be packed* (or *All HUs that can be packed*) section of the screen, select the items that you want to pack and enter the total quantity to be packed for the material in question in the *Total quantity* field.

8. In the *All existing HUs (available for packing)* part of the screen, select the desired handling units and then choose *if full* (or use the following menu path: *Edit → Pack → New HU if full*).

   The system will then continue to create new handling units, adhering to the weight and volume limits, until the total quantity of the selected items is packed.

New HU per x HUs

If you want to pack a specific constant number of handling units into a higher-level handling unit, proceed as follows:

1. In the packing dialog [Ext.], select the *Pack HUs* tab.

2. Choose the *New HU per x HUs* function (or use the menu path *Edit → Pack → New HU per number of HUs*).

3. In the dialog screen in the *HU to be created* section, enter either a packaging material or a customer packaging material for the higher-level handling unit. This higher-level handling unit is automatically created when this function is executed.

4. In the *PackMat.of HUs to be packed* section, enter the packaging material of the handling unit to be packed and the number of handling units that are to be packed into/onto new HUs.

5. The system creates a new higher-level handling unit according to the amount entered until there are no more unpacked handling units of the packaging material that you entered.

When packing handling units, a maximum of 999999 packing levels is possible. For information on reflecting packing levels in handling units, see Overviews That Are Relevant for Packing [Page 40].

Single Entry

Use

You can use a special single-entry screen to manually create new handling units or manually pack individual items in existing handling units.

➡️

> This screen is also useful for using batch input to complete packing data.

Procedure

1. Select the ***Single entry*** tab in the packing dialog [Ext.].

2. In the *Handling unit* section of the screen, enter the data of the handling unit into which materials or other handling units are to be packed. If this handling unit already exists in the system, simply enter its external handling-unit ID.

3. Enter the objects that are to be packed in the *Handling unit contents* section of the screen. If a delivery item is to be packed, you can enter either the delivery item or the material that is to be packed. If handling units are to be packed, you must enter their external IDs.

Unpacking

If you want to unpack materials or handling units from a handling unit, proceed as follows:

1. In the packing dialog [Ext.], select the *Ttl content* tab.

    All handling units and the materials packed in them appear in this overview, along with their respective hierarchical levels.

2. Select the items you want to unpack and choose *Edit → Unpack.*

The selected items are unpacked from the respective handling units and reappear as items to be packed.

> You have used the packing function to pack the same partial quantity of a material in four boxes, which, in turn, were packed onto a pallet. If you want to take a handling unit (box) off the pallet, select that box and choose *Unpack*. The box is taken off the pallet, but the contents of the box remain the same. For more information about emptying handling units, see Emptying Handling Units [Page 51].

Emptying Handling Units

In contrast to unpacking, you can also empty handling units (HUs). To do so, proceed as follows:

1. In the packing dialog [Ext.], select the *Pack material* or *Pack HUs* tab.

2. Select the handling unit that you want to empty completely, and choose *HU → Empty*.

    The handling unit is emptied. The items that were emptied out of the handling unit reappear in the overview of items that are to be packed.

    You have used the packing function to pack the same partial quantity of a material in four boxes, which, in turn, were packed onto a pallet. If you select one of the handling unit boxes and choose *Empty*, the contents are removed from the box (the box is emptied). The box is still packed on the pallet HU, however. For more information about unpacking handling units, see Unpacking [Page 50].

Deleting Handling Units

If you want to delete a handling unit completely, proceed as follows:

1.　In the packing dialog [Ext.], select the *Pack material* or *Pack HUs* tab.

2.　Select the handling unit to be deleted and choose *HU* → *Delete.*

> ⇨
>
> During deletion, the handling unit concerned is completely emptied and removed from all higher-level handling units.

Deleting Assignments

Just as you can assign handling units to a delivery, it may be necessary to remove or delete this assignment. This can be appropriate, for example, if you find that a certain handling unit is to be delivered with a later delivery than the one that it was originally planned for delivery with. In such a case, you only need to remove the link to the delivery, not delete the entire handling unit. That way, all the information about the handling unit itself is retained.

1. In the packing dialog [Ext.] for the delivery, select the *Pack material* or *Pack HUs* tab page.

2. Select the handling unit whose assignment you want to delete, and choose *HU → Delete assignment*.

This function is only available during delivery processing.

Finding Handling Units

Depending on the tab you have selected, only a certain number of handling units are displayed in the packing dialog. You can use the *Find* function to display certain handling units directly by entering the external identification number.

1. In the packing dialog [Ext.], select the *Pack material* or *Pack HUs* tab.

2. Select *HU* → *Find* and enter the desired handling-unit identification.

The handling unit is found and appears in the first line, already selected for further activities.

Assigning New Numbers for Handling Units

Use

If, for example, you are going to deliver handling units worldwide, unique number assignment for identification of the handling units is necessary, and it is also a good idea to assign SSCC18 numbers (**see also** EAN128 [Ext.]).

Prerequisites

In the Customizing settings for the packaging material type, you must maintain the *Handling unit type* field.

1. In Customizing, choose *Logistics General → Handling Unit Management → External Identification → Define Number Assignment for Each Packaging Material Type.*

2. Maintain the *HU type for EAN128* field for the relevant packaging material type.

Procedure

1. In the packing dialog [Ext.], select the *Pack material* tab.

2. Select the handling unit for which you want to assign an SSCC18.

3. Choose *Extras → SSCC number assignment*.

Result

A new SSCC18 number is generated and automatically assigned to the handling unit.

Entering and Selecting Serial Numbers

Use

You can use serial numbers to clearly distinguish individual objects from one another. Serial numbers allow you to follow up easily on individual goods-movements objects such as the sale of certain goods to a customer. For each packed item, you can select serial numbers in the packing dialog [Ext.], provided the master data of the respective materials is maintained accordingly. A dialog box for serial-number maintenance appears, where you can make the required entries.

For more information about serial numbers, see Serial Numbers in Handling Units [Ext.].

Prerequisites

The serial number profile that allows serialization in handling units must be entered in the appropriate material master record.

For more information, see Entering a Serial Number Profile in the Material Master Record [Ext.] and Creating Master Records for Serial Numbers [Ext.].

Procedure

To select serial numbers that already exist in the system, proceed as follows:

1. Pack [Page 44] the material item to which you want to assign a serial number into a handling unit.

2. Go to the *Ttl content* tab page and select the material to which you want to assign a serial number and choose *Extras → Serial numbers*.

   A dialog box appears.

3. Choose *Select serial numbers*.

   The *Serial Number Selection* screen appears.

4. Enter the desired selection criteria and choose *Program → Execute*.

   The *Serial Number List* screen appears, where the selected serial numbers are listed.

5. Select the serial numbers you want to copy, and then select *Choose*.

Result

The serial numbers you have selected are copied into the dialog box and assigned to the handling unit items.

Editing Detailed Data for Handling Units

You can use the detailed data to change individual information items in the handling-unit header and item data. To access the detailed data of a handling unit, select the handling unit concerned and choose the following menu paths:

- *Goto → Detailed HU data → Detailed view / volume*

- *Goto → Detailed HU data → General details*

- *Goto → Detailed HU data → Auxiliary packaging material details*

- *Goto → Detailed HU data → Additional data*

- *Goto → Detailed HU data → Means of transport data*

- *Extras → Messages*

- *Goto → Detailed HU data → Contents*

- *Goto → Detailed HU data → History*

If the handling unit is in the warehouse, the function bar will include a link to the storage unit.

In addition to detailed HU data, an overview of all handling units appears in a hierarchical display. You can place the cursor on a handling unit in this hierarchical display and the detailed view of that handling unit appears.

You can maintain the following details:

- **Weight/Volume/Dimensions**

    In this overview, weight, volume, and dimensions data appears (examples include tare weight, tare volume, allowed weight and allowed volume). Here you can change the tare weight and tare volume determined from the material master for the handling unit. Furthermore, you can adjust the loading weight and loading volume, and also maintain the respective tolerance values.

    You would use this overview if the handling unit was weighed and measured before loading, for example. You can then maintain the data that differs from the planned data.

- **General data**

    In the upper section of this overview, you see the general data about the packaging materials (packaging material type and packaging material category).

    You can also change the plant and the storage location of the packaging material here.

    This makes sense, for example, if a handling unit is to be assigned to a delivery later (or if the handling unit was created in the delivery) and the plant and storage location are known for the item generation in the delivery. In this case, a delivery item can be generated for the packaging material. It is then possible to execute inventory management and billing for the packaging material.

    In the lower section of this overview, you see the general data about the handling unit.

Editing Detailed Data for Handling Units

The handling unit's movement status appears here. You can use the *StatusDetail* function to display detailed information about the system status of the handling unit. If you use the *Status profile* function, you can change the user status, provided the packaging material type has a user status profile assigned to it.

In the *HU storage number* field, the system displays the warehouse in which the handling unit is located. This entry refers to the material contained in the handling unit, rather than the plant and the storage location of the packaging material. The system also shows whether the handling unit is in an HU-managed storage location and whether a corresponding storage unit exists. Handling units that are not at an HU-managed storage location and were put away using the *Pre-packed HU* function will have a storage status.

In addition, the system displays the current assignments of handling units to objects.

In the *Contents* field, you can maintain an arbitrary text for this handling unit.

- **Packaging material data**

  You can maintain any auxiliary packaging materials used for each handling unit. These auxiliary packaging materials can be entered separately for each handling unit. For the most part, you can depict the actual packaging of a handling unit by using auxiliary packaging materials since auxiliary packaging materials include interim layers, lids, and protective plastic covering, which are part of the handling unit's packaging.

- **Additional data**

  In this overview, you can maintain additional data for arbitrary handling-unit groups in the *Additional customer data* section.

  In the second section of this overview, you will find information about packing instructions that may have been used for packing.

  In the lower section of the overview, the sales data appears (shipping point, sales organization, distribution channel, and item category). Here you can also maintain customers' packaging materials, if they exist.

- **Means-of-transport data**

  This overview displays data relevant for the means of transport in transportation processing, provided the packaging material is a transportation material. You can maintain data such as the driver, passenger, travel time, distance, specific load data, and the country for the means of transport in this overview.

- **Messages (Outputs)**

  This includes data concerning the printing and sending of outputs relevant to packing. It is possible, for example, to print a specific output for the handling-unit header (output 0001) that you can use to generate labels for the physical handling units.

- **Contents**

  In this overview, data about the contents of the selected handling unit appears.

  There is also information here on the packed quantity and on the packing levels, which are represented by numbers. For example, the entry **2** in the *Hierarchy* field means that the item concerned has been packed in two levels (the item is packed in packaging, which in turn has been packed again).

  To access the item data of an individual handling unit, select the handling unit concerned and choose *Goto → Detailed HU data → Contents.*

Editing Detailed Data for Handling Units

Display Allowed Packaging Materials

To display the allowed packaging materials, proceed as follows:

1. Select a material item in the *Materials to be packed/Packed materials* section of the *Processing Handling Units for Outbound Delivery* screen.

2. Select *Choice of allowed pack. mat.*

    The allowed packaging materials appear in a dialog box. Select a packaging material from this dialog box in order to copy it into the screen.

    In order for this feature to work properly, you must first maintain the *Matl grp pack. matls* field for the item that is to be packed. You can do this in the packaging material data in the material master record. You must also maintain the allowed packaging materials for each packaging material group in the Implementation Guide (IMG) for Handling Unit Management (or Logistics Execution). See also Defining Allowed Packaging Materials [Ext.].

If you want to display a packaging material's material master data that is relevant for packing, select the corresponding handling unit and select *Environment* → *Packaging materials*. On the view selection screen, choose *Sales: General/Plant Data* and enter the organizational levels. The data relevant for packing appears in the material master record for the packaging material in the *Packaging material data* section of the screen.

Automatic Packing

Use

Automatic packing allows you to use packing proposals to create handling units automatically in the background.

The proposal includes both the packaging material and the content per handling unit.

> For a delivery with 3 items, the packing proposal might propose that the first item is distributed in equal amounts onto two pallets and the second and third items are packed together in a container.

Integration

The packing proposal is automatically carried out during the following functions:

- Generating handling units automatically in the background [Page 63]

- Packing automatically when creating deliveries [Page 33]

The automatic packing function also supports the effects of packing instruction determination, packing proposals generated by packing instructions, and customer-specific generation of packing proposals using Business Add-Ins (without using packing instructions). The automatic packing function also supports multi-level packing.

> Filling the User Exit

1. In the first packing phase, delivery items are packed during automatic packing with the New HU if full [Page 47] function in an allowed packaging material [Page 60] (such as a crate).

2. In the second packing phase, each crate is packed onto a suitable packaging material (such as a pallet).

The automatic packing function also supports automatic packing using packing instructions.

> The system automatically determines the packing instructions for the materials to be packed and then the material is packed according to the packing instructions that were found.
>
> The packing instruction that was found may also be multi-level, which is why packing instruction determination is only carried out once during automatic packing.

Automatic packing also supports the PACKMODI enhancement.

Prerequisites

Either the user exits are filled in with data or you have set the packing instruction determination for the material that is to be packed.

Features

During automatic packing, the system determines packing proposals for the material to be packed, which it uses to create handling units.

The packaging proposal is defined either through several user exits or through packing instructions and the respective determination records.

Packing using user exits

You can process customer functions by using the *Project management* transaction in the SAP enhancements. In this case, you need the **PACKMODI** SAP enhancement.

Packing with packing instructions

To create packing proposals using the packing instructions, maintain the following data:

- Create a packing instruction [Page 80].

- In the Customizing section for packing instructions, configure the data required for packing-instruction determination [Page 86].

- Define a packing-instruction determination record [Page 87] for the material to be packed and, if necessary, further characteristics (ship-to party, shipping point).

Generating Handling Units Automatically in the Background

Procedure

- If you want to pack **all** delivery items that have not yet been packed,
  select *Extras → Automatic packing* in the packing dialog [Ext.] [Ext.].

  When you use this function, you do not need to select items individually. All material items and handling units that have not yet been packed are made available in the automatic packing function [Page 61].

- If you only want to pack **certain** items,
  select *Extras → Sel. item autom.pack.* in the packing dialog [Ext.].

  If you use this function, you must select the items and handling units to be packed. Then only the unpacked items that were **selected** are made available in the automatic packing function [Page 61].

During automatic creation of handling units in the background, the program automatically searches in both cases for the respective packing proposals for the items to be packed.

Result

The handling units that were created then appear on the screen. If not all the items are packed or if errors have occurred during creation of handling units from the packing proposals found, the system displays an error log in a special mode.

Packing Proposal

Use

In the packing transaction, you can create HU proposals based on packing instructions by entering specific standard values such as the material to be packed, the plant where packing is carried out, the ship-to party and the quantity to be packed. The system starts packing instruction determination based on the values entered and packs the materials as described in the packing instruction it determines. For more information, see Create a Handling Unit Proposal Based on a Packing Instruction [Page 66].

Alternatively, you can create an HU proposal manually in the packing transaction. For more information, see Create a Handling Unit Proposal Manually [Page 68].

You create actual handling units by saving the handling unit proposals. You can modify the proposals as required before saving them.

There are several ways in which you can access the packing transaction. The transaction is integrated in delivery, goods receipt, shipping, repetitive manufacturing and discrete production.

Features

In the packing transaction, you can:

- Create HU proposals (automatically from packing instructions or manually by entering items). You create an HU proposal manually if you do not want to pack according to packing instructions. You build a hierarchy of load carrier, auxiliary packing materials, if required, and the materials to be packed. For more information, see Hierarchical Display in the Packing Transaction [Page 65].

- Select alternative packing instructions on which to base HU proposals

- Delete HU proposals (that is, unpack materials)

- Unpack nested HU proposals

- Repack unpacked materials and unpacked HU proposals

- Check HU proposals. To do this, the system simulates handling unit creation. The system cannot create handling units from HU proposals with the status "Faulty".

- Display handling units that the system is going to create from the proposals

- Recalculate weights and volumes of a handling unit. This is important if the measurements in the proposal have been modified manually in the packing transaction and now have to be reset to the values from the packing instruction or material master

- Create handling units

Hierarchical Display in the Packing Transaction

The packing transaction reproduces nested <u>HU proposals [Page 73]</u> in the form of a hierarchy.

The *Lvl 1* field in the table specifies the number of HUs on the highest packing level that are being created from the HU proposal. The system marks with an asterisk the items that are assigned to this HU proposal, that is, are either used on the highest packing level (packaging materials) or are packed on the highest level (packed goods or sub-HU).

If the item is a load carrier, the field *Lvl 2* specifies the number of subordinate HUs on the second packing level, per main HU. For all other item categories, the system uses an asterisk to show which items are packed in or on the load carrier of this subordinate HU.

All further packing levels are displayed in the same way.

Level 1	Level 2	Material
1		Euro-pallet
*		Intermediate layer
*		Pallet cover
*	10	Box
	*	Lid
	*	Finished product

This example of a nested handling unit shows an HU with load carrier "Euro-pallet" on the highest packing level. The intermediate layer, the pallet cover and the ten boxes are directly assigned to this HU.

Ten sub-HUs (the boxes) are shown on the second packing level, to which in turn lids and finished products are assigned.

Create an HU Proposal Based on a Packing Instruction

Use

You can use packing instructions to create HU proposals [Page 73] for the quantity to be packed. The system uses a determination record to determine a packing instruction (see Packing Instruction Determination [Page 86]).

Prerequisites

- You have created a packing instruction.

- You have made the settings required for packing instruction determination in Customizing for Packing Instructions.

- You have defined a determination record for the material to be packed and, if necessary, further characteristics such as ship-to party.

- You have accessed the packing transaction in the various applications and made the settings required for the creation of HU proposals.

Procedure

The materials to be packed are displayed in the packing transaction for packing with packing instructions.

1. Choose *Expand packing instruction.*

2. The system starts packing instruction determination.

   You can also start packing instruction determination manually, by choosing *Packing instr. selectn*. The system displays the possible packing instructions.

3. Select a packing instruction, and choose *Continue*.

4. The system carries out the following activities on determining a packing instruction:

   The system explodes the quantity to be packed according to the packing instructions. The resulting HUs are then displayed in hierarchical form. For more information, see Hierarchical Display in the Packing Transaction [Page 65].

5. The system displays both the packed and the unpacked quantity. Some materials may not have been packed if, for example, the packing status for the packing instruction does not allow all the materials to be packed, since the packing instruction would then be violated.

   As a rule, the system only creates HU proposals with packing status "Packing instruction respected" or "Tolerated variance from packing instruction". By choosing *Packing instruction selection*, you can set the desired status, thus defining, for example, that HU proposals should be created even if they have packing status "Packing instruction violated".

6. The system calculates the quantity of items per main HU proposal (*Quantity/HU*) and the total quantity per (possibly nested) HU proposal (*Total quantity*).

7. The system displays the packing instruction that it determined and used to create the HU proposal.

8. The system assigns a packing status, according to the packing status check profile specified in the packing instruction. If the HU proposal does not comply with the packing instruction, you can display the reason for this by clicking on the traffic light.

9. The system simultaneously recalculates the weights and volumes (unless you have set the "Manual maintenance" indicator in the packing instruction).

10. Make any changes necessary to your HU proposal. See also Changing the HU Proposal [Page 70].

Result

You can now save your HU proposal, thus creating an HU. If an HU proposal is faulty (red light), no handling units can be created from it.

Create an HU Proposal Manually

Prerequisites

- When creating a handling unit proposal manually, you must enter the complete HU data. Enter the items in order of load carrier, packaging materials and then packed goods, so that the system can automatically build the hierarchy.

- The system can determine the item category from the *Packaging material type* in the material master, under *Sales: General/Plant Data*: If this field is empty, or not ready for input, the item is a packed goods item. If the item is packaging material, this field is filled. In this case, the system checks in Customizing for Shipping, under *Packing → Define Packaging Material Types,* whether the *Packaging material category* of the corresponding packaging material type is load carrier or auxiliary packaging material. (If there is no material with the specified name, the system assigns item category I).

- You have accessed the packing transaction in the various areas and, if necessary, made the settings required for the manual creation of HU proposals.

Procedure

Manual quick entry allows you to easily create an HU proposal in the packing transaction, if no appropriate packing instruction exists or you do not want to pack automatically.

1. Enter the quantity for the load carrier in the first row of the table under *Quantity/HU*, and the corresponding material number under *Material.* Proceed in the same way for all other items, observing the order of entry described above.

2. Choose *Continue*.

   The system builds the hierarchy and fills in the fields in the table, such as the *Item category*. The system takes the measurements from the material master record. The materials to be packed are put in a separate row.

3. Modify the HU proposal if necessary.

4. Save.

This example describes how the system builds the hierarchy in case of manual quick entry.

Enter the following data:

Quantity/HU	Material
3	Pallet
1	Pallet cover
10	Box
5	Packed goods

The system creates the following HU from these entries:

Level 1	Level 2	Quantity/HU	Material	Item category
3		3	Pallet	A

*		1	Pallet cover	B
*	10	10	Box	A
	*	5	Packed goods	C

Changing the HU Proposal

Use

Before creating an actual handling unit by saving your HU proposal, you can modify it to suit your requirements.

Prerequisites

You have created an HU proposal, either automatically or manually.

Features

You have the following options for modifying an existing HU proposal:

- Delete all HU proposals

  You can delete all HU proposals by choosing *Delete all HU proposals.* All the materials are then unpacked again.

- Delete one HU proposal

  Alternatively, you can delete a specific HU proposal (or subordinate HU proposal) by selecting it and choosing *Delete selected HU proposal*.

- Unpack an HU proposal

  Select a load carrier and choose *Unpack HU proposal*. The selected HUs are unpacked from the main HU. You can only unpack complete HUs, no individual materials.

- Recalculate weights and volumes of a handling unit

  You may wish to do this if you modify the entries for weight and volume, and then want to undo the modifications. The system uses the data from the packing instruction or from the material master to recalculate the weights and volumes. To carry out recalculation, choose *Recalculate weights* or *Recalculate volumes*.

- Moving HU proposals in the hierarchy

  You can move HU proposals up or down levels in the HU hierarchy by selecting a load carrier and choosing *Level up* or *Level down*. The corresponding HUs are then moved up or down a hierarchy level.

You can also:

- Change the quantity/HU for a material or an auxiliary packaging material
- Change the number of sub-HUs in a main HU (quantity on level 1, quantity on level 2, and so on)

  You cannot change the quantity of the load carrier. Each HU must have one load carrier only.

  Changing the quantity of a material/auxiliary packaging material has the following effects:

  – if you reduce the quantity, the system displays the difference between the quantity to be packed and the packed quantity as unpacked material.

- if you increase the quantity, the system checks the packed quantity against the quantity to be packed, and tells you what quantity can actually be packed.

- if the HU proposals were made according to a packing instruction, quantity modifications affect the packing status (according to the settings made for the check profile in Customizing).

- You can replace the load carrier, auxiliary packaging materials and materials by overwriting the material number and changing the item category if necessary.

- You can enter a different packing instruction.

  These modifications affect the packing status (according to the check profile settings).

- You can change the loading weight/volume and the packaging weight/volume manually.

  These values are then copied to the handling units when you save.

Activities

1. To select an HU proposal, place your cursor in an HU proposal row and choose *Select HU proposals*.

2. The system selects this HU proposal and all corresponding subordinate HU proposals.

   If you place the cursor in the row for a sub-HU, the system only selects this sub-HU (and any corresponding sub-HUs).

3. You can now delete the selected HU proposal if required.

Packing Status Check Profile

Definition

The packing status check profile determines the packing status of a handling unit proposal [Page 73] and also of the subsequent handling unit [Ext.].

Use

In the check profile, you assign a packing status to each of the possible ways in which an HU proposal can vary from the packing instruction. For example, an HU proposal that falls short of the target quantity is assigned status "Packing instruction violated" (red light), if you have defined in the check profile that this variance causes an error.

A check profile can be assigned to each packing instruction. When you create an HU proposal with this packing instruction, the system assigns the proposal a packing status, according to the settings in the check profile.

The packing status of an HU proposal is calculated from the individual packing statuses of its sub-HU proposals, the sub-HU with the lowest packing status determining the status of the proposal as a whole.

An HU proposal that fully respects the packing instruction is assigned status "Packing instruction respected" (green light). If you create an HU from an HU proposal, it also inherits the status of the HU proposal.

For example, a partial HU has the status "Tolerated variance from packing instruction" (yellow light) because it falls short of the target quantity (if you specify in the check profile that this variance can be tolerated).

An HU proposal has the status "Packing instruction violated" (red light) if, for example, it contains a material other than the one specified in the packing instruction (again, the corresponding setting must be made in the check profile). The system cannot create handling units from HU proposals with the status "Packing instruction violated".

Structure

The packing status check profile is made up of the possible ways in which an HU proposal can vary from the packing instruction. You assign a packing status to each of these variances.

Handling Unit Proposal

Definition

Handling unit (HU) proposals are preliminary handling units that form the basis for creation of actual handling units, and serve as information for packing personnel. You create HU proposals in the packing transaction, either manually by entering all the required data, or automatically, based on a packing instruction. You can change a proposal as many times as required and check it before you create the handling unit. When you save the HU proposal, the appropriate amount of handling units are created.

When you create an HU proposal from a packing instruction, the system checks the packing status check profile and assigns a packing status to the proposal accordingly. This packing status is later inherited by the handling unit. However, if an HU proposal has the status "Packing instruction violated", you cannot convert it into a handling unit.

Structure

The HU proposal has the same structure as the handling unit [Ext.], except that it can also contain texts or documents. For more information, see Texts in the Packing Instruction [Page 82].

Check an HU Proposal

Prerequisites

You have created HU proposals in repetitive or discrete manufacturing and want to create handling units from these proposals, or simply check to make sure that you can create handling units [Ext.] from these proposals.

Procedure

1. Select the HU proposal that you want to check.

   If you want to check the complete content of the table control, select none of the HU proposals.

2. Choose *Check HU proposal*.

   The system checks to see if there are any HU proposals from which no handling units can be created (packing status "Packing instruction violated").

   If this is the case, the system terminates the transaction.

   If handling units can be created from all the proposals, the system confirms this.

Simulate Handling Unit Creation

Prerequisites

You have created HU proposals in repetitive or discrete manufacturing and want to create handling units from these proposals, or simply check to make sure that it is possible to create handling units from these proposals.

Procedure

1. Select the HU proposals, from which you want to create handling units, and select *Handling units → Simulate HU creation.*

    ⚠️If you want to simulate the complete content of the table, do not select any of the HU proposals.

    Unless one of the handling units is faulty, the system displays the standard packing transaction with the simulated handling units. A number is displayed for each handling unit. The system also shows which materials and packaging materials belong directly to a handling unit.

    If one of the handling units is faulty, the system terminates the transaction.

    ⚠️The numbers displayed here are not the same as the numbers that the system assigns later when the handling units are actually created.

2. Choose *Back* to get back to the packing transaction for packing with packing instructions.

Packing with Packing Instructions

Use

Customers often specify precisely the quantity in which their goods should be packed in a specific combination of packaging materials to enable their goods receipt process to run smoothly. These requirements for specific packing procedures often cause considerable costs for the vendor of the goods concerned.

Packing instructions enable the vendor to automate the packing process. Depending on specific characteristics, the system creates proposals for handling units based on the previously defined packing instructions. Based on this proposal, the vendor can pack the materials according to customer requirements, and then create the HU in the system, by confirming the proposal.

The vendor can even pack goods ready for shipping and in keeping with customer requirements, as a part of the production process.

Integration

Packing with packing instructions can be used in both repetitive and discrete manufacturing and anywhere in the system that has packing functions (such as the delivery, the shipping notification, and so on).

Features

- With packing instructions, you can carry out preliminary packing, or actually pack materials ready for shipping, from production.

- Packing instructions can also be used to pack a material in shipping.

- The system can create HU proposals from packing instructions that are defined in the outline agreement and specify the amount of materials that are to be packed in a specific way in specific packaging materials.

- The system determines packing instructions based on various characteristics, such as material, ship-to party, and so on.

- You can create a handling unit in the system on the basis of this HU proposal.

Packing Instruction / Handling Unit

Load Carrier

Aux. Packing Material

Aux. Packing Material

Sub-Packing Instruction / Sub-HU

Load Carrier

Aux. Packing Material

Packed Goods
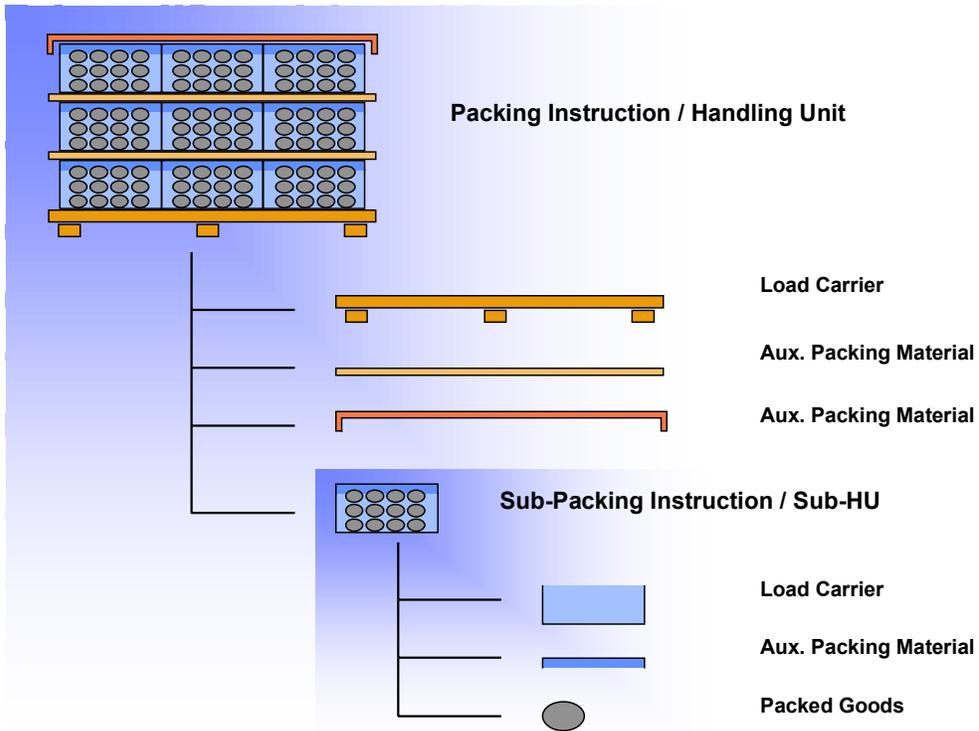
Packing Instruction

Use

A packing instruction serves as a template for the creation of a handling unit. In a packing instruction, you define the materials and packaging materials to be packed in a handling unit.

This enables you to reproduce specific customer packaging requirements in the system. You can also automate the packing process by creating a proposal for a handling unit, based on a packing instruction.

Features

- **Materials**
  The packing instruction specifies which materials in which quantities are to be packed in one handling unit.

- **Dimensions, weight and volume**
  The dimensions, weight and volume of the handling unit are entered in the packing instruction. You can copy these entries to the HU proposal.

  ⚠ The system copies the dimensions from the material master record and uses these values to calculate the weight and volume for the HU in the packing instruction. You now have the option of changing the calculated values. If you change the weight and volume data, the system copies them to the HU proposal as fixed values, without checking them. If you do not change the values, the system calculates the weight and volume entries for the HU proposal dynamically.

- **Documents and short texts**
  The packing instruction can be linked to documents in the Document Management System (DMS), enabling you to provide packing personnel with a detailed description of the packing procedure. Shorter descriptions can be entered as text items in the packing instruction.

- **Items not relevant for HU**
  Any item that you want to appear in the HU proposal but not in the final HU can be flagged as "Not relevant for HU". You use this flag, for example, when a material is only relevant for packing information and not for the HU itself, but its consumption must be mapped in the system.

- **User-defined fields**
  On the *Administrative data* tab page in the packing instruction, there are 5 user-defined fields, which also appear in the HU proposal and later in the HU. These fields are also included in the print program for the HU label, so that a certain value in a certain field triggers a certain action, for example, an asterisk on the printed label.

- **Multi-level packing instructions**
  There are two types of packing instructions: single-level, which describe only one packing level, and multi-level, which describe several packing levels ("nested" handling units). Multi-level packing instructions, therefore, contain subordinate packing instructions. If you want to create handling units with labels (identified HUs) for each packing level, you require one subordinate packing instruction per packing level.

- **Status management**
  You assign a packing status check profile to a packing instruction. In this check profile, you assign packing statuses to the possible ways in which an HU proposal can vary from the packing instruction. For each individual way that an HU proposal can vary from a packing instruction, you can define whether handling unit creation is permitted with this variance (variance from the target quantity, for example).

Create a Packing Instruction

Use

This procedure describes how to create both single and multi-level packing instructions. Multi-level packing instructions can be created in one procedure. You create the subordinate packing instructions directly from the main packing instruction by entering the name and item type of the subordinate packing instruction and branching straight to the initial screen for creation.

It is therefore not necessary to create a subordinate packing instruction beforehand.

Procedure

1. Select *Logistics → Production → Master data → Packing instructions*.

   The system displays the screen *Master Data for Packing With Packing Instructions*.

2. Select *Packing instructions → Create packing instruction.*

   You branch to the *Components* tab page on the *Create Packing Instruction* screen.

3. Enter the name of the packing instruction you want to create and choose *Enter*.

   The *Create Packing Instruction: Components* screen appears.

4. Enter the items for your packing instruction.

5. An item can be a packaging material, an item of packed goods, a subordinate packing instruction, or a text item. You can enter all the components of the HU in this way. Please note that:

   – The items should be entered in the following order: load carrier, auxiliary packing material, packed goods/subordinate packing instruction. The first item is always the load carrier. Text items do not affect the hierarchy and can be entered anywhere below the load carrier.

   – For each item you must enter a material number and a target quantity and, if appropriate, a subordinate packing instruction. The system determines the item category automatically. For more information, see Create an HU Proposal Based on a Packing Instruction [Page 66].

   – If required, enter a minimum quantity and a rounding quantity.

   An appropriate indicator is assigned to the load carrier.

   For a subordinate packing instruction, enter the item category and the name of the packing instruction and choose *Enter*. The system asks if you want to create this packing instruction.

   By choosing *Yes*, you branch to the initial screen for creating packing instructions, in which you can create your subordinate packing instruction in the same way.

   After saving your data you branch back to the main packing instruction.

6. Now enter the *Administrative data*, *Measurements, Short texts* and *Uses.*

   – Enter an inspection profile on the *Administrative data* tab page. In the check profile, you specify whether a handling unit can be created under specific circumstances or not. The

system checks the check profile [Page 72] when creating the HU proposal.

−   If necessary, the measurements specified in the packing instruction can be changed for this particular HU in the *Measurements* tab page.

−   On the tab page *Uses*, the system displays the packing instructions (main packing instructions), in which the packing instruction in question is used as a subordinate packing instruction. This is the case if you are creating the packing instruction from a higher-level packing instruction, as subordinate to it.

7.   Save.

Packing instructions can only be saved if they have no errors that prevent handling unit creation. The system checks that a handling unit can actually be created from the packing instruction. For example, if the maximum loading weight is exceeded, a handling unit cannot be created.

Texts in the Packing Instruction

Use

The packing instruction serves not only as a template for creating handling units, but also as information for packing personnel. For this reason, you can include textual (and graphical) elements in the packing instruction.

Integration

You include texts in the packing instruction in the *Change* or *Create Packing Instruction* transaction, either by entering them at item level or by linking to them at header level. Text items are relevant for the packing instruction and the handling unit proposal, but are not copied to the actual handling unit.

Features

- Link to documents in the Document Management System (DMS)

  This function allows you to enter a verbal and/or graphical description of a packing instruction. For example, a detailed description of the complete packing procedure for the packing instruction as a whole.

- Text items in the packing instruction

  Text items can be used to:

  - describe item-specific packing procedures for packing personnel. For example, instructions such as "Use separating layer" or "Always pack material in pairs".

  - give information on packing materials which, for some reason, have no material master in the system.

  Text items can be maintained in several languages, the system displaying only those text items maintained in the user's logon language. If text items exist, but have not been maintained in the logon language, the user receives a warning for each such item when accessing the packing instruction.

Activities

You create a document that is relevant for the whole packing instruction in the DMS and include it in your packing instruction by setting a link at header level. All functions of the DMS are available to you. The document can contain text, scanned documents, graphics or video sequences. For more information, see the documentation on *CA - Document Management*.

You create text items in the packing instruction table of items (components tab page), simply by entering the appropriate item category and automatically branching to the SAP editor.

Enter a Text Item in a Packing Instruction

Use

Allows you to enter texts at item level in a packing instruction. The system copies these texts to the HU proposal for the information of packing personnel. However, text items are not copied to the actual handling unit.

Procedure

You can enter text items either when creating or when changing a packing instruction. In the *Components* tab page in the *Create Packing Instruction* or *Change Packing Instruction* screen, proceed as follows:

1. Select the item row above which you want to insert your text item and choose *Text*.
    or
    In a new row, enter item category 'T' (text item).

2. The system displays the SAP Editor.

3. Enter your text (for more information, see BC - Word-Processing in the SAPscript Editor [Ext.].)

4. Choose *Back*.

5. The first 40 figures of the first line of text are displayed in the table as *Short text*.

    If you leave the first line blank in the SAP Editor, no short text is displayed in the table.

    Change the text at any time by simply double-clicking anywhere on the appropriate row.

6. If required, create different language versions of the text by placing the cursor on the appropriate row and choosing *Text item: maintain language*.

Result

You have created text items in the packing instruction.

Any text items maintained in different languages are displayed in the packing instruction and HU proposal only if the logon language corresponds. For example, if you have logged on in English and enter an additional language version for Spanish, the system only displays this version when a user logs on in Spanish.

Link a Document to a Packing Instruction

Use

You link a document to a packing instruction at header level. This enables you to include textual or graphical items that are relevant for the packing instruction as a whole, such as detailed packing descriptions.

Prerequisites

- You have created a document in the Document Management System (DMS). For more information, see the documentation for *CA - Document Management*.

- You have assigned to this document a document type that is defined in Customizing for the DMS as a document that can be linked to the packing instruction. The document type PAC is shipped as standard for this purpose.

Procedure

1. Starting from the *Change* or *Create Packing Instruction* screen, choose the *Documents* tab page.

2. The system displays a table, in which any documents already linked to the packing instruction are listed.

3. Place the cursor on an empty row of the table, and use the possible entries pushbutton to find your document in the DMS.

4. The system displays your document in the table on the *Documents* tab page.

5. Save.

Result

The document is linked to the packing instruction, and can be displayed or printed using the pushbuttons below the table.

Packing Instruction Determination

Use

This function enables the system to find a packing instruction by specific characteristics. The condition technique is applied for this.

You define a packing instruction that refers to specific characteristics, such as material and ship-to party. If you now want to pack this specific material for this specific ship-to party, the system can find the pre-defined packing instruction and use it to create one or more HU proposals that exactly fit the requirements of the customer. Packing instruction determination thus automates the packing process.

Integration

The system starts packing instruction determination when you enter a quanity of a material to be packed and choose *Pack automatically*.

Prerequisites

- You have created a packing instruction for packing with packing instructions.

- You have made the settings for packing instruction determination in Customizing.

- Customizing for packing instruction determination is preset in the standard system. However, you can extend the settings in the customer name range. You need the following for packing instruction determination:

  - condition table

  - access sequence

  - determination type

  - determination procedure.

- You have also defined determination records. See also the section Creating Determination Records for Packing Instructions [Page 87].

Features

For more detailed information on the condition technique, see the sections under CA - Message Control [Ext.]. Packing instruction determination is based on the same principle.

Creating Determination Records

Prerequisites

You have fulfilled the prerequisites for the condition technique. For more information, see Packing Instruction Determination [Page 86] .

Procedure

1. Choose *Logistics → Central Functions → Handling Unit Management → Master data → Packing instruction (PI) → Create.*

   The system displays the screen *Packing Instruction - Create DetermRecords: Init Scrn.*

2. Enter the appropriate determination type, and choose *Enter*.

3. Select one of the proposed key combinations, for which you want to create a condition record. You can set the key combinations individually in Customizing.

4. Choose *Continue*.

   The *Create PackInstr: Fast Entry* screen appears.

5. Depending on the key combination you select, you make the mandatory entries and assign them to a packing instruction and if necessary also one or more alternative packing instructions.

   For example, if you selected the key combination *Customer/material*, the mandatory entries are the customer and the material.

   You can display the details of the packing instruction you select by choosing *Packing instruction*.

6. Save your condition record.

Pack at a Packing Station

Use

For the most part, the general packing dialog is used by packing specialists that are not involved in the physical packing process. The packing station dialog is another way of creating and processing both handling units linked to deliveries and handling units without document reference.

This dialog was created mainly for the user that physically packs materials at a packing station in the warehouse. It supports both keyboard entries and scanned entries (assuming the necessary information is available in barcode format). You can also use a scale that is connected to the system to transmit the exact weight to the SAP System.

Prerequisites

If you want to implement packing at the packing station, you must make the following settings in the Implementation Guide (IMG) in the appropriate section (either Logistics Execution or Handling Unit Management).

Use the Set Profile for Packing Station [Ext.] IMG activity to set a packing station profile for each computer so that you can configure the packing process differently for individual packing stations..

Features

The packing station allows you to reflect material packing in the system. This function offers you the following options:

- Creating and changing handling units with reference to a delivery (inbound and outbound delivery)

  You can record in the system what quantities of which delivery items are packed in a handling unit.

- Creating handling units without object reference

  This options lets you pack materials (in handling units) that you want to return to the warehouse (put away), for example.

- Printing labels for individual handling units

  When a handling unit is completely packed, you can immediately print a label that includes its handling unit number, for example.

- Updating the handling unit's weight

  If existing handling units are weighed, the packing station uses a connection to an external scale to offer you an easy way of updating a handling unit's total weight.

Packing Deliveries at a Packing Station

Use

The packing station dialog is suitable for recording which delivery items in which handling units were actually delivered to the ship-to party (or to you by the vendor) in the system. The delivery specialist's packing proposals can also be updated and new handling units can be assembled for deliveries.

Procedure

You can call up the packing station dialog from the SAP menu as follows:

- For **outbound deliveries**, start at shipping [Ext.] and select *Pack → Packing Station*.

- For **inbound deliveries**, start at inbound delivery [Ext.] and select *Pack → Packing station*.

- For **Handling Unit Management,** start at the packing dialog [Ext.] and select *Processing Handling Units → Packing Station*.

Unless there is a packing station profile maintained for your terminal ID, the initial screen for the packing station appears.

1. Select a packing station profile that you could use to pack deliveries, if that is what you plan to pack.

2. Enter the delivery that you want to pack.

   You are now in the packing station dialog.

3. You can make the following entries in the *Handling unit* field, which is located in the top section of the screen (*HU into which items will be packed*):

   − If you want to create a new handling unit, enter a packaging material.

   − Enter an existing handling unit into which you want to pack materials.

   Select the *Pack material* tab in the lower section of the screen (*To be packed*). The delivery items that are available to be packed appear.

4. Enter the material number of the delivery item that you want to pack in the *Material/Handling unit* field.

   ⇨

   You can also enter the EAN number in this field instead of the material number. This is especially useful if a scanner is connected to the computer (at the packing station), since it enables you to scan handling units during the packing process.

5. After confirming the material, enter the quantity that is to be packed in the *Qty* field. If you want to unpack, enter a negative quantity in this field.

   After you confirm the quantity, the system packs the corresponding delivery item into the handling unit you selected.

You can refer to the hierarchical overview on the left-hand side of the screen at any time to see how many delivery items are packed into which handling units.

Packing Deliveries at a Packing Station

Packing handling units

If you want to pack one handling unit into another handling unit, create a new "higher-level" handling unit (by entering a packaging material) and enter the identification of the handling unit that is to be packed in the *Material/Handling unit* field.

> If you enter the identification of the handling unit that you just packed in this field once again, the system unpacks that handling unit.

Putaway

Implementation Options

The putaway process includes putting goods away in storage bins in the warehouse. There are putaway strategies [Ext.] in the Warehouse Management (WM) system that simplify the search for appropriate storage bins.

Regardless of how your company executes the putaway process, you can make settings in the system so that goods are put away:

- Automatically when you create inbound deliveries [Page 8]

- Routinely at certain times

- Manually according to overviews of the day's workload that a co-worker has requested

A putaway status [Page 101] is recorded in each delivery item for the purpose of scheduling and monitoring the putaway process. This status indicates what stage the item is at in the putaway process (putaway has started for item A, for instance).

Prerequisites

In the system standard settings, it is a prerequisite for goods receipt to be posted before the item relevant for putaway can be put away completely. This means that the delivery quantity must be the same as the putaway quantity in the inbound delivery.

The Warehouse Management system (WMS) module is fully integrated in Logistics Execution (LE). For example, you can create a WM transfer order directly from the inbound delivery. The current status of the warehouse management process can also be monitored from the delivery, for instance.

Process flow

Putaway with Warehouse Management allows you to use the transfer order as a putaway order.

This is possible in the following scenarios:

- Lean-WM [Page 94]

    Implementation of the basic functions of the Warehouse Management module (WM) in simply structured warehouses with no stock management at storage bin level.

- Implementation of all functions in Warehouse Management (WM) [Ext.]

The use of the WM transfer order [Ext.] as a putaway order offers you the following advantages:

1. Determination of target data for transfer orders

2. Splitting transfer orders according to target data

3. Printing transfer orders or transmitting them in IDoc format

4. Creation of actual data from the putaway

5. Confirming transfer orders

Putaway

Information in Inbound Delivery

Inbound delivery #180005614

Supplier

Inb.delivery

What
How much
When **?**
From where
Supplier
Status

| Items | Putaway | Shipment | Status Overview |

10　*Material1　Plant　Stor.location ...*

20　*Material2　Plant　Stor.location ...*

Display Inbound Deliveries for Putaway

Use

In the putaway overview, the system only includes inbound deliveries that have not been putaway or have only been partially putaway. You can limit the selection by putaway date, for example.

Procedure

To select deliveries that are to be put away, proceed as follows:

1. From inbound delivery [Ext.], choose *Putaway → Create Transfer Order → Via Inb. Delivery Monitor.*

   The *Inbound Deliveries for Putaway* screen appears.

2. Enter the delivery date or an interval for the delivery date in the *Time data* section.

3. Choose *Program → Execute.*

   The *Inbound Deliveries for Putaway* screen appears. In this list, the system displays the deliveries for putaway, sorted by delivery date.

   ➡

   For more information on working with the delivery monitor [Page 129], see Calling up List Functions [Page 137], and Carrying out Subsequent Processing [Page 141].

Creating transfer orders

In the *Inbound Deliveries for Putaway* list, you can create transfer orders for the selected deliveries with WM putaway. These transfer orders are used in Warehouse Management to process the various goods movements (putaway, stock transfer, picking). For more information on transfer orders, see Warehouse Management [Ext.].

To create transfer orders from this list, proceed as follows:

1. On the *Inbound Deliveries for Putaway* screen, select the deliveries for which you want to create transfer orders.

2. Choose either *TO in backgr.* or *TO in foregr.*

   If you choose *TO backgr*, the system creates transfer orders in the background for the deliveries selected.

   If you choose *TO foregr*, the system creates transfer orders for the selected deliveries in the foreground.

   In the overview screen, a message appears to inform you of how many transfer orders were created successfully. If the system was not able to create transfer orders, you receive a corresponding message with the reason.

Using a Transfer Order (TO) for Putaway in Lean WM

Implementation Options

You can use transfer orders that are created for deliveries in Lean WM to put away stock in available fixed storage bins that are not managed with WM.

In the normal WM structure, you process goods receipts that result in an increase in inventory in the warehouse and goods issues that result in a decrease in inventory in the warehouse. The stock is managed in individual storage bins in the warehouse for this normal process. For Lean WM, you do not process goods receipts or goods issues as a subsequent process in WM and no storage bins are managed in the WM application. This also means that the Lean WM system does not update stock data using **quants**. Instead, this transaction takes place entirely at the storage location level.

Since Lean WM is used at the storage location level, you can only display quantities of stock in Inventory Management (IM) and not with the WM stock overview task.

Transfer order characteristics

The characteristics of a transfer order created for Lean WM are basically the same as for any transfer order:

- It is **optional** as to whether transfer orders created for Lean WM are subject to confirmation.

- You can confirm overdeliveries, shortages and batches.

- You can print transfer orders.

- You can transmit Lean WM transfer order data to external systems.

- You can record performance data for this type of TO. Examples of this include assignment to a picker, return confirmation of actual times or determining planned times.

Prerequisites

Before you use Lean WM, you need to make a few configuration changes in Customizing as follows:

1. Assign (and create, if necessary) a storage location to a warehouse number.

2. You should define at least the following two storage types:

   – A storage type (to be used as a source storage type) with one or more fixed storage bins

   – A shipping area (as a destination storage type) for deliveries

For more detailed information on this topic, refer to the Implementation Guide (IMG) for *Shipping* under *Picking* → *Lean-WM* (see also Setting up Lean WM [Ext.]).

Process Flow

Generally, the processes used in Lean WM are similar to those in normal WM. You work with deliveries and transfer orders that you create for the deliveries. However, with Lean WM, it is much easier to create transfer orders.

To carry out a stock transfer in Lean WM, follow these 3 steps:

1. Create an inbound delivery [Page 14].

2. Create a transfer order for the delivery [Page 99].

3. Confirm [Page 100] the transfer order after you have set the *Stock plcmt requires confirmation* indicator in Customizing (see also: Define Storage Type [Ext.]).

Storage Location for Putaway

Implementation Options

Putaway always occurs into a particular storage location. This means that if a delivery item is relevant for putaway, a storage location must be entered in the delivery.

- The goods are put away in the stock of the storage location that is specified in the delivery.

- If the putaway is carried out using the WM System, the storage location in the delivery determines which storage location in the Warehouse Management System is responsible for putting the goods away.

The item category of the delivery item determines whether the item is relevant for putaway and whether a storage location must be specified. For example, text items are not relevant for putaway, so there is no need to specify a storage location for them. Item category controls can be set in Customizing.

Process Flow

Since the information necessary for specifying a putaway location may not be available when the purchase order is entered, the person responsible for processing purchase orders cannot usually decide into which storage location the goods are to be put away. The storage location for the putaway is specified when the delivery is created.

There are two ways in which the putaway storage location can be specified:

1. It can be determined automatically when the delivery is created and then entered into the delivery item.

   For further information on this, refer to Determining the Putaway Storage Location Automatically [Page 97].

2. You can specify it manually in the delivery item.

   For more information, see Entering the Putaway Storage Location Manually [Page 98].

Determining the Putaway Storage Location Automatically

Automatic determination of the storage location for the putaway depends on the following criteria:

- Plant

- Storage conditions

The storage location for the putaway appears both in the delivery item and on the putaway overview screen:

- In the delivery item, you will find the storage location item on the item details screen for putaway. You will find the field for the storage location in the section *Warehouse*. To call up this screen, select the item whose status you want to display on the delivery overview screen. Then choose *Goto* → *Item* → *Putaway*.

- On the putaway overview screen, you will find the storage location for the items in the *SLoc* column. To call up this screen, choose the *Putaway* tab page on the overview screen.

You can change the storage location that the system determines as long as putaway has not yet been started.

Storage conditions

The storage conditions that apply to storage of a material are stored in the material master record. You will find the specification on the tab page *Plant data / Warehouse 1* for a material in the field *Storage condition.*

The storage condition is displayed in the delivery on the item details screen for putaway. To call up this screen, select the item whose status you want to display on the delivery overview screen. Then choose *Goto* → *Item* → *Putaway*. The storage condition is in the field *Storage condition* in the section *Material*.

Prerequisites for determining the storage location automatically

Putaway storage-location determined automatically by the system depends on the delivery type and item category of the delivery item:

- Each delivery type has its own rules regarding the automatic determination of a storage location.

- The system only determines a storage location for a delivery item if this is defined for the item category assigned to this item.

Controls for delivery types and item categories can be set in Customizing.

Entering the Putaway Storage Location Manually

In the delivery, you can either specify the storage location for each individual item or you can enter it on an overview screen for several items:

- You specify the storage location for an item on the item details screen for putaway. To call up this screen, select the item whose status you want to display on the delivery overview screen. Then choose *Goto → Item → Putaway*.

  You can enter the storage location in the section *Warehouse*.

- To specify the storage location for several items at once, enter it on the putaway overview screen. To call up this screen, choose the *Putaway* tab page on the overview screen.

  Specify the storage location for **each** item in the *SLoc* column.

You can change the location that is specified in this field as long as the putaway has not yet been started.

Creating Transfer Orders for Inbound Deliveries

To create a transfer order (TO) manually, proceed as follows:

1. From inbound delivery [Ext.], choose *Putaway → Create Transfer Order → Single Document.*

2. On the initial screen, enter the delivery number, select **Foreground** in the *Foreground/backgrnd* field for foreground processing and choose ENTER.

3. Continue as described in Creating a Transfer Order for a Material Document [Ext.].

   After you have created the transfer order items for a delivery, the system automatically goes to the *Processed items* tab page. Although the TO column is marked for all the items on this list, the transfer orders are only processed completely after they are posted.

4. To save the transfer order, choose *Transfer order → Post*.

What Happens in the System?

After the transfer order has been created, the system makes the following settings in the delivery document:

- The system updates the quantity to be put away.

- The putaway status [Page 101] is set to C, meaning that the material has been put away.

- The WM activity status is set to B, which means that a transfer order has been created but has not been confirmed.

Automatic/Immediate Transfer Order Creation for Deliveries

To create a transfer order automatically for a delivery, see Automatic/Immediate Transfer Order Creation [Ext.].

Confirming Transfer Orders for Inbound Deliveries

After the goods have been put away in the warehouse, you confirm the transfer order in WM. When you put inventory away in the warehouse, you would normally confirm the entire transfer order at the same time.

To do so, choose *Putaway → Confirm Transfer Order → Single Document → In One Step* from inbound delivery [Ext.]*.* You can also access the confirmation function from the display functions for transfer orders.

See also:

Confirming Transfer Orders [Ext.]

What Happens in the System?

After the transfer order has been confirmed, the system makes the following settings in the delivery document:

- The putaway status [Page 101] stays set to C, meaning that the material has been put away.

- The WM activity status is set to C, which means that the transfer order has been confirmed.

See also:

Processing Differences for a Delivery [Ext.]

Putaway Status

You can determine to what extent putaway has been carried out for a delivery from the putaway status. The putaway status is stored in each item in the delivery.

In the standard version of the SAP R/3 System, the following indicators are defined for the putaway status:

Standard Putaway Status Indicators

Indicator	Significance
Blank	The item is not relevant for putaway
A	Putaway has not been started yet
B	The item has been partially put away
C	The item has been completely put away

A delivery item is regarded as partially put away if the quantity that was put away is smaller than the delivery quantity.

Putaway Status on the Delivery Item Level

You will find the putaway status on the *Putaway* item details screen. To call up this screen, select the item whose status you want to display on the delivery overview screen. Then choose *Goto* → *Item* → *Putaway*. You will find the status indicator in the *PutawyStatus* field.

If a delivery item was put away in the Warehouse Management System WM, the processing status of the item in the WM System is also shown on the screen.

Putaway Status in the Overview

The putaway status of each delivery item is shown in the status overview. To call up this overview screen, choose *Status overview* in a delivery. The overall status of the putaway can be found in the *OvrPtawySt* column.

Putaway Status and Goods Receipt

You can only post goods receipt for a delivery once all items relevant for putaway have been completely put away.

Therefore, the delivery cannot be put away in the system if the putaway quantity that was reported to the warehouse is smaller than the delivery quantity. In this case, you must decide whether to reduce the delivery quantity and post goods receipt immediately or whether to carry out putaway again to determine if the entire quantity can be made available for the warehouse.

Putaway Status and Decentralized Warehouse Management

If you implement decentralized Warehouse Management [Ext.], the individual delivery items are not relevant for putaway in the central system. As described in goods receipt [Page 103], the delivery is reported to the decentralized system. Putaway occurs in the decentralized system. Following the putaway step, the delivery is reported back to the central system, where goods receipt is posted.

Putaway Status

⚠️

If the item category is marked as relevant for putaway, the process of distributing it to the decentralized system automatically sets the item to not relevant for putaway, since putaway takes place in the decentralized system.

Goods Receipt

Implementation Options

From the inbound process perspective, as soon as goods receipt is posted for the goods, the business activity is finished. This is illustrated by the posting of goods receipt for inbound deliveries.

You have the following options for posting goods receipt:

- Goods Receipt Posting [Page 104] for individual inbound deliveries

- Goods Receipt in Collective Processing [Page 106] to post goods issue for multiple inbound deliveries

- Goods Receipt in Collective Processing [Page 106] for posting goods issue for multiple inbound deliveries in the background without manual intervention

- Posting Goods Receipt for an Entire Shipment [Page 107]

Range of Functions

The inbound delivery is the basis for goods receipt posting. The data required for goods receipt posting is copied from the inbound delivery into the goods receipt document, which cannot be changed manually. Any changes must be made in the inbound delivery itself. In this way, you can be sure that the goods receipt document is an accurate reflection of the inbound delivery.

When you post goods receipt for an inbound delivery, the following functions are carried out on the basis of the goods receipt document:

- Warehouse stock of the material is increased by the delivery quantity

- Value changes are posted to the balance sheet account in inventory accounting

- Goods receipt posting is automatically recorded in the document flow

After goods receipt is posted for an inbound delivery, the scope for changing the delivery document becomes very limited. This prevents any discrepancies between the goods receipt document and the inbound delivery.

Goods Receipt Posting

Implementation Options

When processing individual inbound deliveries, you can also post goods receipt for them directly.

Prerequisites

In order to post goods receipt, all necessary activities must be completed. These activities include:

- The data in the inbound delivery must be complete. For example, all entries relating to the storage location must be made.

- Putaway of the individual inbound delivery items must be complete for all items for which you have set the *Relevant for picking* indicator in the Implementation Guide in the section *Logistics Execution → Shipping → Picking* under Define relevant item categories [Ext.]. You can only post goods receipt for quantities that have been put away.

- All transfer orders must be confirmed for individual inbound delivery items if those items were put away using the Warehouse Management System (WMS) or Lean WM and if you have indicated them as being subject to confirmation in the following sections of the Implementation Guide:

  - Warehouse Management System (WMS)

    The Define storage type [Ext.] activity in the *Logistics Execution → Warehouse management → Master data* section.

  - Lean WM

    The Define storage type [Ext.] activity in the *Logistics Execution → Shipping → Picking → Lean WM* section.

Process Flow

To post goods receipt for an inbound delivery, proceed as follows:

When creating or changing an inbound delivery, select *Edit → Post goods receipt* on one of the overview screens.

> Before posting goods receipt, you can specify the actual goods receipt date without having to change the planned date. Simply enter the actual goods receipt date on an overview screen in the delivery.
>
> If you have not made an explicit entry for the goods receipt date, the system uses the current date.

You can find more information about posting goods receipt for more than one inbound delivery in the Posting Goods Receipt with Collective Processing [Page 106] section.

Flow of Goods Receipt with Inbound Deliveries

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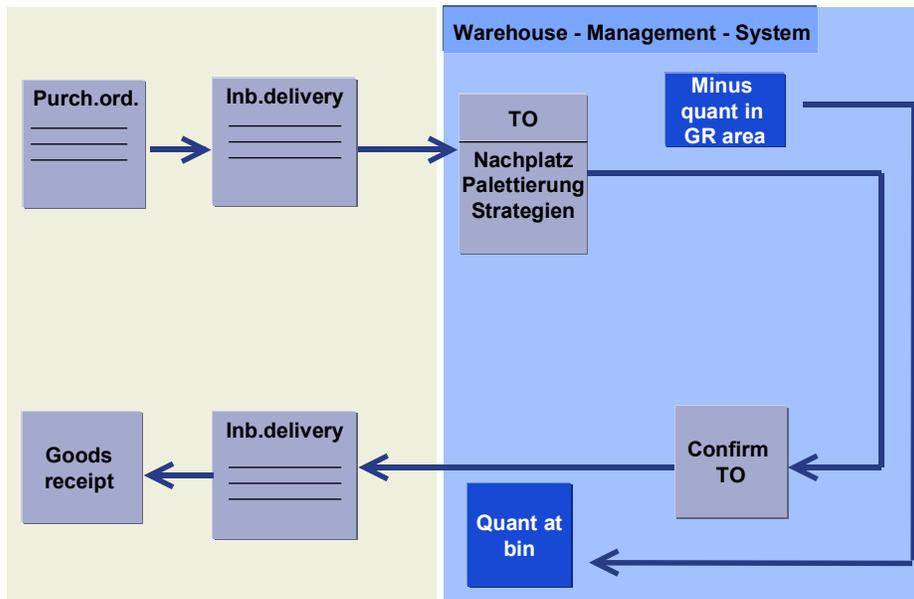
Goods Receipt Using the Decentralized Warehouse Management System

If you implement the Decentralized Warehouse Management System [Ext.], you cannot post goods receipt using one integrated step. Goods receipt in the decentralized WMS is controlled by using the following process flow:

1. The delivery is reported to the decentralized system.

2. Putaway takes place in the decentralized system.

3. Goods receipt is also posted in the decentralized system. This main objective of this process is to keep goods receipt areas well organized.

4. Then, the decentralized system reports the delivery to the central system (Enterprise Resource Planning, or ERP system).

5. Finally, stock is increased in the central system.

Result

As soon as the delivery is saved and goods receipt is posted, you receive a message that contains the delivery number. The goods-receipt document number is not shown.

Goods Receipt in Collective Processing

Use

You can use the collective processing function to post goods receipt for multiple inbound deliveries at the same time.

First, select all the inbound deliveries ready for goods receipt posting. You can limit the selection by goods receipt date, for example. You can choose the inbound deliveries for which you want to post goods receipt from the list that appears.

Prerequisites

Only inbound deliveries that have been put away completely and fulfill the Prerequisites for Goods Receipt Posting [Page 104] are included in the goods receipt overview.

Procedure

To select inbound deliveries for which goods receipt is to be posted, proceed as follows:

1. From inbound delivery [Ext.] , choose *Post Goods Receipt* → *Collective Processing Via Inb. Delivery Monitor.*

    The *Inbound Deliveries for Goods Receipt* screen appears.

2. Enter your selection criteria. You can also specify intervals for certain data.

3. Choose *Execute*.

    You see the *Goods Receipt for Inbound Deliveries to be Posted* screen that displays the deliveries to be posted for goods receipt for each goods receipt date, together with other relevant information.

To post goods receipt for the inbound deliveries included in the overview, proceed as follows:

1. Select the deliveries for which you want to post goods receipt on the *Goods Receipt for Inbound Deliveries to be Posted* screen*.*

2. Choose *Subsequent functions* → *Post goods receipt*.

    Goods receipt is posted for the deliveries selected and you receive the message: *<n> goods movements posted <n> goods movements not posted*. This enables you to establish whether goods receipt could not be posted for some of the deliveries.

    In addition there is a separate overview for each delivery that indicates whether goods receipt has been posted successfully or not.

3. Select *Goto* → *Back* to return to the goods receipt overview.

Posting Goods Receipt for Shipments

Use

You can post goods receipt for an entire shipment. This is appropriate, for example, if you have several deliveries in a shipment that you do not want to have to select and post individually.

When you enter the shipment number, the system automatically selects all the deliveries belonging to the shipment and then posts goods receipt for them.

Procedure

1. Choose Inbound Delivery [Ext.] → *Post Goods Receipt* → *Collective Processing via Inbound Delivery Monitor.*

2. The delivery monitor [Page 129] leads you to the *Inbound Deliveries for Goods Receipt* screen. Enter the desired shipment number and choose *Program* → *Execute*.

Proof of Delivery at Goods Receipt for Inbound Deliveries

Implementation Options

The proof of delivery (POD) process lets you report the quantity that the ship-to party actually received to the vendor during goods receipt for inbound deliveries. You can record the goods-receipt quantity, the verification date and reasons for differences in quantity that may have occurred.

The ship-to party transfers the proof of delivery in IDoc format into the SAP System or into the vendor's external system. In this way, the quantities are confirmed once for the entire inbound delivery. The current proof of delivery situation is reflected by the POD status: `Rel. w. difference`, `Rel. w/o difference` or `Not relevant.` You can check the POD status at any time during delivery processing by using the *Processing* tab in the item view. The system does not make an entry in the document flow.

You can set the POD process in Customizing for automatic, partially automated, or manual creation of the reasons and quantities during goods receipt for inbound deliveries. In most cases, there are no quantity deviations, meaning that the proof of delivery process does not create any additional work for you. In these cases, verification occurs automatically via IDoc. Verification of the proof of delivery occurs via EDI using corresponding IDocs. The proof of delivery allows all partners involved to synchronize the quantities that are posted. SAP recommends that you use partially automated POD creation.

Business partners who both use SAP Systems can now use the system to process PODs (see also Proof of Delivery [Ext.]).

Prerequisites

Make the following settings for proof of delivery in the Implementation Guide (IMG) under *Logistics Execution → Shipping → Deliveries → Proof of Delivery*:

- Define for each delivery item category [Ext.] whether it is relevant for the POD process. SAP recommends that you flag all item categories that belong to a delivery type as being POD relevant.

    If you want to copy the POD relevance from a preceding document such as an MM scheduling agreement for inbound deliveries, select `Copy POD relevance from preceding document (V)` for the item category. In this case, as the preceding document is being processed, the system already knows whether verification for an item should occur or is expected.

    If you as ship-to party want to record POD data when processing inbound deliveries, in addition to the POD-relevance, you must also define the level of automation the recording process is to include for the item category. You can indicate whether you want the recording process to occur automatically, partially-automatically or manually in the dialog. You can only define this level of automation for inbound deliveries.

- Define reasons for deviation [Ext.].

    Define how the quantity is to be calculated (add or subtract the difference quantity, depending on whether you are dealing with an overdelivery or an underdelivery).

If you want to use automatic or partially automated POD data recording for inbound deliveries, you must select one standard reason for overdelivery and underdelivery. Otherwise, the system cannot generate POD data automatically.

Set the *POD-relevant* indicator on the *Control* screen for the vendor with whom you would like to carry out POD-processing in the *Reference data* part of the screen.

As the ship-to party, if you use an SAP System and record POD data in inbound deliveries, you must activate the *POD-relevant* indicator in the *Reference data* section of the *Control* screen for vendor data. This setting controls when you as the ship-to party send a proof of delivery (always, only when deviations occur, or never). You can fine-tune the POD process controls even further by setting up POD-relevance for the confirmation control key in Customizing for confirmation control [Ext.].

Process Flow

You can record proofs of delivery in inbound deliveries for which your vendor has sent shipping notifications and send them via IDoc. You have three different options for recording differences and reasons for deviation:

- Automatic creation

    When you change quantities an inbound delivery, the system generates the POD data, including the difference quantity and standard reason, in the background. In this case, it is not possible to change this data or create other data manually.

- Partially-automated creation

    When you change quantities in an inbound delivery, an input screen appears with the POD data that was generated by the system as suggested values. You can user this screen to add other data or change the reasons manually.

- Manual creation

    When you change quantities in an inbound delivery, an input screen appears in which you must enter all POD data manually.

Creating A Proof Of Delivery (POD) Automatically

Use

You can set your system so that if there are differences between the quantity that was actually delivered and the quantity in the shipping notification, the system automatically sends a message with preset standard reasons to the vendor at goods receipt.

Prerequisites

If you want to use automatic creation and processing of quantity differences for certain delivery item categories, you must first make the following settings in the *Logistics Execution* section of the Implementation Guide (IMG):

1. Mark the desired delivery item category as `Relevant for POD`. Then set the *Level of Automation for the POD for Inbound Deliveries* for the delivery item category to `Fully-automated POD processing (V)`. Use the Set POD-Relevance Depending on Delivery Item Category [Ext.] activity for this step.

   ➡

   > If you set the POD relevance to `Copy POD relevance from preceding document (V)`, the POD relevance from the preceding document is copied into the current one. In this case, you can use the Set Up Confirmation Control [Ext.] activity to check your *POD control* settings for the corresponding *Confirmation control key*.
   >
   > Also use the Define Order Confirmations for Inbound Deliveries [Ext.] activity to make sure that the confirmation control key has an entry for the combination of *Purchasing document category, Order type, Plant* and *Storage location*.

2. Make sure that you have defined at least one *Standard reason* for both overdelivery and underdelivery. Define the type of *Quantity calculation* for the standard reasons. Use the Define Reasons for Quantity Differences [Ext.] activity for this step.

   > When you process inbound deliveries, if quantity differences occur, the system will report the standard reason with the corresponding quantity difference to your vendor.

3. Refer to the vendor master to check that the `POD-relevant (A or B)` indicator is set in the *Control* area of the reference data for the corresponding vendors.

Procedure

1. From inbound delivery [Ext.], choose *Inbound Delivery → Change → Single Document*.

   The *Change Inbound Delivery* screen appears.

2. Enter the number of the inbound delivery you want to change or select it by using a matchcode.

   From the *Goto* menu on this screen, you can call up a specific view of the inbound delivery and make changes there.

3. Choose *Enter*.

   The overview screen that you chose appears.

4. Change the delivery quantity to the actual quantity that was received.

If you create quantity differences that you do not want to report to the vendor for one reason or another, then continue as described in the Adjusting Quantity [Page 116] section.

5. Save the changes by choosing *Inbound delivery* → *Save*.

A message appears informing you that the inbound delivery has been saved.

Result

The system uses the standard reasons and reasons for deviation that you have set up for overdelivery or underdelivery to send an automatic message about the quantity differences to the vendor.

Creating A Proof Of Delivery (POD) Partially Automatically

Use

You can set your system so that if there are differences between the quantity that was actually delivered and the quantity in the shipping notification, the system automatically sends a message with preset standard reasons to the vendor at goods receipt. The difference between fully automatic and partially automatic creation of POD quantity differences is that if you set your system to partially automatic creation, the preset reasons still appear, but you can also add other reasons for the quantity deviation. SAP recommends that you set your system to partially automatic creation of quantity differences for the POD.

Prerequisites

If you want to use partially automatic creation and processing of quantity differences for certain delivery item categories, you must first make the following settings in the *Logistics Execution* section of the Implementation Guide (IMG):

3. Mark the desired delivery item category as `Relevant for POD`. Then set the *Level of Automation for the POD for Inbound Deliveries* for the delivery item category to `Partly automated POD processing (T)`. Use the Set POD-Relevance Depending on Delivery Item Category [Ext.] activity for this step.

> If you set the POD relevance to `Copy POD relevance from preceding document (V)`, the POD relevance from the preceding document is copied into the current one. In this case, you can use the Set Up Confirmation Control [Ext.] activity to check your *POD control* settings for the corresponding *Confirmation control key*.
>
> Also use the Define Order Confirmations for Inbound Deliveries [Ext.] activity to make sure that the confirmation control key has an entry for the combination of *Purchasing document category, Order type, Plant* and *Storage location*.

4. Make sure that you have defined at least one *Standard reason* for both overdelivery and underdelivery. Define the type of *Quantity calculation* for the standard reasons. Define other reasons for quantity differences and record the type of *Quantity calculation* for each reason. Use the Define Reasons for Quantity Differences [Ext.] activity for this step.

4. Refer to the vendor master to check for the corresponding vendors that the `POD-relevant (A or B)` indicator is set in the *Control* area of the reference data.

Procedure

2. From inbound delivery [Ext.], choose *Inbound Delivery* → *Change* → *Single Document*.

   The *Change Inbound Delivery* screen appears.

3. Enter the number of the inbound delivery you want to change or select it by using a matchcode.

   From the *Goto* menu on this screen, you can call up a specific view of the inbound delivery and make changes there.

4. Choose *Enter*.

    The overview screen that you chose appears.

5. Change the delivery quantity to the actual quantity that was received.

    ⮕

    If you create quantity differences that you do not want to report to the vendor for one reason or another, then continue as described in the Adjusting Quantity [Page 116] section.

    A screen on which you can make entries for the proof of delivery appears. The system has already made an entry in the first line. Depending on whether you increased or decreased the quantity, the standard reason for overdelivery or underdelivery that you maintained in Customizing and the corresponding difference appears in this line.

    − If you want to replace this standard reason with a different reason for deviation, select this line and choose *Delete sel. items*. Enter another reason and the quantity difference. Select *Copy*.

    − If you want to use the standard reason and add other reasons for deviation, change the quantity difference for the standard reason accordingly and enter another reason for deviation with the remaining difference quantity. Select *Copy*.

    − If you want to accept the standard reason as it stands, select *Copy*.

6. Save the changes by choosing *Inbound delivery* → *Save*.

    A message appears informing you that the inbound delivery has been saved.

Result

The system uses the standard reasons and reasons for deviation that you have set up to send an automatic message about the quantity differences to the vendor.

Creating A Proof Of Delivery (POD) Manually

Use

You can set your system so that if there are differences between the quantity that was actually delivered and the quantity in the shipping notification, the system automatically sends a message with preset reasons for deviation to the vendor at goods receipt. The difference between automatic, partially automatic and manual creation of POD quantity differences is that if you set your system to manual creation, you must enter reasons for deviation for quantity deviations manually. The system does not use standard reasons if you choose the manual option.

Prerequisites

If you want to use manual creation and processing of quantity differences for certain delivery item categories, you must first make the following settings in the *Logistics Execution* section of the Implementation Guide (IMG):

5. Mark the desired delivery item category as `Relevant for POD`. Then set the *Level of Automation for the POD for Inbound Deliveries* for the delivery item category to `Manual POD processing (M)`. Use the Set POD-Relevance Depending on Delivery Item Category [Ext.] activity for this step.

> If you set the POD relevance to `Copy POD relevance from preceding document (V),` the POD relevance from the preceding document is copied into the current one. In this case, you can use the Set Up Confirmation Control [Ext.] activity to check your *POD control* settings for the corresponding *Confirmation control key*.
>
> Also use the Define Order Confirmations for Inbound Deliveries [Ext.] activity to make sure that the confirmation control key has an entry for the combination of *Purchasing document category, Order type, Plant* and *Storage location*.

6. Define deviation reasons for quantity differences and record the type of *Quantity calculation* for each reason. Use the Define Reasons for Quantity Differences [Ext.] activity for this step.

5. Refer to the vendor master to check for the corresponding vendors that the `POD-relevant (A or B)` indicator is set in the *Control* area of the reference data.

Procedure

3. From inbound delivery [Ext.], choose *Inbound Delivery → Change → Single Document*.

    The *Change Inbound Delivery* screen appears.

4. Enter the number of the inbound delivery you want to change or select it by using a matchcode.

    From the *Goto* menu on this screen, you can call up a specific view of the inbound delivery and make changes there.

5. Choose *Enter.*

    The overview screen that you chose appears.

6. Change the delivery quantity to the actual quantity that was received.

        ➡

If you create quantity differences that you do not want to report to the vendor for one reason or another, then continue as described in the Adjusting Quantity [Page 116] section.

A screen on which you can make entries for the proof of delivery appears.

5. Enter a reason for deviation and the corresponding difference in quantity.

6. Select *Copy*.

You return to the relevant inbound-delivery overview screen.

7. Save the changes by choosing *Inbound delivery* → *Save*.

A message appears informing you that the inbound delivery has been saved.

Result

The system uses the reasons for deviation that you entered to send an automatic message about the quantity differences to the vendor.

Adjusting Quantity

Use

You can use this function to create a quantity difference for an inbound delivery without notifying the vendor about it. You might choose to do so, for example, if you want to generate an inbound delivery from a scheduling agreement, but are still awaiting arrival of other inbound deliveries in this scheduling agreement.

Procedure

Based on a purchase order, your vendor has notified you of and delivered 1000 pieces of a certain material.

1. Create an inbound delivery with reference to a purchase order.

    The system suggests 1000 pieces as the delivery quantity.

2. Change the delivery quantity to 900 pieces on the overview screen of the inbound delivery.

    A screen on which you can make entries for the proof of delivery appears. Depending on how you have set up proof of delivery (POD) creation (automatic, partially automatic or manual), the corresponding standard reason appears.

3. Choose *Adapt quantity*.

    If a standard reason appeared in the previous step, it is now removed.

    Please note that you must repeat this step for each quantity change.

4. Select *Copy*.

5. Save the changes by choosing *Inbound delivery* → *Save*.

Result

The vendor does **not** receive a message about the reduction in quantity that you have made by using the *Adapt quantity* function.

Parcel Tracking for Express Delivery Companies

Use

You can use this function to track the path of individual deliveries or parcels that were sent via express delivery company. You can also exchange the necessary data with the express delivery company and ship-to parties and print the labels needed for parcel tracking.

Integration

The data determination procedure occurs in the background of the delivery.

As the system saves data, it checks whether express-delivery-company processing is activated. The data fields defined for the express delivery company are determined in the order specified. If a value cannot be determined, the system makes an entry in the incompletion log.

Parcel tracking for the express delivery company is available for both inbound and outbound deliveries.

Prerequisites

The following prerequisites must be met in order to implement parcel tracking for express delivery companies:

- The express delivery company is entered in the system as a service agent.

- The express delivery company has been created in the system and is active (see also: Creating an Express Delivery Company in the System [Page 119])

- An express-delivery-company indicator is assigned to the service agent.

- At least one shipping point is assigned to the express delivery company.

- Label printing is set up [Page 126]

- IDoc interface between partners and service agents is established.

Range of Functions

Parcel tracking for express delivery companies with express-delivery-company processing offers you the following options:

- You can define any number of fields for each express delivery company. These fields are then automatically filled in when a delivery is created and then made available to the IDocs.

- Express-delivery-company processing makes available additional information that the express delivery company may need. This function allows you to use XML-enabled Remote Function Call (RFC) interfaces.

- The necessary information can be printed right on the package label. This allows the parcels to pass thorough the express delivery company's automatic sorting machines, for example. Settlement is also made easier, thanks to this function.

- The parcel-tracking status in the SAP System is set automatically via the parcel-tracking interface. This way, the sender can display all tracking data in the document flow, the delivery or in a separate transaction in the SAP System. A workflow connection makes it easier to implement customer-specific processes.

Parcel Tracking for Express Delivery Companies

- The ordering party can also track the progress of his or her order. The ordering party can either make an inquiry via Internet or receive the necessary data via the delivery IDoc. If the ordering party also has an SAP System, he or she can access the same function from an incoming delivery point-of-view.

- XML-enabled Remote Frequency Call (RFC) interfaces are available for master data maintenance.

- Express-delivery-company data can be processed directly from the delivery.

Creating Express Delivery Companies in the System

Use

Express delivery companies allow:

- Goods to be delivered quickly

- Customers to track the progress of their parcel at any time

You must create express delivery companies in the system so that you can establish communication with express delivery companies, print special labels for express shipping purposes, and track parcels you send to your customers.

Prerequisites

The SAP Business Connector or a Remote Frequency Call (RFC) server solution must be active so that service-agent data can be automatically read in.

Procedure

To create an express delivery company, proceed as follows:

1. Choose *Logistics → Logistics Execution → Master Data → Partners → Service agent → Maintain Express Delivery Company*.

   The *Express Delivery Company (XSI) Cockpit* appears. Use this cockpit to carry out all functions related to parcel tracking and express delivery companies.

2. Choose *Express delivery company → Create express delivery company* and enter an ID for the express delivery company.

3. To upload data from an external system, select *Express delivery company → Non-SAP system.*

4. On the *Data provider* tab, choose *Load list of exp. dlv. companies.*

5. From the list that appears, select the express delivery company that you want to create in the system.

   The system copies the name and key (ID) for the express delivery company in the external system and also copies the Internet address (target URL) for the SAP Business Connector.

6. Choose *Express delivery company → Load all master data*.

   The system gets all existing master data from this express delivery company and copies it into your SAP System.

   ➡

   This process may take a few minutes.

7. Activate the express delivery company on the *Exp. dlv. cmpny control* tab and save the entries.

Creating Express Delivery Companies in the System

Assigning service agents

1. From the *Express Delivery Company (XSI) Cockpit*, choose *Goto → Assign svc. agnt to express delivery co.*

2. Make a new entry for the service agent for each export ID (for domestic and foreign countries).

3. Save your entries.

    The service agent is assigned to an express delivery company.

Assigning shipping points

1. From the *Express Delivery Company (XSI) Cockpit*, choose *Goto → Express delivery company and meta data*.

2. On the right-hand side of the screen, select the express delivery company of your choice and then choose *Shipping point: active* on the left-hand side of the screen.

3. Make a new entry on the *Shipping point: active* screen for each shipping point that is to be valid for this express delivery company.

    ⇨

    If you want to make an express delivery company active for all shipping points, choose *Activate all shipping points* on the *Exp. dlv. cmpny control* tab page.

Editing meta data

1. Choose *Express delivery company's info (i)* on the *Meta-data* tab in the *Express Delivery Company (XSI) Cockpit*.

    The system displays the express delivery company's Web site, which describes which meta data you still need to edit.

2. Follow the instructions on this Web site and edit all the meta data that is not active by choosing *Edit meta data*.

Example

Establishing number ranges

If a tracking number is not active in the meta data and the information provided indicates that you are to create a number-range object, proceed as follows:

1. From the *Express Delivery Company (XSI) Cockpit*, choose *Goto → Express delivery company and meta data*.

    A list of all meta data appears.

2. Choose the line that contains the tracking number data field and then choose *Details*.

3. Enter a number range object (such as `TRACK` for a non-rolling interval or `TRACKN` for a rolling interval) and a number range interval in the *Number range* section of the *Details* screen.

    You will find all meta data that needs number ranges on the *Number range* tab in the *Express Delivery Company (XSI) Cockpit*. This tab also contains a function you can use to request number ranges from the express delivery company.

Determining service code

A service code is a code specific to the express delivery company that must be printed on the label so that the express delivery company can deliver the parcel by the requested time. An example of a service code would be "tomorrow before 8:00" or "day after tomorrow before 10:00". You can derive the service code from the following criteria:

- Special processing

- Delivery priority

- Shipping conditions

- Route

To specify which of the above criteria the service code is to be derived from, proceed as follows:

1. From the *Express Delivery Company (XSI) Cockpit*, choose *Goto → Express delivery company and meta data*.

     A list of all meta data appears.

2. Choose the line with the *Service code* data field and then choose *Details*.

3. Enter one of the following function modules in the *Function module* field in the *Determine data* section of the *Details* screen:

   − XSI_GET_SERVICE_CD_SDABW to derive service codes from special processing

   − XSI_GET_SERVICE_CD_LPRIO to derive service codes from delivery priority

   − XSI_GET_SERVICE_CD_VSBED to derive service codes from shipping conditions

   − XSI_GET_SERVICE_CD_ROUTE to derive service codes from routes

Master Data

The following master data tables are available for small parcel carriers:

- Service codes

- URLs

- Weight codes

- Product codes

- Routing information

- Parcel tracking status

You can make all necessary settings and establish communications with small parcel carriers by using the small parcel carrier cockpit. XML-enabled Remote Function Call (RFC) interfaces are defined for some master data.

Shipper account number

The shipper account number is the sender's account number with the small parcel carrier. You can store this number in the SAP System in one of the following ways:

- Define an external account number in the small parcel carrier cockpit. This number is automatically included as identification every time an RFC is carried out.

- Define an external account number with the vendor for each company code. If a delivery is made up of orders from various company codes, the number cannot be uniquely defined.

     Enter the predefined function module XSI_GET_SHIPPER_ACCOUNT in the *Shipper account number* field so that the system determines an external account number.

- If the shipper account number is always the same, use the XSI_GET_SHIPPER_ACCOUNT_DEF function module.

- If the shipper account number is different for one shipping point, maintain the standard value for the *Shipper account number* data field in *Shipping point: meta data*.

- You can change the shipper account number manually in the delivery, provided you have flagged the field as able to be changed manually.

     The qualifier for external communication must have SHIPACCT as its value.

Service codes

The service code specifies when the goods are to arrive at the customer's place of business (same day or next day, for example).

You need to make a setting for the *Service code* data field so that the system knows how to find the service code. There are predefined function modules available in the system that determine the service code according to the following parameters (see also: Creating Small Parcel Carriers [Page 119]):

- Special processing indicator

- Delivery priority

- Shipping conditions

- Route

> The qualifier for external communication must have XSISRVC as its value.

Product codes

The product code is similar to the service code. Some small parcel carriers differentiate between service and product codes. There are no predefined function modules for product code determination.

> The qualifier for external communication must have PRDCD as its value.

Routing information

You can record routing information regardless of postal code, postal code area or location. You can upload routing information from the small parcel carrier via an XML-enabled Remote Function Call (RFC) interface from the small parcel carrier cockpit.

> The qualifier for external communication must have ROUTECODE as its value. The XSI_GET_CARRIER_ROUTING function module finds the corresponding information.

Parcel tracking number

The parcel tracking number uniquely identifies a parcel or delivery and its shipper account number.

The following two procedures are normally used to create parcel tracking numbers:

- Unique number originating from number range assignment by the small parcel carrier There is a number range interface available for this purpose.

- Unique number resulting from incorporation with the shipper account number

Some small parcel carriers also store other information such as product code or service code in the parcel tracking number.

The last digit is normally a check digit. Some of the major small parcel carriers program some check digit procedures into function module XSI_CHECK_DIGIT_nn. Since most procedures follow the same formula (digit weighting +/- value of modulo n), it is relatively simple to copy an existing routine and make the appropriate changes if you do not find another procedure that meets your needs.

You can also specify sequence numbers by way of an internal number range.

You can use variable substitution to create parcel tracking numbers when you are dealing with compound parcel tracking numbers (UPS tracking numbers, FedEx Astra codes or German Post Identcode, for example).

Master Data

You still have the option of copying the tracking number (or any other data field) from an external server such as FedEx OnSite Server, for example.

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> The qualifier for external communication must have TRACKN as its value.

Internet sites (URLs)

You can store the following URLs in the system for each small parcel carrier:

- URL for the small parcel carrier's documentation (editing meta data, for example)

- Target URL for the SAP Business Connector

- Sample URL for the small parcel carrier's parcel tracking page

Other data fields

You can define as many data fields as you like.

➡

> You must enter a qualifier for external communication in the definition of the data field so that the field appears in IDocs and the transaction data interface.

Editing Express Delivery Company Data in the Delivery

Use

Normally, all data necessary for parcel tracking is automatically determined when you create or save a delivery. If certain important pieces of data are missing, the system makes an entry in the incompletion log. You can change this data in the delivery manually, if necessary.

Procedure

To edit express delivery company data in the delivery, proceed as follows:

1. From shipping [Ext.], choose *Outbound Delivery → Change → Single Document.* Display the desired delivery and then choose *Goto → Header → Tracking*.

   All express delivery company data fields appear. All incomplete or incorrect fields are marked with a red traffic light and the section containing the incomplete data is opened automatically.

3. Put the cursor on the field that you would like to change and choose *Change*.

4. Save your entries.

Setting up Labels for Express Delivery Companies

Use

Express delivery companies normally work with automatic sorting machines. Labels should meet the specifications of each express delivery company so that parcels can go through these machines without having to be re-labeled.

Prerequisites

There are two output types that are predefined for label printing.

- KEP2, for printing all labels in a delivery
- KEP6 for printing one label for each handling unit

There are no label forms defined.

Procedure

There are no specific forms for express delivery companies available in the SAP System. You have to upload these forms according to a certain procedure (see also: Printing Labels [Ext.]).

To set up labels for express delivery companies, proceed as follows:

1. Enter the names of the forms in the express delivery company cockpit for each express delivery company.

2. Add access sequence `0013` to the output determination procedure you are using.

If you need various forms, you must

- either write your own print program (copy SDPACKD2 or SDPACKD3 and adapt FINDFORM)
- or define new output types

Access Delivery Tracking Status

Use

You can access information directly from the express delivery company about the current location and status of parcels or deliveries en route to customers via the Internet.

Procedure

1. For outbound deliveries, start at shipping [Ext.] and choose *Tracking*; for inbound deliveries, start at inbound delivery [Ext.] and choose *Tracking*.

2. Enter the document number on the selection screen and choose *Display*. You can select according to the following documents:

    −   Sales document

    −   Purchasing document

    −   Delivery

    −   Shipment number

    −   Handling unit

    −   Tracking number

        A hierarchical list appears that includes all documents that meet the selection criteria you specified together with their delivery tracking status.

3. From this overview screen, you can:

    −   Get delivery tracking data from the express delivery company ($\rightarrow$ *Refresh tracking data*)

        In the express delivery company cockpit, you can make a setting to update this status automatically each time you call up this screen.

    −   Display the express delivery company's delivery tracking page on the Internet ($\rightarrow$ *Internet delivery tracking*)

    −   Display the name of the recipient, point of destination, and the recipient's signature (optional) by using the context menu

    −   Go to and display the corresponding document

    −   Set the tracking status

        In the express delivery company cockpit, you can indicate whether the status can be set manually.

Planning, Monitoring and Analysis in Inbound Deliveries

Use

In inbound processing, you have various information and analysis functions at your disposal. To monitor and optimize the processes and operations during inbound delivery, you can analyze them using the following questions:

- Which deliveries are pending for goods receipt?

- Which deliveries are being processed?

- For which materials have the most deliveries been created?

- Which deliveries are based on certain purchase orders?

- Which deliveries result from which purchase orders?

- Which deliveries included certain purchase-order items?

- For which deliveries do you need to initiate activities in the warehouse?

To determine this and other information, and to execute subsequent activities, you can use the delivery monitor [Page 129].

For example, you can create the following lists with the delivery monitor:

- Lists of deliveries with certain partners

- Lists of deliveries with certain materials

- List of deliveries according to specific purchasing parameters

- Lists of deliveries according to specific goods-receipt parameters

You can decide yourself which fields of the deliveries are to appear in the list and which selection criteria you use, without having to change the settings in Customizing.

Working with the Delivery Monitor

Use

The delivery monitor is used to display and process completed deliveries and deliveries that are still open. Both inbound and outbound deliveries can be processed using the delivery monitor. Since several functions are performed in the same way for both delivery types, this description will use the general term "delivery", which covers both types of delivery (inbound and outbound).

Prerequisites

Customizing

No Customizing is required for the display variants because these can be maintained on a user-specific basis.

To allow selection using the material, you must, however, activate the material index (in Customizing choose *Sales and Distribution* → *Sales* → *Lists* → *Set updating of item index*). The material index is already activated in the standard system.

To achieve good performance in the selection of partners, we recommend that you update the partner index (in Customizing choose *Sales and Distribution* → *Sales* →*Lists* → *Set updating of partner index.* Selection of partners is possible even without index updating, but it then requires a longer runtime.

Authorizations

To be able to work with the delivery monitor, you must have display authorization for the shipping points you want to work with. To process the subsequent functions, you need separate authorizations that are checked every time you call up each function.

Range of Functions

The delivery monitor is set up as a central transaction for collective processing of deliveries and for obtaining information on general shipping processing. The user can call up deliveries with different statuses in one single list and from there initiate further processing, as required. The following collective processes are available:

- Selection of deliveries that are due for picking or putaway and creation of transfer orders

- Selection of deliveries for which picked quantities or putaway stocks need to be confirmed

- Grouping together of deliveries for which transportation needs to be organized

- Selection of outbound deliveries that are due for loading

- Collective processing of deliveries that are due for goods issue or goods receipt

You can create lists of deliveries for collective processing using a number of selection criteria. However, depending on the processing type selected, many of the selection criteria may be preset. With the current functionality, for example, you can also call up selections using additional partners and other sales-specific criteria (delivery type, sales organization, division, and so on). You can store selection criteria that you use often in a selection variant, which can simplify routine work with the delivery monitor.

Working with the Delivery Monitor

In addition to collective processing, you have the option of creating a "general" selection of deliveries where you can generate a type of worklist based on delivery- and sales-specific criteria. You can then store these selection criteria in a selection variant.

On the initial screen of the delivery monitor, you can switch between the inbound and the outbound delivery views, or you can activate both views at the same time. The functions of the outbound delivery monitor and the inbound delivery monitor are displayed in the overview below:

Functions of the Outbound Delivery Monitor
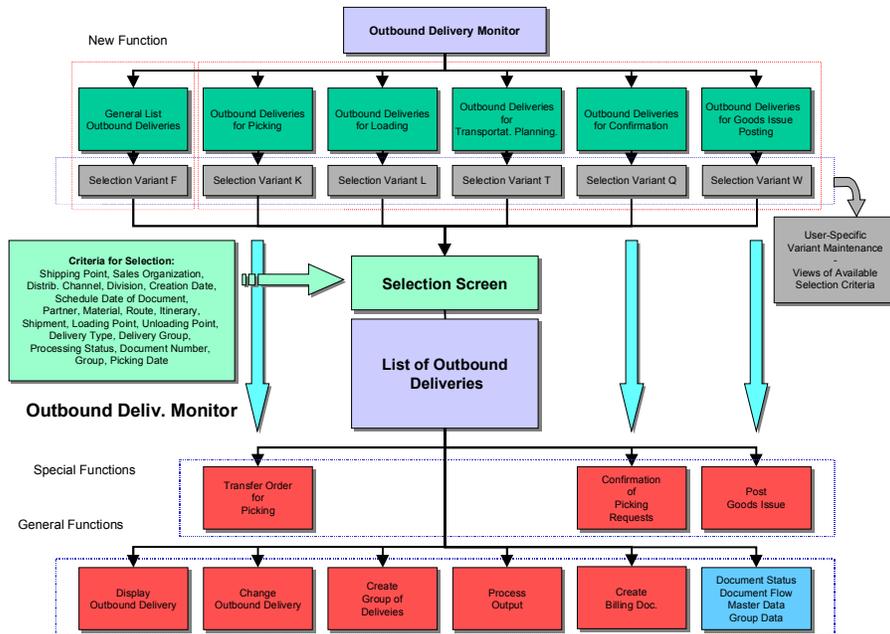
Functions of the Inbound Delivery Monitor

```
                          ┌──────────────────────┐
                          │ Inbound Delivery     │
                          │ Monitor              │
                          └──────────────────────┘
```

General List Inbound Deliveries	Inbound Deliveries for Putaway	Inbound Deliveries for Transportat. Planning	Inbound Deliveries for Confirmation	Inbound Deliveries for Goods Receipt Posting
Selection Variant F	Selection Variant K	Selection Variant T	Selection Variant Q	Selection Variant W

Criteria for Selection:
Shipping Point, Pur.Ord.Date, Creator, Creation Date, Delivery Deadline, Supplier, Doc. Number, External Doc. Number, Material, EAN, Customer Material, Means-of-Transport Identification, Shipment Number, Shipping Unit, Processing Status of Document

User-Specific Variant Maintenance

Views of Available Selection Criteria

Selection Screen

List of Inbound Deliveries

Inbound Delivery Monitor

Special Functions

General Functions

Transfer Order for Stock Putaway		Confirmation of Putaway Transfer-Orders	Post Goods Receipt

Display Inb. Deliveries	Change Inb. Delivery	Process Output	Document Status Document Flow Master Data

Defining Selection Criteria

The following includes information about the delivery monitor that can help you optimize your entries for worklist creation and reduce the amount of time the selection takes.

Initial screen

The first time you call up the delivery monitor, individual selection types appear instead of the SAP standard variants. However, as you work with it, the delivery monitor notes the name of the variant you last entered. You can also enter and maintain a selection variant for individual selection types on the initial screen of the delivery monitor. Use *Display variants* to display or maintain variants. To maintain a variants for selection types on the initial screen, enter the name of the variant you want to maintain and choose the icon in the *Maint.* column. The standard report variant maintenance function appears.

You can also switch back and fourth between the outbound (*Only outbound deliveries*) and inbound (*Only inbound deliveries*) views or activate both views simultaneously (*All deliveries*).

Depending on what you want the worklist to convey, you can select according to the following selection types:

Outbound delivery	Inbound delivery
For picking	For putaway
For confirmation	For confirmation
For loading	
For goods issue	For goods receipt
For transportation planning	For transportation planning
List outbound deliveries	List inbound deliveries

Selection Screen

Depending on the selection type, search criteria from the following areas may appear:

Selection	Remark
Organization data	
Document editing	
Time data	

Picking data	You can enter selection criteria relevant for picking of outbound deliveries in this selection area.
	If *Only picking without WM* is activated, only deliveries picked without Warehouse Management are selected.
	If *Only WM picking* is activated, only deliveries that need Warehouse Management for picking (complete or Lean WM) are selected.
	You can decide whether the warehouse number check should be run on header or item level in the delivery.
	• If you choose *Check at header level*, the system only finds deliveries that have warehouse numbers in the header that meet the selection criteria.
	➡
	For example, you can search for deliveries that are meant to be processed in a Warehouse Management System (WMS) and therefore refer to a warehouse number in the header.
	• If you choose *Check at item level*, all deliveries that include at least one item that meets the warehouse number criteria are selected.
	If you choose *Exclude existing groups in WM*, the system selects only those deliveries that are not yet assigned to a group in WM.
Document data	
Material data	
Partner data	
More partners	

Defining Selection Criteria

Display options	You can use this selection field to influence how the deliveries are displayed. Depending on the weight and volume units of the selected deliveries, the system determines a weight and volume unit that can be used uniformly for all deliveries in the list.
	You can define which units the deliveries should appear in by using the *Display in weight unit* and *Display in volume unit* options.
	If you choose *Display delivery items*, the list appears in the item view. If this field is not selected, the header view appears. You can switch between these two views in the list regardless of whether or not this field is selected on the selection screen.
	If you select this option, the selection takes more time. The system does require the item data for some subsequent functions and may read it automatically anyway.
	By choosing *Display forwarding agent*, you can also read data about the forwarding agent associated with the delivery.
	If you select this option, the selection takes more time.
Data for shipment	
Status: inbound/outbound deliveries	You can enter selection criteria for the delivery's processing status here. If you call up the delivery monitor in one of the views from which you want to select deliveries that are still in process, some of the status fields may have defaults that cannot be changed. You can enter other selection criteria (using the following letters) for the fields that are ready for input.
	• *A* stands for *not processed*
	• *B* stands for *partially processed*
	• *C* stands for *completely processed*
	This selection option allows you more flexibility than before for selecting deliveries in specific stages of processing.
	To select open deliveries, choose *Total goods movement status* ≠ C, since completed deliveries have a goods movement status of C.

Background processing control	If you call up the delivery monitor using selection type *Outbound deliveries for picking*, you have the option of creating WM transfer orders for the selected deliveries in the background. You can set the parameters *Adopt pick quantity* and *Select items* for background processing on the selection screen. In the *Outbound deliveries for conformation* selection type, you can confirm pick orders in the background. You can set the *Adopt pick quantity* parameter on the selection screen.
Output proposal	You can enter the output type that the system is to use during output processing in the list of deliveries. You can change it again later at any point as you process the list by choosing *Settings → Output selection.* If you enter the delivery note as a default value here, you can issue the delivery note directly for the selected deliveries by selecting *Subsequent functions → Outbound deliv. output*.

Notes on selecting the worklist

During the selection criteria check at item level, it follows that a delivery is only selected if at least one of the items meets the selection criteria. If the list is then displayed in item view, only those items that meet the criteria are displayed. The selection criteria entered in a search for deliveries that are in process does not influence the length of time this selection takes, for the most part.

In the *List outbound deliveries* and *List inbound deliveries* selection types, the system runs checks of the selection criteria entered and, in some cases, time-consuming search algorithms. You can reduce the search time if you follow these guidelines:

- When selecting outbound deliveries with the *List outbound deliveries* selection type, specify one or more of the following search criteria:

- Ship-to party

- Sold-to party

- Partners that have a delivery index

- Material

- Goods movement status ≠ C (open deliveries)

- Document number

- When selecting inbound deliveries using the *List inbound deliveries* selection type, specify the following:

- Vendor

- External delivery note number

- Document number

Defining Selection Criteria

Defining Selection Criteria

Calling up List Functions

You can call up the delivery monitor with a view of **outbound deliveries** by starting at shipping [Ext.] and choosing *Outbound Delivery → Lists and Logs → Outbound Delivery Monitor*.

You can call up the delivery monitor with a view of **inbound deliveries** by starting at inbound delivery [Ext.] and choosing *Inbound Delivery → Lists → Inbound Delivery Monitor*.

You can find general information about List Viewer functions under ABAP List Viewer [Ext.]. The following table lists functions that are more specialized than and contribute to the general List Viewer functions:

Function	Menu path	What you should know
Header and item views	*List → Header view* or *List → Item view*	There are two types of lists for each processing option: a header view with delivery header information and an item view that contains delivery item information. You can switch back and fourth between these views. The system may need to read the items from the database each time you switch views, which may take a little time.
Display variants	*Settings → Display variant → Administration*	Display variants are maintained separately for header view, item view and for each processing option. Administration of display variants completely corresponds to the list viewer standard and is independent of Customizing. You can also configure user-specific display variants. You can designate one of the display variants as the default variant for the initial screen.
	Settings → Color grouping	In the item view, you can make a setting that gives every other document a different background color, which increases the clarity of this screen. In other words, all items of one document would have the same background color and those in the following document would have a contrasting background. The color grouping is not a part of display variants, but it can be especially helpful if a list is sorted according to document and item numbers.

Calling up List Functions

Displaying units of measure		The data in this list is automatically converted to the same unit of measure, which allows the tool to carry out its total function accurately. If you would like to choose which unit of measure the list appears in, you can enter a unit of measure on the selection screen. See also: Defining Further Selection Criteria [Page 132].
Selecting documents for further processing		Further processing is only triggered if you select at least one delivery or item or if you place the cursor on a document line.
		By using dialog-oriented subsequent functions (*Display outbound deliveries, Change outbound deliveries*, or the functions under *Environment*), you can cancel processing the selected documents after one document or skip an individual document if necessary. See also: Executing Subsequent Processing [Page 141].
Selecting previously processed documents	*Edit → Deselect all*	Documents that were processed previously are marked with a gray background. After the document is successfully or unsuccessfully processed in a subsequent function, the background changes to green or red, respectively.
		You can cancel colored backgrounds and selection check marks with this function.
Refreshing the list		You can refresh the worklist at any time. The new data that is obtained is in accordance with the original selection criteria. Processed documents may disappear from the list as a result of this function.
		When you refresh the list, all selections or markings in the list are deselected.

Double-click		Depending on cursor placement, a double-click can trigger different activities.
		• Double-click on a delivery number: The transaction for changing the delivery appears.
		• Double-click on the number, name or location of the ship-to party, sold-to party, forwarding agent or vendor: A dialog box with the partner's address appears.
		• Double-click on a material number: The material master is displayed.
		• Double-click on a pick order: Pick order is displayed (only for WM pick orders).
		• Double-clicking on all other fields has the same result as choosing the document number.

Functions in the Environment Menu

The following is a short summary of the functions in the *Environment* menu:

Function	What you should know
Display originals	The *Display originals* function displays the archived originals of the selected delivery documents (the IDoc linked to the delivery document, for example).
Display document status	The **document status** shows the current status of the selected deliveries or items. The item status appears in an item list; otherwise the header status is displayed.
Document flow	The **document flow** displays the header or item document flow, depending on the kind of list you were in when you chose this command.
Material master	The *Material master* function displays the material master for the materials in each delivery you selected. This function is only available in item lists. It is not active in the header view.
Customer master data	The *Customer master data* function (valid only for outbound deliveries) takes you to the change mode of the customer master for the customers in the documents you have selected. *Vendor master data* is the corresponding function for inbound deliveries.

Calling up List Functions

Assigned groups	You can use the *Assigned groups* function (only for outbound deliveries) to display the groups of deliveries that correspond to the outbound deliveries that are selected. You can display the group by double-clicking on the line that contains the group number. When you return to the original list of outbound deliveries, the selected deliveries that belong to a group now appear highlighted in color.

Lists for different types of selections

Generally, the lists for various selection types have a similar structure. There are two exceptions, however:

- For the (outbound or inbound deliveries) *For confirmatn* selection type, pick orders or putaway orders are also included. The *Subsequent functions → Confirm picking or putaway* function is only active in this selection type for that reason. Since more than one delivery item can be in one order, and vice versa (there can be more than one order per delivery item) the structure of the list varies. In the header view, you can see only one entry per delivery document number and order. In the item view, there is a delivery item, order and entry per delivery document number. Only delivery items for picking or putaway orders that must be confirmed are selected.

- There is a two-level list in the *For picking* processing type. On the first level, you find the labor required per shipping point and picking date and the details lists for each worklist. If you double-click on the daily workload line (marked in violet), a **single list** appears. You can select the deliveries or delivery items by going to the single list and then returning to the overview list.

Carrying out Subsequent Processing

Use

Some subsequent processing functions call up other transactions in the batch input procedure. By choosing *Settings → Subsequent functions*, you can define whether subsequent processing should be carried out in the foreground, background, or foreground only when errors occur.

All functions except for confirmation are available in all selection types, which allows the individual scenarios for processing deliveries to run smoothly.

Depending on the selection type, you may also be able to call up the most important subsequent functions using the F6, F7 and F8 function keys.

Procedure

Function	Menu path	Note
Creating a group	*Subsequent functions → Group → Create*	The selected deliveries are combined into a group, either with or without WM reference
	Subsequent functions → Group → Create with WM reference	Specify the group type (the system presents a default which is dependent on the selection type). Then, you can enter a descriptive text. If you create a group in WM, you must also enter the warehouse number. The group is created when you press ENTER.
		If the grouping was successful, the processed deliveries appear green; if errors occurred, they appear red.
		If group output processing is available for the group type you chose, the system requires an exclusive lock for the deliveries involved. This way, it can make sure that none of the deliveries are currently being processed (otherwise, picking lists cannot refresh the delivery properly). This may be the explanation if a message appears stating that the deliveries in question cannot be locked.

Carrying out Subsequent Processing

Creating a wave pick	*Subsequent functions → Group → Wave pick*	A wave pick is created for the selected deliveries. After choosing this function, you can enter a descriptive text. The wave pick is created when you press ENTER. If the wave pick cannot be created, the system either issues an error message or goes to the transaction for displaying collective processing logs.
Creating transfer orders	*Subsequent functions → Create transfer order*	This function is available for both inbound and outbound deliveries.
		If you have set subsequent processing to *Background* or *Foreground for error*, you can enter the initial screen parameters of the transaction for creating a transfer order:
		• If you choose *Select items*, all items of the transfer order that you are creating are flagged for further processing.
		• By choosing *Adopt pick quantity* (outbound deliveries), you control whether you want the pick quantity to be copied into the delivery and whether goods issue should be posted immediately after picking.
		• Similarly, the *Adopt putaway quantity* function (inbound deliveries) controls whether the putaway quantity is to be copied into the delivery quantity and whether goods receipt should be posted immediately.
		If the transfer order creation was successful, the processed deliveries appear green; if errors occurred, they appear red. Deliveries that are not relevant for processing in WM appear dark gray.
		The system needs the delivery item information in order to create transfer orders. If necessary, the delivery items must first be read and added to the system information (by switching to the item view of the list).

Confirmation	*Subsequent functions → Confirm picking* *Subsequent functions → Confirm putaway*	This function is only available on the *Outbound Deliveries for Confirmation* and *Inbound Deliveries for Confirmation* screens, since the picking or putaway entries that can be confirmed are only included here. As with creation of a transfer order, the color of the confirmation indicates its status. If you have set processing of subsequent functions to background mode, you can specify whether the picking or putaway quantity should be copied into the delivery quantity or whether you want to post goods issue/goods receipt immediately following confirmation.
Post goods issue (outbound deliveries only)	*Subsequent functions → Post goods issue*	You can set the actual goods movement date. If the goods issue posting was successful, the processed deliveries appear green; if errors occurred, they appear red. The delivery also appears in green if goods issue was already posted for the delivery in question (because the same delivery was accidentally selected twice, for example).
Post goods receipt (inbound deliveries only)	*Subsequent functions → Post goods receipt*	The procedure is similar to posting goods issue. You can set the actual goods receipt date.
Create billing document (outbound deliveries only)	*Subsequent functions → Create billing document*	Individual billing documents are created for the selected deliveries, one after another. The documents are not combined like they are in collective processing for billing documents.

Carrying out Subsequent Processing

Output processing	*Subsequent functions* → *Delivery output* *Subsequent functions* → *Picking output* *Subsequent functions* → *Group output* *Settings* → *Color grouping*	You can define a default for the output that is to be processed on the initial screen. Unless specified otherwise, the given output type is processed when you carry out the subsequent functions of delivery output, picking output or group output for the selected deliveries. You can define the processing mode (first, repeat, or error processing) before group or delivery outputs are carried out. To change your output selection, choose *Settings* → *Output selection*. You can choose the outputs you want to process for each output category. The outputs you select are copied into the list when you choose *Back* or *Exit*.

Background processing

You can use some of the delivery monitor components for collective background processing of large quantities of documents. To do so, enter a selection variant for the report and then schedule it for background processing.

You can also initiate background processing directly from the report's selection screen. Enter your selection criteria and parameters and choose *Program* → *Output in background*. You can then set the spool parameters and schedule background processing in the dialog box that appears.

Background processing triggers subsequent processing for all documents selected, but it does not issue lists. When processing is complete, a list of documents and their processing status (successful or with errors) appears in the spool.

- Report WS_MONITOR_OUTB_DEL_GDSI is for goods issue posting for all documents that were selected. The actual goods issue date can be set using the appropriate field on the selection screen. You can also schedule this report as a job using *Shipping* → *Goods issue* → *Collective batch processing* (See also: Posting Goods issue with Collective Processing [Ext.]).

- Report WS_MONITOR_OUTB_DEL_PICK is for creating WM transfer orders. You can specify the parameters for creating transfer orders (*Select items* and *Adopt pick quantity*) on the *Control background processing* section of the selection screen.

- Report WS_MONITOR_OUTB_DEL_CONF is for confirming picking orders. You can set the *Adopt pick quantity* parameter in the selection screen (see previous point).

- Report WS_MONITOR_OUTB_DEL_FREE is for processing individual outputs and picking outputs (such as delivery notes or picking lists). All output types specified on the selection screen that appears under *Output selection* are then processed for the selected deliveries. For technical reasons, this type of background processing only results in a message informing you which documents were processed, but does not include whether they were processed successfully.