

# Engineering Workbench (PP-BD)



HELP.PPBDEWB

Release 4.6C



## Copyright

© Copyright 2001 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft<sup>®</sup>, WINDOWS<sup>®</sup>, NT<sup>®</sup>, EXCEL<sup>®</sup>, Word<sup>®</sup>, PowerPoint<sup>®</sup> and SQL Server<sup>®</sup> are registered trademarks of Microsoft Corporation.

IBM<sup>®</sup>, DB2<sup>®</sup>, OS/2<sup>®</sup>, DB2/6000<sup>®</sup>, Parallel Sysplex<sup>®</sup>, MVS/ESA<sup>®</sup>, RS/6000<sup>®</sup>, AIX<sup>®</sup>, S/390<sup>®</sup>, AS/400<sup>®</sup>, OS/390<sup>®</sup>, and OS/400<sup>®</sup> are registered trademarks of IBM Corporation.

ORACLE<sup>®</sup> is a registered trademark of ORACLE Corporation.

INFORMIX<sup>®</sup>-OnLine for SAP and Informix<sup>®</sup> Dynamic Server<sup>™</sup> are registered trademarks of Informix Software Incorporated.

UNIX<sup>®</sup>, X/Open<sup>®</sup>, OSF/1<sup>®</sup>, and Motif<sup>®</sup> are registered trademarks of the Open Group.

HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C<sup>®</sup>, World Wide Web Consortium, Massachusetts Institute of Technology.

JAVA<sup>®</sup> is a registered trademark of Sun Microsystems, Inc.

JAVASCRIPT<sup>®</sup> is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

SAP, SAP Logo, R/2, RIVA, R/3, ABAP, SAP ArchiveLink, SAP Business Workflow, WebFlow, SAP EarlyWatch, BAPI, SAPPHIRE, Management Cockpit, mySAP.com Logo and mySAP.com are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other products mentioned are trademarks or registered trademarks of their respective companies.

## Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax
	Tip

## Contents

<b>Engineering Workbench (PP-BD)</b> .....	<b>9</b>
<b>Working with the Engineering Workbench</b> .....	<b>10</b>
<b>Object (Engineering Workbench)</b> .....	<b>11</b>
<b>Object Type (Engineering Workbench)</b> .....	<b>12</b>
<b>Worklist</b> .....	<b>14</b>
<b>Worklist Selection</b> .....	<b>15</b>
Working Area.....	17
Example: Working Area.....	18
Define Current Working Area .....	20
Defining a Default Working Area .....	21
Displaying Working Area Details .....	22
Selection Range .....	23
Selecting a Worklist .....	25
Using More Selection Criteria.....	27
Reusing Selection Criteria.....	28
Creating a Selection Variant .....	29
Deleting a Selection Variant.....	30
Getting a Selection Variant.....	31
Defining a Default Selection Variant .....	32
Canceling a Default Selection Variant.....	33
Focus Objects and Environment Objects.....	34
Example: Focus Objects and Environment Objects.....	35
Focus Object Selection.....	36
Example: Focus Object Selection .....	38
Environment Objects (Focus Header).....	40
Example: Environment Objects (Focus Header).....	42
Environment Object Selection (Focus Operation).....	44
Example: Environment Objects (Focus Operation).....	46
Environment Object Selection (Focus BOM Header).....	49
Example: Environment Objects (Focus BOM Header) .....	51
Environment Object Selection (Focus Item).....	54
Example: Environment Object Selection (Focus Item) .....	56
<b>Navigation in the Engineering Workbench</b> .....	<b>59</b>
Cockpit.....	61
Entering a Key Date .....	64
Entering Change Numbers .....	65
Validity Window .....	66
Example: Validity Window.....	68
Changing the Validity Window in the Options Dialog Box .....	71
Changing the Validity Window in the Cockpit .....	72
Setting the Validity Window Automatically .....	73
Context .....	74
Example: Context.....	75

Overview.....	76
Detail Screen.....	78
Navigation without using Selection.....	79
Navigating Without Selections .....	80
Navigation using Selection .....	83
Selections on a Single Hierarchical Level .....	84
Selections On Multiple Hierarchical Levels .....	87
<b>Editing Objects .....</b>	<b>90</b>
Selecting Objects.....	91
Filtering Objects.....	92
Setting a Filter in the Context.....	93
Canceling a Filter in the Context.....	94
Filtering for User-Defined Attributes.....	95
Object Creation.....	96
Creating Objects.....	97
Changing an Object.....	98
Changing Objects.....	99
Object Copying.....	100
Copy an Object.....	101
Multi-Level Copying of Objects.....	102
Example: Copying Including Subordinate Objects.....	105
Example: Copying Including Component Assignments .....	108
Copy Range .....	114
Editing the Copy Range .....	115
Make a Multi-Level Copy of an Object .....	116
Object Deletion .....	118
Deleting Objects .....	119
Printing Objects .....	120
Making List Printouts.....	122
Printing via Microsoft Word .....	123
<b>Object Editing in the Object Browser .....</b>	<b>124</b>
Calling up the Overview for an Object (Object Browser).....	127
Calling up the Detail Screen for a Change Status (OB).....	128
Finding Objects (Object Browser) .....	129
Hit List (Object Browser).....	130
Displaying Subordinate Objects (Object Browser) .....	131
Changing Change Statuses (Object Browser) .....	132
Make a Multi-Level Copy of an Object (Object Browser) .....	133
Deleting Objects (Object Browser).....	134
<b>Digital Mock-Up Viewing .....</b>	<b>135</b>
Converting Assemblies.....	138
Displaying 3D Models of Assemblies .....	140
Highlighting Components .....	142
Optimizing Performance.....	143
Displaying the Entire Drawing for an Assembly .....	144
Redlining in the Engineering Workbench .....	145
Viewer for Displaying Original Application Files .....	146
Function Overview of the Viewer .....	150
List of Viewing Formats.....	153

Display Original Application File with the Viewer .....	155
Redlining for Original Application Files .....	158
Redlining Function Bar .....	161
Maintaining Layers for 2D Files .....	164
Creating Redlining Files for 3D Models .....	167
Executing Redlining Functions.....	168
Dimensioning 2D Files .....	169
Calibrate .....	172
<b>Editing Routing Objects.....</b>	<b>173</b>
Creating a Task List Header.....	174
Editing Operations and Sub-Operations.....	175
Create an Operation.....	176
Creating a Sub-Operation .....	177
Changing an Operation or Sub-Operation .....	178
Copying an Operation .....	179
Multi-Level Copying of Operations .....	180
Deleting an Operation or Sub-Operation.....	182
Referencing a Ref. Operation Set or Ref. Rate Routing.....	183
Work Center Operation Set.....	184
Example: Use of a Work Center Operation Set .....	185
Creating a Work Center Operation Set.....	186
Referencing a Work Center Operation Set .....	188
Cumulating Standard Values .....	189
Example: Cumulation of Standard Values .....	190
Operation/Sub-Operation Mass-Changes.....	192
Mass-Changing Operations and Sub-Operations.....	193
Example: Updating Mass Changes.....	194
De/Activating Mass Change Updates .....	196
<b>BOM Object Editing .....</b>	<b>197</b>
Creating a BOM Header .....	198
Changing a BOM Header .....	199
Copying a BOM Header .....	200
Making a Multi-Level Copy of a BOM Header .....	201
Processing Items .....	202
Group Maintenance.....	203
Deactivating Group Maintenance.....	205
Creating Items.....	206
Creating an Item (Group Maintenance).....	208
Creating an Assignment to an Item (Group Maintenance).....	210
Deleting an Assignment to an Item (Group Maintenance).....	211
Changing an Item.....	212
Copying an Item .....	213
Copying an Item (Group Maintenance).....	214
Deleting an Item .....	216
Processing Sub-Items .....	217
Creating a Sub-Item.....	218

Changing a Subitem .....	220
Deleting a Subitem.....	221
Deleting a Subitem (Group Maintenance).....	222
<b>Editing Component Assignments .....</b>	<b>224</b>
Calling up the Component Assignments Overview .....	226
Defining Settings for BOM Explosions .....	227
Displaying Component Assignments.....	228
Displaying Phantom Assemblies .....	229
Assigning Items .....	230
Assigning Operations .....	231
<b>Working with Change Statuses (Date Validity).....</b>	<b>232</b>
Change Status with Date Validity .....	234
Change Status Selection with Date Validity .....	235
Filling your Worklist with Focus Objects (Date Validity).....	236
Filling your Worklist with Environment Objects (Date Effectivity).....	238
Example: Selecting Change Statuses with Date Validity .....	239
Step 1: Change Master Records with Date Validity.....	240
Step 2: Objects in the Database .....	241
Step 3: Working Area .....	244
Step 4: Selection Criteria .....	245
Step 5: Focus Objects.....	246
Step 6: Focus Objects and Selection Period .....	249
Step 7: Environment Objects .....	250
Step 8: Environment Objects and Selection Period.....	253
Selecting Change Statuses with Date Validity .....	254
Creating a Change Status with Date Validity .....	255
Example: Creating a Change Status with Date Validity .....	256
Changing a Change Status with Date Validity.....	259
Example: Changing a Change Status with Date Validity .....	260
Overwriting a Change Status which has Date Validity .....	264
Example: Overwriting a Change Status with Date Validity .....	265
Deleting a Change Status with Date Validity.....	268
Example: Deleting a Change Status with Date Validity .....	269
<b>Working with Change Statuses (Parameter Effectivity) .....</b>	<b>272</b>
Effectivity Parameters.....	274
Example: Effectivity Parameters .....	275
Effectivity Type .....	277
Example: Effectivity Type .....	278
Change Status Selection with Parameter Effectivity .....	280
Filling your Worklist with Focus Objects (Parameter Effectivity).....	281
Filling your Worklist with Environment Objects (Parameter Effectivity) .....	283
Example: Selecting Change Statuses with Parameter Effectivity .....	284
Step 1: Change Master Records with Parameter Effectivity.....	285
Step 2: Objects in the Database .....	286
Step 3: Working Area .....	288
Step 4: Selection Criteria .....	289
Step 5: Selection Parameter Variant.....	290

Step 6: Focus Objects.....	291
Step 7: Environment Objects .....	294
Selecting Change Statuses with Parameter Effectivity .....	296
Displaying Change Statuses with Parameter Effectivity .....	297
Entering a Display Parameter Variant.....	298
Canceling Display Parameter Variants .....	300
Creating a Change Status with Parameter Effectivity .....	301
Example: Creating a Change Status with Parameter Effectivity .....	302
Changing a Change Status with Parameter Effectivity .....	306
Example: Changing a Change Status with Parameter Effectivity .....	307
Setting Deletion Indicators for Change Statuses with Parameter Effectivity.....	311
Example: Setting Deletion Indicator for Change Status with Parameter Effectivity.....	312

## Engineering Workbench (PP-BD)

### Purpose

The *Engineering Workbench* is an environment for maintaining product structures and operations. Its capabilities far exceed those of the conventional maintenance of bills of material and routings.

The most important objects in the *Engineering Workbench* are BOM items and operations. Views of these objects are available that present the conventional structures of bills of material and routings. In addition to this, other views are now available that were previously not possible. All of the maintenance functions, such as *Create*, *Change* and *Delete* are supported on all of these views.

### Features

#### Integrated Processing

You no longer have to maintain routings and bills of material separately. You can simply select those object types in the *Engineering Workbench* with which you want to work, for instance *Material*, *Production resource/tool*, *Operation* etc. You summarize this selection in a **working area**. For instance the design and production departments both have special requirements and therefore each has its own special working area.

#### Complex Selection Criteria

You can select any object in your working area by its attributes. You can combine all the selections logically.

#### Simultaneous Processing

Any items from any bills of material can be processed by different people at the same time. The same applies for various operations in a routing. If you want to edit a BOM item (operation) that is being edited by somebody else, the *Engineering Workbench* tells you who is doing so, so that you can contact him to coordinate the changes. The other user can release the BOM item (operation) for you without having to interrupt his work.

#### User Support

You change or delete the objects you have selected within the *Engineering Workbench*. You can also create or copy new objects. You execute all of these functions from a uniform user interface. You can save intermediate results, without interrupting your work in the *Engineering Workbench*. This means that you can execute complex tasks efficiently.

## Working with the Engineering Workbench

### Purpose

This process describes how you work with the *Engineering Workbench*

### Process Flow

1. You select the [working area \[Ext.\]](#) in which you want to work.  
Your selection of a suitable working area ensures that you see exactly the information that interests you in the *Engineering Workbench*. This gives a better overview of your objects and you can work faster.
2. You enter selection criteria to define which [objects \[Ext.\]](#) you want to display or process in the *Engineering Workbench*.
3. The system copies the objects from the database to your [worklist \[Ext.\]](#).
4. You process the objects in your worklist. Objects that you create in the *Engineering Workbench* are also transferred to the worklist.
5. You save your worklist.

### Result

The system writes the new and changed objects to the database.

## Object (Engineering Workbench)

### Definition

Part of a routing or a BOM that you are processing in the *Engineering Workbench*. An object can also be an assignment of one of the above object to another

Examples are:

- The **header** of the routing *Assembly model 1*
- The **operation** *Assemble bodywork*
- The **PRT** *Sandpaper 09*
- The **BOM header** of the BOM *Model 1*
- The **item** *Engine hood*

Examples of assignment objects are:

- A **material-routing assignment**, for instance, the header *Assembly model 1* to material *Model 1*
- A **component assignment**, for instance the item *Engine hood* to the operation *Assemble bodywork*.

### Structure

#### Validity

Each object has [date effectivity \[Ext.\]](#) and possibly [parameter effectivity \[Ext.\]](#). The date validity of an object is from its **valid-from date** to its **valid-to date**.

#### Hierarchy

Objects can have hierarchical relationships. For instance, the header of a BOM is at a higher level than one of the items in this BOM. Which hierarchical relationships an object can have, depends on its [object type \[Ext.\]](#).

---

**Object Type (Engineering Workbench)**

## Object Type (Engineering Workbench)

### Definition

Type of object that you are processing in the *Engineering Workbench*.

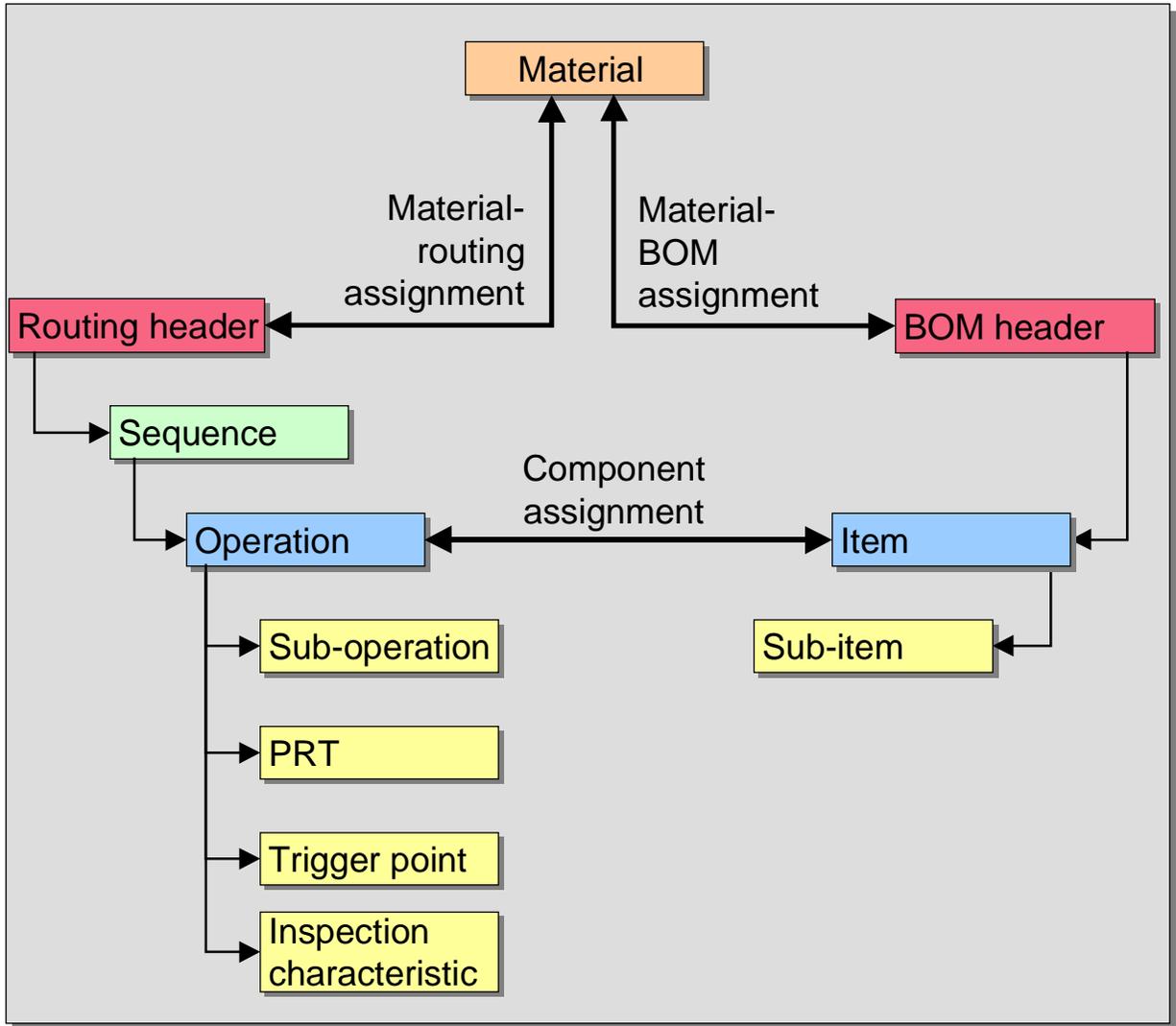
### Structure

The object types that you process in the *Engineering Workbench* can be arranged in hierarchies. For instance object type *BOM header* is above object type *Item* in the hierarchy (see graphic).

Object types in the *Engineering Workbench* can be divided into:

- Routing object types
  - which are *header*, *sequence*, *operation*, *sub-operation*, *trigger point*, *inspection characteristic* and *dependent characteristic specifications*. These object types are arranged hierarchically (see thin arrow in graphic).
- BOM object types
  - which are BOM header, item and sub-item. These object types are also arranged hierarchically (see thick arrow in graphic).
- Assignment object types
  - which are *material-routing assignment*, *material-BOM assignment* and *component assignment* (see thick arrow in graphic).
- Other object types
  - which are, *classification* and *object dependencies* (not in the graphic) and also material.

### Object types in the Engineering Workbench



---

## Worklist

## Worklist

### Definition

Contains all the objects you have selected to display or process in the *Engineering Workbench*. Objects that you have created in the *Engineering Workbench* also belong to the worklist.

### Use

In order for an object to be displayed or processed in the *Engineering Workbench*, it has to be copied by the system from the database to the worklist. You can only change or delete objects in the *Engineering Workbench*, if they are in the worklist. When you save the worklist, the changes are made in the database.

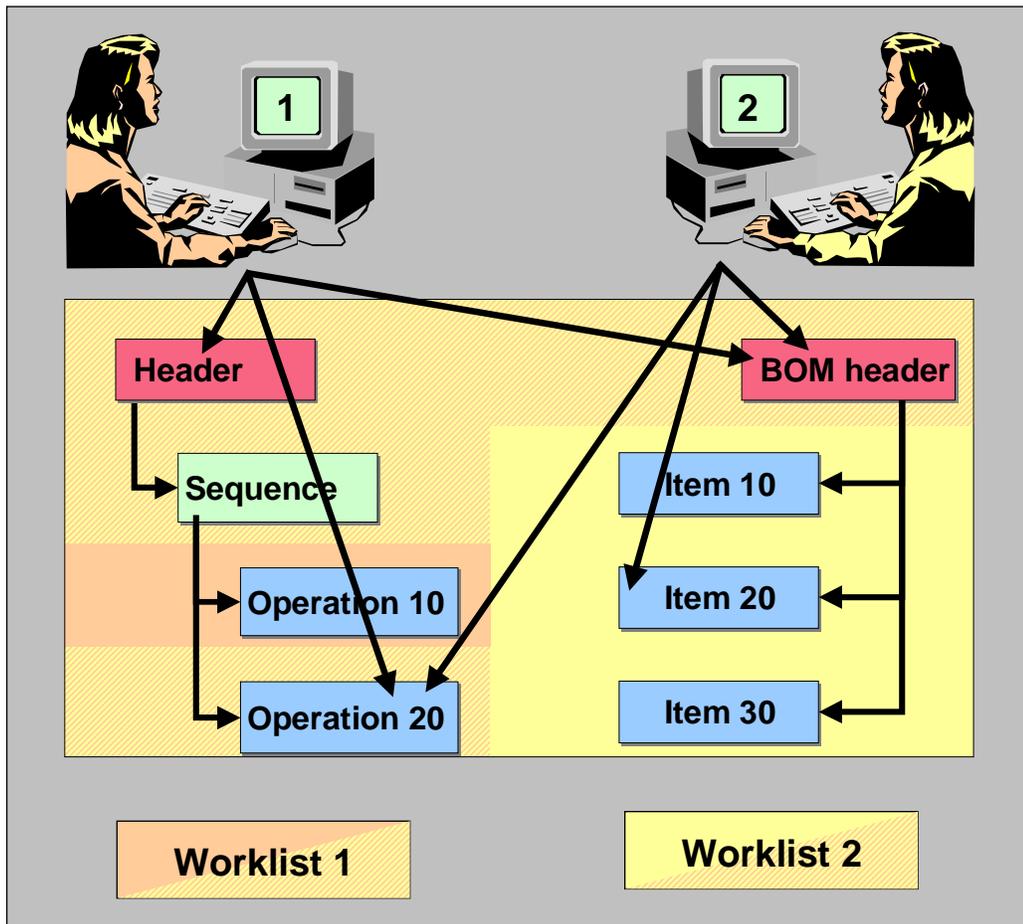
By suitably specifying the [working area \[Ext.\]](#), the [selection range \[Ext.\]](#) and the selection criteria, you can fill your worklist with exactly those objects that interest you. This gives a better overview of your objects and you can work faster.

## Worklist Selection

### Purpose

This process is the first step in the *Engineering Workbench*. You select your worklist, by determining which objects you want to display and process in the *Engineering Workbench*. You can choose your worklist, so that it contains exactly those objects you are interested in. This makes working with the *Engineering Workbench* faster and more efficient.

#### Two Worklists in the *Engineering Workbench*



### Prerequisites

The [working area \[Ext.\]](#) that you are using has to be created in Customizing

### Process flow

1. Choose your working area.

## Worklist Selection

You use the working area to adapt the *Engineering Workbench* to the current tasks. The objects that the system copies to the worklist then always belong to those object types that interest you.

2. You specify with which [selection range \[Ext.\]](#) you want to work.

Objects that are not within the selection range are not copied to the worklist.

3. You enter selection criteria, to select the [focus objects \[Ext.\]](#) in your worklist. All the relevant selection criteria for each object type are available in the *Engineering Workbench*. You can combine as many selection criteria as you like.

4. The system copies the focus object you have selected as well as the [environment objects \[Ext.\]](#) to the worklist.

## Result

You can now display and process your worklist objects in the *Engineering Workbench*.

## Working Area

### Definition

The object types that you want to display and process in the *Engineering Workbench*. One of these object types is the [focus \[Ext.\]](#) of the working area, the others form the [working environment \[Ext.\]](#).

### Use

By selecting a suitable working area, you can adapt the *Engineering Workbench* to a particular task. Such tasks could be, for example:

- Creating a BOM for design purposes
- Processing component assignments that have been created by a particular department.

### Structure

A working area consists of its focus and the working environment. The focus is the object type that you use for selection. The other object types that you want to display and process form the working environment

### Focus

Only object types *routing header*, *operation*, *BOM* or *item* can be used as a focus of a working area.

### Working Environment

You can include any object types from the *Engineering Workbench* in the working environment. However, certain object types can only be included in the working area in conjunction with other object types. If necessary, the system copies these object types to the working environment automatically.



If you choose the *operation* object type as the focus of your worklist, then the system copies the *header* and *sequence* object types to the working environment automatically.



If you copy the *operation* and *item* object types to your working environment, the system also copies the *component assignment* object type to the working environment.

For further information, refer to the implementation guide (IMG) of the *Engineering Workbench*, under *Edit working areas*.

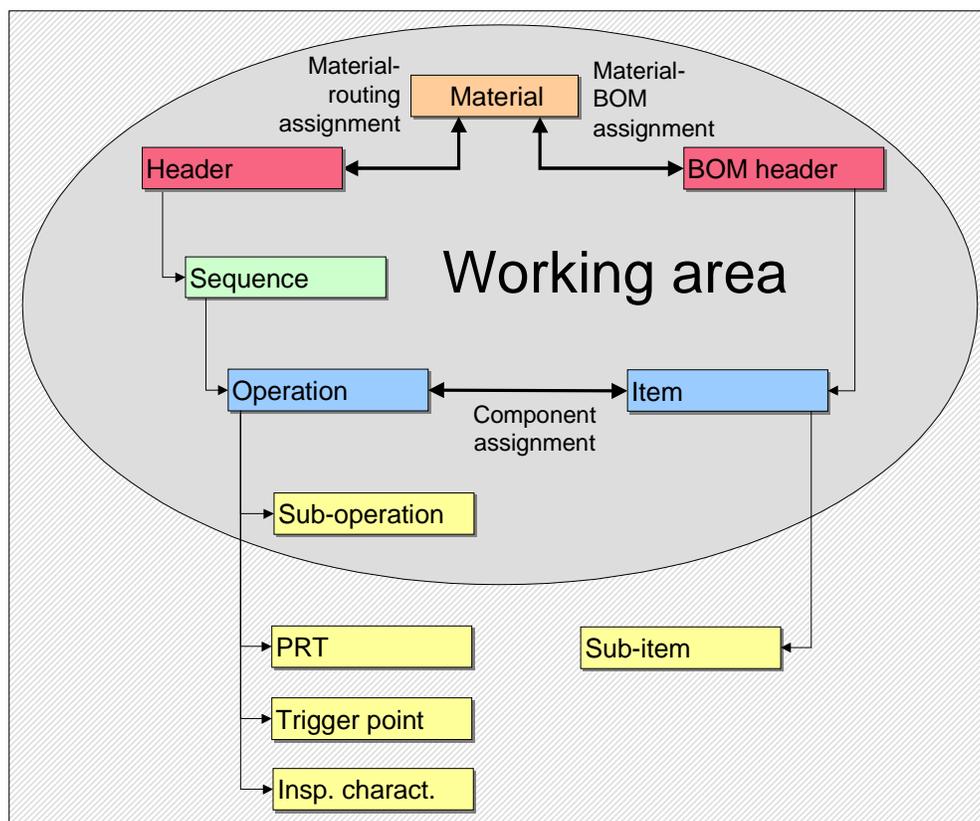
## Example: Working Area

## Example: Working Area

Your [working area \[Ext.\]](#) (dark gray area in graphic 1) contains the object types *material*, *material-routing assignment*, *routing header*, *sequence*, *operation*, *sub-operation*, *material-BOM assignment*, *BOM header*, *item* and *component assignment*.

The *PRT*, *trigger point*, *inspection characteristic* and *sub-item* object types are not contained in the working area (the gray patterned area in graphic 1). As a result the system does not, for example, copy any sub-items into your worklist.

Graphic 1: Working Area

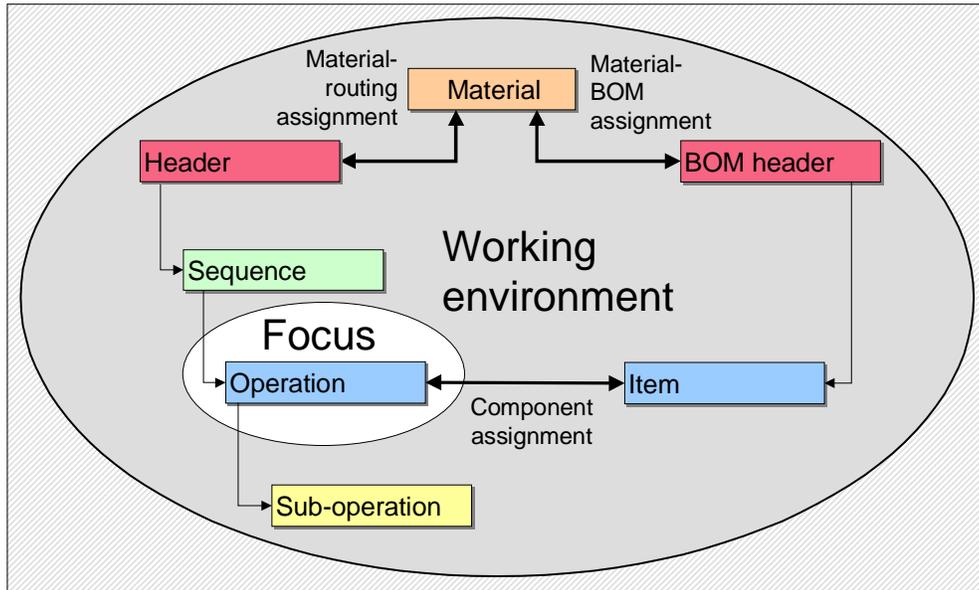


The working area is comprised of

- The [focus \[Ext.\]](#) (white area in graphic 2) and
- The [working environment \[Ext.\]](#) (dark gray area in graphic 2).

In the case of graphic 2, the *operation* object type was chosen as the focus. The remaining object types in the working area make up the working environment.

Graphic 2: Working Environment and Focus



---

**Define Current Working Area**

## Define Current Working Area

### Prerequisites

You are authorized to work in one or more working areas in the *Engineering Workbench*. These working areas have been created in Customizing for the *Engineering Workbench* by your system administrator.

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen and click .  
The *EWB: Select working area* dialog box appears.
2. Enter a working area in the *Current working area* field. If you want information about the [focus \[Ext.\]](#) and [working environment \[Ext.\]](#) of your working area and want to specify its selection options, click . You can find further information on working area details in [Display Working Area Details \[Page 22\]](#).
3. Click .

### Result

You go back to the *EWB: Selection criteria for <focus of your newly selected working area>* screen. The tab pages that are available depend on the focus and working environment of the newly selected working area and on the settings made in the working area details.

## Defining a Default Working Area

### Prerequisites

You are authorized to work in one or more working areas in the *Engineering Workbench*. These working areas have been created in Customizing for the *Engineering Workbench* by your system administrator.

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen and click .  
The *Select working area* dialog box appears.
2. In the *EWB: Current working area* field enter a working area and click .

### Result

The system adopts the current working area as the [default working area \[Ext.\]](#). The next time you work in the *Engineering Workbench*, the system will use the default working area automatically.

## Displaying Working Area Details

## Displaying Working Area Details

### Prerequisites

You are authorized to work in one or more working areas in the *Engineering Workbench*. These working areas have been created in Customizing for the *Engineering Workbench* by your system administrator.

### Procedure

3. Go to the *EWB: Selection criteria for <focus of your working area>* screen and click .

The *EWB: Select working area* dialog box appears.

4. Enter the working area in the *EWB: Current working area* field that you want to display the details of and click .

The *Working area details* dialog box appears. The *Focus* screen section displays the working area [focus \[Ext.\]](#). The *Contained in working area* screen section displays the object types in the working area, this means those in the focus and working environment.



If you cannot change the focus and working environment choose another working area if necessary or contact your system administrator.

3. On the *Available as selection criteria* screen section specify for which object types the system should display tab pages on the *EWB: Selection criteria for <focus of your working area>* screen.



You cannot enter any selection criteria for object types that you have not selected.

## Selection Range

### Definition

Defines what validity an object has to have, to be copied to the worklist.

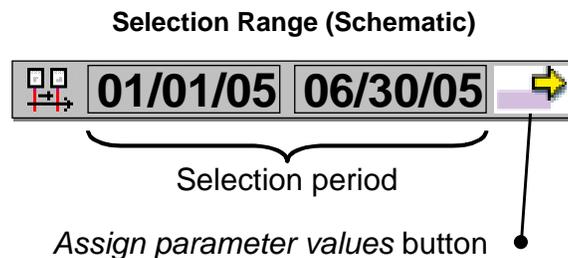
### Use

By choosing a suitable selection range, you make sure that all the objects in the worklist have the relevant validity.

### Structure

The selection range is comprised of

- The selection period
- Possibly an assignment of effectivity parameter values



### Selection Period

You enter the selection period when you select your worklist. An object is only copied from the database to the worklist, if it valid on at least one day in the selection period. If an object has more than one [change status \[Ext.\]](#), only those change statuses are copied to the worklist, which are valid on at least one day in the selection period.



If the objects that you are processing have no parameter effectivity, only the selection period in the selection range is relevant for you.

If objects have no parameter effectivity, it means that they are never processed using change numbers, or the change numbers they are processed using, have no parameter effectivity.

### Assigning Values to Effectivity Parameters

You only assign effectivity parameter values if your organization uses parameter effectivity. You can find further information on this topic in [Working with change statuses \(parameter effectivity\) \[Page 272\]](#)

Selection Range

## Selecting a Worklist

### Prerequisites

You are authorized to work in one or more working areas in the *Engineering Workbench*. These working areas have been created in Customizing for the *Engineering Workbench* by your system administrator.

### Procedure

1. Call up the *Engineering Workbench*.

Which screen then appears depends on whether you defined a [default working area \[Ext.\]](#) during a previous session in the *Engineering Workbench*.

If you

- Have not yet defined a default working area, the *EWB: Select Working Area* dialog box appears. Continue with Step 3.
- Have defined a default working area, the *EWB: Selection Criteria for <focus of your default working area>* screen appears. For example, if the [focus \[Ext.\]](#) of your working area is *Item*, the *EWB: Selection Criteria for Items* screen appears. Continue with Step 3.

2. If you want to work in your default working area, continue with step 6. Otherwise click .

The *EWB: Select working area* dialog box appears.

3. In the *Current working area field*, enter the working area in which you want to work.
4. If you want to display the focus and working environment of your working area, proceed as follows:

- a. Click .

The *EWB: Working area details* dialog box appears.

- b. Click  to leave the dialog box.

5. Click .

The *EWB: Selection criteria for <focus of your working area>* screen appears.

6. Enter the selection period in the *Selection range* screen section.

Next to the selection period you can also enter a parameter variant in this screen section. However, this is only of relevance to you if your organization uses parameter effectivity. You can find further information on this topic in [Working with change statuses \(parameter effectivity\) \[Page 272\]](#)

7. Enter selection criteria on the tab pages.

8. If you want to enter more selection criteria, click .

You can find further information on this topic in [Using More Selection Criteria \[Page 27\]](#).

9. Click .



## Selecting a Worklist

From the selection screen you can go immediately to any overview in the *Engineering Workbench*. For example, to go straight to the *Operations* overview, choose *Task lists* → *Operations*. To go to the *Item dependencies* overview, choose *Bills of material* → *Object dependencies* → *Items*.

## Result

The system copies the focus objects you selected and the environment objects to your worklist.

The <focus of your working area> *EWB: Overview* screen appears.

You can now display and process your worklist objects on the overview and detail screens in the *Engineering Workbench*.

## Using More Selection Criteria

### Use

You use this procedure to enter selection criteria in fields that are not on the tab pages on the *Additional Selection Criteria* in the *EWB: Selection criteria for <focus of your working area>* screen. You also use this procedure if you want to select generically, for multiple single values or for interval values.



You want to select for all headers, whose group begins with "A" (generic search) and which were created by a particular user (a *User* field is not included due to lack of space).

### Procedure



To ensure that all possible selection criteria that was entered and saved the last time the *Engineering Workbench* was called up, is deleted, click .

1. On the *EWB: Selection Criteria for <focus of your working area>* screen go to the tab page for the object type you want to enter more selection criteria for. For example, if you want to enter more selection criteria for task list headers, go to the *Task list header* tab page.

2. Click  with the *Additional selection criteria* quick info.

The *EWB: Additional selection criteria* dialog box appears. A short description is displayed for each field that exists for an object type in the R/3 System.

3. Select the fields you want to enter more selection criteria for and choose *Transfer selected*.

The system opens the *Selection criteria* screen section.

4. Enter one single value or interval value per field. You can use wildcard characters to search generically (for example, enter **A\***, to find all character strings, which begin with A).



You can select for several single values or intervals. You can also exclude one or more single values or intervals from the selection. In the *Selection criteria* screen section select *multiple selections*.

5. Save your data.

### Result

The *EWB: Selection criteria for <focus of your working area>* screen reappears. The  symbol indicates that you have entered more selection criteria by changing color to .

You can go to other tab pages if need be, to enter selection criteria (and more selection criteria if necessary) for further object types.

## Reusing Selection Criteria

# Reusing Selection Criteria

## Use

You use [selection variants \[Ext.\]](#) and [default selection variants \[Ext.\]](#) to make entering selection criteria easier.

You save selection criteria you want to reuse, as a selection variant. Doing this saves you having to enter the selection criteria a second time. You then just have to enter the name of the saved selection variant.

You save a selection variant, you want the system to use automatically when you enter the *Engineering Workbench*, as a default selection variant. This saves you having to enter a selection variant or individual criteria every time you enter the *Engineering Workbench*.

## Features

If you access the *Engineering Workbench* and have

- **Not** specified a default selection variant  
The system automatically proposes the selection criteria you entered the last time you selected your worklist.
- Specified a default selection variant  
The system automatically proposes the selection criteria in the default selection variant.

Before you select your worklist, you can change the proposed criteria or replace them with the criteria in a different selection variant.



The selection variants the system creates are user-specific, which means you can use all selection variants that you yourself created. You cannot, however, use selection variants that have been created by other users.

## Creating a Selection Variant

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen.
2. Enter the selection criteria you want to re-use.
3. Click .  
The *EWB: Choose Selection Variant* dialog box appears.
4. Click .  
The *EWB: Create Selection Variant* dialog box appears.
5. Enter a name and, if required, a description for the selection variant.
6. Click .

### Result

The selection variant is created.

---

**Deleting a Selection Variant**

## Deleting a Selection Variant

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen.
2. Click .  
The *EWB: Select Selection Variant* dialog box appears.
3. In the *Selection variant* field, enter the name of the selection variant you want to delete.
4. Click .

### Result

The selection variant is deleted.

## Getting a Selection Variant

### Prerequisites

You have already created one or more selection variants.

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen.
2. Click .

The *EWB: Choose Selection Variant* dialog box appears.

3. In the *Selection variant* field, enter the selection variant whose selection criteria you want to use and then click .

### Result

You return to the *EWB: Selection criteria for <focus of your working area>* screen. The selection criteria in the selection variant are displayed. If you need to, you can change the selection criteria before you select your worklist.

---

**Defining a Default Selection Variant**

## Defining a Default Selection Variant

### Procedure

1. Go to the *EWB: Selection criteria for <focus of your working area>* screen.
2. Click .  
The *EWB: Choose Selection Variant* dialog box appears.
3. In the *Selection variant* field, enter the selection variant you want to use as the default selection variant.
4. Click .

### Result

The system saves the selection variant as the default selection variant. In future, when you enter the *Engineering Workbench*, the system automatically uses the default selection variant.

## Canceling a Default Selection Variant

### Procedure

1. Go to the *Selection criteria for <focus of your working area>* screen.
2. Click .  
The *EWB: Choose Selection Variant* dialog box appears.
3. Click .

### Result

The system cancels the selection variant. In future, when you enter the *Engineering Workbench*, the system always proposes the selection variant you entered during the previous session.

## Focus Objects and Environment Objects

### Definition

A [focus object \[Ext.\]](#) is an object with the [focus \[Ext.\]](#) object type that fulfills the selection criteria you entered. An [environment object \[Ext.\]](#) is an object, whose object type is contained in the [working environment \[Ext.\]](#) and which is assigned to a focus object.

### Use

The focus objects form the “core” of your worklist. You use the selection criteria to determine which focus objects are to be in the worklist.

The environment objects represent the objects that interest you, “surrounding” the focus objects. You determine which “environment” interests you by choosing a suitable [working area \[Ext.\]](#). Environment objects are selected by the system automatically.

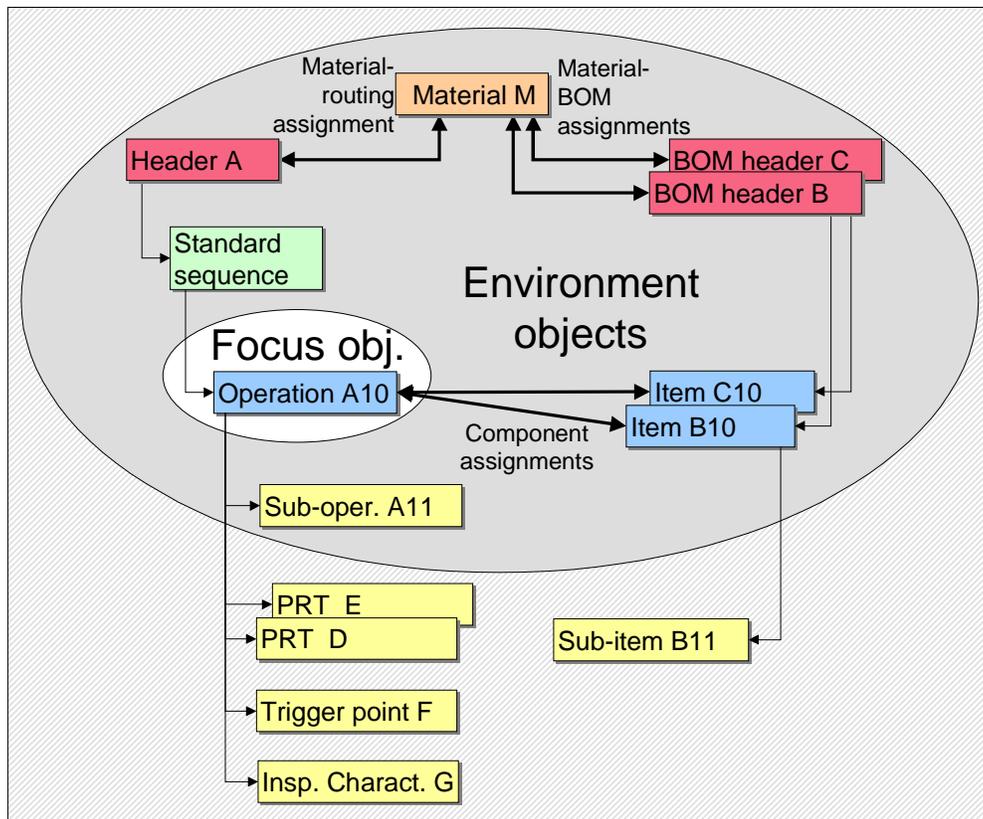
## Example: Focus Objects and Environment Objects

You are working in the area that is described under [Example: Working Area \[Page 18\]](#)

Presume *operation A10* is the only externally processed activity that you have created and you are using the selection criterion “externally processed”. The [Focus objects \[Ext.\]](#) in the worklist are, in other words, all operations that satisfy the selection criterion. This means that operation *A10* is the only focus object (see white area in the graphic).

The [environment objects \[Ext.\]](#) in the worklist are all objects that are related to operation *A10* and whose object type is in the [working environment \[Ext.\]](#) (light gray area). For instance BOM header *B* is an environment object.

Objects that are linked to operation *A10*, but whose object type is not in the [working environment \[Ext.\]](#) (gray patterned) are not contained in the worklist, for instance trigger point *F*.



## Focus Object Selection

## Focus Object Selection

### Use

You use this function to define the [focus objects \[Ext.\]](#) in your worklist.

### Features

You can enter selection criteria for each object type in the *Engineering Workbench*. You can also select using a change number.

The selection criteria that you enter refer to the [focus \[Ext.\]](#) of the [working area \[Ext.\]](#) in which you are working.



You enter the selection criterion “externally processed”. Which focus objects the system copies to the worklist, depends on the focus of the worklist.

#### Focus objects dependent on the focus

Focus	Focus Objects
Header	All headers that have an external operation assigned
Operation	All external operations
BOMs	All BOM headers that have external operations assigned (via material-routing assignment and material-BOM assignment).
Item	All items that are assigned to an external operation (via a material component assignment).

### Selection Criteria for Multiple Object Types

You can combine as many selection criteria as you like. The focus objects then have to fulfill all the selection criteria (Boolean AND)



The focus of your worklist is *Item*. You enter the following selection criteria

- BOM header: “Material *Model 1*”
- Item: “Material *4321*”
- Operation: “Plant *0001*” and “Work center *Machine 03*”
- PRT “*Special drill*”

Focus objects are then all materials *4321*, which are used in processing material *Model 1* at work center *03* in plant *0001* using a *special drill*.

## Change Number Criterion

You can enter a change number and set the requirement that all focus objects should be assigned to an object that was processed using this change number. You can also define what type of object this should be.



The focus of your worklist is *Header*. You enter the change number 7. A production resource/tool or inspection characteristic should be sub-ordinate to every focus object (in other words, every header) in your worklist that was processed using this change number.

## Selecting Change Statuses

All the change statuses of an object that overlap with the selection period are copied to the worklist, as long as at least one of these change statuses fulfills the selection criteria. For example, you select *header* as the focus, select the period from January 1 to March 31 as the selection period and want all headers with the *Released (general)* status to be selected. Header A has three change statuses: In January, header A had the status *Created*, in February, the status *Released for costing* and in March, the status *Released (general)*. All three change statuses are copied to the worklist.

## Activities

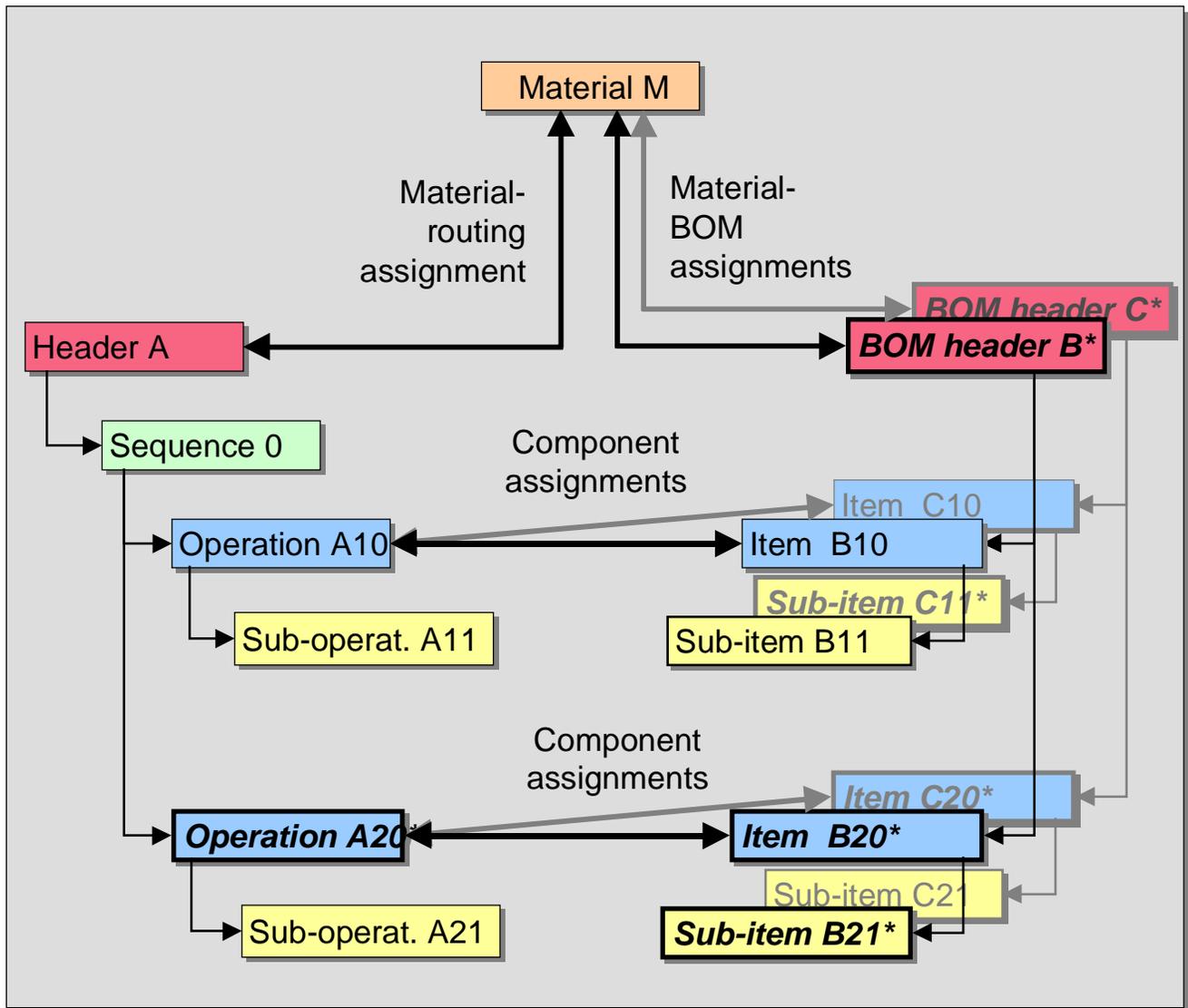
The system copies the focus objects to the worklist. Afterwards the system determines which environment objects are assigned to these focus objects. The system also copies these environment objects to the worklist.

Example: Focus Object Selection

## Example: Focus Object Selection

The objects in the database are displayed in the graphic.

Objects in the database



The *Selection Criteria* table lists your entries.

**Selection Criteria**

Example: Focus Object Selection

Object type	Criterion	Criterion is met by
Operation	Processed at work center <i>WRK CTR 01</i>	Operation <i>A20</i>
BOM header	used for <i>Production</i>	BOM headers <i>B</i> and <i>C</i>
Item	is screw <i>M42</i>	Items <i>B20</i> and <i>C20</i>
Sub-item	Sub-item number <i>007</i>	Sub-items <i>B21</i> and <i>C11</i>

Which focus objects the system selects, depends on the focus of the working area that you are working in, see *Focus Objects* table.

**Focus Objects**

Focus	Focus Objects
Header	Header <i>A</i>
Operation	Operation <i>A20</i>
BOM header	BOM header <i>B</i>
Item	Item <i>B20</i>



If you enter selection criteria for object types that are in a hierarchical relationship, the objects that fulfill these criteria must also be in a hierarchical relationship. Therefore, for the *BOM header* focus, BOM header *C* is **not** a focus object. BOM header *C* is used for *production* and also has (together with item *C20*) an item *Screw M42* which is used in assembly at work center *WRK CTR 01*, as well as (together with *C11*) a sub-item with the sub-item number *007*. However BOM header *C* would only be a focus object, if sub-item *C11* were assigned to item *C20*.

## Environment Objects (Focus Header)

## Environment Objects (Focus Header)

### Purpose

This process is carried out automatically by the system after it has determined the focus objects according to your selection criteria and copied them from the database to the worklist.

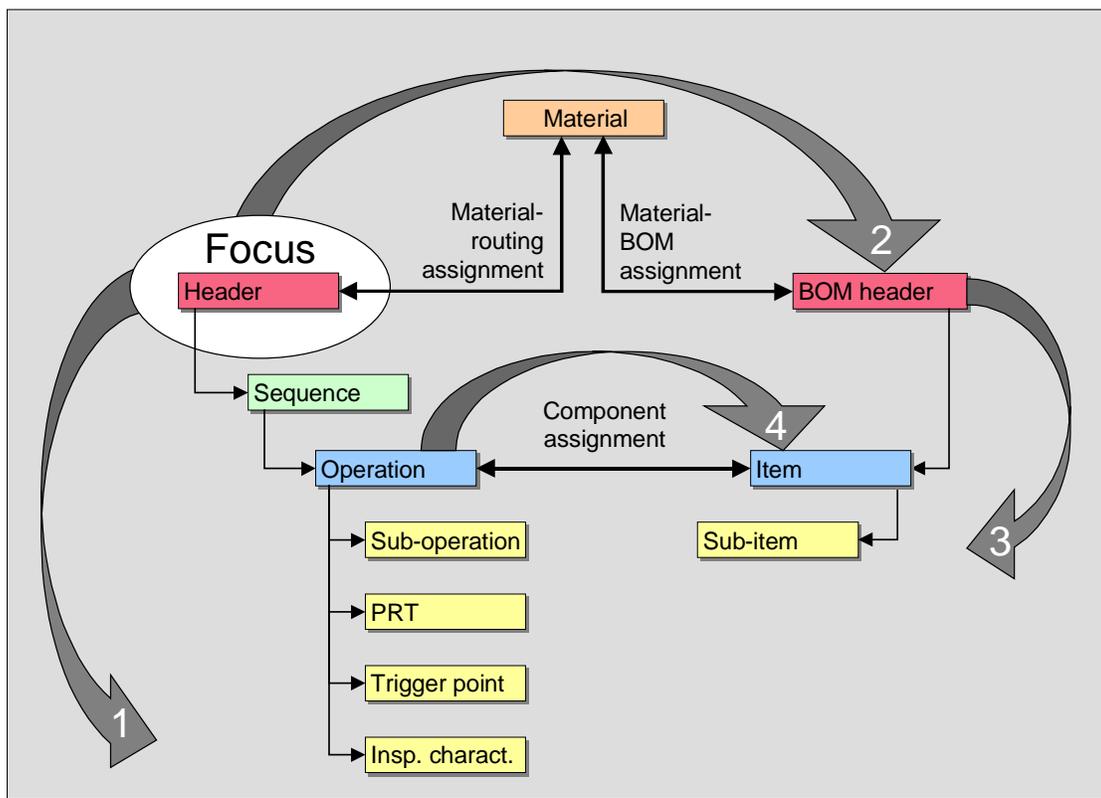
### Prerequisites

The working area, in which you are working, has the focus *Header*.

### Process flow

The system copies the following environment objects from the database to the worklist (see *Environment Object Selection* graphic)

**Environment Object Selection (Focus Header)**



1. All objects that are subordinate to the focus objects, in other words, the headers you selected.

**Environment Objects (Focus Header)**

2. All BOM headers that are assigned to these headers, including all intermediate assignments.
3. All objects that are subordinate to these BOM headers.
4. All component assignments that exist between header operations and the items of the BOM headers assigned to the headers.



For an object can be copied to the worklist, its object type must be in the working environment.

**Result**

Your worklist is filled. You can now display and edit its objects in the *Engineering Workbench*.

## Example: Environment Objects (Focus Header)

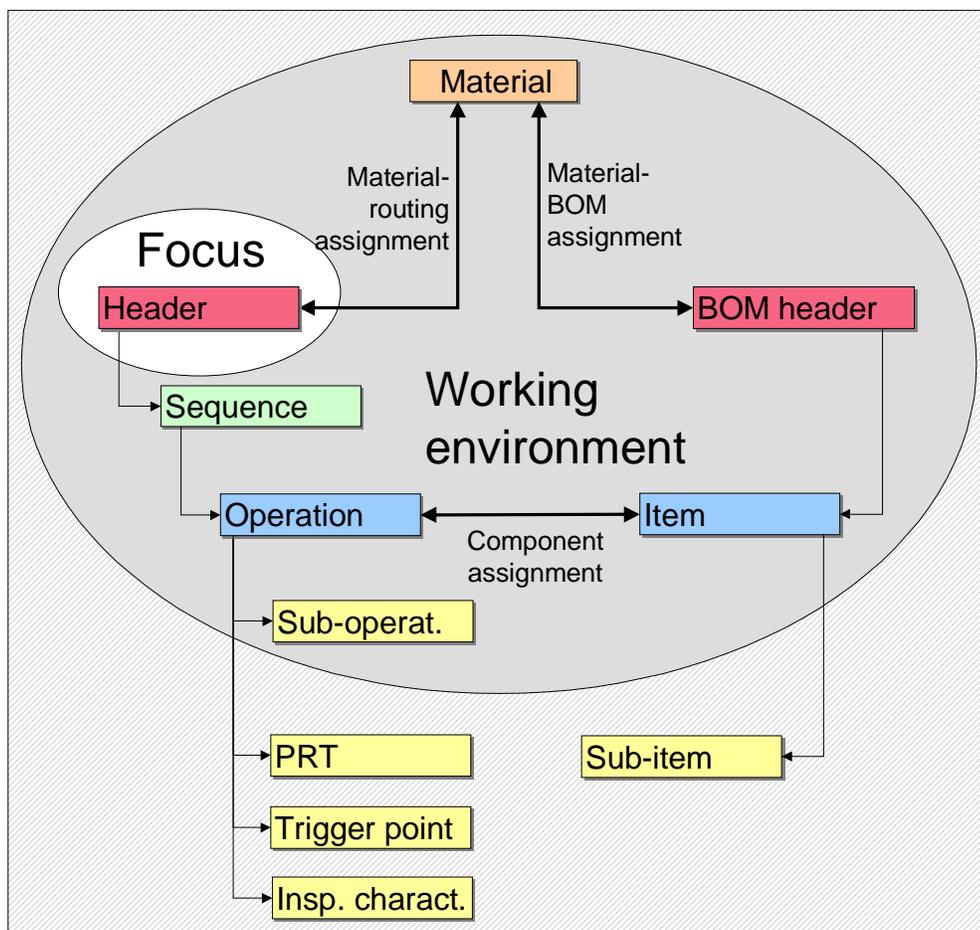
## Example: Environment Objects (Focus Header)

In the graphic the working area consists of the focus (white ellipse of the Working area and object types graphic ) and the working area (gray).

- The focus is the object type *header*.
- The working environment consists of the object types *material*, *material-routing assignment*, *sequence*, *operation*, *sub-operation*, *material - BOM assignment*, *BOM header* and *component assignment*.

The *PRT*, *trigger point*, *inspection characteristic* and *sub-item* object types are not contained in the working area (they are in the gray patterned area).

## Working area and object types



The *Objects in the database* graphic shows you which objects already exist in the database.

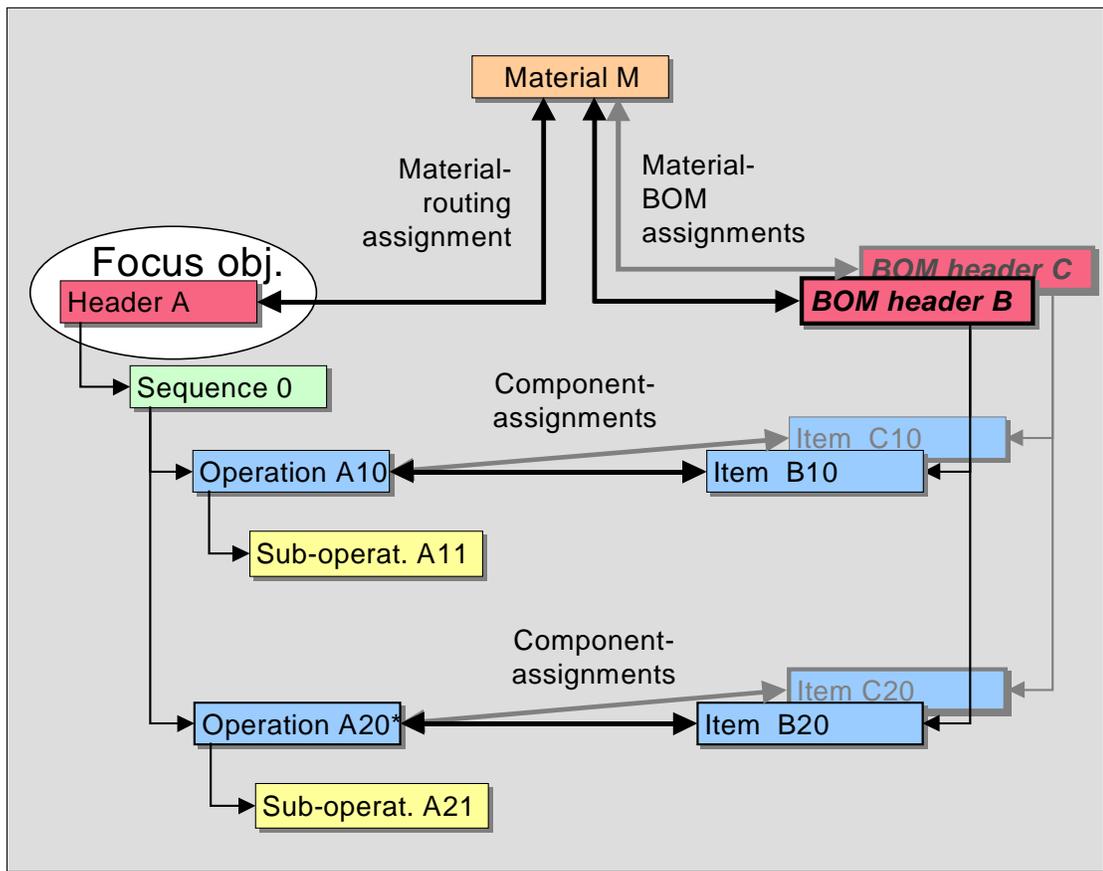
## Objects in the database

Assuming header A meets your selection criteria, in other words it is the focus object, the system selects the following environment objects:

**Example: Environment Objects (Focus Header)**

1. All objects that are subordinate to header A, sequence 0, the operations A10 and A20 and the sub-operations A11 and A21.
2. The BOM headers B and C that are assigned to (routing) header A. The assignments between material M and header A as well as BOM headers B and C.
3. All objects that are subordinate to the BOM headers B and C, that is the items B10, B20, C10 and C20. The sub-items for these items are not copied, as the *sub-item* object type is not in the working environment.
4. All component assignments between the aforementioned operations and items.

**Focus Header: Environment objects**



## Environment Object Selection (Focus Operation)

## Environment Object Selection (Focus Operation)

### Purpose

This process is carried out automatically by the system after it has determined the focus objects according to your selection criteria and copied them from the database to the worklist.

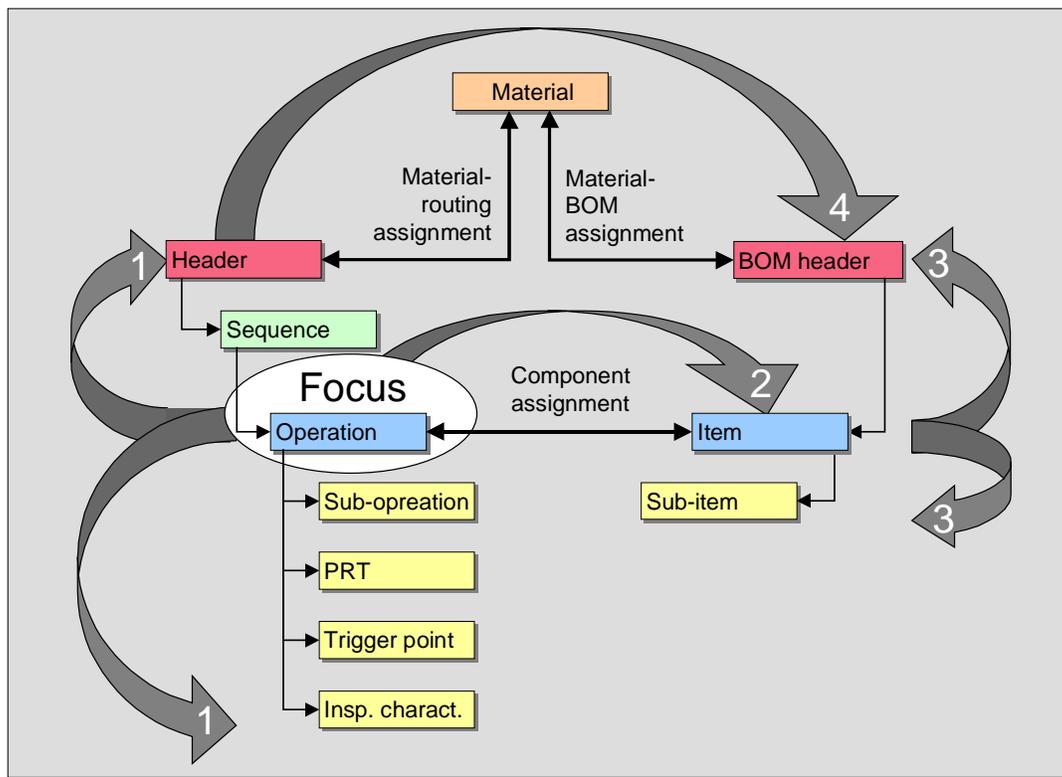
### Prerequisites

The working area, in which you are working, has the focus *Operation*.

### Process flow

The system copies the following environment objects from the database to the worklist (see *Environment Object Selection* graphic)

#### Environment Object Selection (Focus Operation)



1. All objects that are subordinate or superior to the focus objects, in other words the operations you selected.

**Environment Object Selection (Focus Operation)**

2. All the items that are assigned to these operations, including the component assignment.
3. All objects that are superior or subordinate to these items
4. The assignments between the routing headers and BOM headers, determined in steps 1 and 3.



For an object can be copied to the worklist, its object type must be in the working environment.

**Result**

Your worklist is filled. You can now display and edit its objects in the *Engineering Workbench*.

## Example: Environment Objects (Focus Operation)

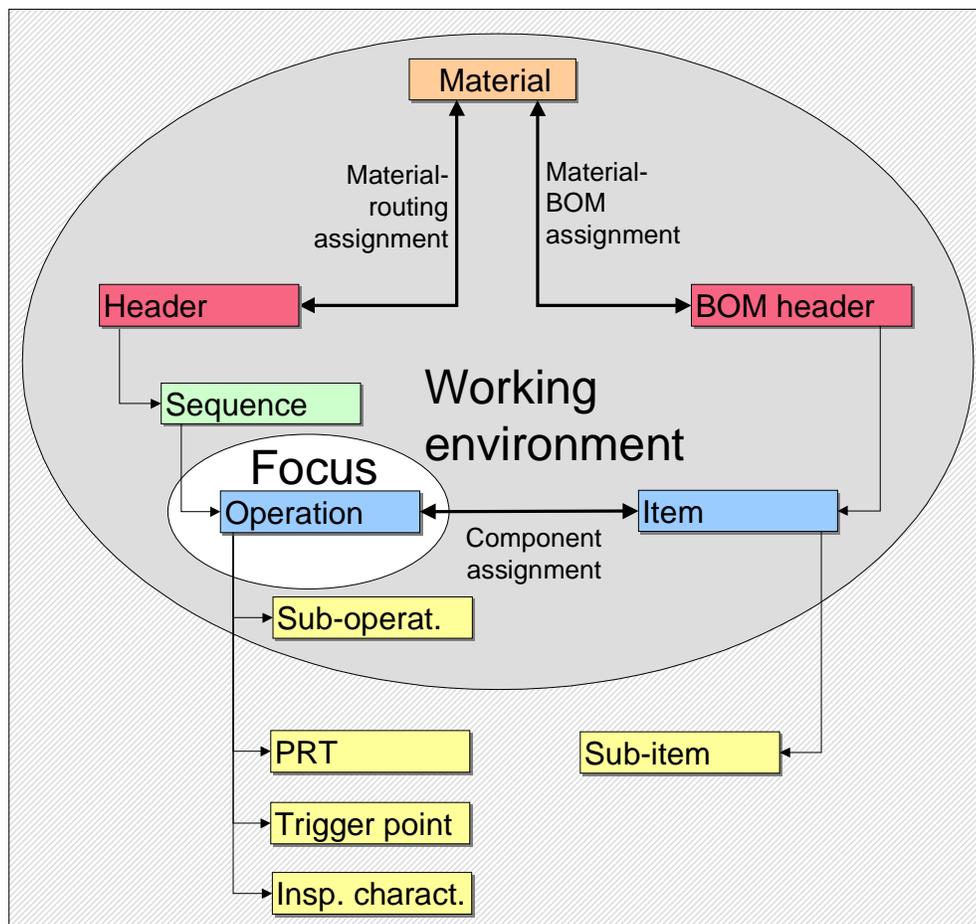
## Example: Environment Objects (Focus Operation)

In the graphic the working area consists of the focus (white ellipse of the Working area and object types graphic ) and the working area (gray).

- The focus is the object type *operation*.
- The working environment consists of the object types *material*, *material-routing assignment*, *routing header*, *sequence*, *sub-operation*, *material - BOM assignment*, *BOM header*, *item* and *component assignment*.

The *PRT*, *trigger point*, *inspection characteristic* and *sub-item* object types are not contained in the working area (they are in the gray patterned area). As a result the system does not, for example, copy any sub-items into your worklist.

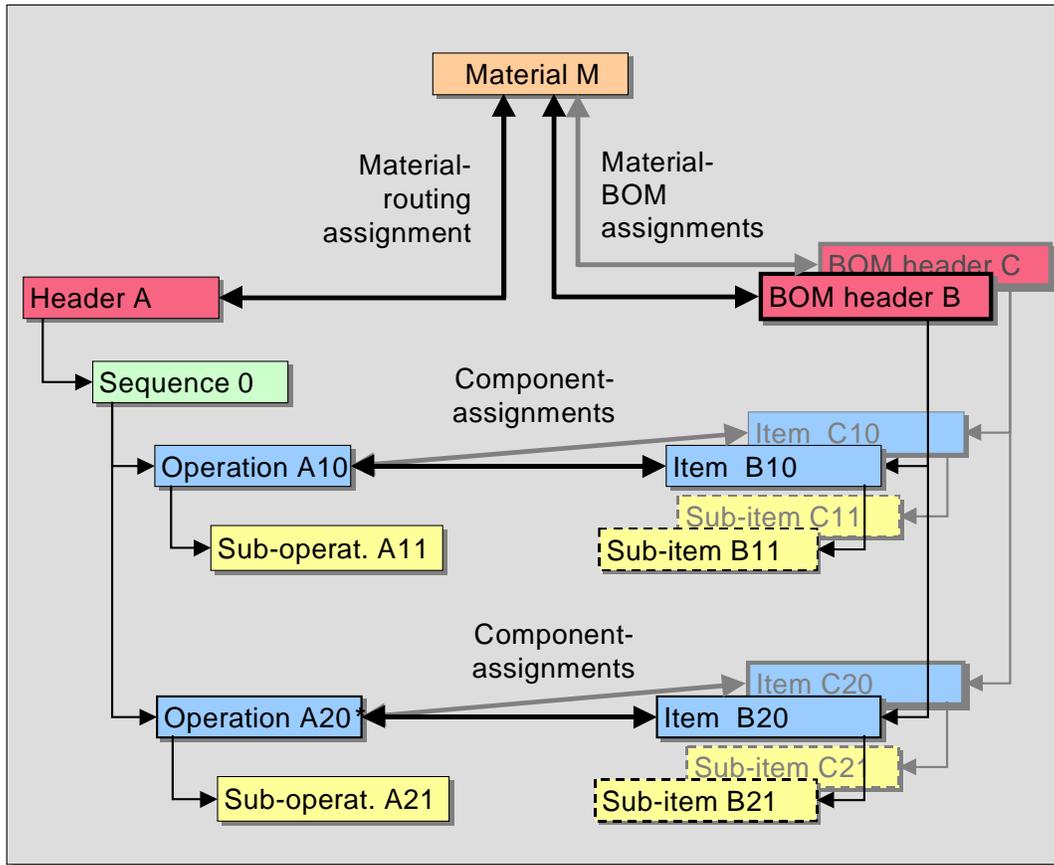
**Working area and object types**



The *Objects in the database* graphic shows you which objects already exist in the database.

**Objects in the database**

Example: Environment Objects (Focus Operation)

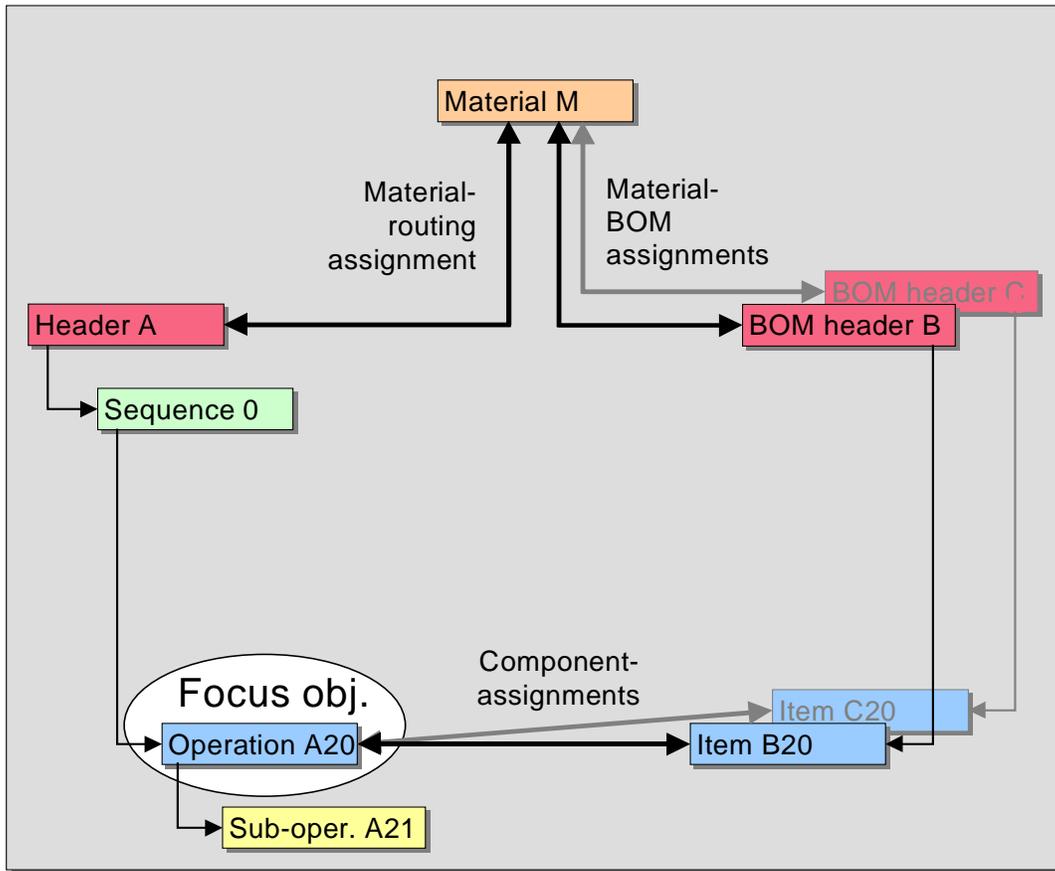


Assuming that only operation *A20* meets your selection criteria, and is thus the only focus object, the system selects the following environment objects (see *Environment objects* graphic).

1. All objects that are superior or subordinate to operation *A20*, that is header *A*, sequence *O* and sub-operation *A21*.
2. All items that are assigned to operation *A20*, items *B20* and *C20*. The component assignments between these items and operation *A20*.
3. All objects that are superior or subordinate to items *B20* and *C20*, the BOM headers *B* and *C*. The sub-items *B21* and *C21* are not copied, since object type *Sub-item* is not in the working environment.
4. The assignments between material *M* and the routing header *A* as well as the BOM headers *B* and *C*.

**Focus Operation: Environment objects**

Example: Environment Objects (Focus Operation)



## Environment Object Selection (Focus BOM Header)

### Purpose

This process is carried out automatically by the system after it has determined the focus objects according to your selection criteria and copied them from the database to the worklist.

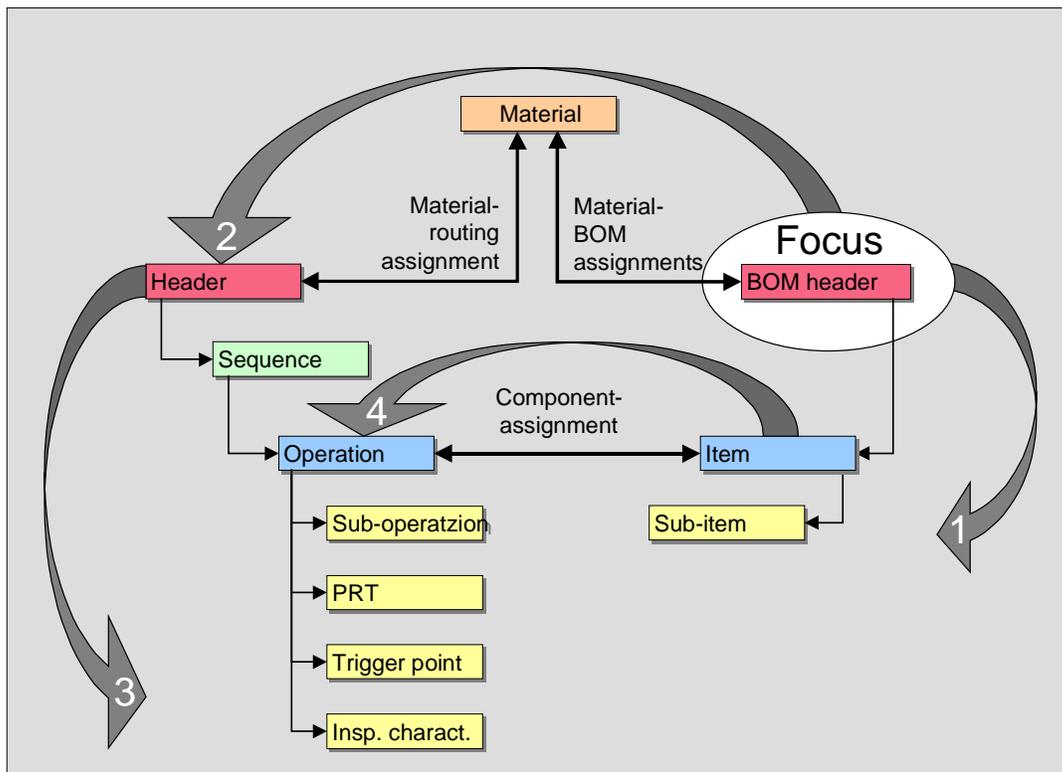
### Prerequisites

The working area, in which you are working, has the focus *BOM Header*.

### Process flow

The system copies the following environment objects from the database to the worklist (see *Environment Object Selection* graphic)

Environment Object Selection (Focus BOM Header)



1. All objects that are subordinate to the focus objects, in other words, the BOM headers you selected.
2. All routing headers to which these BOM headers have been assigned, including all intermediate assignments.

**Environment Object Selection (Focus BOM Header)**

3. All objects that are subordinate to these headers.
4. All component assignments that exist between header operations and the items of the BOM headers assigned to the headers.



For an object to be copied to the worklist, its object type must be in the working environment.

**Result**

Your worklist is filled. You can now display and edit its objects in the *Engineering Workbench*.

Example: Environment Objects (Focus BOM Header)

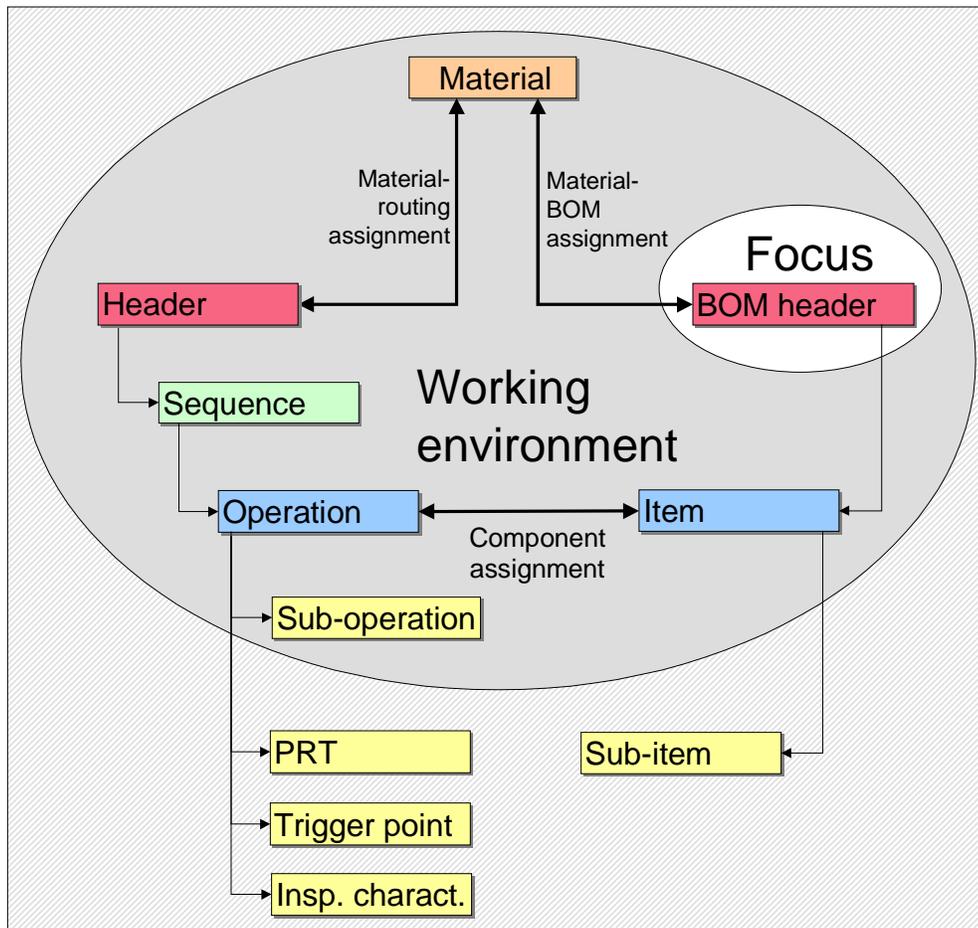
## Example: Environment Objects (Focus BOM Header)

In the graphic the working area consists of the focus (white ellipse) and the working area (gray).

- The focus is the *BOM header* object type.
- The working environment consists of the object types *material*, *material-routing assignment*, *routing header*, *sequence*, *operation*, *sub-operation*, *material-BOM assignment* and *component assignment*.

The *PRT*, *trigger point*, *inspection characteristic* and *sub-item* object types are not contained in the working area (they are in the gray patterned area). As a result the system does not, for example, copy any sub-items into your worklist.

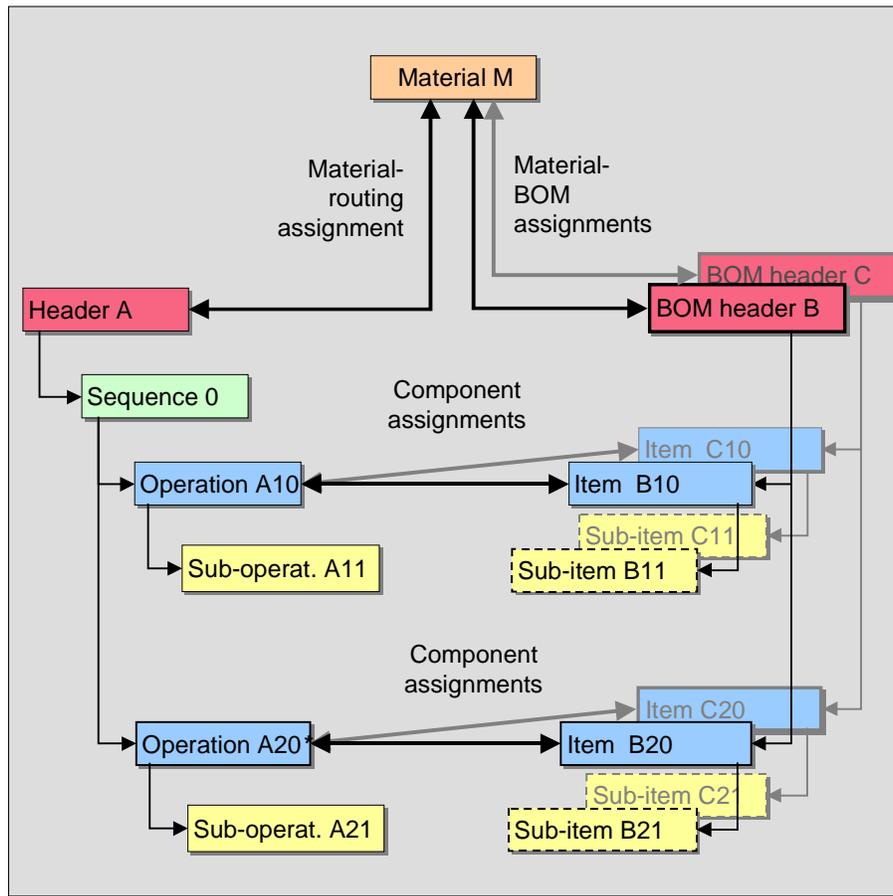
Working area and object types



The *Objects in the database* graphic shows you which objects already exist in the database.

Objects in the database

## Example: Environment Objects (Focus BOM Header)

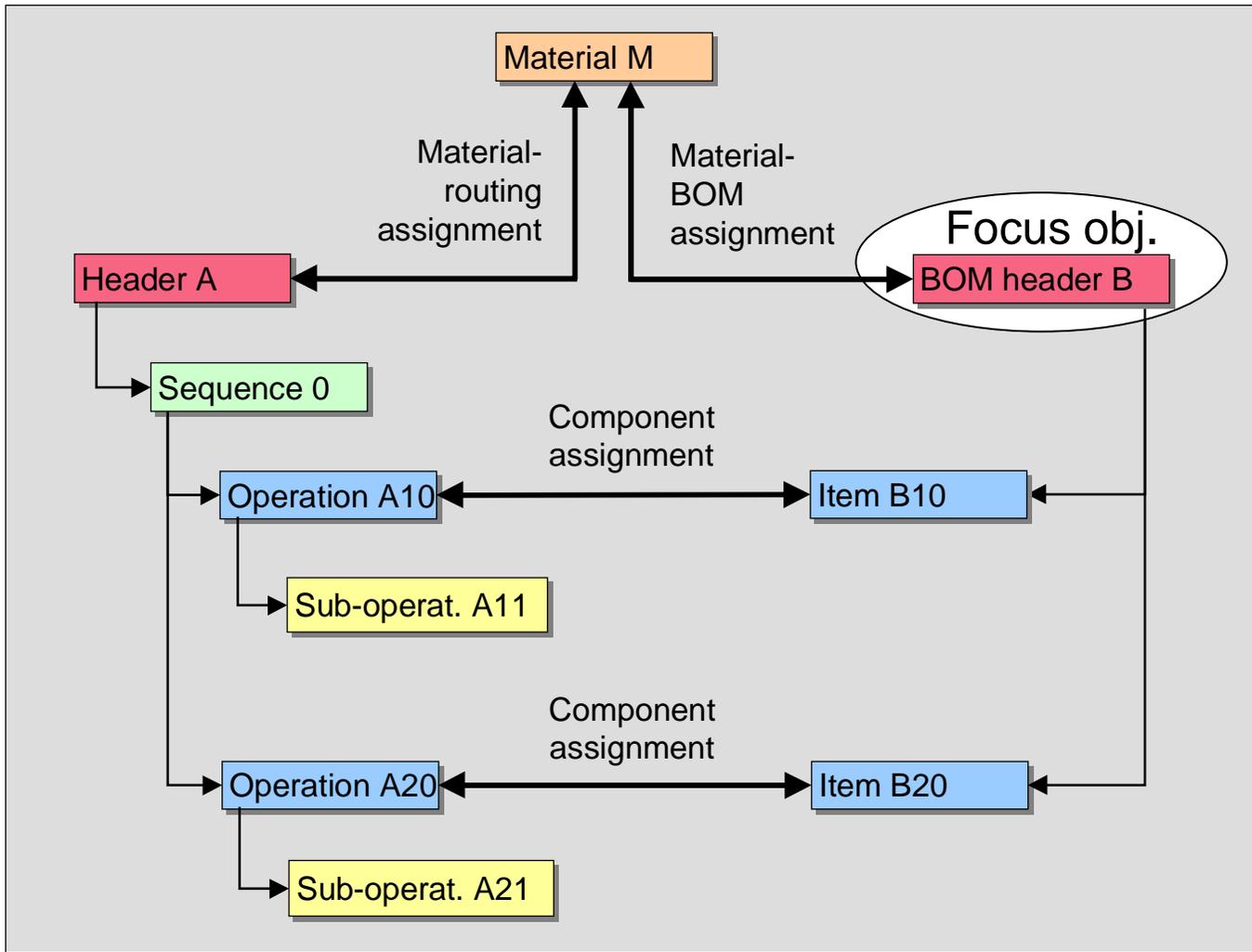


Assuming that only BOM header *B* meets your selection criteria, and is thus the only focus object, the system selects the following environment objects (see *Environment objects* graphic).

1. All objects that are subordinate to BOM header *B*, the items *B10* and *B20*. The sub-items for these items are not copied, as the object type *sub-item* is not in the working environment.
2. Routing header *A* that is assigned to BOM header *B*. The assignments between material *M* and BOM header *B* or routing header *A*.
3. All objects that are subordinate to header *A*, i.e. sequence *0*, the operations *A10* and *A20* and the sub-operations *A11* and *A21*.
4. All component assignments between the aforementioned operations and items.

**Focus BOM header: Environment objects**

Example: Environment Objects (Focus BOM Header)



## Environment Object Selection (Focus Item)

## Environment Object Selection (Focus Item)

### Purpose

This process is carried out automatically by the system after it has determined the focus objects according to your selection criteria and copied them from the database to the worklist.

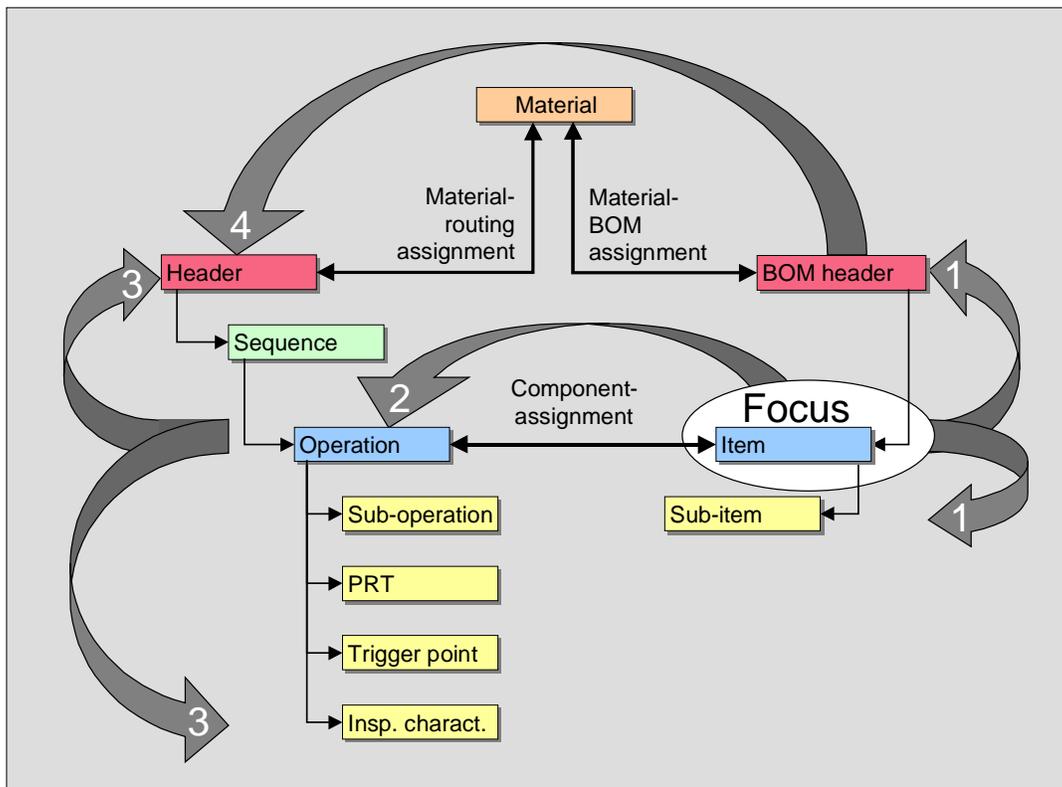
### Prerequisites

The working area, in which you are working, has the focus *Item*.

### Process flow

The system copies the following environment objects from the database to the worklist (see *Environment Object Selection* graphic)

#### Environment Object Selection (Focus Item)



1. All objects that are subordinate or superior to the focus objects, in other words, the items you selected.

**Environment Object Selection (Focus Item)**

2. All the operations to which these items are assigned, including the component assignment.
3. All objects that are superior or subordinate to these operations.
4. The material-routing assignments, materials and material-BOM assignments between the BOM headers and routing headers that were determined in step 1 and 3.



For an object to be copied to the worklist, its object type must be in the working environment.

**Result**

Your worklist is filled. You can now display and edit its objects in the *Engineering Workbench*.

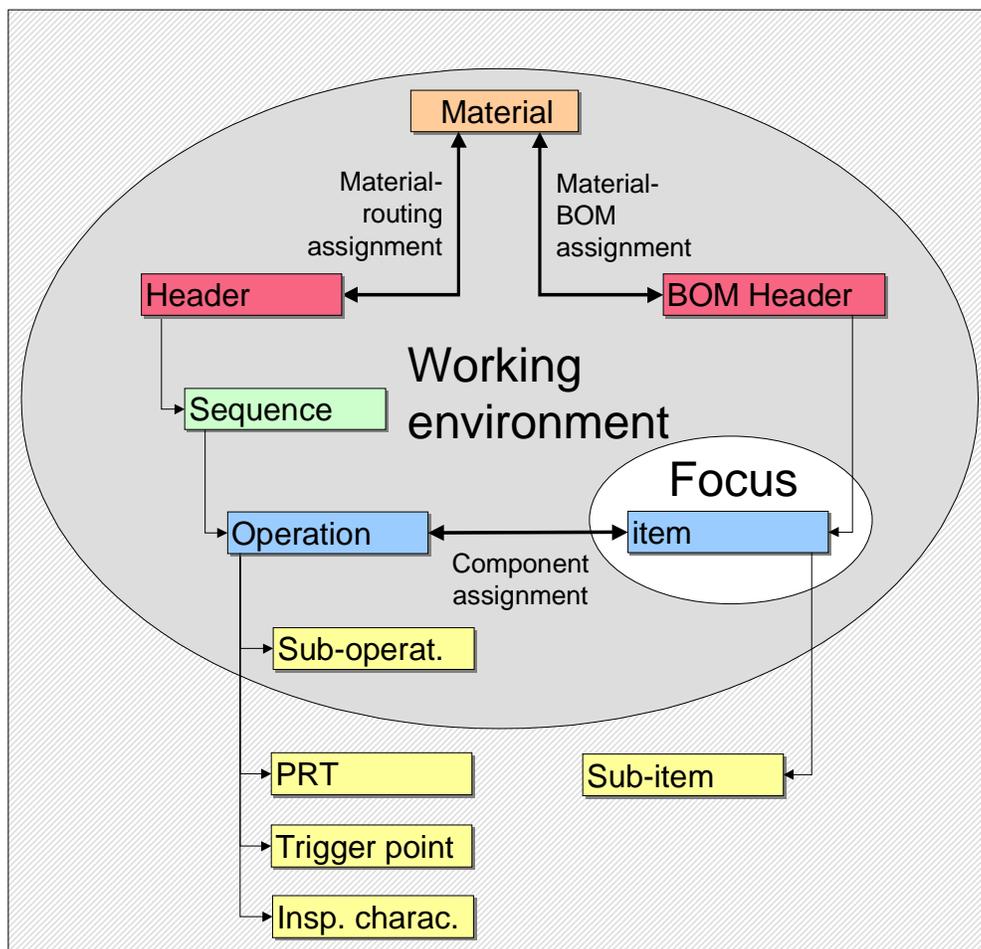
## Example: Environment Object Selection (Focus Item)

**Example: Environment Object Selection (Focus Item)**

In the graphic the working area consists of the focus (white ellipse of the Working area and object types graphic) and the working area (bright gray).

- The focus is the object type *Item*.
- The working environment consists of the object types *material*, *material-routing assignment*, *routing header*, *sequence*, *operation*, *sub-operation*, *material-BOM assignment*, *BOM header* and *component assignment*.

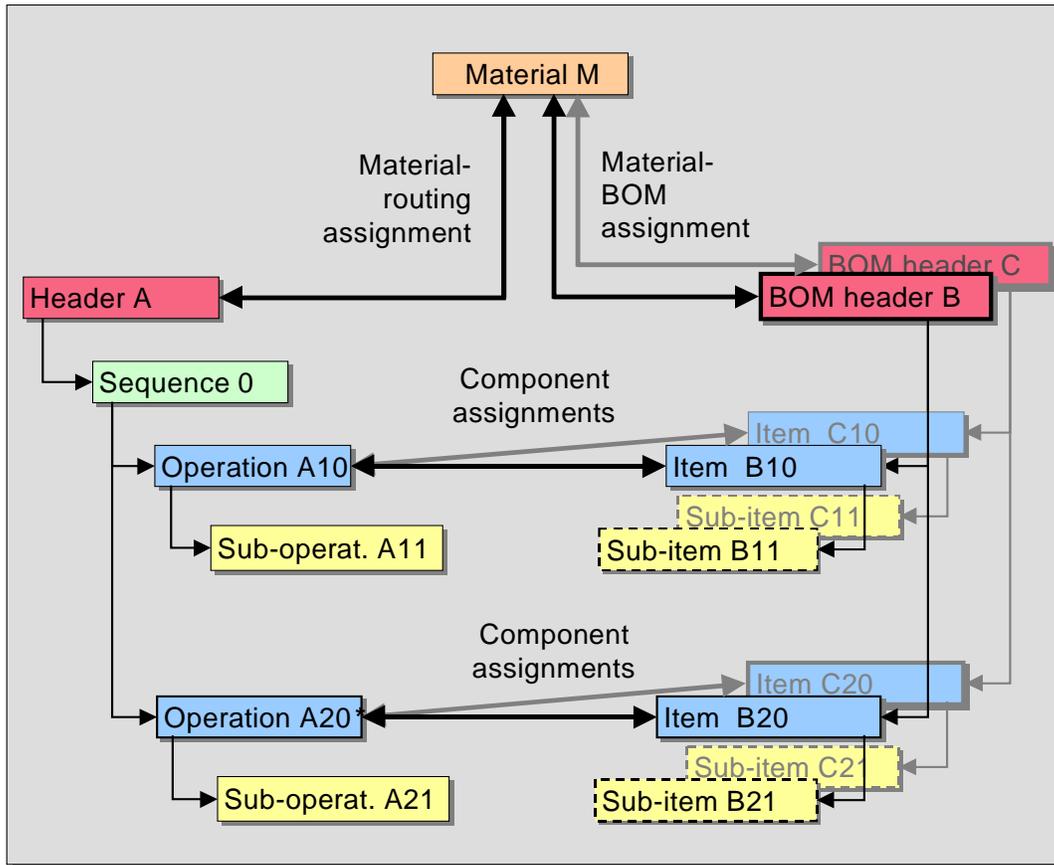
The object types PRT, trigger point, inspection characteristic and sub-item are not contained in the working area (they are in the dark gray area). As a result the system does not, for example, copy any sub-items into your worklist.

**Working area and object types**

The *Objects in the database* graphic shows you which objects already exist in the database.

**Objects in the database**

Example: Environment Object Selection (Focus Item)

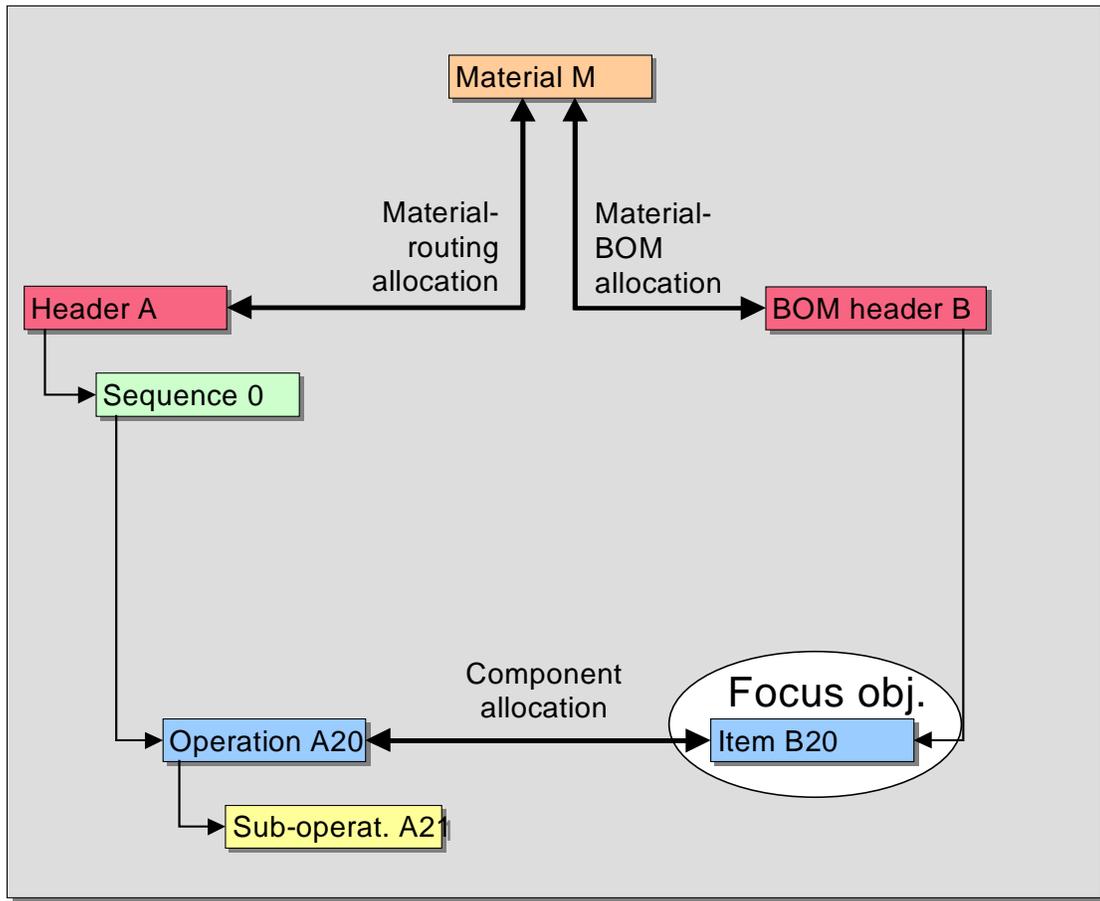


Assuming that only item *B20* meets your selection criteria, and is thus the only focus object, the system selects the following environment objects (see *Environment objects* graphic).

1. All objects that are superior or subordinate to item *B20*, in other words BOM header *B*. Sub-item *B21* is not copied, since the *sub-item* object type is not in the working environment.
2. All operations to which the item *B20* is assigned, thus the operation *A20*. The component assignments between item *B20* and operation *A20*.
3. All objects that are superior or subordinate to operation *A20*, that is header *A*, sequence *O* and sub-operation *A21*.
4. The assignments between material *M*, BOM header *B* and routing header *A*.

**Focus Item: Environment objects**

Example: Environment Object Selection (Focus Item)



## Navigation in the Engineering Workbench

### Use

You use the navigation functions of the *Engineering Workbench* to reach BOM objects and routing objects quickly.

### Features

#### Cockpit

You control the *Engineering Workbench* using the **cockpit**. You use it to determine which of the objects in your worklist are displayed. For instance, if you only want to see the sub-items of BOMs with a particular BOM category, you use the cockpit.

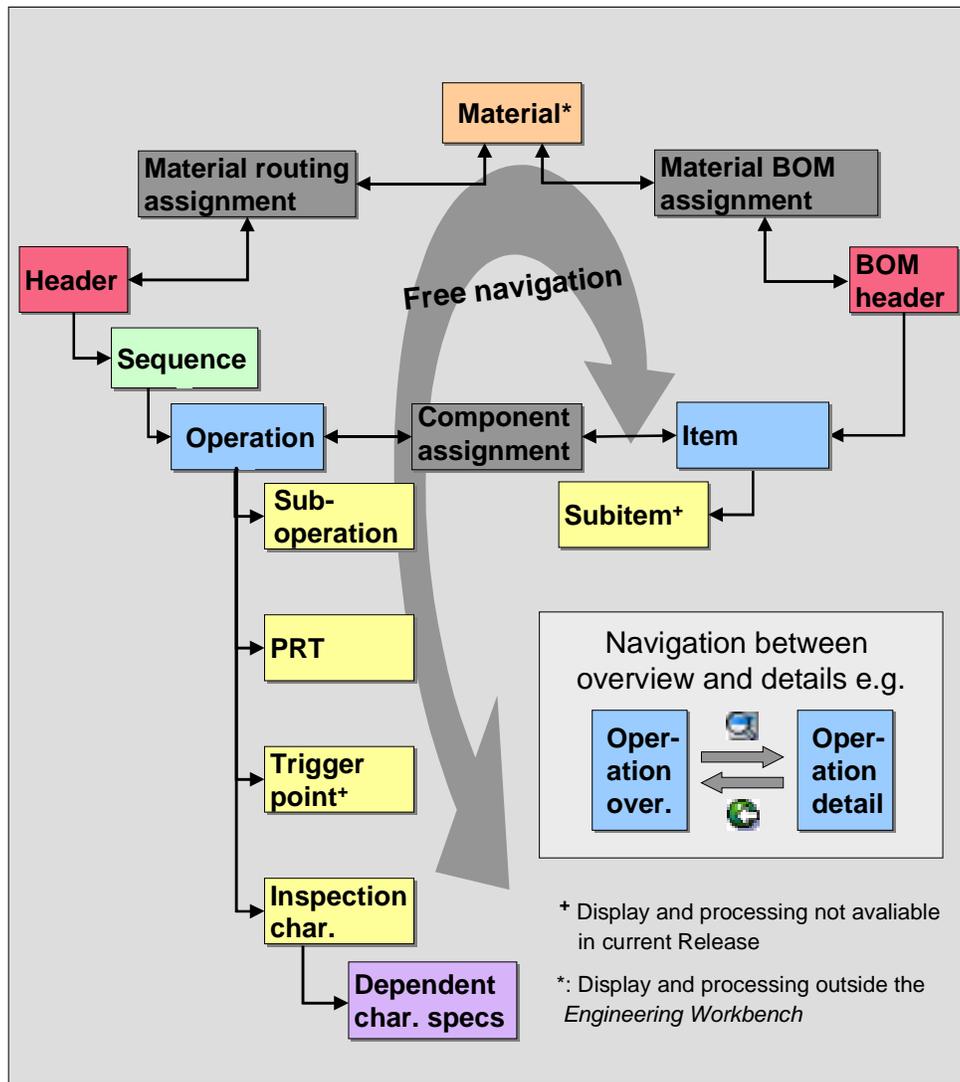
#### Overview Screens and Detail Screens

You can display the object in your worklist in the overviews and detail screens of the *Engineering Workbench*. You use an **overview screen** to display several objects with the same object type. If you want information about an individual object, you call up its **detail screen**.

There is an overview screen and detail screen for every object type in the *Engineering Workbench* (although operations and sub-operations have a common overview screen).

### Navigation in the *Engineering Workbench*

Navigation in the Engineering Workbench



You can go from one overview screen to another, as you like. You can call up a detail screen for every object on an overview screen (see graphic).

## Cockpit

### Definition

This is an area of the screen that is always available to you when you are using the *Engineering Workbench*. The cockpit allows you to control the *Engineering Workbench*. The cockpit also displays the status of the *Engineering Workbench*.

### Use

You use the cockpit to determine which objects in your worklist are displayed. You also determine the key date (or [change number \[Ext.\]](#)), with which you create new objects and change or delete existing objects.

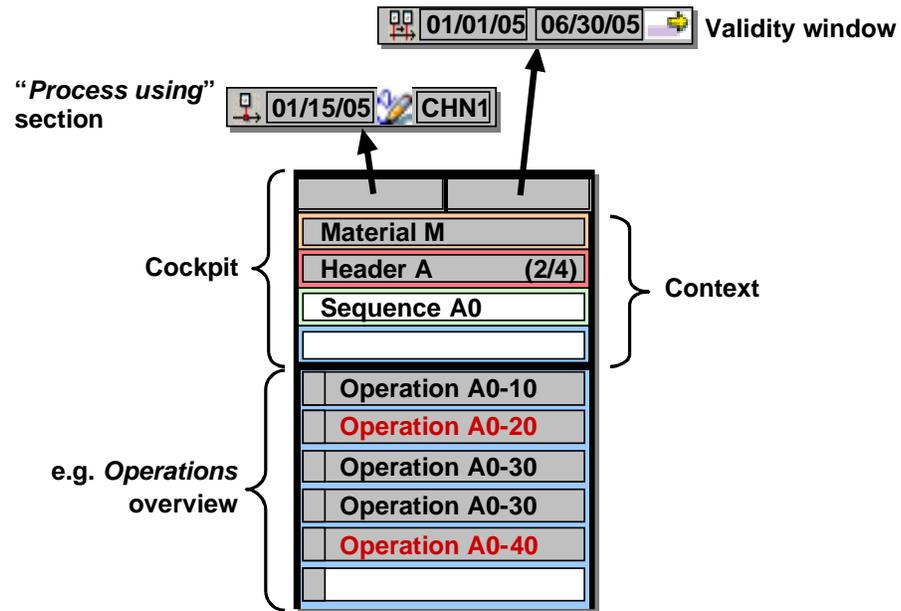
### Structure

The cockpit comprises three sections (see graphic):

- The *Process using* section, where you enter the key date with which you want to process the objects in your worklist. You can also enter a change number, whose key date is then displayed and used automatically.
- The **Validity Window** that you use to search your worklist for objects with a particular [date validity \[Ext.\]](#) or [parameter effectivity \[Ext.\]](#).
- The **Context**, where you enter the hierarchical relationships between the objects that you want to display and edit.

#### Cockpit and *Operation Overview* Screen (schematic)

## Cockpit



## Integration

The *Engineering Workbench* displays either an overview screen or a detail screen beneath the cockpit (see graphic).

## "Process Using" Screen Section

### Definition

Section of the screen that is displayed on every overview and detail screen in the *Engineering Workbench* and in which you can enter a [change number \[Ext.\]](#).

#### "Process Using" Screen Section (schematic)



### Use

You enter a key date to determine on which date an object should be created, changed or deleted. Instead of a key date you can also enter a change number, whose key date is then displayed and used automatically.

### Structure

If you create, change or delete an object, you must enter either a key date or a change number. If you enter a change number, the system automatically determines the key date that belongs to the change number.

## Entering a Key Date

## Entering a Key Date

### Procedure

1. In the *Process using* screen section, click .

The *Process using* dialog box appears.

2. Enter a key date and click .

The key date is displayed in the *Process using* screen section. If a change number was previously displayed in the *Change number* field, this is then deleted.

### Result

The fields to be maintained for each object displayed, are ready for input if the object is valid on the key date and you have locked it.



If the *Lock indicator* column is shown on the overview screen,  is displayed there, if you have locked an object.

In certain cases (see table below) the system provides input lines beneath the objects that may be displayed in the overview. There you can create new objects.

The system provides input lines if	And, in the context, you have entered
You are on a routing or BOM object overview	The hierarchically superior objects
You are on the <i>Material-BOM assignments</i> or <i>Material-routing assignments</i> overview	One of the objects that you want to link

## Entering Change Numbers

### Procedure

- In the *Process using* screen section, click .

The *Process using* dialog box appears.

- Enter a change number and click .

The change number is displayed in the *Process using* screen section. If a key date was previously displayed in the *key date* field, it is overwritten by the change number's key date.

### Result

The fields to be maintained for each object displayed, are ready for input if the object is valid on the key date and you have locked it.



If the *Lock indicator* column is shown on the overview screen,  is displayed there, if you have locked an object.

In certain cases (see table below) the system provides input lines beneath the objects that may be displayed in the overview. There you can create new objects.

The system provides input lines if	And, in the context, you have entered
You are on a routing or BOM object overview	The hierarchically superior objects
You are on the <i>Material-BOM assignments</i> or <i>Material-routing assignments</i> overview	One of the objects that you want to link

## Validity Window

# Validity Window

## Definition

On an overview, the validity window is a period of one or more days, which the validity period of an object must coincide with in order to be displayed. In other words: An object must be valid for at least one day in the validity window, for it to be displayed on the overview.

On a detail screen, the validity window displays the validity period of the selected object.

### Validity Window (Schematic)



## Use

On an overview you use the validity window to process a particular “time segment” of your worklist. In other words, this filters your worklist according to objects with a particular validity. For example, you want to see all objects in your worklist that are valid on December 1 2005 and hide all other objects.

In a detail screen, the validity window informs you about the validity period of the selected object.

## Structure

Validity windows can be one of the following periods:

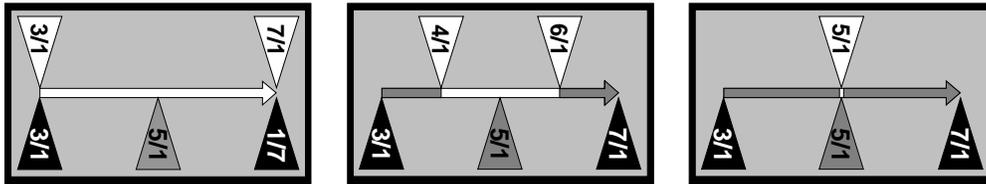
- The selection period of the worklist  
This means that every object in the worklist is displayed.
- The key date  
This means that an object is displayed if it valid on the key date.
- The validity period of a subordinate object or change status  
. This means an object is displayed if it is valid on at least one day the same as the superior object (or change status). If the object is not at all valid at the same time, it is hidden.

## Integration

The graphics display the connection between the validity window, selection period and key date.

It is not possible to choose a key date (gray triangle) outside of the selection period (black triangle). For example, if the selection period lasts from 3/1 to 7/1, the key date 8/1 is not allowed. You can select the selection period (left graphic), the key date (right graphic) or the validity period of a superior object (or change status), (center graphic) as the validity window (white triangle).

Validity Window



Selection period, key date and three different validity windows (schematic)

## Example: Validity Window

## Example: Validity Window

When you are selecting your worklist, on the *Selection Criteria* screen you enter the **selection period** 03/01 to 07/01 (see black triangles in the graphics).

In the *Headers* overview select header A, which is valid 04/01 to 06/01.

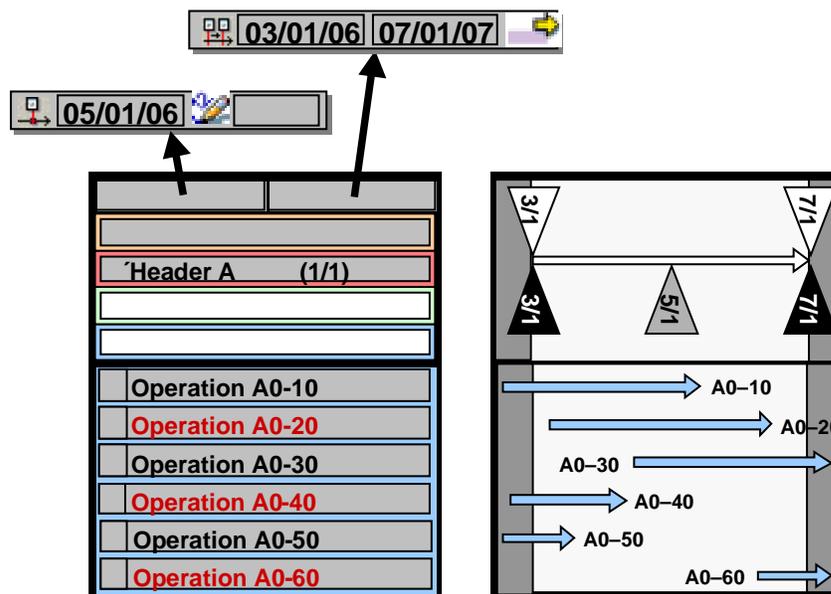
You switch to the *Operations* overview and enter the key date 05/01 (see second box from top and gray triangle in the graphics).

Header A has six operations (A0-10 to A0-60). The correspondingly labeled blue time arrows in the right-hand graphic show the validity time periods of these operations.

Which operations are displayed in the *Operations* overview, depends on which validity window you choose (see top box and white triangles in the graphics):

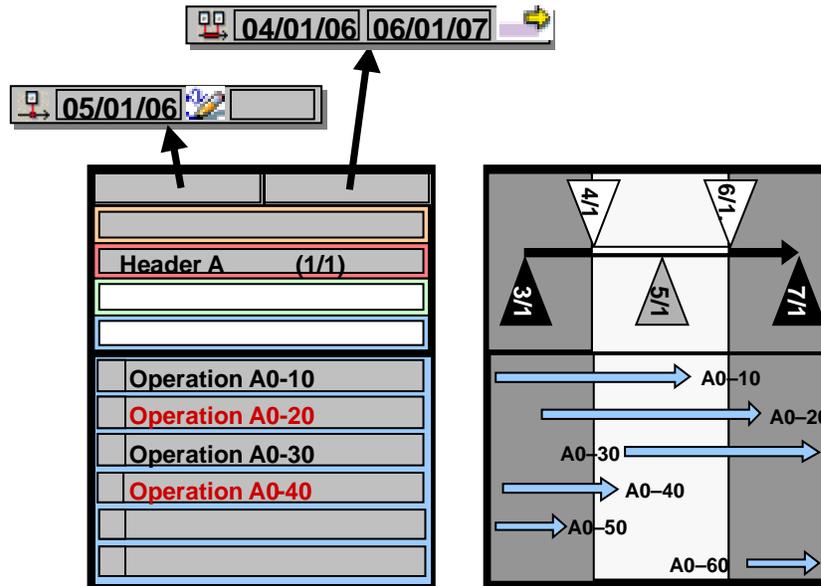
- Selection period of the worklist
  - All the operations are displayed, since the validity period of all the operations coincides with the validity window.

## Operations Overview with Selection Period Validity Window



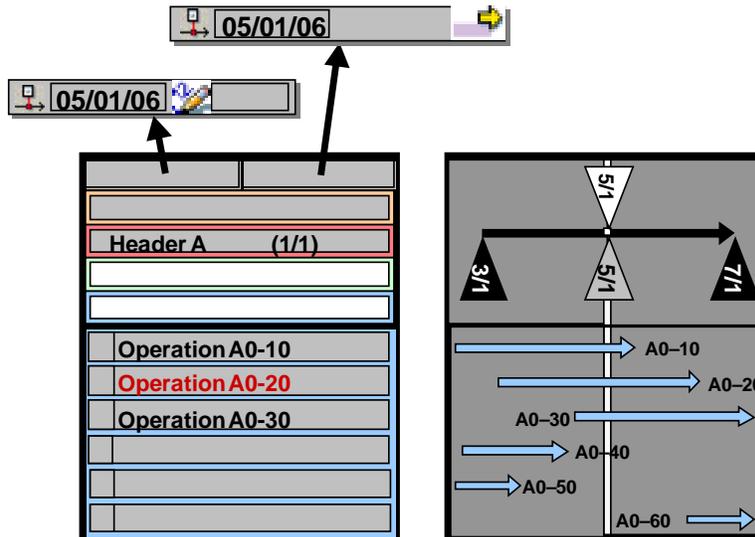
- Validity period of header A (graphic in the middle)
  - Operations A0-50 and A0-60 are not displayed in the Operations overview, since their validity period does not coincide with the validity window.

## Operations Overview with Change Status Validity Window



- Key date (graphic on the right)  
Only operations A0-10, A0-20 and A0-30 are valid on the key date and are displayed.

**Operations Overview with Key Date Validity Window**



Example: Validity Window

## Changing the Validity Window in the *Options* Dialog Box

### Procedure

1. On any overview click .

The *Options* dialog box appears

2. Go to the  *Validity window* tab page.

You can tell which validity window is currently selected, by the icon on the button in the *Validity window* screen section. If a particular selection is currently not allowed, the corresponding button is not available. For example, if you have not entered a key date you cannot select the  *key date* button.

The check boxes on the tab page indicate which object types are currently included in the copy range.

3. In the *Set validity window* screen section, select the desired validity window.
4. Click .

### Result

You return to the overview from which you came. The first and last day of the new validity window are displayed in the *Validity window* screen section. The icon in this screen section shows which validity window you have selected:

 - *Selection period* validity window

 - *Change status* validity window

 - *Key date* validity window

## Changing the Validity Window in the Cockpit

## Changing the Validity Window in the Cockpit

### Procedure

1. Go to an overview in the *Engineering Workbench*.

On the left-hand side of the *Validity window* screen section, an icon shows which validity window is currently selected.

: *Selection period* validity window

: *Change status* validity window

: *Key date* validity window

2. Keep clicking on these icons until the desired validity window is displayed.



You may find that you cannot select the validity window you would like. For example, if you have not entered a key date you cannot select the *key date* validity window.

On the *Validity window* tab page (in the *Options* dialog box) you can, however, see which validity windows can be selected, at any time. For more information, see *Changing the Validity Window in the Options Dialog Box*.

### Result

The first and last day of the new validity window are displayed in the *Validity window* screen section. The overview displays the objects that are valid on at least one day within the validity window. Objects that are not valid on any day within the validity window are not shown.

## Setting the Validity Window Automatically

### Use

You use this procedure if you want to define which validity window the system automatically sets, when you click the  icon on an overview in the *Engineering Workbench*, to display subordinate objects.

- If you are predominantly interested in seeing how the objects in your worklist develop throughout the duration of the selection period, you want the system to automatically set the *selection period* validity window.
- If you are predominantly interested in certain change statuses for the objects in your worklist, you want the system to automatically set the *change status* validity window.

### Procedure

4. On any overview click .  
The *Options* dialog box appears
5. Go to the  *Validity window* tab page.
3. In the *Navigation* screen section you can edit the *Valid. window automatic. "change status"* check box as follows:
  - Check the box so that in future the system sets the *change status* validity window automatically.
  - Decheck the box so that in future the system sets the *selection period* validity window automatically.
5. Click .

## Context

# Context

## Definition

Contains entries about the objects to which the objects in an overview of a detail screen are subordinate or superior.

## Use

You enter an object in the context so you can display its subordinate objects. For instance, if you are in the *Operations* overview, you can display the operations in routing *A* by entering header *A* in the context.

When you are creating an object you use the context to define where it should be created. For instance, if you are in the *Items* overview and enter bill of material *B* in the context, the new item will be created in bill of material *B*.

## Structure

The context contains input lines for:

- An object of the type that is displayed in the overview.
- The objects that are superior to the objects displayed.
- The material that is assigned to the routing header or bill of material

For example,

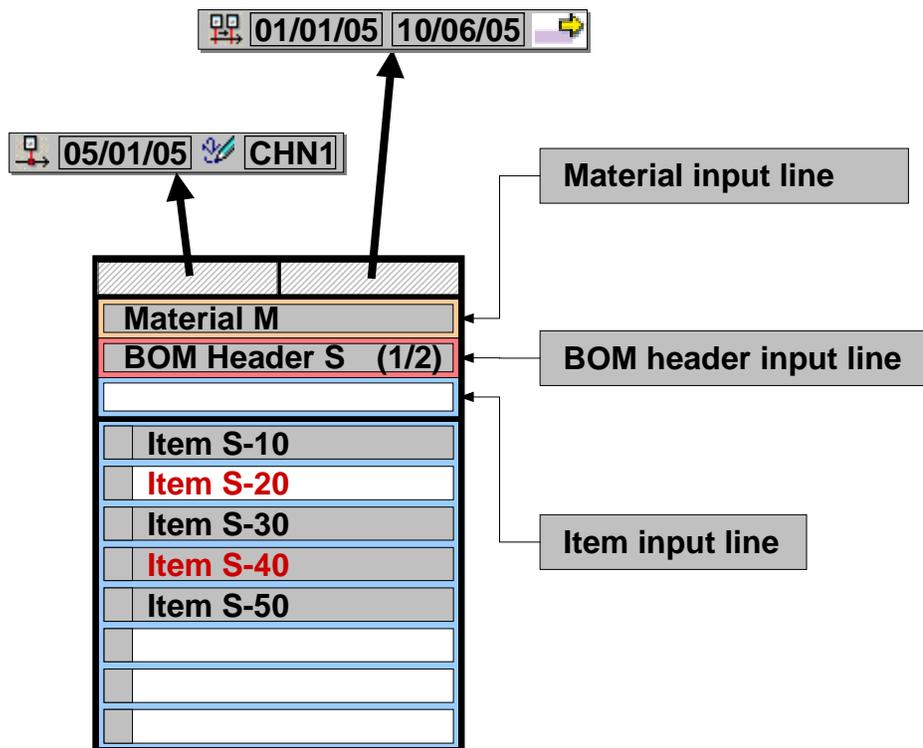
- On the *BOM headers* overview there is
  - An input line for a BOM header
  - An input line for a material
- On the *Operations* overview there is
  - An input line for an operation
  - An input line for a sequence and a routing header respectively
  - An input line for a material

## Example: Context

You select two BOM headers in the *BOM Headers* overview and switch to the *Items* overview. In the context you first of all see the data for the first BOM header. In the overview you see its items.

The "(1/2)" indicator signifies that the *Items* overview is currently displaying the items for the first of the two selected bills of material (see graphic). If you display the items for the second selected bill of material the indicator switches to "(2/2)".

Since you have made selections on the *BOM headers* overview, you can make entries in the lines for material and BOM header.



Context and *Items* Overview (schematic)

Overview

## Overview

### Definition

Lists [objects \[Ext.\]](#) of a particular type, that are in the worklist and which satisfy the entries in the validity window and the context. Every [change status \[Ext.\]](#) of an object is displayed on a separate line.

### Use

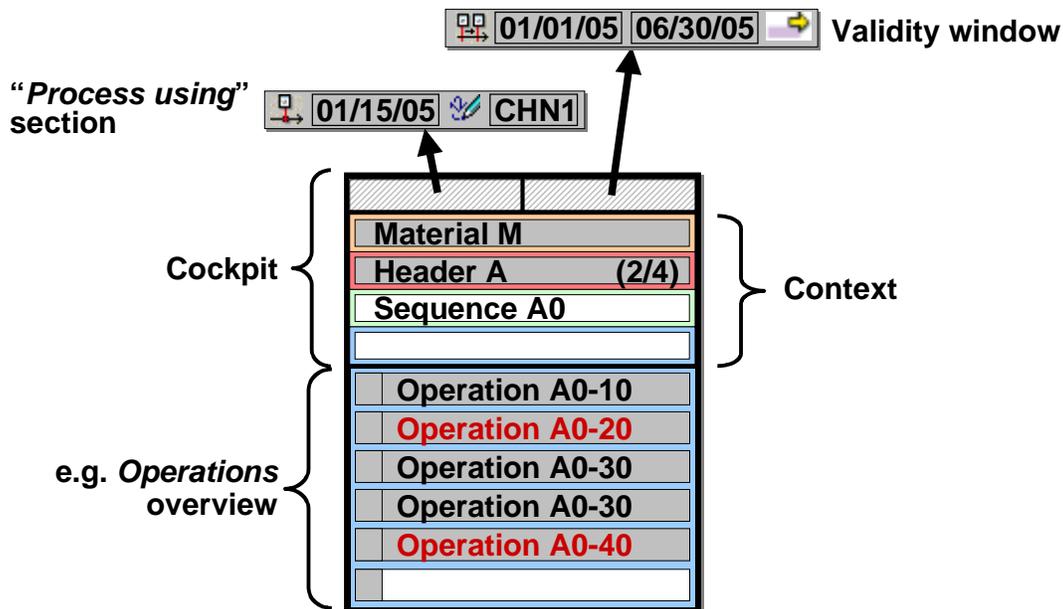
An overview provides information about the objects and change statuses for a particular object type.

You can change and delete the objects (or change statuses) that are displayed. You can also create new objects (or change statuses).

You can go from one overview to another as you like.

### Structure

Operations and Cockpit Overview Screen (schematic)



An overview lists all the objects of the respective object type, which

- Are contained in the worklist
- Are valid on at least one day in the **validity window**.
- Satisfy your entries in the context

Every change status of an object is displayed on a separate line. In the standard sort of the overview screen, the change statuses for an object are listed immediately below each other. Change statuses of the same object are listed in the same font color.

As soon as you have entered a key date and the superior objects in the context, you can begin making entries in the blank fields on an overview screen.



The operations *A0-10* and *A0-20* are listed in the overview screen (see graphic). Operation *A0-20* has two change statuses. Therefore both lines for operation *A0-20* have the same font color (red in the graphic). You have entered 03/01 as the key date and locked all the displayed operations. Operation *A0-10* and the first change status of operation *A0-20* are valid on 03/01. Both operations can be maintained. Conversely, the second change status of operation *A0-20* is not valid on 03/01. Consequently it cannot be maintained.

## Integration

To go from one overview screen to the overview screen of a BOM object or routing object, choose *BOM* → *<BOM object>* or *Routing* → *<Routing object>*.

To go to a detail screen from an overview screen, select the relevant object and choose *Goto* → *Detail*.

## Detail Screen

## Detail Screen

### Definition

Contains detailed information about an [object \[Ext.\]](#) or a [change status \[Ext.\]](#).

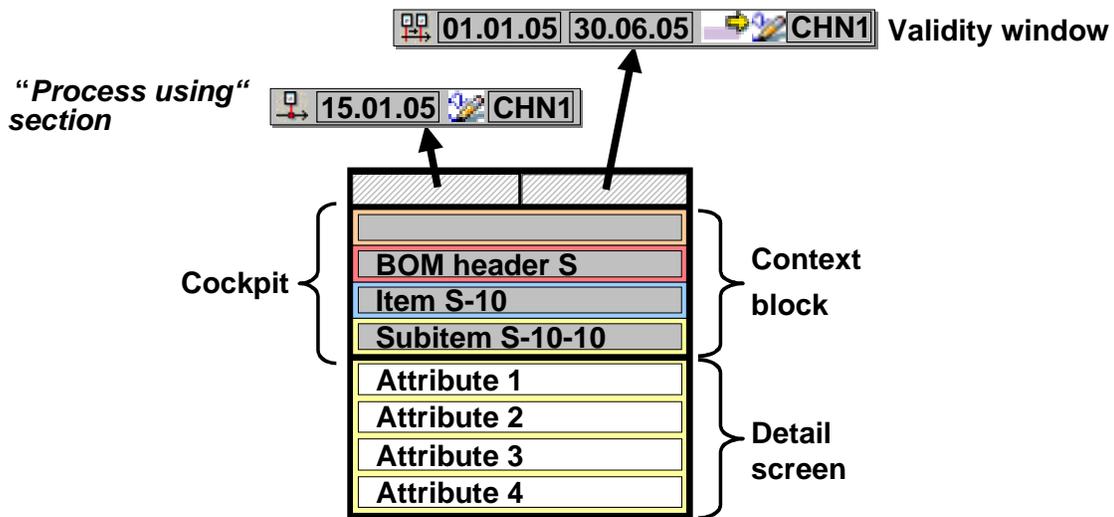
### Use

You use detail screens to gather information about the attributes of a particular object or change status. If necessary, you can change these attributes.



The graphic shows the detail screen of sub-item S-10-0, which is valid from 02/01 to 04/01 (see validity block in the graphic, lower triangles). The context block displays the superior objects, in this case, BOM header S and item S-10. You have entered the key date 03/01 (top triangle) and locked the sub-item S-10-10. The attributes of sub-item S-10-10 can be maintained.

Sub-item Detail Screen and Cockpit (schematic)



### Activities

You call up the detail screen of an object as follows: Select the object and click

## Navigation without using Selection

### Use

You use this function, if you are in an overview screen and want to know which objects are subordinate to the objects on this screen.

---

**Navigating Without Selections**

## Navigating Without Selections

Display all the routing headers in the *Headers* overview (graphic top left). In other words you choose the whole selection period as the validity window and enter nothing in the context.

Proceed as follows:

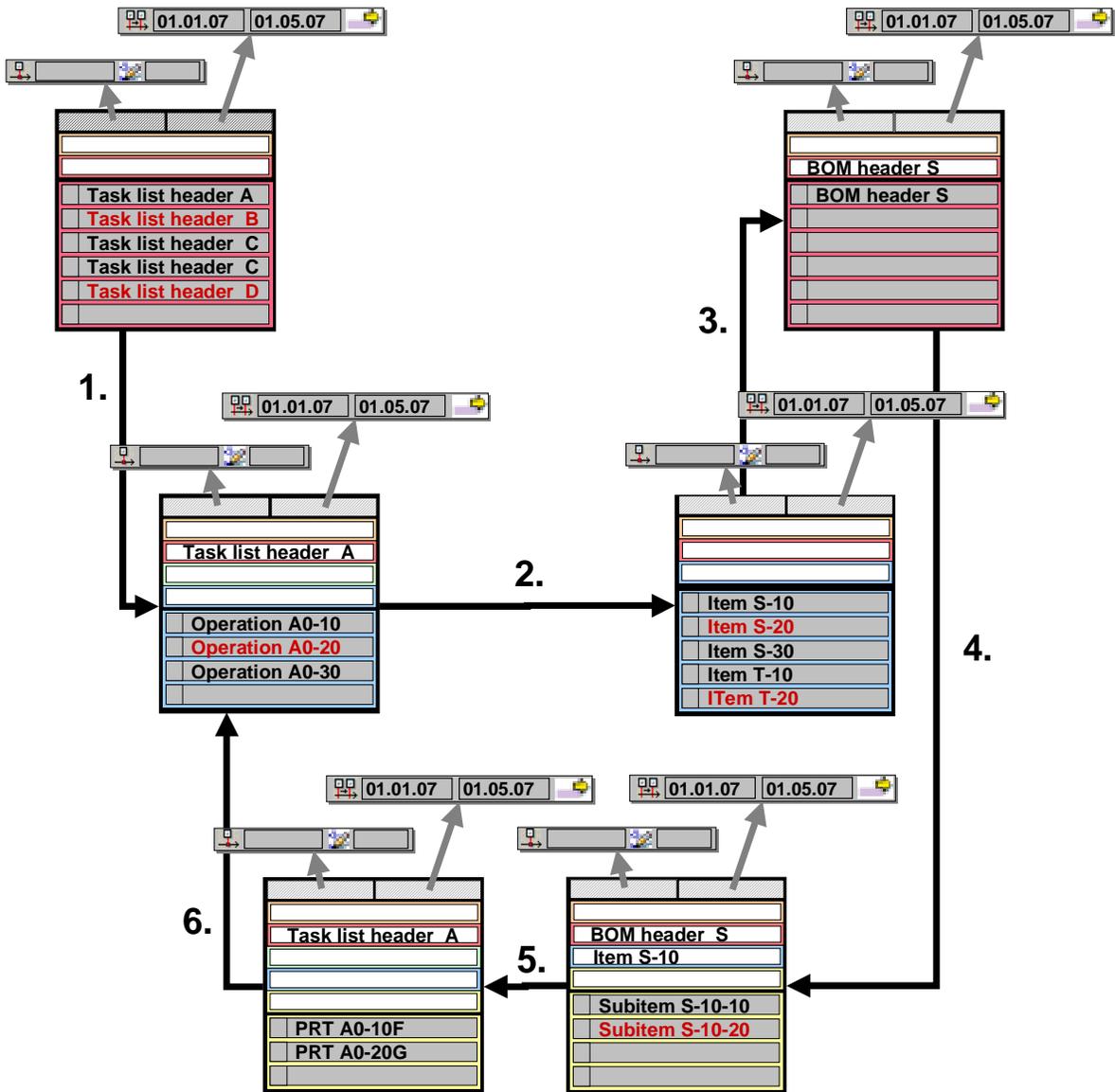
1. Go to the *Operations* overview and display the operations belonging to header A, by entering that in the context (middle and left in the graphic).
2. Go to the *Items* overview (middle and right in the graphic).

Since you have not entered anything in the context for BOM objects yet, all the items in the worklist are displayed.

3. Go to the *BOM headers* overview and filter for BOM header S (top right in the graphic).

### Navigation without Selections

Navigating Without Selections



4. Go to the *sub-items* overview and set a filter for item S-10 too (graphic bottom right).
5. Go to the *PRT* overview (graphic bottom left).  
 Since header A is still contained in the context, all the PRTs are displayed that are subordinate to header A.
6. Return to the *Headers* overview (middle and left in the graphic).

---

Navigating Without Selections

## Navigation using Selection

### Use

You use this function, if you are in an overview screen and want to know which objects are subordinate to a particular object on this screen.

---

**Selections on a Single Hierarchical Level**

## Selections on a Single Hierarchical Level

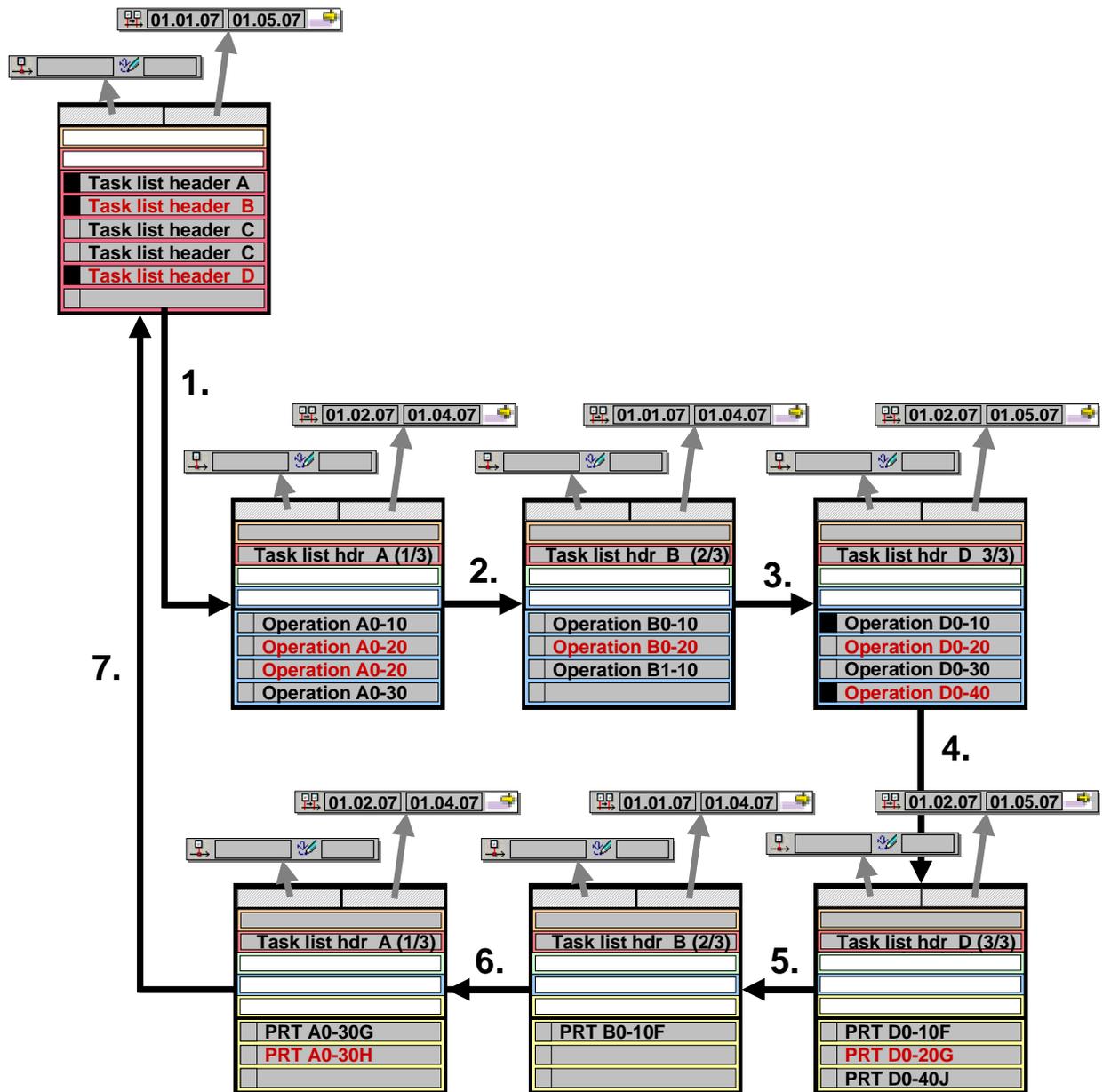
Select *Selection period* as the validity window in the *Headers* overview (see graphic top left).

Proceed as follows:

1. Select headers *A*, *B* and *D* and go to the *Operations* overview.  
The operations belonging to header *A* are displayed. The validity window first displays the selection period of your worklist. Then select *Change status* as the validity window. The validity window then displays the validity period of header *A* (see graphic).
2. Select *Goto → Next record*.  
The operations belonging to header *B* are displayed. The validity window displays the validity period of header *B*.
3. Select *Goto → Next record*.  
The operations belonging to header *D* are displayed. The validity window displays the validity period of header *D*.

### Selections On A Single Hierarchical Level

Selections on a Single Hierarchical Level



4. Go to the *PRTs* overview.  
The production resources and tools belonging to header *D* are displayed. The validity window continues to display the validity period of header *D*.
5. Select *Goto* → *Previous record*.  
The *PRTs* belonging to header *B* are displayed. The validity window displays the validity period of header *B*.
6. Select *Goto* → *Previous record*.

---

**Selections on a Single Hierarchical Level**

The PRTs belonging to header *A* are displayed. The validity window displays the validity period of header *B*.

7. Go back to the *Headers* overview.

Your selections remain in place. The validity window is reset to *Selection period*, which means that it once again displays the selection period of your worklist.

## Selections On Multiple Hierarchical Levels

Select *Selection period* as the validity window in the *Headers* overview (see graphic top left).

Proceed as follows:

1. Select headers *A*, *B* and *D* and go to the *Operations* overview.

The operations belonging to header *A* are displayed. The validity window first displays the selection period of your worklist. Then select *Change status* as the validity window. The validity window then displays the validity period of header *A* (see graphic).

2. Select *Goto* → *Next record*.

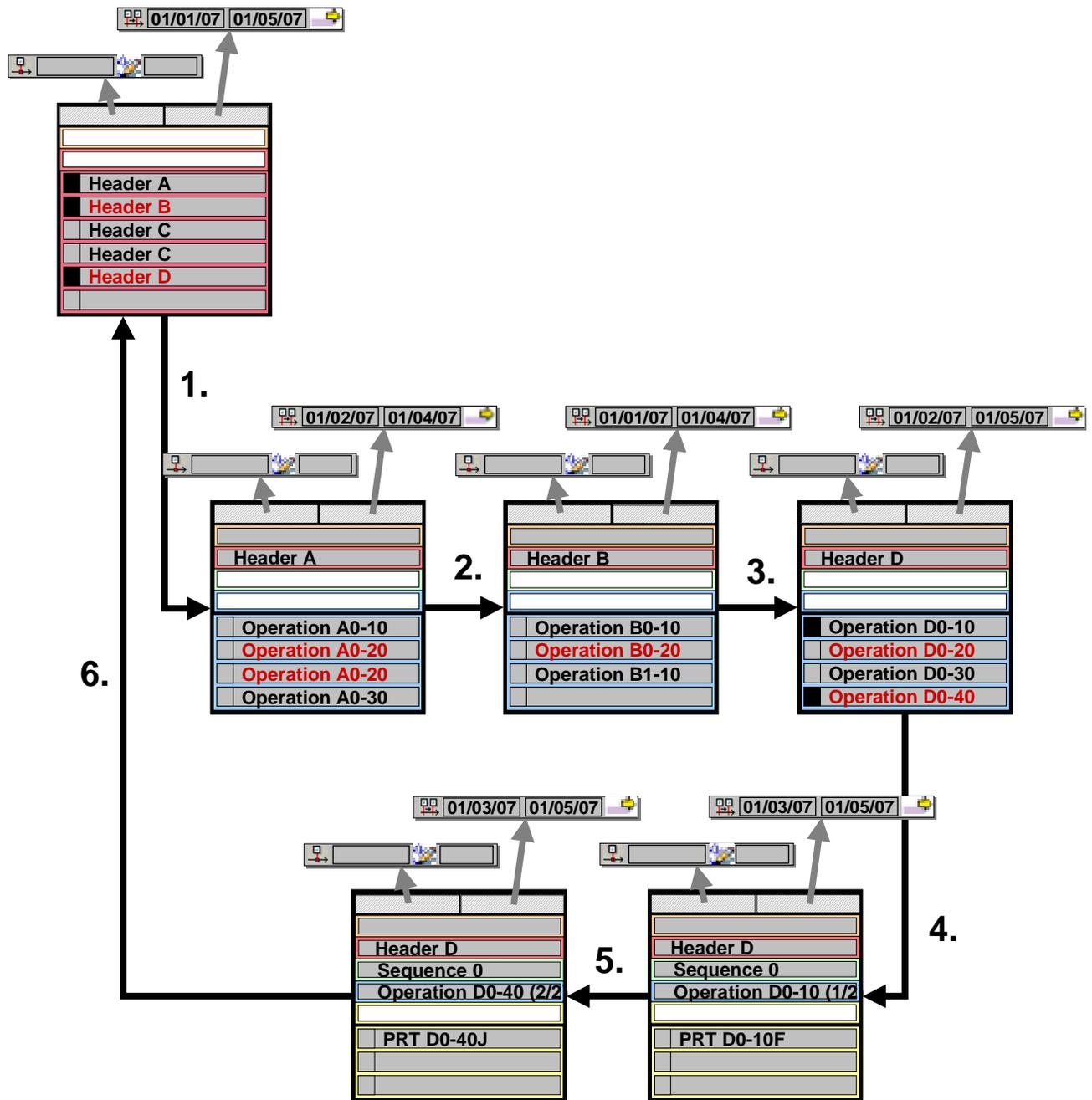
The operations belonging to header *B* are displayed. The validity window displays the validity period of header *B*.

3. Select *Goto* → *Next record*.

The operations belonging to header *D* are displayed. The validity window displays the validity period of header *D*.

### Selections On Multiple Hierarchical Levels

Selections On Multiple Hierarchical Levels



4. Select operations *D0-10* and *D0-40* and go to the *Production Resources/Tools* overview.  
 The PRTs belonging to operation *D0-10* are displayed. The validity window now displays the validity period of operation *D0-10*.
5. Select *Goto* → *Previous record*.

---

**Selections On Multiple Hierarchical Levels**

The PRTs belonging to operation *D0-40* are displayed. The validity window displays the validity period of operation *D0-40*.

6. Go back to the *Headers* overview.

Your selections remain in place. The validity window is reset to *Selection period*, which means that it once again displays the selection period of your worklist.

## Editing Objects

# Editing Objects

## Use

The functions described here are available for objects with any type.

## Selecting Objects

### Use

You use these functions on the overviews of the *Engineering Workbench*, to select objects in them.

### Features

You can (de)select objects line-by-line or

- Select a block of objects (in other words, several objects that follow on from each other in an overview)
- Select all objects on the overview
- Deselect all objects on the overview

You can also insert a line in which to create an object.

### Activities

You want to	Proceed as follows:
Select a block of objects	1. Select the first object that you want to select. 2. Click  3. Select the last object that you want to select. 4. Click  again.
Select all objects	Click  .
Deselect all objects	Click  .
Insert a line	Click  .

## Filtering Objects

# Filtering Objects

## Use

You use these functions to filter for objects with certain attributes, on the overviews in the *Engineering Workbench*.

## Features

In the *Engineering Workbench* you can set filters in the context or by clicking the  icon.

### Setting a Filter in the Context

In the context you enter identifying data for objects so their subordinate objects are displayed.



You are on the *Operations* overview and enter task list type *R* and group *G1* in the context. In other words you want to filter for all routing operations in group *G1*.

Every time you make an entry in the context, the system hides the corresponding column in the overview. For example, if you enter a task list type in the context, the system hides the *Task list type* column. This means that by setting a filter in the context, you can save space on the screen.

### Setting a Filter by clicking the icon

While only identifying data can be entered in the context, using the  icon, you can filter for any attributes of the objects in the overview. You can filter for attribute intervals and for sets of single values. In the same way you can also exclude certain values from the filter and enter generic filter criteria (for example, by entering *A\** to filter for all strings that begin with *A*).

## Setting a Filter in the Context

### Procedure

1. In the context, enter the identifying data for the objects, superior to those objects you want to work with.

For example, if you are interested in the operations in a particular group, enter the task list type and group in the context.



You can enter data in the context block automatically like this: Put the cursor in a row which displays an object and in a column which contains identifying data, and click



The system transfers identifying data for the object, up to the cursor position, to the context.

For example, on the *Operations* overview, you place the cursor in the *Group* column, in a row which displays an operation from a routing (task list type *N*), in group *PG1*. The system then transfers task list type *N* and group *PG1* to the context.

2. Click .

### Result

The system hides the appropriate columns in the overview and displays the objects which fulfill the filter criteria.



For example, you are on the *Operations* overview. After you have entered a task list type and group in the context, the system hides the *Task list type* and *Group* columns and displays the operations in the group.

---

**Canceling a Filter in the Context**

## Canceling a Filter in the Context

### Procedure

Delete your entries in the context and click .

The system shows again those columns in the overview that were hidden, and displays all the objects without a filter.



You can delete your entries in the context automatically, like this: Place the cursor on a line in the context block and click .

### Example

For example, you are on the *Operations* overview and delete your entries for task list type and group from the context. The system shows the *Task list type* and *Group* columns again and displays all the operations in your worklist.

## Filtering for User-Defined Attributes

### Procedure

1. On any overview in the *Engineering Workbench*, select a number of columns.
2. Click .  
The *Filter <overview object type>* dialog box appears. One line is displayed for each column selected, where you can enter filter criteria.
3. Enter your filter criteria. Enter one single value or interval value per line. You can use wildcard characters to filter generically (for example, enter **A\***, to filter for all character strings, which begin with A).



You can filter for several single values or intervals. You can also exclude one or more single values or intervals from the filter. To do this, click  in the *Filter <overview object type>* dialog box.

4. Click .

### Result

The system filters the objects on the overview. The  icon shows that a filter has been set, by changing to . To remove the filter, simply click .

---

**Object Creation**

## Object Creation

### Use

You use this function when you are creating an object in the *Engineering Workbench*.



If your organization has implemented the *Engineering Change Management* (LO-ECH) component and uses change master records to process, for example, BOMs and routings, we recommend you read the information on the [Creating a Change Status with Date Validity \[Page 255\]](#) function and, if relevant, [Creating a Change Status with Parameter Effectivity \[Page 301\]](#).

### Features

If you are creating an object on a key date (without a change number), the validity period ends on December 31, 9999.

## Creating Objects

### Prerequisites

If you want to create a routing or BOM object you must have already created its hierarchically superior objects. For example: If you want to create an operation, you must have already created the superior header and sequence.

If you want to create an assignment you must have already created the objects that you want to link.

### Procedure

1. Call up the relevant overview screen for the object you want to create. For instance, if you want to create an operation, call up the *Operations* overview.
2. If you
  - Want to create a routing or bill of material object  
In the context, enter the hierarchically superior objects
  - Want to create an assignment  
In the context, enter one of the objects that you want to link



If you want to create a routing header, you do not have to enter anything in the context. If you want to create an operation, you must enter the superior header and sequence. If you want to create a material-routing assignment, enter the material or routing header.

3. Click . If the *Process using* dialog box appears, you have to enter either a key date or a change number.  
The system provides input lines beneath the objects that are displayed in the overview.  
The system proposes default values in certain columns.
4. Enter the object data in an empty field and click .  
The system creates the object in your worklist.
5. Save your data.

### Result

The system creates the object in the database.

---

## Changing an Object

# Changing an Object

## Use

You use this function if you want to change an object in the *Engineering Workbench*.



If your organization has implemented the *Engineering Change Management* (LO-ECH) component and uses change master records to process, for example, BOMs and routings, we recommend you read the information on the [Changing a Change Status with Date Validity \[Page 259\]](#) function and, if relevant, [Changing a Change Status with Parameter Effectivity \[Page 306\]](#).

## Features

You can change an object for every key date that lies within the object's validity period. Please note that changing a key date (in other words without a change number) affects the object's **entire** validity period. This may even mean **before** the change's key date.



You create an object with the key date (i.e. no change number) January 01, 2005. It is therefore valid until December 31, 9999. You change the object with the key date August 01, 2005 so your change is effective from January 01, 2005 to December 31, 9999.

## Changing Objects

### Procedure

1. Call up the overview screen, on which the object that you want to change is displayed. For instance, if you want to change an operation, call up the *Operations* overview.
2. Select the object that you want to change.
3. Click . If the *Process using* dialog box appears, you also have to enter either a key date or a change number.

The system locks the object, so that another user cannot change it. If the *Lock indicator* column is shown on the overview screen, the lock is displayed like this:  All fields for the object that you can edit are ready for input.

4. Make the desired changes and click .

The system changes the object in your worklist.

5. Save your data.

### Result

The system changes the object in the database.

Objects that you have locked are automatically released for use by other users, when you leave the *Engineering Workbench*. If you want to release the object immediately, select it and click .

---

**Object Copying**

## Object Copying

### Use

You use this function if you want to copy an object in the Engineering Workbench.

### Features

With this function you copy exactly one object. Subordinate objects are not copied. Use the [Multi-Level Copying of Objects \[Page 102\]](#) function if you also want subordinate and/or assigned objects to be copied.

You can copy the following objects:

- Headers
- Operations
- Inspection characteristics
- BOM headers
- Items

## Copy an Object

### Prerequisites

For an object to be copied, its superior object must already exist in the target structure. For instance, if you want to copy an item, the bill of material in which the item will be copied must already exist. The same applies if you want to make a copy of a routing object, for instance an operation. In this case the routing and the sequence in which the operation is to be copied must already exist.

### Procedure

1. Call up the overview screen for the object that you want to copy. For instance, if you want to copy an operation, call up the *EWB: Operations Overview* screen.
2. Select the object that you want to copy.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* screen appears.

### Examples

If you	Deselect the <i>Multilevel copy</i> indicator and enter the data
Want to copy a routing header	of the new header
Want to copy an operation	of the new operation as well as the data of the header and the sequence to which the copy of the operation is to be assigned
Want to copy a BOM header	of the new BOM header
Want to copy an item	of the new item and of the BOM header to which the new item is to be assigned

5. Click  *Copy*.

The system creates the new object in the worklist.

6. Save you data.

### Result

The system creates the copy in the database

## Multi-Level Copying of Objects

## Multi-Level Copying of Objects

### Use

You use this function when you want to copy an object, together with its subordinate and/or assigned objects.

Use this function for example, if you want to copy BOM with all its items.

### Features

You can make multi-level copies of the following objects in the *Engineering Workbench*:

- Headers
- BOM headers
- Operations
- Inspection characteristics



The subordinate (and not mentioned in the list above) objects to these objects cannot be hierarchically copied. However, these objects can be copied along with another object when you copy it using the multi-level function. For instance, sub-operations can be included, by making a multi-level copy of the operation to which the sub-operations are subordinate.



If an attempt to copy a particular object fails (for example, because it would result in the same operation number being allocated twice) the system places an appropriate error message in a log file that you can go to by clicking .



Using multi-level copying for materials and sequences will be possible in a future release.

### Header

If you want to make a multi-level copy of a routing header, make sure you include object type *routing header* in your [Copy Range \[Page 114\]](#). The objects that the system copies are listed in the table below:

#### Multi-level copying of a routing header: Copied objects

As well as the header your copy range contains:	The system copies
No further objects	The header
Object types <i>Sequence</i> and <i>Operation</i>	All sequences and operations in the routing too
Object type <i>Production resource/tool</i>	All PRTs in the routing too
Object type <i>Inspection characteristic</i>	All inspection characteristics in the routing too

**Multi-Level Copying of Objects**

Object type <i>material-routing assignment</i>	A material-routing assignment too (see <a href="#">Example: Copying Including Component Assignments [Page 108]</a> )
Object type <i>BOM header</i>	One of the BOM headers assigned to the material too
Object type <i>Item</i>	The BOM items
Object type <i>Component assignment</i>	The component assignments in the routing

**Operation**

If you want to make a multi-level copy of an operation, make sure you include object type *operation* in your Copy Range. The system then automatically includes the object types *Sequence* and *Routing header* in the copy range. The objects that the system copies are listed in the table below:

**Multi-level copying of an operation: Copied objects**

<b>Apart from the object types <i>task list header</i>, <i>sequence</i> and <i>operation</i>, your copy range contains:</b>	<b>The system copies</b>
No further objects	The operation
Object type <i>Production resource/tool</i>	All PRTs in the operation
Object type <i>Inspection characteristic</i>	All inspection characteristics in the operation
Object type <i>Component assignment</i>	The component assignments of the operation (see <a href="#">Example: Copying Including Component Assignments [Page 108]</a> )

**BOM header**

If you want to make a multi-level copy of a BOM header, make sure you include object type *BOM header* in your copy range. The system then automatically includes the object type *Material-routing assignment* in the copy range. The objects that the system copies are listed in the table below:

**Multi-level copying of a BOM header: Copied objects**

<b>Apart from the object types <i>Material-BOM assignment</i> and <i>BOM header</i> your copy range contains:</b>	<b>The system copies</b>
No further objects	The BOM header
Object type <i>Item</i>	And all the items in the BOM
Object type <i>Routing header</i>	And the assigned routing header
Object type <i>Operation</i>	And all operations of the assigned routing
Object type <i>Production resource/tool</i>	And all PRTs in the assigned routing
Object type <i>Inspection characteristic</i>	And all inspection characteristics in the assigned routing

**Multi-Level Copying of Objects**

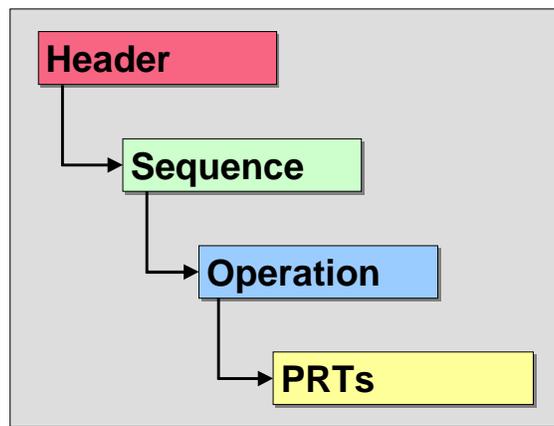
Object type <i>Component assignment</i>	And all component assignments between the BOM items and the operations of the assigned routing
---	--

## Example: Copying Including Subordinate Objects

You want to make a multi-level copy of an operation. To do this you must first delete all object types from the [copy range \[Ext.\]](#) and then include the *operation* object type in the copy range. The system automatically adds the superior object types *routing header* and *sequence* to the copy range.

You want the copy to include the production resources and tools (PRTs) assigned to the operation. You therefore also need to include the *PRTs* object type in the copy range (see graphic 1).

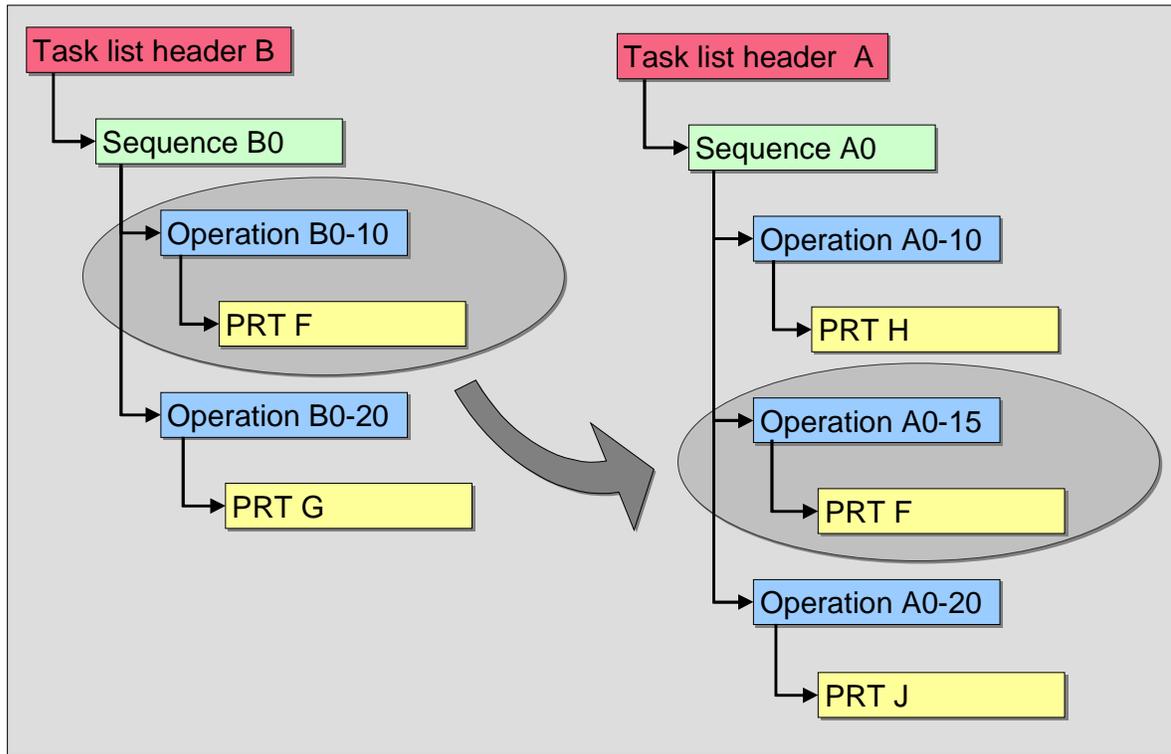
Graphic 1: Copy Range



You now multi-level copy operation *B0-10* from sequence *B0* of routing *B* to sequence *A0* of routing *A*. To do this select operation *B0-10* in the *EWB: Operations overview* screen, enter header *A* and sequence *A0* in the context of the *EWB Copy – Target data* dialog box and *A0-15* as the operation ID for the new operation. In the *EWB: Assign New Operation Number* dialog box, you confirm the proposed operation numbers or change them as required. You then set the *Multi-level copy* indicator and choose  *Copy*. The system then copies operation *B0-10* together with *PRT F* to routing *A* (see graphic 2).

Graphic 2: Making a Multi-Level Copy of an Operation

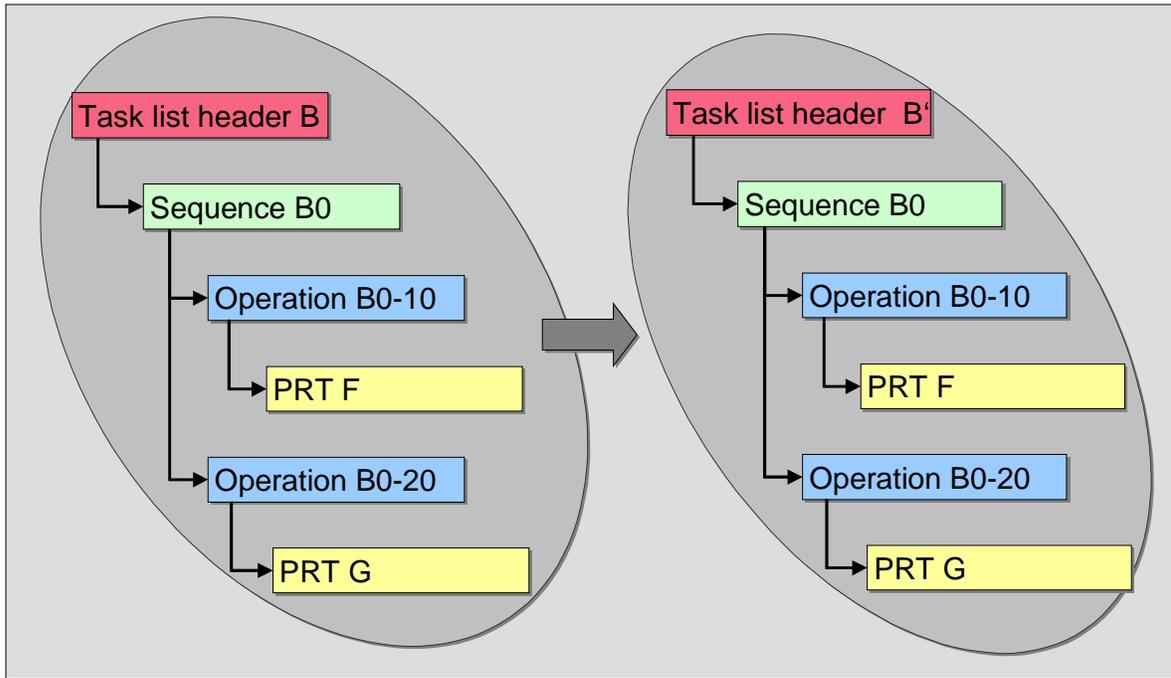
## Example: Copying Including Subordinate Objects



Instead of operation *B0-10* you could also make a multi-level copy of header *B* with the copy range shown in graphic 1. To do so, you select header *B* on the *EWB: Header Overview* and enter in the context of the *EWB: Copy – Target data* dialog box the data for the new routing *B'*, set the *Multi-level copy* indicator and choose  *Copy*. The system then copies header *B* together with all of its subordinate objects (see graphic 3).

**Graphic 3: Making a Multi-Level Copy of a Routing Header**

Example: Copying Including Subordinate Objects

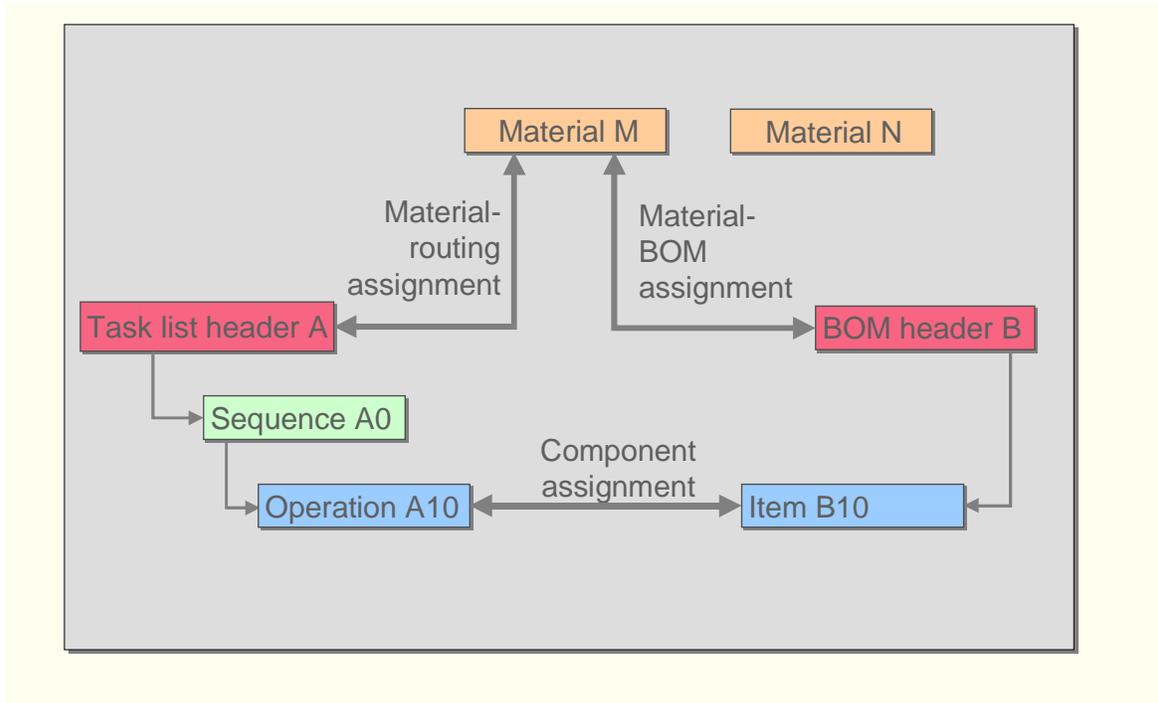


## Example: Copying Including Component Assignments

**Example: Copying Including Component Assignments**

Your worklist contains the objects in graphic 1.

**Graphic 1: Objects in Worklist**



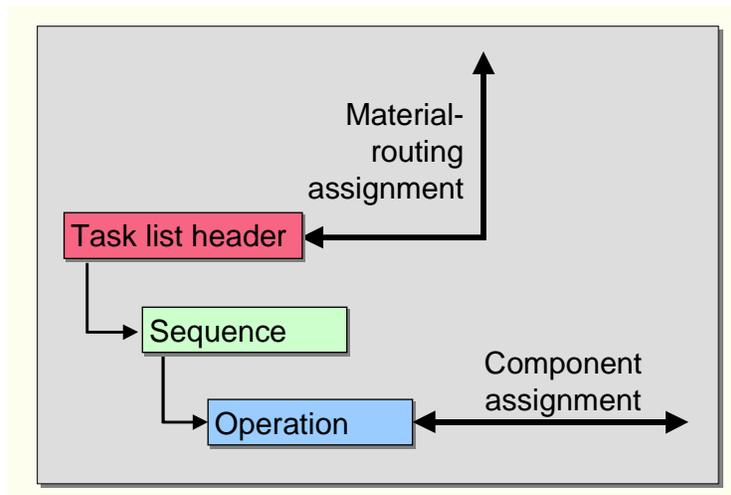
Your copy range contains the objects in graphic 2. (To access the copy range, choose )



If you include the object type *Operation* in the copy range, the system automatically includes the superior object types *Routing header* and *Sequence*. If you now include the object type *Component assignment* in the copy range, the system automatically includes object type *Material-routing assignment*.

**Graphic 2: Copy Range**

Example: Copying Including Component Assignments

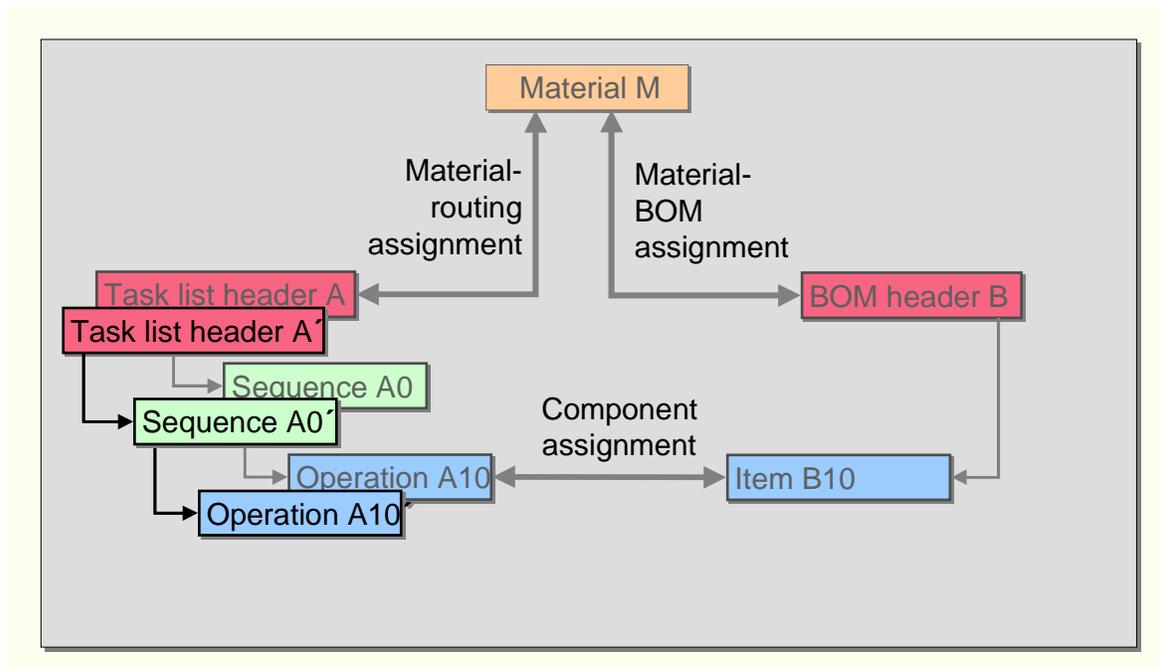


**Case 1**

You want to make a multi-level copy of routing A and include its *Sequence* and *Operation*. Bill of material B, which is assigned to material M, just as routing A is, should however, not be copied.

Select header A in the EWB screen: *Headers overview*, click and in the dialog box *EWB: Copy – Target data*, enter the identifying data (in other words, task list type, task list group and group counter) for routing A, which you want to create, but **no material**. You then set the *Multi-level copy* indicator and choose *Copy*. You can see the result in graphic 3.

**Graphic 3: Result case 1**



### Example: Copying Including Component Assignments

**Result:** The system creates task list header A', sequence A0' and operation A10' as a copy of task list header A, sequence A0 and operation A10.



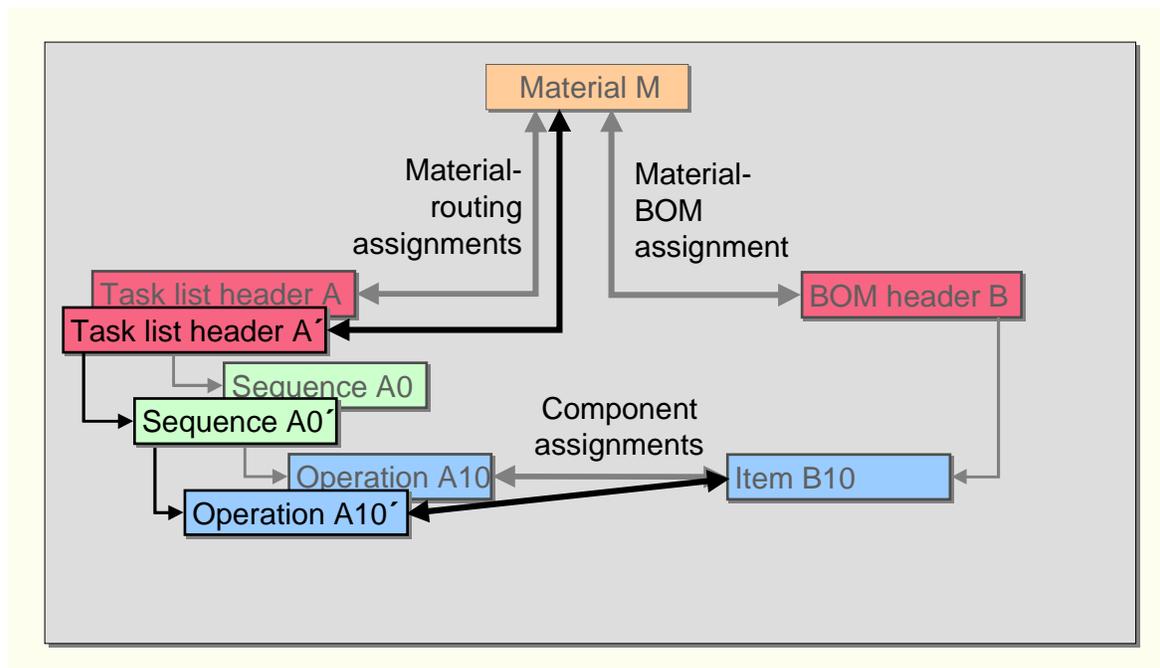
Note that the system **does not create either a material-routing assignment or a component assignment**, even though both object types are contained in the copy range. The reason for this is that **no material** is entered in the dialog box *EWB: Copy – Target data*.

### Case 2

**Aim:** as in case 1. However, you also want to create a material-routing assignment and a component assignment.

You proceed exactly as you did for case 1, however, in the dialog box *EWB: Copy – Target data* **also enter the material M**. Then set the indicator *Multi-level copy* and click *Copy*. You can see the result in graphic 4.

Graphic 4: Result case 2



**Result:** The system creates task list header A', sequence A0' and operation A10' as a copy of task list header A, sequence A0 and operation A10. It also creates a material-routing assignment between task list header A' and **material M**, and a component assignment between operation A10' and item B10.

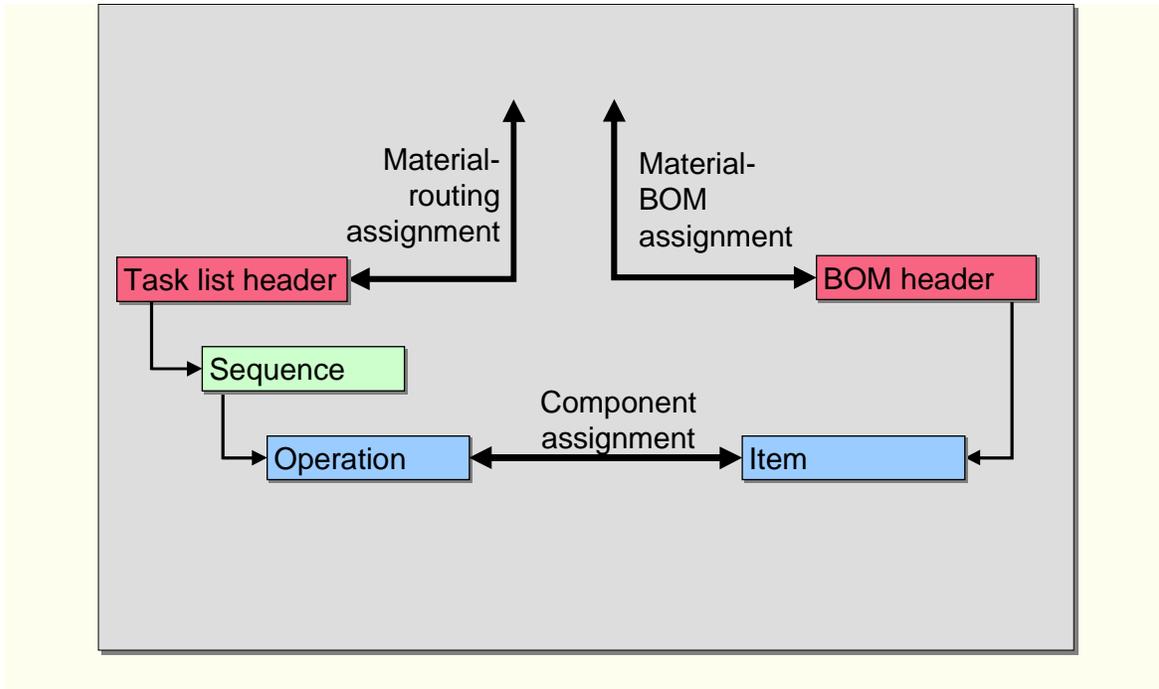
### Case 3

**Aim:** In addition to routing A and its component assignment, you also want to make a multi-level copy of BOM B including the items assigned to it.

**Example: Copying Including Component Assignments**

For this, you enhance the copy range of graphic 2 to include the object types *material-BOM assignment*, *BOM header* and *item* (see graphic 5).

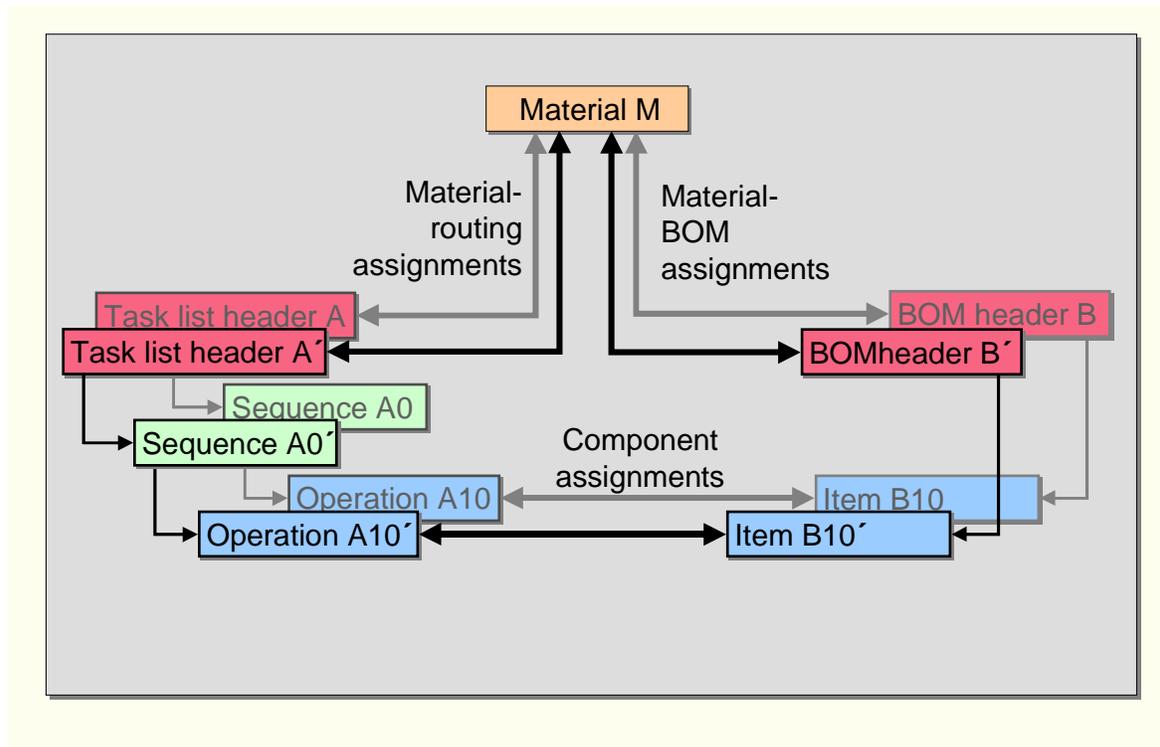
**Graphic 5: Enhanced Copy Range**



You now proceed exactly as you did for case 2, this means that this time you also enter **the material M** in the dialog box *EWB: Copy – Target data*. Then set the indicator *Multi-level copy* and click  *Copy*. You can see the result in graphic 6.

**Graphic 6: Result case 3**

## Example: Copying Including Component Assignments



**Result:** The system creates task list header A', sequence A0' and operation A10' as a copy of task list header A, sequence A0 and operation A10. It also creates a material-routing assignment between task list header A' and **material M**. Then the system recreates the BOM alternative B' as a copy of B (so also the subordinate item B10'). Finally, it creates the component assignment between operation A10' and item B10' as a copy of the component assignment between operation A10 and item B10.

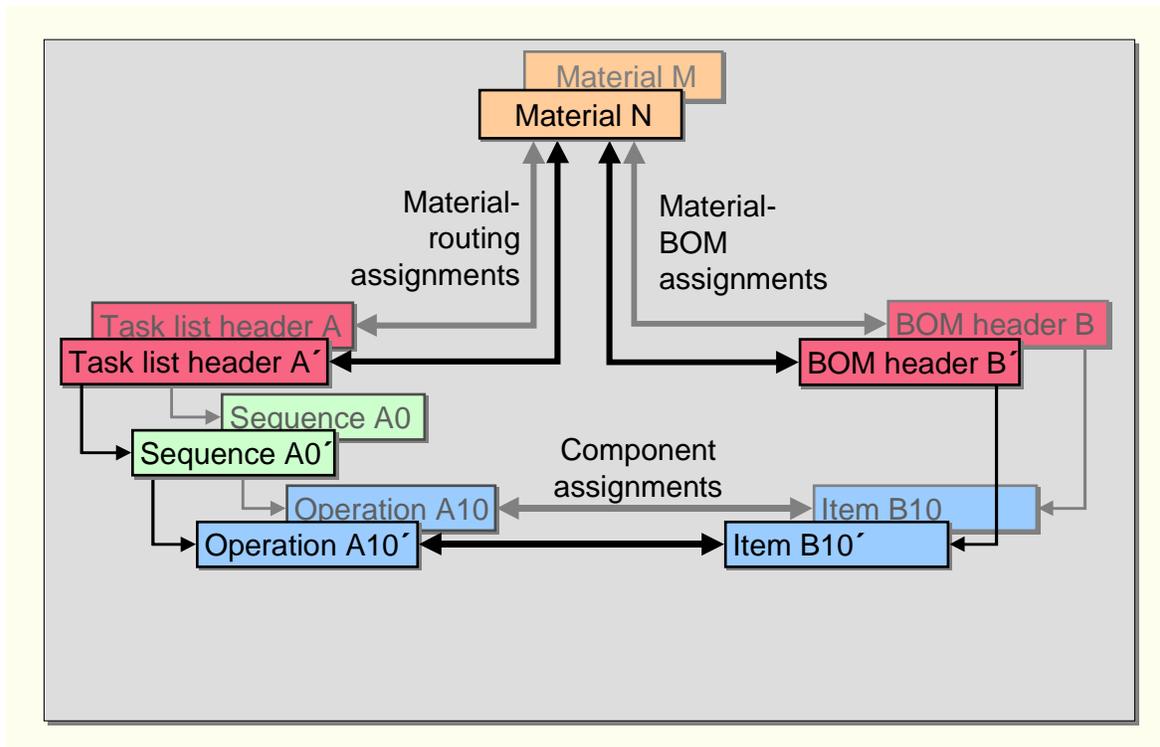
#### Case 4

**Aim:** as in case 3. However you want to create a **new** material BOM for **material N**, to which the copied routing A' is also to be assigned.

You proceed exactly as you did for case 3, however, in the dialog box *EWB: Copy – Target data* enter **material N**. Then set the indicator *Multi-level copy* and click . You can see the result in graphic 7.

Graphic 7: Result case 4

Example: Copying Including Component Assignments



**Result:** The system creates task list header A', sequence A0' and operation A10' as a copy of task list header A, sequence A0 and operation A10. It also creates a material-routing assignment between task list header A' and **material N** and the new material BOM B'. Finally, the system creates the component assignment between operation A10' and item B10' as a copy of the component assignment between operation A10 and item B10.

## Copy Range

# Copy Range

## Definition

Defines the object hierarchy that is copied when you make a multi-level copy of an object in the *Engineering Workbench*.

## Use

You have to define the copy range when you want to make a multi-level copy.

## Structure

Every object type in the *Engineering Workbench* can be included in the copy range. However the combinations allowed are restricted.



If your copy range includes the *operation* object type, the *routing header* and *sequence* object types are automatically placed in the working environment. If the copy range contains object types *Operation* and *Item*, the object types *material-routing assignment* and *material BOM assignment* are automatically included.

The following applies:

- You have to include at least one object type from a routing or bill of material in the copy range.
- If you include an object type from a routing in the copy range (for example: *operation*), the system also automatically includes in the copy range every superior object type from the same routing (for example: *sequence* and *routing header*). The same correspondingly applies for an object type from a bill of material.
- If you include the *sequence* object type in the copy range, the system also automatically includes the *operation* and *header* object types in the copy range.
- If you include the *object dependencies to operation* or *classification operation* object types in the copy range, the system automatically includes the *operation* object type in the copy range, as well every object type superior to it. The same correspondingly applies if you include object dependencies to other object types (or classifications of other object types) in the copy range.

## Editing the Copy Range

1. On any overview click .

The *EWB: Options* dialog box appears

2. Go to the  *Copy range* tab page.

The check boxes on the tab page indicate which object types are currently included in the copy range.

3. Check or decheck the boxes to include further object types in the copy range, or remove object types from it.



In some cases the system reacts to your entries, by including further object types automatically in the copy range or removing further object types from it. The reason for this is that not all object type combinations are appropriate.

4. Click .

## Result

The system copies all object types that you have selected into the copying area.

## Make a Multi-Level Copy of an Object

## Make a Multi-Level Copy of an Object

### Prerequisites

To make a multi-level copy of an object, its superior object must already exist in the target structure. For instance, if you want to make a multi-level copy of an item, the bill of material to which the item will be copied must already exist. The same applies if you want to make a multi-level copy of a routing object, for instance an operation. In this case the routing and the sequence in which the operation is to be copied must already exist.

You have selected the [copy range \[Ext.\]](#) so that the desired object types are included in the multi-level copy. (To access the copy range, choose ) For more information, see [Copy Range \[Page 114\]](#) or [Editing the copy range \[Page 115\]](#).

### Procedure

1. Call up the overview screen for the object that you want to make a multi-level copy of. For instance, if you want to make a multi-level copy of an operation, call up the *EWB: Operations Overview* screen.
2. Select the object that you want to make a multi-level copy of.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* screen appears.

4.

If you	Select the <i>Multilevel copy</i> indicator and enter the data
Want to make a multi-level copy of a routing header	of the new header
Want to make a multi-level copy of a header together with material- routing assignment	of the new header as well as the material that is to be assigned to the new routing
Want to make a multi-level copy of an operation	of the new operation as well as the data of the header and the sequence to which the copy of the operation is to be subordinate
Want to make a multi-level copy of a BOM header	of the new BOM header

5. Click  *Copy*.

The system creates the multi-level copy in the worklist. In other words it copies

- the object that you are making a multi-level copy of
- the objects that are assigned to or subordinates of the object that you have made a multi-level copy of and whose type is included in the copy range.

**Make a Multi-Level Copy of an Object**

For example: If you are making a multi-level copy of an operation and the *production resources/tools* object type is included in the copy range, copy the operation itself and those production resources and tools that belong to it.

6. Read the error log if the system reports that log entries were made during copying. To do this click .
7. Save your data.

**Result**

The system creates the multi-level copy in the database.

## Object Deletion

## Object Deletion

### Use

You use this function if you want to delete an object in the *Engineering Workbench*.



If your organization has implemented the *Engineering Change Management* (LO-ECH) component and uses change master records to process, for example, BOMs and routings, we recommend you read the information on the [Deleting a Change Status with Date Validity \[Page 268\]](#) function and, if relevant, [Setting Deletion Indicators for Change Statuses with Parameter Effectivity \[Page 311\]](#).

### Features

To delete an object, enter a key date that lies within the object's validity period.

When you save your worklist, objects you have deleted in the *Engineering Workbench* are **not** deleted from the database. Instead, these objects are given **deletion indicators**. Before the object data can be deleted from the database, it first has to be archived.

For more information on archiving, see the documentation for the *Data Archiving* (CA-ARC) component, under [Archiving Application Data \[Ext.\]](#).

## Deleting Objects

### Procedure

2. Call up the overview screen, on which the object that you want to delete is displayed. For instance, if you want to delete an operation, call up the *Operations* overview.
2. Select the object that you want to delete.
3. Click . If the *Process using* dialog box appears, you also have to enter either a key date or a change number.

The *Delete objects* dialog box appears.

4. Confirm that you want to delete the object.  
The system deletes the object from your worklist.
5. Save your data.

### Result

The system deletes the object from the database.

## Printing Objects

# Printing Objects

## Use

You use this function to print data from objects you are editing in the *Engineering Workbench*.

If you

- Want to print the data in an overview quickly and in tabular form, you can use the list printout function in the *Engineering Workbench*.
- Want to incorporate graphics and combine data from various different overviews, you can print via *Microsoft Word 97* (or higher).



You employ your personnel capacity flexibly (job rotation). So your employees can be quickly trained to carry out activities at a new work center, you supply them with illustrated operational method sheets at the work center (see the example below). You therefore print via *Microsoft Word 97* (or higher).

## Prerequisites

### Print via *Microsoft Word 97* (or higher).

You have

- Installed *Microsoft Windows NT* with service pack 3 (or higher) as well as *Microsoft Word 97* (or higher) on your work center PC
- Set the *Microsoft Word 97* (or higher) options as necessary
- Created the graphics you want to print in the R/3 document administration system
- Created the layouts (print templates) you want to use in *Engineering Workbench Customizing*

For more information on these points, see the implementation guide (IMG) for the *Engineering Workbench* in *Editing Layouts for Printing via MS Word*.

## Features

### List printout

This function is available on all overviews in the *Engineering Workbench*. You can select and print as many rows in an overview as you wish.

### Print via *Microsoft Word 97* (or higher).

This function is available on the *Headers* and *Operations* overviews. A printout, which complies with a predefined layout, is generated for each header or operation you select.

A printout can include:

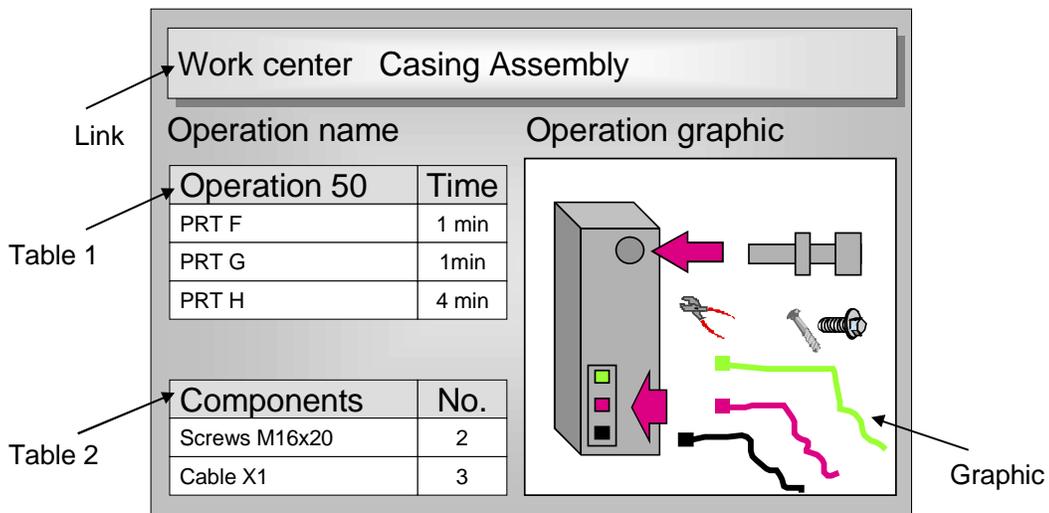
- Data from headers, operations, component assignments, PRTs or inspection characteristics, as either individual data or in the form of a table
- Graphics

## Example

The graphic shows an operational method sheet for the *Casing Assembly* work center, which you want to print via *Microsoft Word 97* (or higher). The operational method sheet contains

- A link to the work center description
- A table which the system fills with data about the operations that are carried out at the work center
- A table which the system fills with data about the components that are assembled at the work center
- A graphic which illustrates the operations to be carried out

**Example of an Operational Method Sheet**



## Making List Printouts

# Making List Printouts

## Use

You use this procedure when you want to print an overview from the *Engineering Workbench* (or certain columns in an overview) as a list.

## Procedure

4. On any overview click .

The *Options* dialog box appears

5. Go to the *Print* tab page.

3. Select the *List printout* radio button and click .

You return to the overview from which you came.

4. Select the change statuses whose data you want to print and click .

The print preview of the overview appears. Here you can still change the appearance of the list. For example, you can hide columns, which do not interest you. For more information, choose *Help* → *Application help* in the print preview screen menu.



If you want to print the whole overview you do not need to select anything. You simply need to click .

5. Choose the menu options *List* → *Print*.

## Result

The system prints the list. By clicking  you return to the overview.

## Printing via Microsoft Word

### Use

You use this procedure if you want to print data from headers or operations via *Microsoft Word 97* (or higher) - maybe including graphics and data from subordinate objects such as PRTs or component assignments.

### Prerequisites

You have

- Set the *Microsoft Word 97* (or higher) options as necessary
- Created the graphics you want to print in the R/3 document administration system
- Created the layouts (print templates) you want to use in *Engineering Workbench Customizing*

For more information on these points, see the implementation guide (IMG) for the *Engineering Workbench* in *Editing Layouts for Printing via MS Word*.

### Procedure

6. Go to the *Operations* or *Headers* overview and click .

The *Options* dialog box appears

7. Go to the *Print* tab page.
6. Select the *Print via MS Word* radio button.
4. Enter a layout (print template) and a BOM application.

If the layout you enter is intended for printing component assignments, the system determines which component assignments are printed, using the BOM application.

5. Click .

You return to the *Operations* or *Headers* overview.

6. Select a task list or operation and click . If the *Process using* dialog box appears, you also have to enter either a key date or a change number.

### Result

The system determines the data related to the selected object that is valid on the key date and for the BOM application entered. It then starts *Microsoft Word 97* (or higher), which then prints the data with the layout you entered.

## Object Editing in the Object Browser

## Object Editing in the Object Browser

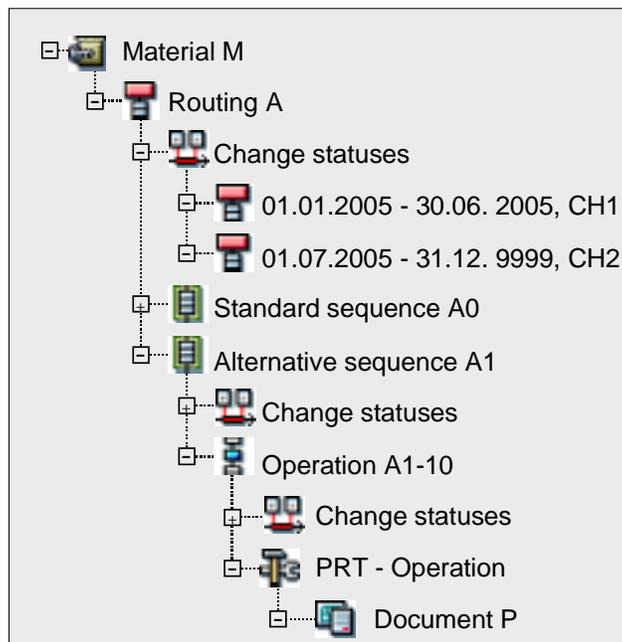
### Use

You use the *Engineering Workbench's* object browser to give you a clear overview of the objects in your worklist. You can use the object browser's tree structure to navigate quickly to the desired objects. You can call up detail and overview screens for objects, and make assignments and multi-level copies.

### Features

The object browser displays all the objects in your worklist, in a hierarchical structure. All object change statuses are also displayed (see graphic 1).

**Graphic 1: How Objects are Displayed in the Object Browser (Schematic)**



The table lists the functions that are available in the object browser.

#### Object Browser Functions

By	You can	
Double-clicking	on an object	Call up the object overview
	on a change status	Call up the change status detail screen
Using drag and drop	between operations and items	Create component assignments

Object Editing in the Object Browser

	between headers and materials	Create material-routing assignments
Using the right mouse button	Call up an overview, which displays the objects subordinate to the selected object	
	Delete the selected object	
	Display a document	

By using a *Find* function, the system displays a hit list of all change statuses, which meet your search criteria. You can pinpoint a change status in the object browser by double-clicking on it in the hit list.

### Activities

**This is how you call up the object browser:**

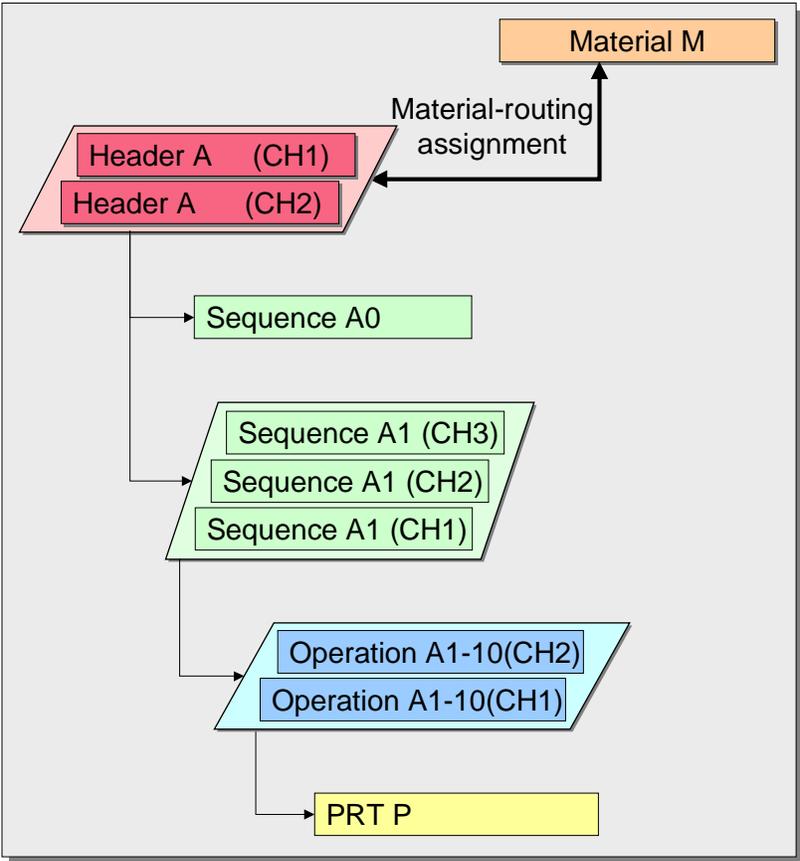
Click  on one of the overviews or detail screens in the *Engineering Workbench*.

### Example

Graphic 2 shows your worklist (PRT *P* is a document). Graphic 1 shows how it is displayed in the object browser. You cannot see the change statuses for sequence *A1* and operation *A1-10* in graphic 2, because the  *Change statuses* node is collapsed for both objects.

**Graphic 2: Worklist**

Object Editing in the Object Browser



## Calling up the Overview for an Object (Object Browser)

### Use

You use this procedure if you want to call up the overview for an object, from the object browser.

### Prerequisites

You have called up the *Engineering Workbench's* object browser.

### Procedure

1. Select the object.
2. Double-click on the icon for the object. For example, if you have an item in front of you, click on the  icon.

### Result

The system branches to the overview for the object whose identifying data has been copied to the context. The overview only displays the change statuses for the object.

---

**Calling up the Detail Screen for a Change Status (OB)**

## Calling up the Detail Screen for a Change Status (OB)

### Use

You use this procedure if you want to call up the detail screen for a change status, from the object browser.

### Prerequisites

You have called up the *Engineering Workbench's* object browser.

### Procedure

2. Select the change status.
3. Double-click on the icon for the change status. For example, if you have a BOM change status, click on the  icon.



If you select an object itself, rather than a change status, you can call up the *Details* function, using your right mouse button. The system then displays the detail screen for the object's first change status.

### Result

The system displays the detail screen for the change status.

## Finding Objects (Object Browser)

### Prerequisites

You have called up the *Engineering Workbench's* object browser.

### Procedure

1. Click .

The *Find* dialog box appears

2. Enter the object type you want to search for. For example, if you are searching for production resources/tools, select the *Production resources/tools* radio button. If you are searching for objects of any type, select the *All object types* radio button.
3. In the *Character string* field, enter the strings you want to find and click .

### Result

All change statuses in your worklist, which meet your search criteria are listed in the *Search results*. When you click on the icon for one of the change statuses listed, it is then displayed and highlighted in the object browser.

---

**Hit List (Object Browser)**

## Hit List (Object Browser)

### Definition

List of all change statuses, which meet the search criteria you entered when you called up the object browser's *Find* function.

### Use

When you double-click on a change status in the hit list, the system highlights its node in the object browser.

## Displaying Subordinate Objects (Object Browser)

### Procedure

2. Call up the object browser.
3. Select an object.
3. If you want to see subordinate objects with a certain type, use the right mouse button to call up the *<object type>* function.



You want to display the operations for a header. You select the header and use the right mouse button to call up the *Operations* function.

### Result

The system calls up the *<object type>* overview and enters identifying data for the selected object in the context. The subordinate objects you want to see, are displayed.

---

**Changing Change Statuses (Object Browser)**

## Changing Change Statuses (Object Browser)

### Procedure

3. Call up the object browser.
4. Select the object change status you want to change.
4. Using the right mouse button, call up the *Change* function. If the *Process using* dialog box appears, you have to enter either a key date or a change number.  
The system calls up the detail screen for the change status.
5. Change the change status on the detail screen.  
The system changes the change status in your worklist.
6. Save your data.

### Result

The system changes the change status in the database.

## Make a Multi-Level Copy of an Object (Object Browser)

### Prerequisites

If you want to make a multi-level copy of an item, the bill of material to which the copied item will be assigned must already exist. Correspondingly, the same applies if you want to make a multi-level copy of a routing object. For example: If you want to make a multi-level copy of an operation, the routing and sequence to which the copied operation will be assigned, must already exist.

You have selected the [copy range \[Ext.\]](#) so that the desired object types are included in the multi-level copy. For more information, see [Copy Range \[Page 114\]](#).

### Procedure

4. Call up the object browser.
5. Select the object that you want to make a multi-level copy of.
3. Using the right mouse button, call up the *Multi-level copy* function.
4. Select the object under which you want the copy to appear. For example, if you want to make a multi-level copy of an operation, select the sequence to which you want to copy the operation.
5. Using the right mouse button, call up the *Execute copy* function. If the *Process using* dialog box appears, you have to enter either a key date or a change number.

The system creates the multi-level copy in the worklist. In other words it copies

- the object that you are making a multi-level copy of
- the objects that are assigned to or subordinates of the object that you have made a multi-level copy of and whose type is included in the copy range.

For example: If you are making a multi-level copy of an operation and the *production resources/tools* object type is included in the copy range, copy the operation itself and those production resources and tools that belong to it.

6. Read the error log if the system reports that errors occurred during copying. To do this click .
6. Save your data.

### Result

The system creates the multi-level copy in the database.

## Deleting Objects (Object Browser)

## Deleting Objects (Object Browser)

### Procedure

5. Call up the object browser.
6. Select the object that you want to delete.
7. Using the right mouse button, call up the *Delete* function. If the *Process using* dialog box appears, you have to enter either a key date or a change number.

The *Delete objects* dialog box appears.



The *Delete* function is not available for certain objects, such as standard sequences, which can only be deleted by deleting the superior header.

8. Confirm that you want to delete the object.  
The system deletes the object from your worklist.
9. Save your data.

### Result

The system deletes the object from the database.

## Digital Mock-Up Viewing

### Use

You can use this function to visualize new products as 3D models in the development phase throughout the whole enterprise. You can display a 3D model of an assembly and its components in the Engineering Workbench of the SAP System.

Other areas can now use product information that used to only be accessible on paper format to the engineering/design department as well. All departments involved in the development project can see the 3D model of an assembly on the screen even before a prototype is available.

### Integration

#### CAD Interface

The SAP System obtains product information from a **CAD system**. You create a construction drawing the CAD system for the assembly and its components. While doing this you also set the spatial relations of the components to each other.

You use the [CAD Interface \[Ext.\]](#) to transfer your BOMs and CAD documents from your CAD system to your SAP System.



Contact your CAD interface provider about whether SAP's DMU Viewing is supported. If DMU viewing is supported the CAD coupling creates the required assignments and starts the converter that then creates the transformation matrices and original application files in Direct Model format.

**See:** [Converting Assemblies \[Page 138\]](#)

Alternatively, the CAD coupling can write the transformation matrices. The converter creates the original application files in Direct Model format when a status is set.

**See:** [Converting Documents \(Automatic Start\) \[Ext.\]](#)

A converter must be installed in both cases. Please note the [Installation Notes \[Ext.\]](#).

#### Conversion Interface

The **conversion interface** SAP System along with the external converter control the conversion of the original application files as well as the creating of the transformation matrices that contain the information about the geometric positions of the components.

The system creates a visual 3D file (such as \*.jt) out of the CAD document for each component. This file is then stored in the SAP System as an original application file of the **Document Management System** and managed by means of a document info record.

You can now use the viewer that is integrated into the SAP System from Engineering Animation, Inc. (EAI) to view your 3D models of assemblies. The viewer is part of the standard SAP System's SAP Graphical User Interface (SAPgui) and is integrated into *Engineering Workbench*.

**See:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

## Digital Mock-Up Viewing

### Prerequisites

Original application files must be in a 3D format that supports *Digital Mock-Up*. Direct Model format (\*.jt) is supported, for example.

The original application files in the SAP System are managed by means of **Document info records**. These document info records are assigned to items in your BOM.

**See:** [Document Assignment \[Ext.\]](#)

**Transformation matrices** are also assigned to BOM items. A transformation matrix defines geometrical position of a component within space. When a component in an assembly is used more than once you need a transformation matrix for each part.

If you are working with multilevel BOMs, each level of the BOM must have a transformation matrix assigned to it.



Set the parameter for *Digital Mock-Up* when you transfer data to the SAP System using the **CAD interface**. Once you have done this the system converts the original application files automatically and creates the document info records and document assignments. Further information can be found under [Conversion of CAD Files \[Page 138\]](#).

In Customizing of Document Management you will find the setting for the viewer of the standard SAP System under General Settings → Define workstation application:

- You created the entry for the workstation application JT.
- Set which viewer you want to use to display the JT original application files for the workstation application. Work step: Maintain workstation application in network.

**See:** [Displaying Original Application File with a Viewer \[Page 155\]](#)

### Features

You can display a 3D model of an assembly and its components in the SAP System. You can display a 3D model on the screen without opening another window while processing or displaying a BOM in *Engineering Workbench*.

You can also display individual or several components. When you select several components the system calculates the geometric items of the component and sends them to the viewer for display. When the components are an assembly in and of themselves you can dismantle components and display or hide individual components.



The BOM of an automobile contains the body and wheels, for example. You can just display the wheels or just the body.

When you display the body **and** the wheels or the whole automobile the system calculates the geometrical positions of the components and displays them.

When the body itself is an assembly you can also dismantle it into its components (fender, doors).

If the product has a multi-level BOM you can dismantle all assemblies for the 3D models of their components. This requires however that data from design drawings has been transferred to the

**Digital Mock-Up Viewing**

SAP System. You can do this for any number of levels. You can combine the components from any assemblies.

You can execute the following functions in 3D models:

- Display an individual component
- Display further components
- Hide individual components
- Display an entire assembly

You can also dismantle the components of assemblies to subordinate levels.

- You can highlight a component.
- Display a multi-level BOM

You can also use all the 3D functions of the viewer for displaying original application files such as:

- Rotating and tilting the 3D model
- Zoom
- Save the current screen contents of a file

## Converting Assemblies

# Converting Assemblies

## Purpose

So that you can carry out Digital Mock-Up Viewing, transformation matrices have to be maintained for the SAP System. The transformation matrices can either be generated from the CAD coupling (such as from the CATIA-System) or by the conversion of assemblies.

## Prerequisites

### Customizing

You need to define the following settings in Customizing:

- In Customizing of *Conversion* you define the scope of the conversion scenario. In this case set that the entire BOM structure is to be converted.  
  
The setting is under *Logistics General* → *Conversion* → *Determine conversion* → *Conversion specification* (detail screen). Enter *Complete structure* as the Check out depth.
- In Customizing of *Document Management* you must set up support for document assignments for the BOM header as well as for the BOM items.  
  
**See also:** [Setting up Customizing for DMU Viewing \[Ext.\]](#)

### CAD Coupling

The following is required for CAD coupling:

- The CAD link for the material BOM must be set up and functional. Assemblies are stored in these material BOMs that you want to convert or display.
- The following documents must be stored in the BOM using the CAD coupling in the SAP System:
  - The document for the assembly must be stored in the BOM header (Assembly file).
  - The base object must be stored on the BOM items (Part files).
- The CAD coupling call the following function modules for converting assemblies: CONV\_API\_CONVERT\_BOM\_ASSEMBLY (development class CONV, function group CONV\_API).

## Process Flow

1. The engineer creates a CAD drawing for each assembly part in the CAD system.
2. Then the CAD coupling is used to create the assembly in the material BOM of the SAP System.  
  
The system creates a document info record for each CAD file and links the document info record to the BOM header or BOM item.
3. The conversion program is started.  
You have the following options:
  - [Manual Start \[Ext.\]](#) (parallel to conversion of individual files)

## Converting Assemblies

- Automatic Start (using CAD coupling)

The system runs the following steps:

- Converts the CAD files in the format of the viewer (Direct Model).
- Assigns the files to the documents in the SAP System.
- Determines the transformation matrices based on the CAD files for the entire assembly.
  - A transformation matrix defines geometrical position of a component within space.
- Assigns transformation matrices to the BOM items.



A wheel has 19 spokes.

In the BOM for the wheel the system assigns the item "Spoke" to the drawing and 19 transformation matrices. Each transformation matrix defines the geometric position of an individual spoke.

## Result

You can now display the 3D model in the Engineering Workbench.

## Displaying 3D Models of Assemblies

### Displaying 3D Models of Assemblies

You are in the Engineering Workbench overview for items.

1. Click .

The dialog box *EWB: Options* appears.

2. Select in the tab page  *Browser* the option *Digital Mock-up*.

In this way you ensure that the BOM in the object browser is displayed on a key date, this means that only change status is displayed for each BOM item.

3. Click .

4. Enter the change number or the key date in the dialog window that appears and select .

The object browser is displayed in the left screen section. There you find the column with the heading *DMU* (Digital Mock-Up). In this column a check-box appears for each component.



If you do not see the column *DMU* you must increase the size of the screen section of the object browser to the right.

You can use the check-boxes to hide or display individual components in the *DMU* column or use the context menu.

### Displaying Components Using Check-Boxes

Click on the check-box to display or hide a component. The viewer is displayed as soon as the first check-box is activated.

You can see which assemblies and components are currently being displayed in the viewer by looking at the check-boxes.



When you activate the check-box for an item, the system automatically activates the check-boxes for the subordinate assembly. This displays that the data came from this assembly.

The advantage of this is that you can always recognize which assembly's data is currently being displayed, even when you collapse the partial tree under the assembly.

### Displaying Components Using the Context Menu

The context menu is displayed when you click with the right-hand mouse button on a BOM header or an item. The following commands are available in the context menu:

Command	System activity
DMU: Display item again	Delete the display in the viewer and display the individual components

Displaying 3D Models of Assemblies

DMU: Add items	Display another component in the viewer while considering the components that are already displayed
DMU: Highlight items	Highlight components in the viewer
DMU: Hide item	Hide item in viewer
DMU: Display item	Show an item again that you had hidden with the command <i>DMU: Hide item</i>

**See also:**

[Highlighting Components \[Page 142\]](#)

---

## Highlighting Components

# Highlighting Components

## Highlighting Components in the Object Browser

When you are looking for a component in a complex assembly, click on the BOM item in the object browser with the right-hand mouse button and select in the context menu *DMU: Highlight item*. The system then highlights the items.

By holding the CTRL key down while highlighting components you can mark as many components as you want in the object browser.

## Highlighting Components in the Viewer

When you see a component in the object browser and want to know the material number for this component, click on the component in the viewer. The system then highlights the BOM item in the object browser.

If you click again on the same component the system highlights the subordinate assembly. You go one level higher with each click.

By holding the CTRL key down while highlighting components you can mark as many as five components in the viewer.

## Optimizing Performance

### Use

In order to improve and optimize the performance for displaying files, the system temporarily saves a copy of the original application file on the hard drive of your computer.

### Prerequisites

You have defined the maximum number of temporary files for display in the user profile.

### Activities

Do the following to define the maximum number of temporary files for display:

1. Select *System* → *User profile* → *Own data*.

The dialog box *Maintenance of own user profile* appears.

2. Enter in the tab page *Parameters* the parameter `DMS_MAX_TMP_FILES` the value for the number of files that you want on your hard drive.

The value you enter depends on the size of the assemblies and how your computer is set up. Usually a value of 300 is recommended.

3. Save your data.

#### See also:

[Displaying the Entire Drawing for an Assembly \[Page 144\]](#)

## Displaying the Entire Drawing for an Assembly

### Displaying the Entire Drawing for an Assembly

The system displays the entire assembly in the viewer when you activate the check-box for an assembly in the object browser.

A complete drawing for an assembly is best case scenario for performance issues. You can especially improve performance with assemblies that have many components when you assign a complete drawing (assembly file) to the header of the assembly.

The following explains why:

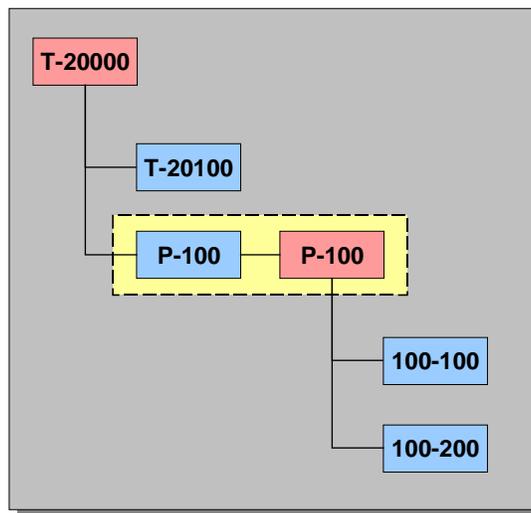
When you display an assembly the system checks whether a complete drawing (assembly file) exists for the whole assembly. The complete drawing must be assigned either to the header of the assembly or to the appropriate BOM items.

When however **no** complete assembly exists the system loads all documents that have items of the assembly assigned to them (part files) and builds the drawing using the assigned transformation matrices.

### Example

The BOM for Turbine T-20000 has items T-20100 (turbine casing) and P-100 (pump). The pump P-100 is an assembly that has items 100-100 (coil housing) and 100-200 (impeller).

**Turbine T-20000**



When you display Turbine T-20000 the system checks whether the BOM item for the pump P-100 (blue in the graphic) is assigned to a complete drawing.

If this is not the case the system checks whether the BOM header for the pump P-100 (red in the graphic) is assigned to a complete drawing for the pump.

If this also is not the case the system loads drawings for all items of the pump; 100-100 and 100-200, and displays them in the viewer.

## Redlining in the Engineering Workbench

### Use

Redlining functions allow to add comments and suggestions in a layer of an original application file. This aids in the teamwork of different departments.

### Features

Only 2D drawing s can be used with redlining in the Engineering Workbench.

You can find further information under *Integrated Viewer for Displaying Original Application Files*  
→ *Redlining for Original Application Files*.

## Viewer for Displaying Original Application Files

# Viewer for Displaying Original Application Files

## Purpose

The standard SAP System's SAP Graphical User Interface (SAP GUI) now has a viewer from Engineering Animation, Inc. (EAI) that allows you to view your products in the [PLM area \[Ext.\]](#). This viewer works with all Windows 32 bit operating systems and can display most original application files of a document info record.

- Thanks to the integration of this viewer solution in the Product Structure Browser you can view not only technical drawings but also 3D models. There are different functions for navigation such as rotate, zoom, center. You can then use the functions for redlining for processing the objects, saving them or printing them out.
- You can view products during the development phase using [Digital Mock-Up Viewing \[Page 135\]](#).

## Implementation Notes

You must make the following settings in Customizing of *Document Management* for the viewer of the SAP System.

- Control data → Define document types

The document type of the document info record that manages the original application file must have the [Knowledge Provider \[Ext.\]](#) defined for the storage systems. This setting is done on the detail screen of the document type, indicator *Storage via Knowledge Provider*.



You can only use viewer and redlining functions when the document type is so defined that it allows storage of original application files using Knowledge Provider.

The original application file does not have to be stored in a storage category of the Knowledge Provider in order to display it. The file can also be in a logical directory with the local network.

This type of storage is not always accessible by all frontend computers, whereas with the Knowledge Providers all frontend computers can access the original application files. SAP recommends therefore that all original application files be stored using the Knowledge Providers.

- General data → [Define Workstation Applications \[Ext.\]](#)

The following partial steps are necessary:

- Assign the correct application (for example *Direct Model*) for the file format you want to display (for example \*.jt).
- Maintain all data on the *Detail screen* that are supported for processing original application files with the workstation application such as for the application *Direct Model* for processing JT files.
- Select the navigation step *Maintain workstation application in network*. Enter the call for the viewer.

## Viewer for Displaying Original Application Files



You can use this call to determine for such things as whether you want display 2D or 3D formats.

The call for saying 3D formats (such as \*.jt for *Direct Model*) with a workstation application could be done as follows:

```
EAIWeb.webviewer3D.1 %SAP-CONTROL%
```

Detailed information for the call of the application can be found in the IMG under *Define workstation application*.

## Integration

You can view the product data in the following processing situations:

- Product Structure Browser  
You can expand the document data in a product structure and view the original application files of a document.
- Document Management  
You can display original application files from the tab page *Document data* or *Originals*.
- Engineering Workbench  
You can view original application files of material items from the Product Structure Browser.
- Process using the Project Builder (change and display) or use the Internet-Scenario Collaborative Engineering

## Features

### Supported Viewing Formats

The integrated viewer can display most 2D pixel, vector, and some text formats as well as 3D model formats. A complete overview is available in the [List of Viewing Formats \[Page 153\]](#).

### Calling the Menu

After the function *Display original application file* is started the original application file is displayed either *inplace* or *outplace*. The display variant is set for the individual processing situations (such as displaying from a document info record or the Product Structure Browser) and cannot be changed.

- inplace  
The original application file is displayed in the same window as the one used for processing.
  - Example: If you display the original application file while processing the document info record of the Product Structure Browser or Engineering Workbench, the system splits the screen and the current screen and displays the viewer in the new screen section.
  - In the screen section where the viewer is located the original application file is also displayed the viewer function bar becomes active.
- outplace

## Viewer for Displaying Original Application Files

The original application file is displayed in a different window as the one used for processing.

If you display the original application file from the results screen of a document search, the system creates a new window automatically. In the new screen section the original application file is also displayed the viewer function bar becomes active.

**See also:** [Displaying Original Application File with a Viewer \[Page 155\]](#)

## Viewer Function Bar

When you display the original application file with the integrated viewer the system adds a function bar for the viewer. The viewer function bar contains all the functions you can use in the current processing situation, such as Redlining functions. The scope of function depends on whether the viewer is displaying 2D or 3D format files.

An overview of the processing functions can be found in the [Function Overview of the Viewer \[Page 150\]](#).

## Redlining Function Bar

The call of the Redlining functions is done from the viewer function bar. The system changes from viewer mode into Redlining mode and makes the Redlining function bar available.

For more information, see [Redlining for Original application files \[Page 158\]](#).

## Dimensioning 2D Files

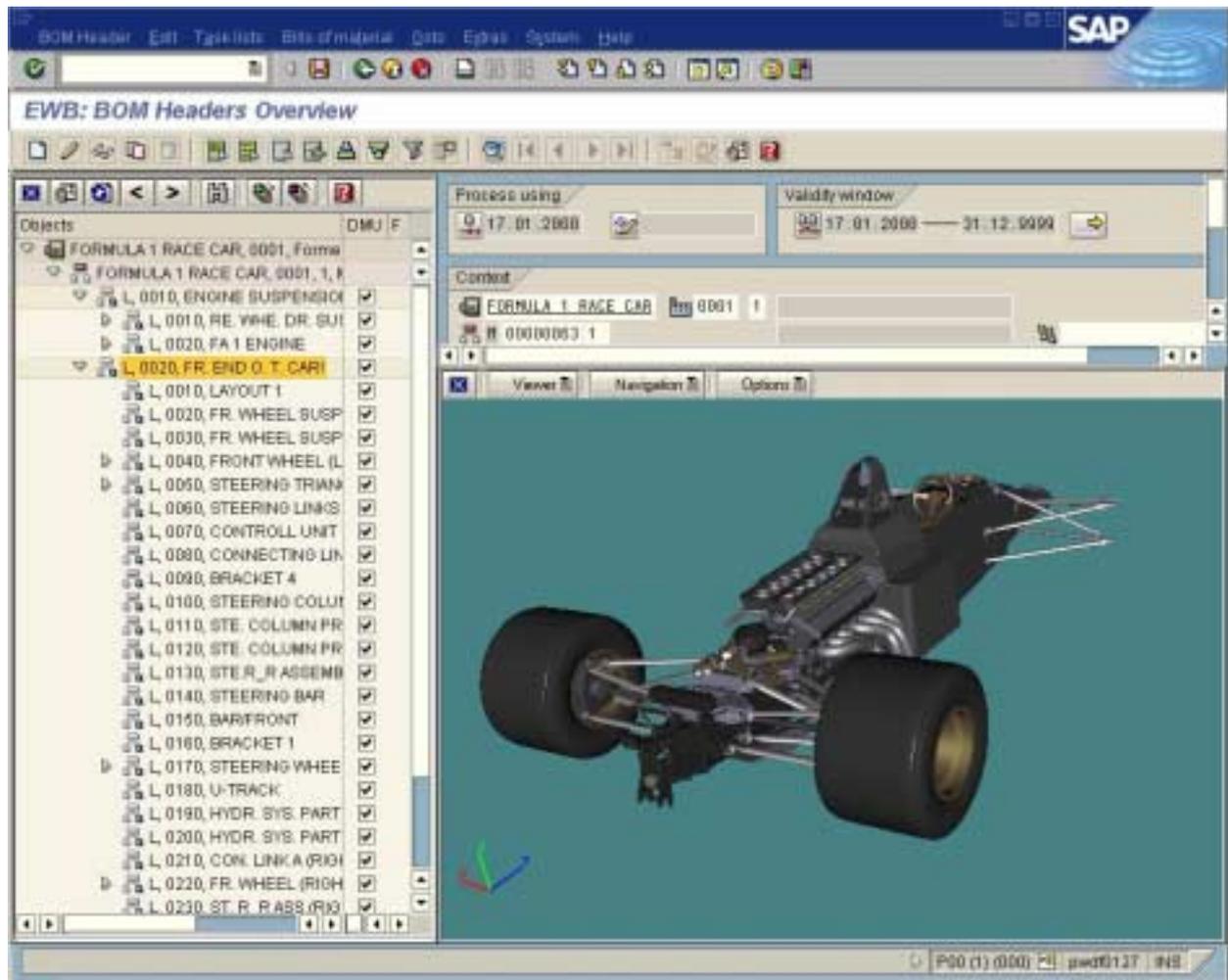
Dimensioning functions allows you to measure such things as angles, line and radii.

An overview of dimensioning functions can be found under [Dimensioning 2D files \[Page 169\]](#)

## Example

The following example shows how an assembly is viewed in the Engineering Workbench. The assembly was transferred from a CAD system into the SAP-System (Digital Mock-Up Viewing).

## Viewer for Displaying Original Application Files



## Restrictions

The viewer can be used on machines with at least a Pentium® class processor at 133 MHz.

For 3D formats you will need the following:

- Pentium II
- 128 MB RAM

## Function Overview of the Viewer

## Function Overview of the Viewer

The systems automatically starts the integrated viewer when you display an original application file in the supported processing situations either in-place or outplace.

Scope of functions for both display forms is identical. You can call functions as follows:

- The viewer function bar contains all the functions you can use in the current processing situation.
- You can use the context menu for a selection of functions.  
Depress the right-hand mouse button to call up the context menu in the screen section of the viewer.

The scope of function depends on whether the viewer is displaying 2D or 3D format files.

### Functions for 2D Files

The following overview shows all the tab pages that are active when displaying 2D files. In the column *Usage* some of the functions are described.

Tab Page	Functions	Usage
Viewer	Full-view Print	When an object cannot be completely viewed in the screen section of the viewer, you can use this function <i>Full-view</i> to display it again.  This is useful with 2D files after having changed them with the following: <i>Shift, Center, and Zoom</i> .
Navigation	Shift Zoom Zoom area Center Align	Under <i>Align</i> you will find the functions <i>Rotate clockwise</i> or <i>Mirror horizontally</i> .
Tools	<a href="#">Redlining [Page 158]</a> <a href="#">Dimensioning [Page 169]</a>	
Options	Color Save format	You can display the original application file in different <i>colors</i> according to the needs of the current processing situation. The simplified display can also increase performance (example: <i>Monochrome</i> and <i>Grey scale 8 bit</i> ).  The changed display of the original application file can be saved in the following formats: <ul style="list-style-type: none"> <li>• Bitmap (24 bit color, 8 bit gray scale)</li> <li>• JPEG (Color 24 bit)</li> <li>• TIF</li> </ul>

Function Overview of the Viewer

<p>Layer</p>	<p>Original application file Layer name</p>	<p>When the viewer is started on the original application file is displayed only – No layer is active.</p> <p>The tab page <i>Layer</i> is not active if no layers exist yet for the original application file.</p> <p>Only after you create a comment as a <a href="#">Markup [Page 168]</a> using Redlining functions and then saved them in one or more layers does the entry <i>Layer</i> appear and the layer names are listed.</p> <ul style="list-style-type: none"> <li>• You load the saved information by clicking on the selected layer. The currently loaded layer is indicated by a check mark. You can process this layer and save the changes.</li> <li>• Clicking again deactivates the layer.</li> <li>• When more than one layer is loaded and further comments added the comments are added to the active layer. The system determines the active layer based in the sequence of the layer loaded. The layer is active that is furthest on the bottom.</li> </ul>
--------------	---	--

**Functions for 3D Models**

The following overview shows all the tab pages that are active when displaying 3D files. In the column *Usage* some of the functions are described.

Tab Page	Functions	Use
<p>Viewer</p>	<p>Full-view Print</p>	<p>When an object cannot be completely viewed in the screen section of the viewer, you can use this function <i>Full-view</i> to display it again.</p> <p>This is useful with 3D files after having changed them with the following: <i>Shift, Center, and Zoom</i>.</p>
<p>Navigation</p>	<p>Rotate</p> <ul style="list-style-type: none"> <li>• x axis</li> <li>• y axis</li> <li>• z axis</li> </ul> <p>Shift Center Zoom Zoom area</p>	<p>You can rotate the 3D model about any axis freely in order to looks at the model from any angle. You can then create or anchor comments as <a href="#">Markups [Page 168]</a> using Redlining functions.</p>
<p>Tools</p>	<p><a href="#">Redlining [Page 158]</a></p>	

## Function Overview of the Viewer

Options	Performance Background Save format	<p>You can improve performance dramatically by switching on <i>Frame view</i>, turning off <i>Interior view</i> or setting the <i>Number of frames per second</i>.</p> <p>The changed display of the 3D model can be saved in the following formats:</p> <ul style="list-style-type: none"> <li>• Bitmap (24 bit color, 8 bit gray scale)</li> <li>• JPEG (Color 24 bit)</li> <li>• TIF</li> </ul>
Redlining files		<p>When the viewer is started on the original application file is displayed.</p> <p>If you create a comment as <a href="#">Markups [Page 168]</a> using Redlining functions and then saved them the Redlining files are listed.</p> <p>When the viewer is started no Redlining file is active. You load the saved information by clicking on the selected Redlining file.</p>

## List of Viewing Formats

You can use the integrated viewer from Engineering Animation, Inc. (EAI) to display the following formats and process using Redlining functions:

### 2D Formats

<p><b>2D vector images files</b></p>	<p>AutoCAD DWG 2.5-14 (DWG)                  AutoCAD DXF R11-14 (DXF)                  AutoCAD DWF (DWF)                  CGM (CGM)                  IGES (IGES, IGS)                  HPGL/HPGL-2 (HPG, HPGL)                  HP ME 10/30 MI (MI)                  Calomp (906, 907)                  CALS MIL-R Type I and Type II (MLR, MIL, MILR)</p>
<p><b>2D pixel images files</b></p>	<p>Tagged Image File Format - Monochrome, color, &amp; grayscale (TIF)                  Windows Bitmap (BMP)                  JFIF Compliant (JPG, JPEG)                  Portable Network Graphics (PNG)                  EDMICS C4 (C4)                  (TLC)                  CompuServe (GIF)                  MIL-RII - TRIFF (FSX)                  SunRaster (RAS)                  PICT-Macintosh Paint (PCT, PICT)                  PC Paint (PCX)                  Microstation (DGN)</p>
<p><b>2D ASCII and Postscript files</b></p>	<p>ASCII Text (TXT)                  PostScript I, II (PS)                  Encapsulated Postscript (EPS)</p>

### 3D Formats

Direct Model (\*.JT)

Virtual Reality Modeling Language (\*.WRL)

**List of Viewing Formats**

Stereolithography (\*.STL)

## Display Original Application File with the Viewer

### Use

You can display original application files with the integrated viewer in the supported processing situations (for example, from the product structure or from the document info record).

See: [Viewer for Displaying Original Application Files \[Page 146\]](#)

### Prerequisites

You have made the setting in Customizing of *Document Management* for the viewer of the SAP System.

You are in a processing situation that supports viewing the original application file in the integrated viewer.

See: [Viewer for Displaying Original Application Files \[Page 146\]](#)

### Procedure

The following examples show you how to display an original application file in the different processing situations.

In all situation you can display the original application file by clicking on the button  (*Display original*) or using the context menu (entry *Display original*).

#### Displaying Original Application File from the Product Structure

1. Display the product structure in the Product Structure Browser.

See: [Display Product Structure \[Ext.\]](#)

2. Explode the structure for documents.

You can see whether a document versions has one or more original application files assigned to it:

- Identifier in the display column *Original* with icon  (*Display original application files*)
- In the context menu the entry *Display original* exists.

3. Click on the icon *Display original application file*.

The number of maintained original application files determines later procedures:

Number of Original Application Files	Procedure
One	No further action required. The original application file is displayed.
Several	You see a dialog box with a list. The list contains the workstation application or display a short text for the original application file. Select an original application file then choose <i>Continue</i> .

---

**Display Original Application File with the Viewer****Displaying Original Application Files from the Document Info Record**

1. Display the document info record.

On the tab page *Document data* or *Originals* all existing original application files are listed.

2. Set your cursor on the line of the original application file you want to display. By double clicking on the original application file you start the viewer.

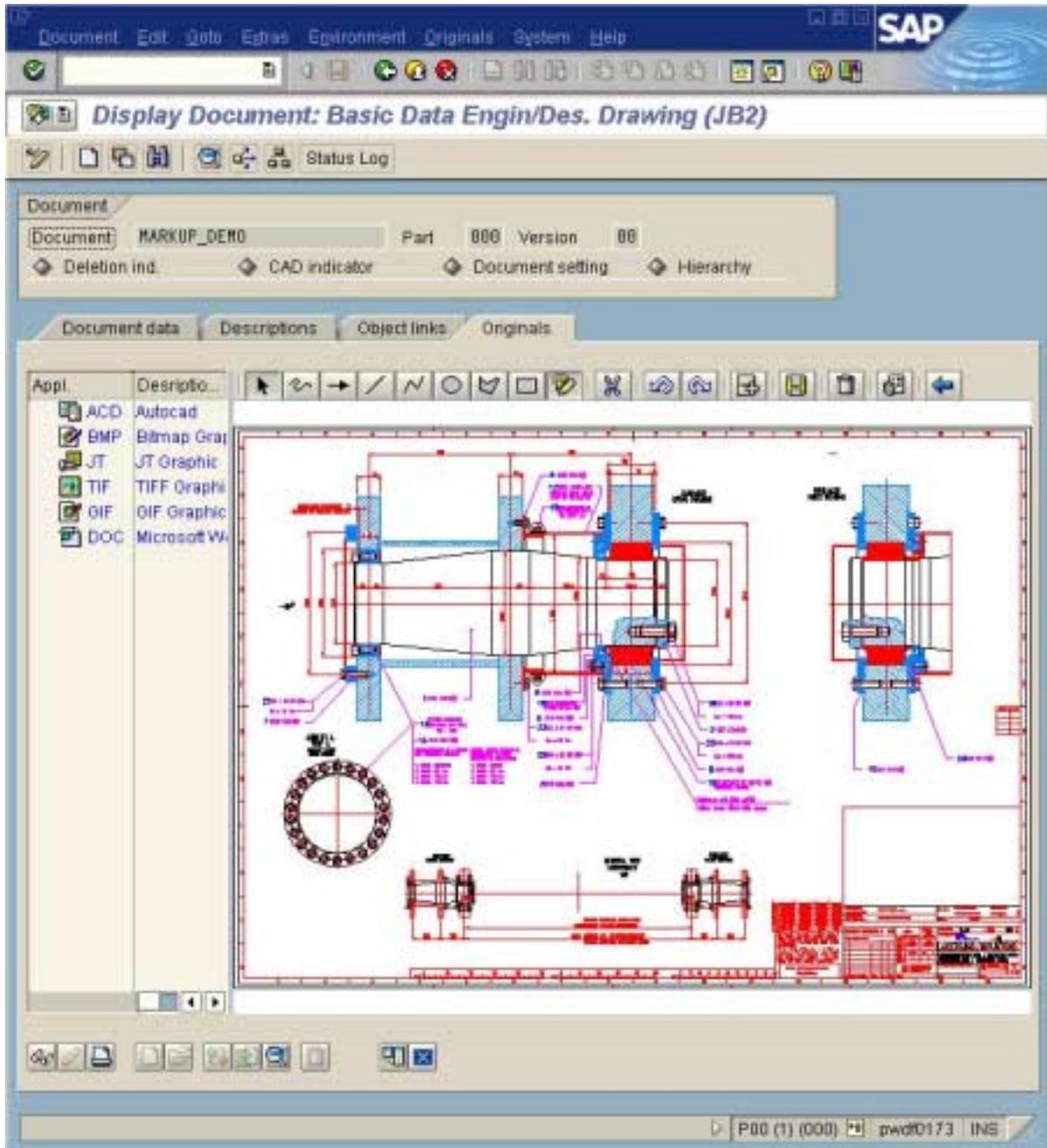
**Result**

The system checks the setting in Customizing of *Document Management* for the current frontend type (such as PC with operating system Microsoft Windows NT). The system determines which viewer is appropriate for displaying the selected file format (for example \*.ACD format for AutoCAD files calls a 2D viewer).

The viewer is started automatically and displays the data of the original application file in a new screen section.

The following example shows the redlining functions in addition to the viewer.

Display Original Application File with the Viewer



## Redlining for Original Application Files

# Redlining for Original Application Files

## Use

Especially in the development process of a product it is important to have an efficient exchange of information in order to save costs, time, and effort.

You can display your product with the integrated viewer of the standard system. All departments can visualize original application files in 2D and 3D formats.

Being able to see a product before it is produced allows you to expand on the scope of employees for product analysis. You can use Redlining functions to include original application files in other business processes. Users with authorization can add comments and suggestions to the document (for example, 3D model).

## Integration

The standard SAP System's SAP Graphical User Interface (SAP GUI) now has a viewer from Engineering Animation, Inc. (EAI). When you have made the setting in Customizing of Document Management for the viewer of the SAP System you can use Redlining functions without making any further settings.

**See also:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

## Prerequisites

You can then use the functions for redlining when the following have been met:

- You have made the setting in Customizing of Document Management for the integrated viewer of the SAP System.

**See also:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

- It is recommended to define the categories for markups, under *General Data* → *Define category for markup*.

The remarks and comments (markups) that you create of an original application file are saved in a layer that you can also edit. You can edit a layer when the layer is assigned to individual categories (such as engineering/design, sales & distribution).

- The authorization assignment for editing layers is done with the authorization object for Document Management (C\_DRAW\_MUP – authorizations for markups).

This authorization object controls which users can process which layers, based on a combination of activity and document type. You can restrict the check more by using document status and category.

## Features

### Calling the Menu

The Redlining functions are automatically available when you display an original application file with the integrated viewer in the supported processing situations.

Redlining for Original Application Files

**Formats**

You can create comments for original application files in all file formats that can be displayed by the viewer. The viewer can display the following formats:

2D data	Vector data: <ul style="list-style-type: none"> <li>• With model character (such as DXF)</li> <li>• With screen character (such as CGM)</li> <li>• With plot character (such as HPGL)</li> </ul> Pixel data (such as TIFF, BMP, JPG) Text data (such as ASCII, EPS, PDF)
3D model	Model data (JT, WRL, STL)

The complete list is available in the [List of Viewing Formats \[Page 153\]](#).

**Markups and Layers for Comments**

You can write your comments on the original application file like when using a red pen. This does not change the actual original application file. Your comments are saved as *Markups* in a *Layer*. A list of the supported text and graphic elements for markups can be found here: [Redlining Function Bar \[Page 161\]](#)

Other users add their comments to further layers. The system saves a layer for an original application file as an additional file for the original application file in the same storage data as the original application file itself.

The processing functions for layers depend on whether the viewer is displaying 2D or 3D format files.

Format	Saving Comments
2D data	The layer is saved as a transparent vector format (CGM) for 2D files. <ul style="list-style-type: none"> <li>• There is no limit to the number of layers for each original application file. You can display as many original application files and as many layers as you want on top of each other in the viewer. The process is similar to when you lay transparencies on top of one another on an overhead projector.</li> <li>• The authorization assignment ensures that on authorized persons can create, change or delete layers for documents of a particular document type.</li> <li>• You can change or even delete the information that is stored in a layer.</li> <li>• You can use the layer menu for easy processing of the individual layers.</li> </ul>
3D model	The current development phase allows only storing redlining files in pixel format (TIF) for 3D models. Storage is the same as the layers. More layer functions are planned for future Releases. <ul style="list-style-type: none"> <li>• The system copies the 3D model into the Redlining file the way it currently appears on the monitor screen (for example rotated on the X axis and with frames) as well as with markups for your comments.</li> <li>• Special Redlining functions for 3D Models are available such as anchoring markups in the 3D model.</li> </ul>

---

**Redlining for Original Application Files****Activities**

When you are in one of the named processing situations with the original application file in the integrated viewer you automatically see the application function bar. You can execute the following functions:

- [Maintaining Layers for 2D Files \[Page 164\]](#)
- [Creating Redlining Files for 3D Models \[Page 167\]](#)
- [Executing Redlining Functions \[Page 168\]](#)
- [Dimensioning 2D files \[Page 169\]](#)

The selection of the active functions depends on the current processing situation. For example it depends on whether the viewer is displaying 2D or 3D format files.

## Redlining Function Bar

See also: [Executing Redlining Functions \[Page 168\]](#)

### General Redlining Functions

Icon	Function
	Select Redlining object Highlight the markup object before cutting  it.
	Cut Highlight the markup object before cutting it. Select  . Click on it to highlight it.
	Undo
	Redo
	Create layer
	Save layer
	Delete current layer
	Settings Before you create markup objects, make these settings. You will on the tab page <i>Extras</i> special functions that are in an overview below called <i>Special Redlining Functions for 2D Files</i> .
	Return You return to the screen with the with the Viewer function bar. The current 2D original application file with the current layer is loaded, or the current 3D model with the current Redlining file is loaded.

### Markup Functions

Icon	Function
	Draw free-hand
	Draw note arrow A selection of arrow type is under  , tab page <i>Extras</i> .

**Redlining Function Bar**

	Draw line
	Draw poly line
	Draw ellipse
	Draw polygon
	Draw rectangle
	<p>Create text</p> <ul style="list-style-type: none"> <li>Click on  and a dialog box appears for entering text. After creating the comment confirm your entry with . The system closes the dialog box.</li> <li>Put the cursor where you want to add the text.</li> <li>Click on the spot and the system positions the comment box according to the settings you made.</li> </ul>

**Special Redlining Functions for 2D Files****Measuring functions**

If you want to use these measuring functions, you must activate them.

**See also:** [Dimensioning 2D files \[Page 169\]](#)

Icon	Measuring function
	Angle measurement
	Line measurement
	Radius measurement
Calibrate	<p>This function only works with files in pixel format (such as *.BMP, *.TIF) because files in the vector format (such as *.DWG for AutoCAD) are already calibrated.</p> <p><b>See also:</b></p> <p><a href="#">Calibration [Page 172]</a></p> <p><a href="#">List of Viewing Formats [Page 153]</a></p>

## Special Redlining Functions for 3D Models

Icon	Function
	<p data-bbox="337 342 1373 478">Anchor</p> <p data-bbox="337 390 1373 478">Anchoring a markup object keeps the markup object in the position where it was created. For example when highlight the piston of a motor with an arrow and the rotate the motor the position for the arrow is always recalculated and rotates with the motor.</p> <ul data-bbox="337 499 1373 720" style="list-style-type: none"><li data-bbox="337 499 1373 594">• Activate the anchor mode by clicking on  (<i>Anchor</i>). You can verify that the anchor mode is active. Place the cursor on the 3D model. The current cursor position is displayed using the little anchor symbol.</li><li data-bbox="337 615 1373 678">• Select the desired markup function. For example, if you want to draw a line click on .</li><li data-bbox="337 699 1373 720">• Click on the model a second time to position markup object.</li></ul>

## Maintaining Layers for 2D Files

## Maintaining Layers for 2D Files

### Use

You can create comments for an original application file without changing the original application file itself. You save the comments in a layer.

### Prerequisites

You are displaying the original application file with the integrated viewer of the standard SAP system.

**See also:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

### Creating Layers for 2D Files

You can create a layer from the viewer function bar as well as from the Redlining function bar.



In the viewer function bar the entry *Layer* appears when at least one layer exists for an original application file.

When one or more layers are loaded and you want to use Redlining functions it is recommended that you check which layers are loaded. Click on *Layer*. You see a list of all existing layers.

- The loaded layer is indicated by a check mark. Click on the layer to remove it from the screen section.
- Redlining functions are done using the active layer. The system determines the active layer based in the sequence of the layer loaded. The layer is active that is furthest on the bottom.

### Crating Layers using the Viewer Function Bar

When you display the original application file with the integrated viewer of the standard SAP system and the viewer function bar is active.

**See also:** [Viewer for Displaying Original Application Files \[Ext.\]](#)

A layer is automatically created when none exist and you switch to the Redlining processing mode.

1. In the viewer function bar select *Tools* → *Redlining*.

When no layer is currently active, the *Layer name* dialog box appears.

2. Enter a layer name and confirm with .

The remainder of the procedure depends on whether you have Redlining categories maintained for your enterprise in Customizing.

Redlining Categories Maintained	Procedure
no	The markup function bar appears that contains all the functions for creating markups.

yes	<p>The dialog box <i>Redlining category</i> appears where the categories are listed that are maintained in your enterprise.</p> <p>Double-click on the desired category and the system assigns the new layer that is to be created to this category.</p> <p>The markup function bar appears that contains all the functions for creating markups.</p>
-----	---

3. Create comments using the markup functions.

You can add a text, for example:

- In the first step set up the layout; such as lines, framing, and text formats. Click on  and the dialog box *Settings* appears for these settings.
- Click on  and a dialog box appears for entering text. After creating the comment confirm your entry with . The system closes the dialog box.
- Put the cursor where you want to add the text.
- Click on the spot and the system positions the comment box according to the settings you made.

**See also:** [Executing Redlining Functions \[Page 168\]](#)

4. Save the layer using .

You can return to the viewer function bar of the viewer by selecting .

### Crating Layers Using the Redlining Function Bar

You display the original application file with the integrated viewer of the standard system. You selected the Redlining function in the viewer function bar (*Tools → Redlining*) and the Redlining function bar is active.

- Select .
  - The dialog box *Layer name* appears.
- The rest of the procedure is the same as *Crating Layers using the Viewer Function Bar*.

### Changing Layers for 2D Files

You are displaying the original application file with the integrated viewer of the standard SAP system and the viewer function bar is active.

1. Select *Layer*.

You see a list of all existing layers. You can use the context menu to display the attributes of the active layer, such as Redlining- category.

2. Double-click on the desired layer to see the comments made in the text.

3. Select *Tools → Redlining*.

The Redlining function bar contains all the functions you can use in the current processing situation, such as:

**Maintaining Layers for 2D Files**

- Delete a previous markup object.  
Select the markup object you want to delete  and cut it with .
  - Enter a new text.  
Click on  to make settings for lines, frames or text formats.  
Click on  and a dialog box appears where you enter your comments. Confirm with .  
The system closes the dialog box.  
Put the cursor where you want to add the text.  
The system puts the comment where you click once.
4. Save the changes made to the layers .
- You can return to the application function bar of the viewer by selecting  (*Back*).

## Creating Redlining Files for 3D Models

### Use

You can create comments for a 3D model without changing the original application file. You save the comments in a Redlining file.



As opposed to the layers used for making comments on 2D files, you **cannot** make changes to a Redlining after you have saved.

### Prerequisites

You are displaying the original application file with the integrated viewer of the standard SAP system.

**See also:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

### Procedure

1. Display the 3D model in such a way so that you can make your comments as easily as possible. You can rotate the model about its X-axis for example.
2. Select *Tools* → *Redlining*.

In the first step set up the layout; such as lines, framing, and text formats. Click on  and the dialog box *Settings* appears for these settings.

The remainder of the procedure depends on whether you want to anchor the markup in the 3D-model.

- When you want to anchor the markup object, activate the anchor mode by clicking on  (*Anchor*).  
You can verify that the anchor mode is active. Place the cursor on the 3D model. The current cursor position is displayed using the little anchor symbol.
- Select the desired markup function. For example, if you want to draw a line click on .
- Click on the 3D model. Clicking on the 3D Model again allows you to create the markup object.

**See also:** [Executing Redlining Functions \[Page 168\]](#)

3. Save the layer using .

The system copies the 3D model into the Redlining file the way it currently appears on the monitor screen as well as the markups.

You can return to the application function bar of the viewer by selecting  (*Back*).

## Executing Redlining Functions

# Executing Redlining Functions

## Use

You can use markups to add comments and remarks to the displayed original application file. For 2D original application files these comments are saved in a layer and for 3D models they are saved as Redlining files.

General Redlining functions are for processing both 2D files and 3D models. Certain functions work only for one format or the other.

## Prerequisites

You display the original application file with the integrated viewer of the standard system. You selected the Redlining function in the viewer function bar (*Tools* → *Redlining*). The screen section of the viewer displays the Redlining function bar.

This bar contains all functions you can use to create, change, and delete markup objects for the original application files.

### See also:

[Maintaining Layers for 2D Files \[Page 164\]](#)

[Creating Redlining Files for 3D Models \[Page 167\]](#)

## Procedure

1. Before you create the markup objects you must set up the layout; such as lines, framing, and text formats.

Click on  and the dialog box *Settings* appears.

2. Select the markup function by clicking on the desired function in the Redlining function bar.

**See:** [Redlining Function Bar \[Page 161\]](#)

## Dimensioning 2D Files

### Use

The integrated viewer contains dimensioning functions so you can measure angles, lines and radii and save them to a layer. There are two ways of adding measurements to an original application file:

- You only need the measurements for the time being and therefore they do **not** have to be saved in a layer.
- You want to save the measurements for later processing purposes. In this case you save the measurements in an existing layer or create a new layer for the measurements.

### Measurement Functions and Measurement Procedures

The following dimensioning functions can be used for measurement:

Measuring function	Procedure
 Angle measurement	<ul style="list-style-type: none"> <li>– Position the cursor on the <b>first side</b> of the angle and click the left-hand mouse button.</li> <li>– Position the cursor on the <b>vertex</b> of the angle and click the left-hand mouse button.</li> <li>– Position the cursor on the second side of the angle and click the left-hand mouse button.</li> </ul>
 Line measurement	<ul style="list-style-type: none"> <li>– Position the cursor on the beginning point of the line and click the left-hand mouse button.</li> <li>– Position the cursor on the end point of the line and click the left-hand mouse button.</li> </ul>
 Radius measurement	Position the cursor on three points one after the other for the circle to be measured. Click with the left-hand mouse button on each point.

The following measurement procedures can be selected:

Procedure	Use
Pixel	This measurement is best used with original application files in pixel format such as: *.TIF, *.BMP. The basis of this procedure is the pixels that are saved in the original application file.  In order to preserve accuracy of the measurement results it is highly recommended that you <a href="#">Calibrate [Page 172]</a> before measuring lines and radii.
Vector	This measurement is best used with original application files in vector format such as: *.DWG, *.CGM. The basis for this procedure is the data for the vectors (contact point, direction, and relief) that is saved in the original application file.

## Dimensioning 2D Files

### Dimensioning without Saving

You are displaying the original application file with the integrated viewer of the standard SAP system and the viewer function bar is active.

**See also:** [Viewer for Displaying Original Application Files \[Page 146\]](#)

1. Select *Tools* → *Dimensioning*.

The system adapts the function bar for the new functions. For example, measurement and dimensioning functions as well as calibration are available.

A description of the meaning of the application functions can be found here: [Creating Markups as Comments \[Page 168\]](#).

2. Select the measurement procedure for the original application file (for example pixel for \*.TIF).

3. Select the measurement function (such as length measurement).

The remainder of the procedure depends on which measurement procedure you selected.

- If you selected *Pixel* it is recommended that you [calibrate \[Page 172\]](#) first. Then execute the measurement function.
- If you selected *Vector* you can start immediately with the measurement function.

You can switch between any measurement functions.

4. You can return to the viewer function bar of the viewer by selecting . The measurement data is **not** saved.

### Dimensioning with Saving

You are displaying the original application file with the integrated viewer of the standard SAP System and selected Redlining functions. The Redlining function bar is active.

**See also:** [Maintaining Layers for 2D Files \[Page 164\]](#)

1. Select *Settings* → *Extras*.

2. Make changes to the following settings in the dialog box that appears:

- Select *Measurement functions on*.

You must set this indicator in order to use the measurement functions in the Redlining function bar.

- Select *Calibrate* if the original application file is a pixel format.
- Select the measurement procedure such as *Pixel orientated*.
- Confirm with .

The Redlining function bar is active again.

3. Select the measurement function (such as length measurement).

- If you selected *Pixel* it is recommended that you [Calibrate \[Page 172\]](#) first. Then execute the measurement function.
- If you selected *Vector* you can start immediately with the measurement function.

You can switch between any measurement functions.

4. Save the layer using .

## Calibrate

# Calibrate

## Use

You need to calibrate when measuring and dimensioning lines and radii. This function is only used with files in pixel format (such as \*.BMP, \*.TIF) because files in the vector format (such as \*.DWG for AutoCAD) are already calibrated. You can, for example, make a measurement of length for 10 centimeters (3.9 inches). For all further measurements there is a conversion according to the scale.

The *Calibrate* operation is dependent on how you carry out measurements:

- Calibrate, when you do not save the measurement
- Calibrate, when you save the measurement

## Calibrate, when you save the measurement

You display the original application file with the integrated viewer. In the viewer function bar you selected *Tools* → *Dimensioning*. The measurement procedure is set to *Pixel*.

**See also:** [Dimensioning 2D files \[Page 169\]](#)

1. Select *Calibrate*.
2. Highlight the length that you want to use for all measurements as a point of reference:
  - Position the cursor on the beginning point of the line and click the left-hand mouse button.
  - Pull the cursor to the end point of the line. The line then appears. Click the left-hand mouse button.

The *Calibration* dialog box appears automatically.

3. Enter the *Distance* and the *Unit of measure* (for example 10 centimeters).

Confirm with .

4. Select the measurement function (*Line-* or *Radius measurement*).

## Calibrate, when you save the measurement

You are processing a layer. The screen section of the viewer displays the Redlining function bar.

**See also:** [Dimensioning 2D files \[Page 169\]](#)

5. In the Redlining function bar select *Settings* → *Extras*.
6. In the data group *Measurement functions* select *Calibrate*.

Confirm with . The Redlining function bar is active again.

7. Highlight the length that you want to use for all measurements as a point of reference.

The remainder of the operation is the same as in *Calibrate, when you do not save the measurement*.

## Editing Routing Objects

### Use

You use the functions described here if you want to edit objects in a routing, in other words headers or operations.

---

**Creating a Task List Header**

## Creating a Task List Header

1. Call up the *EWB: Headers overview* screen. Enter the type of the task list that you want to create, in the context.
2. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the overview. The system proposes default values in certain columns.

3. Enter the data of the header to be created in this empty field and click .
4. Save your data.

### Result

The system creates the header in the database.

## Editing Operations and Sub-Operations

### Use

You use the functions described here if you want to edit operations or sub-operations.

## Create an Operation

### Create an Operation

1. Call up the *EWB: Operations overview* screen.
2. In the context, enter the identifying data for the header and sequence in which you want to create the operation.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the overview screen. The system proposes default values in certain columns.

4. Enter the data for the operation to be created in one of these empty fields and choose .

The system creates the operation in your worklist. If you have not entered an operation ID for your operation, the system automatically generates one.

5. Save your data.

### Result

The system creates the operation in the database.

## Creating a Sub-Operation

6. Call up the *EWB: Operations overview* screen.



If you are using a rate routing instead of a normal routing you should count “routing” to mean “rate routing”.

7. In the context, enter the identifying data for the routing and sequence in which you want to create the sub-operation.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the *Operations overview*. The system proposes default values in certain columns.

4. In one of these blank lines enter the operation number for the operation which the sub-operation is to be subordinate to, the sub-operation number and the remaining data for the sub-operation to be created and click .

The system creates the sub-operation in your worklist.

5. Save your data.

## Result

The system creates the sub-operation in the database.

---

**Changing an Operation or Sub-Operation**

## Changing an Operation or Sub-Operation

1. Call up the *EWB: Operations overview* screen.



You change a sub-operation in the same way as an operation.

7. Select the operation that you want to change.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

All operation fields that can be edited are made ready for input. The system then locks the operation to other users. This can be seen by the  lock indicator.

4. Make the desired changes and click .

The system changes the operation in your worklist.

5. Save your data.

### Result

The system changes the operation in the database.

## Copying an Operation

### Use

You use this procedure if you want to copy an operation without its subordinated or assigned objects (such as sub-operation, component assignment and so on).

### Prerequisites

The task list header and sequence to which you want to add the operation must already exist.

### Procedure

8. Call up the *EWB: Operation overview* screen.
8. Select the operation that you want to copy.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* dialog box appears.

4. Deselect the check box *Multi-level copy* and enter the task list header data and the sequence to which you want to add the operation.
5. Click  *Copy*.

The *EWB: Assign new operation number* dialog box appears. The system proposes an operation number that has not yet been assigned. You can either accept or change this number.

6. Click .

The system then creates the copied operation in your worklist and locks it for other users. You can see this from the  lock symbol.

7. Save your data.

### Result

The system creates a copy of the operation in the database.

## Multi-Level Copying of Operations

## Multi-Level Copying of Operations

### Use

You use this procedure if you want to make multi-level copies of an operation.



You **must** use this procedure if you want to copy sub-operations as well.

### Prerequisites

The routing and sequence in which you want to add a multi-level copy of the operation must already exist.

You have selected the [copy range \[Page 114\]](#) so that the desired object types (or at least the objects type *operation* and, for example, the object type *sub-operation*) are copied. For more information, see [Process copy range \[Page 115\]](#).

### Procedure

9. Call up the *EWB: Operation overview* screen.
2. Select the operation that you want to make a multi-level copy of.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* dialog box appears.

4. Set the indicator *Multi-level copy* and enter the identified task list header data and the sequence to which you want to add the multi-level copy of the operation.



To check or change the copy range click *Copy range*.

5. Click *Copy*.

The *EWB: Assign new operation number* dialog box appears. The system proposes an operation number that has not yet been assigned. You can either accept or change this number.

6. Click .

The system creates the multi-level copy of the operation in the worklist. This means it copies the operation that you make a multi-level copy of as well as the sub or assigned object types to the operation, provided they have been inserted in the copy range .

7. Read the error log if the system reports that log entries were made during copying. To do this click .
8. Save your data.

## Result

The system creates the multi-level copy of the operation and the objects included in the copy, in the database.

---

## Deleting an Operation or Sub-Operation

### Deleting an Operation or Sub-Operation

1. Call up the *EWB: Operations overview* screen.



You delete a sub-operation in the same way as an operation.

2. Select the operation that you want to delete.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *Delete objects* dialog box appears.

4. Confirm that you want to delete the selected objects.

The system deletes the operation from your worklist.

5. Save your data.

### Result

The system deletes the operation from the database.

## Referencing a Ref. Operation Set or Ref. Rate Routing

### Procedure

1. Call up the *EWB: Operation overview* screen.



If you are using a rate routing instead of a normal routing you should count “routing” to mean “rate routing” and “reference operation set” to mean “reference rate routing” in the following steps.

2. In the context, enter the identifying data for the routing and sequence in which you want to reference the reference operation set.
3. Choose *Operation → Create reference to reference op. set*. If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Reference reference operation set* dialog box appears.

4. In the *Reference Operation Set* screen section, enter identifying data for the reference operation set you want to reference.
5. In the *Reference* screen section enter the operation number, at which the reference operation set is to be inserted, and the increment with which its operations is to be inserted.



You can either except any default values offered by the system or enter your own values.

6. Click .

You return to the *EWB: Operations overview* screen. The system creates the reference to the reference operation set in your worklist.

7. Save your data.

### Result

The system creates the reference to the reference operation set in the database.

## Work Center Operation Set

# Work Center Operation Set

## Definition

A special operation of a routing. A work center operation set groups the operations of a reference operation set. This is done when particular operation attributes are “cumulated” in a work center operation set. For example: all material components that are assigned to a reference operation set are automatically assigned to a work center operation set. During planning, the system only recognizes the work center operation set. In other words, it ignores the individual operations of the reference operation set.



If you are working with rate routings, you should count “routing” to mean “rate routing” and “reference operation set” to mean “reference rate routing”.

## Use

You use a work center operation set if you want to plan a particular production step, that comprises numerous operations, as just a single entity.

## Structure

The following operation properties are cumulated onto a work center operation set:

- Material components
- Production resources and tools (PRTs)
- Trigger points
- Inspection characteristics
- Standard values

“Cumulated” means in this case: A material component that is assigned to an operation is automatically assigned to the work center operation set. Correspondingly, the same applies for PRTs, trigger points and inspection characteristics. The following applies for standard values: If the work center assigned to the work center operation set has been planned to include the processing time, for example, then this is equal to the sum of the processing times for each operation.

PRTs, trigger points, inspection characteristics and standard values cannot be assigned to a work center operation set manually, but can only be assigned automatically via the operations of the reference operation set. On the other hand, the work center can (and must) be manually assigned to a work center operation set.

## Example: Use of a Work Center Operation Set

A printing press is moved through several assembly areas during production. A particular production step, which itself comprises numerous tasks, is carried out in every area. For example, the printing mechanism is assembled in Area 3 and this requires 100 tasks.

A decisive factor for you, in deciding to use a work center operation set, is the following situation: The team that assembles the printing mechanism consists of highly qualified employees, who autonomously decide when and in what order the material components are fitted. The individual tasks that are carried out in the assembly of a printing mechanism should therefore **not** be planned by the system.

You enter each task that is carried out as an operation of the *Assemble printing mechanism* reference operation set. You enter standard values for all operations and assign material components. In the *Assemble printing press* routing, which describes the whole production process for a printing press, you create a reference to the *Assemble printing mechanism* reference operation set as the *Assemble printing mechanism* work center operation set. You assign the work center operation set to the work center *Area 3*.

Now if, for example, the component *Screw M42* is required in the reference operation set for operations 100, 200 and 400, in quantities of 10, 50 and 40 pieces respectively, then during material requirements planning, the system simply records that the work center operation set requires a total of 100 pieces of *Screw M42*. The scheduling process similarly, records only the standard values in a work center operation set. In other words it takes only the sum of the standard values for the operations in a reference operation set. The system therefore records, for example, that 10 hours are required to assemble the printing mechanism. On the other hand, the system ignores the fact that, of these 10 hours, 30 minutes are allotted to operation 800.

---

## Creating a Work Center Operation Set

# Creating a Work Center Operation Set

## Purpose

You use this process if you want to create a reference to a reference operation set in a routing, as a work center operation set.



If you are working with rate routings, you should count “routing” to mean “rate routing” and “reference operation set” to mean “reference rate routing”.

## Prerequisites

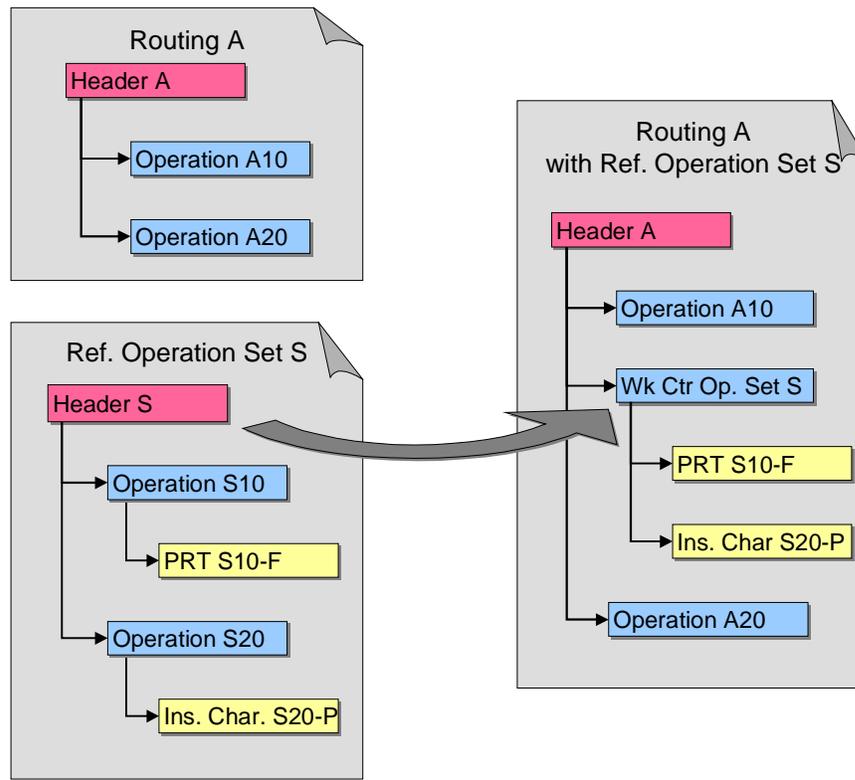
If you want to assign material components to operations of a reference operation set, you have to assign a material to the reference operation set. A material BOM must exist for this material.

## Process flow

1. Enter the individual operations that you want to group in the work center operation set, as operations in a reference operation set.
2. You assign a work center to all the operations for which you want to enter standard values.
3. You enter standard values for the operations, assign material components, production resources/tools (PRTs), trigger points and inspection characteristics and save the reference operation set.
4. You create a reference to the reference operation set as a work center operation set in the routing of the material to be produced. In doing this you have to assign a work center to the work center operation set and define the grouping type (see below for a definition of grouping type).

The system displays material components, PRTs, trigger points and inspection characteristics from the operations of a reference operation set as objects of the work center operation set (see graphic PRT *S10-F* and inspection characteristic *S20-P*).

## Creating a Work Center Operation Set



## Creating a reference to a reference operation set as a work center operation set

5. If necessary, start the cumulation of the standard values manually.

The system then displays the sum of the standard values from the subordinate operations as standard values for the work center operation set.



Via the cumulation type you can define that there should be no cumulation in a routing. This can be worthwhile, because of the better overview given and better performance. In this case, the cumulated material components etc. in the routing are **not** displayed (on the right-hand side of the graphic PRT S10-F and inspection characteristic S20-P are omitted). You cannot then group standard values in the routing either.

6. Save the routing.

## Referencing a Work Center Operation Set

## Referencing a Work Center Operation Set

### Procedure

1. Call up the *EWB: Operation overview* screen.



If you are using a rate routing instead of a normal routing you should count “routing” to mean “rate routing” and “reference operation set” to mean “reference rate routing” in the following steps.

2. In the context, enter the identifying data for the routing and sequence in which you want to reference the work operation set.
3. Choose *Operation → Create reference to work center op. set*. If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Reference Work Center Operation Set* dialog box appears.

4. In the *Work center operation set* screen area, enter the task list group and group counter, of the reference operation set that you want to reference as a work center operation set.
5. In the *Reference* screen area, enter the operation number for the plant and work center to which the reference operation set is referenced as a work center operation set.



You can either except any default values offered by the system or enter your own values.

6. Click .

You return to the *EWB: Operations overview* screen. The system displays the referenced work center operation set.

7. Save your data.

### Result

The system creates the work center operation set in the database.

## Cumulating Standard Values

### Prerequisites

In a routing you must have referenced a reference operation set as a work center operation set. If you want to display the cumulated standard values in the routing, you must have selected *Cumulation in routing and order* as the cumulation type of the work center operation set.



If you are using a rate routing instead of a normal routing you should count “routing” to mean “rate routing” and “reference operation set” to mean “reference rate routing” in the following steps.

### Features

In a material master update and product costing as well as in an order, the standard values in the operations of a reference operation set are automatically cumulated by the system onto the work center operation set. However, if you want to display the cumulated standard values in the routing, you have to trigger the cumulation manually.



The standard value cumulation always takes place on a particular date. In an order it is the routing's explosion date and in a routing it is the key date. There may, therefore, be differences between the cumulation results in a routing and in an order, for instance, if an operation that is valid on the key date, is invalid on the explosion date.

The system cumulates the standard values as follows, it checks which standard value parameters are used in the work centers for the operations in the reference operation set. The standard value parameters have to be standard value parameters in the work center of the work center operation set at the same time. Otherwise an error occurs. The standard value in a standard value parameter for a work center operation set is equal to the sum of the corresponding standard values in the operations.

### Activities

To manually trigger a standard value cumulation in a routing, choose *Operation → Cumulate standard values* in the *EWB: Operations overview* screen.

---

**Example: Cumulation of Standard Values****Example: Cumulation of Standard Values**

For operation S10 of the reference operation set you entered a time of 10 minutes for the *Processing time* standard value parameter. For operation S20 you entered a time of 5 minutes for the *Setup time* standard value parameter and a time of 20 minutes for the *Processing time* standard value parameter (see graphic, top box).

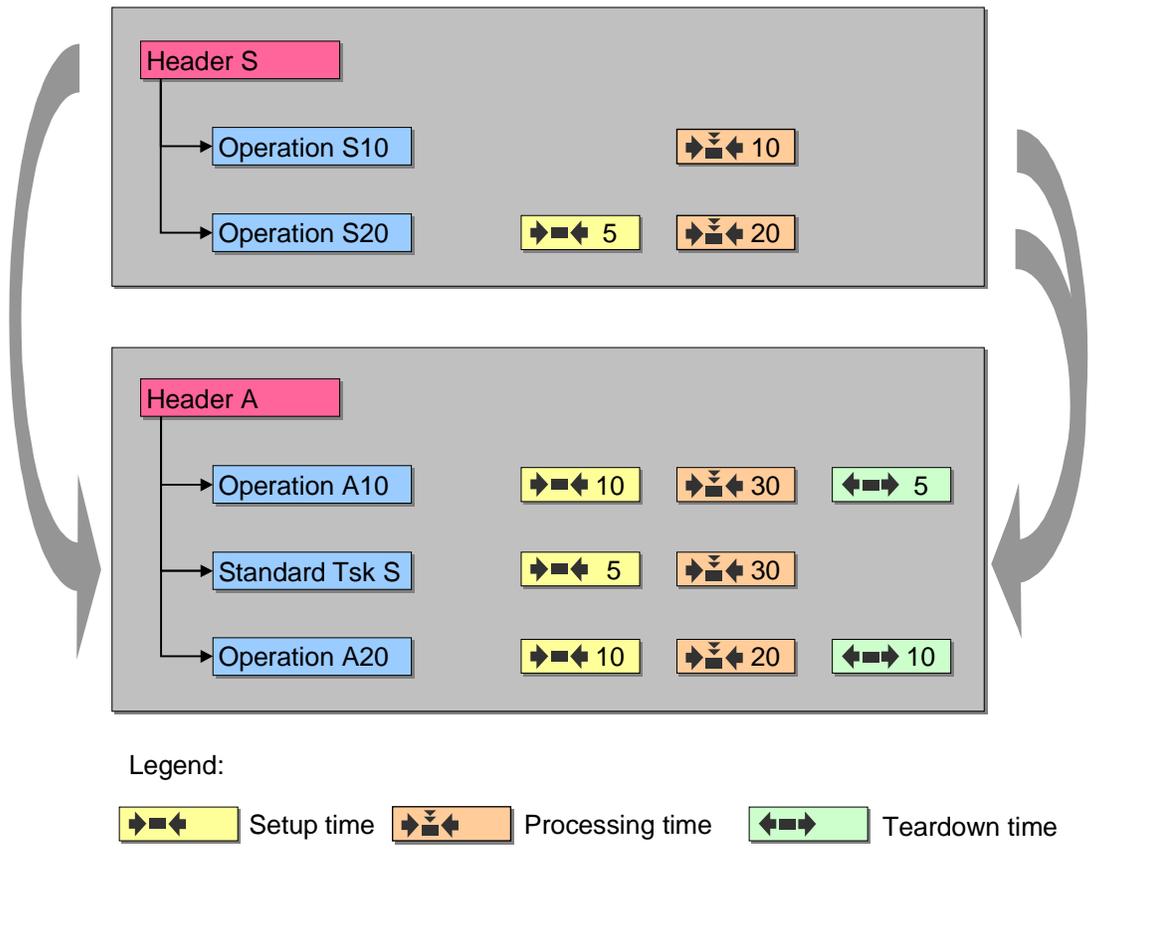
In routing A you make a cross-reference to reference operation set S as standard task S. You assign a work center, that has the standard value parameters *Setup time* and *Processing time*, to standard task S. The following applies:

Setup time S = setup time S20 = 5 minutes, also processing time S = processing time S10 + processing time S20 = 30 minutes (see graphic, bottom box).

If the work center for operation S20 also had the standard value parameter *Teardown time*, this would produce an error, since the work center for work center operation set S does not have this standard value parameter.

**Cumulation of Standard Values**

Example: Cumulation of Standard Values



## Operation/Sub-Operation Mass-Changes

## Operation/Sub-Operation Mass-Changes

### Use

You use mass changes if you want to change the attributes of multiple operations and sub-operations all at once.



You want the *Setup* standard value to be reduced from 2 minutes to 1 minute, for all operations that are carried out at the *WRKCT01* work center.

You use the *update mass changes* function if you want to change all at once changes statuses that follow one-another chronologically.

### Features

You can change as many (sub-) operation attributes at the same time as you like. You can define exactly which objects are affected by the mass change.

If the system discovers that it cannot carry out a change, it writes an appropriate error message in a log and continues with the mass change.



You are trying to change operation IDs or to assign a length to time-related standard values. The operation IDs and the time-related standard values remain unchanged and the system writes appropriate error messages in the log.

Mass change updates allow you to also change statuses that follow one-another chronologically as well as those change statuses that were created with the change number used for mass changing.

## Mass-Changing Operations and Sub-Operations

### Procedure

1. Call up the *Operations* overview.
2. Select the columns in which you want to make the changes.
3. Select the operations and sub-operations you want to change.



You can select the objects you want to change more easily, by using the *Engineering Workbench* filter function.

4. Select the menu options *Extras* → *Mass change*. If the *Process using* dialog box appears, you first have to enter the key date or change number, with which you want to carry out the mass change.

The *Operations Mass Changes* dialog box appears. For each of the columns you selected in step 2, the *New value* and *Only replace* fields are displayed.

5. In each of the *New value* fields enter the new value, with which you want to replace the previous value, for the object selected. If you want a certain new value to replace just **one** specific value rather than **all** values, select the *Take restriction into account* box and enter the value you want to be replaced in the *Only replace* field.

6. Click .

If the  icon is subsequently displayed, it means the system has created a log. In this log the system collects error messages, warnings and pieces of information that are triggered during the mass change.

7. Click  if the system has created a log, so you can check it.

### Result

For each operation and sub-operation you selected, the system replaces the values in the selected columns with the new values.

If you selected the *Take restriction into account* box, the system only replaces the previous value, if you made an appropriate entry in the *Only replace* field.

## Example: Updating Mass Changes

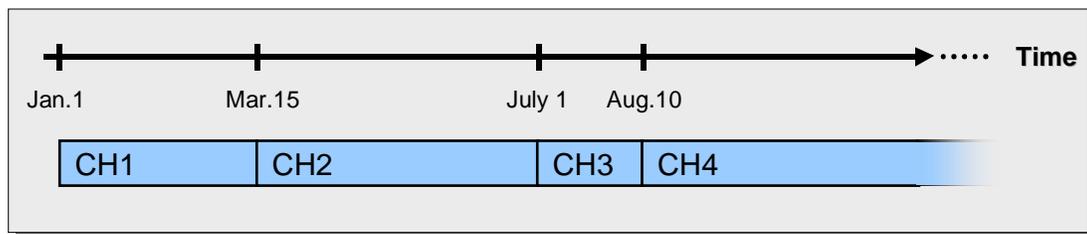
## Example: Updating Mass Changes

An operation has the change statuses *CH1*, *CH2*, *CH3* and *CH4*, which all have date validity (see table and graphic 1). It is affected by a mass change you make using change number *AE2*, in which you replace work center *WRKCT01* (at which all four change statuses for the operation are first carried out) with *WRKCT02*.

### Date validity of the change statuses included

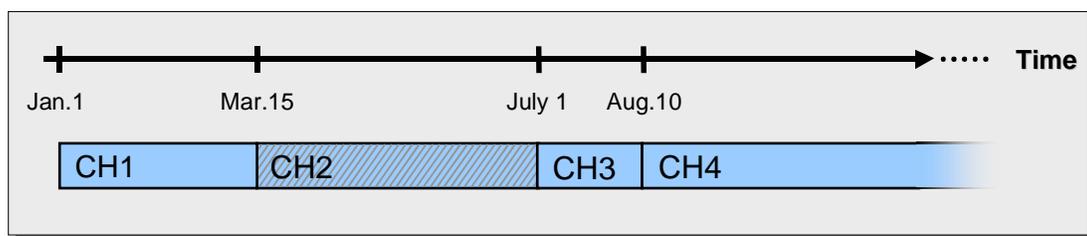
Change status	Valid from date	Valid to date
<i>AE1</i>	January 01	March 14
<i>AE2</i>	March 15	June 30
<i>AE3</i>	July 01	August 09
<i>AE4</i>	August 10	No limit

Graphic 1: Before the mass change



If you have **not** set the *Update mass change* indicator in the options, *WRKCT01* is only replaced for change status *CH2* (see graphic 2).

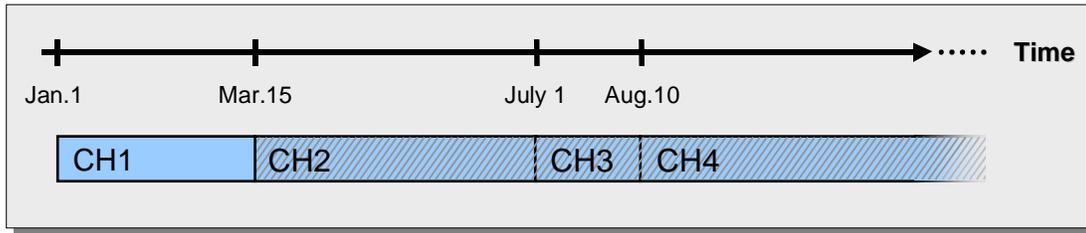
Graphic 2: After the mass change (**not** updated)



If, on the other hand, you **do** set the *Update mass change* indicator in the options, *WRKCT01* is replaced both for change status *CH2* and the change statuses following (see graphic 3).

Graphic 3: After the mass change (updated)

Example: Updating Mass Changes



## De/Activating Mass Change Updates

# De/Activating Mass Change Updates

## Use

You use this function when you carry out a mass change and, to do this, enter a change number in the *Process using* screen section.

You should **deactivate** mass change updates, if you only want those change statuses to be changed that were created using the change number.

You should **activate** mass change updates, if you also want all chronologically succeeding change statuses to be changed.



Your objects have a large number of change statuses in the future. Instead of making a manual change that is valid for all these change statuses, you can carry out a mass change with update.

## Procedure

1. Go to the *Operations* overview and click .  
The *Options* dialog box appears
2. Go to the *Misc.* tab page.
3. To **activate** the update function, select *Update mass changes*. To **deactivate** it, deselect *Update mass changes*.

## Result

You have either activated or deactivated the update mass change function. Proceed as described in [Mass-Changing Operations and Sub-Operations \[Page 193\]](#).

## BOM Object Editing

### Use

You use the functions described here if you want to edit BOM objects such as BOM headers or items.

## Creating a BOM Header

## Creating a BOM Header

### Prerequisites

You have already created the BOM material whose BOM header you want to create.

### Procedure

1. Call up the screen *EWB: BOM header overview*. In the context, enter the material, the plant and the BOM usage of the BOM header that you want to create.
2. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides an input line beneath the objects that are displayed in the overview. The system proposes default values in certain columns.

3. Enter the data for the BOM header to be created in this empty field and choose .



You enter lot size ranges for the BOM header in the screen *EWB: Overview material BOM assignments*. To get there, select *Bills of Material* → *Material BOM assignments* from the *EWB: Overview BOM headers* screen.

The system then creates the BOM header in your worklist and locks it for other users. You can see this from the  lock symbol. If you have not entered a BOM alternative for your BOM header, the system automatically generates one.

4. Save your data.

### Result

The system creates the BOM header in the database.

## Changing a BOM Header

1. Call up the screen *EWB: BOM header overview*.
2. Select the BOM header that you want to change.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

All fields that can be edited on the BOM header are made ready for input. The system then locks the BOM header for other users. You can see this from the  lock symbol.

4. Make the desired changes and click .

The system changes the BOM header in your worklist.

5. Save your data.

## Result

The system changes the BOM header in the database.

## Copying a BOM Header

# Copying a BOM Header

## Use

You use this procedure if you want to copy BOM header without its subordinated or assigned objects (such as item, component assignment and so on).

## Prerequisites

The material to which you want to add the BOM header must already exist.

## Procedure

1. Call up the screen *EWB: BOM header overview*.
2. Select the BOM header you want to copy.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* dialog box appears.

4. Deselect the *Multi-level copy* field and enter the material, plant and BOM usage as well as the data for the new BOM header.
5. Click  *Copy*.

The system then creates the copied BOM header in your worklist and locks it for other users. You can see this from the  lock symbol.

6. Save your data.

## Result

The system creates a copy of the BOM header in the database.

## Making a Multi-Level Copy of a BOM Header

### Use

You use this procedure if you want to make multi-level copies of a BOM header.



You **must** use this procedure if you want to copy **items** and **subitems** as well.

### Prerequisites

The material under which you want to make a multi-level copy of the BOM header must already exist.

You have selected the [copy range \[Page 114\]](#) so that the desired object types (or at least the object type *BOM header* and, for example, the object type *Item*) are copied as well. For more information, see [Editing the copy range \[Page 115\]](#).

### Procedure

2. Call up the screen *EWB: BOM header overview*.
2. Select the BOM header that you want to make a multi-level copy of.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* dialog box appears.

4. Set the *Multi-level copy* indicator and enter the material, plant and BOM usage as well as the data for the new BOM header.



To check or change the copy range click *Copy range*.

5. Click *Copy*.

The system creates the multi-level copy of the BOM header in the worklist. This means it copies the BOM header that you make a multi-level copy of as well as the sub or assigned object types to the BOM header, provided they have been inserted in the copy range .

6. Read the error log if the system reports that log entries were made during copying. To do this click .
7. Save your data.

### Result

The system creates the multi-level copy of the BOM header and the objects included in the copy, in the database.

## Processing Items

# Processing Items

## Use

You use the functions described here if you want to process items.

## Group Maintenance

### Use

This function enables you to **simultaneously** process an item in several of the following types of BOMs:

- In alternatives of a multiple BOM
- In variants of a variant BOM

Simultaneous processing takes place using item **assignments** to different alternatives or variants. With the help of group maintenance you can avoid multiple maintenance of BOM items and therefore reduce your work time.

### Prerequisites

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. For the working areas selected there, or those newly defined, you have to set the *BOM* indicator in the *Group processing* screen.



In the *Engineering Workbench* you can check whether you work **with** or **without** group maintenance in the following way:

In the initial screen *EWB: Selection criteria for <Focus of your working area>* select the symbol  in the screen area *Working area*.

The *EWB: Working area details* dialog box appears.

If the *BOM* indicator is set in the *Group processing* screen area then you work **with** group maintenance. If the indicator is not set then you work **without** group maintenance.

### Features

Within group maintenance you have the following options:

1. For items in several alternatives or variants you can simultaneously
  - Create them
  - Change them
  - Delete them
  - Copy them
2. You can process the item assignment to specific alternatives of variants in various ways. For such assignments, you can
  - Create them
  - Delete them
3. As required, in the *Engineering Workbench* group maintenance (provided it has been activated in *Customizing the Engineering Workbench*) can be

## Group Maintenance

- deactivated (in the *Context* screen area of the item overview the symbol  appears in the BOM header line)
- activated (in the *Context* screen area of the item overview the symbol  appears in the BOM header line)

## Activities

You want to	The system
<a href="#">Create an item with group maintenance [Page 208]</a>	Creates the item in all of its assigned alternatives/variants
<a href="#">Change an item with group maintenance [Page 212]</a>	Changes the item in all of its assigned alternatives/variants
<a href="#">Delete an item with group maintenance [Page 216]</a>	Deletes the item (and all its sub-items) in all its assigned alternatives/variants
<a href="#">Copy an item with group maintenance [Page 214]</a>	Copies the item (and all its sub-items) in all its assigned alternatives/variants
<a href="#">Creates assignments in group maintenance [Page 210]</a>	Creates assignments for all selected alternatives/variants
<a href="#">Deletes assignments in group maintenance [Page 211]</a>	Deletes assignments for all selected alternatives/variants
<a href="#">Deactivate/activate group maintenance [Page 205]</a>	deactivates/activates group maintenance



Note that when copying and deleting items with group maintenance, both the item itself and the relevant subordinated **subitems**, are copied or deleted in all alternatives/variants to which the item is assigned.



If an item that was created **with** group maintenance and that has several assignments, is further processed with **deactivated group maintenance** then this item is exploded in the item overview with the same item ID and the same item number according to the number of created assignments. This means that the item processed further **without** group maintenance is separately listed for each alternative/variant to which it was assigned with group maintenance. Changes to the item then only take effect in the alternative/variant selected for the change.



For a better understanding of the maintenance of items it is recommended that you do not change your processing method (so **with** or **without** group maintenance).

## Deactivating Group Maintenance

### Use

You use this procedure if you have activated the [Group maintenance \[Page 203\]](#) function in Customizing the *Engineering Workbench* you therefore, basically work **with** group maintenance, but now (or at least temporarily) you want to work **without** group maintenance.

### Prerequisites

The *Group maintenance* function has been activated in Customizing the *Engineering Workbench*.

### Procedure

1. Call up the *EWB: Items overview group maintenance screen*.
2. Click *Extras* → *Deactivate group maintenance*.

In the *Context* screen area of the BOM header the symbol  appears.



If you want to activate the group maintenance again at a later point in time, then you select *Extras* → *Activate group maintenance*.

In the *Context* screen area of the BOM header the symbol  appears again.

### Result

The system deactivates group maintenance.

## Creating Items

# Creating Items

## Use

You use this procedure if you want to create an item.



You use this procedure if you do **not** work with group maintenance. If you work **with** group maintenance use the [Creating an item \(group maintenance\) \[Page 208\]](#) procedure instead.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Prerequisites

You have already created the BOM header for the bill of material in which you want to create the item. You have also already created the material to which you want to assign the item that you are creating. You work **without** group maintenance.

## Procedure

1. Call up the screen *EWB: Items overview*.
2. In the context, enter the identifying data for the bill of material in which you want to create the item.



If you have not created the material to which you want to assign the item that you are creating, then the system automatically calls up the *EWB: Create material in plant <plant for the context-material>* dialog box in the material master where you then create the material.

3. In the *View* screen area, choose the radio button
  - *Material*, if you want to create a material item
  - *Document*, if you want to create a [document item \[Ext.\]](#)
  - *Class*, if you want to create a [class item \[Ext.\]](#)
4. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the overview. The system proposes default values in certain columns.

5. Enter the data for the item you want to create in one of the empty fields and click .

The system then creates the item in your worklist and locks it for other users. You can see this from the  lock symbol. If you have not entered an item ID for your item, the system automatically generates one.

6. Save your data.

## Result

The system creates the item in the database.

## Creating an Item (Group Maintenance)

## Creating an Item (Group Maintenance)

### Use

You use this procedure if you want to create an item and also work **with** group maintenance.



If you work **without** group maintenance use the [Creating an item \[Page 206\]](#) procedure instead.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

You have already created the BOM header for the bill of material in which you want to create the item. You have also already created the material to which you want to assign the item that you are creating. You work **with** group maintenance.

### Procedure

1. Call up the *EWB: Items overview group maintenance* screen.
2. In the context, enter the identifying data for the bill of material in which you want to create the item. For the item select whether
  - you want to assign an **individual** BOM alternative/variant  
In this case also enter the BOM alternative.
  - you want to assign **all** BOM alternatives/variants  
In this case do not enter the BOM alternative.



If you have not created the material to which you want to assign the item that you are creating, then the system automatically calls up the *EWB: Create material in plant <plant for the context-material>* dialog box in the material master where you then create the material.

3. In the *View* screen area, choose the radio button
  - *Material*, if you want to create a material item
  - *Document*, if you want to create a [document item \[Ext.\]](#)
  - *Class*, if you want to create a [class item \[Ext.\]](#)
4. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the overview. The system proposes default values in certain columns.

5. Enter the data for the item you want to create in one of the empty fields and click .

---

**Creating an Item (Group Maintenance)**

The system then creates the copied item and its assignment(s) in your worklist and locks the item for other users. You can see this from the  lock symbol. If you have not entered an item ID for your item, the system automatically generates one.

6. Save your data.

**Result**

The system creates the item and its assignment(s) in the database.

## Creating an Assignment to an Item (Group Maintenance)

# Creating an Assignment to an Item (Group Maintenance)

## Use

You use this procedure if you want to assign an item to other BOM alternatives or variants with group maintenance.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Prerequisites

You work **with** group maintenance.

## Procedure

1. Call up the *EWB: Items overview group maintenance* screen.
2. In the *ABG* column, select the item that you want to assign by double clicking on the symbol .



If at least two assignments already exist for the item the symbol you choose is: .

You goto the *EWB: Item assignments overview* screen.

3. Select the BOM alternative(s)/variant(s) to which you still want to assign the item and click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system creates the assignment(s) in the worklist and locks the relevant **item** for other users.

4. Go back to the *EWB: Items overview group maintenance* screen.



The symbol  for the locked item changes color to  showing that at least one other assignment took place.

5. Save your data.

## Result

The system creates the assignment(s) in the database.

## Deleting an Assignment to an Item (Group Maintenance)

### Use

You use this procedure if you want to delete one or more item assignments to BOM alternatives or variants with group maintenance.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

You work **with** group maintenance.

### Procedure

2. Call up the *EWB: Items overview group maintenance* screen.
2. In the *ABG* column, select the item for which you want to delete one or more assignments, by double clicking on the symbol .

You go to the *EWB: Item assignments overview* screen.

3. Select the BOM alternative(s)/variant(s) for which you want to delete the item assignment and click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.
4. Confirm that you want to delete the selected object in the *Delete objects* dialog box.

The system deletes the assignment in the worklist and locks the relevant **item** for other users.

5. Go back to the *EWB: Items overview group maintenance* screen.



The symbol  for the locked object changes to  provided, after deletion, at least **one** assignment still exists. If the symbol  does not change then at least **two** assignments exist.

6. Save your data.

### Result

The system deletes the assignment(s) in the database.

## Changing an Item

# Changing an Item

## Use

You use this procedure if you want to change an item, irrespective of whether you work **with** or **without** group maintenance.



Note, however, that the changes that you make to an item **with** group maintenance are effective in all BOM alternatives or variants to which the item is assigned.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Procedure

1. Call up the *EWB: Items overview* screen (and for group maintenance the screen *EWB: Items overview group maintenance*).
2. Select the item you want to change.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

All fields that can be edited on the item are made ready for input. The system then locks the item for other users. You can see this from the  lock symbol.



In the *Quantity* column, you can only make the changes (this means the column is only then ready for input) if no subitems exist for the relevant item.

4. Make the desired changes and click .

The system changes the item in the worklist.

5. Save your data.

## Result

The system changes the item in the database.

## Copying an Item

### Use

You use this procedure if you want to copy an item.



You use this procedure if you do **not** work with group maintenance. If you work **with** group maintenance use the [Copying an item \(group maintenance\) \[Page 214\]](#) procedure instead.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

The BOM header to which you want to add the item must already exist. You work **without** group maintenance.

### Procedure

1. Call up the screen *EWB: Items overview*.
2. Select the item you want to copy.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* screen appears.

4. In the context of the *EWB: Copy – Target data* dialog box, enter the data for the BOM header to which you want to add the item.



If subitems also exist for the item that you want to copy then these are also copied. (At this stage the copy range is irrelevant.)

5. Click *Copy*.

The system then creates the copied item in your worklist and locks it for other users. You can see this from the lock symbol.

6. Save your data.

### Result

The system creates a copy of the item in the database.

## Copying an Item (Group Maintenance)

## Copying an Item (Group Maintenance)

### Use

You use this procedure if you want to copy an item and also work **with** group maintenance.



If you work **without** group maintenance use the [Copying an item \[Page 213\]](#) procedure instead.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

The BOM header to which you want to add the item must already exist. You work **with** group maintenance.

### Procedure

2. Call up the *EWB: Items overview group maintenance* screen.
2. Select the item you want to copy.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *EWB: Copy – Target data* screen appears.

5. In the context of the *EWB: Copy – Target data* dialog box, enter the data for the BOM header to which you want to add the item. For the item select whether
  - you want to assign an **individual** BOM alternative/variant  
In this case also enter the BOM alternative.
  - you want to assign **all** BOM alternatives/variants  
In this case do not enter the BOM alternative.



If subitems also exist for the item that you want to copy then these are also copied. (At this stage the copy range is irrelevant.)

5. Click  *Copy*.

The system creates the copied item and its assignment(s) in the work list under a **new** item number and then locks this item for other users. You can see this by the  lock indicator.

6. Save your data.

### Result

The system creates a copy of the item and its assignment(s) in the database.



## Deleting an Item

# Deleting an Item

## Use

You use this procedure if you want to delete an item, irrespective of whether you work **with** or **without** group maintenance.



Note, however, that the item that you delete **with** group maintenance is deleted in all BOM alternatives or variants to which this item is assigned.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Procedure

2. Call up the *EWB: Items overview* screen (and for group maintenance the screen *EWB: Items overview group maintenance*).
2. Select the item you want to delete.
3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *Delete objects* dialog box appears.

4. Confirm that you want to delete the selected object.

The system deletes the item from your worklist.



If sub items also exist for the deleted item, they are deleted too.

5. Save your data.

## Result

The system deleted the items (and also any existing subitems) from the database.

## Processing Sub-Items

### Use

You use the functions described here if you want to process sub items.

## Creating a Sub-Item

## Creating a Sub-Item

### Use

You use this procedure if you want to create a sub-item, irrespective of whether you work **with** or **without** group maintenance.



Note, however, that the subitem that you create for a specific item **with** group maintenance is created in all BOM alternatives or variants to which this item is assigned.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

You have already created the item for which you want to create a subitem.

### Procedure

1. Call up the *EWB: Items overview* screen (and for group maintenance the screen *EWB: Items overview group maintenance*).
2. In the *SIs* column select the item for which you want to create a subitem by double clicking on the symbol .



If a subitem already exists for the item the symbol you choose is: .

You goto the *EWB: Subitems overview* screen.

3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The system provides input lines beneath the objects that are displayed in the overview. The system proposes default values in certain columns.

4. Enter the data for the subitem you want to create in one of the empty fields and click .

The system creates the subitem in the worklist and locks the superior **item** for other users. You can see this by the  lock indicator when you go back to the *EWB: Items overview* screen.



In the line for the locked item, the symbol  changes its color to , to show that at least one subitem exists for the relevant item.

5. Save your data.

## Result

The system creates a subitem in the database.

## Changing a Subitem

# Changing a Subitem

## Use

You use this procedure if you want to change a sub-item, irrespective of whether you work **with** or **without** group maintenance.



Note, however, that the changes that you make to a subitem **with** group maintenance are effective in all BOM alternatives or variants to which the superior item is assigned.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Procedure

3. Call up the *EWB: Items overview* screen (and for group maintenance the screen *EWB: Items overview group maintenance*).

2. In the *SIs* column select the item whose subitem you want to change, by double clicking on the symbol .

You goto the *EWB: Subitems overview* screen.

3. Click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

All fields that can be edited on the subitem are made ready for input. The system then locks the superior **item** to other users.

4. Make the desired changes and click .

The system changes the subitem in your worklist.

5. Save your data.

## Result

The system changes the subitem in the database.

## Deleting a Subitem

### Use

You use this procedure if you want to delete a subitem whose superior item is assigned to **one** BOM alternative or variant, irrespective of whether you work **with** or **without** group maintenance.



If you want to delete a subitem whose item is assigned to **several** BOM alternatives/variants and you work **with** group maintenance, use the [Deleting a subitem \(group maintenance\) \[Page 222\]](#).

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

### Prerequisites

The item that is superior to the subitem to be deleted has only **one** assignment.

### Procedure

1. Call up the *EWB: Items overview* screen (and for group maintenance the screen *EWB: Items overview group maintenance*).
2. In the *SIs* column select the item for which you want to delete a subitem by double clicking on the symbol .

You goto the *EWB: Subitems overview* screen.

3. Mark the subitem that you want to delete and click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *Delete objects* dialog box appears.

4. Confirm that you want to delete the selected object.

The system deletes the subitem from the worklist and from the overview.

5. Save your data.

### Result

The system deletes the subitem in the database.

## Deleting a Subitem (Group Maintenance)

# Deleting a Subitem (Group Maintenance)

## Use

You use this procedure if you want to delete a subitem whose superior item is assigned to **several** BOM alternatives or variants and you work **with** group maintenance.



If you work **without** group maintenance use the [Deleting a subitem \[Page 221\]](#) procedure instead.

Group maintenance is activated in *Customizing the Engineering Workbench* under *Editing working areas*. Other information for checking whether you work **with** or **without** group maintenance can be found under [Group maintenance \[Page 203\]](#).

## Prerequisites

The item that is superior to the subitem to be deleted has **several** assignments. You work **with** group maintenance.

## Procedure

2. Call up the *EWB: Items overview group maintenance* screen.
2. In the *S/Is* column select the item for which you want to delete a subitem by double clicking on the symbol .

You goto the *EWB: Subitems overview* screen.

3. Mark the subitem that you want to delete and click . If the *EWB: Process using* dialog box appears, you have to enter either a key date or a change number.

The *Delete objects* dialog box appears.

4. Confirm that you want to delete the selected object.

In the **overview** of the subitems, the subitem to be deleted remains unchanged. However, in the **worklist** the system deletes the subitem for the assignment of the superior item to BOM alternatives/variants with the lowest number.



This means that when you want to delete the subitem in additional item assignments to other BOM alternatives/variants (with higher numbers) then you have to repeat steps 3 and 4.

Only when you have deleted the subitem for all the item assignments to BOM alternatives/variants, does the system remove the subitem from the overview.

5. Save and go back.

In the *EWB: Items overview group maintenance* screen **two** line entries for the superior item appear. The top line refers to the item assignment to the BOM alternative(s)/variant(s) in which the subitem has not been deleted. The **bottom** line refers to the item assignment to the BOM alternative/variant for which the sub item has been **deleted**.

## Result

The system deletes the subitem in the database.

## Editing Component Assignments

# Editing Component Assignments

## Use

You use this function if you want to edit component assignments, in other words assignments of items to operations.

## Prerequisites

The same material is assigned to the routing and bill of material, whose items you want to assign to operations in the routing.

## Features

### Determining bills of material and routings

When you enter the component assignment mode, you determine the routing and bill of material you want to edit. If the bill of material contains [phantom assemblies \[Ext.\]](#), you also determine their bills of material.

You always determine the routing you want to edit manually. However, the bill of material can be

- Determined automatically according to the [BOM application \[Ext.\]](#)
- Determined automatically according to the [required quantity \[Ext.\]](#)

The system then determines the bill of material, whose lot-size range fits with the required quantity

- Manually determined

The system **always** determines phantom assemblies according to the BOM application.



Routings and bills of material, which are not in your worklist, are not offered for selection, neither can they be determined by the system.

## Views on the *Component Assignments* overview

The *Component Assignments* overview comprises

- The *Component assignments*  view

Here, you gain an overview of the existing component assignments and can edit them. You can also display items, which are not yet assigned. To assign one of these items to an operation, enter the operation number and sequence.

- The *Items*  view

Here, you gain an overview of the items in the bill of material and of the phantom assemblies used in them. You can filter for assigned and non-assigned items. If you need to, you can create new items as well.

On the operations view, you can assign a number of selected items to an operation in one go.

---

**Editing Component Assignments**

- The *Operations*  view

Here, you gain an overview of the operations in the routing. You can filter for assigned and non-assigned operations.

In the *items* view you can assign items to one operation after another.

## Calling up the Component Assignments Overview

## Calling up the *Component Assignments Overview*

### Prerequisites

You have assigned the same material to the routing and bill of material, whose items you want to assign to operations in the routing.

### Procedure

1. Choose *Task lists* → *Component assignments* or *Bills of material* → *Component assignments*. If the *Process using* dialog box appears, you also have to enter either a key date or a change number.

The *Material-routing assignments in worklist* dialog box appears.

2. Select a material-routing assignment and click .

The *Parameters for BOM explosion* dialog box appears. The selected material and its plant are displayed.



If you enter a material and header in the context, or select a material-routing assignment in the *Material-routing assignments overview*, before you carry out step 1, the *Parameters for BOM explosion* dialog box appears immediately, in other words, without you having to carry out step 2.

3. Enter a BOM application and, if necessary, a BOM usage and alternative BOM. Click .



If required you can hide the component assignments or the non-assigned BOM items. To do this use the *Filter assigned objects* and *Filter non-assigned objects* radio buttons.

### Result

The *Component Assignments overview* appears, which lists all component assignments. All non-assigned BOM items are also listed.

The material, bill of material and routing you have selected, are displayed in the context.



If you have entered a BOM usage and alternative BOM, this results in certain bills of material being displayed. Otherwise the system determined the bills of material automatically.

You can find further information in the bills of material component (PP-BD-BOM) in [Alternative Determination Using the Application \[Ext.\]](#).

## Defining Settings for BOM Explosions

### Use

You use this procedure if you often go to the *Component Assignments* overview and want to define how the bill of material for editing is determined, for the duration of your current session in the *Engineering Workbench*.

### Procedure

1. On any overview in the *Engineering Workbench*, click .  
The *Options* dialog box appears
2. Go to the *BOM explosion* tab page.
3. Enter the [BOM application \[Ext.\]](#) you want the system to use to determine the bill of material for editing. Also enter the [required quantity \[Ext.\]](#), if you want the system to determine the bill of material for editing, according to its lot size. Select the *Manual BOM selection* box, if you want to select the bill of material for editing yourself.
4. Click .

### Result

Depending on your entries, from now on you can either select the bill of material for editing manually, or the system determines the bill of material automatically.



If the bill of material contains [phantom assemblies \[Ext.\]](#), the system **always** (in other words, even if you select the BOM manually or have entered a required quantity) uses the BOM application entered, to determine the BOMs for the phantom assemblies.

---

**Displaying Component Assignments**

## Displaying Component Assignments

### Prerequisites

You have called up the *Component Assignments* overview. ([→ \[Page 226\] How \[Page 226\]?](#))

### Procedure

1. Choose the  *components view* radio button.

The *component assignments* view appears.

2. Then click the following button:

 *All objects,*

if you want to see **all** objects, irrespective of whether or not they are assigned to an operation

 *Assigned objects,*

if you only want to see component assignments

 *Non-assigned objects,*

if you only want to see items, which are not yet assigned to any operation

## Displaying Phantom Assemblies

### Prerequisites

You have called up the *Component Assignments* overview ([\[Page 226\]](#)[How \[Page 226\]?](#)) and are either in the *component assignments* or the *items* view.

Some of the items in the bill of material you are editing are [phantom assemblies \[Ext.\]](#).

### Procedure

You want to	Click
Expand the items in one phantom assembly	 on the appropriate row of the overview
Collapse the items in one phantom assembly	 on the appropriate row of the overview
Expand the items in all phantom assemblies	 on the icon bar in the <i>Engineering Workbench</i>
Collapse the items in all phantom assemblies	 on the icon bar in the <i>Engineering Workbench</i>

## Assigning Items

# Assigning Items

## Use

You use this procedure if you want to assign a number of items to an operation.

## Prerequisites

You have called up the *Component Assignments* overview. ([\[Page 226\]](#)[How \[Page 226\]?](#))

## Procedure

1. Choose the  *items view* radio button.

The *items* view appears.

2. Select the items you want to assign and choose the  *operations view* radio button.

The *operations* view appears.

3. Select the operation you want to assign items to and click  with the *Create component assignment* quick info.

The system creates the component assignments in the worklist.



You can check the component assignments in the *component assignments* view, by choosing the  *component assignments view* radio button.

4. Save your data.

## Result

The system creates the component assignments in the database.

## Assigning Operations

### Use

You use this procedure if you want to assign a number of operations to a number of items.

### Prerequisites

You have called up the *Component Assignments* overview. ([\[Page 226\]](#)[How \[Page 226\]?](#))

### Procedure

5. Choose the  *operations view* radio button.  
The *operations* view appears.
6. Select the operations you want to assign and choose the  *items view* radio button.  
The *items* view appears. The first selected operation is displayed in the context.
7. Select the items you want to assign operation displayed in the context to and click  with the *Create component assignment* quick info.

The system assigns the operation to the selected items.

8. Click .

The next selected operation is displayed in the context.

9. Repeat steps 3 and 4 until you have edited all selected operations.



You can check the component assignments in the *component assignments* view, by choosing the  *component assignments view* radio button.

6. Save your data.

### Result

The system creates the component assignments in the database.

## Working with Change Statuses (Date Validity)

# Working with Change Statuses (Date Validity)

## Use

This process is relevant if you use [change master records \[Ext.\]](#) or [change numbers \[Ext.\]](#) in your organization, for processing objects, so that an object can have multiple [change statuses \[Ext.\]](#).



This process is also of interest to you if your organization uses change master records with parameter effectivity, in other words, if you work with change statuses with parameter effectivity. You should, however, also take the time to read the information specifically about working with change statuses with parameter effectivity.

You can find this in [Working with Change Statuses \(with Parameter Effectivity\) \[Page 272\]](#).

You follow this process if your organization uses change master records with date validity and you want to edit change statuses with [date validity \[Ext.\]](#) in the *Engineering Workbench*.



Change master records are provided by the *Engineering Change Management* LO-ECH component. Alongside change master records with date validity, this component also offers change master records with [parameter effectivity \[Ext.\]](#).

For more information, see the R/3 Library *Engineering Change Management* (LO-ECH).

## Prerequisites

Your organization uses the *Engineering Change Management* (LO-ECH) component. In Customizing for this component, the required settings have been made.

## Process Flow

3. You select the [working area \[Ext.\]](#) in which you want to work.  
Your selection of a suitable working area ensures that you see exactly the information that interests you in the *Engineering Workbench*. This gives a better overview of your objects and you can work faster.
4. To define which [objects \[Ext.\]](#) you want to display or edit in the *Engineering Workbench* you enter selection criteria and choose a selection period.
4. The system copies change statuses, which meet your selection criteria and which are valid on one day within the selection period, from the database to your [worklist \[Ext.\]](#).
5. You process the objects in your worklist. On the overviews in the *Engineering Workbench*, all change statuses for an object are always displayed (provided they were copied to the

---

**Working with Change Statuses (Date Validity)**

worklist). To create, change or delete change statuses with date validity, always enter the change number of a change master record with date validity. Change statuses you create in the *Engineering Workbench* are also transferred to the worklist.

6. You save your worklist.

**Result**

The system writes the new and changed change statuses to the database.

## Change Status with Date Validity

## Change Status with Date Validity

### Definition

The processing status of an object that was created with reference to a change number, which refers to a [change master record \[Ext.\]](#) with [date validity \[Ext.\]](#).

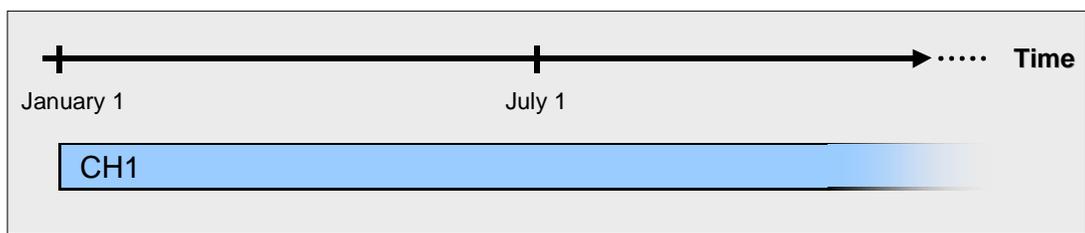
### Structure

A change status with date validity has purely time-related validity. This extends from its [valid-from date \[Ext.\]](#), to the valid-from date of the change status following. If no change status follows, the validity of a change status with date validity is open-ended.

### Example

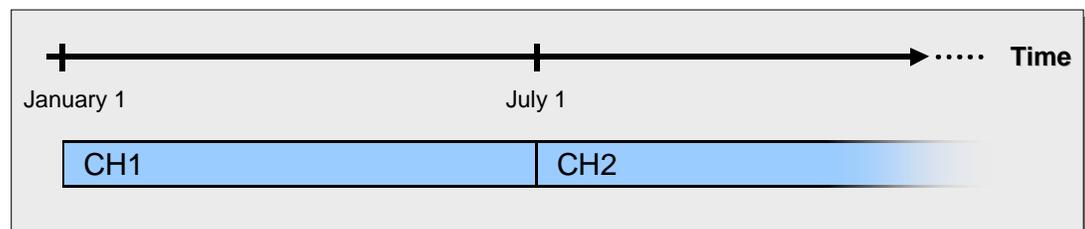
You create an item with reference to change number *CH1*. The valid-from date of change master record *CH1* is January 1. The system then generates a change status, *CH1*, which has an open-ended validity from January 1.

Item Change Status after Processing using Change Number *CH1*



You change the item with reference to change number *CH2*. The valid-from date of change master record *CH2* is July 1. The system then generates a change status, *CH1*, which has an open-ended validity from January 1. Change status *CH1* is now only valid until June 30.

Item Change Statuses after Processing using Change Number *CH2*



## Change Status Selection with Date Validity

### Purpose

You use this process if your organization uses [date validity \[Ext.\]](#) and you want to select your worklist on the *Engineering Workbench* initial screen.

### Process Flow

1. You choose your working area.  
You use the working area to adapt the *Engineering Workbench* to the current tasks. The objects that the system copies to the worklist then always belong to those object types that interest you.
2. You enter selection criteria, to select the [focus objects \[Ext.\]](#) in your worklist. All the relevant selection criteria for each object type are available in the *Engineering Workbench*. You can combine as many selection criteria as you like.
3. You specify with which [selection range \[Ext.\]](#) you want to work.
4. The system copies the focus object you have selected as well as the [environment objects \[Ext.\]](#) to the worklist.

### Result

You can now display and process your worklist objects in the *Engineering Workbench*.

## Filling your Worklist with Focus Objects (Date Validity)

## Filling your Worklist with Focus Objects (Date Validity)

### Purpose

After you have defined the selection criteria and selection range for your worklist and clicked , the system fills your worklist in two steps. This process describes the first of the two stages.



The system only uses this process, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with [date effectivity \[Ext.\]](#), to process bills of material and routings for example.

### Process Flow

1. The system determines which objects fulfill your selection criteria, in other words, which objects are [focus objects \[Ext.\]](#)

The system does this as described in [Focus Object Selection \[Page 36\]](#), although the following applies if an object has more than one change status: The object fulfills the selection criteria if at least **one** of its change statuses fulfills the selection criteria.

2. The system copies **every** change status for a focus object to the worklist, which overlaps with the selection period.



It is not obligatory for a copied change status to fulfill the selection criteria (see the example following).

### Result

The system fills your worklist with change statuses for the focus objects.

To fill your worklist with change statuses for the environment objects, the system then executes the [Filling your Worklist with Environment Objects \(Date Effectivity\) \[Page 238\]](#) process.

### Example

Header A has two change statuses (see table):

#### Header A Change Statuses

Change status	Status	Validity period
CH1	Created	January
CH2	Released (general)	February

Your working area has *header* as its focus. You enter the selection criterion “all released headers”. In the selection range you enter the month of January as the selection period.

Header A is a focus object, as its change status *CH2* fulfills the selection criterion in February. However, *CH2* is not copied to the worklist, as it is invalid in January. On the other hand, *CH1* does not meet the selection criteria, but is valid in January. *CH1* is therefore copied to the worklist.

See also:

[Focus Object Selection \[Page 36\]](#)

## Filling your Worklist with Environment Objects (Date Effectivity)

## Filling your Worklist with Environment Objects (Date Effectivity)

### Purpose

After you have defined the selection criteria and selection range for your worklist and clicked , the system fills your worklist in two steps. This process describes the second of the two steps.



The system only uses this process, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with [date effectivity \[Ext.\]](#), to process bills of material and routings for example.

### Prerequisites

The system has executed the [Filling your Worklist with Focus Objects \(Date Effectivity\) \[Page 236\]](#) function, which means that it has determined the focus objects according to your selection criteria and copied the change statuses, valid during the selection period, to your worklist.

### Process Flow

2. The system determines which objects are assigned to the focus objects, in other words, which objects are [environment objects \[Ext.\]](#)

The system does this as described in [Environment Object Selection Focus Header \[Page 40\]](#), [Focus Operation \[Page 44\]](#), [Focus BOM Header \[Page 49\]](#) or [Focus Item \[Page 54\]](#). Which environment objects the system determines depends, therefore, in particular on the [focus \[Ext.\]](#) of your working area.

3. If the system has copied at least one change status for a focus object to the worklist, it attempts to copy the environment objects for the focus object to the worklist. From the environment objects, each change status is copied that is valid on at least one day within the selection period.

### Result

The system filled your worklist. You can now display and process its objects in the *Engineering Workbench*.

---

**Example: Selecting Change Statuses with Date Validity****Example: Selecting Change Statuses with Date Validity**

Proceed as follows:

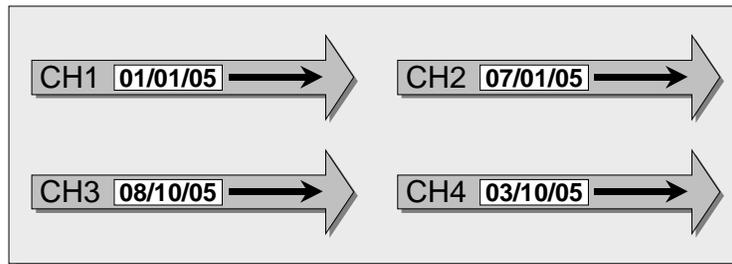
1. You create a number of [change master records \[Ext.\]](#) with date validity.
2. Using the change master records you have just created, you create a number of objects or change statuses in your database.
3. You enter the *Engineering Workbench* by selecting a [working area \[Ext.\]](#) with the [focus \[Ext.\] operation](#).
4. You enter selection criteria.
5. You enter a [selection period \[Ext.\]](#).
6. The system selects
  - a. The [focus objects \[Ext.\]](#) of your worklist first
  - b. Followed by the [environment objects \[Ext.\]](#) in your worklist

## Step 1: Change Master Records with Date Validity

## Step 1: Change Master Records with Date Validity

You create four [change master records \[Ext.\]](#) with date validity (see graphic and table).

Change Master Records Used



Change Master Record	Valid-From Date
CH1	January 01, 2005
CH2	July 01, 2005
CH3	August 10, 2005
CH4	March 10, 2005

## Step 2: Objects in the Database

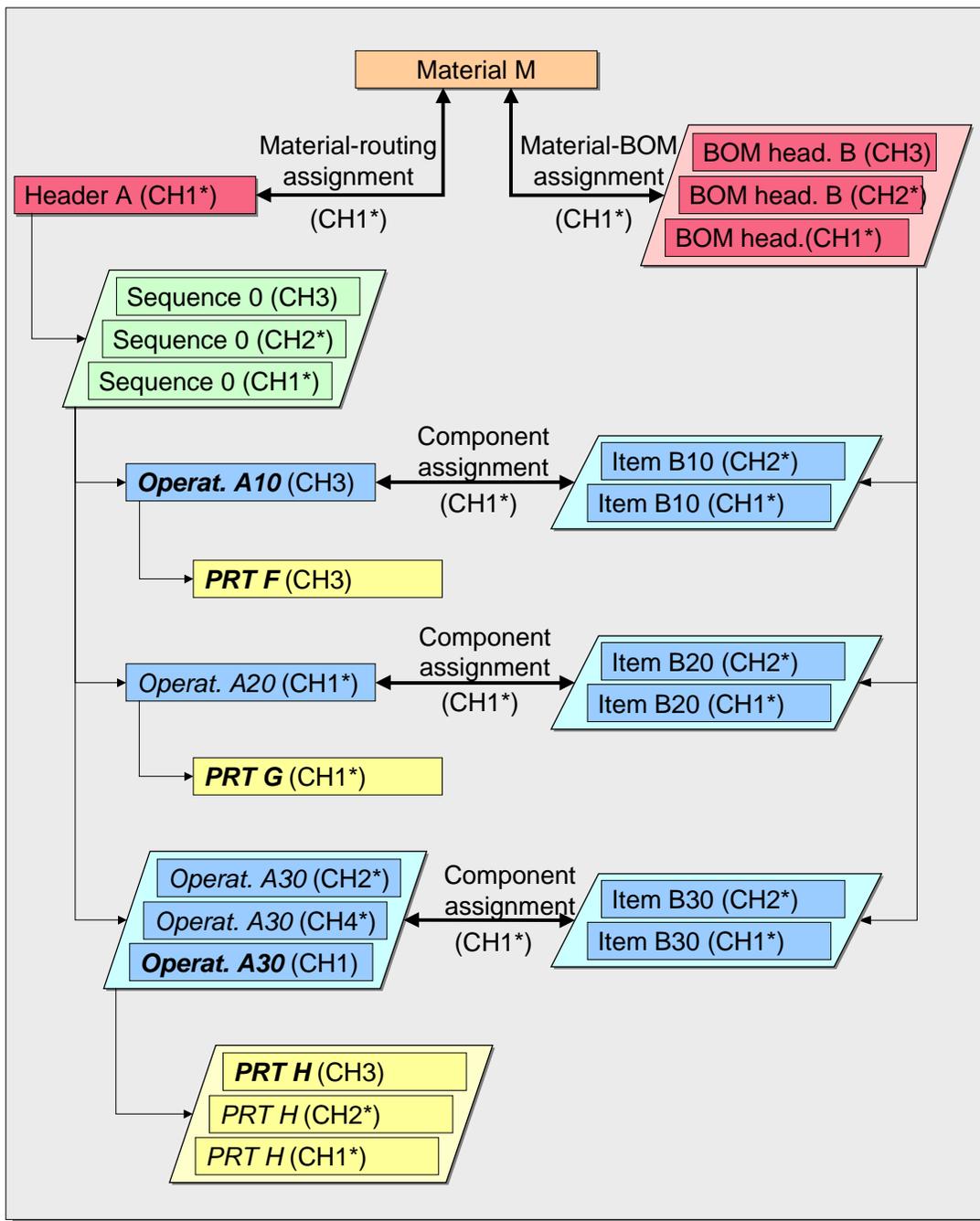
In the *Engineering Workbench*, proceed as follows:

1. With change number *CH1* you create a series of objects (see *CH1* change statuses in the graphic).
2. With change number *CH2* you change sequence *O*, operation *A30* and BOM header *B*, as well as its items.
3. With change number *CH3* you change sequence *O*, operation *A30* and BOM header *B*, a second time. With this change number you also create operation *A10* and PRT *F*.
4. With change number *CH4* you change operation *A30*.
5. You save your worklist.

You can see the objects and their change statuses, that the system then writes to the database, in the graphic.

### Objects in the Database

Step 2: Objects in the Database



Legend:

- Object No selection criteria were entered for the object type
- Object The object does not fulfill the selection criteria
- Object** The object fulfills the selection criteria
- (CH1) The change status does not fulfill the parameter variant
- (CH1\*) The change status fulfills the parameter variant

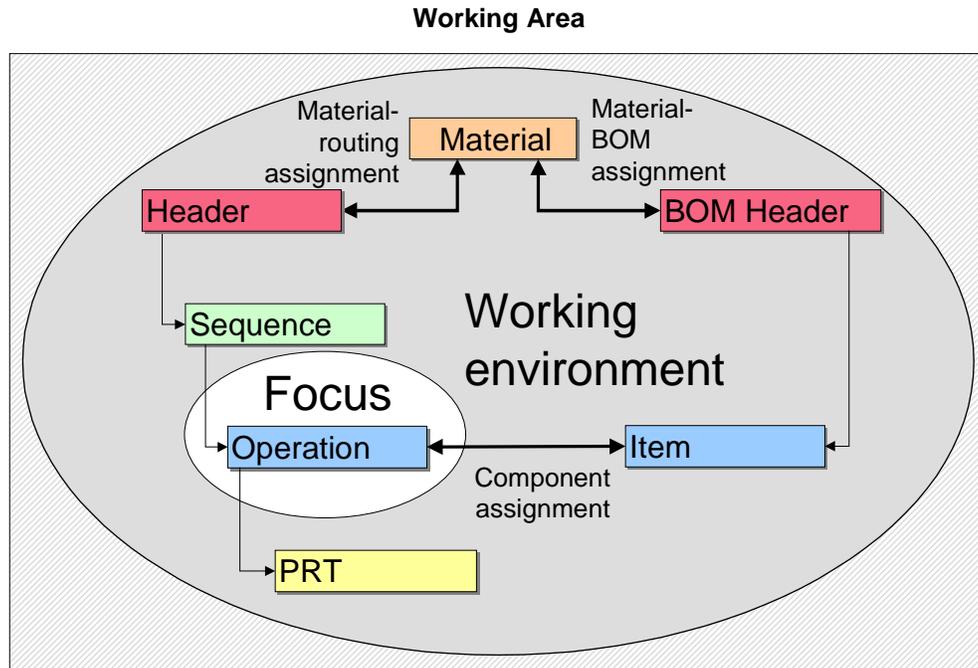
In the graphic you can also see (note legend)

- For which object types you enter selection criteria in [Step 4 \[Page 245\]](#)  
You can find further information in [Example: Selection Criteria \[Page 245\]](#).
- Which objects fulfill these selection criteria  
You can find further information in [Example: Focus Objects \[Page 246\]](#).
- Which change statuses overlap with the selection period  
You can find further information in [Example: Selection Period \[Page 253\]](#).

## Step 3: Working Area

## Step 3: Working Area

You select the [working area \[Ext.\]](#) shown in the graphic. You select the *Operation* object type as the focus of your working area. The object types in the working environment are *material-routing assignment*, *routing header*, *sequence*, *production resources and tools (PRT)*, *material-BOM assignment*, *BOM header* and *component assignment*.



See also:

[Working Area \[Page 17\]](#)

## Step 4: Selection Criteria

You enter selection criteria for operations and production resources/tools (see table). The table also shows the operations and production resources/tools by which the respective criterion is met.

### Selection Criteria

<b>Object Type</b>	<b>Criterion</b>	<b>Criterion is met by</b>
<i>Operation</i>	Processed at work center <i>WRK CTR 01</i>	Operation <i>A10</i> and <i>A30</i> (only change status <i>CH1</i> for operation <i>A30</i> )
<i>PRT</i>	Has control key <i>1</i>	<i>PRT F</i> , <i>PRT G</i> and <i>PRT H</i> (only change status <i>CH3</i> for <i>PRT H</i> )

In the [Objects in the Database \[Page 241\]](#) graphic, the objects for which you have entered selection criteria, are shown in italics. Objects that meet the selection criteria are indicated by bold font.

## Step 5: Focus Objects

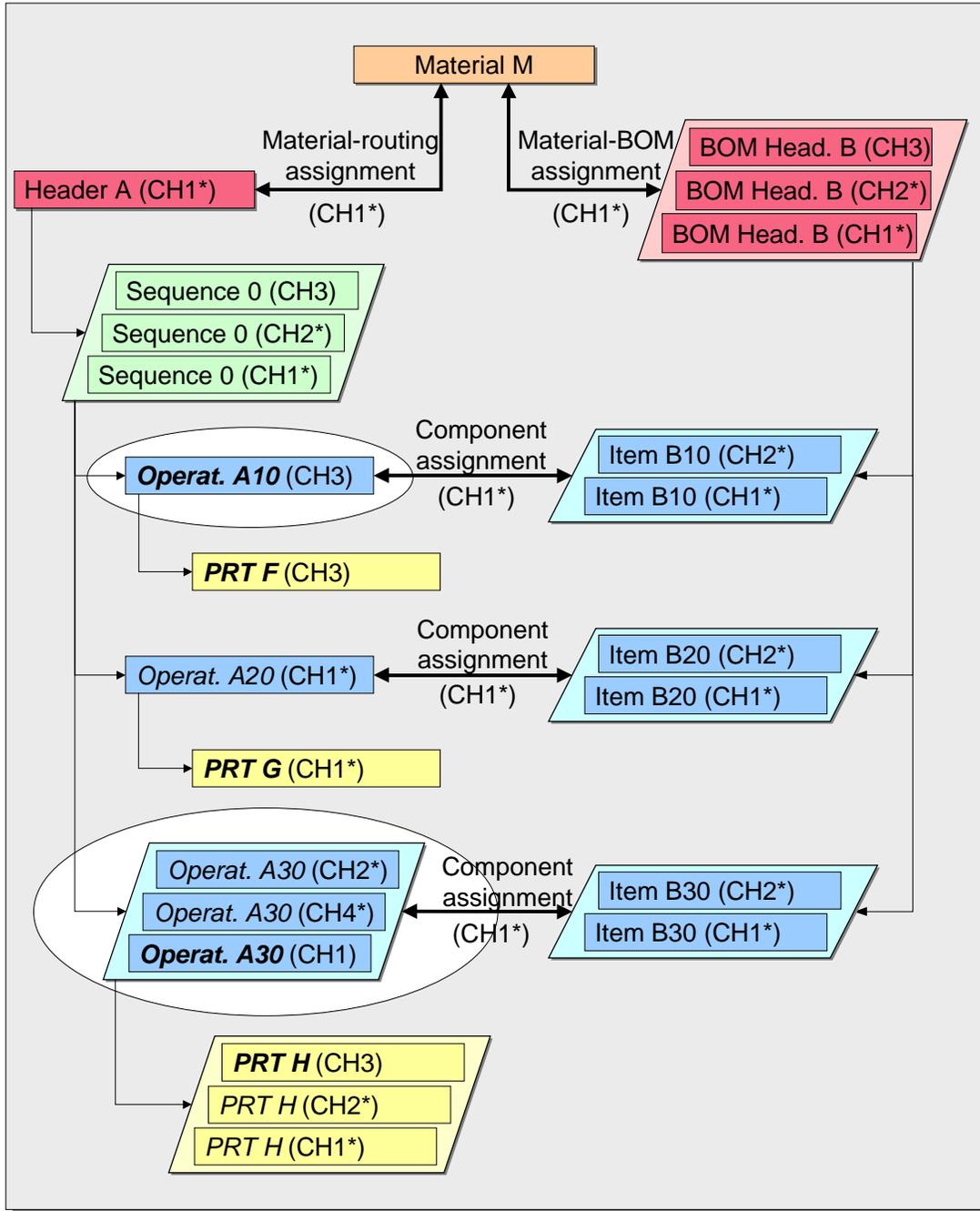
## Step 5: Focus Objects

Since the focus of your working area is *Operation* (see [working area graphic \[Page 244\]](#)), all focus objects are operations. An operation is a focus object if it fulfills your selection criteria (see [selection criteria table \[Page 245\]](#)), in other words, if it is carried out at work center *WRKCT01* and a production resource/tool is used with control key *1*. This means:

Operation	is	because
A10	A focus object	Operation A10 and PRT F fulfill your selection criteria
A20	<b>Not</b> a focus object	Operation A20 does not fulfill your selection criteria
A30	A focus object	<b>Any</b> one change status for operation A30 and <b>any</b> one change status for PRT H fulfills your selection criteria

The two focus objects have a white background.

**Focus Objects**



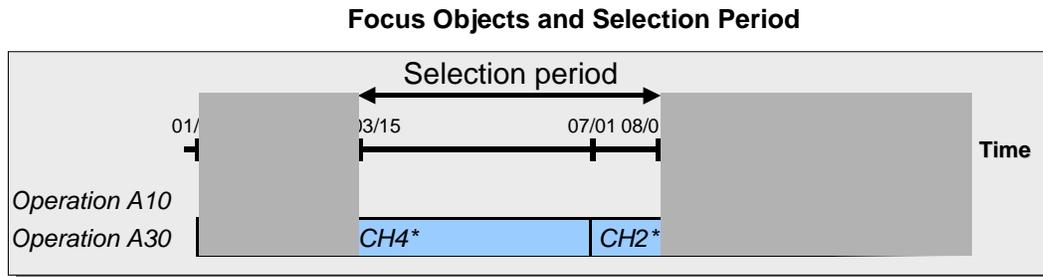
Legend:

- Object No selection criteria were entered for this object type
- Object The change status does not fulfill the selection criteria
- Object** The change status fulfills the selection criteria
- (CH1) The change status does not overlap with the selection range
- (CH1\*) The change status overlaps with the selection range

Step 5: Focus Objects

## Step 6: Focus Objects and Selection Period

You select the period from March 15 to August 01 as the selection period. The graphic shows the selection period and the validity of the change statuses for the focus objects determined by the system - operations *A10* and *A30*.



The change statuses *CH4* and *CH2* for operation *A30*, are the only ones, which overlap with the selection period. They are therefore copied from the database to the worklist by the system. Change status *CH1* for operation *A30* and operation *A10*'s only change status *CH3*, are however, **not** copied to the worklist. This means in particular that operation *A10* is **not** copied to the worklist, despite it being a focus object.

---

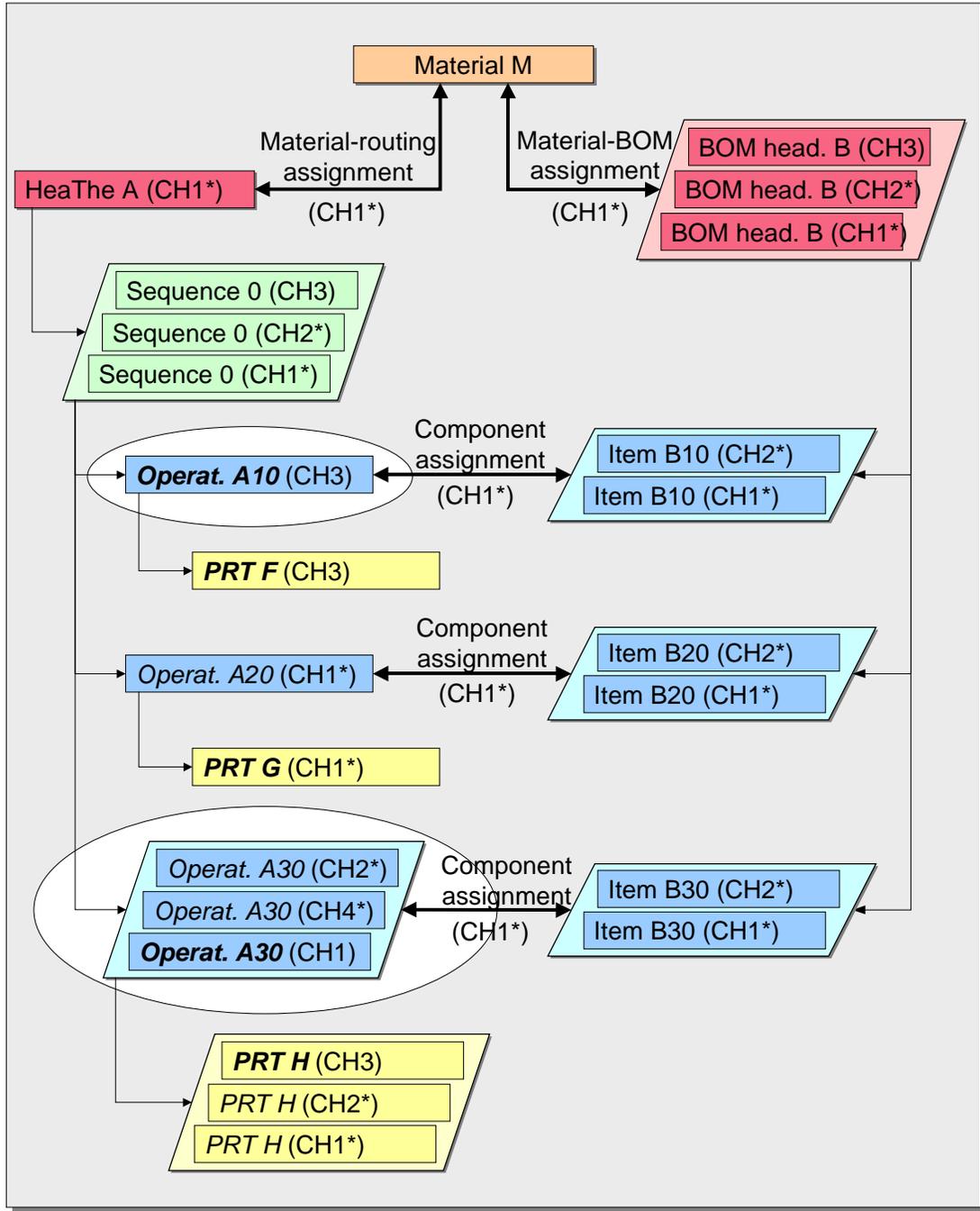
**Step 7: Environment Objects****Step 7: Environment Objects**

Since operation *A10* is not copied to the worklist, the system only determines the environment objects for the focus object, operation *A30* (see *Environment Objects* graphic):

1. All objects that are either superior or subordinate to operations *A10* and *A30*, i.e. header *A*, sequence *O* and PRTs *F* and *H*.
2. All items that are assigned to these operations, i.e. items *B10* and *B20*. Also, the component assignments between *A10* and *B10* and *A30* and *B30*.
3. All objects that are superior or subordinate to items *B10* and *B30*, i.e. BOM header *B*.
4. The assignments between material *M* and header *A* or BOM header *B*.

**Environment Objects**

Step 7: Environment Objects



Legend:

- Object No selection criteria were entered for this object type
- Object The change status does not fulfill the selection criteria
- Object** The change status fulfills the selection criteria
- (CH1) The change status does not overlap with the selection range
- (CH1\*) The change status overlaps with the selection range

**Step 7: Environment Objects**

**See also:**

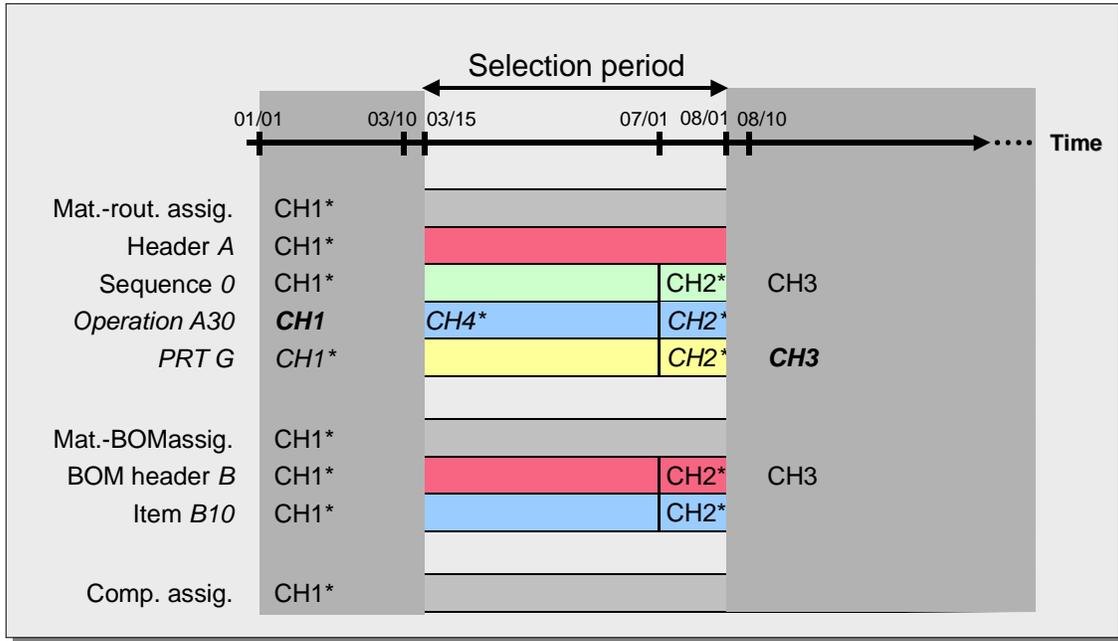
[Environment Object Selection \(Focus Operation\) \[Page 44\]](#)

Step 8: Environment Objects and Selection Period

## Step 8: Environment Objects and Selection Period

The graphic shows the validity of the change statuses for operation A30 and its environment objects, along with your chosen selection period.

Environment Objects and Selection Period



All change statuses that overlap with the selection period are copied to the worklist (these are shown in the graphic with a \*). The remaining change statuses are **not** copied to the worklist.

---

**Selecting Change Statuses with Date Validity**

## Selecting Change Statuses with Date Validity

### Use

You use this procedure to copy change statuses with [date validity \[Ext.\]](#) to your worklist.



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with date validity, to process bills of material and routings for example.

### Procedure

1. Enter your selection criteria on the *Selection Criteria* screen.
2. Enter a [selection period \[Ext.\]](#) in the *selection range* and click .

## Creating a Change Status with Date Validity

### Use

You use this function if you create an object in the *Engineering Workbench* and, to do this, use a [change number \[Ext.\]](#), which has [date validity \[Ext.\]](#).



This function is only of relevance, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with date validity, to edit bills of material and routings for example.

### Features

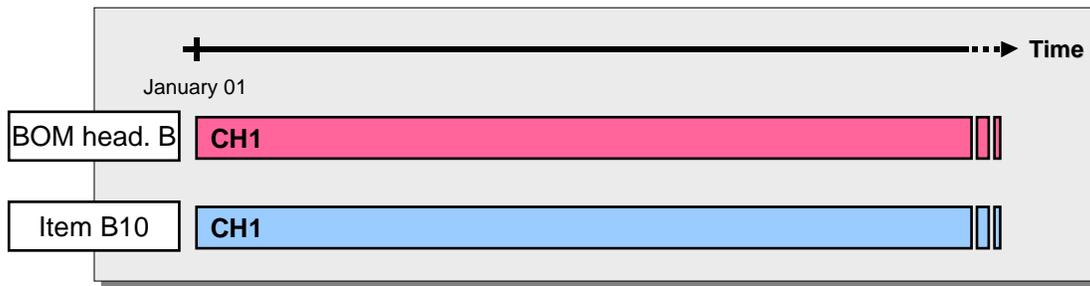
When you create an object with a change number that has date validity, you generate a first change status. Its validity period starts on the valid-from date in the change number's change master record and finishes on December 31, 9999.

Example: Creating a Change Status with Date Validity

## Example: Creating a Change Status with Date Validity

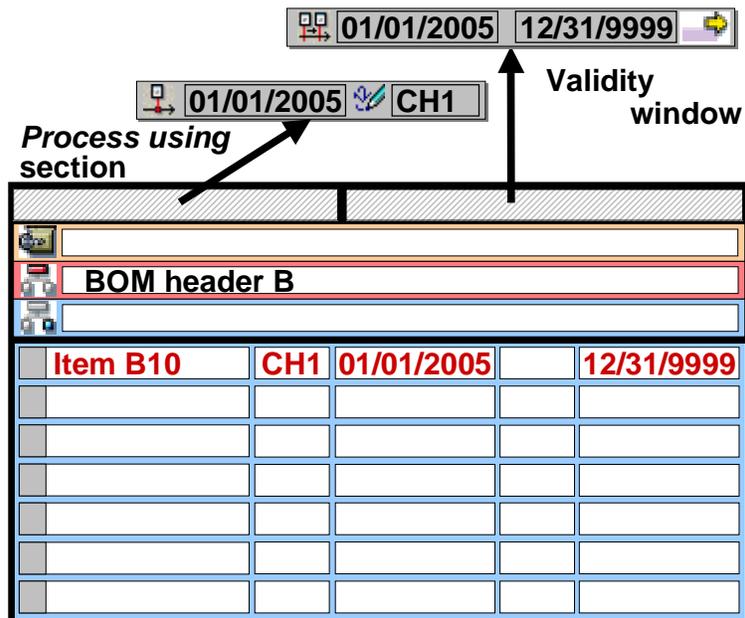
On the *BOM headers* overview you create BOM header *B* with change number *AE1*. The related change master record *AE1* has date validity with the valid-from date January 01, 2005. You go to the *Items* overview and create - once again with change number *AE1* - item *B10*. Graphic 1 shows the validity of the new objects. BOM header *B* and item *B10* are valid from January 01, 2005 to December 31, 9999.

Graphic 1: Validity



For item *B10*, change number *CH1* and its validity period are displayed on the *Items* overview (see graphic 2).

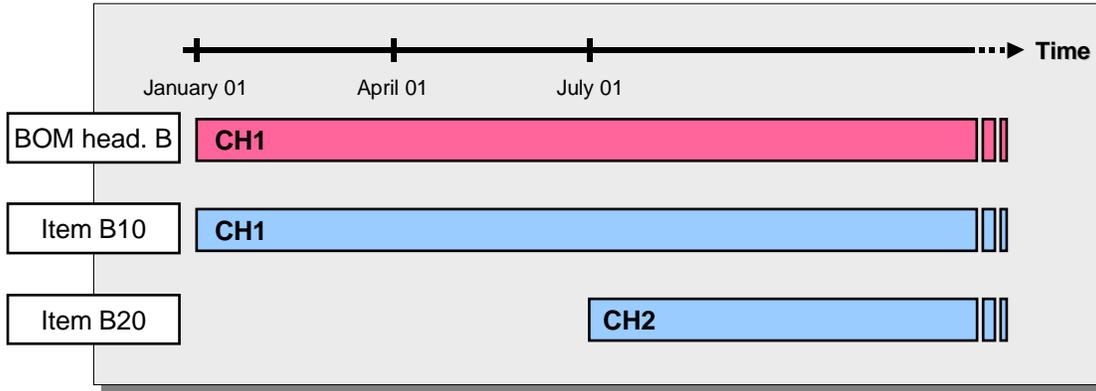
Graphic 2: *Items* Overview (Schematic)



**Example: Creating a Change Status with Date Validity**

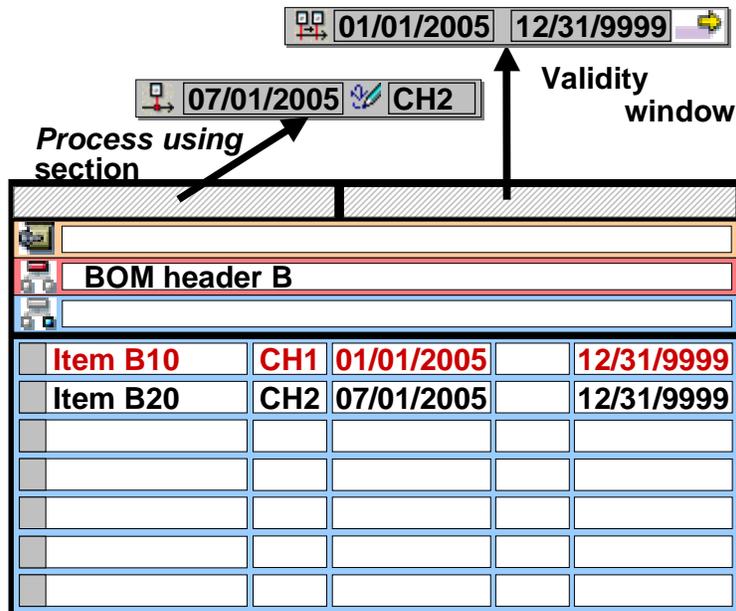
You then select change number *CH2* and create item *B20*. Change master record *AE2* has date validity with the valid-from date July 01, 2005. Item *B20* is therefore valid from July 01, 2005 to December 31, 9999 (see graphic 3).

**Graphic 3: Validity**



On the *Items* overview, item *B20* is displayed in a different color (see graphic 4).

**Graphic 4: Items Overview (Schematic)**



---

**Example: Creating a Change Status with Date Validity**

## Changing a Change Status with Date Validity

### Use

You use this function if you change an object in the *Engineering Workbench* and, to do this, use a [change number \[Ext.\]](#), which has [date validity \[Ext.\]](#).



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with date validity, to process bills of material or routings for example.

### Features

You can use a change number with date validity to change an object. What then takes place, depends on whether or not you have already processed the object using this change number.

If you

- Are processing the object with this change number for the **first time**, then the system generates a new change status. Its validity period begins on the valid-from date of the change master record and ends immediately before the valid-from period of the change status following. If no change master record follows, then the validity period ends on December 31, 9999.



The validity period of the change status, which was previously valid on the valid-from date of the new change status, is restricted. This validity period now ends immediately before the valid-from date of the new change status.



If you change an object more than once with several change numbers, whose change master records have the **same** valid-from date, the change status last created overwrites the rest.

You can find further information in [Overwriting a Change Status with Date Validity \[Page 264\]](#).

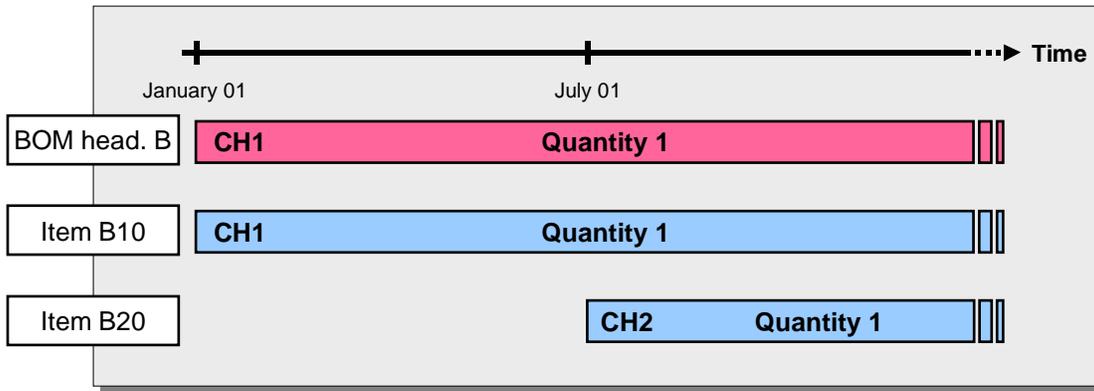
- Have **already** processed the object using this change number, the related change status already exists. You can then change this change status, so that the change is valid for its entire validity period.

Example: Changing a Change Status with Date Validity

## Example: Changing a Change Status with Date Validity

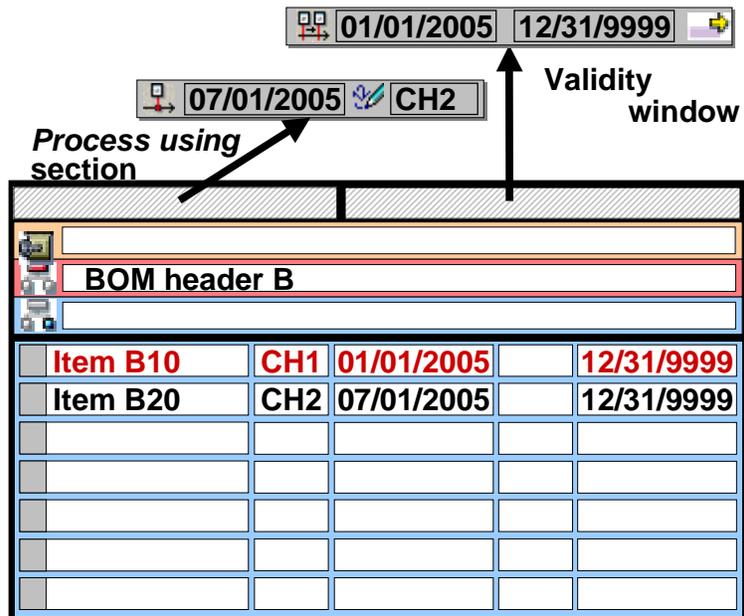
Your worklist contains the objects you created in [Example: Creating a Change Status with Date Validity \[Page 256\]](#). Graphic 1 shows the objects in your worklist and their change statuses.

Graphic 1: Validity before Changes



Graphic 2 shows how the items in your worklist are displayed in the *Engineering Workbench*.

Graphic 2: Items Overview before Changes (Schematic)



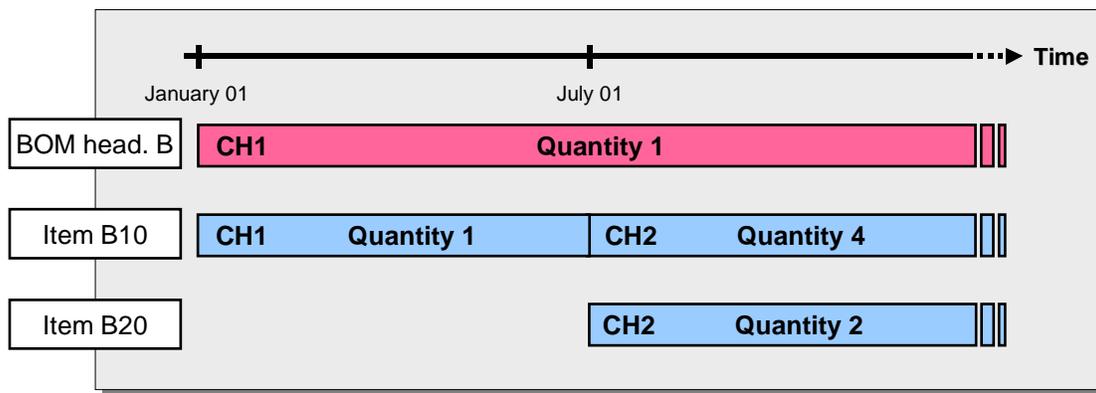
**Example: Changing a Change Status with Date Validity**

Using change number *CH2* you change both positions, *B10* and *B20* on the Items overview (see graphic 3).

Since you are processing item *B10* for the first time using change number *CH2*, the system generates the new change status *CH2*. It is valid from the valid-from date of change master record *AE2* (July 01, 2005). As there is no change status following, the validity period finishes on December 31, 9999. The validity period of change status *CH1* now finishes earlier, on June 30, 2005 (instead of December 31, 9999 as before).

Because you have already processed item *B20* using the change number *CH2*, no new change status is created. Your change is valid from July 01, 2005 to December 31, 9999.

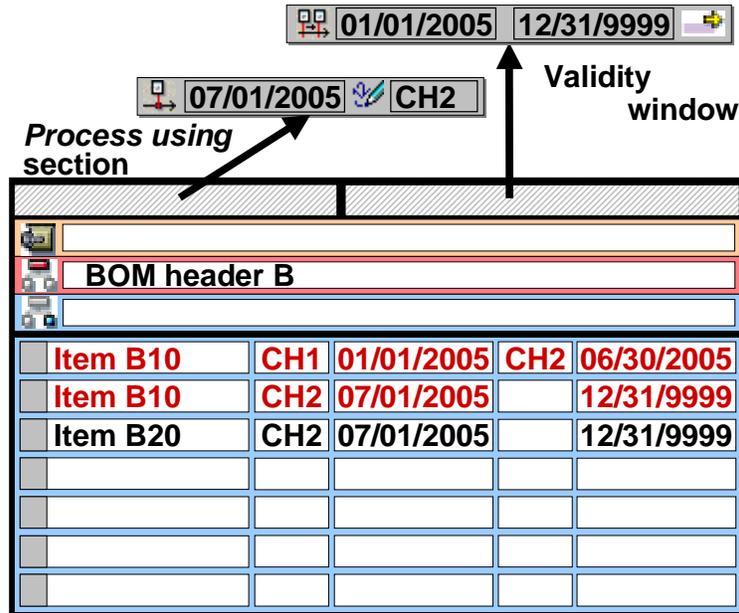
**Graphic 3: Validity after Changes using Change Number *CH2***



Graphic 4 shows the *Items* overview after the changes using change number *CH2*. Both *B10* change statuses are displayed in the same color and (if you do not sort them) in chronological order. Apart from the change number and validity period of the change status, the change number of the change status following is displayed.

**Graphic 4: *Items* Overview after Changes using *CH2* (Schematic)**

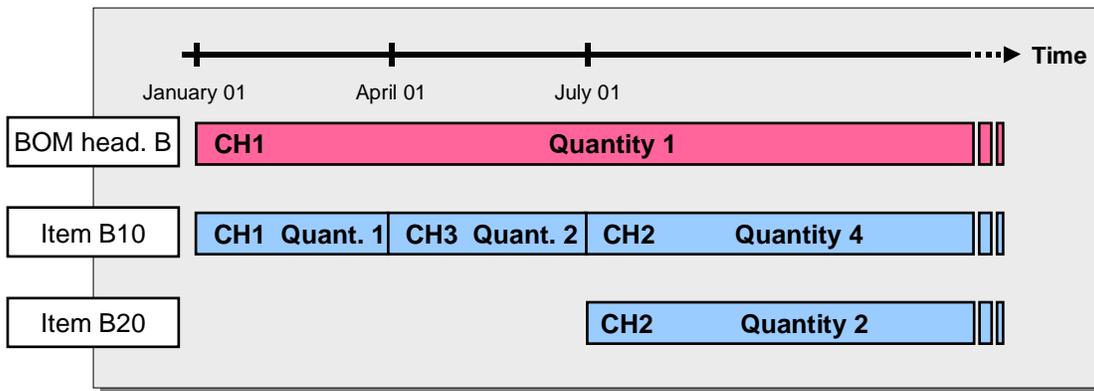
Example: Changing a Change Status with Date Validity



You change item *B10* using change number *AE3*, whose change master record is valid from April 01, 2005 (see graphic 5).

The system generates the new change status *CH3*. Its validity period extends from April 01, 2005 to just before change status *CH2* following, i.e. to June 30, 2005. The validity period of change status *CH1* now ends earlier, on March 31, 2005 (instead of June 30, 2005 as before).

Graphic 5: Validity after Changes using Change Number *CH3*



The new change status *CH3* is inserted into the *Items* overview in chronological order (if you do not sort them) (see graphic 6).

Graphic 6: *Items* Overview after Changes using *CH3* (Schematic)

Example: Changing a Change Status with Date Validity

The screenshot displays the SAP Engineering Workbench interface. At the top, there are two date fields: '01/01/2005' and '12/31/9999', with a plus sign icon to the right. Below these, a 'Validity window' label is positioned. A 'Process using section' label with an arrow points to a date field '04/01/2005' and a change status field 'CH3'. Below this is the 'BOM header B' section. The main part of the screenshot is a table with the following data:

Item B10	CH1	01/01/2005	CH3	03/31/2005
Item B10	CH3	04/01/2005	CH2	06/30/2005
Item B10	CH2	07/01/2005		12/31/9999
Item B20	CH2	07/01/2005		12/31/9999

## Overwriting a Change Status which has Date Validity

# Overwriting a Change Status which has Date Validity

## Use

You use this function if you want to completely replace a [change status \[Ext.\]](#) with [date validity \[Ext.\]](#) with another change status.

You do this if you

- Want to change a complete change status, without using the change number with which it was created.  

This can be necessary, for example, if this change number is currently locked, or if each change is subject to a documentation requirement, which does not allow change numbers to be used more than once.
- Want to create more than one change status during the same period



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with date validity, to edit bills of material and routings for example.

## Integration

Change status overriding is a function in the *engineering change management* (LO-ECH) component.

## Function

You can process a change status using a change number, which has the same valid-from date as the change number, with which the change status was created. In this case, a new change status overwrites the previous one.

The validity period of the new change status extends from the valid-from date of the previous change status, to immediately before the valid-from date of the change status following (if no change status follows: to December 31 9999).

The previous change status is invalid. Nevertheless, it is still displayed in the *Engineering Workbench*. You can recognize one of these change statuses, by the fact that no valid-to date is displayed for it.

If you use the change status override function, you can define that an overwritten change status is valid according to specific criteria.

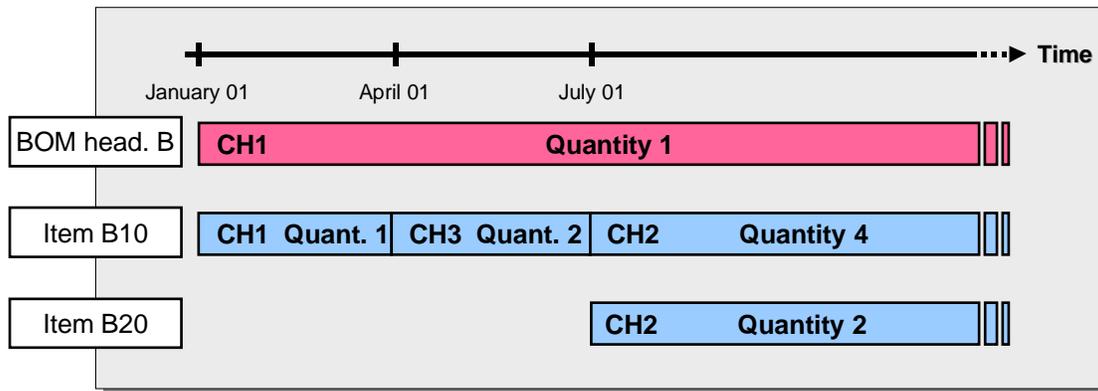
You can find further information in the *engineering change management* (LO-ECH) documentation in [Overriding Validity with Change Numbers \[Ext.\]](#).

Example: Overwriting a Change Status with Date Validity

## Example: Overwriting a Change Status with Date Validity

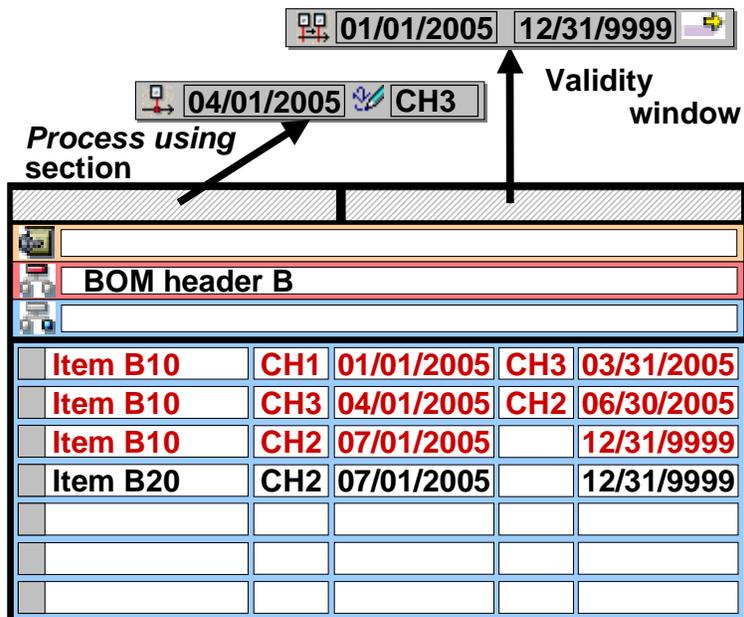
Your worklist contains the objects you generated in [Example: Changing a Change Status with Date Validity \[Page 256\]](#). Graphic 1 shows the objects in your worklist and their change statuses.

Graphic 1: Validity before Changes



Graphic 2 shows how the items in your worklist are displayed in the *Engineering Workbench*.

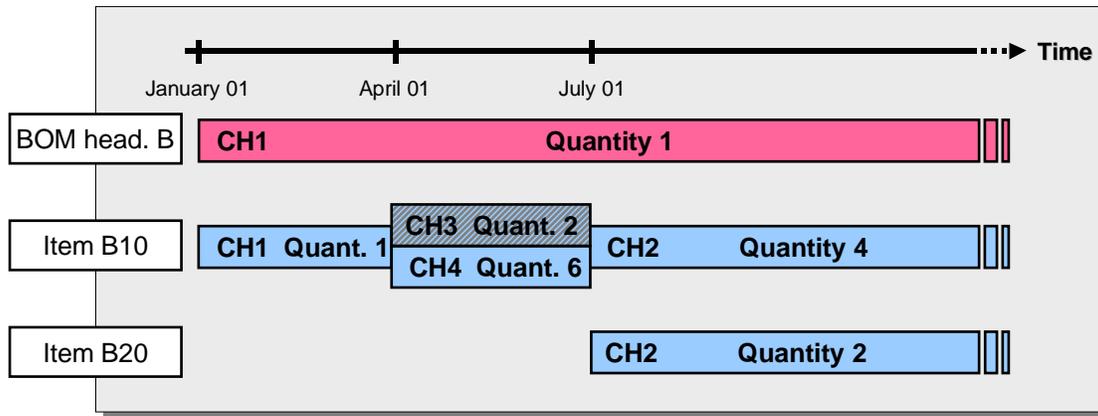
Graphic 2: Items Overview before Overwriting (Schematic)



**Example: Overwriting a Change Status with Date Validity**

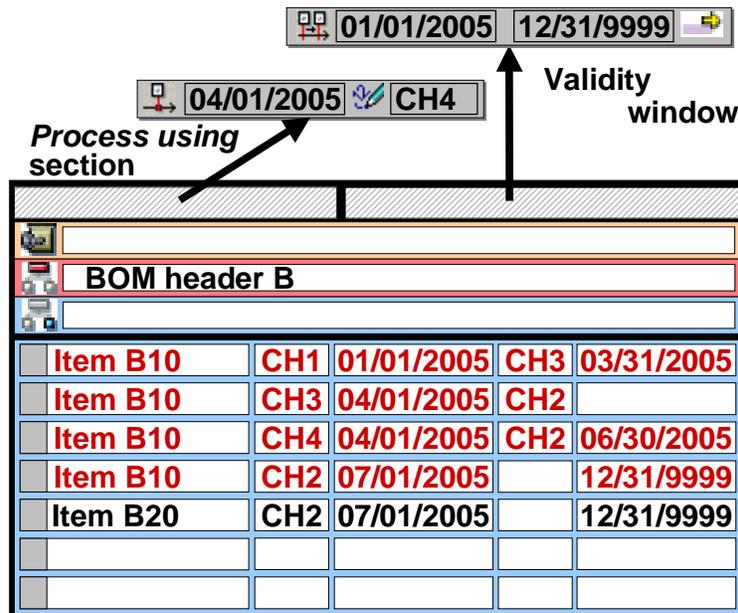
The change master records for change numbers *CH3* and *CH4* have the same valid-from date (April 01, 2005). When you process item *B10* using change number *CH4*, you therefore overwrite change number *CH3* (see graphic 3).

**Graphic 3: Validity after Changes using Change Number CH2**



Graphic 4 shows the *Items* overview after you have overwritten change status *CH3*. Its valid-to date is not displayed.

**Graphic 4: Items Overview after Changes using CH2 (Schematic)**



---

**Example: Overwriting a Change Status with Date Validity**

## Deleting a Change Status with Date Validity

# Deleting a Change Status with Date Validity

## Use

You use this function if you want to delete a change status you created with reference to a [change master record \[Ext.\]](#) with [date validity \[Ext.\]](#).



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with date validity, to edit bills of material and routings for example.

## Features

To delete a change status you use the change number with which you created it. All change statuses following are automatically deleted along with this change status, which means that the object becomes invalid on the change number's valid-from date. Change statuses for subordinate objects also become invalid from this date.

When you save your worklist, change statuses you have deleted in the *Engineering Workbench* are **not** deleted from the database. Instead, these change statuses are given **deletion indicators**. Before the change status data can be deleted from the database, it first has to be archived.

For more information on archiving, see the documentation for the *Data Archiving* (CA-ARC) component, under [Archiving Application Data \[Ext.\]](#).

## Activities

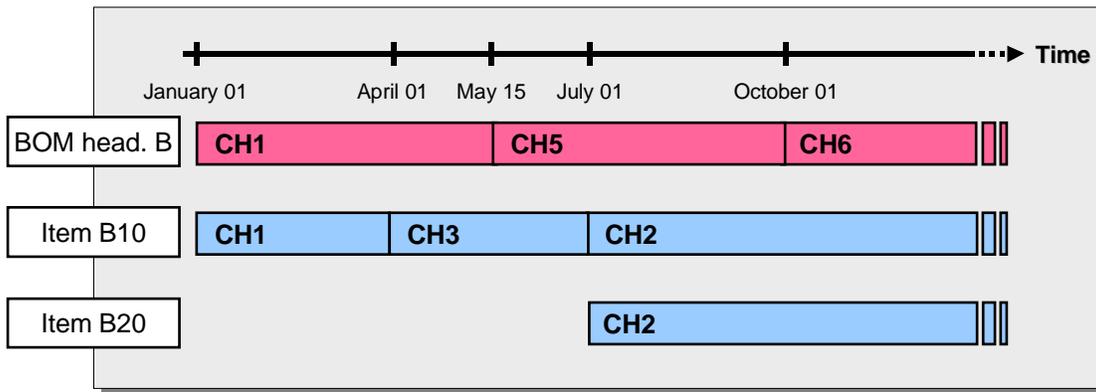
You can delete a change status as follows:

1. Go to the appropriate overview in the *Engineering Workbench*.
2. Select the change status you want to delete and enter its change number in the *Process using* screen section.
3. Click .

## Example: Deleting a Change Status with Date Validity

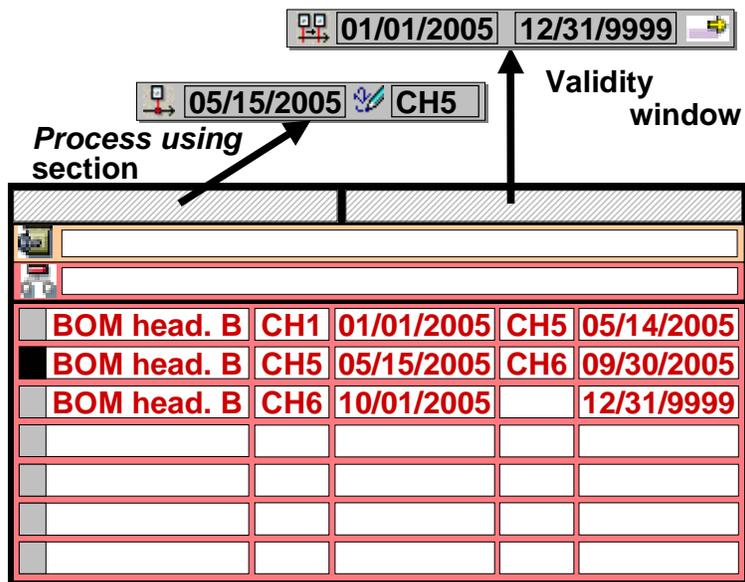
Graphic 1 shows the objects in your worklist and their change statuses.

Graphic 1: Validity before Deletion



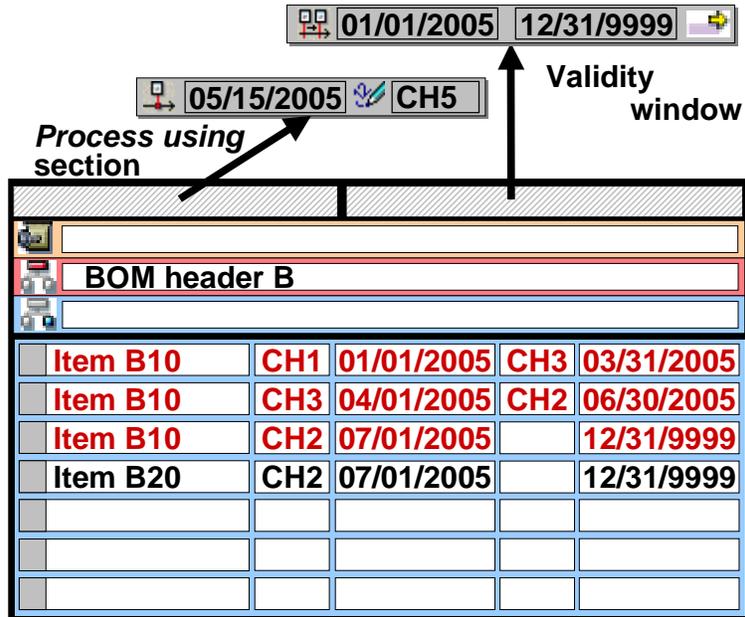
Graphics 2 and 3 show the *BOM headers* and *Items* overviews before deletion.

Graphic 2: *BOM Headers Overview before Deletion (Schematic)*



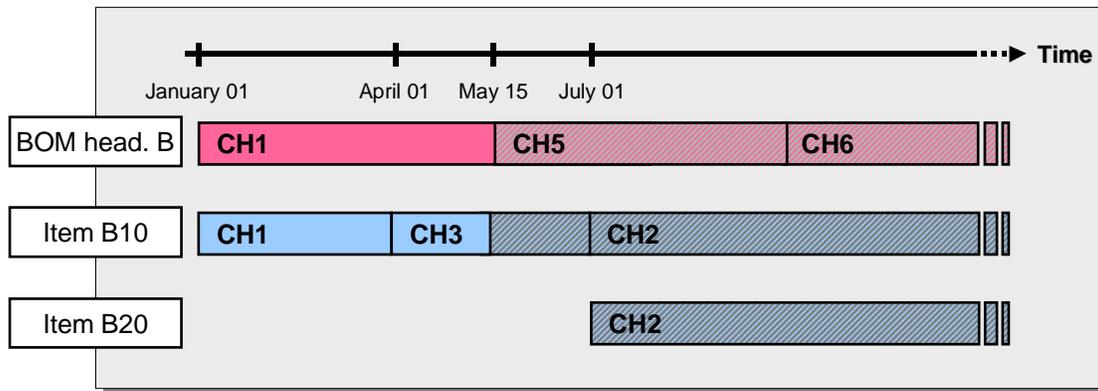
Graphic 3: *Items Overview before Deletion (Schematic)*

Example: Deleting a Change Status with Date Validity



You enter change number *CH5* and select change number *CH5* for BOM header *B* on the *BOM Headers* overview (see graphic 2). Then click . The system deletes the BOM header from May 15, 2005, which means change statuses *CH5* and *CH6* (see graphic 4). Items *B10* and *B20* are also deleted from this date. So the *CH2* change statuses are deleted completely and the validity period of change status *CH3* finishes on May 14, 2005.

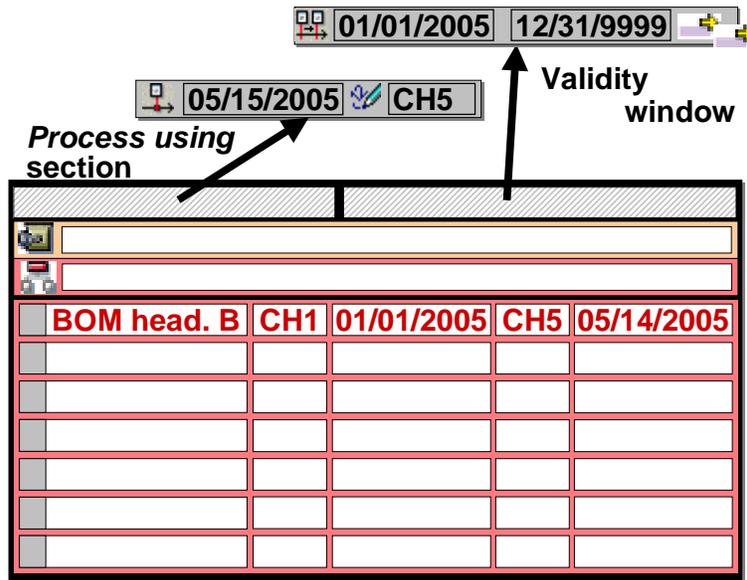
Graphic 4: Validity after Deletion



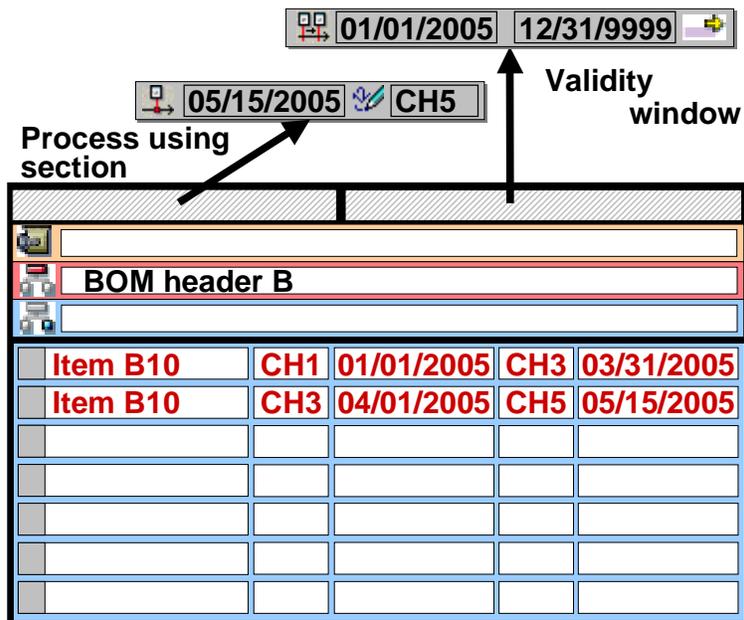
Graphics 5 and 6 show the *BOM headers* and *Items* overviews after deletion.

Graphic 5: *BOM Headers* Overview after Deletion (Schematic)

Example: Deleting a Change Status with Date Validity



Graphic 6: Items Overview after Deletion (Schematic)



## Working with Change Statuses (Parameter Effectivity)

# Working with Change Statuses (Parameter Effectivity)

## Use

This process is relevant if your organization uses [change master records \[Ext.\]](#) with [parameter effectivity \[Ext.\]](#) to process objects. As a rule, an object then consists of multiple [change statuses \[Ext.\]](#) with parameter effectivity.

You carry out this process if you want to process change statuses with parameter effectivity in the *Engineering Workbench*.



Change master records with parameter effectivity are provided by the *Engineering Change Management* (LO-ECH) component.

You can find further information in the *Engineering Change Management* documentation in *Working with Parameter Effectivity*.

## Prerequisites

The *Parameter effectivity* indicator has been set in Customizing for the *Engineering Change Management* component, in *Set up control data* and the required settings have been made in the *Parameter Effectivity* sections. Also, special [effectivity parameters \[Ext.\]](#) and [types \[Ext.\]](#) may have been defined for your organization there.

## Process Flow

5. You select the working area in which you want to work.

Your selection of a suitable working area ensures that you see exactly the information that interests you in the *Engineering Workbench*. This gives a better overview of your objects and you can work faster.
6. Enter selection criteria to determine which objects you want to process.
3. In the [selection range \[Ext.\]](#) you determine which change statuses you want to process.
5. The system copies the selected change statuses from the database to your worklist.
6. You process the change statuses in your worklist.

To filter for change statuses that fulfill a particular parameter variant, enter a [display parameter variant \[Ext.\]](#) in the [validity window \[Ext.\]](#).

To create, change or delete change statuses with parameter effectivity, enter the change number of a change master record with parameter effectivity.

Change statuses you create in the *Engineering Workbench* are also transferred to the worklist.
7. You save your worklist.

## Result

The system writes the new and changed change statuses to the database.



## Effectivity Parameters

## Effectivity Parameters

### Definition

Field, which assists in defining the parameter effectivity of objects.

### Use

You define the parameter effectivity, by assigning values to one or more effectivity parameters.



You define the parameter effectivity, by assigning the material number 123 to the *MATNR* ("material number") effectivity parameter and the serial number 456 to the *SERNR* ("serial number") effectivity parameter.

### Structure

An effectivity parameter's attributes are defined in Customizing by

- The data element that is assigned to it

You can assign those values to an effectivity parameter that are allowed for the data element assigned to it. For example, the data element *CC\_SERNR* is assigned to the *SERNR* effectivity parameter. As up to 18 character long strings are allowed for *CC\_SERNR*, *SERNR* can be assigned a value of 18 characters.

Any data element within the *ABAP Workbench* can be assigned to an effectivity parameter.

- Its parameter type

#### Possible Types of Effectivity Parameter

Parameter type	The parameter can be assigned a	Example
S	<ul style="list-style-type: none"> <li>• Single value</li> </ul>	You assign the single value 123
I	<ul style="list-style-type: none"> <li>• Single value</li> <li>• Closed interval value</li> </ul>	You assign the closed interval value "between 123 and 456"
O	<ul style="list-style-type: none"> <li>• Single value</li> <li>• Closed interval value</li> <li>• Open interval value</li> </ul>	You assign the open interval value "greater than 456"

## Example: Effectivity Parameters

In engineering change management Customizing, the following effectivity parameters could be created:

- MATNR effectivity parameter

The data element CC\_MATNR is assigned to MATNR. Therefore, the same values are allowed for MATNR as for CC\_MATNR (for example, every 18 character long string). S (single value) is chosen as the parameter type of MATNR. In the graphic, MATNR is assigned the single value "456".

### MATNR effectivity parameter



- SERNR effectivity parameter

The data element CC\_SERNR is assigned to SERNR. Therefore, the same values are allowed for SERNR as for CC\_SERNR (for example, every 18 character long string). O (open interval value) is chosen as the parameter type of SERNR. In the graphic, SERNR is assigned the open interval value "all serial numbers greater than 456" (the indicator on the right of the graphic has been set, which means that any number of serial numbers is allowed).

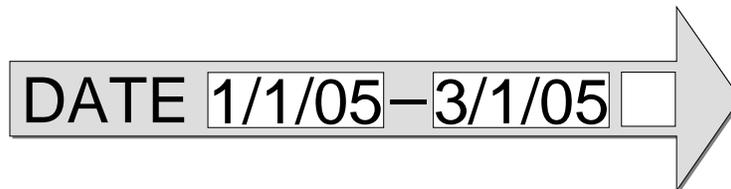
### SERNR effectivity parameter



- DATE effectivity parameter

The data element CC\_DATE is assigned to DATE. Therefore, the same values are allowed for DATE as for CC\_DATE (for example, any date). O (open interval value) is chosen as the parameter type of DATE. In the graphic, DATE is assigned the closed interval value January 01, 2005 to March 01, 2005.

### DATE effectivity parameter

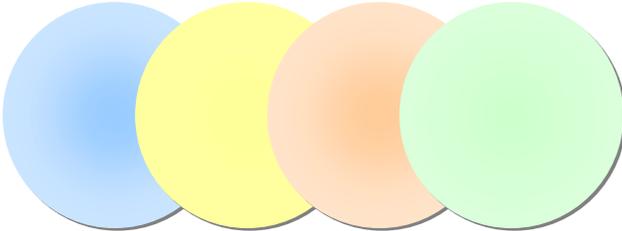


- AIRLINE Effectivity Parameter, Data Element CC\_AIRLINE

The data element CC\_AIRLINE is assigned to AIRLINE. Therefore the same values are allowed for AIRLINE as for CC\_AIRLINE (such as "BlueAir", "YellowAir", "OrangeAir" and "GreenAir"). S (single value) is chosen as the parameter type of AIRLINE. The graphic shows the possible values that can be assigned to AIRLINE.

### AIRLINE effectivity parameter

Example: Effectivity Parameters



## Effectivity Type

### Definition

Type of parameter effectivity.

### Use

Effectivity types define how you respond to the question "Under which circumstances is object X valid?" If you **do not** use parameter effectivity (in other words, you do not use effectivity types), you always respond with a date (for example, "from January 1, 2005"). However, if you **do** use parameter effectivity and, for example, use the SERNR effectivity type, you respond additionally with a material and a serial number (for example, "from January 1, 2005, if object X has the material number 123 and a serial number between 456 and 789").

### Structure

You define an effectivity type in Customizing with

- The effectivity parameters, which you have to assign values to, in order to define the parameter effectivity of an object.

You can assign as many effectivity parameters to an effectivity type as you like.

- A priority

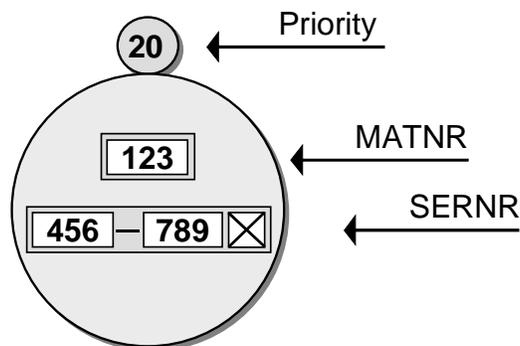
### Example

The SERNR ("serial number") effectivity type is defined in the R/3 standard by the effectivity parameters

- MATNR (single value)
- SERNR (open interval value)
- DATE (open interval value)

The priority 20 is defined in the R/3 standard.

**SERNR Effectivity Type (Schematic)**

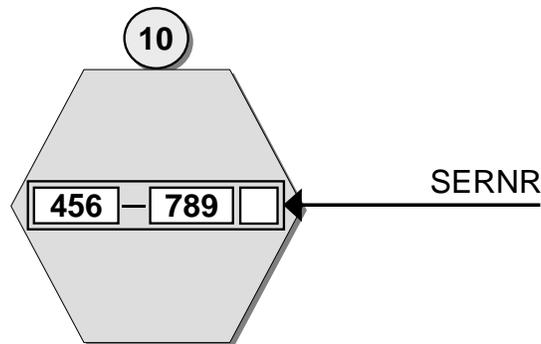


**Example: Effectivity Type****Example: Effectivity Type**

In engineering change management Customizing, you can create the effectivity parameters shown in [Example: Effectivity Parameters \[Page 275\]](#). They are used to create the following effectivity types:

- Effectivity Type S

The effectivity parameter SERNR (“serial number”) is the only parameter assigned to effectivity type S. S is assigned the priority 10. In the graphic, SERNR is assigned the closed interval value 456 - 789.

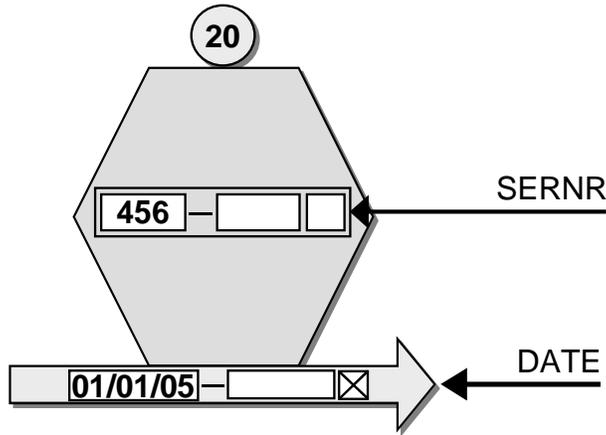
**Effectivity Type S**

- Effectivity Type SD

The effectivity parameters SERNR (“serial number”) and DATE are assigned to effectivity type SD. SD is assigned the priority 20, which is a higher priority than effectivity type S.

In the graphic, SD is assigned the following values: SERNR is assigned the single value 456 and DATE the open interval value “from 1/1/2005”.

**Effectivity Type SD**

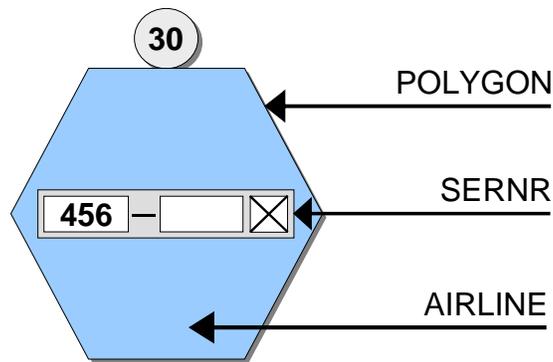


- Effectivity Type SA

The effectivity parameters SERNR ("serial number") and AIRLINE are assigned to effectivity type SA. SA is assigned the priority 30, which is a higher priority than effectivity types S and SD.

In the graphic, SA is assigned the following values: SERNR is assigned the open interval value "greater than serial number 455" and AIRLINE the single value "BlueAir".

**Effectivity Type SA**



## Change Status Selection with Parameter Effectivity

# Change Status Selection with Parameter Effectivity

## Purpose

You use this process if you want to include change statuses with parameter effectivity in your worklist.



This process is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with parameter effectivity, to process bills of material and routings for example.

## Prerequisites

In *Engineering Change Management* (LO-ECH) Customizing, parameter effectivity is activated. Special [effectivity parameters \[Ext.\]](#) and [types \[Ext.\]](#) may have been defined for your organization there.

## Process Flow

3. You enter selection criteria, to select the [focus objects \[Ext.\]](#) in your worklist.  
All the relevant selection criteria for each object type are available in the *Engineering Workbench*. You can combine as many selection criteria as you like.
4. To determine which change statuses you want to process, you define the selection range. This means you enter a [selection period \[Ext.\]](#) and a [selection parameter variant \[Ext.\]](#) if required. In this case a change status is only copied to your worklist if it fulfills the selection parameter variant.
7. You execute the selection.
5. The system copies the focus object you have selected as well as the [environment objects \[Ext.\]](#) to the worklist.

## Result

You can now display and process your worklist objects in the *Engineering Workbench*.

## Filling your Worklist with Focus Objects (Parameter Effectivity)

### Purpose

After you have defined the selection criteria and [selection range \[Ext.\]](#) for your worklist and clicked , the system fills your worklist in two stages. This process describes the first of the two stages (the second stage is described [here \[Page 283\]](#)).



The system only uses this process, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with [parameter effectivity \[Ext.\]](#), to process bills of material and routings for example.

### Process Flow

- The system determines which objects fulfill your selection criteria, in other words, which objects are [focus objects \[Ext.\]](#)

The system does this as described in [Focus Object Selection \[Page 36\]](#), although the following applies if an object has more than one change status: The object fulfills the selection criteria if at least **one** of its change statuses fulfills the selection criteria.

- The system copies certain change statuses for focus objects to your worklist.

Which change statuses with parameter effectivity this includes depends on whether you entered a parameter variant in the selection range or not (see table).

#### Which objects are copied?

Selection parameter variant	Change status has	Change status is copied if
No	Date validity	It is valid on at least one day within the selection period
	Parameter effectivity	(always)
Yes	Date validity	It is valid on at least one day within the selection period
	Parameter effectivity	It fulfills the selection parameter variant



It is not obligatory for a copied change status to fulfill the selection criteria (see the example following).

### Result

The system fills your worklist with change statuses for the focus objects.

### Filling your Worklist with Focus Objects (Parameter Effectivity)

To fill your worklist with change statuses for the environment objects, the system then executes the [Filling your Worklist with Environment Objects \(Parameter Effectivity\) \[Page 283\]](#) process.

### Example

Header A has three change statuses (see table):

#### Header A Change Statuses

Change status	Status	Effective for serial numbers
CH1	<i>Created</i>	10 to 19
CH2	<i>Created</i>	20 to 29
CH3	<i>Released (general)</i>	30 to 39

Your working area has *header* as its focus. You enter the selection criterion “all released headers”. You enter a selection parameter variant and assign the value 25 to the *SERNR* (serial number) effectivity parameter.

Header A is the focus object, since change status *CH3* fulfills the selection criterion. If you had not entered a selection parameter variant, all three statuses would have been copied to your worklist. However, due to the selection parameter variant, only change status *CH2* is copied.

#### See also:

[Focus Object Selection \[Page 36\]](#)

## Filling your Worklist with Environment Objects (Parameter Effectivity)

### Purpose

After you have defined the selection criteria and selection range for your worklist and clicked , the system fills your worklist in two steps. This process describes the second of the two steps (the first step is described [\[Page 281\]here \[Page 281\]](#)).



The system only uses this process, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with [date effectivity \[Ext.\]](#), to process bills of material and routings for example.

### Prerequisites

The system has executed the [Filling your Worklist with Focus Objects \(Parameter Effectivity\) \[Page 281\]](#) process, which means that it has determined the focus objects according to your selection criteria and copied certain change statuses for the focus objects to your worklist. If you have entered a [selection parameter variant \[Ext.\]](#), the system only copied those change statuses with parameter effectivity that fulfill the variant.

### Process Flow

6. The system determines which objects are assigned to the focus objects, in other words, which objects are [environment objects \[Ext.\]](#)

The system does this as described in [Environment Object Selection Focus Header \[Page 40\]](#), [Focus Operation \[Page 44\]](#), [Focus BOM Header \[Page 49\]](#) or [Focus Item \[Page 54\]](#). Which environment objects the system determines depends, therefore, in particular on the [focus \[Ext.\]](#) of your working area.

7. If a change status for a focus object was copied to the worklist (see [Filling your Worklist with Focus Objects \[Page 281\]](#)) all change statuses for the focus objects' environment objects are also copied to the worklist. However, if you have entered a selection parameter variant, it only copies those change statuses that fulfill this variant.

### Result

Your worklist is filled. You can now display and process its change statuses in the *Engineering Workbench*.

## Example: Selecting Change Statuses with Parameter Effectivity

## Example: Selecting Change Statuses with Parameter Effectivity

Proceed as follows:

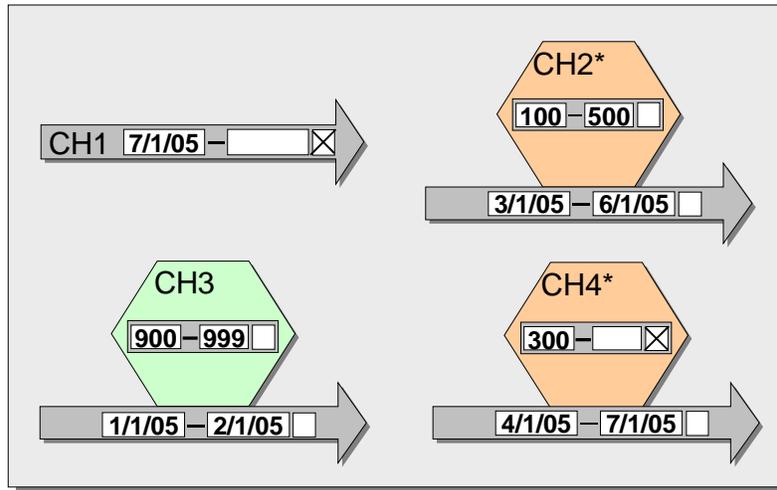
<a href="#">Step 1</a> <a href="#">[Page 285]</a>	You create a number of <a href="#">change master records [Ext.]</a> with parameter effectivity.
<a href="#">Step 2</a> <a href="#">[Page 286]</a>	Using the change master records you have just created, you create a number of objects or change statuses in your database.
<a href="#">Step 3</a> <a href="#">[Page 288]</a>	You enter the <i>Engineering Workbench</i> again, by selecting a <a href="#">working area [Ext.]</a> with the <a href="#">focus [Ext.]</a> operation.
<a href="#">Step 4</a> <a href="#">[Page 289]</a>	You enter selection criteria.
<a href="#">Step 5</a> <a href="#">[Page 290]</a>	You enter a <a href="#">selection parameter variant [Ext.]</a> and then select your worklist.
<a href="#">Step 6</a> <a href="#">[Page 291]</a>	The system fills your worklist with <a href="#">focus objects [Ext.]</a> .
<a href="#">Step 7</a> <a href="#">[Page 294]</a>	The system fills your worklist with <a href="#">environment objects [Ext.]</a> .

Step 1: Change Master Records with Parameter Effectivity

## Step 1: Change Master Records with Parameter Effectivity

The graphic and table show the parameter effectivity of each [change master record \[Ext.\]](#) you create.

Parameter Effectivity



Parameter Effectivity

Change Number	Effectivity Type	Validity/Effectivity
CH1	DATE	from July 01, 2005
CH2	AIRLINE	from March 01, 2005 to June 01, 2005 for every aircraft with a serial number between 100 and 500, built for OrangeAir.
CH3	AIRLINE	from January 01, 2005 to February 01, 2005 for every aircraft with a serial number between 900 and 999, built for GreenAir.
CH4	AIRLINE	from April 01, 2005 to July 01, 2005 for every aircraft from serial number 300, built for OrangeAir.

**See also:**

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

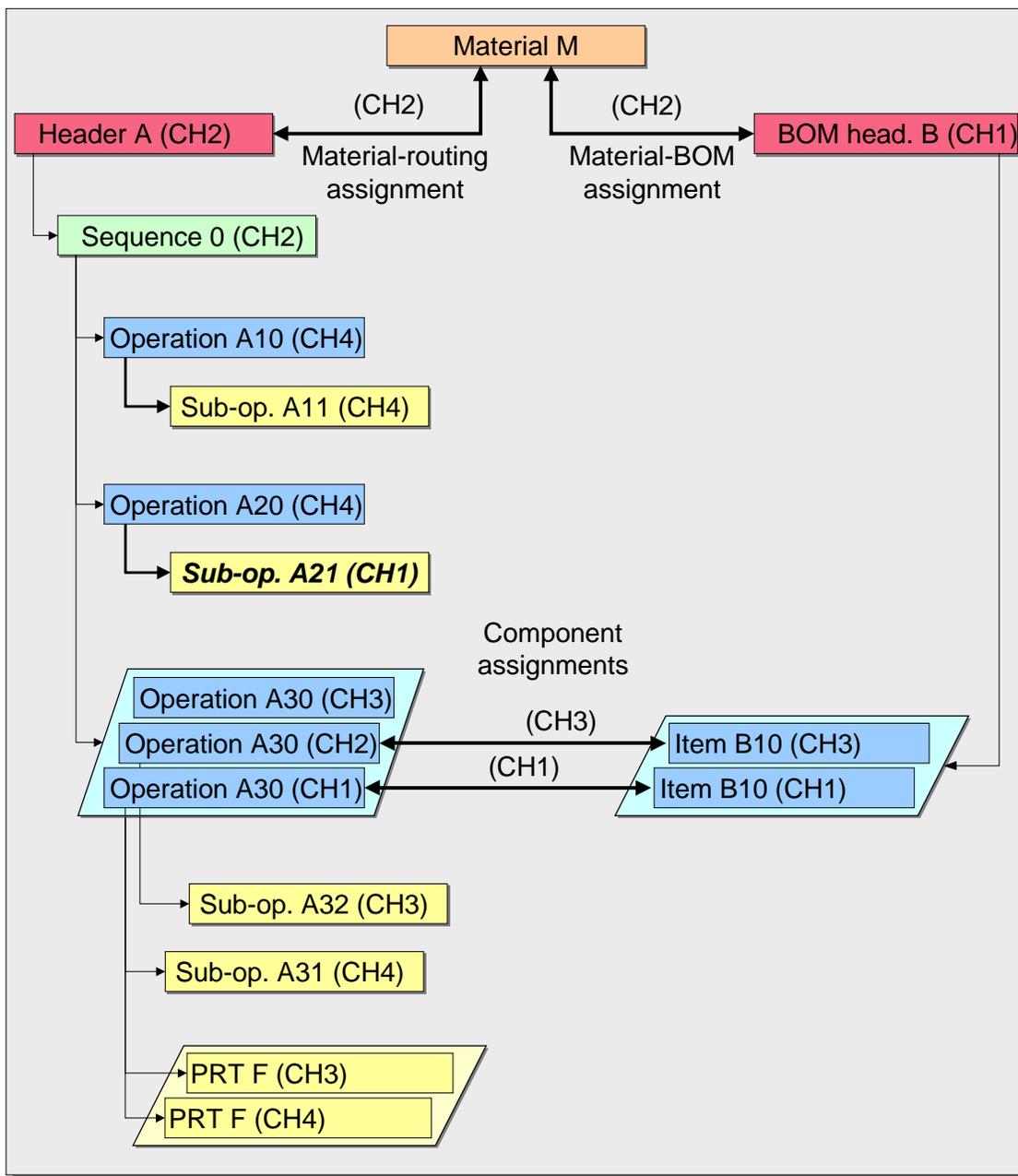
[Step 2: Objects in the Database \[Page 286\]](#)

Step 2: Objects in the Database

## Step 2: Objects in the Database

The objects in the database are displayed in the graphic. All the objects were created with the change numbers *CH1*, *CH2*, *CH3* or *CH4* (see [Step 1 \[Page 285\]](#)). Operation *A30* has three change statuses and item *B10* and *PRT F* have two change statuses.

Objects in the Database



See also:

**Step 2: Objects in the Database**

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 1: Change Master Records with Parameter Effectivity \[Page 285\]](#)

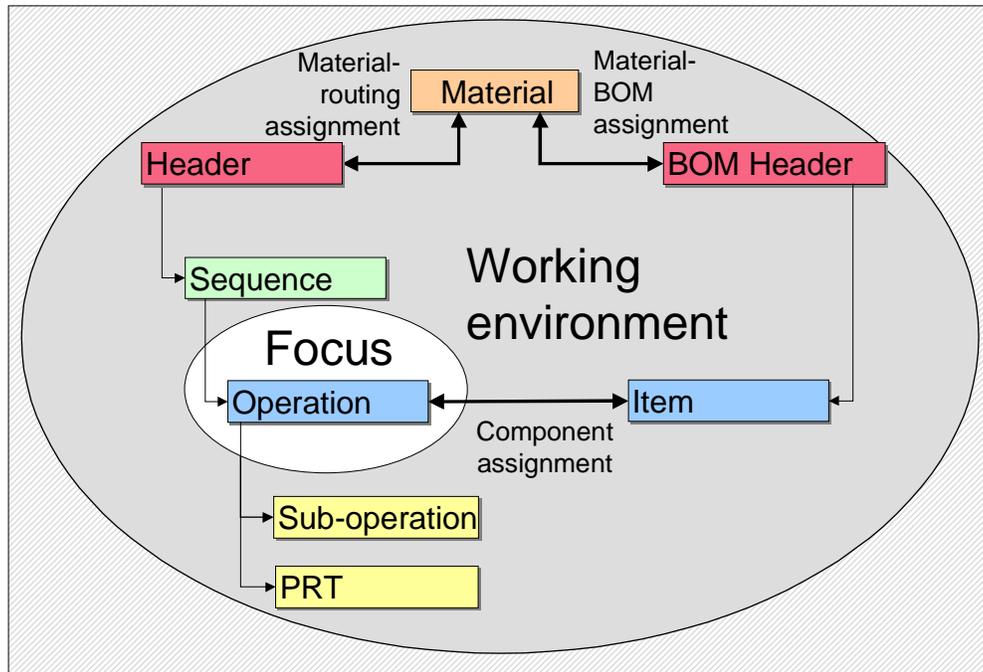
[Step 3: Working Area \[Page 288\]](#)

## Step 3: Working Area

## Step 3: Working Area

You select the [working area \[Ext.\]](#) shown in the graphic. You select the *Operation* object type as the focus of your working area. The object types in the working environment are *material-routing assignment*, *routing header*, *sequence*, *sub-operation*, *production resources and tools (PRT)*, *material-BOM assignment*, *BOM header* and *component assignment*.

## Working Area



## See also:

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 2: Objects in the Database \[Page 286\]](#)

[Step 4: Selection Criteria \[Page 289\]](#)

## Step 4: Selection Criteria

You enter selection criteria for operations and sub-operations (see table). The table also shows the operations and sub-operations by which the respective criterion is met.

### Selection Criteria

Object Type	Criterion	Criterion is met by
Operation	Processed at work center <i>WRK CTR 01</i>	Operation <i>A10, A20</i> and <i>A30</i> (only change statuses <i>CH1</i> and <i>CH2</i> for operation <i>A30</i> )
Sub-operation	Has control key <i>PP01</i>	Sub-operations <i>A21, A31</i> and <i>A32</i>

In the [Focus Objects \[Page 291\]](#) and [Environment Objects \[Page 294\]](#) graphics, the objects for which you have entered selection criteria, are shown in italics. Objects that meet your selection criteria are indicated by bold font.

### See also:

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 3: Working Area \[Page 288\]](#)

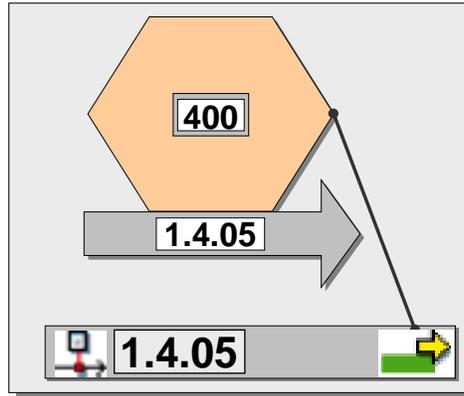
[Step 5: Parameter Variant \[Page 290\]](#)

## Step 5: Selection Parameter Variant

## Step 5: Selection Parameter Variant

You enter the selection parameter variant shown in the graphic.

### Selection Parameter Variant



As the [Parameter Effectivity \[Page 285\]](#) graphic shows, the change numbers CH2 and CH4 fulfill your selection parameter variant. The change numbers CH1 and CH3, on the other hand, do not fulfill it.



Change statuses, which fulfill the selection parameter variant, are indicated by a \* in [Example: Objects in the Database \[Page 286\]](#).

**See also:**

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 4: Selection Criteria \[Page 289\]](#)

[Step 6: Focus Objects \[Page 291\]](#)

## Step 6: Focus Objects

The graphic shows whether an object (or change status) in the database, fulfills your selection criteria and/or your selection parameter variant. (See graphic legend).

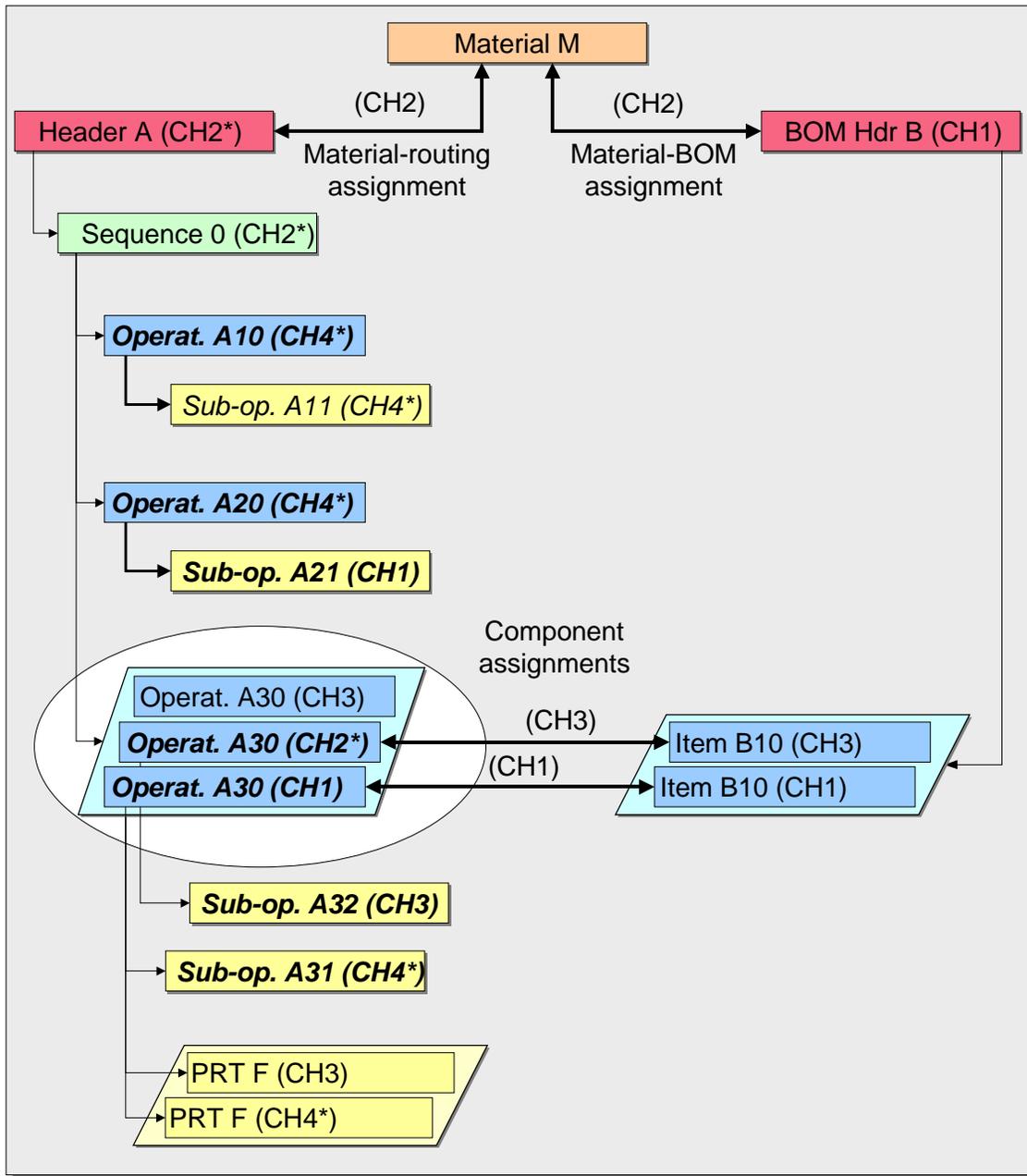
When you select your worklist, the system first determines the [focus objects \[Ext.\]](#):

- Operation *A10* is **not** a focus object, because sub-operation *A11* does not fulfill the selection criteria.
- Operation *A20* is **not** a focus object. Both operation *A20* and sub-operation *A21* may fulfill the selection criteria, however sub-operation *A21* does not fulfill the selection criteria.
- Operation *A30* **is** a focus object, because it fulfills the criteria if
  - Any one change status for operation *A30* fulfills both the selection criteria and the selection parameter variant (in the example, this is change status *CH2* for operation *A30*)
  - And any one (or any other) change status for operation *A30* has a sub-operation, which fulfills both the selection criteria and the selection parameter variant (in the example, this is change status *CH1* for operation *A30*).

Operation *A30* is therefore the only focus object and is shown in the graphic with a white background.

### Focus Object Selection

Step 6: Focus Objects



Legend:

- Object No selection criteria were entered for this object type
- Object* The object does not fulfill the selection criteria
- Object** The object fulfills the selection criteria
- (CH1) The change status does not fulfill the parameter variant
- (CH1\*) The change status fulfills the parameter variant

**See also:**

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 5: Parameter Variant \[Page 290\]](#)

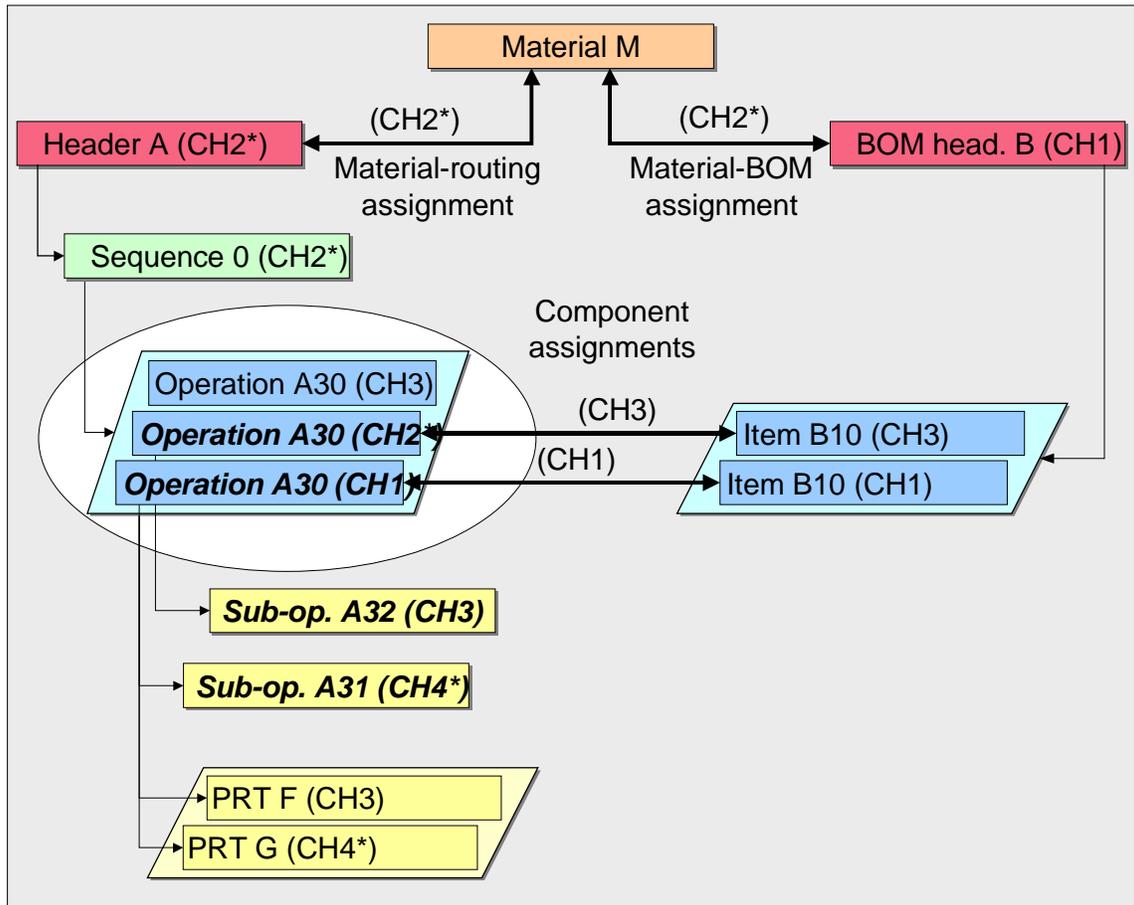
[Step 7: Environment Objects \[Page 294\]](#)

## Step 7: Environment Objects

## Step 7: Environment Objects

After the system has first copied operation A30 (which is the only focus object) from the database to the worklist, it then determines the environment objects (see graphic).

Graphic 2: Environment Objects



Legend:

- Operation A10** No selection criteria were entered for the *Operation* object type
- Operation A10* Operation A10 does not fulfill the selections criteria
- Operation A10** Operation A10 fulfills the selections criteria
- (CH1)** Change status CH1 does not fulfill the parameter variant
- (CH1\*)** Change status CH1 fulfills the parameter variant

**Step 7: Environment Objects**

The system proceeds in the same way as for the selection of environment objects with date validity. A change status with parameter effectivity is treated in the same way as a change status with date validity, whose validity period overlaps with the selection period.

Even though the change statuses *CH1* and *CH2* do not fulfill the selection parameter variant, BOM header *B* along with both change statuses for item *B10* are copied to the worklist.

**See also:**

[Example: Selecting Change Statuses with Parameter Effectivity \[Page 284\]](#)

[Step 6: Focus Objects \[Page 291\]](#)

[Focus Objects and Environment Objects \[Page 34\]](#)

[Environment Object Selection \(Focus Operation\) \[Page 44\]](#).

## Selecting Change Statuses with Parameter Effectivity

# Selecting Change Statuses with Parameter Effectivity

## Use

You use this function to copy change statuses with [parameter effectivity \[Ext.\]](#) to your worklist.



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses [change master records \[Ext.\]](#) with [parameter effectivity \[Ext.\]](#), to process bills of material and routings for example.

## Features

You can either select **all** change statuses with parameter effectivity or only select those change statuses, which fulfill a particular parameter variant (a so-called [selection parameter variant \[Ext.\]](#)).

If need be, the system also copies change statuses with date validity. The system does this as described in [Change Status Selection with Date Validity \[Page 235\]](#).

## Activities

To select **all** change statuses with parameter effectivity, proceed just the same as described in [Selecting your Worklist \[Page 25\]](#), in other words, you do not enter any selection parameter variant in the [selection range \[Ext.\]](#).

To only select those change statuses with parameter effectivity, which fulfill a particular parameter variant, you enter a selection parameter variant as well.

You enter a selection parameter variant as follows:

2. Click  with the *Effectivity parameters* quick info, in the selection range on the *Selection Criteria* screen.

The *Assign Effectivity Parameter Values* dialog box appears.

3. Enter a parameter variant and click .

## Displaying Change Statuses with Parameter Effectivity

### Use

You use this function to filter for change statuses with a certain parameter effectivity, on an overview in the *Engineering Workbench*.

### Features

You can enter a [display parameter variant \[Ext.\]](#) on any overview in the *Engineering Workbench*. Change statuses with date validity and parameter effectivity, which do not fulfill the display parameter variant, are hidden.



A change status you create after you have entered a display parameter variant will be displayed, even if it does not fulfill the display parameter variant. See [Example: Changing a Change Status with Parameter Effectivity \[Page 307\]](#) for an example of this.

You don't have to enter a display parameter variant manually, but can also simply enter a [standard variant \[Ext.\]](#).

You can define which release status a change status has to have before it can be displayed in the *Engineering Workbench*.

You can override a display parameter variant, by explicitly defining that the system displays (or hides) certain change statuses, regardless of the display parameter variant.

## Entering a Display Parameter Variant

## Entering a Display Parameter Variant

### Use

You use this procedure if you want to filter change statuses, displayed on an overview in the *Engineering Workbench*, for parameter effectivity.

### Prerequisites

You are on an overview in the *Engineering Workbench*.

### Procedure

1. Click  in the validity window.

The *Assign Effectivity Parameter Values* dialog box appears. The table displays all values, which may currently be assigned to the effectivity parameters. For example, the DATE effectivity parameter is assigned the valid-from date shown in the validity window.

2. Assign values to the effectivity parameters in the table. You cannot assign a value to the DATE effectivity parameter, because this value is assigned by the system automatically.



Instead of assigning values manually, you can also simply enter a standard variant in the *Standard variant* field and press <ENTER>. The effectivity parameters are then automatically assigned the values in the standard variant.

For more information on standard variants, see the *Engineering Change Management* (LO-ECH) documentation under [Maintaining Standard Variants \[Ext.\]](#).

3. In the *Release status* screen section, define which release status a change status has to have in order to be displayed in the *Engineering Workbench*.

For example, if you deselect the *Released for simulation* checkbox, all change statuses with this release status will be hidden in the *Engineering Workbench*. For more information, see the documentation for the *Engineering Change Management* (LO-ECH) component.

4. Proceed as follows if you want a display parameter variant to be overridden for certain change statuses:

- a. Click .

The *Override Variant with Change Numbers* dialog box appears.

- b. Enter the change numbers, define for each change number, whether the system should count it as valid or invalid and click .

You return to the *Assign Effectivity Parameter Values* dialog box.

You can find further information on overriding display parameter variants in the *Engineering Change Management* (LO-ECH) documentation in [Overriding Validity with Change Numbers \[Ext.\]](#).

5. Click .

## Result

You return to the overview in the *Engineering Workbench* from which you came. The  icon shows by its color, that you have entered a display parameter variant. The validity window is now the key date, which is assigned to the DATE effectivity parameter. All change statuses that do not fulfill the display parameter variant, are hidden.

### See also:

[Canceling Display Parameter Variants \[Page 300\]](#)

## Canceling Display Parameter Variants

# Canceling Display Parameter Variants

## Use

You use this procedure if you have already entered a display parameter variant and now want to display all the change statuses in your worklist again.

## Prerequisites

You are on an overview in the *Engineering Workbench*.

## Procedure

3. Click  in the validity window.

The *Assign Effectivity Parameter Values* dialog box appears. The table displays the values, which are currently assigned to the effectivity parameters. The DATE effectivity parameter is assigned the valid-from date shown in the validity window.

4. Click .

## Result

You return to the overview in the *Engineering Workbench* from which you came. The  icon shows that the display parameter variant has been canceled. Change statuses, which do not fulfill the display parameter variant are again displayed.



The key date for the canceled display parameter variant, continues to serve as the validity window. You may have to select the selection period as the validity window, so all of the change statuses in your worklist are displayed.

## Creating a Change Status with Parameter Effectivity

### Use

You use this function if you create an object in the *Engineering Workbench* and, to do this, use a [change number \[Ext.\]](#), which has [parameter effectivity \[Ext.\]](#).



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with parameter effectivity, to process bills of material and routings for example.

### Features

When you create an object with a change number that has parameter effectivity, you generate a first change status.

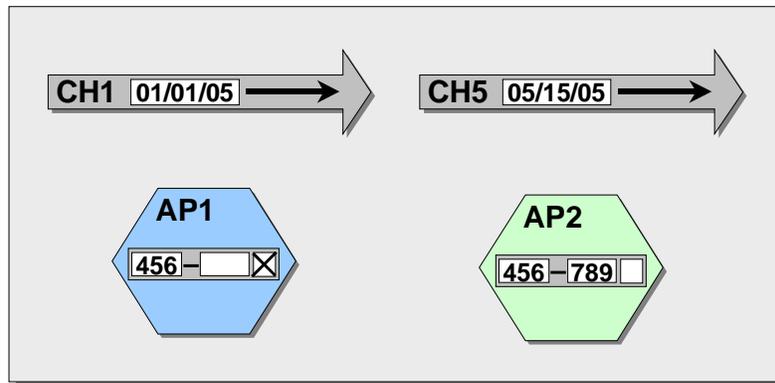
A newly created change status is displayed even if you entered a display parameter variant, which it does not fulfill.

## Example: Creating a Change Status with Parameter Effectivity

## Example: Creating a Change Status with Parameter Effectivity

The change master records used in this example are shown in graphic 1 and the table below. You should note that change master records *AP1* and *AP2* do not have time-related validity, as the DATE effectivity parameter is not found within the CUSTOMER effectivity type.

Graphic 1: Change Master Records



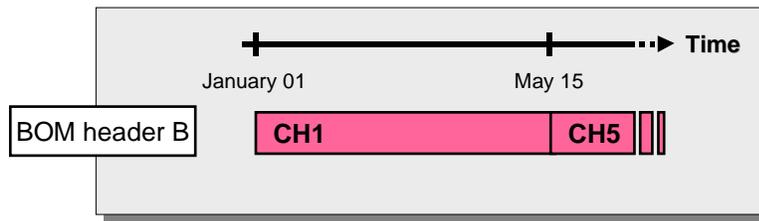
Change Master Record	Type of Validity	Effectivity Type	Validity/Effectivity
<i>CH1</i>	Date validity		from Saturday, January 01, 2005
<i>CH5</i>	Date validity		from May 15, 2005
<i>AP1</i>	Parameter effectivity	AIRLINE	For customer <i>BlueAir</i> , from serial number 456
<i>AP2</i>	Parameter effectivity	AIRLINE	For customer <i>GreenAir</i> , from serial number 456 to serial number 789

You created BOM header *B* earlier (see graphic 2). Its change statuses *CH1* and *CH5* both have date validity. For more information on creating change statuses with date validity, see [Creating a Change Status with Date Validity \[Page 255\]](#).

Your worklist first contains BOM header *B* that has change statuses *CH1* and *CH5*.

Graphic 2: Validity before Creation

Example: Creating a Change Status with Parameter Effectivity



On the *BOM headers overview* now enter change number *AP1* in the *Process using* screen section (see graphic 3).

Graphic 3: *BOM Headers Overview before Creation (Schematic)*

				01/01/2005	12/31/9999	
<input type="checkbox"/>	<input type="checkbox"/>	BOM header B	CH1	01/01/2005	CH5	01/01/2005
<input type="checkbox"/>	<input type="checkbox"/>	BOM header B	CH5	05/15/2005		
<input type="checkbox"/>	<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>					

You now process change status *CH1*. You then enter change number *AP2* in the *Process using* screen section and create the new BOM header *C* Graphic 4 shows the newly created change statuses *AP1* and *AP2*. The validity of both change statuses is not dependent on the date, as their change master records do not have time-related validity (see above).

Graphic 4: *Validity after Creation*



---

Example: Creating a Change Status with Parameter Effectivity

---

## Changing a Change Status with Parameter Effectivity

# Changing a Change Status with Parameter Effectivity

## Use

You use this function if you change an object in the *Engineering Workbench* and, to do this, use a [change number \[Ext.\]](#), which has [parameter effectivity \[Ext.\]](#).



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with parameter effectivity, to process bills of material or routings for example.

## Features

You can use a change number with parameter effectivity to change an object. What then takes place, depends on whether or not you have already processed the object using this change number.

If you

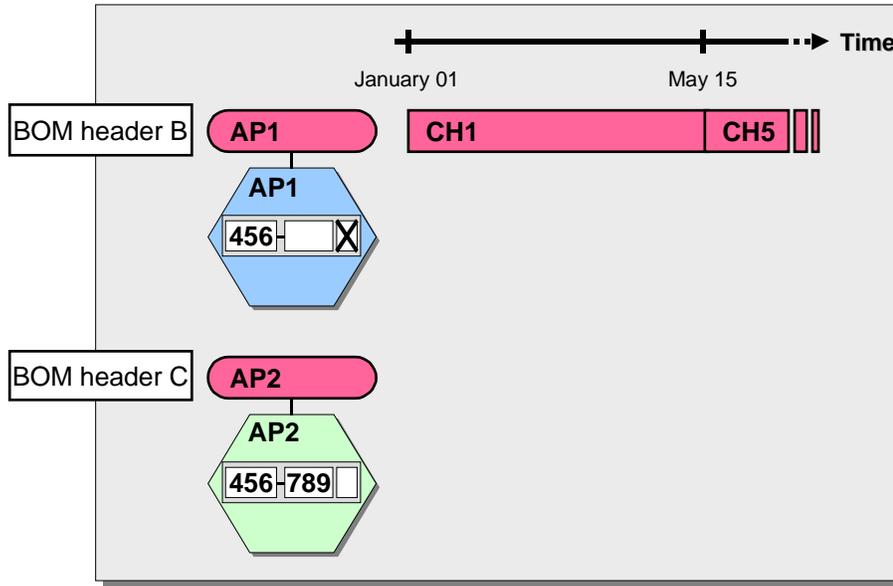
- Are processing the object with this change number for the **first time**, then the system generates a new change status. The change status adopts the effectivity of the change master record related to the change number.
- Have **already** processed the object using this change number, the related change status already exists. You then change this change status.

Example: Changing a Change Status with Parameter Effectivity

## Example: Changing a Change Status with Parameter Effectivity

Your worklist contains the objects you created in [Example: Creating a Change Status with Parameter Effectivity \[Page 302\]](#). Graphic 1 shows the objects in your worklist and their change statuses.

Graphic 1: Validity before Changing



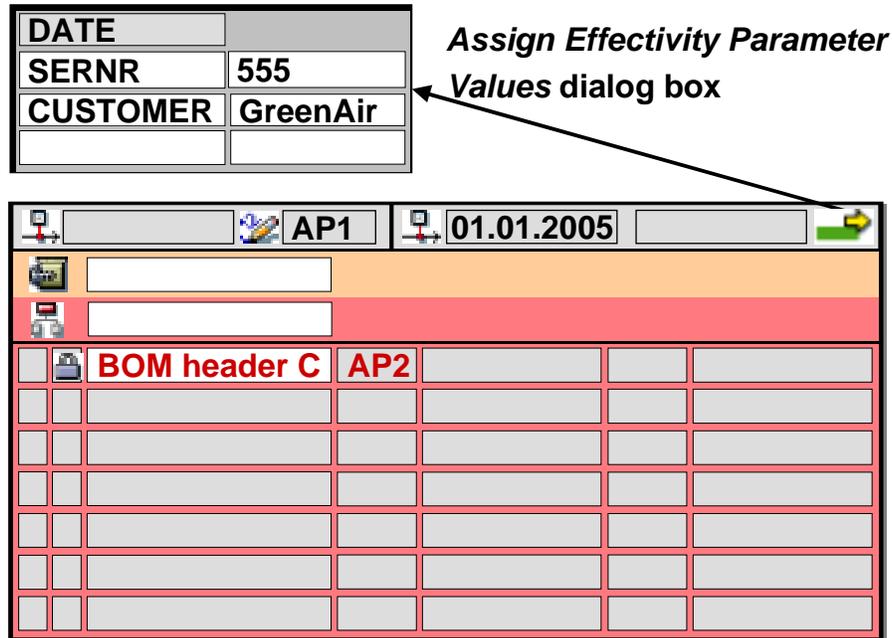
You go to the *BOM headers overview*, which displays all four change statuses (see graphic 2).

Graphic 2: *BOM Headers Overview before Display Parameter Variant (Schematic)*

				01/01/2005	12/31/9999	
		<b>BOM header B</b>	<b>AP1</b>			
		<b>BOM header B</b>	<b>CH1</b>	<b>01/01/2005</b>	<b>CH5</b>	<b>05/14/2005</b>
		<b>BOM header B</b>	<b>CH5</b>	<b>05/15/2005</b>		
		<b>BOM header C</b>	<b>AP2</b>			

**Example: Changing a Change Status with Parameter Effectivity**

You enter the change number **AP1** in the *Process using* screen section, select BOM header **C** and click . In the validity window you then click  with the quick info *Effectivity parameters*. The *Assign Effectivity Parameter Values* dialog box appears and you assign the values **555** and **GreenAir** to the SERNR and CUSTOMER effectivity parameters. All change statuses, which do not fulfill this [display parameter variant \[Ext.\]](#) are hidden (see graphic 3).

**Graphic 3: BOM Headers Overview after Display Parameter Variant (Schematic)**

You edit BOM header **C**, in other words, you create the change status **AP1** (see graphic 4).

**Graphic 4: Validity after Changing**



**Example: Changing a Change Status with Parameter Effectivity**

If you delete the display parameter variant from the *Assign Effectivity Parameter Values* dialog box and select the selection period as the validity window, all change statuses for BOM headers *B* and *C* are displayed once again (see graphic 6).

Graphic 6: *BOM Headers Overview* after Deletion of Parameter Variant (Schematic)

		AP1	01/01/2005	12/31/9999		
<input type="checkbox"/>	<input type="checkbox"/>	<b>BOM header B</b>	<b>CH1</b>	<b>01/01/2005</b>	<b>CH5</b>	<b>01/01/2005</b>
<input type="checkbox"/>	<input type="checkbox"/>	<b>BOM header B</b>	<b>CH5</b>	<b>05/15/2005</b>		
<input type="checkbox"/>	<input type="checkbox"/>	<b>BOM header B</b>	<b>AP1</b>			
<input type="checkbox"/>	<input type="checkbox"/>	<b>BOM header C</b>	<b>AP2</b>			
<input type="checkbox"/>	<input type="checkbox"/>	<b>BOM header C</b>	<b>AP1</b>			
<input type="checkbox"/>	<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>					

## Setting Deletion Indicators for Change Statuses with Parameter Effectivity

### Use

You use this function if you want to prevent an object from being included in certain change object development statuses. For example, you may want to prevent item *B10* being included in BOM B for serial numbers *100* to *199*.

To do this, create a change status with appropriate parameter effectivity and set the deletion indicator for it. For example, you create a change status for item *B10*, which has parameter effectivity for serial numbers *100* to *199* set the deletion indicator for it.



This function is only of relevance to you, if your organization uses the *Engineering Change Management* (LO-ECH) component and uses change master records with parameter effectivity, to process bills of material and routings for example.

### Features

Change statuses for which you have set the deletion indicator are no longer displayed in the *Engineering Workbench*.

### Activities

**You set the deletion indicator for a change status as follows:**

1. Go to the appropriate overview in the *Engineering Workbench*.
2. Select the change status you want to set the deletion indicator for and enter its change number in the *Process using* screen section.
3. Click .



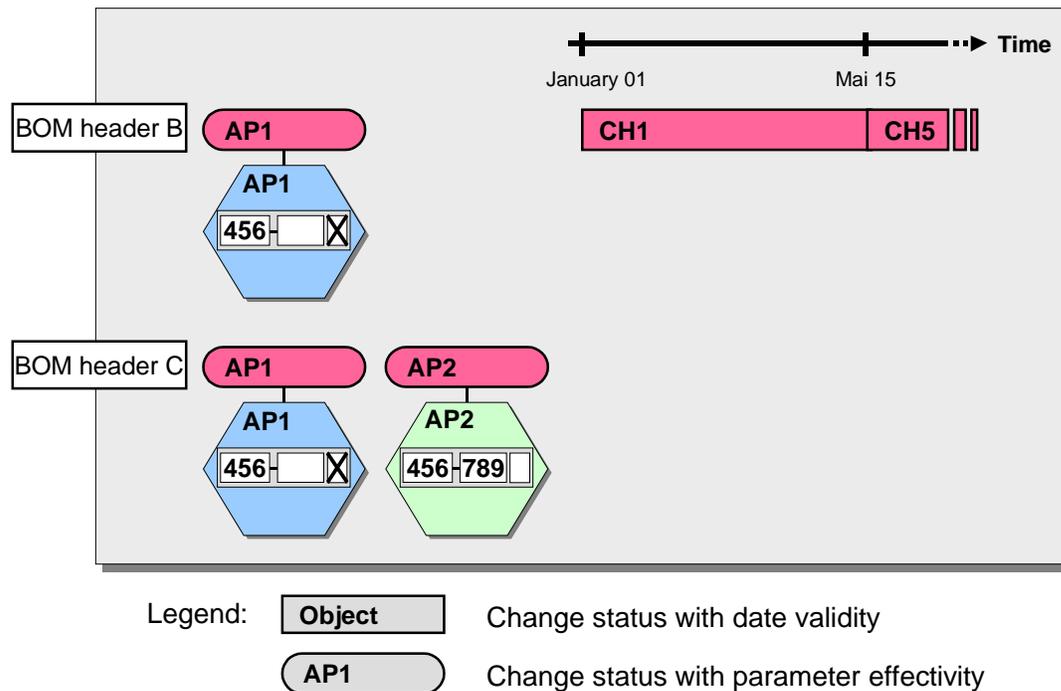
If you enter a change number in the *Process using* screen section, with which you have not yet processed the object, the system generates a new change status and sets the deletion indicator for it at the same time.

## Example: Setting Deletion Indicator for Change Status with Parameter Effectivity

## Example: Setting Deletion Indicator for Change Status with Parameter Effectivity

Your worklist contains the objects you created in [Example: Changing a Change Status with Parameter Effectivity \[Page 307\]](#). Graphic 1 shows the objects in your worklist and their change statuses.

Graphic 1: Change Statuses before Setting Deletion Indicator



You go to the *BOM headers* overview, which displays all five change statuses. You enter the change number **AP2** in the *Process using* screen section and select BOM headers *B* and *C* (see graphic 2).

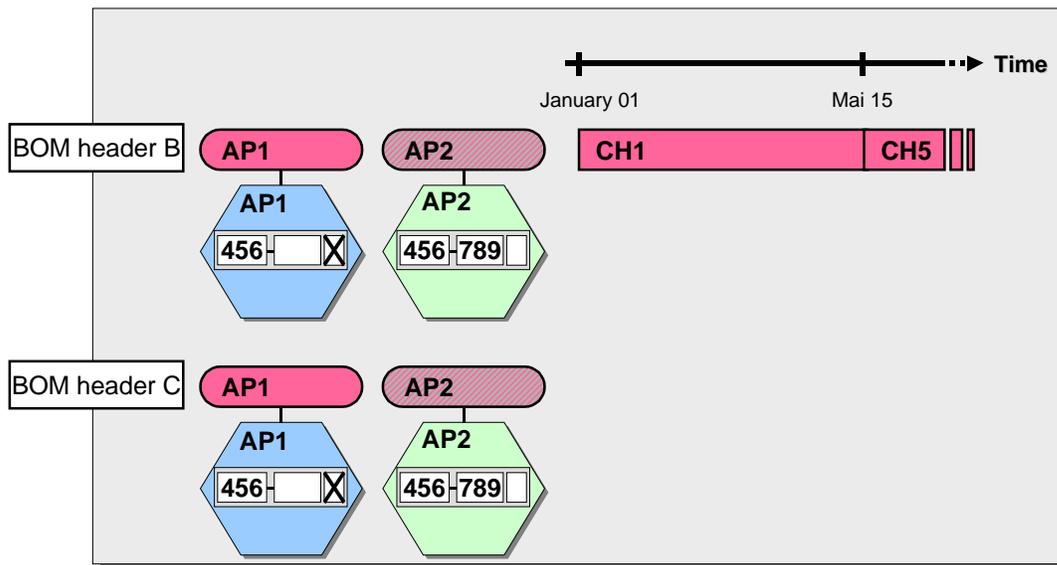
Graphic 2: *BOM Headers Overview* before Setting Deletion Indicator (Schematic)

Example: Setting Deletion Indicator for Change Status with Parameter Effectivity

		AP2	01.01.2005	31.12.9999	
■		BOM header B	AP1		
		BOM header B	CH1	01.01.2005	CH5 14.05.2005
		BOM header B	CH5	15.05.2005	
■		BOM header C	AP2		
		BOM header C	AP1		

Then click . Change status AP2 for BOM header C already exists and is marked with a deletion indicator. BOM header B, however, does not yet have change status AP2. The system generates this change status and immediately sets the deletion indicator (see graphic 3).

Graphic 3: Change Statuses after Setting Deletion Indicator



Those change statuses for which you have set a deletion indicator, are no longer displayed on the BOM headers overview (see graphic 4).

Example: Setting Deletion Indicator for Change Status with Parameter Effectivity

Graphic 4: BOM Headers Overview after Setting Deletion Indicator (Schematic)

		AP2	01/01/2005	12/31/9999	
<input type="checkbox"/>		<b>BOM header B</b>	AP1		
<input type="checkbox"/>		<b>BOM header B</b>	CH1	01/01/2005	CH5 05/14/2005
<input type="checkbox"/>		<b>BOM header B</b>	CH5	05/15/2005	
<input type="checkbox"/>		<b>BOM header C</b>	AP1		
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				