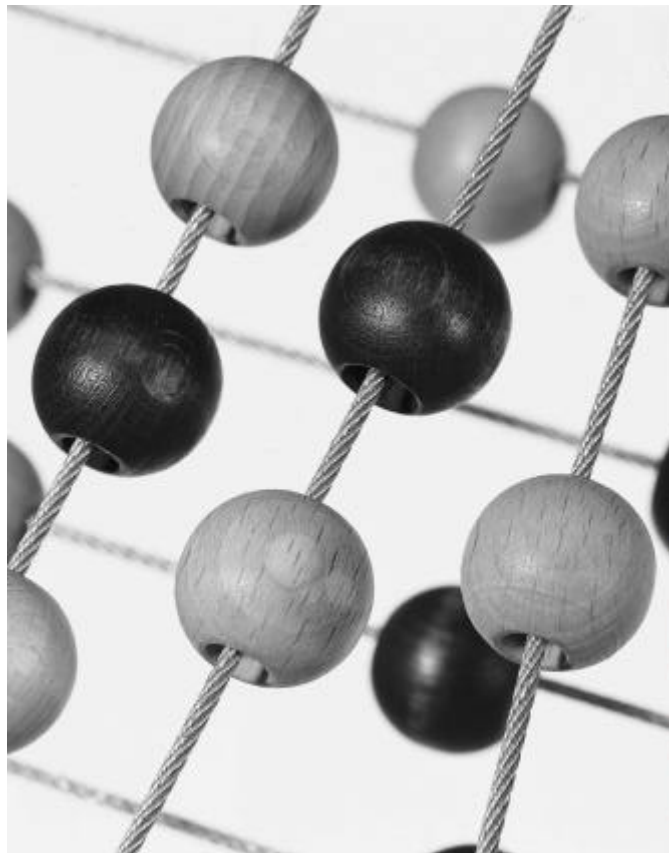


SAP R/3<sup>®</sup>

## Bill of Materials/PS-Interface



©Copyright 1997 SAP AG. All rights reserved.

No part of this brochure 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®, WINDOWS®, NT®, EXCEL® and SQL-Server® are registered trademarks of Microsoft Corporation.

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

OSF/Motif® is a registered trademark of Open Software Foundation.

ORACLE® is a registered trademark of ORACLE Corporation, California, USA.

INFORMIX®-OnLine *for SAP* is a registered trademark of Informix Software Incorporated.

UNIX® and X/Open® are registered trademarks of SCO Santa Cruz Operation.

ADABAS® is a registered trademark of Software AG

SAP®, R/2®, R/3®, RIVA®, ABAP®, SAPoffice®, SAPmail®, SAPaccess®, SAP-EDI®, SAP ArchiveLink®, SAP EarlyWatch®, SAP Business Workflow®, SAP Retail®, ALE/WEB®, SAPTRONIC® are registered trademarks of SAP AG.

---

## Contents

<b>Bill of Materials/PS-Interface .....</b>	<b>3</b>
Overview .....	3
BOM/PS-Interface: Example Step 1 .....	4
Allocating Bill of Material Items using the Bill of Materials/PS-Interface .....	6
Defining Data Fields for the Reference Point.....	7
Maintaining Reference Points in the Bill of Materials.....	8
Maintaining the Reference Point in the Network Activity .....	8
Executing the Allocation Program in the BOM/PS-Interface.....	9
Creating or Changing Allocations using the BOM/PS-Interface.....	11
Assembly Items.....	12
Assembly Items: Example Step 2 .....	13
Allocating Assembly Items with the BOM/PS-Interface .....	14
Material Requirements Planning in the BOM/PS-Interface.....	14
Material Requirements Planning and the BOM/PS-Interface: Example Step 3 .....	16
The Effects of Changes in Bills of Material and the BOM/PS-Interface .....	17
Setting Priorities for Inventory Management.....	18
Changing Account Assignment in the BOM/PS-Interface.....	18

# Bill of Materials/PS-Interface

## Overview

### Range of Applications

The Bill of Material/PS-Interface simplifies the allocation of material components to network activities and keeps this information up-to-date.

If you allocate bill of material (BOM) items to a network activity manually by exploding the BOM and then change the BOM, you have to make these changes in the network as well.

Making the allocation and keeping this information up-to-date can be a lot of work, particularly if you

- want to allocate a very large number of components
- want to allocate components during the design phase and you expect to have to make several changes to the BOMs.

When you use the interface to allocate individual BOM items to network activities, a logical link is created using a *reference point* (Page 7). As opposed to the manual allocation of single components, subsequent changes in the network activity are automatically taken into account.

For instance, if you change quantities or the material description in a BOM, these changes are automatically corrected in the network as well as in the corresponding purchase requisitions and reservations. You only have to regularly execute the allocation program to keep the data up-to-date during the design phase of your project.

### Function Scope

You can allocate items from several types of bills of material such as:

- material BOM
- sales order BOM
- BOM in external systems

You can select from all networks in one project. You can select complete assemblies or single items; you can also allocate BOM items that do not have a reference point. You use various criteria to select the items, for instance with the BOM usage you can exclude certain assemblies from the selection.

You can identify assemblies created in the network by using *assembly items* (Page 6).

You can **simulate** allocations by executing the allocation program and then changing the results afterwards or by not saving the results or the changes.

After a BOM item has been successfully allocated to a network, the system will generate *requirements* (Page 6) if the network/activity has been released or the *Reservation/Purch Req.* indicator has been set.

The system uses the execution factor in the network activity to determine the required amount. You can decide whether real requirements (purchase requisitions or reservations) or preliminary requirements (preliminary purchase requisitions or planned independent requirements) are generated.

For the allocation of a large number of components you can use priorities for stock types in *Inventory Management* (Page 18). In this manner you can determine that components should be kept in sales order stock if possible or, if the component does not allow this, in plant stock.

You can allocate a component to a different WBS element than that of the corresponding network activity. This means that you can *assign costs to another WBS element*. (Page 18)

## BOM/PS-Interface: Example Step 1

The following example has been designed to be carried out step-by-step and will be referred to throughout this section.

In this first step you will learn how BOM items with long lead times can be allocated to a “Procurement activity” using the interface, so that requirements can be generated in advance for these components.

In the second step you will go on to learn how *assembly items* (Page 6) can be allocated to the activity in which they are produced using the interface.

In the third step you will learn how *material requirements planning* (Page 14) is carried out using the interface.

### Note

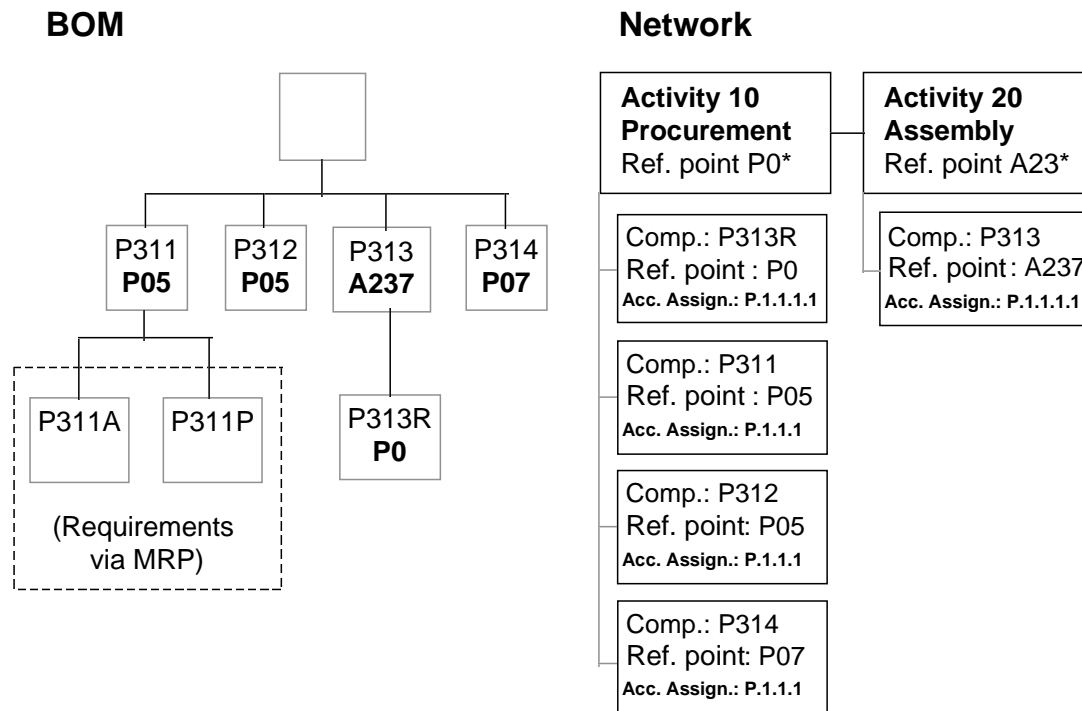
The components used in this example are kept in sales order stock.

The customer orders a product that is made to order and requires a certain amount of design work.

You want to use a network for the rough-cut planning of this sales order.

The design phase has not yet been completed, however you know already that you are going to need some components whose lead time is critical and therefore you want to procure them in advance. To do this you allocate them to the “Procurement” activity using the BOM/PS-Interface.

The prerequisite is that the relevant BOM items have the same reference point as the network activity. Generic entries are allowed.



**Fig. 1: BOM allocation of BOM items using the BOM/PS-Interface**

The components P313R, P311, P312 and P314 have reference points all beginning with P0. In the network activities you can enter all of these reference points together generically as P0\*.

During allocation you should set the *preliminary reqmts* indicator so that when you release the network or manually activate requirements, planned independent requirements will be generated for these components.

Planned independent requirements are treated in materials planning as regular requirements and are exploded; requirements are generated for the lower-level components of P311, P311A and P311B.

The indicator *Preliminary Reqmnts* prevents requirements from being generated once again for these components when higher-level components are exploded subsequently. For further information see *Material Requirements Planning and the BOM/PS-Interface: Example Step 3* (Page 16)

**See also:**

*Allocating Bill of Material Items using the Bill of Materials/PS-Interface* (Page 6)

*The Effects of Changes in Bills of Material and the BOM/PS-Interface* (Page 17)

## Allocating Bill of Material Items using the Bill of Materials/PS-Interface

Perform the following steps to allocate BOM items to a network activity using the BOM/PS-Interface.

1. *Define in the BOM items and the network activity data fields* (Page 7) to be used as reference points. These data fields can have different field names, but they must have the same structure.

In general you only do this once, the first time you want to use the BOM/PS-Interface. Hereafter you should not need to change the designation of the data fields again.

2. *Maintain the reference point in the BOM item* (Page 8).
3. *Maintain the reference point in the network activity* (Page 8).

The reference point in the BOM item must be the same as the reference point in the network activity. Generic entries are allowed.

4. Enter the selection criteria and *execute the BOM/PS-Interface allocation* (Page 9).
5. After this you can *allocate manually or change existing allocations* (Page 11).

### Note

- You can only allocate reference points for items in a bill of materials, not for the component in the header. The one exception to this is when you have defined this material as an *assembly item* (Page 14).
- All network activities for which you want to define a reference point must be assigned to a WBS element. You can assign each activity to a different WBS element, however if you make an assignment at the network header level, it will be ignored. You can also change the assignment in the *control table* (Page 18)
- You cannot allocate BOM items to a standard network using reference points. You can however enter reference points in the data fields which have been defined for this purpose, so that when you use this standard network to create an operative network these will also be copied.
- Material components that you have already manually allocated to a network activity are ignored during allocation using reference points. They do not appear in the list of allocations.

## Defining Data Fields for the Reference Point

In order to use the BOM/PS-Interface you must define data fields that have the same structure in both the network activity and the BOM items. Usually you only have to do this once and never need to change it afterwards.

You can use data fields in the R/3 System or user-defined fields. You can display the structure of objects in transaction SE12:

Object name	Object
STPOX	BOM item
AFVGD	Network activity

You can thus find data fields in both objects with the same structure (type and length) as well as the full technical name you should enter.

If you are in the BOM or the network activity you can find out the technical name of a field by calling up Help with F1 and then selecting Technical Info.

### How to define data fields for reference points:

1. Choose *Operative structures* → *Tools* → *Bill of material/PS*  
The *PS-Interface for Bill of Material* screen appears.
2. Choose *Environment* → *Ref. data fields*  
The Maintain Data Fields dialog box appears.
3. Enter the technical names of the fields.
4. Choose *Continue*.  
You then return to the *PS-Interface for Bill of Material* screen.

### Possible fields for entering a reference point:

Object	Data field	Technical name
BOM item	Sort string	SORTF
Network activity	Third user-defined field	USR02

These are both alphanumerical fields with a length of 10 characters.

## Maintaining Reference Points in the Bill of Materials

1. Choose *Logistics* → *Production* → *Master data* → *Bills of material* and then *Bills of material* → *Material BOM* → *Create or Change*
2. Call up the material item overview by choosing Material item.
3. Enter the reference point in the field you have chosen as the entry field for the reference point (Page 7)

### Note

- You must use capital letters when you have alphanumerical values.
- The reference point in the BOM must be identical with the *reference point in the network activity* (Page 8) - generic entries are permissible.
- Several bill of material items may have the same value as a reference point however only one network activity may have this value.

### Example

The data field SORTF in the BOM has been defined as the reference point. Enter a reference point (for example A1) in the field *Sort string*.

Object	Data field	Techn. name	Ref. point
BOM item	Sort string	SORTF	A1
Network activity	Third user-def. field	USR02	A1 or A*

## Maintaining the Reference Point in the Network Activity

1. Choose *Logistics* → *Project management* → *Operative structures* *Network* → *Create or Change*.
2. Call up the relevant detail screen for the network activity.
3. Enter the reference point in the field you have chosen as the entry field for the reference point (Page 7)


**Note**

- You must use capital letters when you have alphanumerical values.
- The reference point in the BOM must be identical with the *reference point in the network activity* (Page 8) - generic entries are permissible.
- The value of a reference point within a project must be unique. Do not enter the same value for a reference point in more than **one** network activity in a project.


**Example**

The data field USR02 in the network activity has been defined as a reference point. In this case, you enter a value for a reference point in the third user-defined field, for example if you have used A1 in the BOM item enter either A1 or A\*.

Object	Data field	Techn. name	Ref. point
BOM item	Sort string	SORTF	A1
Network activity	Third user-def. field	USR02	A1 or A*

## Executing the Allocation Program in the BOM/PS-Interface

To allocate BOM items to a network activity or to bring the allocations up-to-date enter the selection criteria and execute the program.

You can simulate the allocation when you execute the program, but do not save the resulting allocation.

1. Choose *Operative structures* → *Tools* → *Bill of material/PS*  
The *PS-Interface for Bill of Material* screen appears.
2. If you want to use the pre-defined status selection profile from Customizing to filter out components which do not meet certain criteria then choose Status.
3. Enter a project definition, a WBS element or a sales document.

4. Enter the BOM item that you want to allocate:
  - If you want to use a **material BOM from the R/3 System**, just enter the material.
  - If you want to use a **sales order BOM**, enter the material and select the *Sales order BOM* indicator.
  - If you want to use a **BOM from an external system** (via customer enhancement), enter the material and select the *External BOM* indicator.

**See also:**

For further information about the customer enhancement for exploding BOMs from external systems or the customer enhancement for additional processing of internal BOMs refer to Customizing of the Project System.

5. Enter the BOM usage and the BOM application.
6. If you want to completely explode a multi-level BOM, select the *multi-level* indicator. In this case requirements are also generated for subordinate items in the network. This is useful for instance, if you want to generate requirements in advance for components that have a long delivery time or take long to produce. You should then also set the *Preliminary reqmnts* indicator; so that the system generates planned independent requirements or preliminary purchase requisitions which can be set off against real requirements.



**Caution**

If you only set the *multi-level* indicator but not the *Preliminary reqmnts* indicator then you run the risk that excess requirements will be generated. If afterwards you generate requirements for a superior assembly materials planning will also generate requirements for the subordinate assembly, since bills of material are **always** exploded. If however there are already sufficiently large planned independent requirements these will be consumed.

For further information see *Material Requirements Planning in the BOM/PS-Interface* (Page 14).

7. If you want to allocate BOM items without reference points select the *all items* indicator. The system will then ask you for a manual allocation for every item that is not automatically allocated.
8. Choose *Execute*.
9. The system selects the BOM items and network activities based on your criteria and automatically allocates all items with reference points. The results of the automatic allocation are displayed.

10. You can call up an overview of the selected network activities and BOM items or the *manual allocation* (Page 11) screen, in which you can allocate other components manually or changed the allocations that you have just made.
11. To confirm the allocations save your data.
12. If you have not predefined a *strategy for inventory management* (Page 18) , the system will display a dialog box where you can choose the appropriate stock.
13. The BOM items are allocated to the network activities and if the activity/network has been released or the *Purch. Req./Reservation* indicator has been set then the related (preliminary) requirements are generated.

## Creating or Changing Allocations using the BOM/PS-Interface

After you have executed the *BOM/PS-Interface allocation program* (Page 6) , you can switch to the *Manual allocation* screen, where you can allocate manually or change existing allocations.

The display is in form of user-definable lists, in which you can change the columns in the individual lists and then save your settings.

On the left-hand side of the list you see all the BOM items that could not be automatically allocated. By choosing *other view* you can switch between:

- displaying all the BOM items that have not been allocated and
- displaying the BOM items that have not been allocated per assembly.

On the right-hand side you see all the network activities in the project. These activities can be in several networks.

### How to manually allocate components:

1. Select one or more BOM items.
2. Select one network activity to which you want to allocate the BOM item(s)
3. Choose *Allocate*.  
BOM items that have been allocated are no longer displayed.
4. Repeat these steps for all the items you want to allocate.
5. Choose *Back*.
6. In the next dialog box confirm the allocations with *Yes*.

## How to change existing allocations

1. If you are on the *Manual allocation* screen choose *List of results* to get an overview of all the allocations.

The system displays a list of all the previous allocations.

You can see all the BOM items that have been automatically or manually allocated as well as all the network activities in the project.

2. If you want to delete an automatic allocation, select the relevant BOM item and choose *Deactivate*.

The item will then appear in the list of components that can be manually allocated.

## How to display a list of all the selected activities or BOM items with reference points:

1. Call up the list of results.
2. Choose either Network activities or BOM items

You can switch between the *list of results*, the *Manual allocation* screen and the overview of the selected network activities and BOM item as often as you like.

3. To confirm the allocations choose *Save*.

If you have not predefined a *strategy for inventory management* (Page 18) , the system will display a dialog box where you can choose the appropriate stock.

The BOM items are allocated to the network activities and if the activity/network has been released or the *Purch. Req./Reservation* indicator has been set, then the related (preliminary) requirements are generated.

## Assembly Items

If a material component is produced or assembled in a network activity and is consequently used, for instance for a delivery, then it is considered an assembly item.

Since assembly items are created in network activities, they are represented as reservations with negative quantities and the receipt date is automatically set by the system as the activity finish date.

You can allocate an assembly item to an activity either *manually* (see R/3 Library - Project System) or by using the *BOM/PS-Interface* (Page 14)

Using the interface, enter the material component and the reference point in the control table. The negative quantity is automatically set by the system.

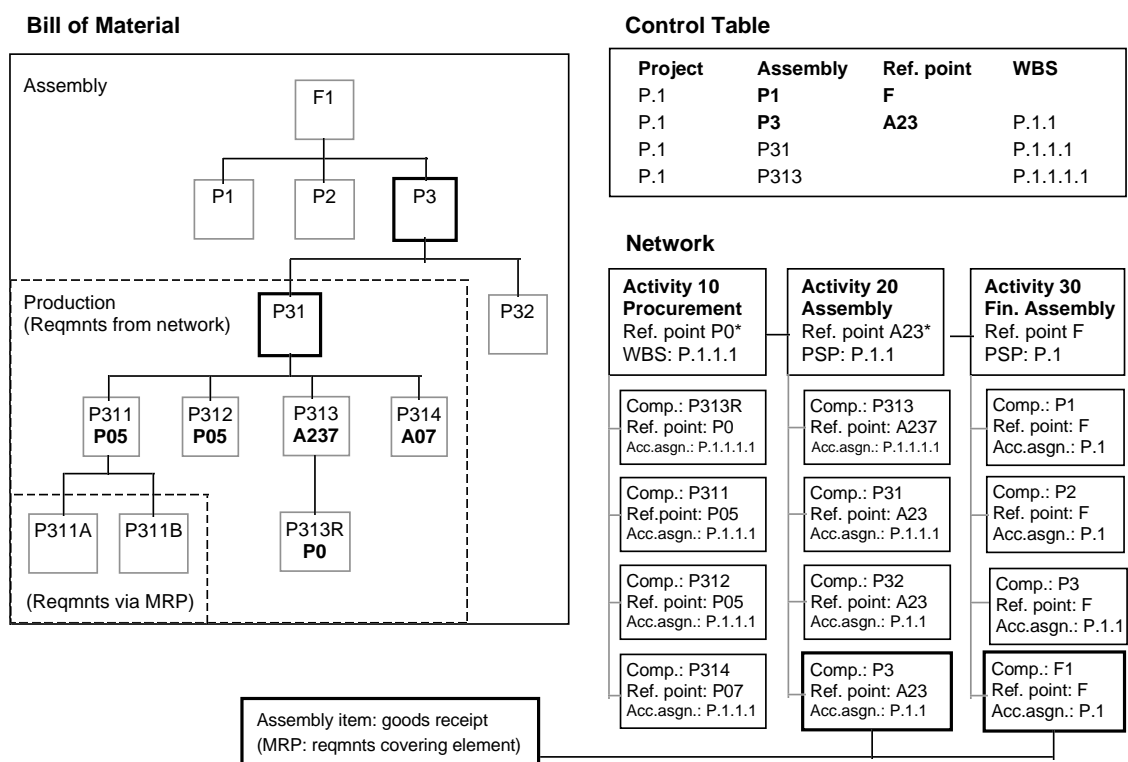
The reference point of assembly items is passed on to all the lower-level BOM items.

## Assembly Items: Example Step 2

You have used a network for the rough-cut planning of a sales order. You have produced in the “assembly” activity the material P3 and in the “final assembly” the material F1 as assembly items.

You define P3 and F1 as assembly items by entering both material components and their reference points in the *control table* (Page 14).

This reference point must be identical to the reference point in the network activity, if you want to create an allocation to the network activity. Generic entries are allowed.



**Fig. 2: Allocation of Assembling items using the BOM/PS-Interface**

During allocation the reference point F in assembly item F1 is passed on to BOM items P1, P2 and P3.

P3 is produced as an assembly item in activity 20 and passes on the reference point in this activity to the lower-level items P31 and P32.

You have entered the reference point A237 for the material component P313 in the BOM, so that you can also allocate this item to the “Assembly” activity with the reference point A23\*.

## Allocating Assembly Items with the BOM/PS-Interface

You use the control table to define material components as assembly items in the BOM/PS-Interface.

The control table has two functions:

- You can allocate material components as assembly items to network activities using reference points as described below.
- You can allocate individual *material components to other WBS elements* (Page 18).

**If you want to allocate a material component in the BOM/PS-Interface as an assembly item, proceed as follows:**

1. Choose *Operative structures* → *Tools* → *Bill of material/PS*.
2. Choose *Environment* → *Control table*.
3. Enter in the control table the project definition of the project, in which you want to allocate the assembly item.
4. Enter the material, plant and reference point.
5. Save.

## Material Requirements Planning in the BOM/PS-Interface

When you allocate material components to network activities using the BOM/PS-Interface, the system automatically generates (preliminary) requirements if the network is released or the *Reservation/Purch Req* indicator is set.

You can explode a BOM top-down (multi-level) or just single level for the allocation. If you explode it top-down for all levels, the system generates requirements for all levels in the BOM.

Thus you can generate preliminary requirements for lower-level components by selecting both the *Multi-level* indicator and the *Preliminary reqmnts* indicator. You use the *Preliminary reqmnts* indicator to create requirements in advance which can later be posted against real requirements. To do this you must have made the *appropriate settings in the material master*. The *Preliminary reqmnts* indicator prevents excess requirements being generated in material requirements planning, just because the BOM is always exploded.

During the allocation the system generates:

Preliminary orders

or

Planned independent requirements

Materials planning treats a planned independent requirement as a requirement. Afterwards when a real requirement is generated and the system finds a component for which a sufficiently large planned independent requirement exists in the same type of stock, then these requirements will be set off against each other.



#### Caution

If you have not generated preliminary requirements, and explode a BOM excess requirements are generated, since bills of material are **always** exploded multi-level during material requirements planning.

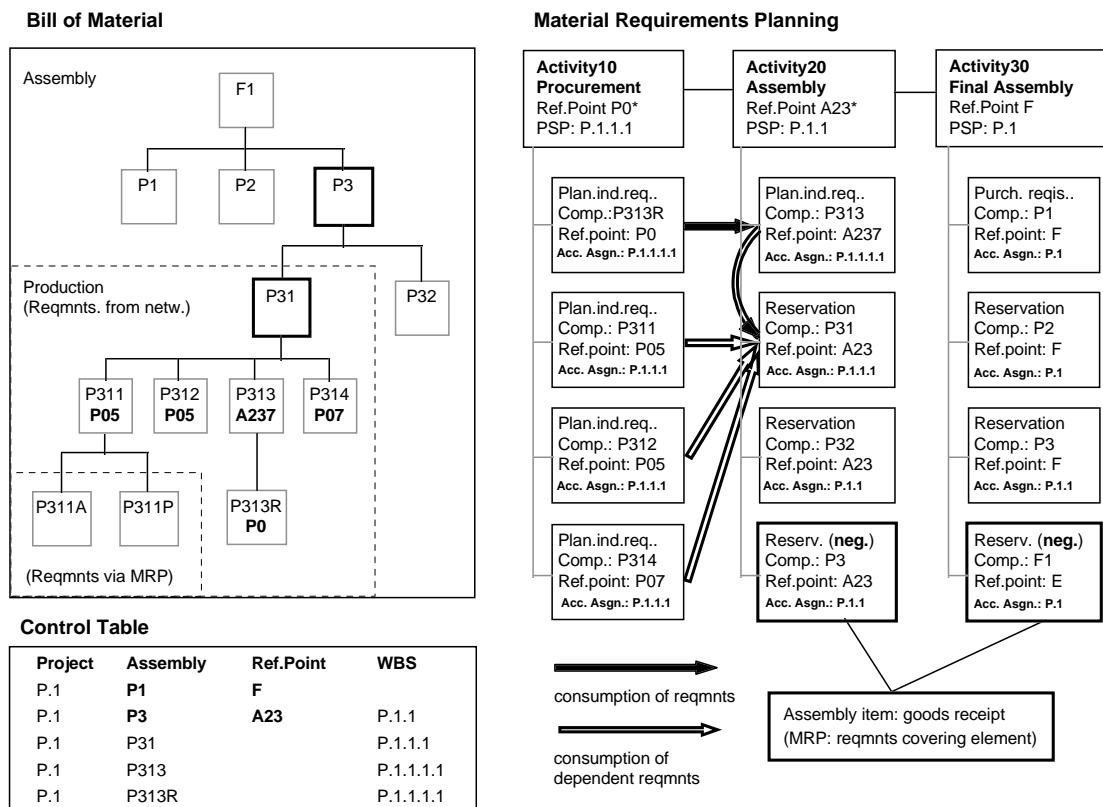


#### Note

If the higher-level assembly is an *assembly item* (Page 12), real requirements in the form of purchase requisitions or reservations will be generated despite the *Preliminary reqmnts* indicator.

## Material Requirements Planning and the BOM/PS-Interface: Example Step 3

You have allocated the material components P313R, P311, P312 and P314 to the “Procurement” activity using reference points and selected the *Preliminary reqmnts* indicator. The system generates since all the materials are stock materials in this case are stock materials planned independent requirements.



**Fig. 3: Material Requirement Planning in the BOM/PS-Interface**

In the “Assembly” activity you defined the material P3 as an assembly item, consequently the system generates negative requirements for P3. Real requirements (here reservations) are generated for the lower-level components P31 and P32. In the case of P31 the dependent requirements of the lower-level components P311, P312, P313 and P314 are set off against the previously generated planned independent requirements.

The material F1 is produced in the “Final assembly” activity as an assembly item and the system generates a negative reservation. Real requirements are generated here as well - reservations and a purchase requisition for the non-stock item P1. The reservation for P3 is set off against the “planned receipt” (the negative reservation) in activity 20.


**Note**

There is no cross-project consumption of requirements; requirements can only be settled if they are generated in the same stock segment.

In this example the components are kept in sales order stock. If however, they were kept in project stock you would not be able to settle the requirements here since the account assignment of some components has been changed and the components P31 and P313 are assigned to different WBS elements.

## The Effects of Changes in Bills of Material and the BOM/PS-Interface

One of the main purposes of the BOM/PS-Interface is to automatically update changes in a BOM in network activities

If you are using the BOM/PS-Interface and change a BOM, the network activity will be up-dated with these changes the next time you execute the allocation program. The purchase requisitions and reservations generated by the network will also be updated.

### Effect of changes in BOMs when using the allocation program of the BOM/PS-Interface

Change in ...	Effect
Quantity	The material quantity is changed in the network activity together with the corresponding requirements coverage (purchase requisition/reservation)
Text	The text in the network activity and purchase requisition is changed.
BOM item: Substituting components	The old material is deleted and the new material added.
BOM item: Adding new items with reference points	The new material components are automatically allocated to the network activity with the corresponding reference point.
Reference point	The material component is allocated to another activity in the network

## Setting Priorities for Inventory Management

If you allocate a material component that can be kept in different types of stock, a dialog box will ask you to enter the stock type in which the component should be kept. You can predefine the stock type for every material component in a project, so that this dialog box does not appear. This is very useful if you have a large number of material components to allocate.

To set priorities in inventory management, proceed as follows:

1. Choose *Operative structures* → *Tools* → *Bill of material/PS*  
*The PS-Interface for Bill of Material* appears.
2. Choose *Environment* → *Stock/acct assignmt*  
*The screen Change View "Control Stock/account assignment for BOM/PS-Interface"* appears.
3. Enter the project definition of the project for which you want to set priorities for the stock type.
4. Enter the priority for the stock. Priority **1** determines that all material components are kept in this stock type. If this is not possible, they are kept in a stock with priority **2**.
5. Choose *Save*.



### Note

You do not need to enter a priority for every stock type. It is usually sufficient if you only set a priority for plant stock and project stock.

For information about the conditions for keeping a material component in a particular stock type see *Inventory Management* in the R/3 Library - Project System.

## Changing Account Assignment in the BOM/PS-Interface

You use the control table to allocate individual material components to another WBS element.

The control table has two functions:

- You can allocate individual material components to other WBS elements, as described below.
- You can allocate material components as *assembly items* (Page 12) to network activities using reference points.

To define another WBS element for the account assignment of a particular material component, proceed as follows:

1. Choose *Operative structures* → *Tools* → *Bill of material/PS*  
The *PS-Interface for Bill of Material* appears.
2. Choose *Environment* → *Control Table*.
3. Enter the material and the plant in the control table.
4. Enter the WBS element for the account assignment.
5. Choose *Save*.

 **Note**

The 'Note' section is indicated by a red icon of a hand pointing to the right, followed by the word 'Note' in a bold, black font. A red horizontal line is positioned below the icon and the word.

If the component is kept in project stock it will be allocated to another stock segment after this change.

If you want *the requirements* (Page 14) of the corresponding components to be consumed (if they are in project stock), they must both be assigned to the same WBS element, since requirements consumption takes place only within the same stock segment and not across projects.