

SCM630

Warehouse Management

mySAP Supply Chain Management

Date _____
Training Center _____
Instructors _____

Education Website _____

Participant Handbook

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About This Handbook

This handbook is intended to complement the instructor-led presentation of this course, and serve as a source of reference. It is not suitable for self-study.

Typographic Conventions

American English is the standard used in this handbook. The following typographic conventions are also used.

Type Style	Description
<i>Example text</i>	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths, and options. Also used for cross-references to other documentation both internal (in this documentation) and external (in other locations, such as SAPNet).
Example text	Emphasized words or phrases in body text, titles of graphics, and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, and passages of the source text of a program.
Example text	Exact user entry. These are words and characters that you enter in the system exactly as they appear in the documentation.
< Example text >	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.

Icons in Body Text

The following icons are used in this handbook.

Icon	Meaning
	For more information, tips, or background
	Note or further explanation of previous point
	Exception or caution
	Procedures
	Indicates that the item is displayed in the instructor's presentation.

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Course Overview

This course provides an overview of the functions in Warehouse Management in SAP ERP Central Component (SAP ECC). The main focus is on the organizational foundations and the main settings for controlling the various processes.

Target Audience

This course is intended for the following audiences:

- Members of the project team
- Consultants

Course Prerequisites

Required Knowledge

- SCM601: Processes in Logistics Execution

Recommended Knowledge

- SCM510: Inventory Management
- SCM610: Delivery Processes



Course Goals

This course will prepare you to:

- Understand the organizational structures in Warehouse Management and use the elements of Warehouse Management to map spatial conditions
- Configure the control of putaway, stock removal, and stock transfer activities at master data and Customizing levels
- Integrate Warehouse Management into Logistics in SAP ECC



Course Objectives

After completing this course, you will be able to:

- Create the organizational elements of Warehouse Management and assign them to each other
- Use all the relevant master data
- Configure the interface between Inventory Management and Warehouse Management
- Implement putaway and stock removal strategies

- Take into account batch management and Quality Management in the warehouse
- Include Warehouse Management in delivery processes
- Stage components for production from the warehouse
- Set up the warehouse activity monitor as a control instrument
- Execute physical inventory at storage bin level

SAP Software Component Information

The information in this course pertains to the following SAP Software Components and releases:

Unit 1

The Warehouse Management System as Part of Logistics Execution

Unit Overview

This unit will explain the relationship between mySAP Business Suite, mySAP Supply Chain Management (mySAP SCM), and Logistics Execution. It will also provide an overview of the basic functions of Warehouse Management in SAP ECC.



Unit Objectives

After completing this unit, you will be able to:

- Name the elements of Logistics Execution
- Describe the function of Logistics Execution within SAP ECC
- Describe how the Warehouse Management fits into Logistics Execution
- Describe the main functions of Warehouse Management
- Name the interfaces to external systems and other applications of SAP ECC

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Lesson: Logistics Execution

Lesson Overview

Within mySAP Enterprise Resource Planning (mySAP ERP) and mySAP Supply Chain Management (mySAP SCM), Logistics Execution offers a range of functions for all logistics processes, including Warehouse Management, shipping, and transportation. This lesson will give you an overview of the various elements and usage areas in Logistics Execution.



Lesson Objectives

After completing this lesson, you will be able to:

- Name the elements of Logistics Execution
- Describe the function of Logistics Execution within SAP ECC

Business Example

Your company already uses SAP ECC for procurement, Sales and Distribution, and Inventory Management. To take full advantage of process integration and to effectively control the increasingly complex relationships in the warehouse, your company now wants to implement Warehouse Management as part of Logistics Execution.

Elements and Origins

Logistics Execution is the bundling of system functions for the core logistics execution processes. It is connected to Production Planning and Control, Materials Management, and Sales. With SAP R/3 4.5A, Logistics Execution was included in the system landscape in order to bundle the existing subfunctions for logistics execution and to further develop this group of functions.

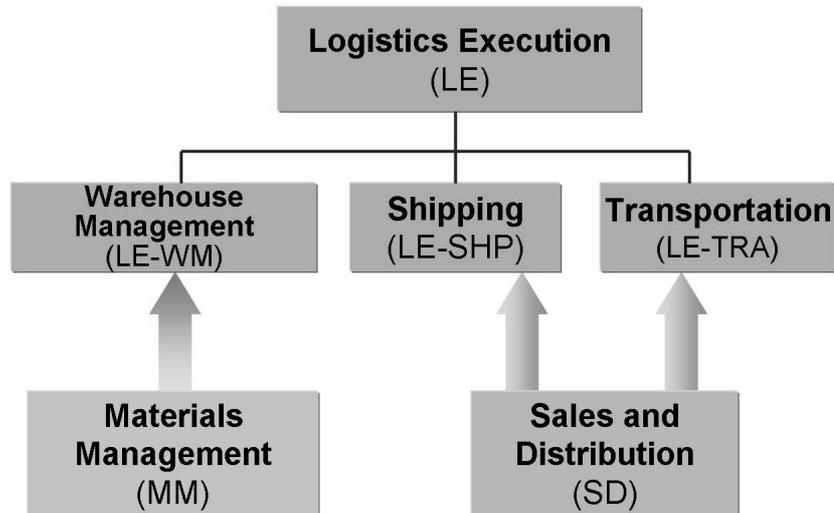


Figure 1: Logistics Execution: Elements and sources

Warehouse Management was taken from **Materials Management (MM)**, **Shipping**, and **Transportation** from **Sales and Distribution (SD)**. These organizational changes are reflected in both the application menu and the structure of Customizing: In both menus, several nodes were added for Logistics Execution with SAP R/3 4.5A. Customizing for Warehouse Management is taken completely from Customizing for Materials Management. Parts of Customizing for Shipping and Transportation can be found under both *Sales and Distribution* and *Logistics Execution*.

Features

Logistics Execution provides all of the functions (for the most part, cross-industry) required to map the execution of logistics processes. Essentially, it always deals with **goods issue** and **goods receipt** processes of various degrees of complexity.

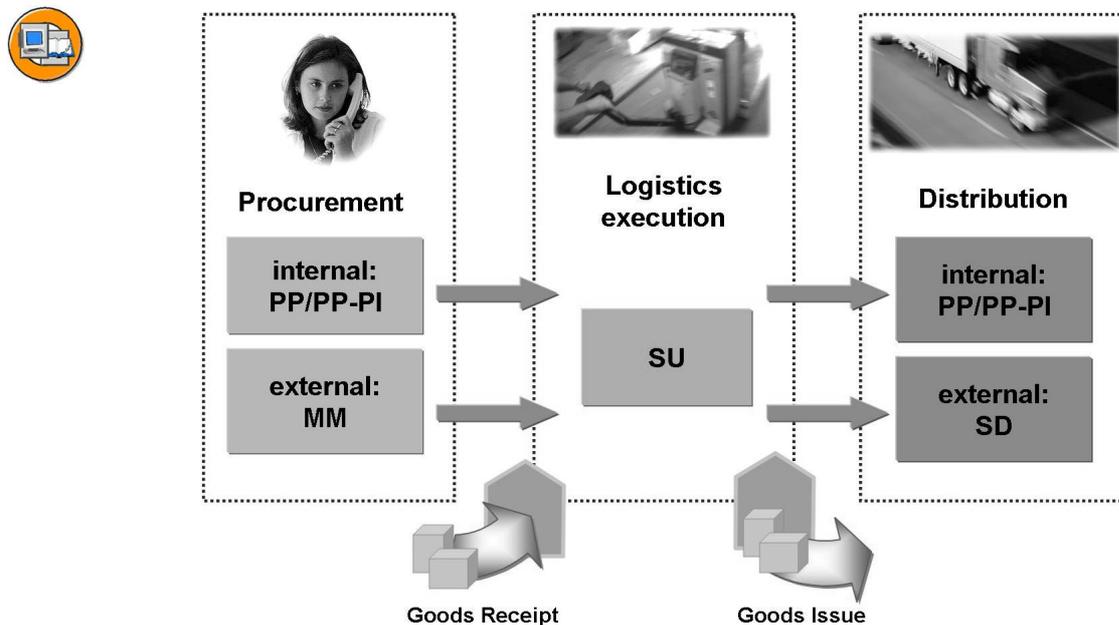


Figure 2: Logistics Execution: Function in SAP ECC

Logistics Execution is the link between procurement and distribution in SAP ECC, regardless of whether the processes involved are internal or relate to third-parties (vendors, customers, or service providers). Both materials produced in-house and those procured externally are put away and removed from storage using Warehouse Management, in order to supply the enterprise's own production or for delivery to retailers or end users. The underlying organizational structure can be very complex; Logistics Execution uses its own organizational units and master data, which are integrated into the organizational structure in SAP ECC. You can use these structural elements to accurately map complicated business situations.

Basic Forms of Process Mapping

There are two basic ways to map processes for goods receipts and goods issues in Logistics Execution: You can either create a **delivery** or place an Inventory Management posting (usually with reference to a preceding document) at the beginning of the process. Figure 4 juxtaposes the document flow and the technical posting procedure for both methods.

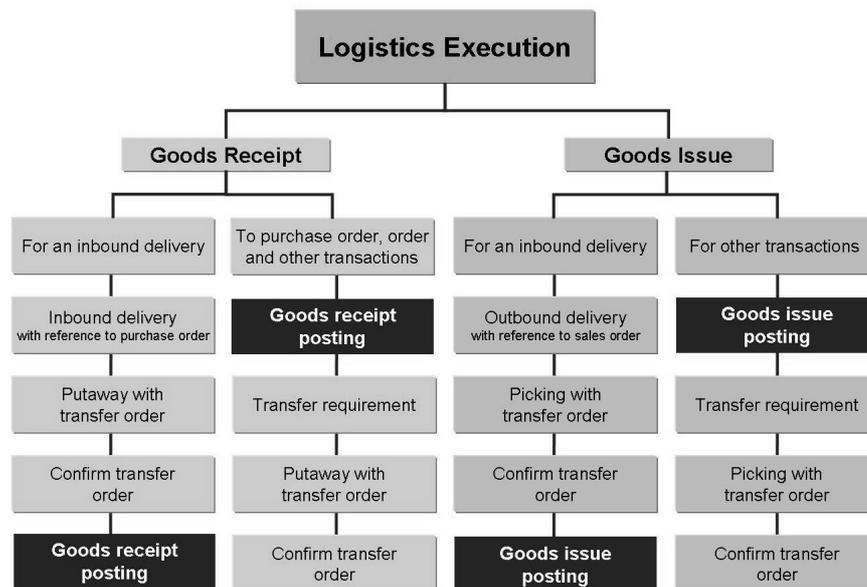


Figure 3: Process overview

If you work with deliveries, Warehouse Management activities (creating and confirming a transfer order) are completed **before** posting in Inventory Management. The goods receipt / goods issue posting always relates to the delivery.



Note: The transfer order is the document used to execute all material movements in the warehouse.

However, the Inventory Management posting can also occur at the **beginning** of the process. The goods receipt / goods issue posting then generates a transfer requirement, which forms the basis for Warehouse Management activities in terms of planning and posting. A putaway or picking activity with a transfer order completes the process.



Note: The depiction of the processes in figure 4 reflects the structure of the application menu.

In many cases, the reason for the putaway or stock removal already determines how the process is mapped. For goods receipts from production, for example, the standard system only offers a goods receipt posting for the work order with subsequent putaway. For sales order processing, on the other hand, the stock removal is usually based on the goods issue.

Exercise 1: Logistics Execution (Optional)

Exercise Objectives

After completing this exercise, you will be able to:

- Orient yourself in the Logistics Execution area menu

Business Example

Your company already uses SAP ECC for procurement, Sales and Distribution, and Inventory Management. To take full advantage of process integration and to control the increasingly complex relationships in the warehouse, your company wants to implement Warehouse Management as part of Logistics Execution.

Task:

Log on to the SAP ECC system and get an overview of the area menu for Logistics Execution.

1. Log on to the training system with the user name **SCM630-##**. The instructor will tell you which training client and initial password to use.
2. In the initial screen, you can see the SAP ECC standard menu. Branch to the *Logistics Execution* area menu and open the sub-areas for inbound and outbound processes.

Solution 1: Logistics Execution (Optional)

Task:

Log on to the SAP ECC system and get an overview of the area menu for Logistics Execution.

1. Log on to the training system with the user name **SCM630-##**. The instructor will tell you which training client and initial password to use.
 - a) In the task bar at the bottom of the screen, choose *Start* and then *Training*. This takes you directly to the logon screen for the system you have been allocated. Choose the *Logon* button.



Hint: If you cannot access the system directly, go to the SAP LogonPad. You can select your system from the SAP LogonPad.

- b) Enter the key of the client you have been allocated, your user name, **SCM630-##**, the initial password and the language key, and confirm the entries with *Enter*.
 - c) The first time you log on to the system, you will be prompted to choose a password for yourself and to repeat the password.
2. In the initial screen, you can see the SAP ECC standard menu. Branch to the *Logistics Execution* area menu and open the sub-areas for inbound and outbound processes.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process*.
 - b) Choose *Logistics* → *Logistics Execution* → *Outbound Process*.



Lesson Summary

You should now be able to:

- Name the elements of Logistics Execution
- Describe the function of Logistics Execution within SAP ECC

Lesson: Main Features of Warehouse Management

Lesson Overview

This lesson presents the basic functions of Warehouse Management in SAP ECC. You will learn which interfaces are available for connecting Warehouse Management to SAP ECC application components and external systems.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe how the Warehouse Management fits into Logistics Execution
- Describe the main functions of Warehouse Management
- Name the interfaces to external systems and other applications of SAP ECC

Business Example

The first thing the decision-makers in your company want to do is get an overview of the functions of Warehouse Management.

Warehouse Management in Logistics Execution

As of SAP R/3 4.5, Warehouse Management is part of **Logistics Execution**. This subsolution groups all of the main functions of Logistics Execution that were assigned to Sales and Distribution (SD) and Materials Management (MM), up to and including SAP R/3 4.0. Warehouse Management allows you to map all of the processes in Logistics Execution. Whether sales orders have to be fulfilled or production supplied with components, whether goods delivered from a vendor or finished products from in-house production have to be put away, Warehouse Management provides the necessary tools.

Basic Functions of Warehouse Management

Warehouse Management in SAP ECC contains the following five basic functions:



- Inventory Management exact to storage bin level
- Mapping and control of all goods movements
- Monitoring of the processing of these goods movements
- Connection to mobile data entry as part of the integrated radio frequency solution
- Connection to specialist external systems using an interface

While **Inventory Management**, as part of Materials Management, can only provide information on the **total** quantity of material in stock, **Warehouse Management** enables a precise specification of the **exact** location of a particular quantity of material and informs you whether this quantity is currently in a storage bin or on the move.

These movements of storage bin stocks are generally triggered by goods receipts and goods issues, or stock transfers. Warehouse Management in SAP ECC uses a special document, the **transfer order** to map and control warehouse movements. When you create a transfer order, the system checks all of the relevant settings at master data or Customizing level and uses this data to determine suitable storage bins to put away or pick stock. You can, however, specify bins and bin stock manually.

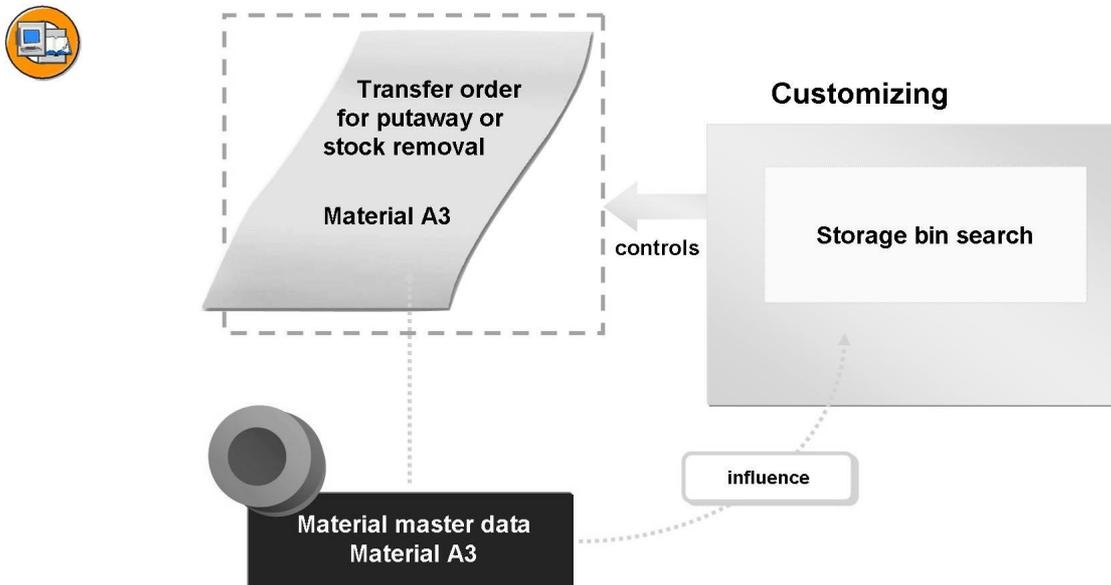


Figure 4: Movement control using a transfer order

Even with a completely configured system, there can be errors from time to time, or someone might forget to process open documents, so Warehouse Management is equipped with **monitoring tools**.



Note: The tool that is most important for day-to-day work is the **warehouse activity monitor**, which allows you to identify and correct errors in a timely fashion.

As of SAP R/3 4.6B, a solution is available for direct **connection of mobile data entry devices** to Warehouse Management. This is based on radio frequency (RF) technology and is neutral in terms of hardware. The transactions in SAP ECC for using RF solutions cover almost all inbound and outbound activities. Stocks can also be packed and loaded, and inventory counted.



Note: The RF solution for Warehouse Management in SAP ECC is discussed more thoroughly in SCM631.

Special requirements in the area of stock control are often provided by **external systems** such as warehouse control units (WCU) or forklift control systems (FCS). You can connect these kinds of systems from specialized providers to SAP ECC using the **WMS-WCU** interface. Configuration of this interface is also part of SCM631.

Interfaces to Other SAP ECC Applications

Warehouse Management in SAP ECC can also exchange data with other application components via interfaces. There are connections to the following components:



- Inventory Management (MM-IM)
- Delivery Processing (LE-SHP)
- Production Planning and Control (PP, PP-PI)
- Quality Management (QM)

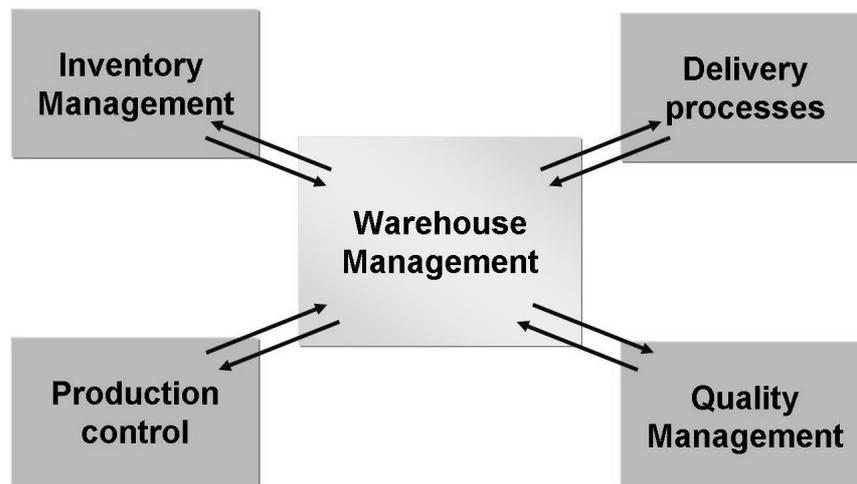


Figure 5: Interfaces to other application components

The interface to **Inventory Management** is the most significant for using Warehouse Management in SAP ECC; Inventory Management postings either trigger Warehouse Management activities or mark their completion in goods

receipts and goods issue processes. The connection to **delivery processing** within Logistics Execution plays a particularly significant role in sales order processing. Generally, goods are picked on the basis of outbound deliveries. If you want to provide a regular supply of components to production, you can use the interface to **Production Control**. Finally, if you use the **Quality Management** component, you can configure the interface to Warehouse Management to control how goods are dealt with in the warehouse if they have to undergo a quality inspection.



Lesson Summary

You should now be able to:

- Describe how the Warehouse Management fits into Logistics Execution
- Describe the main functions of Warehouse Management
- Name the interfaces to external systems and other applications of SAP ECC



Unit Summary

You should now be able to:

- Name the elements of Logistics Execution
- Describe the function of Logistics Execution within SAP ECC
- Describe how the Warehouse Management fits into Logistics Execution
- Describe the main functions of Warehouse Management
- Name the interfaces to external systems and other applications of SAP ECC



Test Your Knowledge

1. Logistics Execution is part of:

Choose the correct answer(s).

- A mySAP ECC
- B mySAP SCM
- C SAP APO
- D mySAP SRM

2. Warehouse Management has interfaces to which of the following application components?

Choose the correct answer(s).

- A Inventory Management
- B Plant Maintenance
- C Quality Management
- D Delivery Processing
- E Financials
- F Production Control



Answers

1. Logistics Execution is part of:

Answer: A, B

Logistics Execution is a part of the mySAP ECC and mySAP SCM solutions.

2. Warehouse Management has interfaces to which of the following application components?

Answer: A, C, D, F

Warehouse Management has interfaces to Inventory Management, Delivery Processing, Production Control, and Quality Management.

Unit 2

Structural Elements

Unit Overview

Before you can map putaway, stock removal, and stock transfer activities in the system, you have to complete some organizational prerequisites. In this unit, you will learn about all the necessary organizational units and master data.



Unit Objectives

After completing this unit, you will be able to:

- Describe the hierarchy of organizational units in Warehouse Management
- Name the basic functions of these organizational units
- Create these organizational units in Customizing
- Explain the meaning of the master data in Warehouse Management
- Create storage bins automatically
- Work with storage bin sort variables
- Explain the meaning of storage locations for Warehouse Management
- Name the various ways of mapping real spacial situations
- Make the necessary assignments in Customizing
- Explain what a "quant" is
- Make the settings necessary for adding to existing stock and for mixed storage
- Check warehouse stocks at quant level

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Lesson: Organizational Units

Lesson Overview

To use the functions of Warehouse Management, you have to create some specific organizational units. This lesson introduces these organizational units and where they are found in Customizing.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the hierarchy of organizational units in Warehouse Management
- Name the basic functions of these organizational units
- Create these organizational units in Customizing

Business Example

To be able to map inbound and outbound processes in Warehouse Management, you first have to enter the relevant spatial conditions in SAP ECC.

The Warehouse Number and its Substructures

The **warehouse number** is the organizational unit at the highest level in Warehouse Management in SAP ECC. It is used to represent the warehouse complex. In practice, the warehouse often corresponds to a physical building or distribution center (DC). Each warehouse number has a **substructure** that maps the spatial relationships in the warehouse complex in detail.

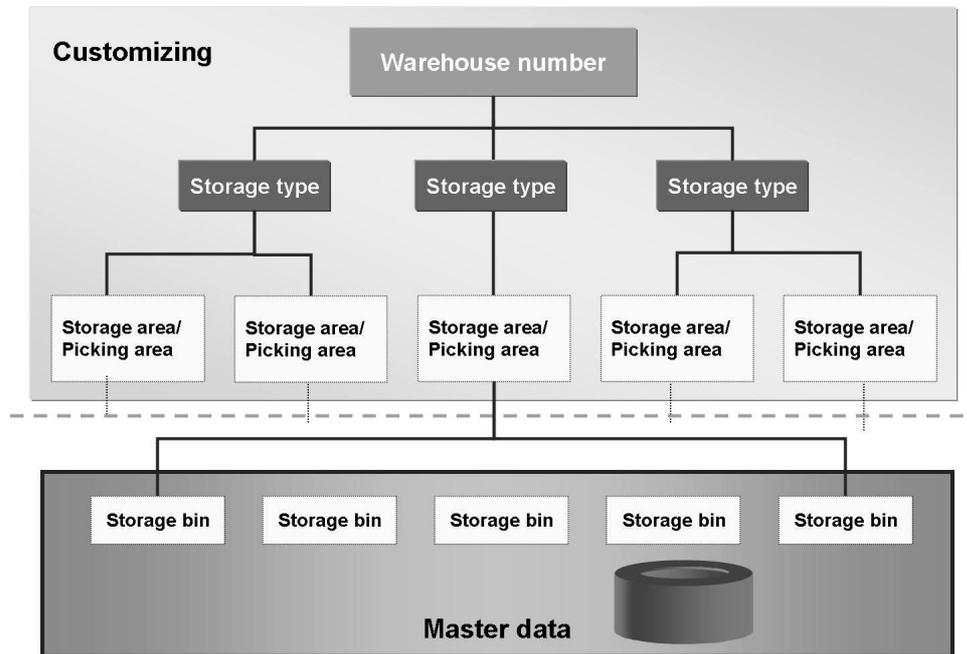


Figure 6: Substructure of the warehouse

Each warehouse number contains a number of subordinate organizational units (depending on the settings in Customizing): **Storage types**, **storage sections**, and **picking areas**.

The **storage type** is used to map a storage space that forms a separate unit within a warehouse number, spatially and/or organizationally. A standard system already contains a certain set of preconfigured storage types, for example: high rack, fixed bin, and bulk storage types. You can modify these templates as required, or add new storage types. Many of the Customizing settings in Warehouse Management are related to the storage type.

The **interim storage areas** play a special role and can generally be recognized at first glance in the standard system by their key (which starts with a **9**). These storage areas form a sort of bridge to Inventory Management. Goods receipt area and goods issue area are typical examples of interim storage areas.



Note: An exception to this convention is the interim storage area **100**, which is used to connect Warehouse Management to Production Control via the WW-PP interface.

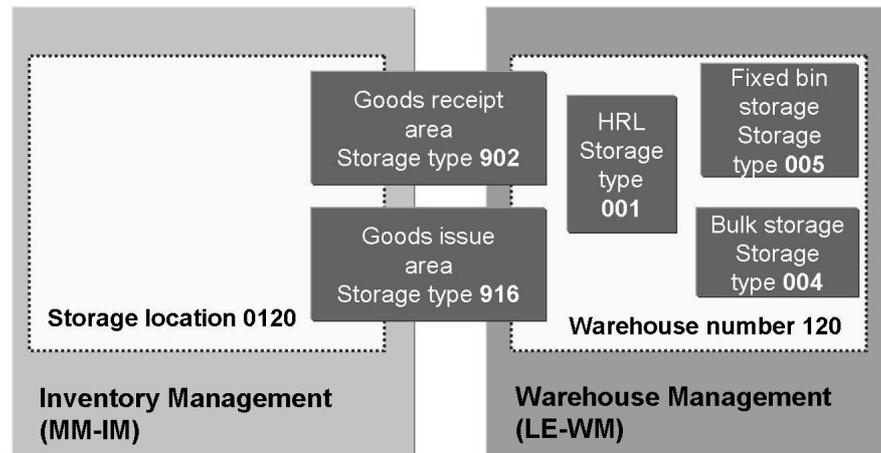


Figure 7: Interim storage areas

Every goods movement that affects both Warehouse Management and Inventory Management is processed using an interim storage area. An everyday example is a goods receipt for a purchase order, which is posted first in Inventory Management. The goods are then brought into the warehouse via an interim storage area, the **goods receipt area**.

A master record is assigned to each storage type in Customizing. This is where you make the settings to control goods receipt and goods issue processes for putaway and removal from storage.

Storage sections are created within storage types to further divide the storage space. There can be various criteria for creating various storage sections. Often, the material to be stored in the storage type plays an important role. It makes sense to store a fast-moving item in easily accessible storage sections, for example, or to store goods that are easily spoiled in a chilled area. The system only takes storage sections into account during **putaway**.



Caution: Even if there is no need to divide the area any further within the storage type, you must create at least **one** storage section for each storage type.

The **picking area** is on the same hierarchical level as the storage section and can be used to subdivide the area of a storage type to control the **stock removal** process. Unlike the storage section, the picking area is an optional organizational unit.

Storage bins are master data and are created within a storage section.

Creating a New Warehouse Number

The standard system is shipped with a partially preconfigured warehouse number, which has the key **001**. You can use this warehouse number as a template for as many copies as you wish, for test purposes in the beginning, and later in the productive system.

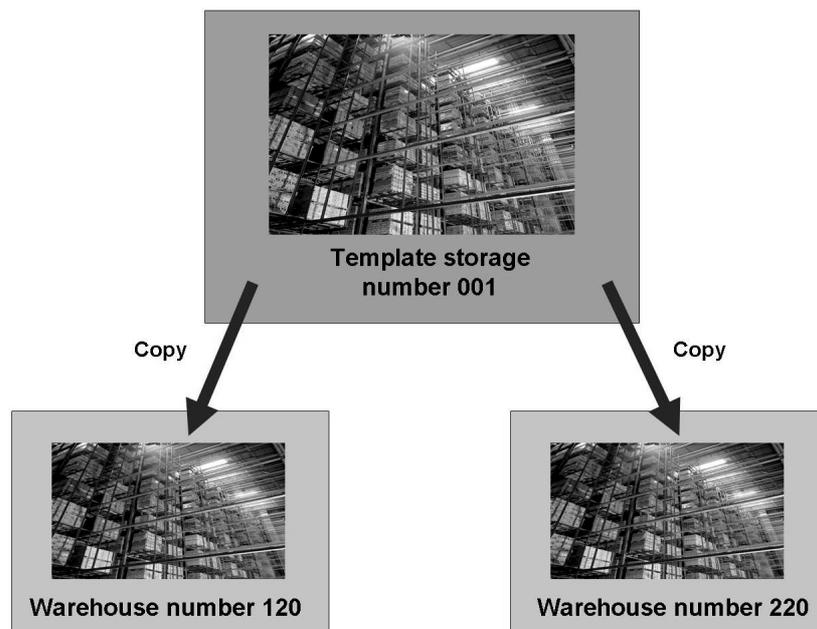


Figure 8: Creating a New Warehouse Number

As is the case with some other organizational units, you can also create a warehouse number by **copying** it from an existing object of the same type. You can freely assign the alphanumeric three-character key that uniquely identifies a warehouse number in a client. When you copy the warehouse number, all of the Customizing settings are adopted in the copy for use as a template. You therefore do not have to create the substructure for the warehouse number that was introduced in the previous section in the copy. If you want to check the scope of the data transfer from the template in detail, you can check the log in transaction EC09.

Creating New Storage Types and New Storage Sections

A newly created warehouse number contains all of the **storage types** transferred from the template, including the Customizing settings. You can modify these, or add more storage types. If you want to add new storage types, you can copy existing storage types with similar settings and simply change the relevant details. You should not create a new storage type without using a template.

You must also create at least one **storage section** for each new storage type, even if you do not need to map a further subdivision of the space in the storage type. You can copy the existing data for this too. The same is valid for picking areas, although you do not have to create these at all if you do not need them.



Creating a New Warehouse Number by Copying from a Template

1. To create a new warehouse number by copying from a template, choose *Enterprise Structure* in Customizing. You can reach the correct table from the application menu by choosing *Tools* → *Customizing* → *IMG* → *Edit Project*. Choose the *SAP Reference IMG* button and then, in Customizing, choose *Enterprise Structure*. Finally, choose *Definition* → *Logistics Execution* → *Define, copy, delete, check warehouse number* and select the entry *Copy/delete/check warehouse number*.
2. Copy a suitable warehouse number (if in doubt, copy the template warehouse number **001**). On the *Organizational Object Warehouse Number* screen, choose *Copy org. object* . In the next screen, *Copy*, enter the key of the template warehouse number in the *From Warehouse No.* field and the key of your new warehouse number in the *To Warehouse No.* field. Confirm these entries with *Enter*. The system now copies all of the Customizing settings from the template to the new warehouse number.



Note: To call the log of the copy operation, choose *Utilities* under the menu option *Log analysis or Extras ? Techn. Log*. You can also display all of the **tables** assigned to the organizational object “warehouse number.” Choose *Extras* → *Associated tables*.

3. To change the description of the new warehouse number, choose *Enterprise Structure* → *Definition* → *Logistics Execution* → *Define, copy, delete, check warehouse number* → *Define warehouse number*. Select the table entry for your warehouse number and overwrite the text copied from the template with a text of your choice. Save your entries.

Exercise 2: Basic Warehouse Management Customizing

Exercise Objectives

After completing this exercise, you will be able to:

- Create new storage types and storage sections

Business Example

You have had a new high-rack storage area built and you want to integrate this into the warehouse.

Task:

Create a new high rack storage area with the key **015** as a storage type in your warehouse number, **1##**. Divide the area of this new storage type into storage sections for fast and slow moving items. Also create a new goods receipt area with the key **802**.



Caution: Make sure that you only work in the warehouse number specific to your group, **1##** (and not in the template warehouse number **001** by mistake).

1. Go to the storage type master data in Customizing for Warehouse Management.
2. Use the storage type **001** that exists in your warehouse number **1##**, which is also a high rack storage area, as a template for the new storage type. You can adopt the settings in the template, without any changes.



Hint: To call the copy function, choose *Copy As...* .

3. Create the two storage sections for “slow-moving” and “fast-moving” items in the new storage type, **015**, in warehouse number **1##**. You can use any three-character alphanumeric keys, for example **001** and **002**.



Hint: Your new storage type is not automatically included in the table of storage sections. You must add these entries manually. Here too, you can copy an existing entry.

Continued on next page

4. Create a new storage type, “goods receipt area,” in your warehouse number, **1##**, as a copy of storage type **902**. Use **802** as the key for the new storage type. Create a new storage section (for example with the key **001** and description “total section”) in the storage type.

Solution 2: Basic Warehouse Management Customizing

Task:

Create a new high rack storage area with the key **015** as a storage type in your warehouse number, **1##**. Divide the area of this new storage type into storage sections for fast and slow moving items. Also create a new goods receipt area with the key **802**.



Caution: Make sure that you only work in the warehouse number specific to your group, **1##** (and not in the template warehouse number **001** by mistake).

1. Go to the storage type master data in Customizing for Warehouse Management.
 - a) To reach Customizing, choose *Tools* → *Customizing* → *IMG* → *Edit Project* and then choose the *SAP Reference IMG* button.
 - b) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*.
2. Use the storage type **001** that exists in your warehouse number **1##**, which is also a high rack storage area, as a template for the new storage type. You can adopt the settings in the template, without any changes.



Hint: To call the copy function, choose *Copy As...*

- a) Select storage type **001** in your warehouse number **1##** and choose *Copy As...* .
- b) In the *Storage Type* field, overwrite the key of the template (**001**) with the key of your new storage type (**015**) and change the storage type description. Confirm your entries with *Enter* and save to create the new storage type.

Continued on next page

3. Create the two storage sections for “slow-moving” and “fast-moving” items in the new storage type, **015**, in warehouse number **1##**. You can use any three-character alphanumeric keys, for example **001** and **002**.



Hint: Your new storage type is not automatically included in the table of storage sections. You must add these entries manually. Here too, you can copy an existing entry.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Sections* and then the *New Entries* button.
- b) Enter the data for the first storage section, **001**, as follows:

Warehouse number	1##
Storage type	015
Storage section	001
Storage section description	Fast-moving items

Do the same for the second storage section, **002** (“slow-moving items”). Save your entries.

Continued on next page

4. Create a new storage type, “goods receipt area,” in your warehouse number, **1##**, as a copy of storage type **902**. Use **802** as the key for the new storage type. Create a new storage section (for example with the key **001** and description “total section”) in the storage type.
- Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **902** in warehouse number **1##** and choose *Copy As...* .
 - Overwrite the key of the template (**902**) with the key of your new storage type (**802**) and change the storage type description. Confirm your entries with *Enter* and create the new storage type by saving.
 - Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Sections* and then the *New Entries* button.
 - Enter the data for storage section **001** as follows:

Warehouse number	1##
Storage type	802
Storage section	For example 001
Storage section description	For example, total section

Save your entries.



Lesson Summary

You should now be able to:

- Describe the hierarchy of organizational units in Warehouse Management
- Name the basic functions of these organizational units
- Create these organizational units in Customizing

Lesson: Storage Bins as Warehouse Management Master Data

Lesson Overview

In Warehouse Management, storage bins are master data created either from the application menu or in Customizing. Based on this master data, the stock overview in Warehouse Management shows the exact whereabouts of a material quantity in the warehouse.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the meaning of the master data in Warehouse Management
- Create storage bins automatically
- Work with storage bin sort variables

Business Example

In the future, your company wants to manage its material stocks down to storage bin level. Therefore after the warehouse number, storage types, and storage sections have been created, storage bins have to be created in all of the storage sections.

Construction of a Storage Bin Master Record

Storage bins are always created within a storage section. You can also assign a picking area and, where necessary, a fire containment section for hazardous goods management. Every storage bin is uniquely identified by **coordinates** in the storage type. Up to 10 characters are available for constructing the storage bin coordinates. You can use alphanumeric characters and a selection of other characters (such as hyphens) for the coordinates.

Storage bins can also be assigned to a **storage bin type**. Storage bin types are optional categories that you define freely in Customizing for Warehouse Management in order to roughly specify the dimensions of your storage bins.



Note: In the training system, you will find examples such as “bulk size 1” or “bin width 2 m”. The storage bin type is therefore a general indicator for a certain group of storage bins.

Storage bin types are particularly useful if storage bins of a particular storage type or storage section within a storage type have different dimensions.

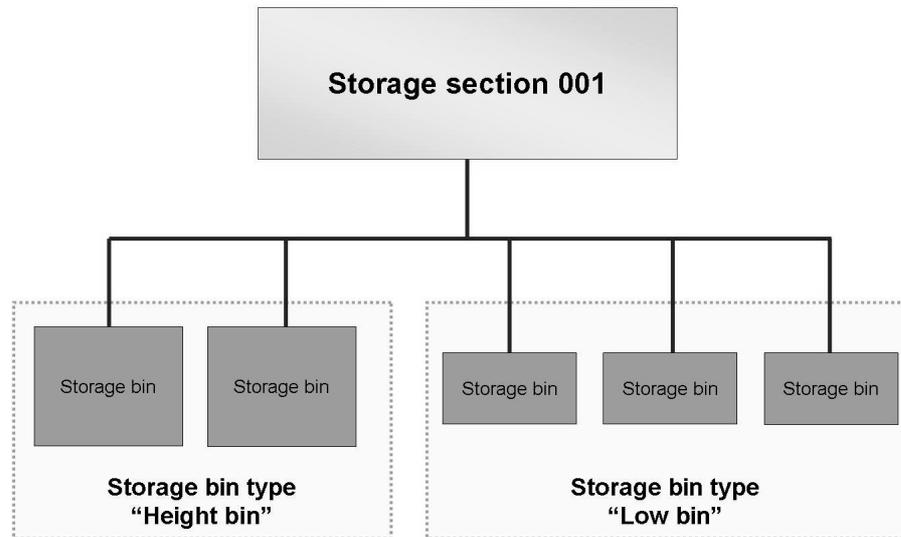


Figure 9: Storage bin types

The system can use the storage bin types in the **storage unit type check** to determine whether the **load carriers** intended for the current putaway activity are suitable for the storage bin that was determined by the system, based on the Customizing settings or information that was entered manually by the user. In Customizing, storage bin types (groups of storage bins) are assigned to groups of (permitted) load carriers (**storage unit types**) for this purpose.

You can also make optional entries for the maximum weight a storage bin can hold and its total capacity. These entries are only taken into account by the system if the capacity check has been activated at storage type level with the corresponding method.

If a storage bin has stock, this stock is displayed in detail in the storage bin master data record. You can also tell from the master record whether the storage bin inventory has already been counted in the current fiscal year, and you can view the results of the count. You can block a storage bin for putaway and/or stock removal directly from its master record. However, if you want to block a large number of storage bins, you can use a special transaction, *Block/Unblock Several Storage Bins Simultaneously* (transaction code LS06). The system cannot access blocked storage bins during putaway, stock removal, and posting change activities.

Creating Storage Bins

In practice, the sheer number of bins needed means that it is inefficient to manually create the storage bins individually. To create a large number of similar storage bins, you can use the transaction for “automatically” creating storage bin structure (transaction code LS10).



Note: The transaction is also in Customizing under *Logistics Execution* → *Warehouse Management* → *Master Data* → *Storage Bins* → *Define Storage Bin Structure*.

To use this mass maintenance option, you must define a grid that tells the system the structure of the storage bin coordinates, as well as the start and end values. The actual storage bin creation can occur either immediately or at a later time in a batch input procedure.



The screenshot shows the SAP LS10 transaction interface. The title bar reads 'Sicht "Lagerplatzstruktur für maschinelles Anlegen" ändern: Detail'. The main area is divided into two sections:

Platzdefinition

Schablone	NNCNCNCNC
Struktur	AA BB CC
Startwert	03-01-01
Endwert	03-10-10
Inkrement	01-01-01

Weitere Daten

Lagerbereich	001	Gesamtbereich
Kommissionierbereich		
Lagerplatztyp	E1	Platz Höhe 1 m
Max. Gewicht	1.000,000	KG
Gesamtkapazität		
Brandabschnitt	A	Brandabschnitt A

At the bottom right of the window, the transaction code 'LS10' and user 'lwd9004' are visible.

Figure 10: Grid for creating storage bins

At the end of this lesson there is a description of the procedure for creating storage bins automatically.

Using Sort Variables

During putaway in an empty storage bin, the system uses an **index of empty storage bins** that is usually created on the basis of the complete storage bin coordinates. If a storage bin becomes empty as a result of stock removal, or if a previously empty bin is filled following a putaway activity, the system updates the empty bin index. If the coordinates are formed using a “shelf - stack - level” structure, as is typical for shelf storage, the system first fills all the levels of a stack from bottom to top and then fills all of the stacks, shelf-by-shelf from front

to back. This process can lead to an unbalanced load in the warehouse, where individual shelves are (almost completely) filled, whereas others are (almost completely) empty.

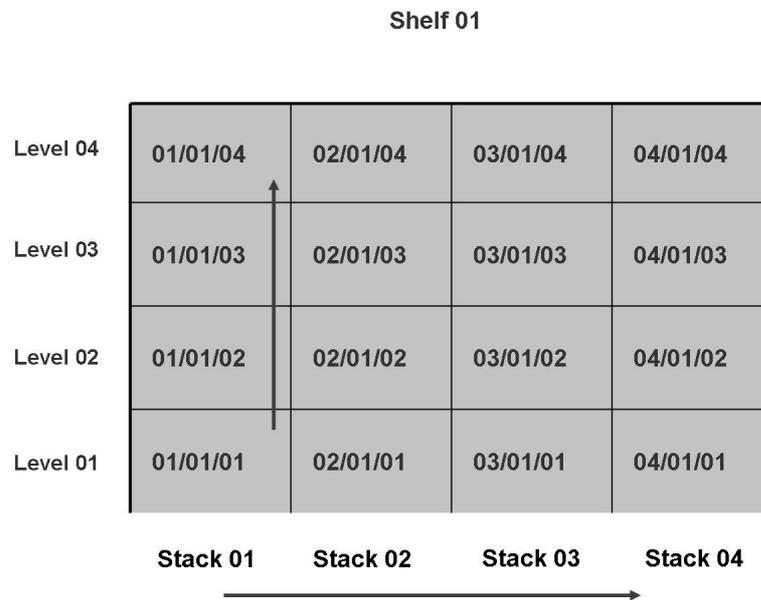


Figure 11: Putaway without sort variables

Using **sort variables**, which you assign to a storage type in Customizing, you can achieve **cross-line stock putaway**, that is, putaway across the direction of the shelves or aisles.

Note: In a standard system, there is a suggestion for using a sort variable for putaway, which is configured for storage type **001** in template warehouse number **001**.

Depending on the sort variables, certain parts of the total coordinates are not taken into account during the creation of the index of empty storage bins. In the preconfigured example, there is an eight-character coordinate structure and the index is created on the basis of levels and stacks only, where the level part is in first position.

Warehouse number	Storage type	1	2	3	4	5	6	7	8	9	10
001	001				3	4		1	2		

When storage bins are created in storage type **001**, the system generates **sort fields** on the basis of the Customizing settings and writes these in the storage bin master data record. The storage bin with the coordinates **01-04-02** therefore has the sort field **0204**.



Note: You can display the sort fields for your storage bins either in the individual master data records (in the *Storage bin* view) or in most of the stock displays or collective change transactions in Warehouse Management. You can make subsequent changes using the transaction *Change Several Storage Bins Simultaneously* (transaction code LS11).

If you use the sort variable shown above, the system starts by putting goods away in the first level in the the first column in every shelf (in a completely empty storage type). It then moves to the first level of the second column of each shelf and fills them. Once the first level is completely full, the system moves onto the second level and proceeds in the same way. In this way, the entire warehouse is filled from bottom to top and from front to back **across** the direction of the aisles. Figure 13 shows shelf storage schematically from a “bird's eye view.” Each stack of a shelf (S01, S02, and so on) has a certain number of levels, which are not marked in this diagram:.

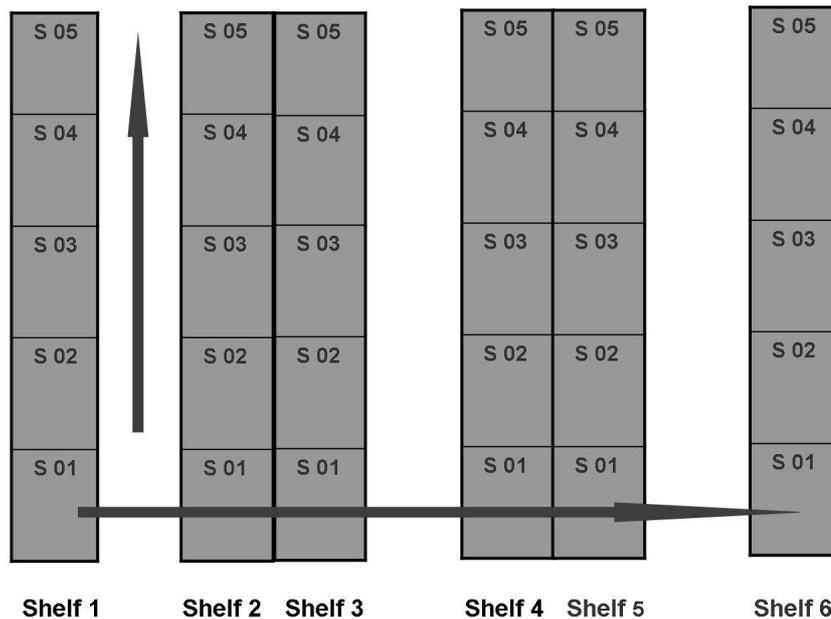


Figure 12: Cross-line stock putaway

To define sort variables for storage types, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Define Stock Sequence for Putaways (Cross-Line Stock Putaway)* or *Define Sort Sequence for Stock Removal (Picking)* and then *Definition of Sort Field in Storage Bin* or *Definition of Sequence Field in Storage Field*.



Creating Storage Bins Automatically

1. From the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Storage Bin* → *Create* → *Automatically* and then choose the *New Entries* button to define a new storage bin structure. You can also copy or change an existing storage bin structure.
2. First, enter the warehouse number, storage type, and sequence number. You can use the sequence number to find the storage bin structure later if you want to create more new storage bins on the basis of this storage bin structure.
3. Define the actual storage bin structure for the storage bin generation in the *Bin definition* section. It is advisable to enter the coordinates for the **first** new storage bin in the *Start value* field. In the next step, enter the structure of the character sequence of the coordinates in the *Template* field. Indicators are used for alphabetic characters (**A**), numeric characters (**N**), and other characters that remain unchanged during the incrementation of the start value (**C**). Example: The coordinates **A-01-01** based on the template **ACNNCNNCCC**.



Caution: You must always fill out all **10** places of the field. If you do not need to use all of the places, enter the indicator **C** in the unused positions.

In the *structure* field, enter letters to specify which parts of the coordinates are to increment independently of each other. In our example, the coordinate elements **A** (for example for the shelf), **01** (for the stacks), and **01** (for the levels) are to be incremented separately. This gives a coordinate structure **A BB CC**.



Hint: The F1 help for the *Structure* contains more examples that can help you to fill this field correctly.

Enter the coordinates of the last planned storage bin in the *End value* field using the same pattern as the start value. Finally, enter the value by which the individual coordinate elements are to increment in the *Increment* field.



Caution: Make sure that these values are exactly below the elements that are to be incremented.

4. In the last step of the storage bin structure definition, enter the storage section and, if required, the picking area and/or fire containment section to which the storage bins are assigned in the *Additional data* section. Depending on the settings at storage type level, you may have to make entries for the storage bin type and the total capacity.

Continued on next page

5. To create storage bins on the basis of the storage bin structure you have defined, choose *Environment* → *Create Bins* from the transaction menu. Check the result of the creation simulation (*X Storage bins to be created*) and choose either *Create online* for immediate creation, or *Create by batch input* to create the bins at a later time. If required, you can then save your storage bin structure so that you can use it again in the future.

Exercise 3: Automatic Creation of Storage Bins

Exercise Objectives

After completing this exercise, you will be able to:

- Create large numbers of storage bins at once

Business Example

You need storage bins in the system for your new high rack storage.

Task:

Create storage bins automatically in storage type **015** in your warehouse number, **1##**, in both storage sections **001** and **002**. The bins in the first storage section have different dimensions; there are wide and less wide bins.

1. First, create a grid for the storage bins in storage section **001** in your storage type, **015**. The start value of your bin coordinates should be **A-01-01** and the end value should be **B-05-05**. All three coordinate elements should increase separately by an increment of **1**. The storage bins all have a width of one meter.



Hint: Use **storage bin types** to map the various dimensions of the storage bins.

2. Create the new bins. First check the number and coordinate sequence in the simulation. How many bins have been generated? Save your grid for use at a later time.
3. Create a second series of storage bins in storage area **001**. The start value should be **C-01-01** and the end value should be **D-05-05**. The bins are two meters wide.



Hint: Copy your first template and change the sequence number, start and end values, and the storage bin type.

4. Proceed in the same way for the second storage section, **002**. However, the start value for the bin coordinates in this storage section should be **E-01-01** and the end value should be **F-05-05**. These bins are also two meters wide.

Solution 3: Automatic Creation of Storage Bins

Task:

Create storage bins automatically in storage type **015** in your warehouse number, **1##**, in both storage sections **001** and **002**. The bins in the first storage section have different dimensions; there are wide and less wide bins.

1. First, create a grid for the storage bins in storage section **001** in your storage type, **015**. The start value of your bin coordinates should be **A-01-01** and the end value should be **B-05-05**. All three coordinate elements should increase separately by an increment of **1**. The storage bins all have a width of one meter.



Hint: Use **storage bin types** to map the various dimensions of the storage bins.

- a) From the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Storage Bin* → *Create* → *Automatically* and then choose *New Entries*.
- b) Enter the warehouse number **1##**, storage type **015** and the sequence number **1**.
- c) Then fill the fields in the *Bin definition* section as follows:

Template	ACNNC>NNCCC
Structure	A BB CC
Start value	A-01-01
End value	B-05-05
Increment	1 1 1



Caution: Enter the increment value exactly below the coordinate element that is to increase.

- d) Fill the fields in the *Additional Data* sections with the following values and confirm the entries with *Enter*.

Storage section	001
Storage bin type	P1

Continued on next page

2. Create the new bins. First check the number and coordinate sequence in the simulation. How many bins have been generated? Save your grid for use at a later time.
 - a) Choose *Environment* → *Create Bins* in the transaction menu. **50** new bins will be created.
 - b) Choose *Create online* to generate the bins in the database.
 - c) Confirm the warning message (“Do you wish to create the bins?”) with *Yes*. Exit the transaction and save your entries.
3. Create a second series of storage bins in storage area **001**. The start value should be **C-01-01** and the end value should be **D-05-05**. The bins are two meters wide.



Hint: Copy your first template and change the sequence number, start and end values, and the storage bin type.

- a) In the storage bin structure table, select the entry from the first two steps of the exercise for storage type **015** in warehouse number **1##** and choose *Copy As...* .
- b) Overwrite the sequence number with **2**, the start value with **C-01-01**, the end value with **D-05-05**, and the storage bin type with **P2**. Confirm your entries with *Enter*.
- c) Select the new table entry and choose *Detail* .
- d) Choose *Environment* → *Create Bins* in the transaction menu. The simulation shows **50** new bins.
- e) Choose *Create online* to generate the bins in the database.
- f) Confirm the warning message with *Yes*, leave the transaction, and save your second grid.

Continued on next page

4. Proceed in the same way for the second storage section, **002**. However, the start value for the bin coordinates in this storage section should be **E-01-01** and the end value should be **F-05-05**. These bins are also two meters wide.
 - a) Select the entry for your warehouse number, **1##**, and storage type **015** with sequence number **1**. Choose *Copy As...* .
 - b) Overwrite the sequence number with **3**, the start value with **E-01-01**, the end value with **F-05-05**, the storage section with **002**, and the storage bin type with **P2**. Confirm your entries with *Enter*.
 - c) Select the new table entry and choose *Detail* .
 - d) Choose *Environment* → *Create Bins*. The simulation shows **50** new bins.
 - e) Choose *Create online* to generate the bins in the database.
 - f) Confirm the warning message with *Yes*, leave the transaction, and save your third grid.



Lesson Summary

You should now be able to:

- Explain the meaning of the master data in Warehouse Management
- Create storage bins automatically
- Work with storage bin sort variables

Lesson: Organizational Connection to Inventory Management

Lesson Overview

To use Warehouse Management in SAP ECC, you have to make sure that it is connected to Inventory Management. This lesson deals with the possible types of connection.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the meaning of storage locations for Warehouse Management
- Name the various ways of mapping real spacial situations
- Make the necessary assignments in Customizing

Business Example

Before you can use the newly set up Warehouse Management system, it has to be connected to the existing Inventory Management component. You need to examine and compare the possible alternatives.

Storage Location and Warehouse Number

To use a **warehouse number**, you always have to connect it to at least one **combination of plant and storage location**. This forms the connection with Inventory management that is needed to map goods receipt, goods issue, and posting change activities.



Figure 13: Connection of Warehouse Management to Inventory Management

The storage location is the organizational unit of **quantity-based** Inventory Management.



Note: **Value-based** Inventory Management is at valuation area level, where the valuation area corresponds to a plant or a company code.

If you only use Inventory Management, the **storage location** organizational unit is usually used to map **storage areas** in the system. Therefore, as the name suggests, the storage location indicates where a material is stored in an enterprise. The introduction of Warehouse Management in SAP ECC fundamentally changes this situation: The **warehouse number** and its substructure (storage types, storage sections, picking areas, and storage bins) are used to map the spacial relationships. The **warehouse number** stands for everything, that is, the warehouse building. The **storage types** make up the actual storage spaces (such as high rack or fixed bin storage, goods receipt area) in the system. These can be divided further by using storage sections and picking areas. The storage location is therefore a virtual entity. It is still necessary as an organizational unit so that material stocks can be managed on a quantity-basis, but it no longer has anything to do with the spacial situation. From a Warehouse Management perspective, a single storage location is sufficient. However, there may be reasons from an Inventory Management point of view for having several storage locations. For example, you may want to divide stocks according to different product lines or special stocks. You may also want to split blocked stock or stock in quality inspection from unrestricted-use stock using a separate storage location.

Connection of Warehouse Management to Inventory Management

To use Warehouse Management in SAP ECC, you need to connect every warehouse number defined in Customizing to at least one plant-location combination. You do not, however, have to connect every storage location that has been created within a plant in Inventory Management to a warehouse number. Certain stocks -- for example, packaging materials or consumable materials that are stored in a few fixed bins -- do not require storage bin management. Several plant / storage location combinations can be connected to the same warehouse number. Again, the spacial situation is a crucial factor in this case. On the other hand, it is not possible to assign a plant-storage location combination to two or more warehouse numbers. The following figures show example scenarios.

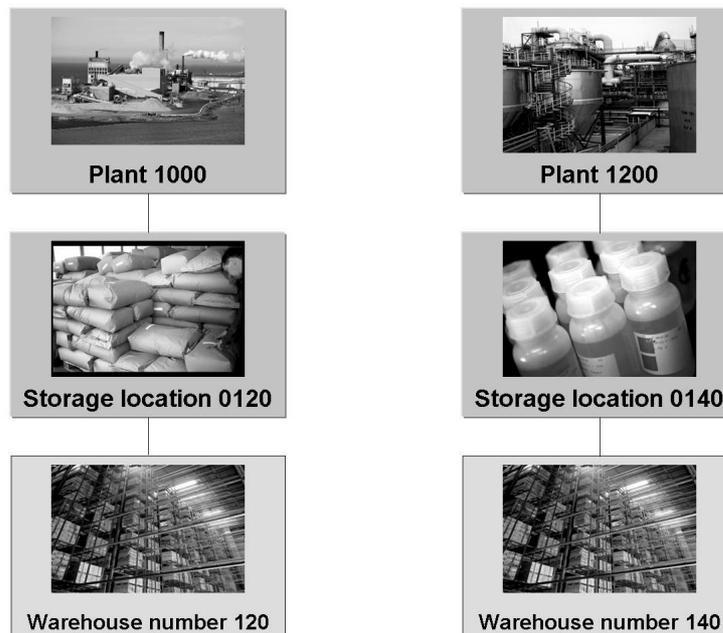


Figure 14: Example 1: Splitting stock in Warehouse Management

In the first example, the stock from plant 1000 and plant 1200 is managed in separate warehouse numbers. This form is typical for cases in which different production or distribution locations have separate warehouse buildings.

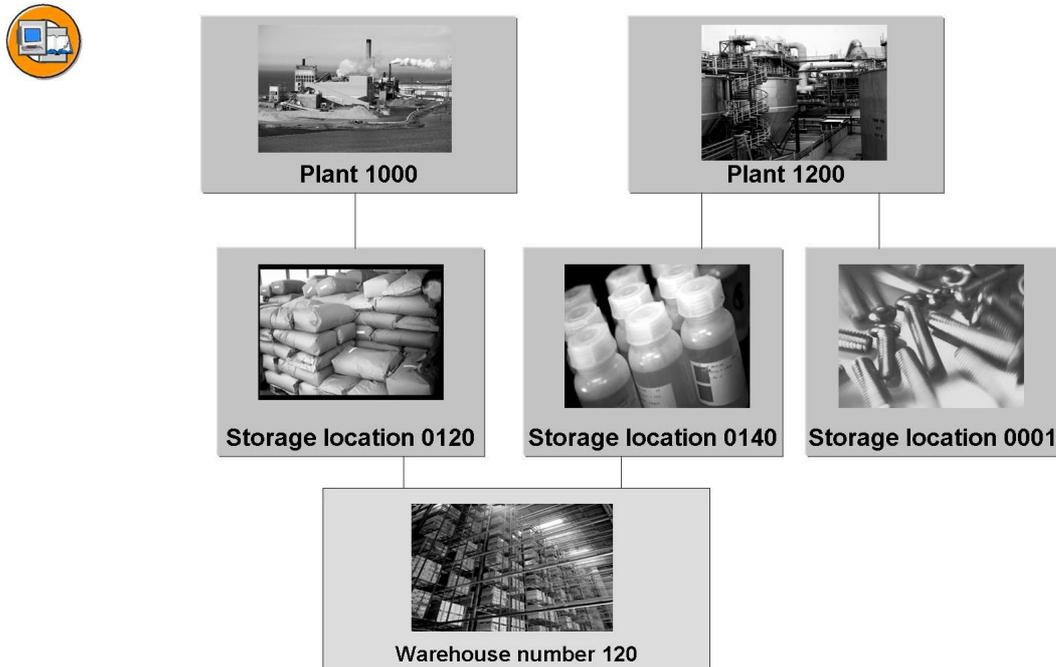


Figure 15: Example 2a: Storing different stock together

In the first version of the second example, two plant / storage location combinations (plant 1000/storage location 0120 and plant 1200/storage location 0140) are connected to the **same** warehouse number. In this case, various production locations or distribution centers access the same central warehouse. The stock from storage location 0001 in plant 1200 is not subject to Warehouse Management.



Note: You can see then that you do not have to include **all** stock in Warehouse Management. If you want to exclude stock, do not connect the corresponding storage location to a warehouse number.

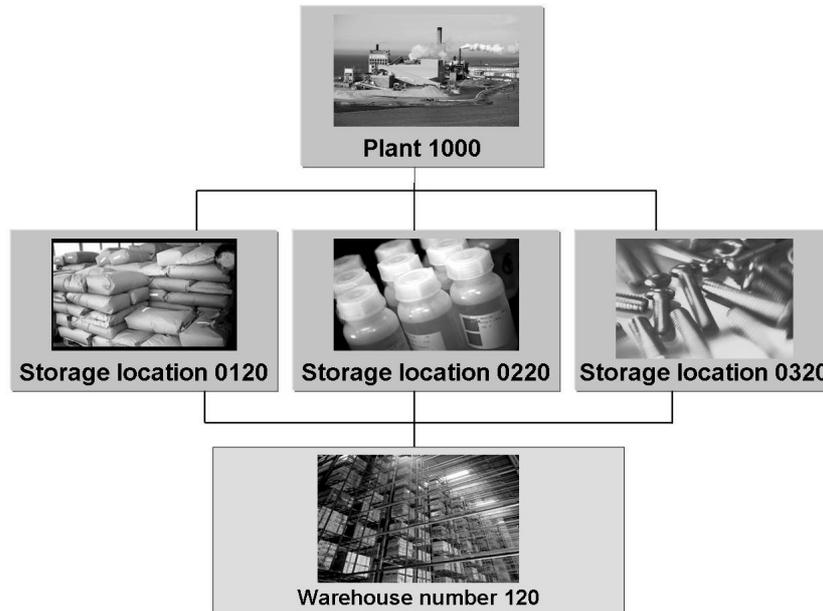


Figure 16: Example 2b: Storing different stock together

In the second variation of the second example, the same warehouse number is assigned to different plant / storage location combinations. However, there is only **one** plant with stock distributed amongst three storage locations for quantity-based Inventory Management reasons. This may be because the materials belong to different product lines or have different owners.

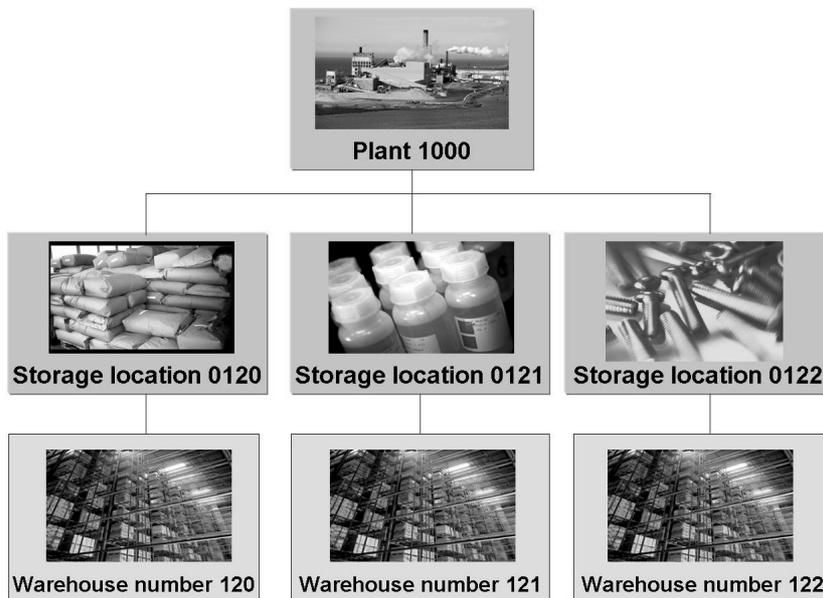


Figure 17: Example 3: Separate storage of stock from different storage locations

It is also possible to connect the various storage locations of a plant to separate warehouse numbers. You will find that this is the case for your group-specific organizational data in the training system.

You connect a plant / storage location combination to a warehouse number in Customizing for the enterprise structure under *Assignment* in the *Logistics Execution* area (*Assign warehouse number to plant/storage location*).

Exercise 4: Connection of Warehouse Management to Inventory Management

Exercise Objectives

After completing this exercise, you will be able to:

- Assign a warehouse number to a plant / storage location combination

Business Example

Inventory Management requires an additional storage location. The stock from this storage location should be managed in the new warehouse number.

Task:

First check the current connection between your warehouse number, **1##**, and Inventory Management.

1. In Customizing, call the table for assigning warehouse numbers to plant / storage location combinations and search for the entry for your warehouse number, **1##**. To which combination of plant and storage location is your warehouse number assigned?
2. In enterprise structure Customizing, create a new storage location, **02##**, in plant **1000** and assign this combination of plant and storage location to your warehouse number, **1##**.



Hint: You create storage locations in the enterprise structure under *Definition* → *Materials Management* → *Maintain Storage Location*.

Solution 4: Connection of Warehouse Management to Inventory Management

Task:

First check the current connection between your warehouse number, **1##**, and Inventory Management.

1. In Customizing, call the table for assigning warehouse numbers to plant / storage location combinations and search for the entry for your warehouse number, **1##**. To which combination of plant and storage location is your warehouse number assigned?
 - a) Choose *Enterprise Structure* → *Assignment* → *Logistics Execution* → *Assign Warehouse Number to Plant/Storage Location*.
 - b) Your warehouse number, **1##**, is assigned to plant **1000** and storage location **01##**.
2. In enterprise structure Customizing, create a new storage location, **02##**, in plant **1000** and assign this combination of plant and storage location to your warehouse number, **1##**.



Hint: You create storage locations in the enterprise structure under *Definition* → *Materials Management* → *Maintain Storage Location*.

- a) Choose *Enterprise Structure* → *Definition* → *Material Management* → *Maintain Storage Location* and enter plant **1000** in the subsequent screen for selecting the work area. Confirm your entry with *Enter*.
- b) Choose *New Entries*. Enter the new storage location key **02##** and a description of your choice. Save your entries.
- c) Choose *Enterprise Structure* → *Assignment* → *Logistics Execution* → *Assign Warehouse Number to Plant/Storage Location* and then choose *New Entries*. Add an entry for the combination of plant **1000**, storage location **02##**, and warehouse number **1##**. Save your entries.



Lesson Summary

You should now be able to:

- Explain the meaning of storage locations for Warehouse Management
- Name the various ways of mapping real spacial situations
- Make the necessary assignments in Customizing

Lesson: The Quant

Lesson Overview

This lesson deals with the details of managing material stocks at storage bin level.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain what a "quant" is
- Make the settings necessary for adding to existing stock and for mixed storage
- Check warehouse stocks at quant level

Business Example

Your company wants to manage its material stocks at storage bin level in the future. You need to decide whether to keep bin stock non-mixed or to mix goods within a storage bin, and whether to add to existing stock in a bin.

The Quant

The content of a storage bin is called a **quant** in SAP ECC. A quant is therefore a material quantity in a storage bin. In Warehouse Management in SAP ECC, materials can only be considered and moved in quant form. The concrete number of materials and the unit(s) of measure are irrelevant; A quant of a material can consist of one or x pieces, kilograms, or liters. However the **criteria** the system uses during putaway and stock removal to decide which material quantity forms **one** quant or **several** quants on one or several **storage bins** is fixed. The criteria for quant formation/splitting are:



- Material number
 - Stock type or category
 - Special stock assignment
 - Plant and storage location
- and, where applicable,
- The material's batch number

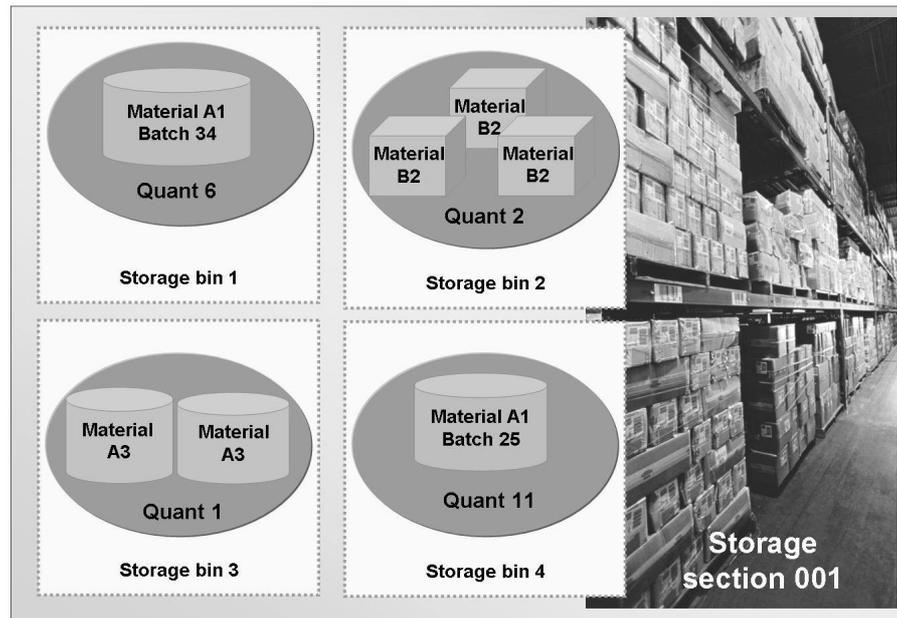


Figure 18: The quant

The stock type, special stock indicator, plant, and storage location are Inventory Management-relevant information for the material. Inventory Management usually decides which **stock type** a material belongs to during posting. This means that Inventory Management can post a goods receipt for part of a material quantity as unrestricted use stock, part to quality inspection stock, and part to blocked stock. The same is valid for **special stock**; Partial quantities of a material can, for example, be flagged as project stock, and others as consignment stock at a customer. If the inventory of a material is managed in different storage locations -- for example, to map the different owners of the material -- then the **plant/storage location assignment** of a certain material quantity is significant. Whatever decisions Inventory Management makes for a material during its posting activities, these criteria must be met consistently for a particular material quantity before it can form **one** quant in a storage bin. Therefore if, on receipt, a material is put away that was posted partly as unrestricted use stock and partly as quality inspection stock, the system creates at least two quants.

If you implement batch management as a cross-component function, then the **batch number** of a material quantity is also a quant criterion. If the **batch management requirement** is activated at material master level, the affected batch must be entered for each goods movement. In Warehouse Management, you have to be able to recognize to which batch a material quantity belongs, which is why a quant only ever contains material from one batch.

If **storage unit management** has been activated in a storage type, the **storage unit number** has a quant-splitting role. If you use storage unit management, the system considers the material quantity and the load carrier (for example, pallet or wire basket) as a unit and assigns a number to this unit during putaway based on a

number range defined in Customizing. The storage unit is identified and moved around in the warehouse using this number. Materials continue to be put away and removed from storage in quant form but the quants are part of the storage units. However, a quant can only be in **one** storage unit. This means that if a material quantity for putaway is divided among several storage units, a corresponding number of quants is created.



Note: Storage unit management is a topic in SCM631.

From the moment it is created, each quant has its own **data record** that can be displayed directly or called from the stock overviews in Warehouse Management. As well as the quant criteria and storage information, this data record also contains the **goods receipt date** and -- if required -- the shelf life expiration date for the quant. The time of the last movement and the document number are also recorded. The system assigns a number to each quant on the basis of a number range. This number is also in the data record. The number is only used for updating the quant in the database and is not required by the user.

Addition to Existing Stock and Mixed Storage

A storage bin that already contains a quant of a material can take additional quantities of the same material if the quant criteria are the same (plant, storage location, stock type, and, where applicable, special stock indicator and batch number). The prerequisite is that the storage type the storage bin is in allows **addition to existing stock**.

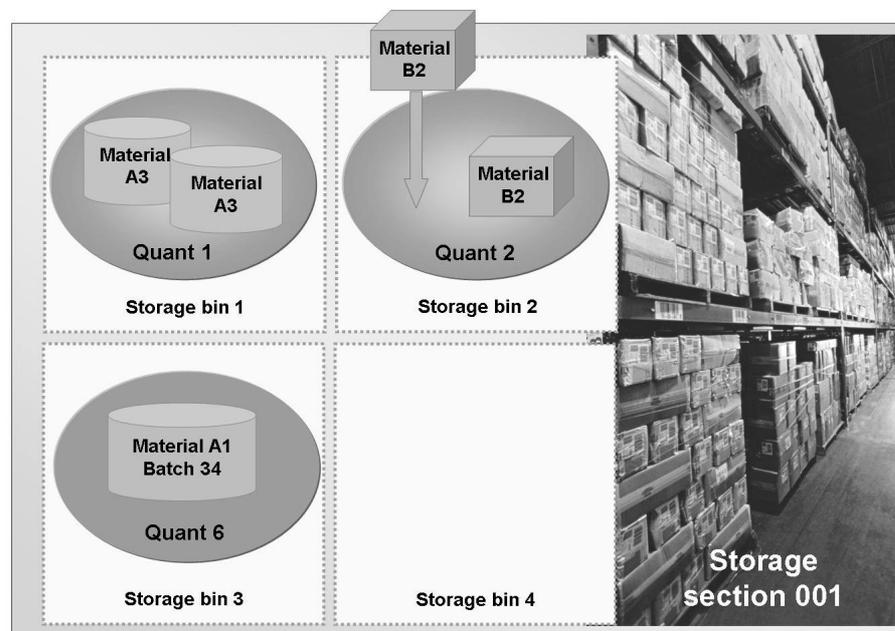


Figure 19: Addition to existing stock

A storage bin in a storage type that allows addition to existing stock, only ever contains **one** quant. However, this quant can be increased or decreased as a result of putaway and stock removal activities.



Caution: If there is an addition to existing stock, the goods receipt date of the quant being added is lost when the quants are merged. This means that the quant always refers to the goods receipt date of the **first** putaway.

If more than one quant is to be stored in one storage bin, you have to allow **mixed storage** for the storage type.

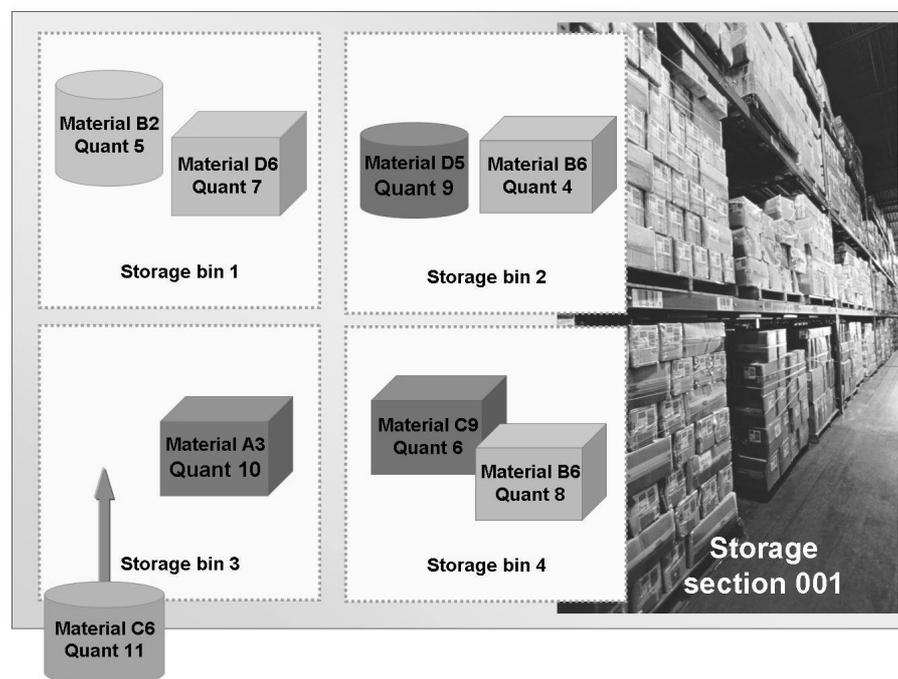


Figure 20: Mixed storage

With mixed storage, several materials or, for example, several batches of the same material can be stored in **one** storage bin. There are several capacity check procedures available for each storage type and putaway strategy to ensure that storage bins are not overloaded when there are additions to stock or mixed storage.

The decision about addition to storage and mixed storage is made for each storage type as part of **putaway control**. You make the required settings in Customizing for Warehouse Management under *Master Data* → *Define Storage Type* for mixed

storage and addition to stock. An empty field means that there is a general ban, and an **X** indicates general permission. Addition to stock can also be permitted for particular materials (indicator **M**).



Note: The indicator **M** in Customizing for the storage type corresponds to an indicator in the material master record. If this is activated in the material master, the system permits addition to stock for this material and this material only.

There are special options for the combination of mixed storage and storage unit management (indicators **A**, **C**, and **P**).

Exercise 5: Displaying Storage Bin Stocks

Exercise Objectives

After completing this exercise, you will be able to:

- Check the storage bin stock in the stock overview in Warehouse Management

Business Example

You want to check the storage bin stock of a material in your warehouse.

Task:

Display the stocks of your material, **T-BW02-##**, in your warehouse number, **1##**.

1. Call the stock overview for your material in your warehouse number. In which storage type is the material? Among how many storage bins is the total quantity divided?
2. Display the data record of the quant in one of the storage bins via the master record of the bin.

Solution 5: Displaying Storage Bin Stocks

Task:

Display the stocks of your material, **T-BW02-##**, in your warehouse number, **1##**.

1. Call the stock overview for your material in your warehouse number. In which storage type is the material? Among how many storage bins is the total quantity divided?
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your warehouse number, **1##**, and your material number, **T-BW02-##**, and confirm the selection with *Enter*. The material is in high rack storage (storage type **001**).
 - b) Place the cursor on the row highlighted in white for the plant/storage location stock and choose *Bin stock*. The total quantity is spread equally among 10 storage bins.
2. Display the data record of the quant in one of the storage bins via the master record of the bin.
 - a) Place the cursor on one of the storage bin coordinates and left-click to branch to the master record of the selected storage bin.
 - b) In the *Stock per storage bin* area, select the material row, and choose *Quant*.



Lesson Summary

You should now be able to:

- Explain what a "quant" is
- Make the settings necessary for adding to existing stock and for mixed storage
- Check warehouse stocks at quant level



Unit Summary

You should now be able to:

- Describe the hierarchy of organizational units in Warehouse Management
- Name the basic functions of these organizational units
- Create these organizational units in Customizing
- Explain the meaning of the master data in Warehouse Management
- Create storage bins automatically
- Work with storage bin sort variables
- Explain the meaning of storage locations for Warehouse Management
- Name the various ways of mapping real spacial situations
- Make the necessary assignments in Customizing
- Explain what a "quant" is
- Make the settings necessary for adding to existing stock and for mixed storage
- Check warehouse stocks at quant level



Test Your Knowledge

1. Name the four organizational units in Warehouse Management.

2. To which category do storage bins belong?

3. Which organizational units represent the spatial conditions within the warehouse?

Choose the correct answer(s).

- A Warehouse number
- B Plant
- C Storage location
- D Storage type

4. Warehouse numbers are connected to plant / storage location combinations in Customizing. Which of the assignments below are possible?

Choose the correct answer(s).

- A Several different plant / storage location combinations to one warehouse number
- B One plant and several of its storage locations to one warehouse number
- C One plant / storage location combination to two storage numbers
- D One plant and all of its storage locations each to a different warehouse number

5. A quant is a material quantity in a storage bin formed according to certain criteria.

Determine whether this statement is true or false.

- True
- False

6. The batch number is a quant criteria.
Determine whether this statement is true or false.
- True
 - False
7. Addition to existing stock and mixed storage are permitted or forbidden according to the warehouse number.
Determine whether this statement is true or false.
- True
 - False



Answers

1. Name the four organizational units in Warehouse Management.

Answer: Warehouse number, storage type, storage section, and picking area

2. To which category do storage bins belong?

Answer: Storage bins belong to the Warehouse Management master data.

3. Which organizational units represent the spatial conditions within the warehouse?

Answer: A, D

The warehouse number and its storage types represent the spatial conditions in the warehouse.

4. Warehouse numbers are connected to plant / storage location combinations in Customizing. Which of the assignments below are possible?

Answer: A, B, D

A plant-storage location combination can only be connected to **one** storage number.

5. A quant is a material quantity in a storage bin formed according to certain criteria.

Answer: True

The statement is true.

6. The batch number is a quant criteria.

Answer: True

The statement is true.

7. Addition to existing stock and mixed storage are permitted or forbidden according to the warehouse number.

Answer: False

The decision about addition to existing stock and mixed storage is made at **storage type level**.

Unit 3

The Interface Between Inventory Management and Warehouse Management

Unit Overview

Warehouse Management in SAP ECC is closely linked to Inventory Management, a function of Materials Management. In this unit, you will learn how Warehouse Management and Inventory Management combine, and how you can influence the way they interact.



Unit Objectives

After completing this unit, you will be able to:

- Explain the technical processes involved in connecting Warehouse Management to Inventory Management
- Use movement types in Warehouse Management
- Set up the interim storage area and interim storage bin search
- Distinguish between "immediate" and "automatic" transfer order creation
- Set up immediate transfer order creation
- Set up automatic transfer order creation
- Explain the function of the special movement indicator
- Create and assign special indicators for movement
- Use special indicators for movement in processes
- Describe the functions of storage location control in Warehouse Management
- Set up storage location control
- Use storage location references

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Lesson: Movement Types

Lesson Overview

This lesson deals with the **process-related** connection between Warehouse Management and Inventory Management with the help of movement types.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the technical processes involved in connecting Warehouse Management to Inventory Management
- Use movement types in Warehouse Management
- Set up the interim storage area and interim storage bin search

Business Example

Goods receipt and goods issue postings should trigger follow-on processes in Warehouse Management. You need to check the effects of certain Inventory Management postings in Warehouse Management.

Movement Types

In **Inventory Management**, **movement types** play a central role as the instrument for controlling goods receipt, goods issue, and posting change activities. For every goods movement, you therefore have to specify a three-character key to identify the movement type that controls the movement. In the SAP ECC standard system, for example, the key **101** describes the movement type “goods receipt,” either for a purchase order or a work order.



Note: The system uses **movement indicators** to differentiate between goods receipts postings for purchase orders and those for work orders. Movement indicator **B** stands for a goods movement for a purchase order, whereas movement indicator **F** stands for a goods movement for a work order. The system determines the movement indicator for the movement type on the basis of the transaction code of the transaction used for the posting activity.

The movement type not only specifies the direction of the goods movement, it also decides on the update of the stock and consumption accounts and the screen layout of the transactions for the movement posting. Basic settings for batch management and shelf-life expiration data management are also made at movement type level.

Warehouse Management also has movement types which, similar to their counterparts in Inventory Management, control the **process flow in the warehouse**. In particular, Warehouse Management movement types influence the

interim storage area to be used (the **organizational** bridge between Inventory Management and Warehouse Management). You link the movement types from Inventory Management to the Warehouse Management movement types in Customizing to ensure a **technical** connection between WM and IM. For example, if a goods receipt for a purchase order or work order is posted using Inventory Management movement type 101 to a storage location with Warehouse Management, the system determines the corresponding Warehouse Management movement type and, depending on the settings for the WM movement type, generates stock in a “goods receipt” interim storage area.

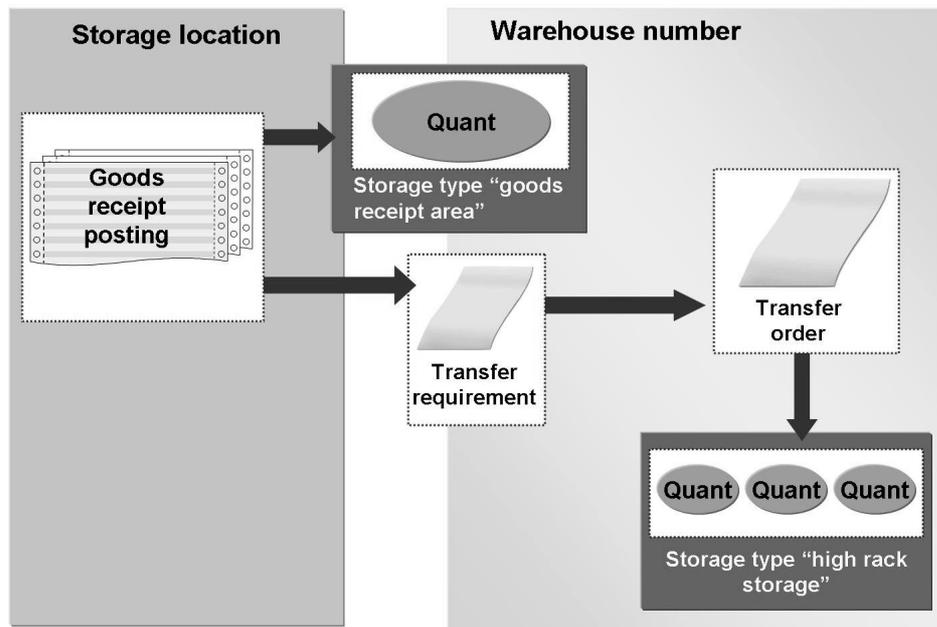


Figure 21: Flow of a goods receipt process

The connection between movement types from Inventory Management and Warehouse Management is not direct: it is made using a **reference movement type**.

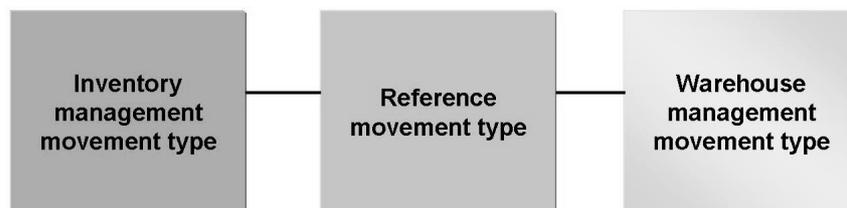


Figure 22: Connection of the movement types

The reference movement type itself has no controlling function. If one Inventory Management movement type does not correspond to exactly one Warehouse Management movement type, the reference movement type can be used to either:

- Connect various movement types in Inventory Management to a single Warehouse Management movement type
- Assign one Inventory Management movement type to several movement types in Warehouse Management

If you do not want to connect an Inventory Management movement type to Warehouse Management, you must assign reference movement type **999**. This means that posting activities with this movement type do not have any consequences for Warehouse Management, even if the affected storage location is subject to Warehouse Management. An example is a goods receipt posting for account assignment to consumption (Inventory Management movement type **101**, consumption indicator **V**).

The Inventory Management movement type is connected to the reference movement type in one table, and the reference movement type is linked to the Warehouse Management movement type in a different table. The second table is important for detailed control of the Warehouse Management processes.

Interim Storage Area and Interim Storage Bin Search

Every Inventory Management posting that affects a storage location **subject to Warehouse Management** generates at least one **quant** in an **interim storage area** in the connected warehouse number. In many cases, interim storage areas represent spatial areas. Typical examples are goods receipt and goods issue areas. An interim storage area can, however, also be a virtual unit, for example, an interim storage area for posting change activities that do not involve a stock transfer.

The Warehouse Management movement type decides which interim storage type is affected by an Inventory Management posting. Figure 24 shows an extract from the “master data record” of Warehouse Management movement type **101**.



Warehouse number	120	Central warehouse	
Movement type	101	Goods receipt for purchase order	
	Type	Storage bin	FxdBn Scr.
Src	902		<input type="checkbox"/> <input checked="" type="checkbox"/>
Dest			<input type="checkbox"/> <input type="checkbox"/>
Ret			

Figure 23: Interim storage area and interim storage bin search

If an interim storage area is assigned to a Warehouse Management movement type, the system will assign the storage area every time there is an Inventory Management posting using an IM movement type that corresponds to this WM movement type.

The Warehouse Management movement type also decides on the **storage bin search** in the interim storage area. You can create permanent storage bins within interim storage areas, but **dynamic** storage bins are used in many cases. The system generates these storage bins depending on the activity, and they only exist for the duration of the relevant activity. The storage bin coordinates are created on the basis of the **document number** in order to identify the activity. For a goods receipt, for example, this would be the number of the purchase order or the work order. The **requirement type** decides on the document used to construct the coordinates. This is also an indicator assigned to the Warehouse Management movement type, indicating the cause for a warehouse movement.



Note: Examples of requirement types are **B** (“purchase order”) and **F** (“order”).

If you want to use a permanent storage bin, enter the coordinates of the bin or its description directly in the relevant field in the desired movement type. If, on the other hand, you want to use activity-related movement types, activate the *Scr*: (dynamic storage bin) field in the movement type (at the far right of the interim storage area row).



Note: You must always heed the **direction** of the movement. In the case of a putaway activity, the interim storage area must be entered in the movement type as the **source** storage type because the goods are moved from here into the warehouse. For a stock removal activity, the interim storage type is therefore always the **destination** storage type.

You can create “permanent” storage bins in interim storage areas by entering the bin ID in the WM movement type in the field to the right of the assigned interim storage area. You then let the system generate the storage bin in the database using the transaction *Create bins for Interim Storage Types* (transaction code LX20). You can find this transaction in the application menu under *Logistics → Logistics Execution → Master Data → Warehouse → Storage Bin → Create → For Interim Storage*.

It is also possible to assign a non-interim storage area, such as fixed bin storage, to a movement type if you want to put a material away directly into a fixed bin (without interim storage in the goods receipt area). In this case, activate the *FixBn* (fixed bin) indicator in the relevant movement type (next to the *destination* storage type).

Exercise 6: Movement Type and Interim Storage Type Determination

Exercise Objectives

After completing this exercise, you will be able to:

- Check the connection between Inventory Management and Warehouse Management at movement type level
- Check the assignment of interim storage area to Warehouse Management movement type

Business Example

Goods receipt and goods issue postings should trigger follow-on processes in Warehouse Management. You need to check the effects of certain Inventory Management postings in Warehouse Management.

Task:

Check the continuation of the Inventory Management movement type **101** into Warehouse Management for goods receipts for purchase orders and test the connection using a concrete example.

1. First, check the stocks of material **T-BW03-##** in your warehouse number, **1##**.
2. Now post the goods receipt for a purchase order for 100 pieces of material **T-BW03-##**, which was created in advance. The receiving storage location is **01##** in plant **1000**.



Hint: Use the simplified search help (*Search for PO* ) to find your purchase order.

3. Check your stocks again. What changes can you see?
4. Display the **transfer requirements** that must have been created by the goods receipt posting. Determine the Warehouse Management movement type that will control the subsequent putaway processes.



Hint: You can find this information in the document header.

Continued on next page

5. Call the table in which the Inventory Management movement types are assigned to reference movement types in Customizing for Warehouse Management. Check the assignment for Inventory Management type **101** with movement indicator **B** with simultaneous value and quantity update of stock.
6. Leave the first table and call the second table (*LE-WM Interface to Inventory Management*). How is the process continued into Warehouse Management?



Hint: Check the **cross-warehouse number** entry (***) in field *WhN*).

7. Display Warehouse Management movement type **101**. Check the settings for your warehouse number, **1##**. Which interim storage area is assigned? How are the storage bins in this interim storage area determined?
8. Which setting ensures that a transfer requirement is created for every goods receipt for a purchase order?
9. Putaway the goods with a transfer order for the transfer requirement. Create the **transfer order** in the background and check the stock overview after this step.
10. Confirm the transfer order to complete the putaway process. Check the stocks of material **T-BW03-##** once more.

Solution 6: Movement Type and Interim Storage Type Determination

Task:

Check the continuation of the Inventory Management movement type **101** into Warehouse Management for goods receipts for purchase orders and test the connection using a concrete example.

1. First, check the stocks of material **T-BW03-##** in your warehouse number, **1##**.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*.
 - b) There are already 100 pieces of the material in storage type **001**.
2. Now post the goods receipt for a purchase order for 100 pieces of material **T-BW03-##**, which was created in advance. The receiving storage location is **01##** in plant **1000**.



Hint: Use the simplified search help (*Search for PO* ) to find your purchase order.

- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Other Transactions* → *Enter Goods Receipt for Purchase Order* and then choose *Search for PO* .
 - b) Enter material number **T-BW03-##** and choose *Find*. The number of your purchase order is displayed in the lower third of the screen.
 - c) Transfer the purchase order to the posting screen by double-clicking on the document line. Close the document display by choosing *Close search result* .
 - d) Set the *Item OK* indicator (in the bottom third of the screen) and save your entries. The system generates a material document.
3. Check your stocks again. What changes can you see?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*.
 - b) The receipt of 100 pieces of material **T-BW03-##** is now in the goods receipt area (storage type **902**).

Continued on next page

4. Display the **transfer requirements** that must have been created by the goods receipt posting. Determine the Warehouse Management movement type that will control the subsequent putaway processes.



Hint: You can find this information in the document header.

- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*.
 - b) You can display the transfer requirement by clicking on the document number. Choose *Header* .
 - c) In the *Movement data* section, you can see the Warehouse Management type **101** and in the *Additional Data* section, the Inventory Management type **101**.
5. Call the table in which the Inventory Management movement types are assigned to reference movement types in Customizing for Warehouse Management. Check the assignment for Inventory Management type **101** with movement indicator **B** with simultaneous value and quantity update of stock.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then *Assign WM Movement Type References to IM Movement Types*.
 - b) Choose *Position*, enter the following parameters, and choose *Enter*.

<i>Movement type</i>	101
<i>Value Update</i>	X
<i>Quantity Update</i>	X
<i>Movement indicator</i>	S

Reference movement type **101** is assigned.

Continued on next page

6. Leave the first table and call the second table (*LE-WM Interface to Inventory Management*). How is the process continued into Warehouse Management?



Hint: Check the **cross-warehouse number** entry (***) in field *WhN*.

- a) If you cannot find the entry, you can search for it using the *Position* button. Enter the following search criteria for the goods receipts for purchase orders:

<i>Warehouse number</i>	***
<i>Reference movement type</i>	101
<i>Movement indicator</i>	S

The assigned Warehouse Management movement type also has the key **101**.

7. Display Warehouse Management movement type **101**. Check the settings for your warehouse number, **1##**. Which interim storage area is assigned? How are the storage bins in this interim storage area determined?
- a) Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*. Select movement type **101** in your warehouse number, **1##**.
- b) The assigned interim storage area has the key **902**; the bins are generated **dynamically**.
8. Which setting ensures that a transfer requirement is created for every goods receipt for a purchase order?
- a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then choose *LE-WM Interface to Inventory Management*.
- b) Select the generic entry (***) in the *WhN* field) for reference movement type **101** and movement indicator **B**. In the *TR Create Transfer Requirement* field to the right of the Warehouse Management movement type, you can see the indicator **X** (*create transfer requirement*).

Continued on next page

9. Putaway the goods with a transfer order for the transfer requirement. Create the **transfer order** in the background and check the stock overview after this step.
 - a) In the application menu, choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Create Transfer Order → For Material*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*.
 - b) Select your transfer requirement and choose *TO in Backgr.*. The system generates the transfer order in the background and displays the document number in the status line.
 - c) Choose *Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*.
 - d) The newly received 100 pieces of the material are displayed as both stock for removal in the goods receipt area and as stock for putaway in high rack storage.
10. Confirm the transfer order to complete the putaway process. Check the stocks of material **T-BW03-##** once more.
 - a) Choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Confirm Transfer Order → Single Document → In One Step*.
 - b) In the *Foreground/Backgrnd* field, choose the *Background* indicator and choose *Enter*.
 - c) Call the stock overview: Choose *Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*. The new receipt is not unrestricted stock in high level storage.



Lesson Summary

You should now be able to:

- Explain the technical processes involved in connecting Warehouse Management to Inventory Management
- Use movement types in Warehouse Management
- Set up the interim storage area and interim storage bin search

Lesson: Transfer Order Creation in the Background

Lesson Overview

Putaway, stock removal, and stock transfer activities are always executed using transfer orders. This lesson introduces the various possibilities for automating transfer order creation.



Lesson Objectives

After completing this lesson, you will be able to:

- Distinguish between "immediate" and "automatic" transfer order creation
- Set up immediate transfer order creation
- Set up automatic transfer order creation

Business Example

The putaway and stock removal processes in your company are to be widely automated in the future.

The Transfer Order

The **transfer order** is the central document in Warehouse Management in SAP ECC. Every material movement in the warehouse requires a transfer order, regardless of whether the movement is real (for example, a putaway, stock removal, or stock transfer) or a "virtual" movement (such as a posting change or stock transfer).



Note: A posting change usually changes (at least) one quant characteristic (material number, batch, stock category, special stock indicator, plant, or storage location). Even if the posting change results in the material quantity remaining in the same storage bin, the change to the quant characteristic must be reflected in Warehouse Management with the help of a transfer order.

This lesson explains the use of the transfer order using a goods receipt for a purchase order as an example.

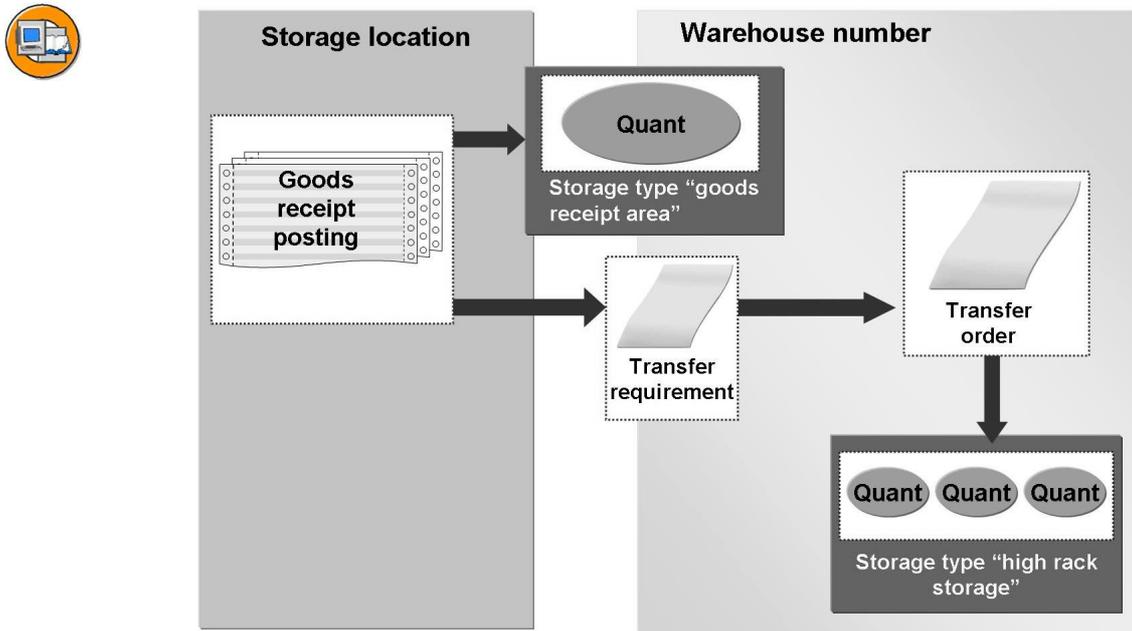


Figure 24: Goods receipt for a purchase order

You must always enter the **storage location** for a goods receipt posting, whether it is for a purchase order or a work order, or has no relation to a document. If the storage location is **subject to Warehouse Management**, the quantity as a result of the goods receipt in Inventory Management is stored as a quant in an **interim storage area** in the receiving **warehouse number**. Generally, the system also creates a **transfer requirement** during posting. This document records the interface movement and also serves as a planning aid for the imminent putaway. The transfer order that controls the putaway is based on the transfer requirement; it copies the information from the transfer requirement as to which materials are to be moved, in which quantities, and from which location in the warehouse. When a transfer order is created, the system uses putaway-relevant settings at master data and Customizing level to determine destination storage types, areas, and bins.

You can create transfer orders manually as individual documents. In practice, however, you have to process a large number of documents in a short time, so it is extremely important to be able to automate processes. Warehouse Management in SAP ECC therefore differentiates between **immediate** and **automatic** (delayed or asynchronous) transfer order creation.

You can print out a transfer order or opt to process it without paper (as part of the radio frequency solution). Transfer order printing is not part of the message control in SAP ECC; it is controlled by a separate set of parameters. These parameters are part of Warehouse Management Customizing. The Warehouse Management movement type decides on the basis of a **print indicator** whether the transfer order is printed and in which form. You can also define which printer

is used for each warehouse movement. You make the necessary Customizing settings in the activity *Define Print Control (Logistics Execution → Warehouse Management → Activities → Define Print Control)*.

Immediate Transfer Order Creation

If you decide to use **immediate** transfer order creation, the system generates the document directly after the previous posting. This means that during a goods receipt posting, the system not only creates a transfer requirement, it immediately creates a transfer order as a subsequent document as well. You can use this option if it is essential that there is no delay in continuing a process in the warehouse. You make the decision for immediate transfer order creation in the Warehouse Management movement type. If you set the relevant indicator for movement type **101**, for example, the system creates a transfer requirement **and** a transfer order for each goods receipt posting for a purchase order.

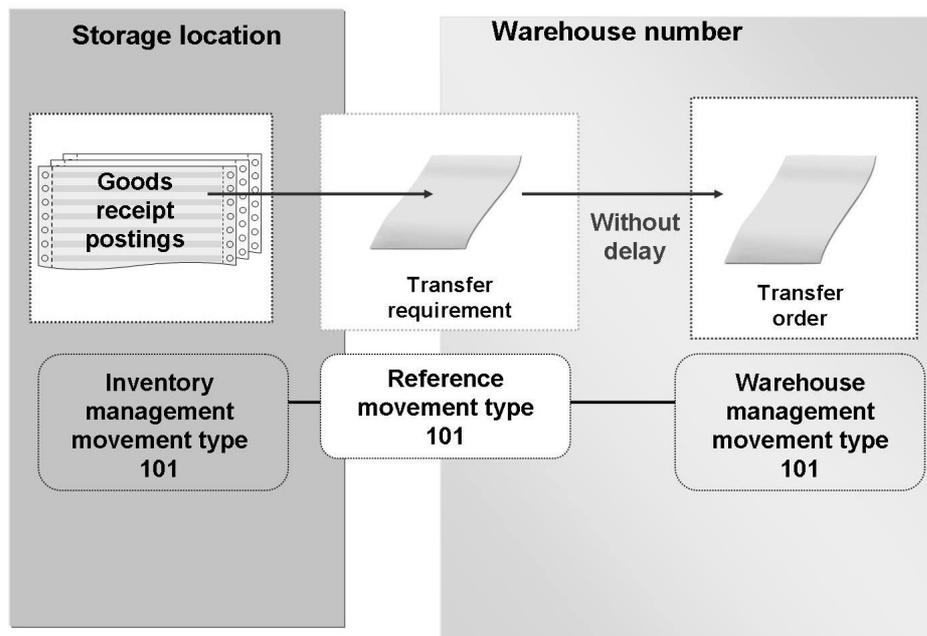


Figure 25: Immediate Transfer Order Creation

You can also set an indicator so that the system sends a message if an error occurs. You define this indicator in Customizing for Warehouse Management. You can also decide whether the recipient of the message should be the document user or a specially defined user. This means that if there is an error in creating the transfer order for the goods receipt posting, either the user who posted the goods receipt or another appointed employee receives the message.

Automatic Transfer Order Creation

During **automatic** transfer order creation, the system first sets a predefined **indicator** in the document header of the transfer requirement created as a result of a movement posting in Inventory Management. The transfer order for this transfer requirement is created by report **RLAUTA10**, which is scheduled as a regular job. This process allows you to match the creation of transfer orders to the rhythm of the work in the warehouse. If required, multiple processing can take place in quiet periods to avoid impairing system performance.

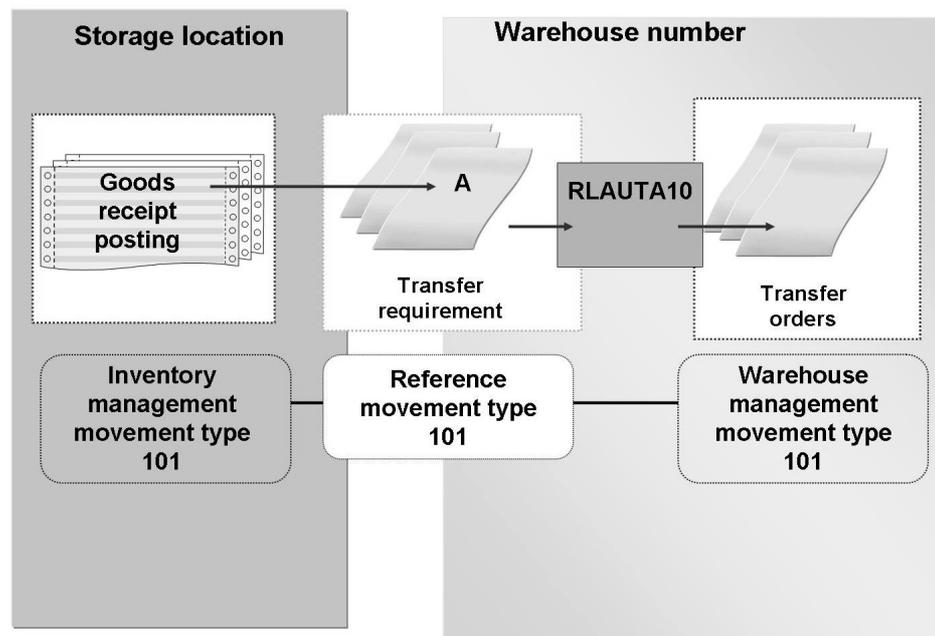


Figure 26: Automatic Transfer Order Creation

You decide for each Warehouse Management movement type whether automatic transfer order creation is possible by setting an indicator in the master data for the movement type. As in immediate transfer order creation, you can also set up mail control in case of errors in automatic document processing.



Note: The indicator for automatic transfer order creation does not stop you from processing the document by hand. Even if a transfer requirement is flagged for automatic processing, you can always create a transfer order by hand before the report starts. The system then flags the transfer requirement as “complete” and does not include it in the report for background processing.



Activating Immediate Transfer Order Creation for a Movement Type

1. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types*. Choose *LE-WM Interface to Inventory Management*.
2. If there is no entry for the warehouse number affected by the change, copy the generic entry shipped with the standard system (***) in the *WhN* field). If you want goods receipts for purchase orders in a warehouse number to be processed with directly created transfer orders, select the entry for reference movement type **101** and movement indicator **B** (purchase order) that is linked to Warehouse Management movement type **101**. To copy the selected entry, choose *Copy As...* .



Caution: Please do not make any changes to the SAP standard entries.

3. Overwrite the entry *** in the *WhN* field with the key for your warehouse number. In the *Immediate TO creation* field, select the indicator **A** (*Start transfer order creation in the background*) using the input help.
4. For safety's sake, make an entry for your warehouse number in the table for *Mail Control for Background Processing*, in Customizing under *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Activate Automatic TO Creation*. Choose *Assign recipient*. Choose *New Entries* and define an indicator for mail control in your warehouse number, and either assign a user name or activate the *Document User* indicator.
5. Finally, assign the mail control indicator to the table entries you created in steps 1 through 3 in the *Mail Control for Background Processing* field.



Activating Automatic Transfer Order Creation for a Movement Type

1. Define an indicator for automatic transfer order creation in Customizing under *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Set Up Autom. TO Creation for TRs / Posting Change Notices*. Choose *Control data*. Add a new table entry using the *New Entries* button. Specify an indicator for automatic transfer order creation for your warehouse number and set the *Create transfer orders without additional criteria (Addld)* indicator if you do not want to use a user exit for document selection.



Note: You can use a customer enhancement to include additional criteria in the selection of the transfer requirements to be processed.

Enter a description for the new indicator and save your entries.

2. Call the data record for the Warehouse Management movement type that is to be changed (*Logistics Execution* → *Warehouse Management* → *Activities* → *Shipments* → *Define Movement Types*). Select the required movement type and choose *Detail* .
3. As with immediate transfer order creation, you can set up mail control. To do this, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Set Up Autom. TO Creation for TRs / Posting Change Notices* and then choose *Assign recipient* (see the procedure for setting up immediate transfer order creation, step 4).



Hint: For automatic transfer order creation, you can set up the system so that it sends a mail to a predefined recipient after **every** processing run by report **RLAUTA10**. To do this, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Set Up Autom. TO Creation for TRs / Posting Change Notices* and then choose *Control data*. Assign the indicator for mail control in the *Log* field (for all of the relevant table entries).

Exercise 7: Activating Immediate Transfer Order Creation

Exercise Objectives

After completing this exercise, you will be able to:

- Set up immediate transfer order creation for a Warehouse Management movement type

Business Example

In the future, transfers orders for putaway are to be created immediately after the goods receipt posting for goods receipts for purchase orders.

Task:

Set up immediate transfer order creation for Warehouse Management movement type **101**.

1. In Customizing for Warehouse Management, go to the table that links the reference movement types with the Warehouse Management movement types and search for an entry for your warehouse number, **1##**, and reference movement type **101**. Is there already an entry for immediate transfer order creation that you can use for regular cases?
2. Create an entry for immediate transfer order creation for goods receipts for purchase orders in your warehouse number. An express mail should be sent if an error occurs.
3. Test your settings using a goods receipt posting for a purchase order. Search for a purchase order for material **T-BW04-##**, which was created prior to the course.



Hint: In the *Enter goods receipt for purchase order* transaction (transaction code MIGO), you can call the simplified search help using *Search for PO* .

4. Post the goods receipt for this purchase order in plant **1000**, storage location **01##**.
5. Check the stock overview for material **T-BW04-##** in your warehouse number, **1##**. Was the transfer order created immediately for the transfer requirement?
6. Confirm your transfer order.

Solution 7: Activating Immediate Transfer Order Creation

Task:

Set up immediate transfer order creation for Warehouse Management movement type **101**.

1. In Customizing for Warehouse Management, go to the table that links the reference movement types with the Warehouse Management movement types and search for an entry for your warehouse number, **1##**, and reference movement type **101**. Is there already an entry for immediate transfer order creation that you can use for regular cases?
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then choose *LE-WM Interface to Inventory Management*.
 - b) Use the *Position...* button to search for your warehouse number, **1##**.

Selection criteria:

<i>Warehouse No.</i>	1##
<i>RefMvt Type WM</i>	101
<i>Spec. stock ind.</i>	(no entry)
<i>Movement ind.</i>	B
<i>Special Stock</i>	(no entry)
<i>Special movement</i>	(no entry)
<i>Storage loc. ref.</i>	(no entry)

- c) The entry the system takes you to can only be used for immediate putaway of materials that have a **special indicator for movement** for this process in the material master. This means that you also have to create a new entry for the material-independent process flow.



Hint: The special indicator for movement is dealt with in a separate lesson.

Continued on next page

2. Create an entry for immediate transfer order creation for goods receipts for purchase orders in your warehouse number. An express mail should be sent if an error occurs.
 - a) Copy the entry found in the previous task using *Copy As...*  and remove the special movement indicator **A** from the *Movement Indicator* field. Confirm your entry with *Enter* and save the changes.
 - b) To check the mail control, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Activate Automatic TO Creation* and then choose *Assign recipient*. Your user name, **SCM630-##**, is assigned to your warehouse number, **1##**.
3. Test your settings using a goods receipt posting for a purchase order. Search for a purchase order for material **T-BW04-##**, which was created prior to the course.



Hint: In the *Enter goods receipt for purchase order* transaction (transaction code MIGO), you can call the simplified search help using *Search for PO* .

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Enter Goods Receipt for Purchase Order*.
 - b) Search for your purchase order using *Search for PO* . Enter your material number, **T-BW04-##**, and choose *Search*.
 - c) The system should display exactly one purchase order in the lower third of the screen. You can process this purchase order by double-clicking on the document line. Close the list display with *Close search result* .
4. Post the goods receipt for this purchase order in plant **1000**, storage location **01##**.
 - a) Check the details on the *Where* tab page to ensure that the correct plant / storage location combination is proposed from the purchase order.
 - b) Set the *Item OK* indicator and post the goods receipt using the *Post* button (or by saving your entries).

Continued on next page

5. Check the stock overview for material **T-BW04-##** in your warehouse number, **1##**. Was the transfer order created immediately for the transfer requirement?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material **T-BW04-##** and choose *Enter*.
 - b) You should see 80 pieces of material “in movement,” that is, as a pick quantity in the goods receipt area and also as stock for putaway in the high rack or shelf storage.
6. Confirm your transfer order.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Display Transfer Order* → *For Material*. If they are not already proposed by the system, enter your warehouse number and the material number and choose *Execute* .
 - b) Place your cursor between the storage bin coordinates and the quantity in the first transfer order item and choose *Confirmation in Background* .
 - c) Proceed in the same way for the second transfer order item, as described in step 6 b).



Lesson Summary

You should now be able to:

- Distinguish between "immediate" and "automatic" transfer order creation
- Set up immediate transfer order creation
- Set up automatic transfer order creation

Lesson: Special movement indicator

Lesson Overview

You may not always want process control settings in Warehouse Management to be valid for all materials. The special movement indicator is an instrument with which you can restrict the effect of certain settings to selected materials or to individual activities.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the function of the special movement indicator
- Create and assign special indicators for movement
- Use special indicators for movement in processes

Business Example

Some materials should be treated differently during putaway and stock removal.

Function of the Special Movement Indicator

The main purpose of the **special movement indicator** is to deal with selected materials differently during putaway, stock removal, or stock transfer. However, you can also set the indicator independently of material for individual Inventory Management posting activities to control the process flow in the warehouse in a special way. Special treatment could include, for example, transfer order creation for putaway in a particular storage type. The indicator is always used to allow exceptions to the rule without having to enter the details manually.

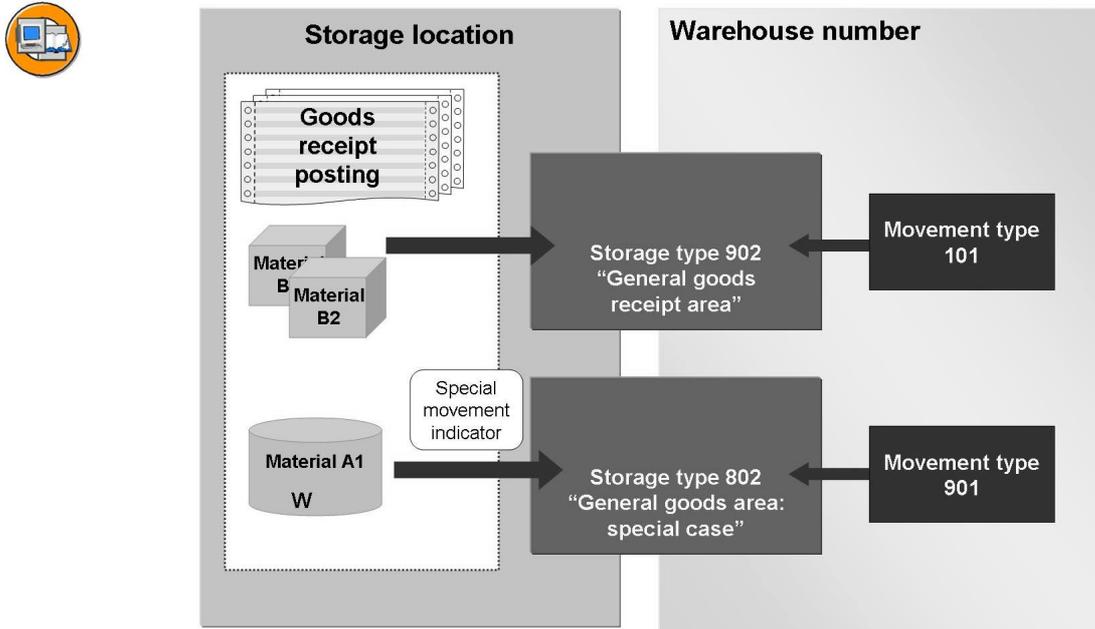


Figure 27: Using a separate movement type

In figure 28, the system steers a certain material towards its own goods receipt zone on goods receipt posting for a purchase order. With the help of the special movement indicator, which you enter in either the material master record or during the goods receipt posting, the system determines a different **Warehouse Management movement type** other than the one defined for the standard process. The movement type for this special processing is assigned to a different **interim storage area** than the standard movement type.

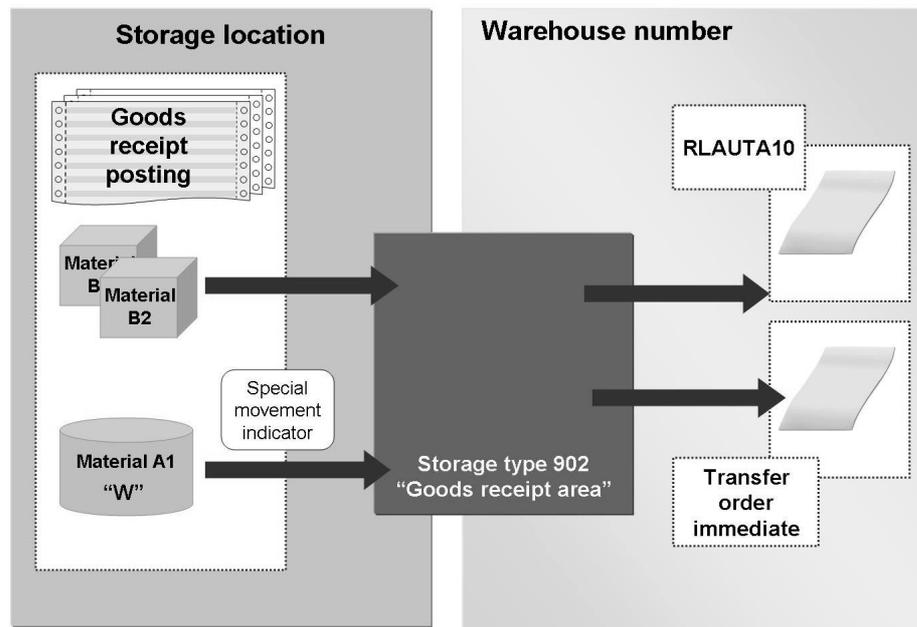


Figure 28: Immediate transfer order creation as an exception

The special movement indicator can also cause **immediate transfer order creation** for certain materials or for individual activities. To do this, you add an entry with the special movement indicator in the table linking the reference movement type and the Warehouse Management movement type. There is a description of this procedure later on in the lesson.



Note: You can set the special movement indicator in the *Enter goods receipt for purchase order* transaction (transaction code MIGO) in the details on the *WM* tab page. An indicator set in the goods movement posting overrides any special movement indicator in the material master record.

Direct Putaway with a Special Movement Indicator

Some kinds of materials, for example certain fluids, are not suited to interim storage in a goods receipt. They are taken straight to the destination storage bin when they arrive (for example, in a road tanker). If the destination storage bin is a **fixed bin**, the special movement indicator can be used to “switch off” Warehouse Management for these kinds of activities without relinquishing Inventory Management at storage bin level.

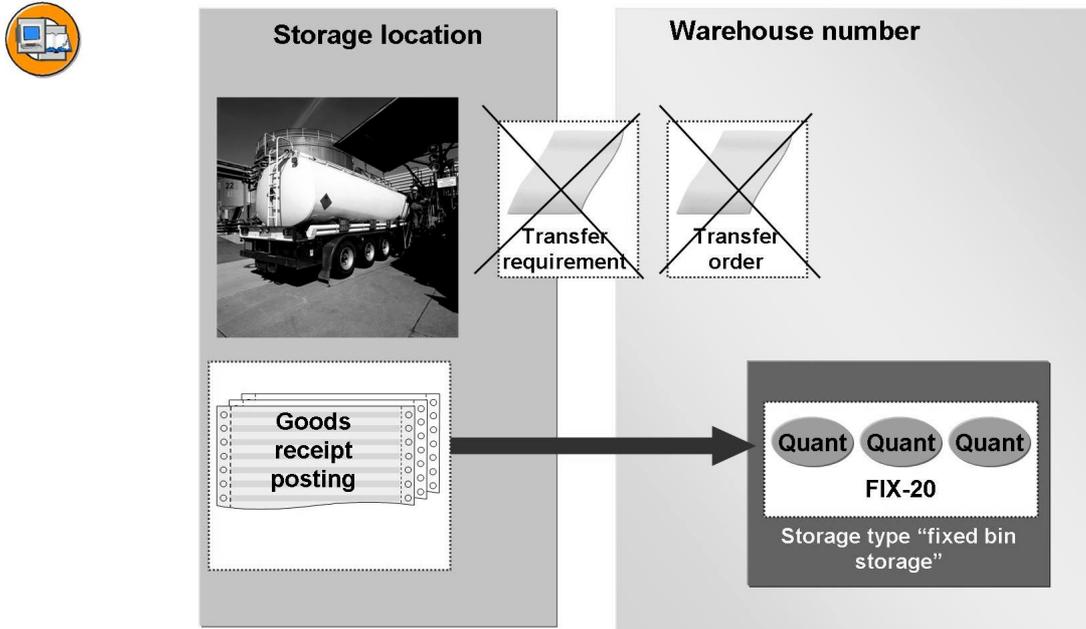


Figure 29: Fixed bin putaway with a special movement indicator

In this case, the goods receipt posting in Inventory Management does **not** trigger creation of a transfer requirement. A transfer order is not required for putaway because the system takes the destination storage type and bin directly from the **Warehouse Management movement type** or the material master. Although the material was not put away using the normal methods of Warehouse Management, the bin stocks are subject to Warehouse Management. This means that the stock removal could be carried out using regular methods.



Defining and Assigning a Special Movement Indicator

1. To define a new special movement indicator, in Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Special Movement Indicators* and then choose *New Entries*. Add a corresponding entry for your warehouse number in the table.
2. Assign the special movement indicator to a material master record. To do this, call the *Warehouse Management 1* view of the relevant material in your warehouse number by choosing *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. The *Special movement* field is in the *Storage strategies* section of this view.
3. Finally, create an entry for your special movement indicator in the table that links the reference movement types with Warehouse Management movement types. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types*. Choose *LE-WM Interface to Inventory Management* and then choose *New Entries*. As the table key, enter your warehouse number, the required reference movement type, the appropriate movement indicator (where appropriate), and the newly defined special movement indicator. Assign the Warehouse Management movement type of your choice and other control indicators (for immediate transfer order creation, for example).



Direct Putaway to a Fixed Bin with Special Movement Indicator

1. First, define a special movement indicator for direct fixed bin putaway. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Special Movement Indicators* and then choose *New Entries*. Add a corresponding entry for your warehouse number in the table.
2. Create a new movement type in your warehouse number for this special process. You can use movement type **101** as a template. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*. Select movement type **101** in warehouse number **6##** and choose *Copy As...* . Overwrite the key of the template movement type with a key of your choice. Replace the interim storage area, **902**, with the key for the fixed bin storage type into which you want to put away the material.



Caution: You must enter the fixed bin storage as the **source** storage type.

Set the *FxdBn* (fixed bin) indicator instead of the *Scr.* indicator (dynamic storage bin). This ensures that the system always steers the putaway towards the fixed bin defined in the material master record of the material. You can leave the other settings as they are.

3. Assign the special movement indicator in the *Warehouse Management 1* view of the material masters of all the materials affected by the special treatment. You can also check in the *Warehouse Management 2* view that a fixed bin is assigned at the correct storage type level.
4. Finally, add an entry for your warehouse number and the special stock indicator in the table linking the reference movement types and the Warehouse Management storage types. Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types*, and then choose *LE-WM Interface to Inventory Management*. In the next screen, choose *New Entries*. As the table key, enter your warehouse number, reference movement type **101**, movement indicator **B**, and your special movement indicator. Assign your newly defined Warehouse Management movement type and leave the *TR Create Transf. Requirement* **empty**.

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Result

The next time a goods receipt is posted for the material with your new special movement indicator, the system will determine the Warehouse Management movement type created for this purpose and will not create a transfer requirement. Instead it will post the received material quantity directly to the fixed bin specified in the material master.

Exercise 8: Putaway with a Special Movement Indicator

Exercise Objectives

After completing this exercise, you will be able to:

- Use the special movement indicator

Business Example

In the future, you want to receive material **T-BW27-##**, which you obtain regularly from a vendor, into a **separate goods receipt area**.

Task:

Create a special movement indicator and assign it to material **T-BW27-##**. Then define a new Warehouse Management movement type. In the next step, link the WM movement type to Inventory Management. Finally, test your settings.

1. In Customizing for Warehouse Management, define a new special movement indicator, **W** (for example “goods receipt”) for your warehouse number, **1##**.
2. Assign this special movement indicator to your material, **T-BW27-##**, in the *Warehouse Management 1* view.
3. Enter a new movement type, **901**, in your warehouse number, **1##**. Assign storage type **802** as an interface storage type.



Hint: You can use movement type **101** as a template.

4. Now add an entry for your warehouse number, **1##**, and special stock indicator **W** in the table linking the reference movement types and the Warehouse Management storage types.
5. Test your settings by posting the goods issue for one of the purchase orders for material **T-BW27-##**, created for you prior to the course. Check the material stock in your warehouse number, **1##**, before and after the goods receipt posting. Did the system send the received goods to your new goods receipt area, **802**?
6. Put away material **T-BW27-##** in the background.

Solution 8: Putaway with a Special Movement Indicator

Task:

Create a special movement indicator and assign it to material **T-BW27-##**. Then define a new Warehouse Management movement type. In the next step, link the WM movement type to Inventory Management. Finally, test your settings.

1. In Customizing for Warehouse Management, define a new special movement indicator, **W** (for example “goods receipt”) for your warehouse number, **1##**.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Special Movement Indicators*.
 - b) Choose *New Entries* and add an entry in the table for your warehouse number, **1##**, and special movement indicator **W**. Give the new indicator a description, for example “Goods receipt,” and save your entries.
2. Assign this special movement indicator to your material, **T-BW27-##**, in the *Warehouse Management 1* view.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately* .
 - b) Enter your material number, **T-BW27-##**, and choose *Enter*.
 - c) Select the *Warehouse Management 1* view and choose *Enter*. Enter your warehouse number, **1##** as an organizational level and choose *Enter*.
 - d) The *Special movement* field is in the *Storage strategies* section. Enter the indicator **W** or select using the input help for the field. Save your changes.

Continued on next page

3. Enter a new movement type, **901**, in your warehouse number, **1##**. Assign storage type **802** as an interface storage type.



Hint: You can use movement type **101** as a template.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*.
 - b) Select movement type **101** in your warehouse number, **1##**, and choose *Copy As...* .
 - c) Overwrite the key of the template movement type **101** with **901** and change the description of the movement type as you wish.
 - d) Replace the key of storage type **902** assigned in the template with the key of storage type **802**, choose *Enter*, and save your entries.
4. Now add an entry for your warehouse number, **1##**, and special stock indicator **W** in the table linking the reference movement types and the Warehouse Management storage types.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types*. Choose *LE-WM Interface to Inventory Management* and then choose *New Entries*.
 - b) Enter your warehouse number **1##**, as table key, reference movement type **101**, movement indicator **B**, and special movement indicator **W**. Assign your Warehouse Management movement type **901**, select the option *X* (“Create transfer requirement”) using the input help for the *TR Create Transfer Requirement* field, and save your settings.

Continued on next page

5. Test your settings by posting the goods issue for one of the purchase orders for material **T-BW27-##**, created for you prior to the course. Check the material stock in your warehouse number, **1##**, before and after the goods receipt posting. Did the system send the received goods to your new goods receipt area, **802**?
 - a) In the application menu, choose *Logistics → Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Warehouse Management)*. Enter your warehouse number, **1##**, and material number **T-BW27-##** and choose *Enter*: You should not find any stock (Information message: “No quants were selected (new selection required)”).
 - b) Choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Other Transactions → Enter Goods Receipt for Purchase Order* and then choose *Search for PO* .
 - c) Enter material number **T-BW27-##** and choose *Find*. The number of your purchase order is displayed in the lower third of the screen.
 - d) Call the purchase order for editing by double-clicking on the document line and close the list display with *Close Search Result* .
 - e) Set the *Item OK* indicator at detail level and post the goods receipt by saving your entries.
 - f) Call the stock overview as described in step 5.a). The new receipt should be in storage type **802**.
6. Put away material **T-BW27-##** in the background.
 - a) Choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Create Transfer Order → For Material*. If your warehouse number and material number are not proposed automatically by the system, enter them and confirm your entries with *Enter*.
 - b) Select your transfer requirement and choose *TO in Backgr.*
 - c) Choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Confirm Transfer Order → Single Document → In One Step*. In the *Foreground/Backgrnd* field, select the *Background* indicator and choose *Enter*.



Lesson Summary

You should now be able to:

- Explain the function of the special movement indicator
- Create and assign special indicators for movement
- Use special indicators for movement in processes

Lesson: Storage Location Control

Lesson Overview

Storage location control offers various possibilities for linking putaway, stock removal, and stock transfer activities with storage types. This lesson introduces these possibilities using concrete examples.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the functions of storage location control in Warehouse Management
- Set up storage location control
- Use storage location references

Business Example

Your company wants to make sure that goods receipts are only available to sales once the putaway is complete.

Purpose of Storage Location Control

Generally, you can use the **storage location control** function if Inventory Management for your materials is in several storage locations, for example because the stocks have different owners. However, you can also use a storage location to map processes more exactly as part of storage location control, even without a separate Inventory Management function. The goal is either to control storage location to storage location posting changes, which are necessary in goods receipt and goods issue processes regardless of the situation, or to steer stocks in certain storage locations to certain storage types and to pick stock from specific storage types.

Storage location control can, for example, be used to mark goods receipts as stock in a separate storage location until such time as the putaway is completed in Warehouse Management on confirmation of the transfer order. This is particularly advantageous for goods receipts for purchase orders, work orders, and other activities because it means that even those who do not have any access to the stock overview in Warehouse Management can always see which (partial) stocks they can access. For example, a worker who calls the storage location stocks from the sales order sees stock in the goods receipt area or stock en route to the destination storage type as “unrestricted use” stock, even though it cannot be removed from storage immediately.

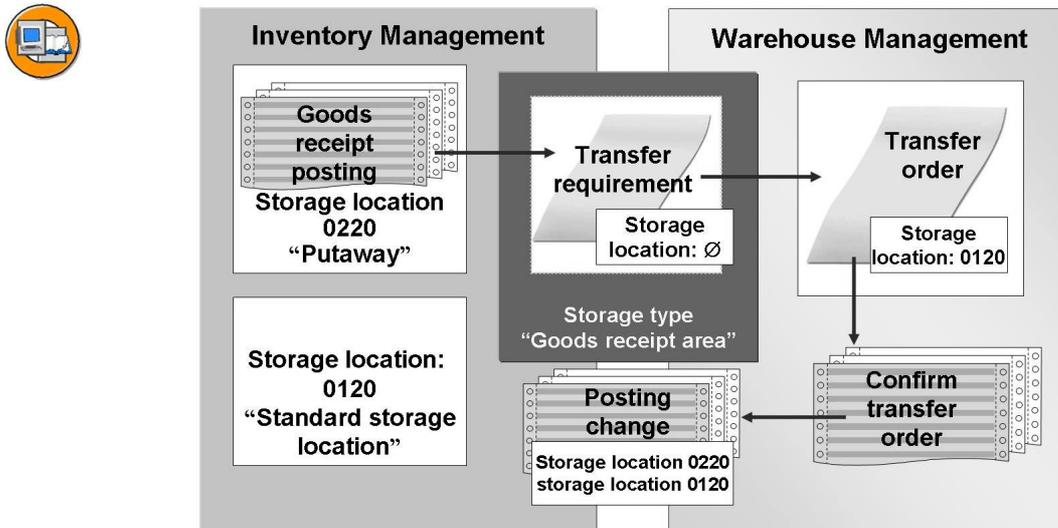


Figure 30: Putaway with a separate storage location

In figure 31, a storage location (**0220**) is created for the sole purpose of goods receipt postings. Storage location **0120**, generally used for picking, is flagged as a **standard storage location** in Customizing for Warehouse Management. Putaway storage location 0220 is **not transferred to the transfer requirement** created as a result of the goods receipt posting because the stock should be assigned to storage location 0120, not storage location 0220, on completion of the putaway. Therefore when the transfer order is created for the putaway, the system fills the document field *Storage location* (empty in the transfer requirement) with the key of the standard storage location 0120. The posting change from 0220 to 0120 occurs either in the course of the transfer order confirmation or in a separate step on completion of the putaway. This means that for the duration of the putaway process, the stock for putaway is either not visible at all or clearly visible as stock that cannot be picked, depending on the configuration of the availability check. You can set up a similar scenario for production supply.



Note: If you want to use Warehouse Management for refilling staging containers as part of the KANBAN solution in production control (PP-KANBAN), then storage location control is required because the KANBAN staging storage location is always different from the Warehouse Management source storage location.

Storage Location Reference

If you want to put away stock from a particular storage location into a certain storage type and then pick the stock from the same storage type, you can work with a **storage location reference**. You define this indicator in Customizing for Warehouse Management, assign it to a plant / storage location / warehouse number combination, and then use it to influence the search for a putaway or picking storage type.

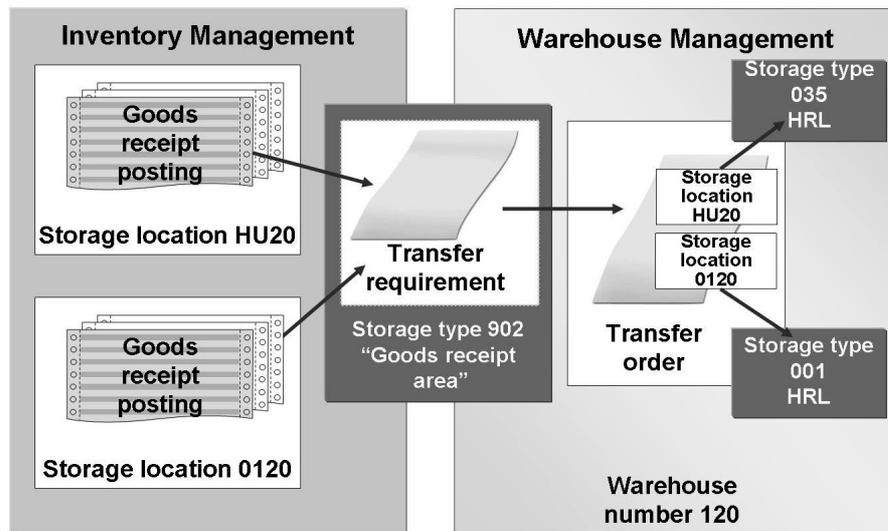


Figure 31: Storage location reference

If you use Handling Unit Management, you can use the storage location reference if packaged and unpackaged stocks are stored in the same warehouse number.



Note: If Handling Unit Management is in use, the inventory for packaged stocks has to be managed in its own specially-marked storage location.

The storage location reference therefore allows you to split storage location stocks at **storage type level**.

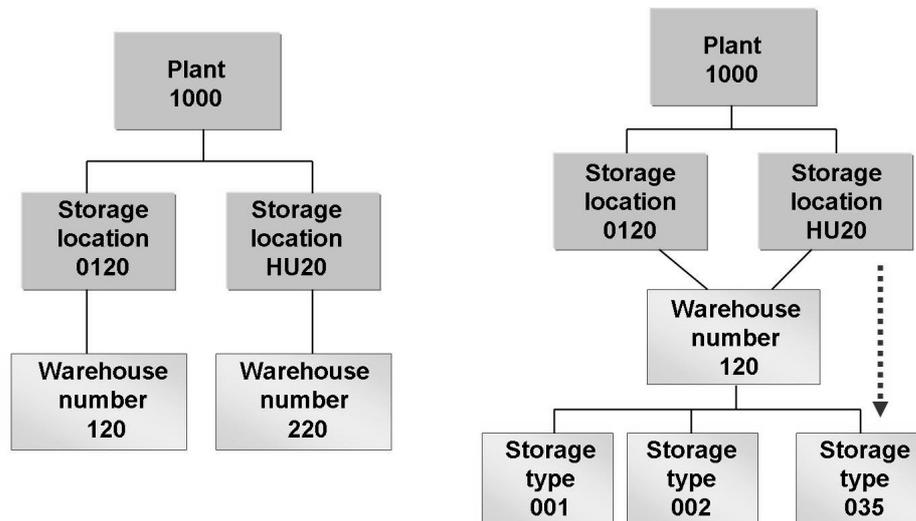


Figure 32: Storage location reference: splitting stock at storage type level

Figure 33 illustrates this option in comparison to stock division at **warehouse number level**. Using a storage location reference, the stock in storage location HU20 is only stored in storage type 035. Stock in storage location 0120 on the other hand, is divided among the remaining storage types.



Setting Up Storage Location Control for the Goods Receipt Process

1. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Storage Location Control* and then choose *Control of Assignment "Plant/Stor.Loc. - Whse Number."*
2. Flag the storage location from which you regularly pick stock as the **standard storage location** and then flag your goods receipt storage location as a storage location that should **not** be copied into the transfer requirement. Select the table entry for your picking storage location, choose *Details* , and set the *Standard SLoc.* indicator. Save your changes.
3. Select the table entry for your goods receipt storage location, choose *Details* , set the *Stor.loc.not in TR* indicator, save your entries, and leave the table.
4. Add an entry to the table for the actual storage location control to define how and when posting changes from the goods receipt storage location to the picking storage location are to take place. Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Storage Location Control* and then choose *Stor. Location Control in Warehouse Mgmt.*
5. Choose *New Entries*. Add the keys for your warehouse number, interim storage area “goods receipt area,” plant, goods receipt storage location, and the Inventory Management movement type with which the posting change to the picking storage location is to take place (311 in the SAP standard system). Save your entries.



Note: If you do not want the system to execute the posting changes immediately after confirming the transfer order, but rather cumulatively using the **RLLQ0100** report, set the *Combine post. changes* indicator. You can also call this report from transaction LQ01 (in the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Posting Change* → *Direct to Bin Stock* → *Posting Change Storage Location to Storage Location*).



Using the Storage Location Reference

1. Define a new indicator for the storage location reference. Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Storage Location Control* and then choose *Storage location reference*.. Choose *New Entries* and define a new indicator *storage location reference* for your warehouse number. Save your entries and exit the table.
2. Choose *Control of Assignment "Plant / Stor.Loc. - Whse Number."* Assign the new indicator to the desired combination of plant, storage location, and warehouse number by selecting the corresponding entry and choosing *Details* . Enter your indicator in the *Storage loc. ref.* field and save your entries.
3. Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*. Choose *New Entries* and enter your warehouse number, the operation **putaway** (indicator **E**), and your storage location reference. Assign your desired destination storage type. Proceed in the same way for stock removal control using the operation indicator **A**. Save your entries.

Exercise 9: Setting up Storage Location Control for the Goods Receipt Process

Exercise Objectives

After completing this exercise, you will be able to:

- Set up storage location control

Business Example

You want to make sure that goods receipts are only available to sales once the putaway is complete. To do this, you use a separate goods receipt storage location.

Task:

Define storage location **01##** as your **standard storage location** and specify that storage location **02##** should not be copied to the putaway transfer requirement. Then define the control of the posting change from the putaway storage location to the standard storage location. Test your settings using a goods receipt posting for a purchase order.

1. In Customizing for Warehouse Management, flag your storage location, **01##**, as the **standard storage location**, and storage location **02##** as a storage location that is **not** to be copied into a transfer requirement.
2. Add an entry to the table for the actual storage location control to define how and when posting changes from the goods receipt storage location to the picking storage location are to take place.



Hint: In an SAP ECC standard system, this posting change is controlled by Inventory Management movement type **311**.

3. Test your settings on the basis of a goods receipt posting without reference to a purchase order for material **T-BW03-##** (20 pieces) using movement type **501**. Post the goods receipt to storage location **02##**.



Hint: You can also use the *Enter Goods Receipt for Purchase Order* transaction (transaction code MIGO) for the goods receipt posting.

4. Check the stock overview for warehouse number **1##** and for both storage locations.

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5. Create a transfer order for the transfer requirement. Before you do, display the transfer requirement and check that the *Storage location* has indeed remained empty. Which storage location has been copied to the transfer order?



Hint: The system generally proposes **02##** in the *Storage Location* field. If you confirm the system proposal with *Enter*, the system will not find your transfer requirement because storage location **02##** was not copied to the transfer requirement, as specified in the transfer requirement. You may therefore have to remove the proposed value.

6. Confirm your transfer order in the background and check the stock overview once more. Did the posting change occur immediately after the confirmation of the posting change from storage location **02##** to storage location **01##**?

Solution 9: Setting up Storage Location Control for the Goods Receipt Process

Task:

Define storage location **01##** as your **standard storage location** and specify that storage location **02##** should not be copied to the putaway transfer requirement. Then define the control of the posting change from the putaway storage location to the standard storage location. Test your settings using a goods receipt posting for a purchase order.

1. In Customizing for Warehouse Management, flag your storage location, **01##**, as the **standard storage location**, and storage location **02##** as a storage location that is **not** to be copied into a transfer requirement.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Storage Location Control* and then choose *Control of Assignment "Plant/Stor.Loc. - Whse Number."*
 - b) Select the table entry for the combination of plant **1000**, storage location **01##**, and warehouse number **1##**. Choose *Details*  and set the *Standard SLoc* indicator. Save your changes.
 - c) Select the table entry for plant **1000**, storage location **02##**, and warehouse number **1##** and choose *Details* . Set the *Stor.loc. not in TR* indicator and save your entries.

Continued on next page

- 2. Add an entry to the table for the actual storage location control to define how and when posting changes from the goods receipt storage location to the picking storage location are to take place.



Hint: In an SAP ECC standard system, this posting change is controlled by Inventory Management movement type **311**.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Storage Location Control* and then choose *Stor. Location Control in Warehouse Mgmt.*
- b) Choose *New Entries*.

Input values:

<i>Whse number</i>	1##
<i>Storage type</i>	902
<i>Plant</i>	1000
<i>Storage location</i>	02##
<i>Movement type (IM)</i>	311

Save your entries.

Continued on next page

3. Test your settings on the basis of a goods receipt posting without reference to a purchase order for material **T-BW03-##** (20 pieces) using movement type **501**. Post the goods receipt to storage location **02##**.



Hint: You can also use the *Enter Goods Receipt for Purchase Order* transaction (transaction code MIGO) for the goods receipt posting.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Enter Goods Receipt for Purchase Order*. In the *Document type* field, select *Others* from the drop-down menu. The system should propose movement type **501**.
- b) Enter material number **T-BW03-##** on the detail level of the *Material* tab page.
- c) Select the *Quantity* tab page and enter the quantity **20**.
- d) On the *Where* tab page, enter plant **1000** and storage location **02##**, choose *Enter*, and set the *Item OK* indicator. Save your entries to post the goods receipt.



Hint: The *Item OK* field may already be set in the training system.

4. Check the stock overview for warehouse number **1##** and for both storage locations.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*. The new receipt is shown in storage type **902** as stock for storage location **02##**.
 - b) Choose the *MM stock figures* button. Here too, stock that has already been put away is displayed separately from new receipts.

Continued on next page

5. Create a transfer order for the transfer requirement. Before you do, display the transfer requirement and check that the *Storage location* has indeed remained empty. Which storage location has been copied to the transfer order?



Hint: The system generally proposes **02##** in the *Storage Location* field. If you confirm the system proposal with *Enter*, the system will not find your transfer requirement because storage location **02##** was not copied to the transfer requirement, as specified in the transfer requirement. You may therefore have to remove the proposed value.

- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. Enter material number **T-BW03-##** and warehouse number **1##** and choose *Enter*.
 - b) Display the transfer requirement by double-clicking on the document number.
 - c) Check the *Stor.Loc.* field and then return to the *Transfer Requirements for Material* list.
 - d) Select the transfer requirement and choose *TO in Foregr.*. Your standard storage location, **01##**, was copied to the transfer order.
 - e) Create the transfer order by saving.
6. Confirm your transfer order in the background and check the stock overview once more. Did the posting change occur immediately after the confirmation of the posting change from storage location **02##** to storage location **01##**?
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. In the *Foreground/Backgrnd* field, choose the *Background* indicator and confirm with *Enter*.
 - b) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW03-##** and choose *Enter*. The new receipt of 20 pieces of material **T-BW03-##** should now be shown as stock in storage type **01##** in high rack storage.



Lesson Summary

You should now be able to:

- Describe the functions of storage location control in Warehouse Management
- Set up storage location control
- Use storage location references



Unit Summary

You should now be able to:

- Explain the technical processes involved in connecting Warehouse Management to Inventory Management
- Use movement types in Warehouse Management
- Set up the interim storage area and interim storage bin search
- Distinguish between "immediate" and "automatic" transfer order creation
- Set up immediate transfer order creation
- Set up automatic transfer order creation
- Explain the function of the special movement indicator
- Create and assign special indicators for movement
- Use special indicators for movement in processes
- Describe the functions of storage location control in Warehouse Management
- Set up storage location control
- Use storage location references



Test Your Knowledge

1. What is a reference movement type?

2. What do the terms “immediate” and “automatic” mean in transfer order creation?

3. How do you activate immediate and automatic transfer order creation?

4. If automatic transfer order creation has been set up for a movement type, you can no longer create the transfer order manually.

Determine whether this statement is true or false.

- True
 False

5. You can use a special movement indicator to:

Choose the correct answer(s).

- A Create transfer orders immediately
 B Put away a material directly into its fixed bin
 C Steer materials towards another goods receipt area for individual goods receipt postings
 D Create transfer orders automatically

6. What is the purpose of storage location control?



Answers

1. What is a reference movement type?

Answer: A reference movement type connects an Inventory Management movement type and a Warehouse Management movement type.

2. What do the terms “immediate” and “automatic” mean in transfer order creation?

Answer: In **immediate** transfer order creation, the document is created directly after the preceding posting. In **automatic** transfer order creation, a report (RLAUTA10) is used. The documents are therefore created with a delay.

3. How do you activate immediate and automatic transfer order creation?

Answer: You activate **immediate** transfer order creation in the table for assigning reference movement types to Warehouse Management movement types. You activate **automatic** transfer order creation in the Warehouse Management movement type itself.

4. If automatic transfer order creation has been set up for a movement type, you can no longer create the transfer order manually.

Answer: False

The statement is false. You can still create transfer orders manually.

5. You can use a special movement indicator to:

Answer: A, B, C

Automatic transfer order creation cannot be triggered **directly** using a special movement indicator. However, the indicator could be used to determine a movement type for which automatic transfer order creation is defined.

6. What is the purpose of storage location control?

Answer: You can use storage location control to link putaway, stock removal, and stock transfer activities with storage types.

Unit 4

Putaway Control

Unit Overview

In this unit, you will learn about the configuration of the storage bin search for putaway. You will also learn about the possible forms of capacity check and the use of Quality Management.



Unit Objectives

After completing this unit, you will be able to:

- Explain the sequence of steps in the putaway process
- Set up storage type and storage area determination for putaway
- Post differences that have occurred (or have been discovered) during putaway
- Name the preconfigured putaway strategies
- Explain how these strategies work
- Add the Warehouse Management views to an existing material master record
- Use the indicators in the material master that control the putaway process
- Create palletization data
- Assign fixed bins to materials
- Use the storage unit type check
- Name the capacity check methods in Warehouse Management
- Make the settings necessary at master data level
- Explain the options for dealing with inspection samples during putaway
- Configure the interface between Quality Management and Warehouse Management

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Lesson: The Putaway Process

Lesson Overview

This lesson introduces the general controls for putting away material quantities. You will also discover how to post stock differences that do not arise until putaway or are not discovered until putaway.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the sequence of steps in the putaway process
- Set up storage type and storage area determination for putaway
- Post differences that have occurred (or have been discovered) during putaway

Business Example

Your company wants to examine the general putaway settings so that they can be adjusted to suit changed circumstances.

Putaway Process

Certain steps occur in the same way and in the same sequence for every putaway process. These are the **search process steps** at different organizational levels. You can influence the result of the search activities using a range of indicators. These indicators are dealt with in separate lessons. Regardless of how you use these indicators, it is always the creation of a **transfer order** for putaway that triggers the search activities. When the processor confirms the transfer order in the system, he/she confirms the result of the putaway activity. If the putaway could not be executed as planned in the transfer order, the deviations from the TO should be recorded in the document. If you cannot do this or do not want to, the document or affected document item has to be cancelled. You define whether a transfer order has to be confirmed to complete the process at storage type level separately for putaway and for stock removal. If you work without confirmation requirement, the process is technically complete when the transfer order is created.

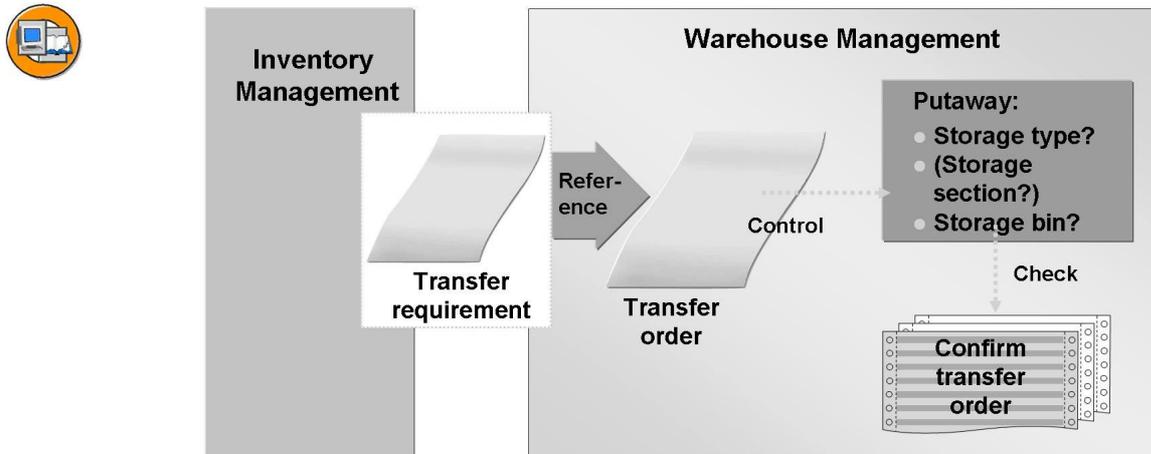


Figure 33: Putaway with a transfer order

In figure 34, the putaway transfer order is created with reference to a transfer requirement. However, the transfer requirement could just as easily be replaced by an inbound delivery.

Figure 35 illustrates the individual search steps that occur during putaway.

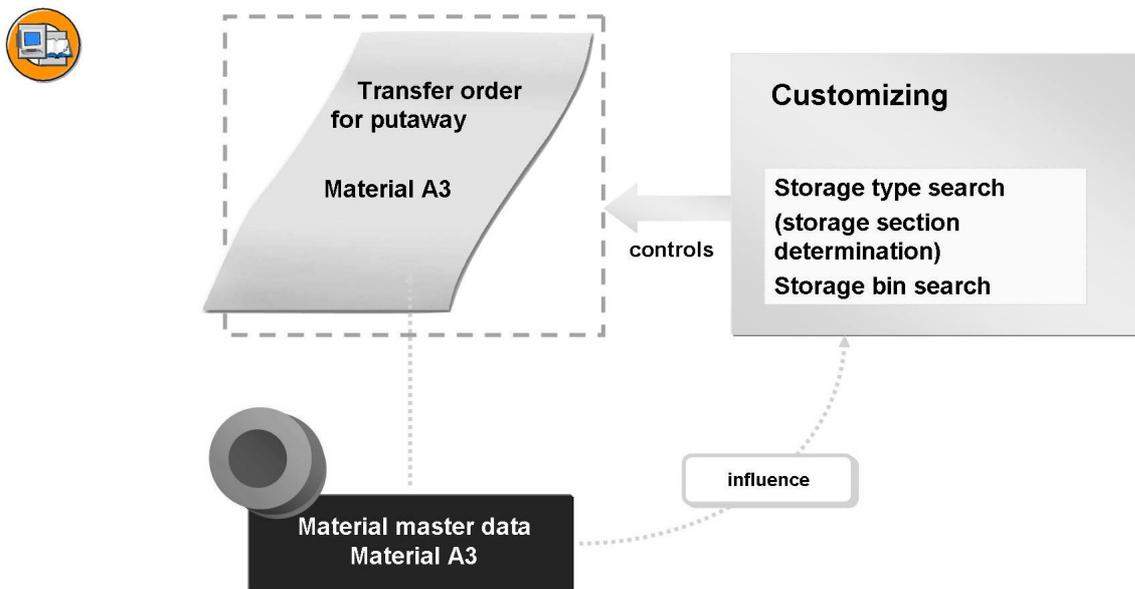


Figure 34: Putaway control

At the start of putaway, the system always searches for a suitable **storage type** (called a *destination storage type* in the system). To ensure that this is successful, you have to make the corresponding entries in Customizing for Warehouse Management in the **storage type search** (table T334T). We recommend first creating an entry that does not contain any of the indicators that affect the storage type search at various levels (for example, storage type indicator, indicators

for stock category and special stock, and storage location reference). You put the storage types that the system should consider during putaway into a **search sequence** in this table. The search for suitable storage bins always begins in the first storage type in the search sequence. If this attempt fails, the system tries to find storage bins in the second storage type. If this attempt is also unsuccessful, the system checks the third storage type in the sequence. If the system works through the entire sequence without success, it cannot create the transfer order unless you manually assign a suitable storage type that is not in the search sequence.

The **storage section check** is controlled in a similar manner. The system only takes into account the storage section during putaway if you have activated the **storage section** check at storage type level. If you set the indicator, the system must carry out a storage section search for the storage type. There is also a table for storage section search (T334B). As in the configuration of the storage type search, you put all of the storage sections that the system should taken into account into a sequence in the table. The system first tries to find suitable storage bins in the first storage section of the sequence. If the search is unsuccessful, the system checks the next storage section.

The last step during putaway is always the **storage bin search**. The system finds a suitable storage bin using the **strategy** that is set up for searching for storage bins during putaway. The SAP ECC standard system contains some preconfigured putaway strategies from which you can choose **one** strategy for each storage type. An example is random storage with the “next empty bin” strategy. You can also use a user exit to include your own strategy.



Note: The putaway strategies are dealt with in a separate lesson.

Handling Differences in the Warehouse

It is not always possible to put away the entire quantity in the transfer order. Containers may break, and goods may be stolen or lost during putaway. The vendor may have mistakenly delivered less than then quantity on the delivery note, and this may have been overlooked during the goods receipt posting. In cases like these, you need to be able to tell the system about the differences identified during putaway when you confirm the transfer order.



Note: The possibility of immediately posting differences correctly is one of the main arguments for activating the confirmation requirement at storage type level.

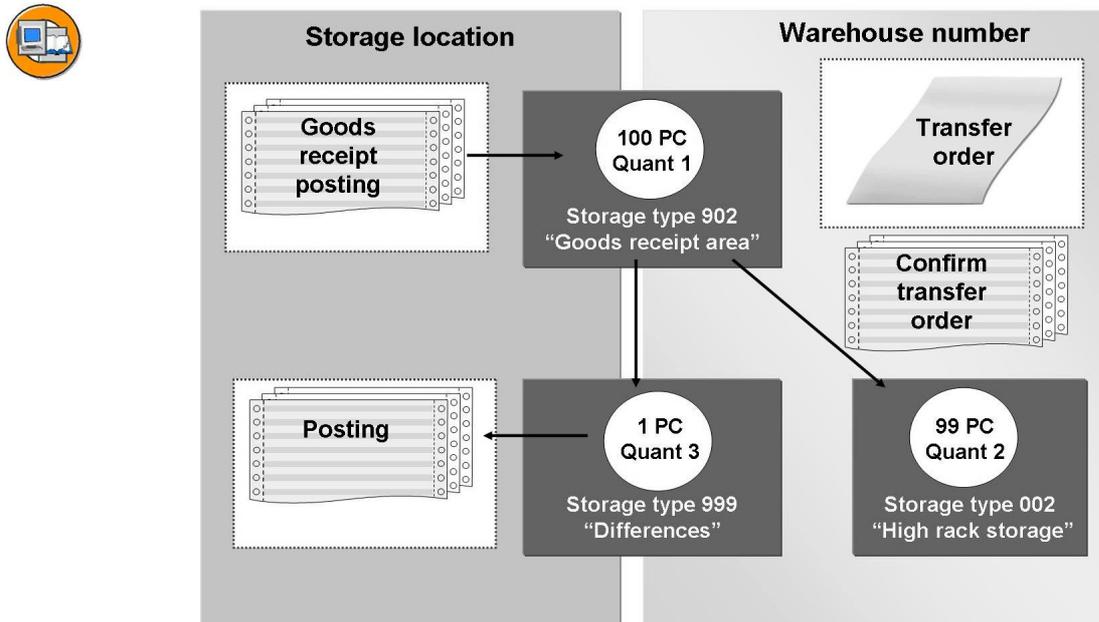


Figure 35: Handling differences

If a worker identifies a difference, he/she records the missing quantity on confirmation of the transfer order. The worker can then use a **difference indicator** to control how this difference is dealt with further in the warehouse and in Inventory Management. Difference quantities that can be traced back to errors in the warehouse are generally put away in a separate **interim storage area**. In SAP ECC, storage type **999** is defined for this purpose. Finally, the missing quantity has to be subtracted from the storage location quantity so that the figures are correct in Inventory Management. If, however, the error lies with the vendor, the missing quantity can be "posted back" to the goods receipt area using a separate difference indicator. To complete the activity in Inventory Management, the goods receipt posting has to be corrected with a partial reversal.

You define difference indicators in Customizing for Warehouse Management for each warehouse number according to your requirements. You then assign these to interim storage areas, or define that the difference quantity is "posted back" to the *source storage type*, for example the goods receipt area. The table can be found under *Logistics Execution* → *Warehouse Management* → *Activities* → *Confirmation*.

Exercise 10: Setting Up the Storage Type and Storage Section Search

Exercise Objectives

After completing this exercise, you will be able to:

- Set up a storage type and storage section search

Business Example

In the future, you want have the system find your new high rack storage area and its storage sections automatically for standard putaway procedures.

Task:

Set up putaway control for regular cases in your warehouse number, **1##**.

1. Call the table for the storage type search and enter your storage type, **015**, in the first position.



Hint: Table entries that are relevant for putaway are flagged with **E** in the *Operation* field.

2. On the basis of the current settings for storage type **015**, do you have to define a storage **section** search sequence? Check the master data for your storage type, **015**, and change the settings where necessary so that the system also checks the storage sections in future.
3. Set up the storage search for your storage type, **015**. Make sure that the system always checks in storage section **001** for a suitable storage bin. If this search is not successful, the system should check in storage section **002**.
4. Finally, check which procedure the system uses in storage type **015** to determine the storage bins for putaway.

Solution 10: Setting Up the Storage Type and Storage Section Search

Task:

Set up putaway control for regular cases in your warehouse number, **1##**.

1. Call the table for the storage type search and enter your storage type, **015**, in the first position.



Hint: Table entries that are relevant for putaway are flagged with **E** in the *Operation* field.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*.
 - b) Select the entry for warehouse number **1##** and operation **E**. Enter storage type key **015** in the *1. Stor.Type* field. Enter the three remaining storage types (**001**, **002** and **007**) as the *2. Stor.Type*, *3. Stor.Type*, and *4. Stor.Type* in the search sequence. Save your changes.
2. On the basis of the current settings for storage type **015**, do you have to define a storage **section** search sequence? Check the master data for your storage type, **015**, and change the settings where necessary so that the system also checks the storage sections in future.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **015** in your warehouse number, **1##**. Choose *Details* .
 - b) If the system is to take into account storage sections during the putaway, the *Storage sec. check active* must be activated. Activate this check function and save the change.
 3. Set up the storage search for your storage type, **015**. Make sure that the system always checks in storage section **001** for a suitable storage bin. If this search is not successful, the system should check in storage section **002**.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Section Search* and then choose *Determine Search Sequence* on the next screen.
 - b) Choose *New Entries*. Add a table entry for your warehouse number, **1##**, and storage type **015**. Enter storage section **001** in first position (*1st storage sect.* field) and storage section **002** in second position (*2nd storage sect.* field) in the search sequence. Save your entries.

Continued on next page

4. Finally, check which procedure the system uses in storage type **015** to determine the storage bins for putaway.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **015** in your warehouse number, **1##**, and choose *Details* .
 - b) The **putaway strategy** used in storage type **015** is called “Next empty bin.” It is activated with the indicator **L** at storage type level in the stock placement control section.



Lesson Summary

You should now be able to:

- Explain the sequence of steps in the putaway process
- Set up storage type and storage area determination for putaway
- Post differences that have occurred (or have been discovered) during putaway

Lesson: Storage Bin Search for Putaway

Lesson Overview

This lesson deals with the strategies for controlling the storage bin search during putaway.



Lesson Objectives

After completing this lesson, you will be able to:

- Name the preconfigured putaway strategies
- Explain how these strategies work

Business Example

Your company wants to check which methods are suitable for the storage bin search during putaway in exceptional cases.

Storage Bin Search

During putaway, the system first determines a **storage type** on creation of the transfer order. If the storage section check is activated in the master data of the storage type, the system then searches for a suitable **storage section** in the storage type. The **putaway strategy** defined in the storage type also defines the criteria according to which the system selects **storage bins** for putaway.

The SAP ECC standard system contains a number of preconfigured putaway strategies. For some of these strategies, you simply assign them to a storage type of your choice. For others, you have to make some additional settings before you can use them. The following putaway strategies are part of the “basic functions” in SAP ECC:



- Fixed bin (**F**)
- Open storage (**C**)
- Addition to existing stock (**I**)
- Next empty bin (**L**)
- Pallets/storage unit type (**P**)
- Bulk storage (**B**)
- Near picking bin (**K**)

The letter in parenthesis indicates the the strategy in the storage type Customizing. You can find the strategies under *Logistics Execution* → *Warehouse Management* → *Strategies* → *Putaway Strategies*. If you need to make additional settings, you can access the relevant tables here.



Note: If you want to use your own search logic, you can use the SAP enhancement **MWMT003**.

Overview of Putaway Strategies

With the **fixed bin** putaway strategy, the system always steers the materials towards the fixed bin defined for the material. Therefore, to use this strategy, a fixed bin must be assigned to all of the relevant materials at master data level.

The **open storage** strategy is suitable for storage types in which there is only one storage bin in each storage section. If you want to store different materials in this storage bin, you have to allow mixed storage. A corresponding storage type (key **003**) is preconfigured in the standard SAP ECC system.

If there is a lack of storage space, you can use the **additions to stock** strategy. The system should choose a storage bin that already contains the material you want to put away, and actively try to add to stock. You have to either allow addition to stock generally or for a particular material in the stock placement control section. You also have to activate the capacity check. If you decide to allow material-dependent addition to existing stock, you have to set the corresponding indicator in the *Warehouse Management 1* view in the material master records of all of the materials that you want to add to existing stocks.



Note: The indicators in the material master that control putaway are dealt with in a separate lesson.

With the **next empty bin** strategy, which is particularly suitable for high rack and shelf storage, the system proposes the next empty storage bin according to the index of empty storage bins for putaway. The system generates this index of empty storage bins when a storage bin is created, and updates it every time there is a putaway or stock removal. The system automatically looks for a new empty bin for each storage unit type that is to be put away so there is no need for a capacity check in the storage type.



Note: You can influence the construction of the index of empty bins using sort variables. This procedure is explained in a separate lesson.

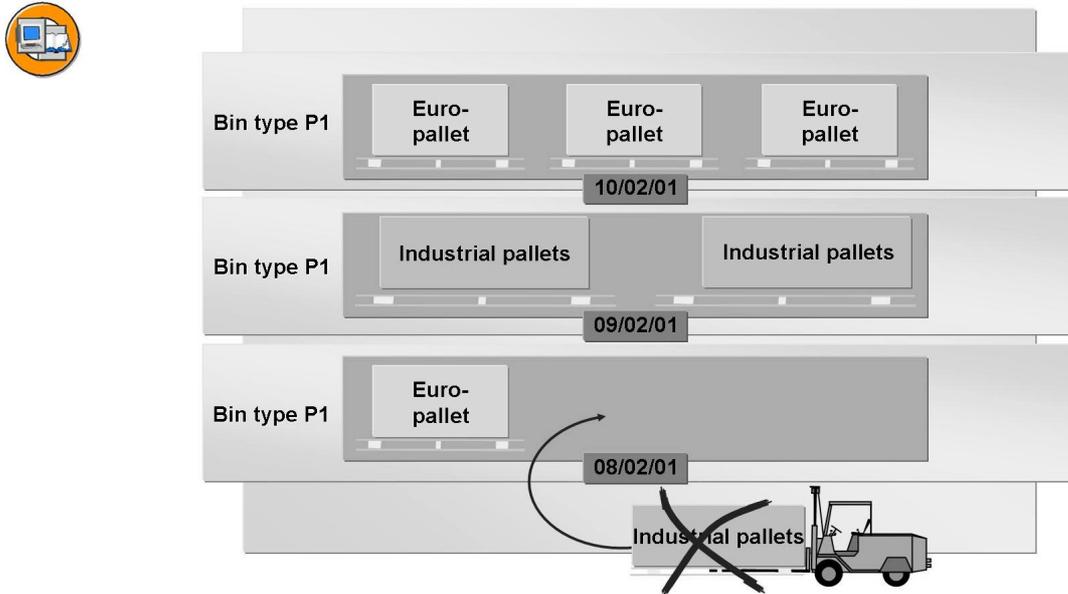


Figure 36: “Pallets” putaway strategy

The **pallets** strategy allows you to assign storage bins for each storage unit, that is, for each unit made up of load carrier and material. This means that you can manage several quants in one storage bin without using mixed storage. You have to make some additional settings in Customizing for this strategy.

1. First, divide up the storage bins by defining **storage section keys** in the storage type. You can define how many and what kind of section key a storage bin can have when filled to its maximum capacity. For example, if a storage bin has the base coordinates **01-01** and you have defined Sections **A** to **E**, the system creates a section **01-01/A** for the first putaway activity. The fifth and final section has the coordinates **01-01/E**.
2. In the next step, you assign the section key to the required combination of **storage bin types** and **storage unit types**. If, for example, “high bin” storage bins can hold up to five load carriers of the storage unit type “euro pallet,” you assign a section key to this combination that allows five bin segments to be created.



Note: The **storage unit type (SUT)** is a structuring aid for putaway. A storage unit type groups loading equipment with similar properties, for example europallets, or wire baskets. Europallets are entered as storage unit type “europallet” in the system, for example. Storage unit types are used for palletization of material quantities for putaway.

The first putaway into a storage bin defines which storage unit types are possible for the subsequent putaways into the bin and how many more storage units can be put away there.

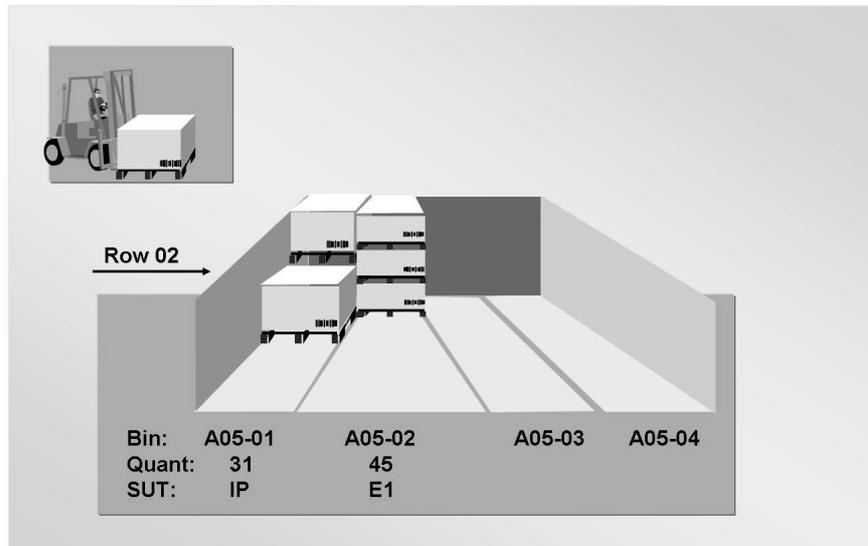


Figure 37: “Bulk Storage” putaway strategy

The **bulk storage** strategy requires similar presettings. You must define how many stacks at what height are allowed for each combination of **storage bin type** and **storage unit type**. These settings define the maximum number of storage units for each block (**block structure**). If, for example, for storage bin type “block size 1,” you allow up to eight load carriers of storage unit type “industrial pallet” in a row and a maximum height of four pallets, you can store a maximum of 32 storage units in each storage bin. Since the stack height is often material-dependent, you can also work with **bulk storage indicators** at material master level. You can freely define the bulk storage indicators. If certain materials only allow a stack height of up to three storage units, for example, create an entry in the block structure table for the corresponding combination of storage bin type, storage unit type, and bulk storage indicator.

Generally, one storage bin is created for each block line in bulk storage. The storage bin is filled from back to front according to the specifications in the block structure. However, the system always considers the bin stock to be **one** quant. For this reason, you must allow additions to existing stock. The storage unit to be put away defines the goods receipt date for the entire bin stock. To ensure that older stock is regularly removed from the bin, you can impose a **block for putaway**. This means that after the first stock removal, the storage bin is blocked for further putaways. The system does not lift the block until the bin has been completely emptied.



Note: Additional functions are available for the combination of storage unit management and the **bulk storage** putaway strategy. These functions are described in SCM631.

The **near picking bin** putaway strategy is useful if stock removal is usually executed from a fixed bin specified in the material master record. The system should therefore steer the materials towards the fixed bin during putaway. However, if a putaway into the fixed bin is not possible because, for example, the bin capacity is insufficient, the system should propose a storage bin near to the fixed bin. The goal is to make the picker's job easier. To use this putaway strategy, you have to give the system a search range for bins near to the fixed bin. You also need to make a separate table entry for the storage type search. The fixed bin storage type is in first position in the search sequence, and the reserve storage type with the **near picking bin** strategy is in second position. This ensures that the system always tries to put the material away in the fixed bin first.

You can also use a "Manual" putaway strategy if the storage bins for putaway are assigned by the warehouse workers (not the system). Storage bin search strategies are not generally assigned for interim storage areas because the determination of the storage bins depends on the Warehouse Management movement type used.

Exercise 11: Testing the “Pallets” Putaway Strategy

Exercise Objectives

After completing this exercise, you will be able to:

- Use the **pallets (P)** putaway strategy

Business Example

You want to make the storage bin search in your storage types dependent on the load carriers.

Task:

Check the storage bin search settings for your pallet storage area (storage type **007**). Test a putaway in this storage type.

1. Which putaway strategy is defined for storage type **007**? What additional settings are there in the stock placement control section?
2. Check the detailed control settings in strategy **P**. Which storage unit types already have section keys assigned to them? How many quants are allowed in each storage unit type per storage bin?
3. Test these settings. First check the stock of material **T-BW08-##** in your warehouse number, **1##**.
4. Post a goods receipt without a purchase order for 150 pieces of material **T-BW08-##**.
5. Put away the material quantity in the foreground. Enter storage type **007** as the destination storage type. Which storage bins does the system propose? Finally, confirm the transfer order in the background.

Solution 11: Testing the “Pallets” Putaway Strategy

Task:

Check the storage bin search settings for your pallet storage area (storage type **007**). Test a putaway in this storage type.

1. Which putaway strategy is defined for storage type **007**? What additional settings are there in the stock placement control section?
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **007** in your warehouse number, **1##**, and choose *Details* .
 - b) Putaway strategy **P** is set for storage type **007**. Mixed storage is allowed without limitations (indicator **X**). The **storage unit check (SUT check)** is active. The putaway also requires confirmation.
2. Check the detailed control settings in strategy **P**. Which storage unit types already have section keys assigned to them? How many quants are allowed in each storage unit type per storage bin?
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Putaway Strategies* → *Define Strategy for Pallets*. Choose *Define*.
 - b) Section Keys **A** and **B** are defined for your warehouse number **1##** and storage type **007**. If you use section key **A**, you can put away up to five quants in each storage bin. Section key **B** only allows four quants in each bin.
 - c) Go back a step and choose *Assign*.
 - d) For storage bins in storage type **P1**, section key **A** is to be used for putaway with storage unit type **E1**, and section key **B** for putaway with storage unit type **IP**. This means that either five **E1** or four **IP** pallets can be put away in each bin.
3. Test these settings. First check the stock of material **T-BW08-##** in your warehouse number, **1##**.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your warehouse number and your material number and choose *Enter*.
 - b) There are currently **1000** pieces of material **T-BW08-##** in storage type **007**.

Continued on next page

4. Post a goods receipt without a purchase order for 150 pieces of material **T-BW08-##**.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Enter Goods Receipt for Purchase Order*. Change the reference from *Purchase order* to *Other* (Movement type 501).
 - b) Enter the material number **T-BW08-##** on the *Material* tab page.
 - c) Select the *Quantity* tab page and enter the quantity **150**.
 - d) Then choose the *Where* tab page and enter plant **1000** and storage location **01##**. Confirm with *Enter* and post the goods receipt by saving.

5. Put away the material quantity in the foreground. Enter storage type **007** as the destination storage type. Which storage bins does the system propose? Finally, confirm the transfer order in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. If your warehouse number and material number are not proposed automatically by the system, enter them and confirm your entries with *Enter*.
 - b) Select your transfer requirement and choose the *TO in Foregr.*
 - c) In the *Palletization* section, enter storage type **007** in the *Type* field and choose *Putaway foreground* .
 - d) The system creates a bin segment for each storage unit according to the section key that was defined and assigned in Customizing, for example **01-01/1** or **01-02/A**. Confirm the warning message with *Enter* after creating both document items and create the transfer order by saving.
 - e) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. In the *Foreground/Backgrnd* field, choose the *Background* indicator and choose *Enter*.



Lesson Summary

You should now be able to:

- Name the preconfigured putaway strategies
- Explain how these strategies work

Lesson: Influence of the Material Master Data on Putaway

Lesson Overview

In this lesson, you will learn about indicators in the material master record that influence putaway.



Lesson Objectives

After completing this lesson, you will be able to:

- Add the Warehouse Management views to an existing material master record
- Use the indicators in the material master that control the putaway process
- Create palletization data
- Assign fixed bins to materials

Business Example

Certain materials are to be put away in particular storage types. The system should also store palletization data as default values in the system.

The Warehouse Management Views

The master data of a material is divided into **views**. In most cases, these views represent particular departments or fields of activity in an enterprise, for example Sales and Distribution, Purchasing, and Accounting. Each of these views contains a number of fields, generally either indicators for access to Customizing or values for certain specialist applications. These are often default values. Warehouse Management has two views in the material master, but uses the data from other views to a certain extent. You have to create both Warehouse Management views to be able to put the material away. If the material is used in several warehouse numbers, the Warehouse Management views have to be created for each of these warehouse numbers.



Warehouse Management 1	Warehouse Management 2						
Warehouse Number 120	Warehouse Number 120 Storage type 005						
General data Units of measure, weights <input type="checkbox"/> Subject to batch management	Palletization Data <table border="1"> <tr> <td>5</td> <td>PC</td> <td>IP</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	5	PC	IP			
5	PC	IP					
Storage strategies Indicators	Storage bin stock Storage bin <input type="text" value="BOX-20"/> Storage bin qty						
Material T-MS-20							

Figure 38: Warehouse Management views

The first Warehouse Management view includes fields with entries that are valid for certain warehouse numbers; the second view also contains information specific to the storage type. The fields that are specific to the storage type are mainly intended for materials with fixed storage bins. If a material is stored in a fixed bin, this bin must be assigned in the *Warehouse Management 2* view in the *Storage Bin* field so that the system can automatically send the material to this bin during putaway (and search for the material in this bin during stock removal).

Storage-Relevant Indicators

There are several indicators in the *Warehouse Management 1* view that you can use for the material-specific control of putaway activities:



- Stock placement indicator
- Storage section indicator
- Bulk storage indicator
- Special movement indicator
- *Allow addn to stock* indicator

You can use the **storage type indicator** (*Stock placement* field) to steer materials towards a certain storage type during putaway. The indicator is a kind of “governor” of the destination storage type. You define it in Customizing for Warehouse Management and assign it to a warehouse number. You then have to add an entry in the storage type search table to link the storage type indicator and the storage type. You can then set the storage type indicator in the master data records of the materials that you want to put away in the storage type represented by the indicator.

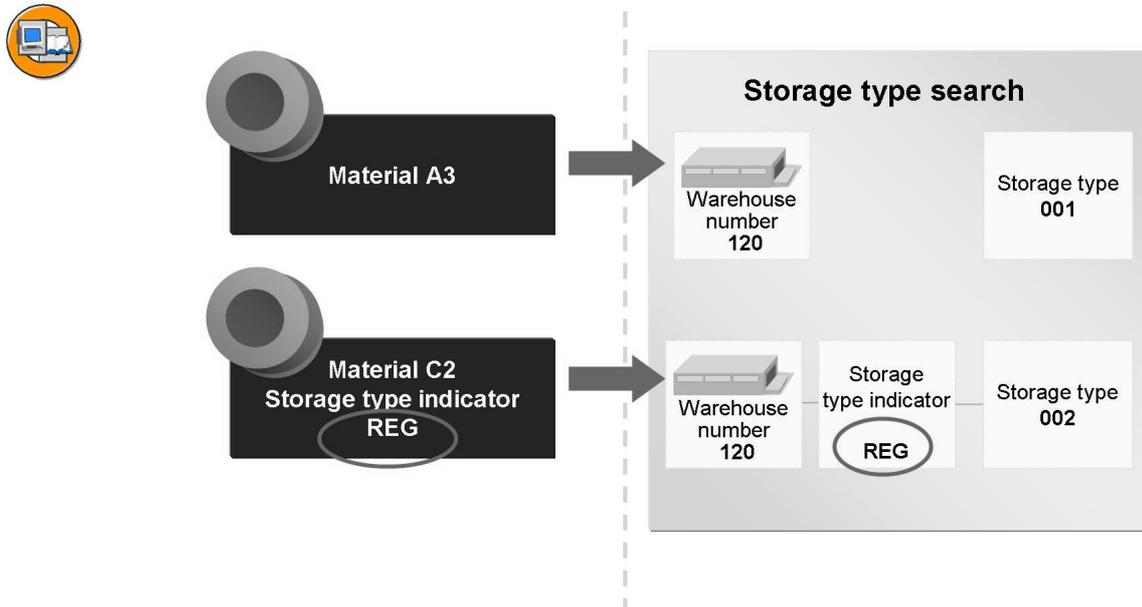


Figure 39: Storage type indicator

When you create a transfer order, the system checks the material master records of the material that is to be put away. If it finds a storage type indicator, it searches in the storage type search table for an entry containing this indicator and tries to put the material away in the assigned storage type. If no suitable entry exists, you receive an error message. Generally, however, you cannot enter a storage type manually.

The **storage section indicator** performs a similar function for the storage section search. If several materials should always be put away in a certain storage section, you define a storage section indicator as a “governor” and assign it to the storage section in an entry in the storage section search table. You can then enter the indicator in all of the relevant material master records.

➔ **Note:** The storage type and storage section searches are dealt with in a separate lesson.

If you use bulk storage and use the **bulk storage** putaway strategy in this storage type, you can define **bulk storage indicators** to group materials according to how they can be stacked. The goal is to create separate entries for certain groups of materials when creating block structures in Customizing of the putaway strategy. For example, if a material should not be stacked, you should define a bulk storage indicator and create a block storage entry for this indicator with a stack height of one (1).

➔ **Note:** The “bulk storage” putaway strategy is also dealt with in a separate lesson.

The **special movement indicator** allows special treatment for selected materials, for example immediate transfer order creation or putaway in a particular (interim) storage type. As with the previous indicators, you first have to define the special movement indicator in Customizing for Warehouse Management. You can then assign the indicator to entries in the table that links reference movement types to Warehouse Management movement types. If a posting activity affects a material with a special movement indicator, the system searches for a table entry for this indicator.



Note: The special indicator for movement is dealt with in a separate lesson. It can also be used for stock removal and stock transfer activities.

The *Allow addn to stock* indicator is already preconfigured in the system, so you simply have to activate the function at material master level. It is important that you also set the indicator **M** (*Addition to existing stock via addition in material record*) in the *Addn to stock* field in all of the **storage types**. Unlike the putaway strategy **Addition to existing stock**, this combination of indicators does not automatically trigger addition to existing stock; it simply makes it possible if no empty bin is available.

Palletization Data

You can set default values for palletization for a material in the second Warehouse Management view. These values are valid for a warehouse number.



Warehouse Management 2		
Material	T-BW01-20	
Warehouse Number	120	
Palletization Data		
LE quantity	Un	SUT
50	PC	IP
30	PC	E1

Figure 40: Palletization Data

If the material master contains palletization data, the system uses it for the **default values** for every putaway activity. If a material is regularly delivered from production or from a vendor in a certain quantity on a certain kind of pallet, the system can use the specifications in the material master record to divide the total

quantity for putaway and determine a storage bin almost automatically. If the palletization deviates from the data in the material master in an individual case, you can change the system proposal in the transfer order manually.

Before you can enter palletization data in the material master, you must create suitable **loading equipment types** in Customizing. Loading equipment types are structuring aids for putaway. A storage unit type groups loading equipment with similar properties, for example europallets, wire baskets, or tanks. Europallets are defined as storage unit type “europallet,” wire baskets as storage unit type “wire basket,” and so on, in Customizing for each warehouse number. The storage unit types are then used in the material master to divide a certain material quantity (**loading equipment quantity**) onto a load carrier (loading equipment). If, for example, five pieces of a material are always put away on an industrial pallet, you can store this standard segmentation as a default value in the material master using the storage unit type “europallet.”



Note: You define storage unit types for each warehouse number in Customizing for Warehouse Management (*Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Storage Unit Types*).

Exercise 12: Use of the Warehouse Management Views

Exercise Objectives

After completing this exercise, you will be able to:

- Add the Warehouse Management views and make settings for controlling putaway

Business Example

You want to control the putaway of certain individual materials, so you need to test the various indicators that can be set in the material master.

Task:

Add the *Warehouse Management 1* and *Warehouse Management 2* views in the material master.

1. Flywheel **T-BW01-##** cannot be put away in warehouse number **1##** because the two Warehouse Management views for this warehouse number are missing. Add the two views.



Hint: Adding views to a material master is technically regarded in the system as **creating**.

2. In the future, flywheel **T-BW01-##** should always be put away in rack storage (storage type **002**). Check in the Customizing for Warehouse Management to see if a storage type indicator for rack storage exists in your warehouse number, **1##**, and then check in the storage type search table: Is there an entry for your warehouse number, **1##**, that links the storage type indicator with storage type **002** during putaway activities?
3. Enter the storage type indicator in the material master of material **T-BW01-##**. Specify that the material can be **added to existing stock** in shelf storage. Check the master data of your shelf storage in Customizing. Is the appropriate indicator already assigned? If not, change the settings.
4. The material is to be put away regularly with either **50** pieces on industrial pallets of storage unit type **IP** or **30** pieces on europallets of storage unit type **E1**. Add the corresponding palletization data in the *Warehouse Management 2* view.
5. Test your entries by posting a goods receipt without a purchase order (movement type **501**) for **80** pieces of material **T-BW01-##** in storage location **01##**, plant **1000**, and create the transfer order for putaway in

Continued on next page

warehouse number **01##** in the foreground. Does the system divide the total quantity according to the **palletization data** in the material master? Try placing the second storage unit in the same bin to check whether **addition to existing stock** functions.



Hint: So that you can add to existing stock, note down the first storage bin that the system proposes for putaway.

6. Now add the two Warehouse Management views to the material master of material **T-MS-##** and assign a **fixed bin** to the material. Use a **storage type indicator** for putaway for this material too. (You can use the **FIX** indicator; there is already a suitable entry in the storage type search sequence with storage type **005**). The material should be put away in quantities of five pieces on an industrial pallet.



Hint: To assign a fixed bin to a material, you have to enter the **storage type** (fixed bin storage **005** in our example) in the *Warehouse Management 2* view.

7. Test these settings using a goods receipt without a preceding document for five pieces of material **T-MS-##**. Post the goods receipt with movement type **501** in plant **1000**, storage type **01##** and then create the transfer order for the putaway in the foreground. Does the system propose the fixed bin according to the material master record? Finally, confirm your transfer order.

Solution 12: Use of the Warehouse Management Views

Task:

Add the *Warehouse Management 1* and *Warehouse Management 2* views in the material master.

1. Flywheel **T-BW01-##** cannot be put away in warehouse number **1##** because the two Warehouse Management views for this warehouse number are missing. Add the two views.



Hint: Adding views to a material master is technically regarded in the system as **creating**.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Create* → *Immediately*. Enter your material number, **T-BW01-##**, and confirm your entry with *Enter*. In the status line, the system issues a warning that the material type and industry will be copied from the existing material master. Choose *Enter* once more to reach the view selection dialog.
 - b) Select the *Warehouse Management 1* and *Warehouse Management 2* views and choose *Enter*.
 - c) Enter plant **1000** and your warehouse number, **1##**, as organizational levels and confirm your entries by choosing *Enter*. Create the two views by saving.
2. In the future, flywheel **T-BW01-##** should always be put away in rack storage (storage type **002**). Check in the Customizing for Warehouse Management to see if a storage type indicator for rack storage exists in your

Continued on next page

warehouse number, **1##**, and then check in the storage type search table: Is there an entry for your warehouse number, **1##**, that links the storage type indicator with storage type **002** during putaway activities?

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Storage Type Indicator* or *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Search*. (If you decide on the second Customizing path, choose the *Define* button).
 - b) Select the table entry for your warehouse number **1##**. The storage type indicator **REG** has the indicator “shelf storage.”
 - c) Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*.
 - d) Select the table entry for your warehouse number **1##**, operation **E**, and the storage type indicator **REG**. Storage type **002** is assigned as the first storage type in the search sequence.
3. Enter the storage type indicator in the material master of material **T-BW01-##**. Specify that the material can be **added to existing stock** in shelf storage. Check the master data of your shelf storage in Customizing. Is the appropriate indicator already assigned? If not, change the settings.
- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-BW01-##** and choose *Enter*. Select the *Warehouse Management I* view and confirm with *Enter*. Enter plant **1000** and warehouse number **1##** as the organizational levels. Choose *Enter*.
 - b) Enter the storage type indicator **REG** in the *Stock placement* field or select it using the input help. Also set the *Allow addn to stock* indicator and save the change.
 - c) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type* and select storage type **002** in warehouse number **1##**. Choose *Details* .
 - d) In the *Addn to stock* field, set the indicator **M** (*Addition to stock via addtn ID in material record*) or select it from the input help for the field. Save the changes.

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4. The material is to be put away regularly with either **50** pieces on industrial pallets of storage unit type **IP** or **30** pieces on europallets of storage unit type **E1**. Add the corresponding palletization data in the *Warehouse Management 2* view.
- In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately* . Enter material **T-BW01-##**, select the *Warehouse Management 2* view and enter plant **1000** and warehouse number **1##** as organizational levels.
 - Enter the following values in the *Warehouse Management 2* view:

LE quantity	Un	SUT
50	PC	IP
30	PC	E1

Save your entries.

5. Test your entries by posting a goods receipt without a purchase order (movement type **501**) for **80** pieces of material **T-BW01-##** in storage location **01##**, plant **1000**, and create the transfer order for putaway in warehouse number **01##** in the foreground. Does the system divide the total quantity according to the **palletization data** in the material master? Try placing the second storage unit in the same bin to check whether **addition to existing stock** functions.



Hint: So that you can add to existing stock, note down the first storage bin that the system proposes for putaway.

- Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Enter Goods Receipt for Purchase Order*. Select *Other* from the list of possible posting references. (*Purchase order* will be default). Check whether the system proposes movement type **501**.
- Enter your material number **T-BW01-##** on the *Material* tab page. On the *Quantity* tab page, increase the quantity **80**. Then choose the *Where* tab page and enter plant **1000** as well as your storage location **01##**. Save your entries to post the goods receipt.
- Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. Enter your warehouse number, **1##**, and your material number, **T-BW01-##**, and choose *Enter*.

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- d) Select your transfer requirement and choose *TO in foreground*. The system should display the following default values in the *Palletization data*.

SU	Qty per SUnit	SUT
1	50	IP
1	30	E1

- e) Choose *Putaway foreground*  and check the Storage bin search log under *Environment* in the menu. The storage type search should give storage type **002** in accordance with your table entry from step 2.
- f) Note the coordinates of the storage bin suggested by the system in storage type **002**. Confirm the warning message, “Check your entries” with *Enter*.
- g) Before you confirm the second system proposal with *Enter*, overwrite the bin coordinates with the coordinates of the storage bin proposed for the first storage unit and delete the quant number. Confirm the change with *Enter* and save the entries.



Hint: The system assigns a new quant number to the second item. However, you want to add to existing stock. That means there should be a “quant merger.” When you enter the storage bin of the first item, the system automatically proposes the quant number of the first item.

- h) Confirm the transfer order in the background by choosing *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the process indicator *Background* and then choose *Enter*.
6. Now add the two Warehouse Management views to the material master of material **T-MS-##** and assign a **fixed bin** to the material. Use a **storage type indicator** for putaway for this material too. (You can use the **FIX**

Continued on next page

indicator; there is already a suitable entry in the storage type search sequence with storage type **005**). The material should be put away in quantities of five pieces on an industrial pallet.



Hint: To assign a fixed bin to a material, you have to enter the **storage type** (fixed bin storage **005** in our example) in the *Warehouse Management 2* view.

- a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Create* → *Immediately*. Enter your material number, **T-MS-##**, and confirm the warning message, that the material type and industry will copied form the existing material master, with *Enter*. Select the *Warehouse Management 1* and *Warehouse Management 2* views, choose *Enter* and enter plant **1000**, warehouse number **1##**, and storage type **005** as organizational levels. Confirm your entries with *Enter*.
- b) Assign the indicator **FIX** in the *Stock placement* field in the *Warehouse Management 1* view and confirm your entries with *Enter*.
- c) Enter the following palletization data in the *Warehouse Management 2* view:

LE quantity	Un	SUT
5	PC	IP

- d) Use the input help to assign one of the storage bins from fixed bin storage in the *Storage Bin* field and save your entries.
7. Test these settings using a goods receipt without a preceding document for five pieces of material **T-MS-##**. Post the goods receipt with movement type **501** in plant **1000**, storage type **01##** and then create the transfer order for the putaway in the foreground. Does the system propose the fixed bin according to the material master record? Finally, confirm your transfer order.
 - a) Post the goods issue as described in steps 5.a) and 5.b).
 - b) Call the preparation screen for the putaway transfer order as described in step 5.c).
 - c) Choose *Putaway Foreground* . The system should propose the fixed bin of the material for putaway. Confirm the warning message with *Enter* and create the transfer order by saving.
 - d) Confirm the transfer order as described in step 5.h).



Lesson Summary

You should now be able to:

- Add the Warehouse Management views to an existing material master record
- Use the indicators in the material master that control the putaway process
- Create palletization data
- Assign fixed bins to materials

Lesson: Forms of Capacity Check

Lesson Overview

In Warehouse Management in SAP ECC, there are various possibilities for checking the capacity of a storage bin before putaway.



Lesson Objectives

After completing this lesson, you will be able to:

- Use the storage unit type check
- Name the capacity check methods in Warehouse Management
- Make the settings necessary at master data level

Business Example

Your company wants to make sure that certain load carriers are only placed in suitable storage bins. The system should also check in certain storage types that the capacity of the bin found using the putaway strategy is large enough for the putaway.

Storage Unit Type Check

If you want to ensure that the system checks the suitability of the load carriers for the storage bins in the intended storage type for every putaway, you should activate the **storage unit type check** in all of the storage types with different bin structures.

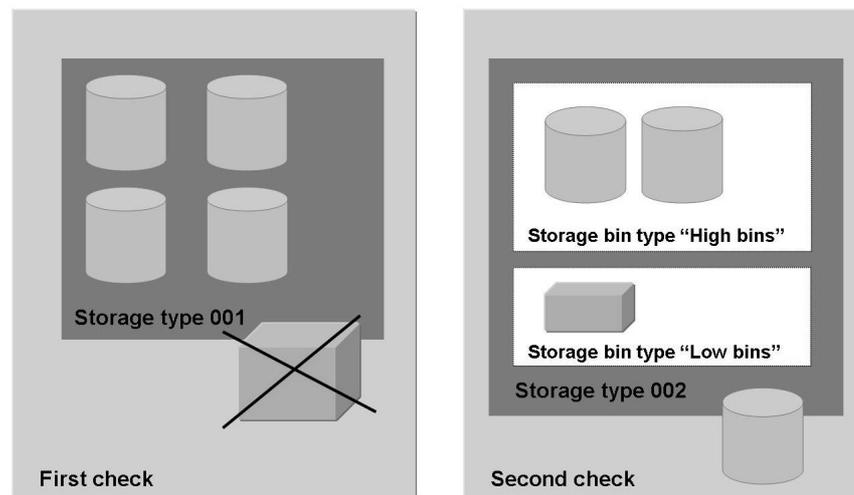


Figure 41: Storage unit type check

The storage unit type check consists of two steps:

1. In the first step, the system uses either the palletization data in the material master or data entered manually to check whether the **storage unit type** (SUT) is permitted for storage in the **storage type** that was found by the system or entered by the processor. If this is not the case, the system attempts a putaway in the next storage type in the storage type search sequence.
2. If the storage unit type is permitted in the storage type, the system searches for storage bins according to the putaway strategy that is valid for the storage type. However, this search is restricted to bins that belong to the **storage bin type** permitted for the storage unit type. If no suitable bin exists, the material cannot be put away in this storage type.

To use the storage unit type check, you have to assign the storage bins in all the relevant storage types to storage bin types.



Note: The system issues an error message if you forget to assign storage bin types when you create the storage bins.

You have to activate the storage unit check in all of the storage types (apart from bulk storage) in which you want to use the storage unit type check.

Capacity Check

Independent of the storage unit type check, the system can carry out a **capacity check** in every storage type during putaway. It determines a storage bin using the putaway strategy valid for the storage type and then checks its capacity. If the capacity is not sufficient to be able to put stock away or add stock in the bin, you will receive an error message when you create the transfer order. If you want the system to carry on searching in the storage type until it finds a storage bin with enough capacity, you can set the *Active capacity check* indicator. This “active” check may, however, significantly increase the processing time of the transfer order.

The following **capacity check methods** are preconfigured in the standard SAP ECC system:



1. Check based on the maximum weight per storage bin
2. Check based on the first palletization proposal
3. Check based on the maximum quantity (base unit of measure) per storage bin
4. Check based on the key figure of the material
5. Check based on the key figure of the storage unit type
6. Check based in the key figures of the material and the storage unit type

You can only assign **one** capacity check method to each storage type. Some putaway strategies have an inherent capacity check. The **next empty bin** strategy ensures that the system searches for an empty bin for each storage unit. If mixed

storage and addition to existing stock is not allowed in the storage type, and palletization data is stored in the material master, a capacity check is not usually needed for this strategy. The **pallets** and **bulk storage** strategies do not require an additional capacity check since the specifications for bin division take on this function. However, you need to assign a capacity check method for the **addition to existing stock** strategy.

Details of the Capacity Check Methods

With the capacity check based on the **maximum weight** of the storage bin, the system checks both the relevant data in the storage bin master record and the total gross weight of the material to be put away according to the material master. To use this check method, you have to enter weight data in both the storage bin and material master records. The system updates the capacity used and the remaining capacity at storage bin level.

If you assign the check based on the first **palletization proposal** in the material master, the system only allows one storage unit per storage bin in this storage type, according to the first palletization profile.

For the check according to the **maximum quantity** per storage bin, the storage type specific fields *storage bin* and *Maximum storage bin quantity* in the *Warehouse Management 2* view are filled in all of the relevant material master records. This check method is particularly suitable for fixed bin storage types. The unit of measure of the maximum quantity is always the base unit of measure for the material.

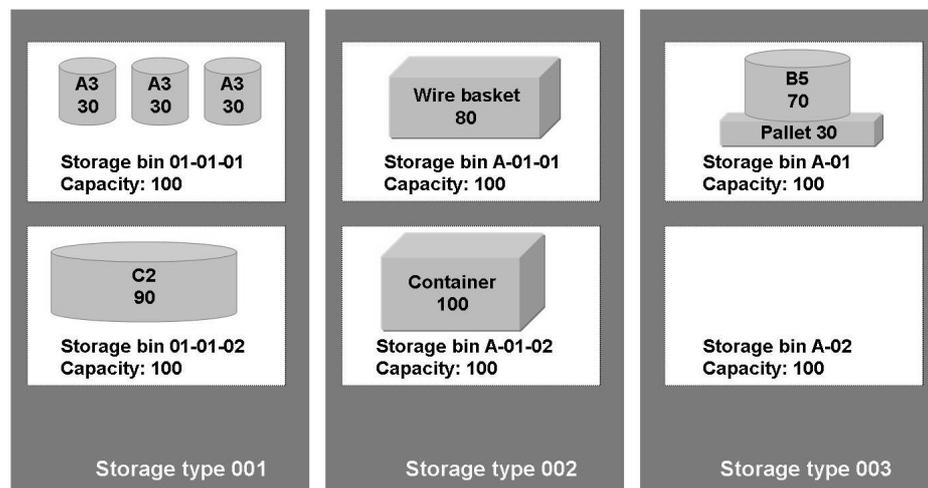


Figure 42: Capacity checks with neutral key figure

The remaining three capacity check methods all work with neutral (that is unitless) **key figures**. The capacity of a storage bin is always entered in the material master with a key figure. With the check based on the **material key figure**, all the materials for putaway have to be assigned a capacity usage at master data

level in the form of a key figure. The base is either the base unit of measure or an alternative unit of measure. The capacity usage key figure is entered in the *Warehouse Management 1* view.

If materials are generally stored in closed containers in a storage type, you can use the check based on the **key figure of the storage unit type** as an alternative. However, to use this check method, storage unit management must be active in the storage type. If you want to use this check method, you have to assign key figures for capacity usage to the storage unit types in Customizing.

It is also possible to combine the two check methods described above in a separate check method: check based on the key figures for the material and the storage unit type. The system not only checks the capacity usage of the material; it also checks the storage unit type and calculates the total capacity required for each storage unit. This method, which is particularly suited to pallets, only works in connection with storage unit management.

Exercise 13: Forms of Capacity Check

Exercise Objectives

After completing this exercise, you will be able to:

- Set up the storage unit type check
- Assign a capacity check method to a storage type

Business Example

You want to make sure that certain load carriers are only placed in storage bins that are suited to them in high rack storage. In fixed bin storage, the system should always check whether the capacity of the relevant fixed bin is sufficient for an addition to existing stock.

Task:

Set up the storage unit type search in your new high rack storage type. Then activate a quantity-based capacity check for fixed bin storage.

1. Check the master data for your storage type, **015**, in advance. Is the storage unit type check already active? If not, activate the check now.
2. Test the effect of the check by posting a goods receipt without a purchase order for 100 pieces of material **T-BW02-##** so that you can try to put away the material quantity in storage type **015** in the next step. Use material type **501** and post the goods receipt to storage location **01##** in plant **1000**.
3. Try to create the transfer order to put away the material in storage type **015** in the foreground. What message is displayed? Which settings are still missing?
4. Add the missing settings in Customizing for Warehouse Management. Specify that only europallets (**E1** and **E2**) and industrial pallets (**IP**) are permitted in storage type **015**. The industry pallets can only be put away in storage bins of storage bin type **P1**, **P2**, and **B2**. The europallets can be put away in storage bin types **P1** to **P3**, and **B1**.
5. Try to create the putaway transfer order once more. How does the system react?



Hint: You can check the system's activities by calling the bin determination log under *Environment* in the menu.

6. Confirm the transfer order in the background.

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7. Activate a capacity check in storage type **005** in your warehouse number, **1##**. The system should compare the material quantity to be put away with the maximum quantity allowed for the individual fixed bin.
8. Add a corresponding maximum quantity value in the master record of material **T-BW21-##**. You should be able to put away a maximum of **500** pieces in the fixed bin.



Hint: To view the fields in the master record that are specific to the storage type, you have to enter storage type **005** when you call the *Warehouse Management 2* view.

Solution 13: Forms of Capacity Check

Task:

Set up the storage unit type search in your new high rack storage type. Then activate a quantity-based capacity check for fixed bin storage.

1. Check the master data for your storage type, **015**, in advance. Is the storage unit type check already active? If not, activate the check now.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **015** in your warehouse number, **1##**, and choose *Details* .
 - b) The *SUT check active* indicator must be set in the *Stock placement control* section.
2. Test the effect of the check by posting a goods receipt without a purchase order for 100 pieces of material **T-BW02-##** so that you can try to put away the material quantity in storage type **015** in the next step. Use material type **501** and post the goods receipt to storage location **01##** in plant **1000**.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Enter Goods Receipt for Purchase Order*. Select *Other* from the list of possible posting references. (*Purchase order* will be default). Check whether the system proposes movement type **501**.
 - b) Enter your material number **T-BW02-##** on the *Material* tab page. On the *Quantity* tab page, increase the quantity **100**. Then choose the *Where* tab page and enter plant **1000** as well as your storage location **01##**. Save your entries to post the goods receipt.
3. Try to create the transfer order to put away the material in storage type **015** in the foreground. What message is displayed? Which settings are still missing?
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. Enter warehouse number **1##** and material number **T-BW02-##** and choose *Enter*.
 - b) Select your transfer requirement and choose the *TO in Foregr.*
 - c) Choose *Putaway foreground* . You receive an error message, “Allowed storage unit types not defined for storage type 015”, because you have not entered the **specifications** for the storage unit type check. The system therefore has nothing to check.
 - d) Terminate the creation of the transfer order with *Cancel* . Confirm the warning message with *Yes* and choose *Cancel*  again.

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4. Add the missing settings in Customizing for Warehouse Management. Specify that only europallets (**E1** and **E2**) and industrial pallets (**IP**) are permitted in storage type **015**. The industry pallets can only be put away in storage bins of storage bin type **P1**, **P2**, and **B2**. The europallets can be put away in storage bin types **P1** to **P3**, and **B1**.
- In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Bin Type Search* and then choose *Storage type*.
 - On the next screen, choose *New Entries* and enter a new table entry for your warehouse number, **1##**, storage type **015**, and storage unit types **E1**, **E2**, and **IP**:

Wh	Type	1. storage unit type	2.	3.
1##	015	E1	E2	IP

Save your entries and exit the table.

- Choose *Storage bin type*. Select the entry for your warehouse number, **1##**, and storage unit type **IP**; Storage bin types **P1**, **P2**, and **B2** are assigned.
- Select the entry for warehouse number **1##** and storage unit type **E1**. Change the entry to the values below:

Wh	SUT	1. storage bin type	2. storage bin type	3. storage bin type	4. storage bin type
1##	E1	P1	P2	P3	B1

Save your entries.

5. Try to create the putaway transfer order once more. How does the system react?



Hint: You can check the system's activities by calling the bin determination log under *Environment* in the menu.

- Choose *Logistics* → *Logistics Execution* → *Goods Receipt Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material* and create the transfer order in the foreground as described in step 3.
- The system proposes a storage bin with storage type **015**. Create the transfer order by saving.

Continued on next page

6. Confirm the transfer order in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*.
 - b) Choose the process indicator *Background* and then choose *Enter*.
7. Activate a capacity check in storage type **005** in your warehouse number, **1##**. The system should compare the material quantity to be put away with the maximum quantity allowed for the individual fixed bin.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **005** in your warehouse number, **1##**, and choose *Details* .
 - b) Choose method **3** (*Check based on maximum quantity per bin in storage type*) using the input help for the *Capacity check method* field and save the change.
8. Add a corresponding maximum quantity value in the master record of material **T-BW21-##**. You should be able to put away a maximum of **500** pieces in the fixed bin.



Hint: To view the fields in the master record that are specific to the storage type, you have to enter storage type **005** when you call the *Warehouse Management 2* view.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-BW21-##** and choose *Enter*. Select the *Warehouse Management 2* view and confirm with *Enter*. Enter plant **1000**, warehouse number **1##**, and storage type **005** as organizational levels and confirm once more with *Enter*.
- b) Enter **500** in the *Maximum bin quantity* field and save the change.



Lesson Summary

You should now be able to:

- Use the storage unit type check
- Name the capacity check methods in Warehouse Management
- Make the settings necessary at master data level

Lesson: Quality Check in the Warehouse

Lesson Overview

If you use the **Quality Management** (QM) in your SAP ECC system, you may also need to take its needs into account in Warehouse Management. This lessons will teach you the system settings required for working with QM.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the options for dealing with inspection samples during putaway
- Configure the interface between Quality Management and Warehouse Management

Business Example

Your company uses Quality Management in SAP ECC. to check which is the best procedure for dealing with inspection samples during putaway.

Quality Inspection in Warehouse Management

Quality inspection (QM-IM) is part of **Quality Management** in SAP ECC. If a material is to be subject to regular quality checks in certain logistical processes, add the *Quality Management* view in the material master. Here you can make settings that control the inspection procedure in detail. The **inspection type** is also relevant for Warehouse Management and decides where in the process the quality inspection occurs. Examples of inspection types that are preconfigured in SAP ECC and are also relevant for Warehouse Management are:

- Inspection on goods receipt for purchase order (inspection type **01**)
- Final inspection for goods receipt from production (inspection type **04**)
- Inspection for other goods receipt (inspection type **05**)

In the detail settings for the inspection type in the material master, you also specify whether the material quantity to be checked is automatically posted to **quality inspection stock**. Since the stock category is one of the **quant characteristics**, this settings has a direct effect on Warehouse Management. Quality inspection stock is always listed separately in the stock overview for the warehouse number. A posting change of the inspected material quantity to unrestricted use stock (usually as a result of a usage decision) has to be carried out in Warehouse Management using a **transfer order**.



Note: Processing posting changes in the warehouse is covered in a separate lesson.

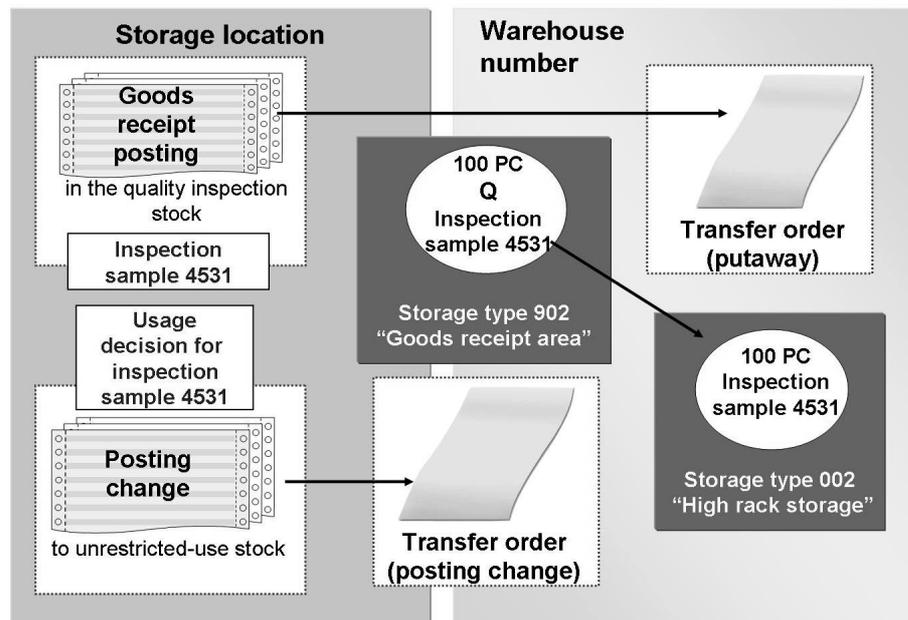


Figure 43: Goods issue process with quality management

Settings relating to **sampling** are also relevant for Warehouse Management. The detail settings for the inspection category per material in Quality Management specify whether the entire quantity or only a partial quantity -- a sample -- should be checked. To define the extent of the sampling, you can assign either an inspection percentage or a sampling procedure (already created as master data in Quality Management) in the material master.

The actual inspection process uses **inspection lots**, which the system creates during the Inventory Management posting according to the inspection settings in the material master. If the Inventory Management posting affects a plant / storage location combination assigned to a warehouse number in Customizing, the system writes the numbers of the inspection lots in the data record of the **quant**, which it has created in the interim storage area determined as a result of the movement type. The inspection lots contain the storage data of the material quantities in them, that is, warehouse number, storage type, and storage bin.

Handling Inspection Lots in Warehouse Management

You define how the system should deal with inspection lots during putaway in Customizing for Warehouse Management. The following options are available in SAP ECC standard system:



1. Interim storage of inspection samples in a work center
2. Inspection lots remain in the goods receipt area
3. Put away the inspection lots and the remaining quantities
4. Pass over transfer requirement items that belong to an inspection lot

If you want to bring the inspection lots into a special room in the warehouse for checking, you can use interim storage area **917**, which is already set up in the standard SAP ECC system, and create a storage bin for inspection lots in this area. If you have decided on option **1** in Customizing, the system creates a separate transfer order item for the inspection sample quantity, putting it in interim storage area 917, and puts away the remaining quantity according to the settings for the storage type search.

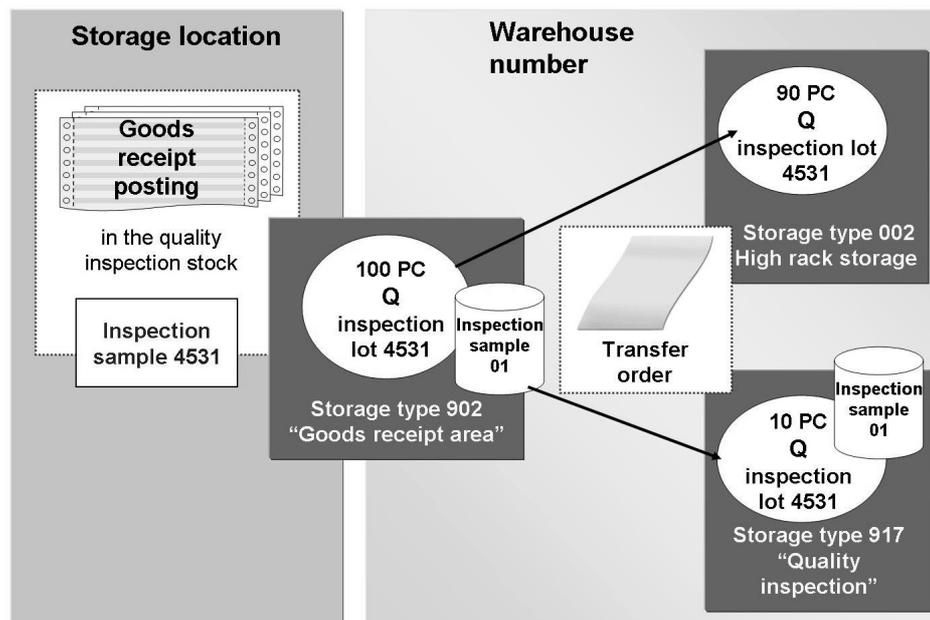


Figure 44: Checking inspection samples in a work center

If you want the quality inspection to occur directly when the goods are received, you can use option **2**. The inspection sample quantity remains in the goods receipt area for checking and the remaining quantity is put away.

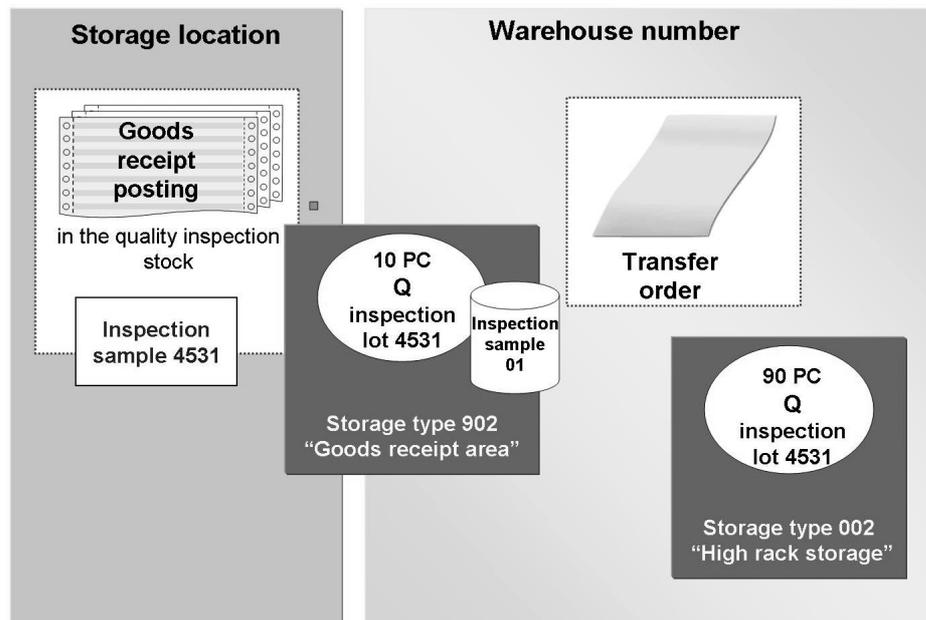


Figure 45: Check on goods receipt

You can also put the entire quantity away and carry out the check at the bin. If you want to put away the complete quantity, use option **3**.

If you decide on option **4**, the system passes over the entire transfer order item that is part of the inspection lot. Unlike option **2**, not only the inspection sample but the entire quantity of the transfer requirement item remains in the goods receipt area.

You can process the inspection lots in the warehouse in the foreground or in the background. If you want to give the processor the chance to deal with individual samples using a different method than the one defined in Customizing, set the indicator for **interactive** processing. If you want the system to automatically deal with inspection as defined in Customizing, choose the indicator for **background processing**. Only then is it possible to create transfer orders with inspection lot materials in the background.

Exercise 14: Configuring the Interface to Quality Management

Exercise Objectives

After completing this exercise, you will be able to:

- Configure the interface between Quality Management and Warehouse Management
- Execute a putaway with quality inspection

Business Example

Some goods are subject to a quality inspection on goods receipt. Inspection samples are taken from the goods that have been received and, instead of being put away immediately, they are taken to a special work center.

Task:

Put away the material subject to quality inspection in your warehouse number. The inspection sample is taken to a work center. After the usage decision has been made in Quality Management, put the inspection sample away.

1. Check the material master of material **T-BW25-##**. Is it relevant for quality inspection if there is a goods receipt without a preceding document? Which inspection settings are valid?
2. Post a goods receipt without a preceding document for 300 pieces of material **T-BW25-##** in storage location **01##** in plant **1000**. Use movement type **501**.
3. Check the stocks of material **T-BW25-##** in your warehouse number, **1##**. Was the new receipt posted to quality inspection stock? What is the number of the **inspection lot** created during goods receipt posting?



Hint: You can see which inspection lots a **quant** belongs to in the quant data record.

Continued on next page

- In Customizing for Warehouse Management, make the settings for inspection lot handling in your warehouse number, **1##**: The system should propose (temporary) putaway of the inspection lot quantity in storage type **917** in the predefined storage bin **QUALITY**. You can copy the existing table entry for warehouse number **001** with the indicator defined in this entry, **QI**.



Hint: The system proposal is specified using the freely definable *QM control* indicator. You use the *Inspec. sample handling in WM* indicator to define which of the four procedures the system should propose for handling inspection samples. The *F/B Frgrnd/bckgrnd for sample dialog box* defines whether the processor can change the system proposal manually.

- To allow the system to determine storage type **917** for putaway of inspection sample quantities, you have to add the indicator defined in step 4 in the **storage type search** for **quality inspection stock** in your warehouse number, **1##**.



Hint: You can call an enhanced version of the storage type search table in the Customizing interface under *Activate QM Interim Storage Type Search*.

- Test your settings by creating a transfer order for the transfer requirement that was created as a result of the goods receipt posting in step 2. Does the system propose the storage bin **QUALITY** in storage type **917** for interim storage of the inspection sample? Put away the remaining material in the background and confirm the transfer order.
- Check the stocks of material **T-BW25-##** in your warehouse number, **1##**.
- Make a usage decision for the inspection lot. You want to accept the entire material quantity and post it to unrestricted use stock.



Hint: Use the indicator **A1** (*Accept, stock posting*).

- Check the stocks of material **T-BW25-##** in your warehouse number, **1##**, once more. What can you ascertain? What would you still have to do in Warehouse Management?

Solution 14: Configuring the Interface to Quality Management

Task:

Put away the material subject to quality inspection in your warehouse number. The inspection sample is taken to a work center. After the usage decision has been made in Quality Management, put the inspection sample away.

1. Check the material master of material **T-BW25-##**. Is it relevant for quality inspection if there is a goods receipt without a preceding document? Which inspection settings are valid?
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter your material number, **T-BW25-##**, and confirm your entry with *Enter*. Select the *Quality Management* view, choose *Enter*, enter plant **1000** as the organization level, and confirm with *Enter*.
 - b) Choose *Inspection setup*. Inspection types **01** (*Goods Receipt Inspection for Order*) and **05** (*Inspection for Other Goods Receipt*) are valid. Incoming quantities are posted to **quality inspection stock**. An **inspection sample** of 10 percent of the total quantity should be taken for inspection purposes.
2. Post a goods receipt without a preceding document for 300 pieces of material **T-BW25-##** in storage location **01##** in plant **1000**. Use movement type **501**.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Enter Goods Receipt for Purchase Order*. Select *Other* from the list of possible posting references. (*Purchase order* will be default). Check whether the system proposes movement type **501**.
 - b) Enter your material number **T-BW25-##** on the *Material* tab page. On the *Quantity* tab page, increase the quantity **300**. Then choose the *Where* tab page and enter plant **1000** as well as your storage location **01##**. Save your entries to post the goods receipt.

Continued on next page

3. Check the stocks of material **T-BW25-##** in your warehouse number, **1##**. Was the new receipt posted to quality inspection stock? What is the number of the **inspection lot** created during goods receipt posting?



Hint: You can see which inspection lots a **quant** belongs to in the quant data record.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW25-##** and choose *Enter*.
 - b) Place the cursor on the plant/storage location stock line and choose *Bin stock*.
 - c) Choose the storage bin coordinates **WE-ZONE** to reach the storage bin master record.
 - d) Select the material row in the *Stock per storage bin* section and choose *Quant*. The inspection lot number is in the *Stock data* section.
4. In Customizing for Warehouse Management, make the settings for inspection lot handling in your warehouse number, **1##**: The system should propose (temporary) putaway of the inspection lot quantity in storage type **917** in the predefined storage bin **QUALITY**. You can copy the existing table entry for warehouse number **001** with the indicator defined in this entry, **QI**.



Hint: The system proposal is specified using the freely definable *QM control* indicator. You use the *Inspec. sample handling in WM* indicator to define which of the four procedures the system should propose for handling inspection samples. The *F/B Frgrnd/bckgrnd for sample dialog box* defines whether the processor can change the system proposal manually.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Define Quality Management* and then *Define Inspection Sample Control*.
- b) Create a new table entry for your warehouse number, **1##**, by copying the entry for warehouse number **001** using *Copy As...*  and overwriting the warehouse number with **1##**. Save your new entry and exit the table.

Continued on next page

5. To allow the system to determine storage type **917** for putaway of inspection sample quantities, you have to add the indicator defined in step 4 in the **storage type search** for **quality inspection stock** in your warehouse number, **1##**.



Hint: You can call an enhanced version of the storage type search table in the Customizing interface under *Activate QM Interim Storage Type Search*.

- a) Choose *Logistics Execution → Warehouse Management → Interfaces → Define Quality Management* and then *Activate QM Interim Storage Type Search*.
 - b) Select the entry for warehouse number **1##**, operation **E**, and stock category **Q**. Assign your control indicator from step 4 using the input help for the *QM Control* field and save the change.
6. Test your settings by creating a transfer order for the transfer requirement that was created as a result of the goods receipt posting in step 2. Does the system propose the storage bin **QUALITY** in storage type **917** for interim storage of the inspection sample? Put away the remaining material in the background and confirm the transfer order.
 - a) In the application menu, choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Create Transfer Order → For Material*. Enter your warehouse number, **1##**, and your material number, **T-BW25-##**, and choose *Enter*. Select your transfer requirement and choose the *TO in Foregr.*
 - b) The *Process QM Inspection Lot* screen should now appear. The system should propose the option *Transfer qty to insp. bin* and storage bin **QUALITY** in storage type **917**. Confirm the system proposal with *Enter*.
 - c) Choose the *Generate + next mat.* button and create the transfer order by saving.
 - d) Choose *Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Confirm Transfer Order → Single Document → In One Step*. Choose the process indicator *Background* and then *Enter*.

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7. Check the stocks of material **T-BW25-##** in your warehouse number, **1##**.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW25-##** and choose *Enter*.
 - b) The inspection sample and the remaining quantity should be available stock in quality inspection stock in your storage types.
8. Make a usage decision for the inspection lot. You want to accept the entire material quantity and post it to unrestricted use stock.



Hint: Use the indicator **A1** (*Accept, stock posting*).

- a) Choose *Logistics* → *Quality Management* → *Quality Inspection* → *Inspection Lot* → *Usage Decision* → *Record*. Usually, the inspection lot number is already entered as the default value. If not, you can use the input help for the *Inspection Lot* field. Choose *Enter*.
 - b) In the *UD code* field in the *Usage Decision* section, use the input help to select the first entry in the *Usage Decision for the Inspection Lot* screen (indicator *01 Wareneingang/Goods receipt*).
 - c) Select the indicator **A1** (*Accept, stock posting proposal*) and confirm the selection with *Enter*.
 - d) Choose the *Inspection Lot Stock* tab page and, in the *To be posted* section, choose *Proposal*. The system proposes that 300 pieces of the material be posted to unrestricted use stock in storage location **01##**. Post the usage decision by saving your entries.
9. Check the stocks of material **T-BW25-##** in your warehouse number, **1##**, once more. What can you ascertain? What would you still have to do in Warehouse Management?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW25-##** and choose *Enter*.
 - b) The entire material quantity is now “virtually” in interim storage area **922** (posting change area). You can see a negative quant in quality inspection stock and a positive quant in unrestricted use stock. Using a transfer order, you would now have to execute the posting change (which has already been completed in Inventory Management) in Warehouse Management as well.



Hint: “Posting changes” are dealt with in a separate lesson.



Lesson Summary

You should now be able to:

- Explain the options for dealing with inspection samples during putaway
- Configure the interface between Quality Management and Warehouse Management



Unit Summary

You should now be able to:

- Explain the sequence of steps in the putaway process
- Set up storage type and storage area determination for putaway
- Post differences that have occurred (or have been discovered) during putaway
- Name the preconfigured putaway strategies
- Explain how these strategies work
- Add the Warehouse Management views to an existing material master record
- Use the indicators in the material master that control the putaway process
- Create palletization data
- Assign fixed bins to materials
- Use the storage unit type check
- Name the capacity check methods in Warehouse Management
- Make the settings necessary at master data level
- Explain the options for dealing with inspection samples during putaway
- Configure the interface between Quality Management and Warehouse Management



Test Your Knowledge

1. How does the system determine a storage bin for putaway?

2. In which putaway strategies do combinations of storage bin types and storage unit types play a decisive role?

3. Which of the indicators listed below does not affect putaway?

Choose the correct answer(s).

- A Stock placement indicator
- B Special movement indicator
- C Allow addition to stock
- D Two-Step Picking
- E Bulk storage indicator

4. If the *Allow addition to stock* indicator is activated in the material master, the material is always added to existing stock.

Determine whether this statement is true or false.

- True
- False

5. Which putaway strategies do not generally require separate capacity checks?

Choose the correct answer(s).

- A **Pallets** strategy
- B **Addition to existing stock** strategy
- C **Next empty bin** strategy
- D **Bulk storage** strategy
- E **Fixed bin** strategy

6. What options does Warehouse Management offer for handling inspection lots?



Answers

1. How does the system determine a storage bin for putaway?

Answer: First, the system determines the destination **storage type**. If you have activated the storage section check in Customizing for the storage type, the system searches for a **storage section** in the next step. **Storage bin** determination then occurs according to the putaway strategy for the destination storage type.

2. In which putaway strategies do combinations of storage bin types and storage unit types play a decisive role?

Answer: Combinations of storage bin types and storage unit types play a role in the **pallets** and **bulk storage** strategies.

3. Which of the indicators listed below does not affect putaway?

Answer: D

The *two-step picking* indicator is used to control stock removal.

4. If the *Allow addition to stock* indicator is activated in the material master, the material is always added to existing stock.

Answer: False

The indicator allows addition to stock, but does not purposely trigger it.

5. Which putaway strategies do not generally require separate capacity checks?

Answer: A, C, D

You must activate the capacity check for the **addition to existing stock** strategy; it is recommended that you use the capacity check for the **fixed bin** strategy.

6. What options does Warehouse Management offer for handling inspection lots?

Answer: You can place the inspection sample quantity in an inspection bin in a separate storage type, leave it in the goods receipt area, put the entire inspection lot quantity away, or pass over the transfer order item with the inspection sample when you create the transfer order.

Unit 5

Stock Removal Control

Unit Overview

This unit deals with the configuration of the storage bin search during stock removal. It also discusses batch management.



Unit Objectives

After completing this unit, you will be able to:

- Explain the sequence of steps in the stock removal process
- Set up the storage type search for stock removal
- Use material master data to control stock removal
- Name the preconfigured stock removal strategies
- Explain how these strategies work
- Make the settings for the selected strategies
- Explain the meaning of negative stock
- Activate the requirement to remove all stock for a storage type
- Use the zero stock check independent of the physical inventory
- Describe the main features of batch management
- Explain the principle of batch determination
- Set up batch determination in Warehouse Management

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Lesson: The Stock Removal Process

Lesson Overview

This lesson will introduce you to the general controls for removing material quantities from storage. You will also learn how the material master data can influence stock removal.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the sequence of steps in the stock removal process
- Set up the storage type search for stock removal
- Use material master data to control stock removal

Business Example

Your company wants to check the general flow during stock removal in order to ascertain which settings need to be adjusted.

Stock Removal Process

Certain steps occur in the same way and in the same sequence for each stock removal process. These are the **search process steps** at different organizational levels. You can control the results of the search activities using a range of indicators. If you are using batch management, the batch determination process also has an influence on stock removal. Regardless of whether you use indicators or batch management, it is always the creation of a **transfer order** for stock removal that triggers search activities. If you are working with a confirmation requirement, you have the opportunity to check the result of the search when the transfer order is confirmed, and you can reject the search result entirely or partially by canceling the document or individual items within it.

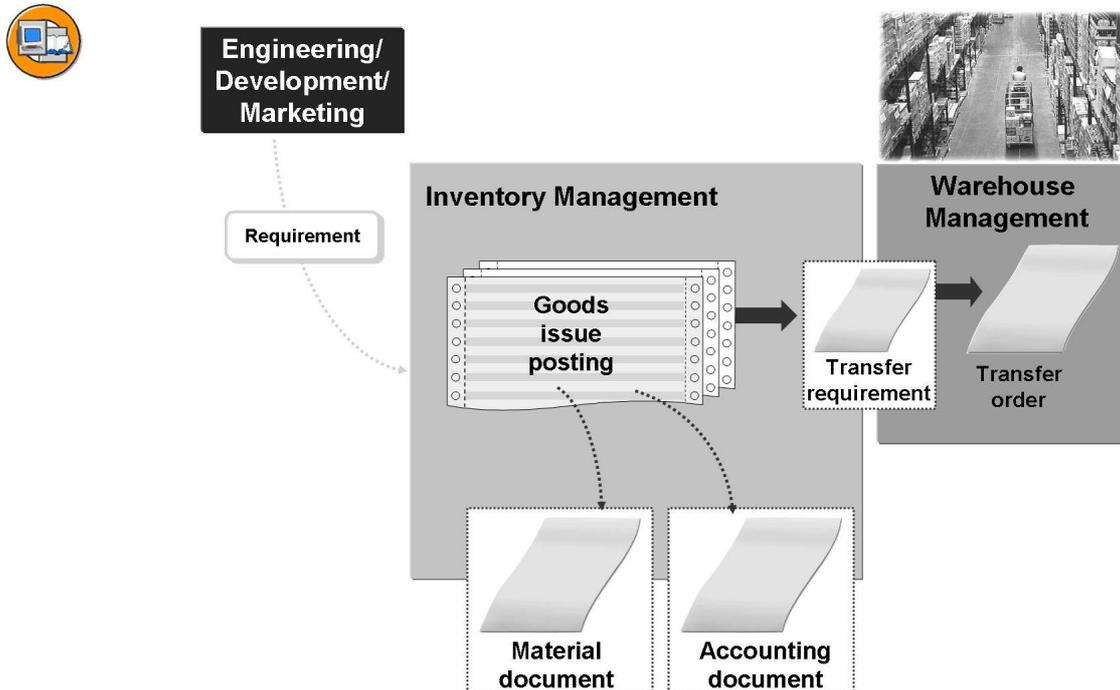


Figure 46: Stock removal with transfer order

In figure 47, the stock removal transfer order is created with reference to a transfer requirement. However, the transfer requirement could equally be replaced by an outbound delivery.

Figure 48 illustrates the individual search steps.

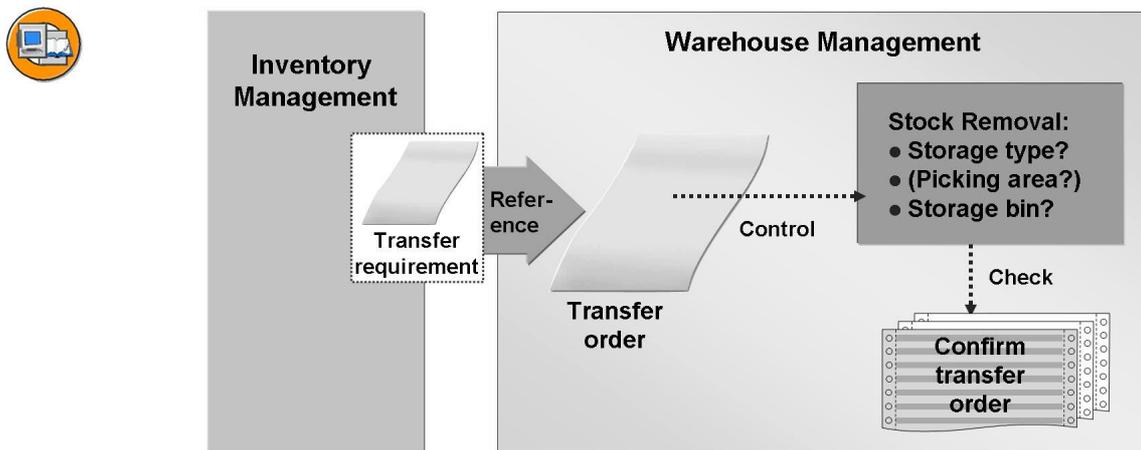


Figure 47: Control of stock removal

At the start of the stock removal process, the system always searches for a suitable removal **storage type** (called a *source storage type* in the system). In the same way as for putaway control, you have to make corresponding entries in the

storage type search table for stock removal control in Warehouse Management Customizing. It is advisable to make an entry for regular cases first, that is, for the storage type search for all stock removal activities that are not influenced by one or more indicators at various levels. You put the storage types that the system is to take into account during stock removal into a **search sequence** in the table. The search for suitable bin stock always begins in the first storage type in this search sequence. If this attempt fails, the system tries to find stock in the second storage type. If the system works through the entire sequence without success, it cannot create the transfer order unless you manually assign a suitable storage type that is not in the search sequence and that contains the material to be picked. When you create a transfer order for stock removal in the foreground, you can also access a **stock list** and select specific stock for removal.

If you have divided the space in your storage types into **picking areas**, you can use these to optimize the removal of stock from storage.

- You print a **pick list** for multiple transfer orders in which the material quantities for removal from storage are sorted according to picking area.
- The picking area is a criteria for what is known as the **transfer order split**. This means that several transfer orders are created for each reference document (transfer requirement or outbound delivery).

The last step during stock removal is always the **storage bin search**. A suitable storage bin is determined as a result of the **strategy** for searching for bin stock for stock removal. SAP ECC contains some preconfigured stock removal strategies (for example, “first in first out”) from which you can choose **one** strategy for each storage type. You can also use a user exit to include your own strategy.



Note: The stock removal strategies are dealt with in a separate lesson.

Indicators Relevant to Stock Removal in the Material Master

There are several indicators in the *Warehouse Management 1* view in a material master that you can use to control stock removal activities at material level.

- Storage type indicator for stock removal
- Special movement indicator
- *Two-step picking* indicator

You can use the **storage type indicator for stock removal** to point the search for bin stock for removal towards a specific storage type. A storage type indicator, which you can also use to control putaway, is a kind of “governor” of the issuing or destination storage type. You define it in Customizing for Warehouse Management and assign it to a warehouse number. You then have to add an entry in the storage type search table to link the storage type indicator and the storage type. You can then set the storage type indicator in the master data records of the materials that you want to remove from the storage type represented by the indicator.

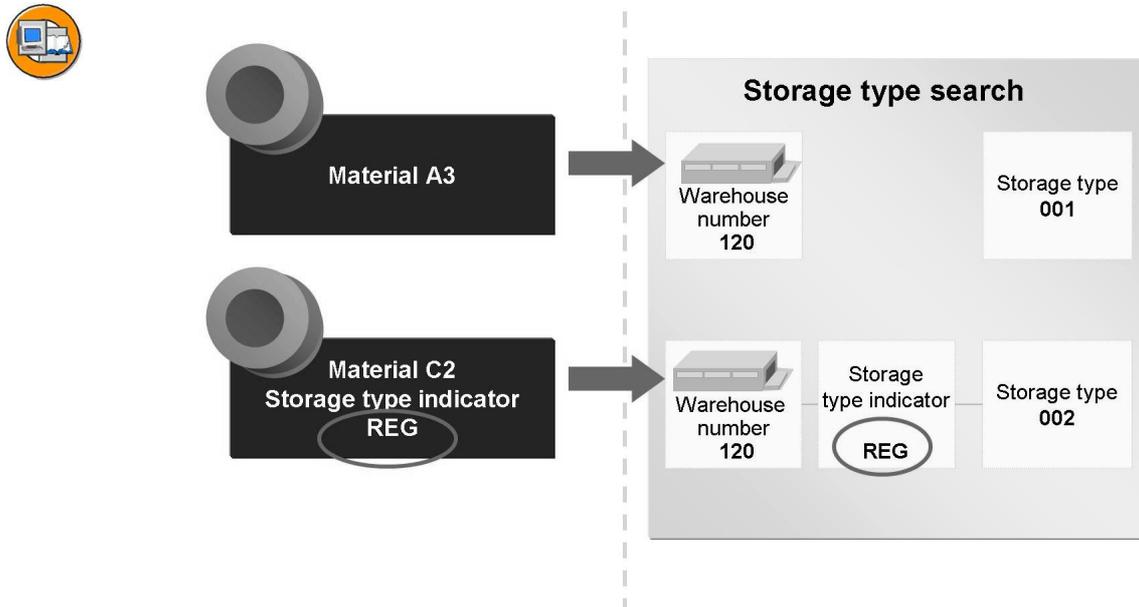


Figure 48: Storage type indicator

When you create a transfer order, the system checks the material master records of the material that is to be removed from storage. If it finds a storage type indicator, it searches in the storage type search table for an entry containing this indicator and tries to remove the material from the assigned storage type. If no suitable entry exists, you receive an error message. Generally, however, you cannot enter a storage type manually.

The **special movement indicator**, which you can also use for controlling putaway, allows you to give special treatment to selected materials. For example, immediate transfer order creation or removal from a particular (interim) storage type.

➔ **Note:** The special indicator for movement is dealt with in a separate lesson.

In the standard SAP ECC system, the **two-step picking** process is controlled at material level. In the first step of this process, a single transfer order is created for a group of outbound deliveries or transfer requirements. Using this picking transfer order, you pick the total quantity of all of the required materials together. In the second step, transfer orders are created to divide the removed quantity among the outbound deliveries or transfer requirements contained in the group. The system decides whether a material is **relevant** for two-step picking on the basis of the *two-step picking* indicator in the *Warehouse Management 1* view. Only materials with this indicator are included in the process. All others are picked in one step.

Exercise 15: Setting Up Storage Type Search During Stock Removal

Exercise Objectives

After completing this exercise, you will be able to:

- Set up the storage type search for stock removal

Business Example

You want to ensure that a particular material is picked from shelf storage and another is picked from its fixed bin.

Task:

Specify that material **T-BW01-##** should be picked regularly from shelf storage, and material **T-MS-##** should be picked from its fixed bin.

1. Check whether there are entries for **stock removal** in the storage type search table for your warehouse number, **1##**, for storage type indicator **REG** (shelf storage) and **FIX** (fixed bin). Which storage types are assigned in each case?
2. Add the storage type indicator for stock removal, **REG**, to the *Warehouse Management I* view of material **T-BW01-##**.
3. Now make the corresponding changes to material **T-MS-##** by assigning the storage type indicator for stock removal, **FIX**, in the *Warehouse Management I* view.

Solution 15: Setting Up Storage Type Search During Stock Removal

Task:

Specify that material **T-BW01-##** should be picked regularly from shelf storage, and material **T-MS-##** should be picked from its fixed bin.

1. Check whether there are entries for **stock removal** in the storage type search table for your warehouse number, **1##**, for storage type indicator **REG** (shelf storage) and **FIX** (fixed bin). Which storage types are assigned in each case?
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*.
 - b) Select the table entry for your warehouse number, **1##**, operation **A**, and the storage type indicator **REG**. Storage type **002** (shelf storage) is assigned as the first storage type in the search sequence.
 - c) Select the table entry for your warehouse number, **1##**, operation **A**, and storage type indicator **FIX**. The first storage type in the search sequence is the fixed bin storage (storage type **005**). If no stocks can be removed from the fixed bin, the system searches in high rack storage (storage type **001**) for available stock.



Hint: There is also a second entry for warehouse number **1##**, operation **A**, and storage type indicator **FIX**, which has a different *reference storage type search* than the first entry. This indicator is dealt with in a separate lesson.

2. Add the storage type indicator for stock removal, **REG**, to the *Warehouse Management 1* view of material **T-BW01-##**.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-BW01-##**, choose *Enter*, and then choose the *Warehouse Management 1* view. Confirm with *Enter* again, enter plant **1000** and warehouse number **1##** as organizational levels, and choose *Enter*.
 - b) Enter the storage type indicator **REG** in the *Stock removal* field or select it using the input help. Save the changes.

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3. Now make the corresponding changes to material **T-MS-##** by assigning the storage type indicator for stock removal, **FIX**, in the *Warehouse Management I* view.
 - a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately* . Enter material number **T-MS-##**, choose the *Warehouse Management I* view, and enter plant **1000** and warehouse number **1##** as organizational levels.
 - b) Enter the storage type indicator **FIX** in the *Stock removal* field or select it using the input help. Save the changes.



Lesson Summary

You should now be able to:

- Explain the sequence of steps in the stock removal process
- Set up the storage type search for stock removal
- Use material master data to control stock removal

Lesson: Storage Bin Search for Stock Removal

Lesson Overview

In this lesson, you will learn about strategies for controlling the storage bin search during stock removal.



Lesson Objectives

After completing this lesson, you will be able to:

- Name the preconfigured stock removal strategies
- Explain how these strategies work
- Make the settings for the selected strategies

Business Example

Your company wants to check which methods are suitable for determining stock for removal from storage.

Storage Bin Search

During stock removal, the system first searches for a **storage type** on creation of the transfer order. The storage type decides the criteria according to which the system selects quants in **storage bins** for stock removal. You can assign a **stock removal strategy** to every storage type for the storage bin search. If the storage type is divided into **picking areas**, the system can (depending on the Customizing settings) create a separate transfer order for each picking area relevant to the stock removal activity.

The SAP ECC standard system contains a number of preconfigured stock removal strategies. For two of these strategies, you simply assign them to a storage type of your choice. For others, you have to make some additional settings before you can use them. The following stock removal strategies are part of the “basic functions” in SAP ECC:



- First in first out (**F**)
- Stringent FIFO (*******)
- Last in first out (**L**)
- Partial pallet quantity (**A**)
- Large/small quantities (**M**)
- Shelf Life Expiration date (**H**)
- Fixed bin (**P**)

You can find these strategies under *Logistics Execution* → *Warehouse Management* → *Strategies* → *Stock Removal Strategies*. If you need to make additional settings, you can access the relevant tables here.



Note: If you want to use your own search logic, you can use the SAP enhancements **MWMT0004** and **MWMT0013**.

Overview of the Stock Removal Strategies

With the **first in first out (FIFO)** strategy, the system always proposes the oldest quant of the relevant material in the storage type for removal. The system uses the **goods receipt date** stored in the data record of each quant to determine which quant is the oldest. You can define in Customizing for Warehouse Management that instead of the **creation date**, either the **document date** or **posting date** of the material document is entered as the goods receipt date in the quant data record during the goods receipt posting.



Note: The document date is the issue date of the original document, for example the date of the the delivery note issued by the vendor, or the internal goods receipt slip. The posting date is the date on which the document is created in Financial Accounting.

If, for certain processes, you want to use the document date or posting date as the goods receipt date in the quant data record, choose *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types*, and then choose *LE-WM Interface to Inventory Management*. In the table that links the Inventory Management and Warehouse Management movement types using a reference movement type, you will see column *GR Date*. In this field, you can assign either the indicator **1** (document date) or indicator **2** (posting date) in this field. If the field remains empty, the system uses the creation date of the goods receipt posting (day's date) as the goods receipt date.



Note: The link between Inventory Management and Warehouse Management movement types is dealt with in a separate lesson.

If you use the **FIFO** strategy, note that the goods receipt date of the oldest quant is always used if there is an **addition to stock** during putaway. This means that the goods receipt date of added quant is lost. It is therefore recommended that you do not use addition to stock during putaway if you want to remove stock using the **FIFO** strategy.

The **stringent FIFO** strategy goes beyond the scope of normal stock removal strategies because it always takes effect **across all storage types**. If material stocks are stored in more than one storage type and you always want to remove the oldest quant from the entire **warehouse number**, it is advisable to use this strategy. To activate the strategy, you make an entry in the storage type search

table containing an indicator for a search across storage types (***) instead of a search sequence of storage types. You set the indicator *** in the field for the first storage type in the search sequence:

Wh	Operation	TyInd.	S	S	Stor.Cl.	WPC	Ref.	S..	1. Storage type
120	A								***

However, you can also enter a storage type in first position in the search sequence. The system should check in this storage type before it searches in the other storage types for the overall oldest stock.



Note: You can exclude individual storage types (for example the goods receipt and goods issue areas) from the search in the detailed Customizing for this strategy.

With the **last in first out (LIFO)** strategy, the system always proposes the last quant that was put away in the storage type for removal from storage. This strategy is therefore particularly suitable for storage spaces in which materials are stacked.

To use the **partial pallet** strategy, you must have entered palletization data in the material master records of all of the affected materials. During goods receipt, the goods should be put away according to this standard palletization. If the picking quantity is larger than or equal to the standard palletization quantity, the system proposes the removal of a complete storage unit and tries to take the remaining quantity from a partial pallet (a storage unit with a quantity that is less than the standard storage unit quantity). If the required quantity is less than the standard palletization quantity, the system searches for a partial pallet. If there are no partial storage units available, a standard storage unit is opened. In the opposite case, the required quantity is put together from partial pallets. The standard storage units are determined according to the **FIFO** principle.

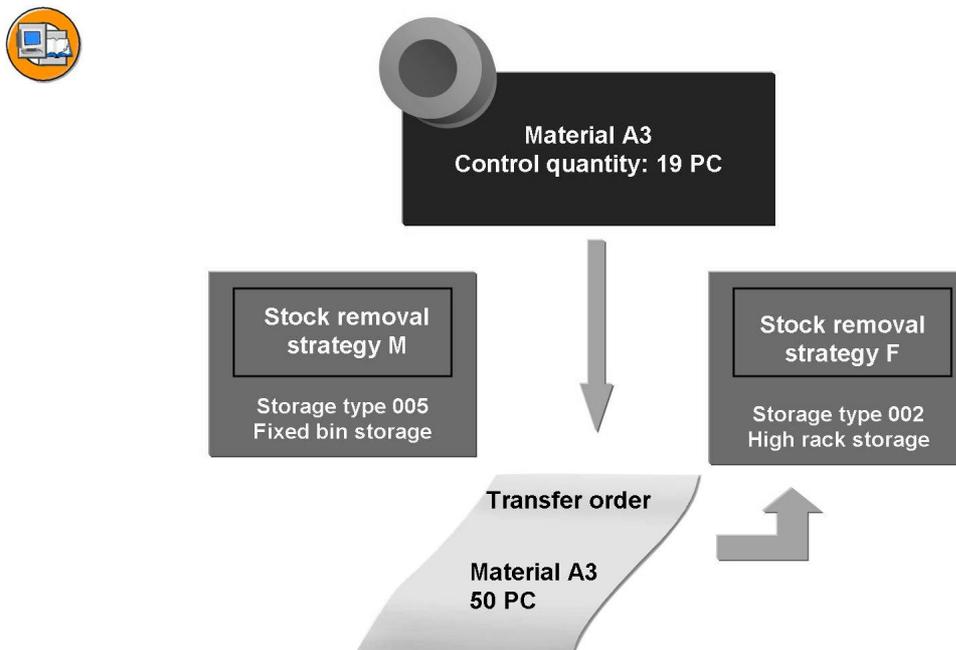


Figure 49: Large/small quantities stock removal strategy

The **large/small quantities** strategy also goes beyond the boundaries of the storage type because it always requires a combination of two storage types. The first is the storage type for small quantities from which materials are only removed up to a certain quantity, the **control quantity**. The second storage type is the large quantity storage type and is used to remove quantities above the control quantity. To use this strategy, you must enter a control quantity in the material masters of all of the materials that are to be picked from the small quantity storage type. The *Control quantity* field is in the *Warehouse Management 2* view at storage type level. The **large/small quantities** strategy is particularly suited to fixed bin storage. It is also a good idea to define a storage type indicator for this procedure and then to create a separate entry in the storage type search table for this indicator. The small and large quantity storage types are included in a corresponding search sequence.



Note: The **large/small quantities** strategy enables “cascading” stock removal. Depending on the required quantity, the same material is removed from storage by piece from fixed bin storage, by carton from the shelf storage, and by pallet from high rack storage. The control quantity stipulates the maximum quantity that can be removed from each storage type. A **rounding quantity** (also entered in the material master) restricts the quantity for removal from a storage type. The rounding quantity is both the minimum withdrawal quantity and the divisor. Where possible, the material is always removed from storage in multiples of the rounding quantity.

The **shelf life expiration date** strategy is a variation of the **FIFO** strategy; however, the criterion for stock removal is the expiration date of the quant, not the goods receipt date. With this strategy, Warehouse Management links to the shelf life expiration date check in Inventory Management. You activate this by plant in Customizing and set up the check for each separate movement type. Both a total shelf life and a minimum remaining shelf life must be entered at material master level (*General Plant Data/Storage 1*). When you post a goods movement, the system prompts you to enter the date of manufacture and calculates the shelf life expiration date of the material on the basis of the total shelf life. If the material falls below the minimum remaining shelf life, the system rejects the goods movement posting. If you have not entered the total shelf life in the material master record, you must enter the shelf life expiration date manually when you post the goods movement.

In Warehouse Management, you activate the shelf life expiration date update at quant level for a warehouse number. The expiration date is then stored in the quant data record **in addition to** the goods receipt date. In Customizing, choose *Warehouse Management* → *Strategies* → *Stock Removal Strategies* → *Define Strategy for Expiration Date*. The Warehouse Management information system contains a report (RLS30010) that checks stocks according to their remaining shelf life.



Note: You can find the report in the *Logistics Execution* area menu under *Information System*. Choose *Warehouse* → *Stock* → *SLED Control List*.

With the **fixed bin** strategy, the system tries to remove the material from the fixed bin entered in the material master. If you pick regularly from the fixed bin, you can use a report to control replenishment. This is dealt with in a separate lesson.

Exercise 16: Activate the “Stringent FIFO” Stock Removal Strategy

Exercise Objectives

After completing this exercise, you will be able to:

- Use the **stringent FIFO** stock removal strategy

Business Example

You want to ensure that the system checks through the entire warehouse number for the oldest stock to remove from storage. You remove the interim storage areas from the search.

Task:

Activate the **stringent FIFO** strategy in your warehouse number. **1##**. to be used in regular cases, and check which interim storage areas are excluded from the search for available stock.

1. Call the table for storage type search and enter the indicator for the strategy (***) in the first position in the search sequence.



Hint: Table entries that are relevant for stock removal are flagged with **A** in the *Operation* field.

2. Check which interim storage areas in your warehouse number **1##** are excluded from the search for available stock according to **stringent FIFO**.

Solution 16: Activate the “Stringent FIFO” Stock Removal Strategy

Task:

Activate the **stringent FIFO** strategy in your warehouse number **1##**. to be used in regular cases, and check which interim storage areas are excluded from the search for available stock.

1. Call the table for storage type search and enter the indicator for the strategy (***) in the first position in the search sequence.



Hint: Table entries that are relevant for stock removal are flagged with **A** in the *Operation* field.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*.
 - b) Select the entry for warehouse number **1##** and operation **A**. Enter the indicator ******* in the *I Stor.Type* field, delete any existing additional storage types from the storage type search, and save the changes.
2. Check which interim storage areas in your warehouse number **1##** are excluded from the search for available stock according to **stringent FIFO**.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Stock Removal Strategies* → *Define Strategy for "Stringent FIFO"* and then, on the next screen, choose *Define*.
 - b) Select your warehouse number, **1##**, and check the storage types for which the *No stringent FIFO* indicator is set.



Lesson Summary

You should now be able to:

- Name the preconfigured stock removal strategies
- Explain how these strategies work
- Make the settings for the selected strategies

Lesson: Settings Relevant to Stock Removal

Lesson Overview

You can set several indicators in the material master record to control stock removal. This lesson describes the functions of these indicators.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the meaning of negative stock
- Activate the requirement to remove all stock for a storage type
- Use the zero stock check independent of the physical inventory

Business Example

For technical reasons, you always have to remove a complete pallet from high rack storage. To simplify the inventory process, the warehouse workers should execute a zero stock check every time they empty a storage bin.

Negative Stocks

Generally, negative stock resulting from stock removal activities in a storage type is undesired. Therefore, a stock removal transfer order can only access material quantities in the storage type that are flagged as *available stock*. If the required quantity exceeds this *available quantity*, the system sends an error message on creation of the transfer order (“System cannot find source storage bin”). However, there are cases in which it is sensible to allow negative stocks in a storage type; this is true for most **interface storage types**. For certain goods receipt and goods issue activities, and most posting changes, you have to be able to generate **negative quants** in the interim storage areas used in the process.

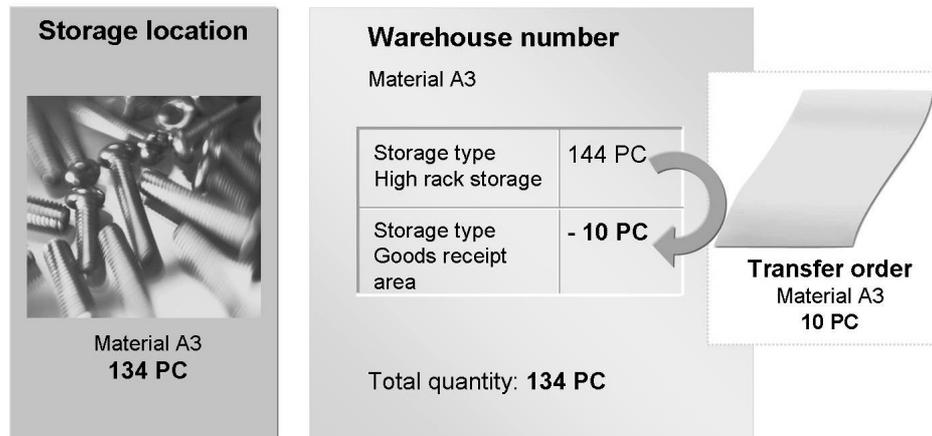


Figure 50: Negative quant

Figure 51 illustrates the function of negative stocks in an interim storage area, in this case a goods issue area. A goods issue posting in Inventory Management reduces the **storage location stock** of the affected material. The stock in the assigned **warehouse number** remains unchanged until the stock removal is complete. So that the same material quantity is displayed in Inventory Management and Warehouse Management in total, the system generates a negative quantity in the interim storage area during the goods issue posting. This quantity is subtracted from the total stock in the warehouse number during the stock removal process.



Note: This procedure can be compared with the mapping of a goods receipt with inbound deliveries. This is dealt with in a separate lesson.

If you work with **replenishment control** in Warehouse Management in SAP ECC, it may be necessary to allow negative stock for the storage types for which replenishment control is set up. If you regularly pick from a fixed bin, and the fixed bin storage type is replenished from a reserve storage type, you can permit negative stocks in the fixed storage bin to ensure that a stock removal transfer order for the fixed bin can be created even if there is no stock or insufficient stock in the bin.

Requirement to Remove All Stock

In some storage types, you always have to remove the total bin stock from storage regardless of the requested quantity for technical reasons. Remaining quantities either remain in the picking location or are put back into storage.

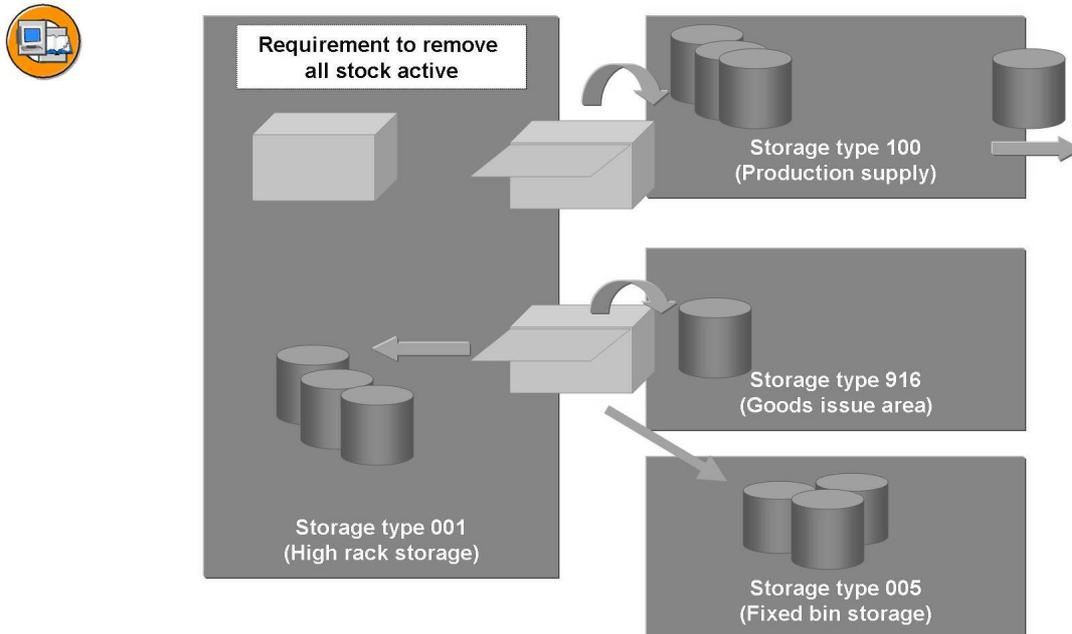


Figure 51: Requirement to remove all stock and return transfer options

In Warehouse Management in SAP ECC, you can activate the **requirement to remove all stock** at storage type level. You also have to decide what should be done with any **remaining quantity**. The following options are available:

- Return transfer to the source bin
- Putaway in another bin
- Remain in destination storage bin

If the requirement to remove all stock is valid for a storage type, the system always removes the whole **quant** from storage (if you are using storage unit management in the storage type, the entire storage unit is removed). If you only need a partial quantity, the system can return the remaining quantity to the source bin in the same transfer order. However, if you do not want any partial pallets in the storage type, you can choose the second option, that is, put away the remaining quantity in another storage type. To do this, enter the key of the storage type where you want to put away the remaining quantity in the master record of the storage type that is subject to the requirement to removal all stock. The system then searches for a storage bin in this storage type according to the putaway strategy valid there. There are also cases (for example for production supply) in which it makes sense to leave the remaining quantity in the destination storage bin. This means that

if, in response to one or more plant orders from production, an entire quantity or complete storage unit is placed in a storage bin in a storage type for production supply, any remaining quantity can be left in the destination bin for future orders.



Note: To use this procedure, you have to use predefined (not dynamic) storage bins.

Zero Stock Check Without Inventory Count

You can use the **zero stock check** in any storage types you wish in order to increase stock accuracy. Whenever the system calculates that a storage bin ought to be emptied as a result of a planned stock removal, it prompts the warehouse worker to execute a zero stock check during confirmation of the transfer order, that is, to check that the storage bin has indeed been emptied as a result of the stock removal. If the worker finds remaining stock in the bin, he/she enters this as a difference when confirming the transfer order. The difference quantity is posted in a separate step as an “inventory gain” in Inventory Management.

You can use the zero stock check as an inventory procedure. The settings and their effects are dealt with in a separate lesson.

Exercise 17: Requirement to Remove all Stock

Exercise Objectives

After completing this exercise, you will be able to:

- Set up the full stock removal requirement for a storage type

Business Example

For technical reasons, you always have to remove a complete pallet from your high rack storage.

Task:

Change the master data of your high rack storage so that in the case of a full stock removal, remaining quantities are always transferred to shelf storage. Test your settings.

1. Call the master record of the high rack storage (storage type **001**) in your warehouse number, **1##**, and check that the full stock removal requirement is activated. Specify that remaining quantities should be transferred to shelf storage (storage type **002**).
2. Test the changed settings by posting a goods issue to a cost center. First, however, display the stocks of material **T-BW02-##** in your warehouse number, **1##**, and your storage location, **01##**.
3. Post a goods issue to a cost center **1000** for 10 pieces of material **T-BW02-##** using movement type **201**. The stocks should be removed from storage location **01##** in plant **1000**.
4. Check the stock overview of the material once more in Warehouse Management. What effect does the goods issue posting have in Warehouse Management?
5. The goods issue posting has generated a transfer requirement. Create a transfer order for this transfer requirement in the foreground and check the effect of the setting you made in step 1.
6. Check the stock overview for material **T-BW02-##** in Warehouse Management again. Can you see the stock removal and stock transfer movements?
7. Confirm the transfer order in the background and check the stock overviews once more.

Solution 17: Requirement to Remove all Stock

Task:

Change the master data of your high rack storage so that in the case of a full stock removal, remaining quantities are always transferred to shelf storage. Test your settings.

1. Call the master record of the high rack storage (storage type **001**) in your warehouse number, **1##**, and check that the full stock removal requirement is activated. Specify that remaining quantities should be transferred to shelf storage (storage type **002**).
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*, select storage type **001** in your warehouse number **1##**, and choose *Details* : The *Full stock removal requirement active* indicator is set. *Return stock to same storage bin* is set for the remaining quantity.
 - b) Change the settings by removing this indicator and assigning storage type **002** (shelf storage) in the *Return storage type* field. Save the changes.
2. Test the changed settings by posting a goods issue to a cost center. First, however, display the stocks of material **T-BW02-##** in your warehouse number, **1##**, and your storage location, **01##**.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW02-##** and choose *Enter*.
 - b) Branch from Warehouse Management to Inventory Management using the *MM stocks* button.

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3. Post a goods issue to a cost center **1000** for 10 pieces of material **T-BW02-##** using movement type **201**. The stocks should be removed from storage location **01##** in plant **1000**.
 - a) Choose *Logistics* → *Materials Management* → *Inventory Management* → *Goods Movement* → *Goods Issue (MIGO)*. Select *Other* from the list of possible posting references. Check whether the system proposes movement type **201**.
 - b) Enter your material number **T-BW02-##** on the *Material* tab page. On the *Quantity* tab page, increase the quantity **10**. Now choose the *Where* tab page and enter plant **1000** as well as your storage location **01##**. Enter the cost center **1000** on the *Account Assignment* tab page. Save your entries to post the goods receipt.
4. Check the stock overview of the material once more in Warehouse Management. What effect does the goods issue posting have in Warehouse Management?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW02-##** and choose *Enter*.
 - b) There is negative stock (equal to the quantity removed from storage) in interim storage area **911**. The total quantity of the material in the warehouse number (displayed below the material description) is reduced by the corresponding amount. The storage location stock corresponds to the warehouse number stock.
5. The goods issue posting has generated a transfer requirement. Create a transfer order for this transfer requirement in the foreground and check the effect of the setting you made in step 1.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Create Transfer Order* → *For Material*. The data you just used is usually proposed by the system in the transaction. If this is not the case, enter at least the warehouse and material numbers and confirm your entries with *Enter*.
 - b) Select your transfer requirement and choose *TO in Foregr.*. In the stock removal preparation screen, choose *Stock Removal Foreground* . The system removes the entire quant (100 pieces) from storage. Only 10 pieces of the material go to the goods issue area (storage type **911**). The other 90 pieces are transferred to shelf storage (storage type **002**) using a “return transfer item.”
 - c) Confirm the warning message, “Check your entries,” with *Enter* and create the transfer order by saving.

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6. Check the stock overview for material **T-BW02-##** in Warehouse Management again. Can you see the stock removal and stock transfer movements?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW02-##** and choose *Enter*.
 - b) The total bin stock of the material (100 pieces) is displayed as a *pick quantity* in storage type **001**. The 10 pieces of the material requested by cost center **1000** are *stock for putaway* in storage type **911** and the remaining quantity of 90 pieces is *stock for putaway* in storage type **002**.
7. Confirm the transfer order in the background and check the stock overviews once more.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* indicator in the *Foreground/Backgrnd* field and choose *Enter*.
 - b) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. If not already proposed by the system, enter warehouse number **1##** and material number **T-BW02-##** and choose *Enter*. The stock removal process is complete. The remaining quantity of the removed quant is now *available stock* in shelf storage.



Lesson Summary

You should now be able to:

- Explain the meaning of negative stock
- Activate the requirement to remove all stock for a storage type
- Use the zero stock check independent of the physical inventory

Lesson: Batch determination

Lesson Overview

In many cases, the batch of a material used for a sales order or work order is already determined or specified in the underlying document. However, you can also find a batch in the Warehouse Management system. This lesson examines both options.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the main features of batch management
- Explain the principle of batch determination
- Set up batch determination in Warehouse Management

Business Example

Some materials are subject to batch management. Materials are to be picked from batches with different specifications, depending on whether the material is required by a customer or by production.

Main Features of Batch Management in SAP ECC

Batches always result from a production process. They are generally used in the chemical/pharmaceutical industry and the foods industry, but are also employed in other industry branches and in retail. **Batch management** allows for the fact that the characteristics or the ratio of the ingredients in many products cannot be reproduced in the production process, but rather fluctuate between certain threshold values. A batch is therefore a material quantity with a certain specification. The system uses **batch determination**, which is based on the condition technique, to determine in each case which batch can be used for sale or, in the case of raw materials, for the production process.



Note: Batch management is also used for quality assurance purposes. You can use the batch number to track the path of a particular material quantity throughout the logistical process. This transparency is particularly important if a product is recalled for example.

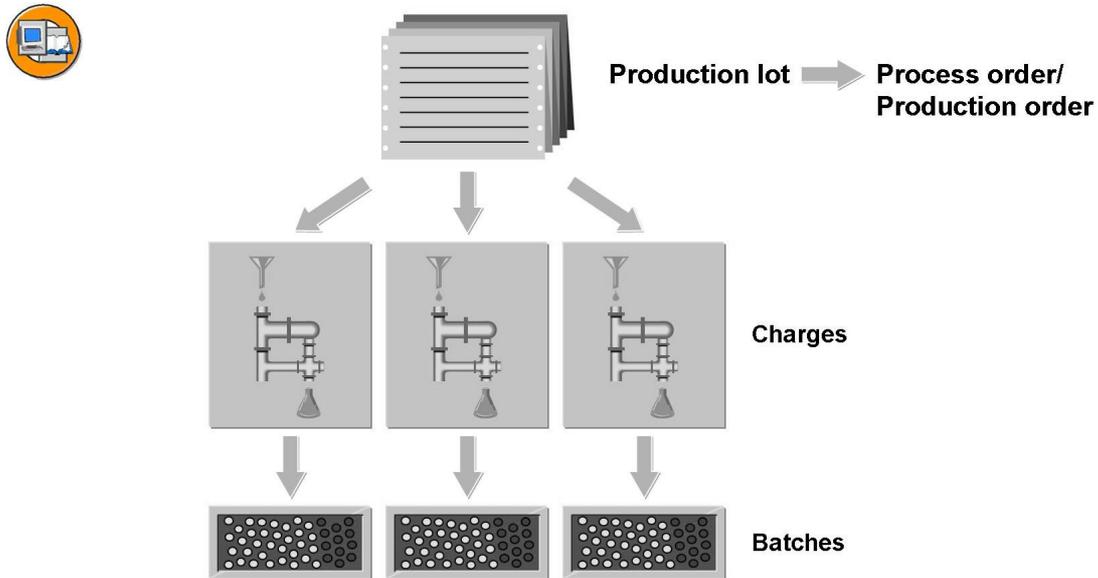


Figure 52: Batches

If a material is flagged as **subject to batch management** in its material master, the affected batch from the Inventory Management posting must be specified for every goods movement. Batches have their own master data records that are generally created in the background during the first goods receipt posting. If you want to use the batch determination function, you have to work with the **classification system**. Classes are used in SAP ECC to group objects with certain common characteristics. These objects include batches, for which two **class types (022 and 023)** are predefined in the standard system. **Classes** that group together batches are then assigned to each of these class types. You can find examples of batch classes in the training system (colors, lacquers, solvents, pigments, and so on). When you create a new batch class, you decide which **characteristics** distinguish the objects in the class. For example, these could be viscosity and opacity for the class “colors.” You define these characteristics in the master data of the classification system and specify the values that are possible for the characteristic attributes.



Note: The characteristics of a class are therefore the attributes or specifications that make a batch a material quantity that cannot be exactly reproduced.

To use batch determination for a material, you have to add the *Classification* view in the material master. In this view, select the class type “batch” and assign one of the classes that belongs to the class type, for example “paint.” The characteristics

are used later to specify individual batches of the material. However, you can also enter values for the characteristics of the assigned class in the material master to define the thresholds values of the characteristic attributes.



Note: For example, if you know that the concentration of a particular ingredient of a material is always between 30 and 40% of the total quantity, enter this spectrum as the range for the individual specification of the batches in the material master.

Batch Determination in Warehouse Management

You can only use batch management in Warehouse Management if a batch has not already been determined or entered manually in the preceding document (that is, in the sales order, outbound delivery, or work order). If a batch is already specified in a document item in the sales order, outbound delivery, or plant order, or if the batch was determined during the goods issue posting, the system searches for storage bins with **quants** of this batch during **transfer order** creation. The **stock removal strategy** of the storage type then takes second place. If the “first in first out” (FIFO) strategy is valid for the storage type, the system removes the oldest quant if there are several quants of the relevant batch.

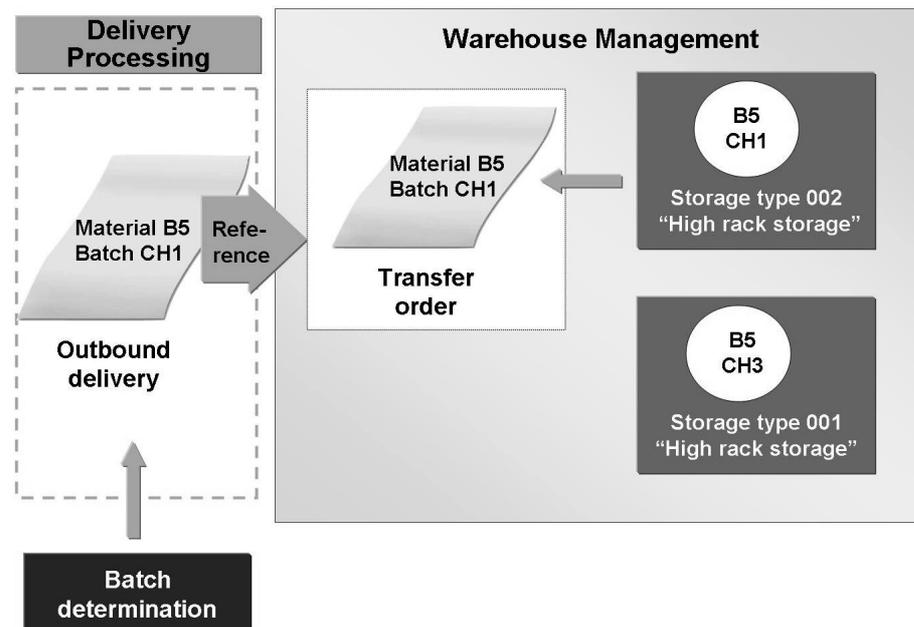


Figure 53: Batch determination in outbound delivery

If the determination of suitable batches is defined or influenced by Warehouse Management criteria, batch determination can take place in Warehouse Management itself. To do this, you have to make certain settings in Customizing

for Batch Management: First you need **condition tables** that contain a compilation of the fields required for the batch search (for example, warehouse number, storage type, movement type).



Note: The condition tables shipped in the SAP ECC standard system may be sufficient for your requirements.

The condition tables are included in one or more **access sequences**. Generally, the condition table with the most fields is in first position in the sequence and the table with the least fields is in last place. This way, the system works through from specific to general in its search for batch search strategies. SAP ECC contains the preconfigured access sequences **WM01** (warehouse number) and **WM02** (warehouse number/movement type).

The access sequences are assigned to **strategy types**. Later, you create the batch search strategy as master data on the basis of these condition types. Each strategy type can be assigned to a selection class of the class type “batch.” During creation of the condition record, this class defines which characteristics can be specified. If the strategy type is not assigned to a selection class, any of the classes in the class type “batch” can be used during creation of the condition record.

The strategy types are included in a **batch search procedure** and put into a sequence. Finally, the batch search procedure is assigned to either a warehouse number or a certain movement type in a warehouse number. This assignment activates batch determination for the warehouse number or movement type.

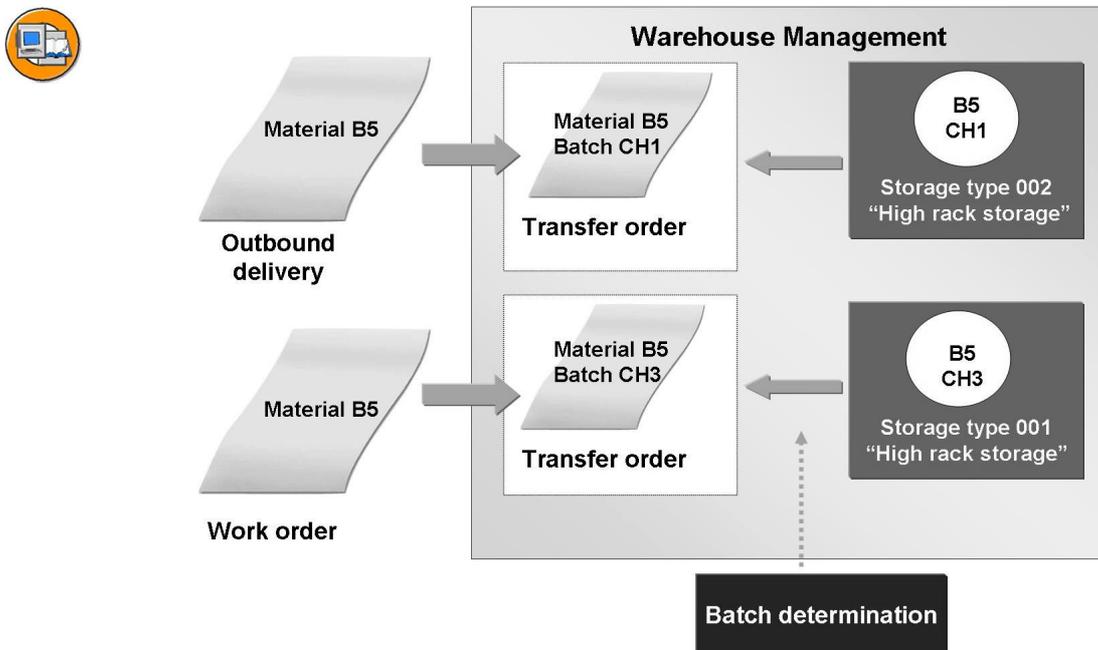


Figure 54: Batch determination in the warehouse

Exercise 18: Batch Determination in Warehouse Management

Exercise Objectives

After completing this exercise, you will be able to:

- Set up batch determination in Warehouse Management

Business Example

Some of your materials are subject to batch management. Materials are to be picked from batches with different specifications, depending on whether the material is required by a customer or by production.

Task:

Set up batch determination in your warehouse number, **1##**, so that the system picks batches with a degree of purity of **85% to 95%** for production.

1. Enter a batch search strategy for production supply (movement type **319**) in your warehouse number **1##**. Use strategy type **ZWM2** for this condition record and use the selection class **WM** to specify the batches. The degree of purity for the batches for production should be **85% to 95 %**.
2. The batch search procedure **ZWM002**, which is designed for combinations of warehouse numbers and movement types, includes strategy type **ZWM2**. Assign this batch search procedure to movement type **319** in your warehouse number, **1##**.
3. Test your settings by staging 40kg of material **T-BW09-##**, which is subject to batch management, for production. First check the stocks of the material in your warehouse number, **1##**. Which batches exist? What degrees of purity do the batches have?

Batch number	Degree of purity

Continued on next page

4. Create a transfer requirement for a request of 40kg of material **T-BW09-##**. Stage the material in plant **1000** in production supply area **PVB 1310##**.



Hint: The material should be staged without reference to an order. You can use transaction *WM Staging of Crate Parts* (transaction code LP11), which is in the application menu under *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transaction* → *Prepare Production Supply* → *For Crate Part*.

5. Create a transfer order for the transfer requirement in the foreground. Which batches are available for removal from storage? Check the batch determination log.
6. Confirm the transfer order in the background.

Solution 18: Batch Determination in Warehouse Management

Task:

Set up batch determination in your warehouse number, **1##**, so that the system picks batches with a degree of purity of **85% to 95%** for production.

1. Enter a batch search strategy for production supply (movement type **319**) in your warehouse number **1##**. Use strategy type **ZWM2** for this condition record and use the selection class **WM** to specify the batches. The degree of purity for the batches for production should be **85% to 95 %**.
 - a) Choose *Logistics* → *Central Functions* → *Batch Management* → *Batch Determination* → *Batch Search Strategy* → *For Warehouse Management* → *Create*. Use the input help for the *Strategy type* field to select the strategy type **ZWM2** and confirm the selection with *Enter*.
 - b) Enter your warehouse number, **1##**, in the *Whse No.* field and movement type **319** in the *MvmtType* field. Confirm with *Enter*. Choose *Selection criteria*.
 - c) Enter **WM** in the *Class* field and confirm with *Enter*. On the *General* tab page, enter **85 - 95** in the *Value* field. Confirm with *Enter* and exit the classification screen with *Back* . Save the condition record.
2. The batch search procedure **ZWM002**, which is designed for combinations of warehouse numbers and movement types, includes strategy type **ZWM2**. Assign this batch search procedure to movement type **319** in your warehouse number, **1##**.
 - a) In Customizing, choose *Logistics - General* → *Batch Management* → *Batch Determination and Batch Check* → *Batch Search Procedure Allocation and Check Activation* → *Assign WM Search Procedure* and then choose *Warehouse types*.
 - b) Select movement type **319** in your warehouse number **1##**, enter batch search procedure **ZWM002** in the *Search proced.* field, save your entry, and exit the table.
3. Test your settings by staging 40kg of material **T-BW09-##**, which is subject to batch management, for production. First check the stocks of the material in your warehouse number, **1##**. Which batches exist? What degrees of purity do the batches have?

Continued on next page

Batch number	Degree of purity

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your warehouse number, **1##**, and material number **T-BW09-##**, and choose *Enter*. Place the cursor on the plant/storage location stock line of each batch and choose *Bin stock*.
 - b) Click on the batch number to branch to the batch master record. Choose the *Classification* tab page to see the degree of purity of the batch.
 - c) Storage type **001** contains batches **CH2** and **CH3**, and storage type **002** contains batch **CH1**. The degree of purity of batch **CH1** is **85%**, batch **CH2** -- **96%**, and batch **CH3** -- **87%**.
4. Create a transfer requirement for a request of 40kg of material **T-BW09-##**. Stage the material in plant **1000** in production supply area **PVB 1310##**.



Hint: The material should be staged without reference to an order. You can use transaction *WM Staging of Crate Parts* (transaction code LP11), which is in the application menu under *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transaction* → *Prepare Production Supply* → *For Crate Part*.

- a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Prepare Production Supply* → *For Crate Part*. Enter material number **T-BW09-##**, plant **1000**, and production supply area **PVB 1310##**, and confirm your entry with *Enter*.
- b) Choose the *WM material staging* button. The system issues an information message in the status line telling you that the staging was completed successfully.
- c) Choose *WM material staging* and save your entries to create the transfer requirement.

Continued on next page

5. Create a transfer order for the transfer requirement in the foreground. Which batches are available for removal from storage? Check the batch determination log.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Create Transfer Order* → *For Material*. If they are not already proposed by the system, enter your warehouse number, **1##**, and material number **T-BW09-##**, and choose *Enter*.
 - b) Select your transfer requirement and choose *TO in Foregr.*. The system determines the batches in the background according to your settings.
 - c) Choose *Stock Removal Foreground*  and then, from the transaction menu, choose *Environment* → *Disp. batch determ.*. Batches **CH1** and **CH3** are displayed in the *Batch selection* section.
 - d) Choose the *Log* button and then *Expand* to track the determination process.
 - e) Close the log, return to the preparation screen for stock removal, and confirm the system proposal with *Enter*. Create the transfer order by saving.
6. Confirm the transfer order in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Confirm Transfer Order* → *Single Document* → *In One Step*.
 - b) Choose the *Background* processing indicator and confirm with *Enter*.



Lesson Summary

You should now be able to:

- Describe the main features of batch management
- Explain the principle of batch determination
- Set up batch determination in Warehouse Management



Unit Summary

You should now be able to:

- Explain the sequence of steps in the stock removal process
- Set up the storage type search for stock removal
- Use material master data to control stock removal
- Name the preconfigured stock removal strategies
- Explain how these strategies work
- Make the settings for the selected strategies
- Explain the meaning of negative stock
- Activate the requirement to remove all stock for a storage type
- Use the zero stock check independent of the physical inventory
- Describe the main features of batch management
- Explain the principle of batch determination
- Set up batch determination in Warehouse Management



Test Your Knowledge

1. The system takes into account the picking area for each stock removal.
Determine whether this statement is true or false.
 - True
 - False
2. With the **stringent FIFO** stock removal strategy, the system always proposes the oldest quant in the entire warehouse number for removal from storage.
Determine whether this statement is true or false.
 - True
 - False
3. Which options are available for return transfers of remaining quantities when there is a full stock removal requirement?

4. When does the system determine the batches for picking in Warehouse Management?



Answers

1. The system takes into account the picking area for each stock removal.

Answer: False

The statement is false. The system only considers the picking area if the corresponding settings have been made for the transfer order split.

2. With the **stringent FIFO** stock removal strategy, the system always proposes the oldest quant in the entire warehouse number for removal from storage.

Answer: True

This statement is true.

3. Which options are available for return transfers of remaining quantities when there is a full stock removal requirement?

Answer:

- Return transfer to the source bin
- Putaway in another bin
- Remain in destination storage bin

4. When does the system determine the batches for picking in Warehouse Management?

Answer: The system determines the batches on creation of the transfer order, **before** the storage bin search.

Unit 6

Delivery Processes with Warehouse Management

Unit Overview

You can execute goods receipt and goods issue processes with deliveries, that is, with certain SAP ECC documents. In this unit, you will learn how to fine tune the processes.



Unit Objectives

After completing this unit, you will be able to:

- Explain the goods receipt process with inbound deliveries
- Map this process in SAP ECC
- Track the putaway process steps in the stock overview
- Describe and map the goods issue process with outbound deliveries
- Explain picking storage location determination
- Make the settings required for "pick & pack"
- Name the possibilities for collective processing and process automation
- Make the settings required for two-step picking
- Execute two-step picking
- Perform a return transfer for outbound delivery

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Lesson: Putaway for an Inbound Delivery

Lesson Overview

The **inbound delivery** has been available since SAP R/3 4.5A. In Logistics Execution, this document issued to map goods receipt processes in which externally procured goods have to be put away before the goods receipt is posted in Inventory Management.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the goods receipt process with inbound deliveries
- Map this process in SAP ECC
- Track the putaway process steps in the stock overview

Business Example

Your company wants to examine an alternative to the previous goods receipt process. The putaway of ordered goods should be completed before the goods receipt is posted.

Goods Receipt with Inbound Delivery

The goods receipt process with inbound deliveries maps the normal procedures in many enterprises very accurately. The vendor sends notification of the goods receipt in the form of a **shipping notification**. The **inbound delivery** can then be created either manually or automatically on the basis of the shipping notification. The inbound delivery therefore contains information on the anticipated times of delivery and quantities that will be delivered, and possibly also information on how the goods are packaged. It is also the reference document for subsequent putaway with a **transfer order**. If you use the transportation function as part of Logistics Execution, you can group the inbound deliveries into inbound shipments. If there is an EDI connection to the vendor, the shipping notification can automatically generate an inbound delivery. The reference document is always the purchasing document.



Note: Up to and including SAP R/3 4.5A, the term “shipping notification” was used to describe the message type and the document. As of SAP R/3 4.5B, “shipping notification” describes the **message type**, and “inbound delivery” describes the **document**.

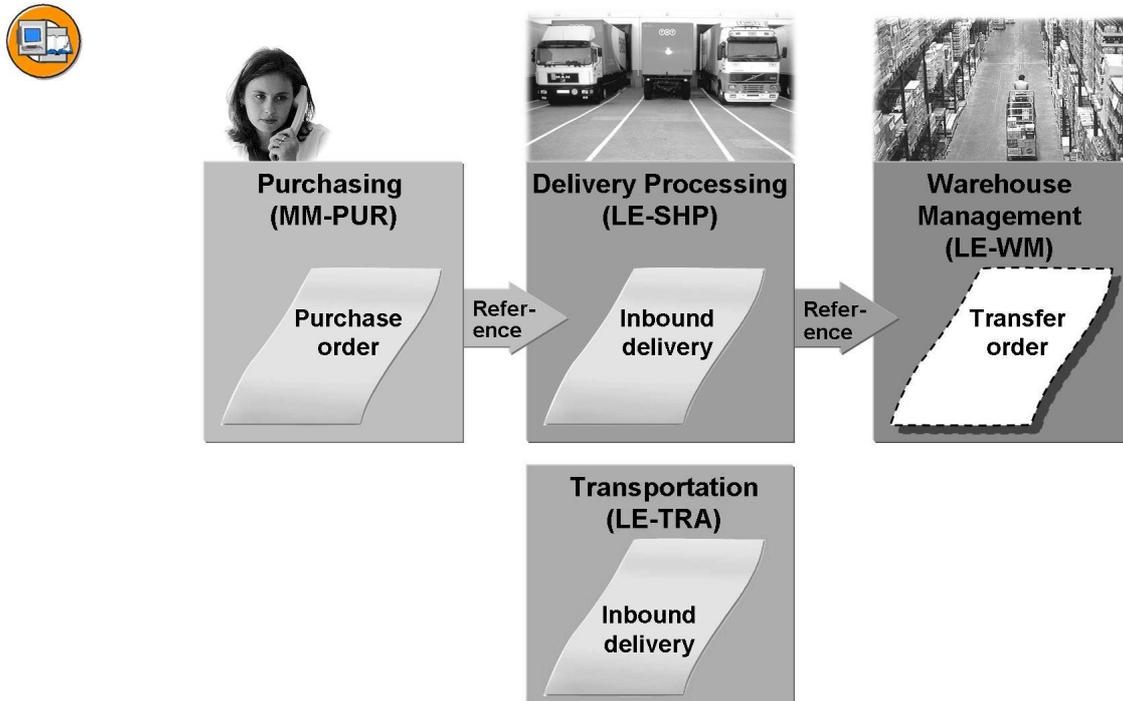


Figure 55: Goods receipt with inbound delivery

The decision on the further process flow is made in the purchasing document. If you want to work with inbound deliveries, this has to be defined for each item in the purchase order. This is achieved by using a **confirmation control key** that is defined in Customizing for Purchasing. A confirmation control key in the purchase order shows that the purchaser expects a confirmation from the vendor for the flagged item. The confirmation can be an order confirmation or a shipping notification, for example. Inbound deliveries also fall into this category of confirmation.

Customizing links the confirmation control key *inbound delivery* with the delivery type **EL**, which is preconfigured for the “inbound delivery” document. If the *inbound delivery* confirmation control key is assigned to a purchase order item, it is no longer possible to post a goods receipt with reference to a purchase order. The goods receipt now has to be posted with reference to the inbound delivery. If you use Warehouse Management, you usually put goods away using a transfer order before the goods receipt can be posted for the inbound delivery. An inbound delivery can therefore only be created for a purchase order item using

the corresponding confirmation control key. You make the Customizing settings for confirmations in purchasing documents under *Materials Management* → *Purchasing* → *Confirmations* → *Set Up Confirmation Control*.



Note: You can enter a confirmation control key as a default value in the vendor master and/or the purchasing information record in the purchasing organization. In Customizing for shipping, you can also assign default values to combinations of plant, storage location, purchasing document type, and purchase order category. You assign the default values under *Logistics Execution* → *Shipping* → *Deliveries* → *Define Order Confirmations for Inbound Deliveries*.

The Putaway Process for Inbound Delivery

A **transfer order** is required to put away goods that have been delivered. This transfer order is based on the inbound delivery and takes most of the data from the inbound delivery for further processing (for example, storage type and bin for stock removal). During creation of the transfer order, the system determines the storage types, sections, and bins for putaway on the basis of master data and Customizing settings. The process is completed when the goods receipt is posted in Inventory Management (also with reference to the inbound delivery).

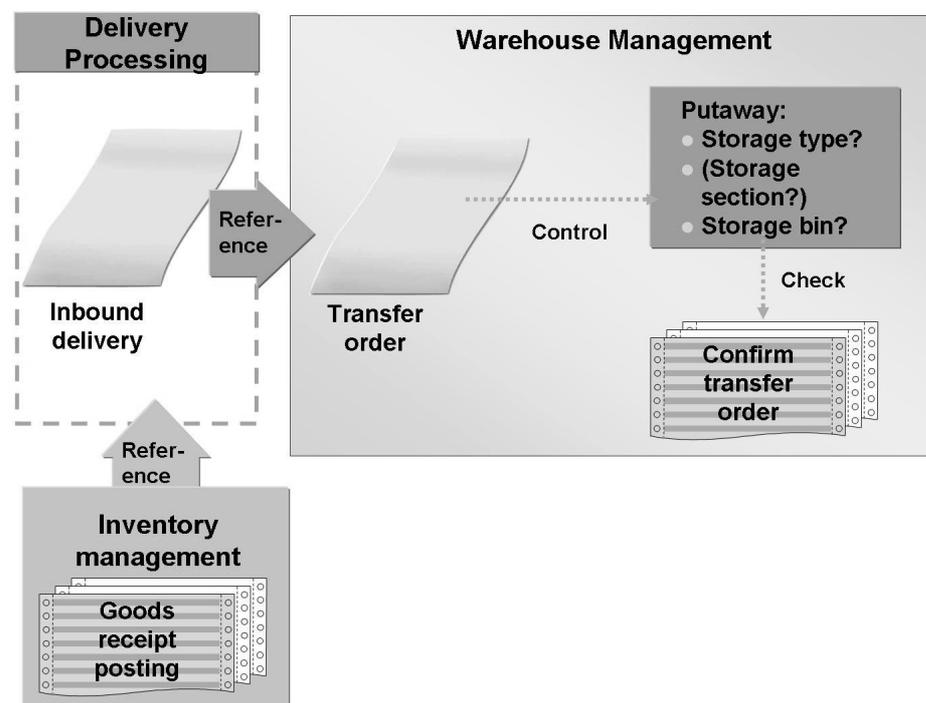


Figure 56: The Putaway Process for Inbound Delivery

In the inbound delivery, the system determines a **storage location for putaway** from the purchase order or from the Customizing settings for each delivery item. If the plant and storage location are linked to a **warehouse number** in Customizing, the warehouse number is displayed in the inbound delivery. The relevance to Warehouse Management is shown with a total putaway status and a transfer order status. The status shows the progress of the process. The system decides whether a document item is relevant for putaway on the basis of the **delivery item category**. In the standard system, item category **ELN** is flagged as being relevant in Customizing. Inventory Management movement type **101** (goods receipt) is assigned to the item category, so the system extracts this movement type from the delivery item category. Using the two tables that connect the Inventory Management movement types with the Warehouse Management movement types, the system then determines the **Warehouse Management movement type** that controls the putaway process. You can find the delivery item types in Customizing under *Logistics Execution* → *Shipping* → *Deliveries* → *Define Item Categories for Deliveries*.

The creation of a transfer order for an inbound delivery also causes at least one **negative quant** to be posted to the **interim storage area**, the goods receipt zone.

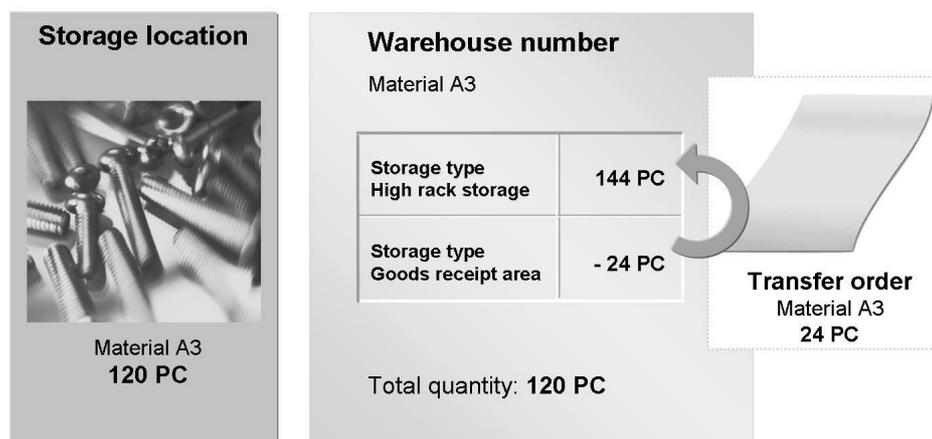


Figure 57: Negative quant

The negative quant ensures that the **total** stocks in Warehouse Management and Inventory Management correspond at every point in the process. In figure 58, the transfer order for putaway is based on an inbound delivery for 24 pieces of a material. The putaway occurs before the goods receipt is posted in Inventory Management. Temporarily, 144 pieces of the material exist in the warehouse, but Inventory Management only displays 120 pieces in the stock overview. The quantity of the negative quant in the goods receipt area (24 pieces) is subtracted from the total stock in the warehouse number so that the stock overview in Warehouse Management shows a total of 120 pieces of the material.

The goods receipt posting is always based on the inbound delivery and is only possible once all items have been put away. It increases the storage location stocks. Thus, the negative quant in the interim storage area has fulfilled its purpose and is cleared as a result of the stock increase. Only at this point do the receipts that have been put away become visible to a user in sales. The main advantage of goods receipt processing with inbound deliveries is that only those receipts that have already been put away are visible as *available for use*. The storage location stocks accessed by the availability check do not increase until the end of the process.



Note: You record any differences discovered during the putaway on confirmation of the transfer order. This means that the missing quantity is posted to the interim storage area assigned in Customizing. Before posting the goods receipt, you have to adjust the delivery quantity to the quantity that was put away.

Exercise 19: Putaway for an Inbound Delivery

Exercise Objectives

After completing this exercise, you will be able to:

- Map a putaway process with inbound deliveries in SAP ECC

Business Example

You order 100 hollow shafts from vendor C.E.B. Berlin. Once they have been received, they should be taken from the goods receipt area into the warehouse. The goods receipt should be posted in Inventory Management once the putaway has been completed.

Task:

Create a purchase order and specify in the purchase order that you want to create an inbound delivery for it. Create the inbound delivery and put away the received goods in your warehouse number.

1. Order **100** pieces of material **T-BW02-##** for plant **1000** and storage location **01##**. Also enter a delivery date of your choice. Specify in the purchase order that you want to create an inbound delivery for the purchase order item at a later time.

Input values at document header level:

<i>Purchasing organization</i>	1000
<i>Purchasing group</i>	000
<i>Company code</i>	1000

2. Create an inbound delivery for your purchase order. Check that the storage location was copied correctly from the purchase order.
3. Create a transfer order for your inbound delivery in the background. Do this using the inbound delivery monitor.



Hint: Select the inbound delivery using your warehouse number, **1##**.

4. Check the stock overview of material **T-BW02-##**. Does the overview reflect the fact that the warehouse has received goods that are not yet shown in Inventory Management?

Continued on next page

5. Confirm your transfer order in the background and check the stock overview once more. What has changed?
6. Post the goods receipt for your inbound delivery. Before doing so, take another look at the status update. Both delivery statuses should now be flagged with **C**. Finally, check the stock overview of your material, **T-BW02-##**, once again.

Solution 19: Putaway for an Inbound Delivery

Task:

Create a purchase order and specify in the purchase order that you want to create an inbound delivery for it. Create the inbound delivery and put away the received goods in your warehouse number.

1. Order **100** pieces of material **T-BW02-##** for plant **1000** and storage location **01##**. Also enter a delivery date of your choice. Specify in the purchase order that you want to create an inbound delivery for the purchase order item at a later time.

Input values at document header level:

<i>Purchasing organization</i>	1000
<i>Purchasing group</i>	000
<i>Company code</i>	1000

- a) In the application menu, choose *Logistics → Materials Management → Purchasing → Purchase Order → Create → Vendor/Supplying Plant Known*. Enter vendor number **1000** in the *Vendor* field.
- b) At header level, enter purchasing organization **1000**, purchasing group **000**, and company code **1000** on the *Org.data* tab page.
- c) At document item level, enter material **T-BW02-##**, purchase quantity **100**, plant **1000**, and storage location **01##**. Confirm your entries with *Enter*.
- d) Go to the item detail level, tab page *Confirmations*, and assign the confirmation control key *Inbound delivery* to the item. To create the purchase order, save your entries.

Continued on next page

2. Create an inbound delivery for your purchase order. Check that the storage location was copied correctly from the purchase order.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Inbound Delivery* → *Inbound Delivery* → *Create* → *Single Documents*. If necessary, enter the number of your purchase order and the delivery date. Choose *Enter*. You branch to the inbound delivery overview screen.
 - b) Choose the *Stock placement* tab page. If the *Warehouse Number* field is empty, check the storage location for your delivery item. Enter your storage location, **01##**, if necessary.
 - c) To create the inbound delivery, save your data. If the system issues the warning message “Acknowledgement for PO item X contains data variance” when you save, confirm this with *Enter*.
3. Create a transfer order for your inbound delivery in the background. Do this using the inbound delivery monitor.



Hint: Select the inbound delivery using your warehouse number, **1##**.

- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Inbound Process* → *Inbound Delivery* → *Lists* → *Inbound Delivery Monitor* and then choose *For Putaway*.
 - b) Select your inbound delivery using your warehouse number, **1##**, and choose *Execute* . The document number for your inbound delivery appears in the list of Inbound Deliveries for Putaway.
 - c) Select your inbound delivery and choose *TO in Backgr.* button. Confirm the dialog box on the putaway quantity with *Enter*.
4. Check the stock overview of material **T-BW02-##**. Does the overview reflect the fact that the warehouse has received goods that are not yet shown in Inventory Management?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your material number and your warehouse number and choose *Enter*.
 - b) The 100 pieces of material to be put away are shown as stock for putaway in high rack storage and also as stock for removal in the goods receipt area. There is also corresponding negative stock in the goods receipt area.

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5. Confirm your transfer order in the background and check the stock overview once more. What has changed?
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Inbound Delivery* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* processing indicator and confirm with *Enter*.
 - b) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your material number and your warehouse number and choose *Enter*. The delivered material has now been put away. Since the goods receipt has not yet been posted in Inventory Management, the negative quant remains in the goods receipt area.
6. Post the goods receipt for your inbound delivery. Before doing so, take another look at the status update. Both delivery statuses should now be flagged with **C**. Finally, check the stock overview of your material, **T-BW02-##**, once again.
 - a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Inbound Delivery* → *Post Goods Receipt* → *Inbound Delivery Individual Document*. If the system does not propose your inbound delivery, enter the document number in the *Inbound delivery* field and confirm with *Enter*.
 - b) Select the *Stock placement* tab page in the overview screen to check the status.
 - c) To post the goods receipt, choose the *Post goods receipt* button.
 - d) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Inventory Management)*. Enter your material number and warehouse number and choose *Enter*. The process is now complete; the negative stock in the goods receipt area has disappeared.



Lesson Summary

You should now be able to:

- Explain the goods receipt process with inbound deliveries
- Map this process in SAP ECC
- Track the putaway process steps in the stock overview

Lesson: Stock Removal for Outbound Delivery

Lesson Overview

If you use Warehouse Management in SAP ECC, picking always occurs using a transfer order. This lesson introduces important settings related to picking.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe and map the goods issue process with outbound deliveries
- Explain picking storage location determination
- Make the settings required for "pick & pack"
- Name the possibilities for collective processing and process automation

Business Example

Your company delivers materials from the warehouse to customers. It wants to use Warehouse Management to pick the goods.

Stock Removal for Outbound Delivery

Generally, a **sales order** occurs at the beginning of the goods issue process with outbound deliveries. A sales order is created in the Sales and Distribution area menu. The **outbound delivery**, which is at the center of the process, is created with reference to the sales order. The **transfer order** used to remove the stock from storage is, in turn, based upon the outbound delivery. You let the system know that the picking process is complete by confirming the transfer order. Only then can you post the **goods issue** for the outbound delivery in Inventory Management.

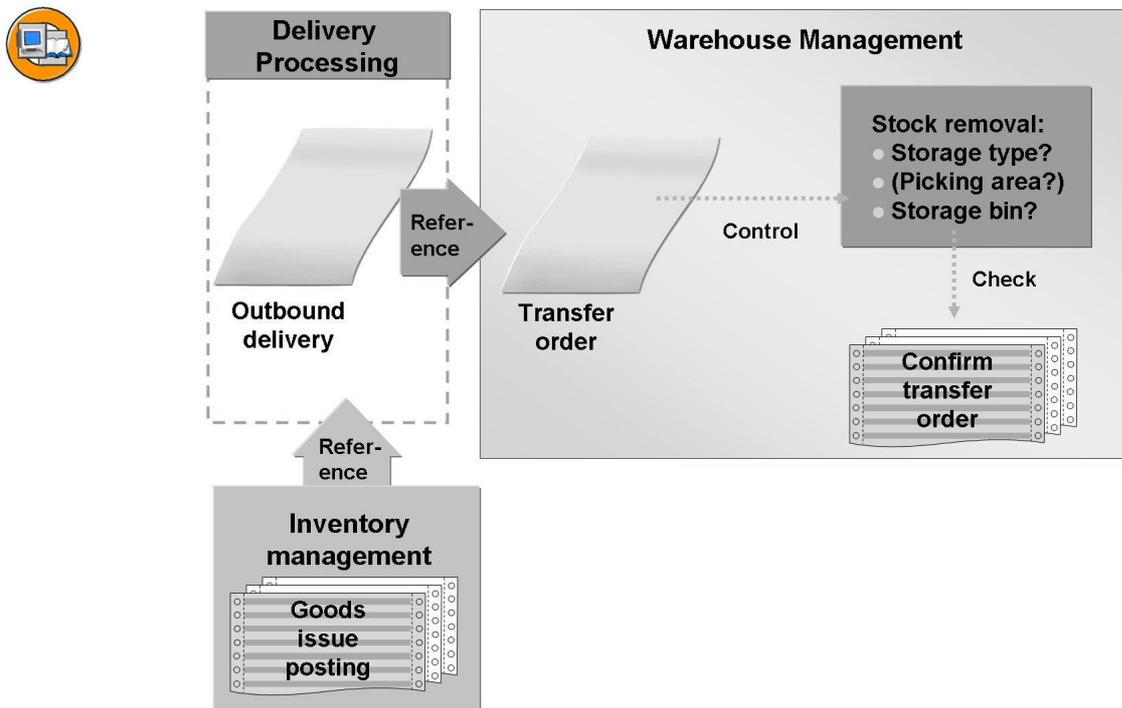


Figure 58: Goods issue process with outbound delivery

On creation of the outbound delivery, the system attempts to determine a **picking location** for each document item. The picking location is actually the storage location. You set up the picking location determination in Customizing for Shipping. A prerequisite is that the picking location determination has been activated for the corresponding delivery item category. The system takes the following factors into consideration during the determination:

- Shipping point
- Supplying plant
- Storage conditions of the material

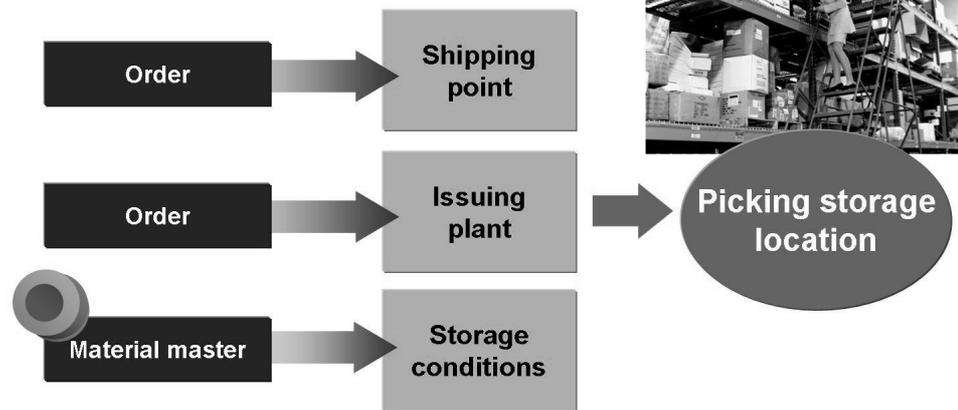


Figure 59: Picking location determination

The **shipping point** is the organizational unit of the delivery process in Logistics Execution. You map the location for shipping processing, or the group of people responsible for the shipping processing, as the shipping point in the system. Shipping points are defined in Customizing for the enterprise structure and are assigned to plants. The system determines the shipping point and the **delivering plant** for each item in the sales document based on the customer or material master data. However, the user can change them manually in the document. The **storage conditions** of the material are stored in the material master in the *General Plant Data/Storage 1* view and copied to the outbound delivery. You define storage conditions in Customizing for Shipping to give a rough indicator of the requirement for storing a material. The conditions are only used for storage location determination.



Note: Storage location determination does not have to be material-based. The system can also restrict its search to shipping point and delivering plant. SCM610 (Delivery Processes) deals with the configuration of picking location determination in more detail.

You can manually change the storage location proposed by the system in the outbound delivery before picking.

During picking location determination, the system checks whether the storage location that has been determined is assigned to a **warehouse number** in Customizing. If it is assigned to a warehouse number, a transfer order has to be created to remove the material from storage.

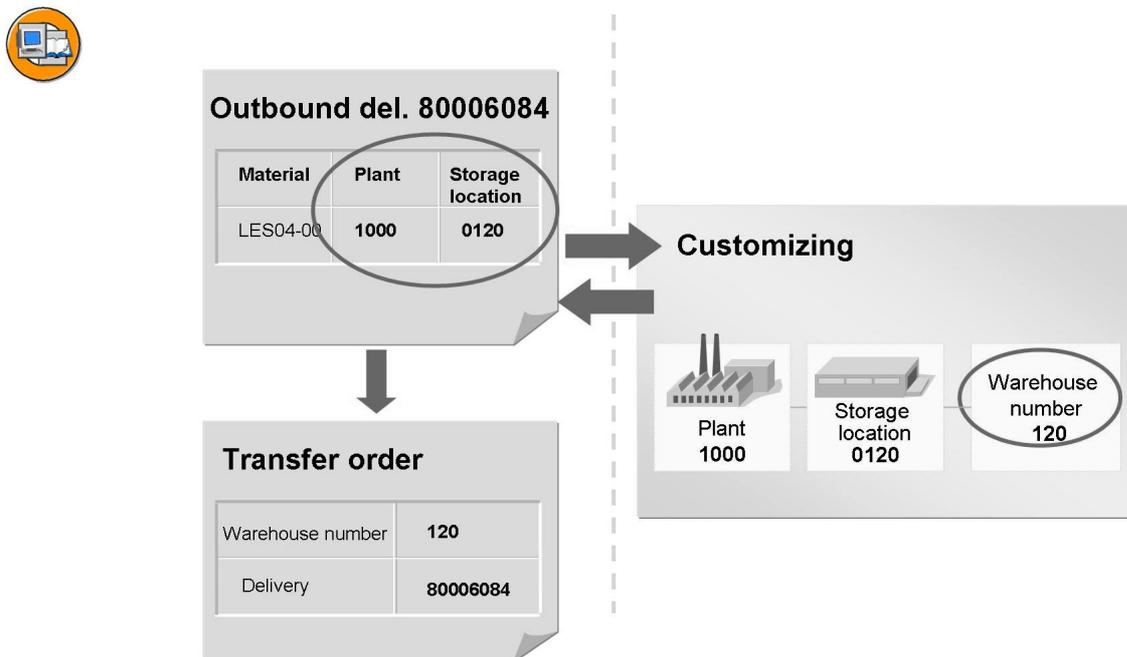


Figure 60: Determining the warehouse number in the outbound delivery

Alongside the warehouse number, the outbound delivery displays two statuses:

- Total picking status
- Total status of the transfer order

If the system assigns a total status of the transfer order to the delivery item, then it is relevant for picking.



Note: If, contrary to your expectations, the system does not assign a status, check whether the desired picking location was determined for the affected item. If this is not the case, the delivery item type may not have been flagged as “relevant for picking,” or automatic storage location determination may not have been activated for the item category. A corresponding entry may also be missing in the picking location determination table.

You can define the warehouse number as a split criterion for delivery creation for each delivery type in Customizing. This means that the deliveries have the same warehouse number.

On creation of a transfer order for an outbound delivery, the system determines a **storage type** for stock removal for each each delivery item. The system then searches for stock according to the **stock removal strategy** that is valid for this storage type; you can, however, influence or change the result manually. You can enter any differences established during stock removal when you confirm the transfer order. Missing quantities or “gains” are “transferred” to an interim storage

area for differences. In the standard system, this is storage type **999**. The storage location stocks are corrected in a separate step. It is important that the delivery quantity is adjusted to the picked quantity before the goods issue for the outbound delivery is posted. You can adjust the quantity either by hand or have the system adjust it as part of the confirmation step.



Note: Two control options are available on the initial screen for the confirmation transaction for this purpose (indicators **1** and **2**) in the *Adopt pick. quantity* field. Option **2** not only corrects the delivery quantity, it also triggers the goods issue posting directly after the correction.

You can define default values for the adjustment quantity in Customizing for Warehouse Management (*Logistics Execution* → *Warehouse Management* → *Interfaces* → *Shipping* → *Define Shipping Control*).

Pick & Pack

If you want to map the packing process of picked materials in SAP ECC, you can use the packing dialog for outbound delivery. Delivery items are assigned to packaging materials (which also require material masters) to form packages.



Note: These packages are described as **handling units** in the system. This term was introduced in SAP R/3 4.6C and replaces the previous description of **shipping unit**. The renaming was part of the development of Handling Unit Management, which spans the entire logistics process.

Often the goods are picked for an outbound delivery and placed directly in the shipping container. This process is covered in Warehouse Management in SAP ECC by the **pick & pack** function. You enter the packaging material in a separate transaction before confirming the stock removal transfer order, in order to create an empty shipping container. The actual confirmation step links the picked quantities in the transfer order items with the container, thus creating a handling unit, and assigns this to the outbound delivery. To use this function in your warehouse number, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Shipping* → *Define Shipping Control*. Choose the table *Shipping Control per Warehouse Number*. This table contains a *Pick&Pack* column. Activate the functions for the required warehouse numbers. Since SAP R/3 4.6C, you can enter the material number of a packaging material in the table *Define Control for Automatic Creation of Pick HUs* for automatic creation of picking containers for each storage type and movement type.



Note: You can still decide in individual cases whether to pack in the packing dialog for outbound delivery or in Warehouse Management on confirmation of the transfer order.

Collective Processing of Outbound Deliveries

Alongside manual creation of single transfer orders for a single outbound delivery, there are several options for collective processing:



- Automatic creation of transfer orders with report RLAUTA20
- Group creation in the outbound delivery monitor and subsequent transfer order creation for the group
- Two-step picking

To use report **RLAUTA20**, message type **WMTA** (*automatic transfer order*) has to be determined in the outbound delivery message determination. This message type is used to create a transfer order for the outbound delivery. The program RLAUTA20 is called from the message control (program **RSNAST00**). If you want transfer orders to be regularly created in the background for your outbound deliveries, schedule the execution of the RSNAST00 program for message type WMTA. You can define determination records for the message type WMTA with the transmission medium 8 (*Special Function*).



Note: The message type WMTA can be used in the same way to create transfer orders for **outbound deliveries**.

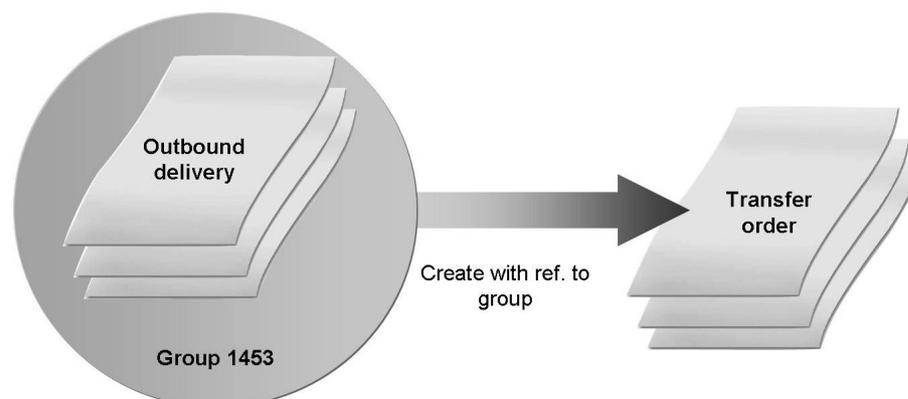


Figure 61: Collective Processing of Outbound Deliveries

You can use the **outbound delivery monitor** to **group** outbound deliveries according to various criteria, in order to process them together in picking. The outbound delivery monitor also allows you to carry out the remaining steps of the goods issue process from a single screen. You can also process several outbound deliveries together in the outbound delivery monitor without grouping them together.



Note: A great advantage of the outbound delivery monitor is the wide range of selection options. These enable you to target specific outbound deliveries. For example, you can process all of the outbound deliveries that are shipped to the customer by a certain carrier together.

The **wave pick** is a special form of collective processing for transfer order creation. Again, the outbound deliveries are grouped for further processing, but this time the selection takes into account time-based criteria, for example a common goods issue time.



Note: In Customizing for Shipping, you define when picking takes place during the work day. For each warehouse number, you also specify the compare time, which the system should take into account during the selection of the outbound deliveries. You can use the wave pick profiles to set limits for weight and volume, and a maximum processing duration for each wave.

Two-step picking, a special form of collective processing, is covered in a separate lesson.

Exercise 20: Stock Removal for Outbound Delivery

Exercise Objectives

After completing this exercise, you will be able to:

- Make various settings for picking in Customizing and test them

Business Example

Your company delivers materials from the warehouse to customers. It wants to use Warehouse Management to pick the goods.

Task:

Create an outbound delivery for a sales order and check the picking status. Remove the order goods from storage using a transfer order. If you confirm the transfer order with differences, the system should adjust the delivery quantity to the picked quantity and post the goods issue in Inventory Management.

1. Try to fulfill a sales order that has been created in the system prior to the course. The customer administrates the order under order number **##**. Search for the order using this order number. Work with shipping point **1000**. Has the system determined a **picking location** for the delivery item? Is there an **overall WM status**?



Hint: Move the selection date for delivery creation approximately two weeks into the future.

2. In Customizing for Shipping, check the picking location determination for plant **1000** and shipping point **1000**. Is there an entry that would steer the search to storage location **01##**? What key does your group-specific storage condition have for the material master?
3. Check the *General Plant Data / Storage 1* view of material **T-MS-##**. Add your storage condition, *WMS group ##* (the key is the total of **20** plus your group number **##**).
4. Try to create the outbound delivery for the sales order again. Is storage location **01##** displayed as a picking location? Is there therefore an **overall WM status**?
5. Pick the delivery quantity with a transfer order in the background.

Continued on next page

6. Before you confirm the transfer order with a **difference**, specify in Warehouse Management Customizing that in warehouse number **1##**, for stock removal activities controlled by movement type **601**, the delivery quantity should be adjusted to the picked quantity if differences occur. The system should also post the **goods issue** of the material quantity in Inventory Management following the confirmation and delivery correction.
7. Test your setting by confirming your transfer order from step 5 in the foreground with a difference of one piece.
8. Check your outbound delivery. Was the delivery quantity reduced by one piece and the goods issue posted? You can find all the information in the document flow for the outbound delivery.
9. Finally, clear the difference quantity of one piece of a material **T-MS-##** from Inventory Management. First, check the stock overview of the material in warehouse number **1##** and check the stocks again once you have cleared the difference.



Hint: Differences are cleared in Warehouse Management in the *Physical Inventory* submenu.

Solution 20: Stock Removal for Outbound Delivery

Task:

Create an outbound delivery for a sales order and check the picking status. Remove the order goods from storage using a transfer order. If you confirm the transfer order with differences, the system should adjust the delivery quantity to the picked quantity and post the goods issue in Inventory Management.

1. Try to fulfill a sales order that has been created in the system prior to the course. The customer administrates the order under order number **##**. Search for the order using this order number. Work with shipping point **1000**. Has the system determined a **picking location** for the delivery item? Is there an **overall WM status**?



Hint: Move the selection date for delivery creation approximately two weeks into the future.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Outbound Delivery* → *Create* → *Single Document* → *With Reference to Sales Order*. Enter **1000** in the *Shipping Point* field.
- b) Call the input help for the *Order* field, enter your group number, **##**, in the *Order number* field, and confirm with *Enter*.
- c) Select your order and choose *Enter* again. Move the selection date for delivery creation approximately two weeks into the future and confirm with *Enter*.
- d) Select the *Picking* tab page. The system has not determined a picking location. The *OverallWMStatus* field is empty. Terminate the creation of the outbound delivery without saving.

Continued on next page

2. In Customizing for Shipping, check the picking location determination for plant **1000** and shipping point **1000**. Is there an entry that would steer the search to storage location **01##**? What key does your group-specific storage condition have for the material master?
 - a) Choose *Logistics Execution* → *Shipping* → *Picking* → *Determine Picking Location* → *Assign Picking Locations*. There is a cross-material table entry for shipping point **0001** and plant **0001**.
 - b) Directly below the cross-material table entry there are entries that also contain a storage condition key (**20 + ##**) and which are assigned to storage locations **0100** to **0130**. Your group-specific storage condition is the sum of your group number, **##**, plus 20 (so 34 for group 14). Storage location 0114 is assigned to the corresponding table entry.
3. Check the *General Plant Data / Storage 1* view of material **T-MS-##**. Add your storage condition, *WMS group ##* (the key is the total of **20** plus your group number **##**).
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter your material number, **T-MS-##**, and choose *Enter*. Choose the *General Plant Data / Storage 1* view, choose *Enter*, enter plant **1000** as the organizational level, and confirm with *Enter*.
 - b) Enter the key for your storage condition, *WM group ##*, in the *Storage conditions* field and save the changes.
4. Try to create the outbound delivery for the sales order again. Is storage location **01##** displayed as a picking location? Is there therefore an **overall WM status**?
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Outbound Delivery* → *Create* → *Single Document* → *With Reference to Sales Order*. If not already proposed by the system, enter **1000** in the *Shipping Point* field and your order number from step 1, and choose *Enter*.
 - b) Select the *Picking* tab page. Your storage location **01##** should be displayed in the *SLoc* field. The system should also have assigned a *OverallWMStatus* of **A** (*WM-TO required*). Create the outbound delivery by saving.

Continued on next page

5. Pick the delivery quantity with a transfer order in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Create Transfer Order* → *Single Document*. If not already proposed by the system, enter warehouse number **1##** and the document number of your outbound delivery from step 4.
 - b) Select the *Background* process indicator and choose *Enter*. The system creates the transfer order in the background.
6. Before you confirm the transfer order with a **difference**, specify in Warehouse Management Customizing that in warehouse number **1##**, for stock removal activities controlled by movement type **601**, the delivery quantity should be adjusted to the picked quantity if differences occur. The system should also post the **goods issue** of the material quantity in Inventory Management following the confirmation and delivery correction.
 - a) Choose *Logistics* → *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Shipping* → *Define Shipping Controls* and in the following screen, choose *Define Shipping Control at the Movement Type Level*.
 - b) Select movement type **601** in warehouse number **1##**. Use the input help for the *Copy WM quantity* field to select the corresponding indicator, *Copy WM quantity as delivery quantity and post GR/GI (2)*. Save your change.
7. Test your setting by confirming your transfer order from step 5 in the foreground with a difference of one piece.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Confirm Transfer Order* → *Single Document* → *In One Step*. If not already proposed by the system, enter warehouse number **1##** and the number of your transfer order from step 5, and choose *Enter*.
 - b) Enter **1** in the *Dest.diff.qty* field and confirm your entry with *Enter*. The system automatically corrects the *actual quantity*.
 - c) Confirm the transfer order by saving. In the *Confirm Item: Confirm Differences* screen, choose *Confirm Difference*.

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8. Check your outbound delivery. Was the delivery quantity reduced by one piece and the goods issue posted? You can find all the information in the document flow for the outbound delivery.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Delivery* → *Change* → *Single Document*. If they are not already proposed by the system, enter the document number of your outbound delivery and choose *Enter*.
 - b) Choose the *Picking* tab page. Both picking statuses should now be set to *C*.
 - c) Choose *Document Flow* . The transfer order and goods issue posting have both reached the overall processing status *completed*. The order and the outbound delivery have the status *in process*. To deliver the material quantity that was not picked, you would have to create a second outbound delivery for the sales order.



Hint: You can find the number of the material document for the goods issue posting in the document flow under the description *Goods issue delivery*.

9. Finally, clear the difference quantity of one piece of a material **T-MS-##** from Inventory Management. First, check the stock overview of the material in warehouse number **1##** and check the stocks again once you have cleared the difference.



Hint: Differences are cleared in Warehouse Management in the *Physical Inventory* submenu.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter your warehouse number and your material number and choose *Enter*. The missing quantity is in storage type **999**.
- b) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Clear Differences* → *Inventory Management*. Enter the warehouse number **1##** and storage type **999** and choose *Execute* .
- c) The quant of your missing quantity is already selected. Choose the *Clear* button. The system documents the clearance in a material document.
- d) Check the material stocks as described under 9.a). Storage type **999** does not have any more stocks; the storage location stock of the material was reduced by one piece.



Lesson Summary

You should now be able to:

- Describe and map the goods issue process with outbound deliveries
- Explain picking storage location determination
- Make the settings required for "pick & pack"
- Name the possibilities for collective processing and process automation

Lesson: Special Procedure for Stock Removal for Outbound Delivery

Lesson Overview

This lesson deals with two-step picking, a special form of collective processing of outbound deliveries. You will also learn how to best return material quantities that have not been shipped to storage.



Lesson Objectives

After completing this lesson, you will be able to:

- Make the settings required for two-step picking
- Execute two-step picking
- Perform a return transfer for outbound delivery

Business Example

Your company is considering using two-step picking to optimize stock removal.

Two-Step Picking

The **two-step picking** procedure divides the stock removal process into two steps: a **withdrawal** step and a **distribution** step. First, the total quantity of a material is removed from storage for a group of outbound deliveries and is stored temporarily in a storage type set up for this purpose. The material quantity is then distributed among the individual outbound deliveries and shipments in the goods issue area.



Note: Two-step picking can also be used for groups of transfer **requirements**. The Customizing settings for two-step picking are under *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Set Up 2-step Picking for Transfer Requirement*.

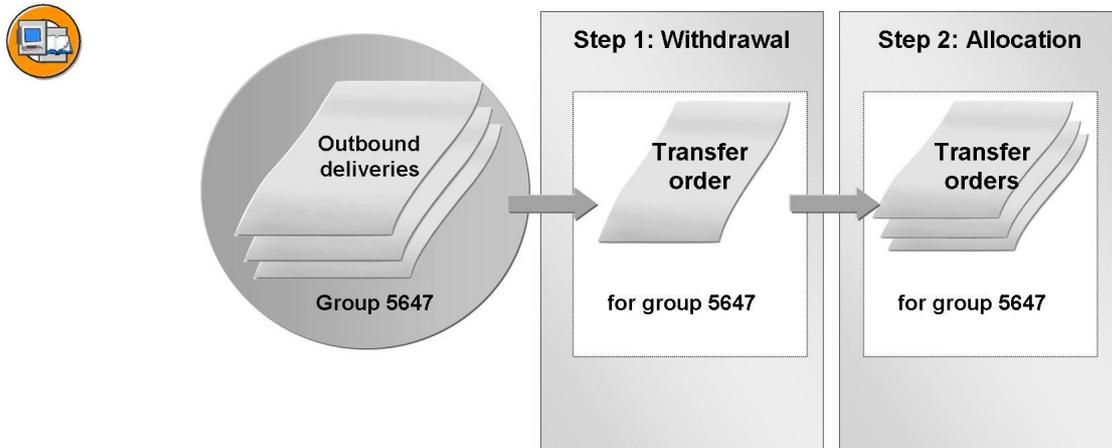


Figure 62: Two-Step Picking

If you want to use the two-step picking procedure, you can use the presettings in SAP ECC. The standard system already contains storage type **200** (“zone for two-step picking”), used for temporarily storing the material quantity picked in the withdrawal step. Movement type **850** (“removal 2-step picking”) is also preconfigured in the standard system, and storage type 200 is assigned to it as the *destination storage type*. The storage bin search for this storage type is dynamic, which means that the system generates storage bins for putaway in relationship to the activity. Once the activity is complete, the system deletes the dynamic storage bins. However, in contrast to the one-step putaway and picking processes, the creation of the dynamic storage bin is not controlled by a requirement type but rather by a special storage bin search strategy. Strategy **R** (“dynamic coordinate reference number”), which is assigned to storage type 200 in a standard system, ensures that the number of the outbound delivery group is used as the storage bin coordinate during putaway. This means that in Warehouse Management, you can always see which specific group of outbound deliveries the picked quantity belongs to.

Therefore, in order to use two-step picking, you have to consolidate outbound deliveries into groups. The **outbound delivery monitor** (transaction code VL06O) is the most suitable transaction for doing this. It offers a wide range of selection criteria for selecting outbound deliveries for processing as a group.



Note: You can also form groups of outbound deliveries by grouping document numbers manually using transaction VG01.

In the outbound delivery monitor, select all of the deliveries that you want to group together and choose *Subsequent Functions* → *Group* → *Create with WM reference*. You can use a group formed in this way for one-step collective processing as well. Generally, two-step picking is only possible if, during outbound delivery creation, the system has already recognized the **relevance** of a document item for the two-step process. In SAP ECC, this relevance is set in the **material master**. If a material is flagged as being relevant for two-step

picking in the *Warehouse Management 1* view, the document item is included in this process. All material items that are not flagged are picked using the one-step method, which means that the system does not consider them in the withdrawal step of the two-step procedure. However, you can change the relevance of a material for individual activities in a separate transaction (LT72) once the group has been formed. The settings for two-step picking for outbound deliveries are in Customizing for Warehouse Management under *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Shipping* → *2-step Picking*.



Note: User exit **MWM2S001** is available for use with two-step picking (*Exit to Determine 2-Step Picking Characteristic*). You can use this exit to postpone the decision as to the relevance for two-step picking until after the groups have been formed, and make the decision dependent on non-material-related criteria.

Return Transfer for Outbound Delivery

Sometimes a customer cancels an order at the last minute or wants to postpone the delivery until a much later time than planned. If the goods have already been picked and taken to the goods issue area, they have to be returned to storage. Up to and including SAP R/3 4.0, stock removals could only be reversed using a transfer order without a reference. As of SAP R/3 4.5A, a transaction is available, “Return to Stock for Delivery” (transaction code LT0G), which make the process much easier. You can decide whether you want to return an entire delivery quantity to storage or only the quantity from individual transfer order items.

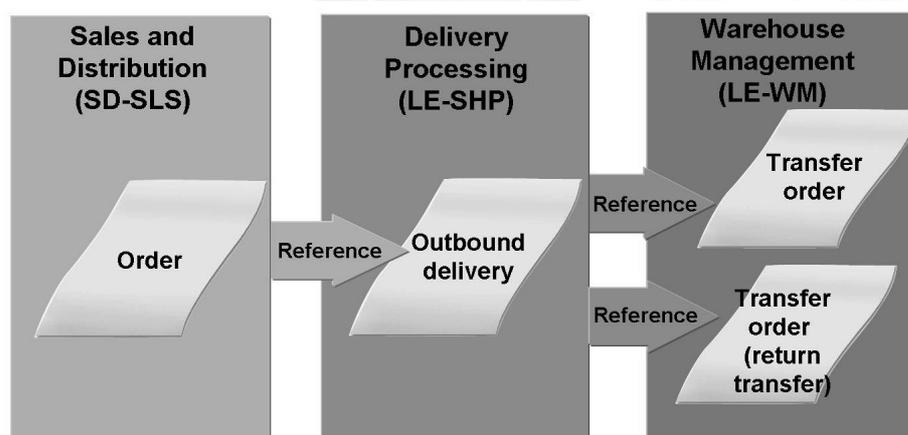


Figure 63: Return Transfer for Outbound Delivery

Regardless of whether you want to return all or some of the picked materials to storage, you can choose between the following options:

- **Return transfer** of the picked quant to the picking bin
- **Putaway** in another storage bin, possibly in another storage type

You can only return the materials to the picking bin if the storage type for stock removal allows **addition to stock**, or if the storage bin was emptied as a result of the last picking activity.

You can put away the materials in another storage bin interactively (in the foreground) or let the system do it (in the background). If you choose background processing, the system searches for a storage type according the settings for the storage type search, and searches for a storage bin according to the putaway strategy that is valid for the storage type. If an error occurs, the system creates a log. In the SAP ECC standard system, Warehouse Management movement type **999** is used for return transfers and stock transfers.

New Features with SAP R/3 4.7

Two new functions have been added with SAP R/3 Enterprise that are significant for special processing for stock removal for outbound deliveries. The first new feature is the **transfer order for multiple deliveries**. Up to and including SAP R/3 4.6C, you could only create a transfer order for a group of outbound deliveries using two-step picking. Now you can also create a transfer order for a delivery group in the **one-step** procedure. You create a group *with WM reference* in the outbound delivery monitor as usual, set the *TO for Mult.Del* indicator, and choose *Logistics → Logistics Execution → Goods Receipt Process → Goods Issue for Outbound Delivery → Picking → Create Transfer Order → For Multiple Deliveries* (transaction code LT0S). Like two-step picking, the transfer order for multiple deliveries in the one-step procedure optimizes the paths within the warehouse and is particularly useful if there are a large number of outbound deliveries with a few items of the same materials.

The second new feature in SAP R/3 Enterprise is the option of **delayed update** of the stock removal data in the outbound delivery during transfer order confirmation. This feature was added to reduce system locks during the update process and to improve general system performance. Up until SAP R/3 4.7, the system always updated this data immediately after confirmation of a **transfer order item** in the outbound delivery. In SAP R/3 Enterprise, you can now choose between different update times:

- Update the outbound delivery after confirming a transfer order item (previous function)
- Cumulated update of the outbound delivery after confirmation of the last item in the transfer order
- Update the outbound delivery after confirming the last transfer order if there was an order split (several transfer orders per outbound delivery)

You make the desired settings for the outbound delivery update in Warehouse Management Customizing under *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Shipping* → *Define Shipping Control* in the *Shipping Control per Warehouse Number*.



Note: For details of the new features, see the release information for SAP R/3 Enterprise.

Exercise 21: Two-Step Picking

Exercise Objectives

After completing this exercise, you will be able to:

- Use two-step picking

Business Example

You want to use two-step picking in order to optimize the picking paths in the warehouse.

Task:

Create an outbound delivery group and pick the required material quantity using the two-step procedure.

1. Use the **outbound delivery monitor** to select the three outbound deliveries that were created before the course, and create a **group with WM reference**. Use warehouse number **1##** as a selection criterion. Which materials have to be picked and in what quantities?



Hint: You can use your user name, **SCM630-##**, as the short description for the group. To see the material numbers of the affected materials, choose *Item view*.

2. Now analyze the relevance of the materials for two-step picking. Are both materials relevant? How does this system tell if they are relevant?
3. Create the transfer order for stock removal for your outbound delivery group in the background and confirm it.
4. Following this step, check the stock overview for material **T-BW05-##**. Where is the material quantity that was removed from storage?
5. Distribute the picked quantity to the three outbound deliveries in the group by creating three transfer orders to transfer the material quantity from the interim storage area to the goods issue area. The confirmation is done by the system.



Hint: You can use the analysis transaction again (LX39). Choose background processing for both activities.

Solution 21: Two-Step Picking

Task:

Create an outbound delivery group and pick the required material quantity using the two-step procedure.

1. Use the **outbound delivery monitor** to select the three outbound deliveries that were created before the course, and create a **group with WM reference**. Use warehouse number **1##** as a selection criterion. Which materials have to be picked and in what quantities?



Hint: You can use your user name, **SCM630-##**, as the short description for the group. To see the material numbers of the affected materials, choose *Item view*.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Create* → *Via Outbound Delivery Monitor*. Enter warehouse number **1##** in the *Warehouse Number* field and choose *Execute* .
- b) Select the three outbound deliveries that the system displays in the list of the *day's workload for picking*, and choose *Subsequent functions* → *Group* → *Create with WM reference*.
- c) Enter a description, for example **SCM630-##**, and warehouse number **1##** in the corresponding fields and choose *Enter*. The system issues a group number in the status bar.
- d) Choose *Item view* to get an overview of the material quantities that have to be picked. In total, there are two pieces of material **T-BW04-##** and three pieces of material **T-BW05-##** to be removed from storage. Exit the outbound delivery monitor.

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2. Now analyze the relevance of the materials for two-step picking. Are both materials relevant? How does this system tell if they are relevant?
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Wave Picks* → *2-Step Picking* → *Display 2-Step Relevance* or *Analysis*. Enter warehouse number **1##** and your outbound delivery group number and choose *Enter* or, if you are using the *Analysis*, choose *Execute* .
 - b) If you choose to use the analysis transaction (LX39), place the cursor over the group number and choose *Determine 2-step relevance* or *Display 2-step relevance*. Both materials are relevant for two-step picking.
 - c) Both materials are flagged as being relevant for two-step picking in their material masters. You can check the indicator under *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Display* → *Display Current Status*. Enter the material number and confirm with *Enter*. Select the *Warehouse Management 1* view, and confirm with *Enter*. Enter plant **1000** and warehouse number **1##** as organizational levels, and choose *Enter* once more. In the *Storage strategies* section, indicator **2** is set in the *2-Step Picking* field.
3. Create the transfer order for stock removal for your outbound delivery group in the background and confirm it.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Create Transfer Order* → *Via 2-Step Picking*. Enter warehouse number **1##** and your group number and choose the *Background* processing indicator. Confirm your entry with *Enter*. The system creates the transfer order in the background.
 - b) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* processing indicator and confirm the selection with *Enter* to confirm the transfer order in the background.

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4. Following this step, check the stock overview for material **T-BW05-##**. Where is the material quantity that was removed from storage?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter the warehouse number and the material number and choose *Enter*. There are three pieces of the material in storage type **200**.
 - b) Place the cursor in the row of the plant/storage location stock and choose *Bin stocks*. The quant was put into a dynamic storage bin with the group number as its coordinates.
5. Distribute the picked quantity to the three outbound deliveries in the group by creating three transfer orders to transfer the material quantity from the interim storage area to the goods issue area. The confirmation is done by the system.



Hint: You can use the analysis transaction again (LX39). Choose background processing for both activities.

- a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Wave Picks* → *2-Step Picking* → *Analysis*. Enter your warehouse number and your group number and choose *Execute* . The pick step is flagged with a green traffic light to show that it is complete; the distribution step still has to be completed.
- b) Place the cursor on the traffic light symbol next to *Allocation* and choose *Create TOs*.
- c) If not already proposed by the system, enter the warehouse number and group number, choose the *Background* processing indicator from the menu, and choose *Start multiple proc..* The system creates three transfer orders in the background.
- d) Select the entry for your group number and choose *Detailed Info* to display the assignment of the transfer orders to the outbound deliveries in the group. Choose *Back* .
- e) Release the group for transfer order printing by choosing *Release/Print*  and then choose *Back* .
- f) Choose *Back*  once more and confirm the confirmation prompt *You are leaving the list. Exit processing anyway?* with *Yes*.
- g) Choose *Data*  to update the display. The traffic light turns to green because all of the transfer orders have already been confirmed.

Exercise 22: Return Transfer for Outbound Delivery (Optional)

Exercise Objectives

After completing this exercise, you will be able to:

- Cancel a goods issue posting for an outbound delivery and return the picked materials to storage

Business Example

A customer orders a pump from you. After the goods have been brought to the goods issue area, the customer cancels the order. You now have to cancel the goods receipt posting and return the goods to storage.

Task:

Create a sales order, fulfill it, pick the goods and post the goods issue for the outbound delivery. Then cancel the goods issue posting and return the picked goods to storage.

1. Create sales order (order type **OR**) for one piece of material **T-MS-##** (sold-to party **1400**), and fulfill the order (shipping point **1000**).
2. Create a transfer order for the outbound delivery as a subsequent function from the document and confirm in the background.



Hint: You can branch to *Create Transfer Order for Delivery* by choosing *Subsequent Functions* → *Create Transfer Order*.

3. The system posts the goods issue for the outbound delivery immediately after the transfer order has been confirmed. Check the result in the document flow for your outbound delivery. Check both of the delivery statuses as well.
4. Cancel the goods issue posting and then check the stock overview of material **T-MS-##**. You should find one piece in interim storage area **916**, the goods issue area.
5. Return the material quantity picked in step 2 to storage using transaction **LT0G** (*Return to stock for delivery*).
6. Finally, check your outbound delivery. Has the system reset the picking and transfer order statuses to **A**? Check the document flow.

Solution 22: Return Transfer for Outbound Delivery (Optional)

Task:

Create a sales order, fulfill it, pick the goods and post the goods issue for the outbound delivery. Then cancel the goods issue posting and return the picked goods to storage.

1. Create sales order (order type **OR**) for one piece of material **T-MS-##** (sold-to party **1400**), and fulfill the order (shipping point **1000**).
 - a) In the application menu, choose *Logistics → Sales and Distribution → Sales → Order → Create*. Enter **OR** in the *Order Type* field and choose *Enter*.
 - b) Enter sold-to party **1400** and an order number of your choice.
 - c) Enter material **T-MS-##** at item level and the quantity **1**. Confirm your entries with *Enter*.
 - d) Once you have entered the order data, choose *Sales document → Deliver*. If the system does not immediately display the overview screen for the outbound delivery, enter shipping point **1000**. If necessary, postpone the selection date by one week and choose *Enter*.
2. Create a transfer order for the outbound delivery as a subsequent function from the document and confirm in the background.



Hint: You can branch to *Create Transfer Order for Delivery* by choosing *Subsequent Functions → Create Transfer Order*.

- a) Choose *Subsequent Functions → Create Transfer Order* to branch to the *Create Transfer Order for Delivery* transaction. Confirm the warning message with *Yes*.
- b) Create the transfer order in the background by selecting the *Background* processing indicator and confirm with *Enter*.
- c) To confirm the transfer order, choose *Logistics → Logistics Execution → Outbound Process → Goods Issue for Outbound Delivery → Picking → Confirm Transfer Order → Single Document → In One Step*. In the *Foreground/Backgrnd* field, choose the *Background* indicator and confirm with *Enter*.

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3. The system posts the goods issue for the outbound delivery immediately after the transfer order has been confirmed. Check the result in the document flow for your outbound delivery. Check both of the delivery statuses as well.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Delivery* → *Change* → *Single Document*. If it is not already proposed by the system, enter the number of your outbound delivery and choose *Enter*.
 - b) The delivery status is **C**. Choose *Document flow* . The goods issue has already been posted.

4. Cancel the goods issue posting and then check the stock overview of material **T-MS-##**. You should find one piece in interim storage area **916**, the goods issue area.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Post Goods Issue* → *Cancellation/Reversal*.
 - b) The system proposes the last outbound delivery processed for the reversal posting. Confirm the selection by choosing *Execute* .
 - c) Select your outbound delivery and choose *Cancel/reverse*. Confirm the confirmation prompt with *Enter*.
 - d) You receive a log reporting the success of the posting. Confirm with *Enter* and exit the transaction.
 - e) To go to the stock overview, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*.

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5. Return the material quantity picked in step 2 to storage using transaction LT0G (*Return to stock for delivery*).
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Picking* → *Cancel Transfer Order* → *Return Transfer Order for Outbound Delivery*.
 - b) The system proposes warehouse number **1##**, your outbound delivery, and Warehouse Management movement type **999** as default values. Choose *Execute* .
 - c) The system proposes the material that was just picked as the material for the return transfer. Select the transfer requirement and choose *Return to stock*.
 - d) Confirm the transfer order that the system created for the return transfer in the background. Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.
6. Finally, check your outbound delivery. Has the system reset the picking and transfer order statuses to **A**? Check the document flow.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Change* → *Single Document* (→ *Display*). If not already proposed by the system, enter the number of your outbound delivery and choose *Enter*.
 - b) The delivery status is **A** again. Choose *Document Flow* . The reverse goods issue posting and return transfer order have been executed.



Lesson Summary

You should now be able to:

- Make the settings required for two-step picking
- Execute two-step picking
- Perform a return transfer for outbound delivery



Unit Summary

You should now be able to:

- Explain the goods receipt process with inbound deliveries
- Map this process in SAP ECC
- Track the putaway process steps in the stock overview
- Describe and map the goods issue process with outbound deliveries
- Explain picking storage location determination
- Make the settings required for "pick & pack"
- Name the possibilities for collective processing and process automation
- Make the settings required for two-step picking
- Execute two-step picking
- Perform a return transfer for outbound delivery



Test Your Knowledge

1. At what point in the putaway process with reference to an inbound delivery is a negative quant created in the interim storage area “goods receipt area”?

2. What is the function of message type **WMTA**?

3. How does the system tell if a document item is relevant for two-step picking?



Answers

1. At what point in the putaway process with reference to an inbound delivery is a negative quant created in the interim storage area “goods receipt area”?

Answer: The negative quant is generated when the transfer order for the inbound delivery is created.

2. What is the function of message type **WMTA**?

Answer: Message type WMTA enables direct or automatic creation of transfer orders for outbound deliveries.

3. How does the system tell if a document item is relevant for two-step picking?

Answer: The system identifies whether a material is relevant for two-step picking on the basis of the indicator in the *Warehouse Management 1* view in the material master.

Unit 7

Posting Changes and Stock Transfers

Unit Overview

In this unit, you will learn how changes to stock characteristics are mapped in Warehouse Management. The unit also deals with warehouse movements that have no reference to a process.



Unit Objectives

After completing this unit, you will be able to:

- Describe possible ways of executing a posting change in Warehouse Management
- Make the required Customizing settings
- Execute posting changes in Warehouse Management
- Distinguish between stock transfers and posting changes
- Name the process for internal warehouse stock transfers
- Perform stock transfers within the warehouse
- Explain the process of replenishment control
- Make the required Customizing settings
- Add the necessary data in the material master

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Lesson: Posting Changes

Lesson Overview

You generally make changes to the stock type, special stock, material number, or batch number in **Inventory Management** in a **posting change**. If you use Warehouse Management, you have to let the system know which storage bins the material quantities are in.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe possible ways of executing a posting change in Warehouse Management
- Make the required Customizing settings
- Execute posting changes in Warehouse Management

Business Example

Stock changes that are posted in Inventory Management also have to be made in the warehouse. This means that, for example, partial stocks occasionally have to be blocked.

The Posting Change Process

Generally, decisions to change a certain material quantity are made in **Inventory Management**. This can be a change to the stock type, special stock assignment, material number, or batch number. A certain partial stock quantity may also be reassigned to a different storage location or plant. This kind of change is entered as a posting change in Inventory Management in SAP ECC. If a plant / storage location combination that is linked to a **warehouse number** is affected by a posting change, the system has to then be told where the changed material quantity is, that is, which **bin stocks** are affected.

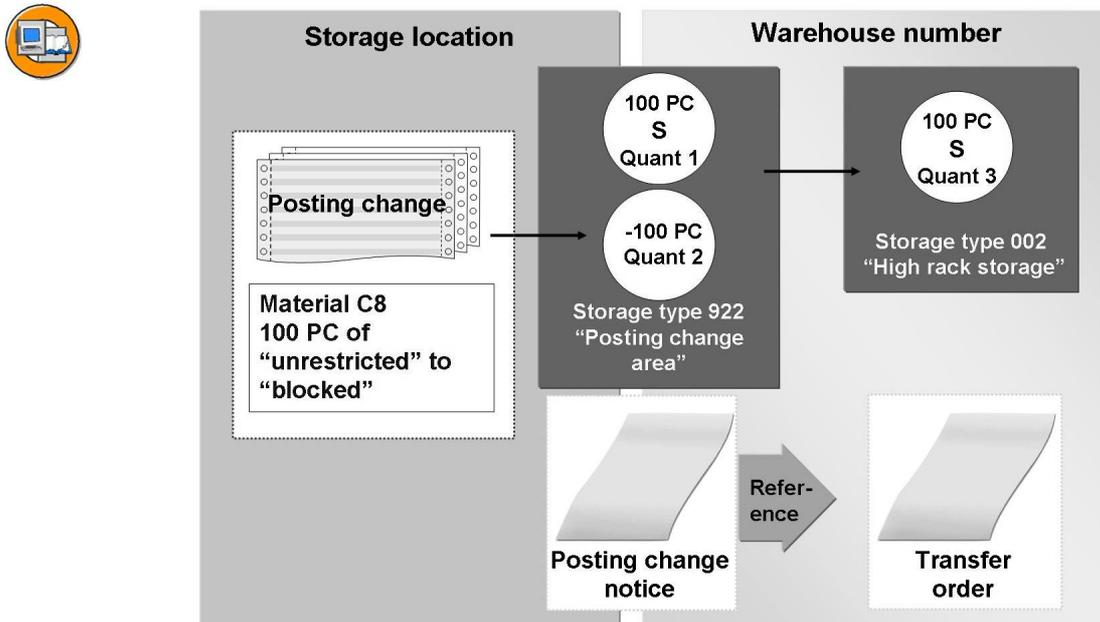


Figure 64: Posting changes: The booking flow

A posting change in Inventory Management creates a **posting change notice** which has a similar function to the transfer requirement in terms of the subsequent process. This document contains the data required for further processing in Warehouse Management, including material numbers and quantities and, in particular, the changes caused in Inventory Management as a result of the posting change. The posting change notice therefore contains the “before” and “after” information. The system also records in the document the **Warehouse Management movement type** that controls the process flow, and the **posting change storage type** and **bin**. During the posting change, the system creates a **negative quant** in the interim storage area for the “issuing” material quantity, or the changed material quantity in its state **before** the posting change. At the same time, it creates a **positive quant** for the “receiving” material quantity, or the changed material quantity in its state **after** the posting change. The negative quant is a construction used by the system to reflect the fact that Inventory Management has posted a change that has not yet been carried out in Warehouse Management.

➔ **Note:** This representation can be compared to the mapping of goods issues to other activities and to putaways for inbound deliveries. Both of these processes are dealt with in separate lessons.

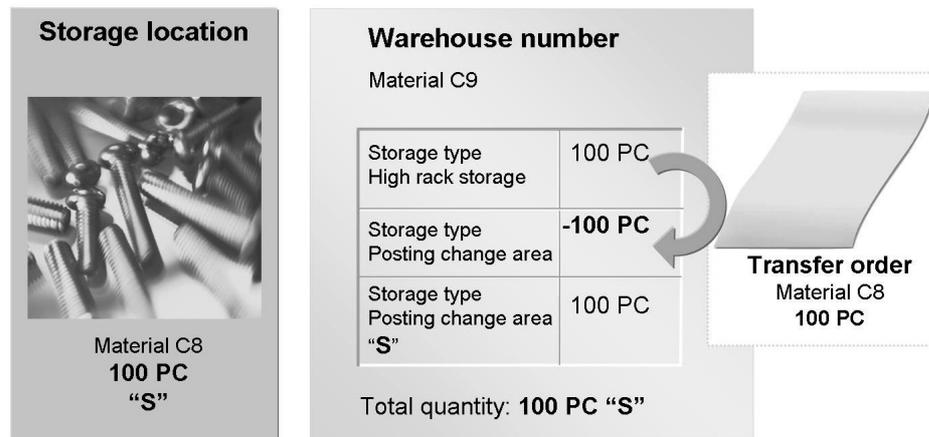


Figure 65: Negative and positive quant in the posting change zone

The warehouse worker enters the bin stocks that are to be changed in a **transfer order** with reference to the posting change notice. Generally, you have to do this in the foreground (interactively) since the system does not yet know which bin stocks are affected by the posting change. However, if the posting change is for the entire material stock of the warehouse number, you can also have the system create the transfer order in the background.

A posting change (a change to certain quant characteristics) does not necessarily have to involve a stock transfer (a physical movement of the material). You can leave the changed stocks in their storage bins and relabel them if necessary. Nevertheless, you always require a transfer order so that the system knows which bin stocks are affected. If you do not usually move stocks affected by posting changes, you can set the *Post to same bin* indicator in the Warehouse Management movement type that you use. However, the bin is only a default value; you can always change the bin in the transfer order for individual cases.



Note: If you use Quality Management in SAP ECC, entering a **usage decision** for Warehouse Management is like posting a change in Inventory Management.

Customizing for Posting Change Processing

To map posting changes entered Inventory Management in Warehouse Management, the system uses the same tables as for goods receipts for purchase orders, plant orders, and other goods issues, and for goods issues for other transactions (that is, all logistic processes with Inventory Management at the beginning). For example, if you enter a posting change for a quantity of a material from unrestricted stock to blocked stock, using Inventory Management movement type **344** in a storage location subject to Warehouse Management, the system determines the corresponding movement type in Warehouse Management (**309**). Inventory Management and Warehouse Management movement types are linked using **reference movement types**. Unlike goods receipt or issue

processes, you will generally find **three** different reference movement types for one Inventory Management movement type for posting changes in the standard SAP ECC system. The system uses the table that links the plant / storage location combinations with warehouse numbers to decide which one of the three reference movement types to use to find the Warehouse Management movement type for a particular operation. If the issuing plant / storage location combination is assigned to a different warehouse number than the receiving plant / storage location combination, the system does not create a posting change notice. Instead, it creates two **transfer requirements**: one for **stock removal** from the issuing warehouse number, and one for **putaway** in the receiving warehouse number. You can therefore use a posting change in Inventory Management to bring about a stock transfer between two warehouse numbers.

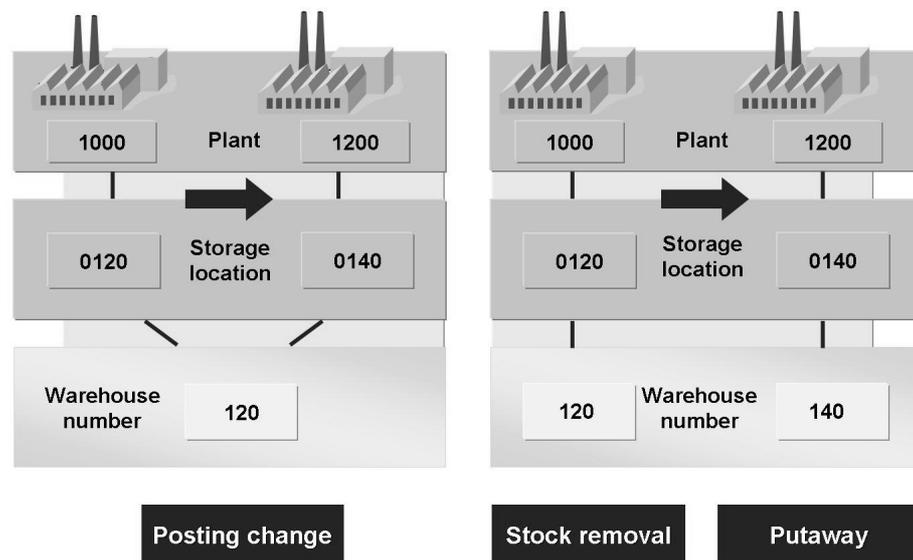


Figure 66: Posting changes between organizational units

In both of the examples in the illustration, the stocks are posted from one plant to another. In the example on the left, both plants and their respective storage locations are assigned to the **same** warehouse number. The system creates a **posting change notice**. In the example on the right, however, the two plants are linked to **different** warehouse numbers. For a plant-to-plant posting change, the system always creates two **transfer requirements**. Figure 68 shows the table entries that are relevant for this kind of posting change in a one-step procedure. If there is only one warehouse number, the system only takes into account the **third** of the three reference movement types (**309**) assigned to the Inventory Management movement type (**301**) in the interface table. If the issuing and receiving plants are assigned to different warehouse numbers, the system determines the first reference movement type (**301**) for the stock removal step, and the second reference movement type (**302**) for the putaway step.

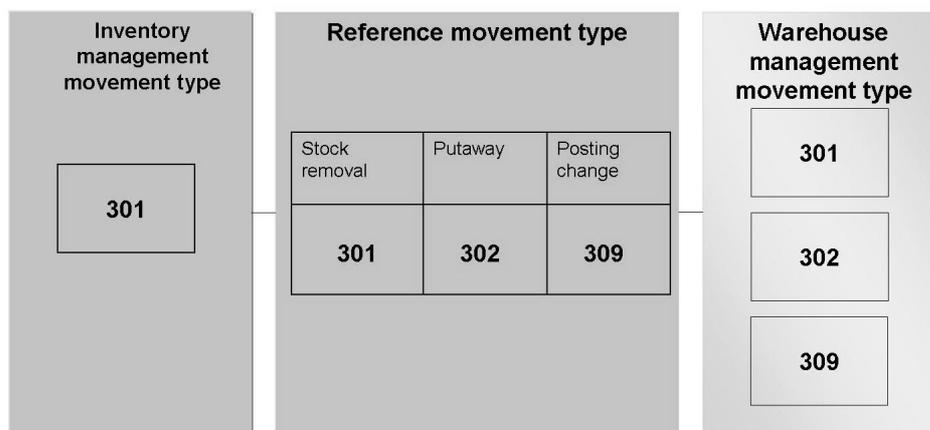


Figure 67: Reference movement types

In the standard SAP ECC system, in the table linking reference movement types with Warehouse Management movement types, various Warehouse Management movement types are assigned to the reference movement types from the example above. For the first two Warehouse Management movement types (**301** and **302**), a transfer requirement is created following a posting activity in Inventory Management; for the third Warehouse Management movement type (**309**), the *Create Posting Change Notice* indicator is activated.

Posting Changes Directly in Warehouse Management

For certain posting change activities, you can reverse the process described in the previous section by first entering the posting change for individual bin stocks in Warehouse Management. The Inventory Management posting always occurs in the background immediately after the change has been made. In Customizing for Warehouse Management, you assign the Warehouse Management movement types (which have to be specially defined for this procedure) to the corresponding Inventory Management movement types in a separate table (for example, 344 for posting change from unrestricted stock to blocked stock). The actual posting change occurs per quant. The transfer order is created immediately and confirmed immediately.



Note: You can only post changes directly in Warehouse Management for changes to the stock category and the special stock indicator. All other posting changes have to be made first in Inventory Management.



Posting Change Directly in Warehouse Management

1. First, create a new Warehouse Management movement type for the procedure. You can use Warehouse Management movement type **309** (general posting changes) as a template. Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*. Select movement type **309** in your warehouse number and choose *Copy As...* . Overwrite the key of the movement type with a key of your choice and remove the *Manual TO creation not allowed* indicator. Save to create the new movement type.



Hint: It is advisable to create a reversal movement type with the same settings at the same time.

2. Assign your new Warehouse Management movement type to a suitable Inventory Management movement type (movement type **344** in our example). In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Posting Changes* and then the *New Entries* button. Enter your warehouse number, your new Warehouse Management movement type, and the Inventory Management movement type to which it is to be assigned, **344**. Use the input help for the *Stk C DEST* field to select the **S** indicator (blocked stock) and save your entries.
3. Enter a posting change to blocked stock in Warehouse Management first. In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Direct to Bin Stock* → *Other Posting Changes*. Enter your warehouse number and, optionally, a storage type or material number and your new Warehouse Management movement type.



Hint: If you want to work at material level, you have to enter the affected plant as well.

Choose *Execute*  to display a list of all the bin stocks for which a posting change is possible. Select the quants you want to change and choose *Post Change*. You will see, if you check the storage location stocks, that the change has been made in Inventory Management as well.

Exercise 23: Posting Changes to Partial Stocks

Exercise Objectives

After completing this exercise, you will be able to:

- Map posting changes in Warehouse Management

Business Example

The technical features of a particular pump model have been modified so greatly that they require a new material number.

Task:

Change 25 pieces of pump **T-BW-##** to material number **T-MS-##**.

1. First, check the stocks of “issuing” material **T-BW-##** in warehouse number **1##**. Compare the stocks in the warehouse number with the storage location stocks.
2. Post the change of 25 pieces of material **T-BW-##** to **T-MS-##** in Inventory Management. Both materials are stock in storage location **01##** in plant **1000**, or should become so as a result of the posting change. Use Inventory Management movement type **309**.



Hint: The Logistics Execution area menu uses the transaction MB1B. However, you can also use the transaction MIGO.

3. Step 2 completes the posting change operation for Inventory Management. However, you still have to make the changes in Warehouse Management at **bin stock level**. First, check the result of the posting change in the stock overview in Inventory Management for materials **T-BW-##** and **T-MS-##**. How does the system depict the status following the posting change?



Hint: Compare the overviews in Inventory Management and Warehouse Management once more.

Continued on next page

4. Which **Customizing settings** led to this result? Call both of the tables connecting Inventory Management and Warehouse Management to find the Warehouse Management movement type for this process. Then display the “master record” for the movement type. Change it so that in the transfer order, the system proposes a posting change **without** a stock transfer.



Hint: First you have to find the **reference movement type** for Inventory Management movement type **309**, and then use this to find the relevant Warehouse Management movement type. The indicator that causes a posting change without a simultaneous stock transfer is called *Post to same bin*.

5. Create a transfer order for the posting change notice. Search for your document, created as a result of the posting change in step 2, in the list of posting change notices. Does the system propose a posting change without a stock transfer? Transfer five of the 25 pumps changed in Inventory Management. The general settings for the storage type and storage bin search should take effect during the putaway.
6. Confirm the transfer order in the background.
7. Finally, check the stock overview of both materials once more.

Solution 23: Posting Changes to Partial Stocks

Task:

Change 25 pieces of pump **T-BW-##** to material number **T-MS-##**.

1. First, check the stocks of “issuing” material **T-BW-##** in warehouse number **1##**. Compare the stocks in the warehouse number with the storage location stocks.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW-##** and choose *Enter*. There are 100 pieces in storage type **001**.
 - b) Choose the *MM stock figures*: At storage location level, 100 pieces of the material are displayed as being *Unrestricted use* stock.
2. Post the change of 25 pieces of material **T-BW-##** to **T-MS-##** in Inventory Management. Both materials are stock in storage location **01##** in plant **1000**, or should become so as a result of the posting change. Use Inventory Management movement type **309**.



Hint: The Logistics Execution area menu uses the transaction MB1B. However, you can also use the transaction MIGO.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Via Inventory Management* → *Enter Posting Change*. Enter movement type **309**, plant **1000**, and storage location **01##** and choose *Enter*.
- b) Enter material number **T-MS-##** in the *Receiving mat.* field. In the *Items* section, enter the number of the “issuing” material, **T-BW-##**, in the *Material* field, and **25** in the *Quantity* field. Confirm with *Enter* and save to enter the posting change.

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3. Step 2 completes the posting change operation for Inventory Management. However, you still have to make the changes in Warehouse Management at **bin stock level**. First, check the result of the posting change in the stock overview in Inventory Management for materials **T-BW-##** and **T-MS-##**. How does the system depict the status following the posting change?



Hint: Compare the overviews in Inventory Management and Warehouse Management once more.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW-##** (issuing material) and choose *Enter*. A **negative quant** (-25 pieces) is displayed in interim storage type **922**. Choose *MM stock figures*. 75 pieces of the material are displayed at storage location level. Choose *Back* .
- b) Choose *Other material*, enter material number **T-MS-##** (receiving material), and choose *Enter*. There are 25 pieces of the material in storage type **922**.

Continued on next page

4. Which **Customizing settings** led to this result? Call both of the tables connecting Inventory Management and Warehouse Management to find the Warehouse Management movement type for this process. Then display the “master record” for the movement type. Change it so that in the transfer order, the system proposes a posting change **without** a stock transfer.



Hint: First you have to find the **reference movement type** for Inventory Management movement type **309**, and then use this to find the relevant Warehouse Management movement type. The indicator that causes a posting change without a simultaneous stock transfer is called *Post to same bin*.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then *Assign WM Movement Type References to IM Movement Types*.
 - b) Select the table entry for Inventory Management movement type **309** for a simultaneous value and quantity update. The column to the far right displays the reference movement type **309**. Since the posting change does not exceed the warehouse number limit, this is the movement type in question.
 - c) Choose *Back*  and then choose *LE-WM Interface to Inventory Management*. Select the cross-warehouse number entry (***) for reference movement type **309**. The Warehouse Management movement type that is assigned is **309**. The *Create Posting Change Notice* indicator is set.
 - d) Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*. Select movement type **309** in warehouse number **1##** and choose *Details* . Storage type **922** is assigned as both the *source* and *destination* storage types.
 - e) Set the *Post to same bin* indicator and save the change.
5. Create a transfer order for the posting change notice. Search for your document, created as a result of the posting change in step 2, in the list of posting change notices. Does the system propose a posting change without

Continued on next page

a stock transfer? Transfer five of the 25 pumps changed in Inventory Management. The general settings for the storage type and storage bin search should take effect during the putaway.

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Via Inventory Management* → *Transfer Order* → *Create* → *From List of Posting Change Notices*. Enter warehouse number **1##** and movement type **309** and choose *Enter*.
 - b) Select your document and choose *Create trans.order*. The system displays all storage types containing bin stocks for which a posting change can be executed.
 - c) Select storage type **001** and choose *Quant list*. The *Post to same bin* indicator should be set for all storage bins in accordance with your settings from step 4.
 - d) Enter **5** (the bin stock) in the *Selected quantity* column for five storage bins. Remove the *Post to same bin* indicator from one of the five quants to enable a stock transfer. Choose *Post in foreground* . Check the system proposal, confirm it with *Enter*, and create the transfer order by saving.
6. Confirm the transfer order in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Posting Change* → *Via Inventory Management* → *Transfer order* → *Confirm* → *Single Document* → *In One Step*.
 - b) Choose the *Background* processing indicator and confirm the selection with *Enter* to confirm the transfer order.
 7. Finally, check the stock overview of both materials once more.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW-##** and choose *Enter*. There are 75 pieces in storage type **001**. The interim storage area stock has disappeared.
 - b) Choose *Other material*, enter the material number **T-MS-##**, and choose *Enter*. There are 20 pieces of the material in storage type **001** and at least five pieces of the material in storage type **005**, depending on if the previous exercises have been carried out.



Lesson Summary

You should now be able to:

- Describe possible ways of executing a posting change in Warehouse Management
- Make the required Customizing settings
- Execute posting changes in Warehouse Management

Lesson: Stock Transfers

Lesson Overview

You often have to move partial stocks in the warehouse, that is, you have to transfer stock. Posting changes can also involve a **stock transfer** of the affected material quantity.



Lesson Objectives

After completing this lesson, you will be able to:

- Distinguish between stock transfers and posting changes
- Name the process for internal warehouse stock transfers
- Perform stock transfers within the warehouse

Business Example

Sometimes it is necessary to tidy up the warehouse. This involves moving stock to other areas in the warehouse, either temporarily or permanently.

Stock Transfers and Posting Changes

In Warehouse Management in SAP ECC, the term “**posting change**” means a change to a least one of the following **quant characteristics** of quantity of stock:



- Material number
- Stock category
- Special stock assignment
- Plant and storage location assignment

and, where applicable, the material's

- Batch number

A **stock transfer**, on the other hand, is a change to the **location** of a partial quantity in the warehouse. A posting change, which is generally entered in Inventory Management first, can also involve a stock transfer in Warehouse Management. For example, if the batch assignment of a material quantity changes, it may make sense or be necessary to move the material quantity to another storage bin in the course of the posting change.



Note: If you have not allowed **mixed storage** for the storage type of the bin stocks affected by a posting change, the changed **partial quantity** of the bin stock always has to be transferred to a different storage bin.

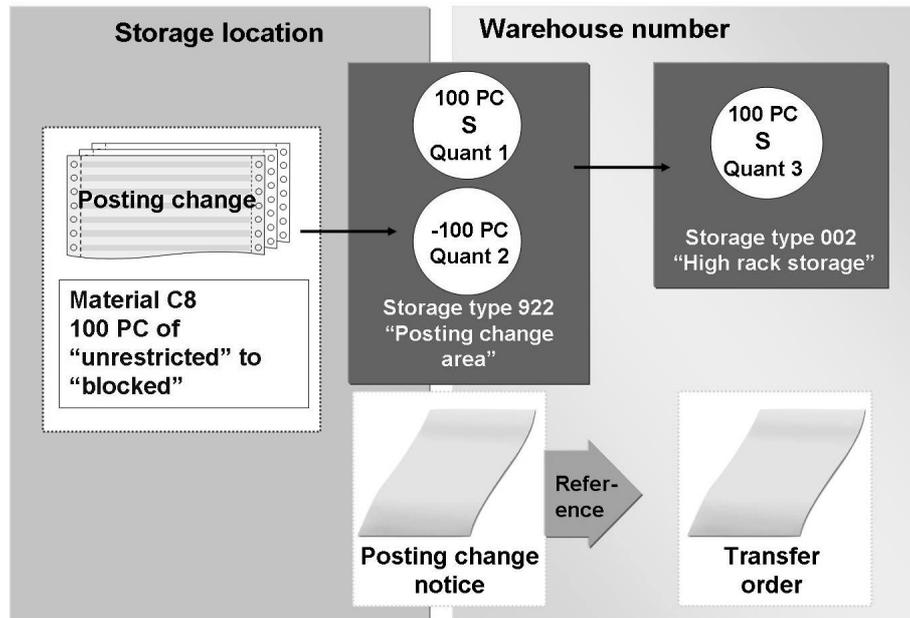


Figure 68: Posting Changes

If you do not want to transfer stocks as a result of a posting change, you can avoid a transfer by setting the *Post to same bin* indicator. You can also set this indicator by default at storage type or movement type level.

If a stock transfer is required as part of cleanup efforts in the warehouse and it does change the quant characteristics or storage location stock levels, you enter it in Warehouse Management only.

The Stock Transfer Process

Two transactions are available to create a **transfer order** for moving partial stocks within a warehouse number: the transaction *Create Transfer Order Without Source Object* (transaction code LT01) and transaction *Create Transfer Order from Stock List* (transaction code LT10). With the *Create Transfer Order Without Source Object* transaction, you can only move the stock from **one** storage bin. If you want to move the stock from entire storage section or picking sections in a storage type, or even all of the stock in a storage type, you should use the transaction *Create Transfer Order from Stock List* (report RLS10034). In this program, you can select the quants you want to move and then enter the destination data.



Caution: The system creates a separate transfer order for each quant.

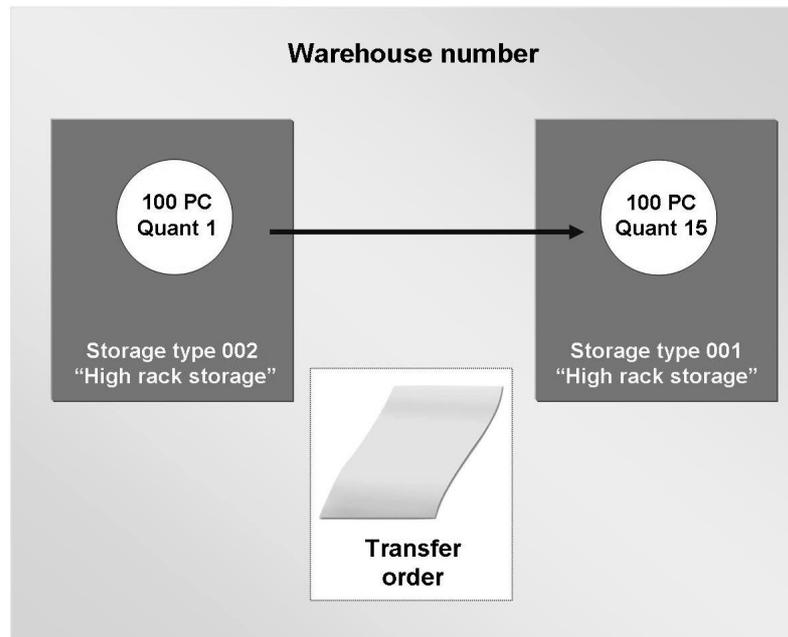


Figure 69: Stock Transfers

The creation of the stock transfer order and the stock transfer activities themselves are controlled by **Warehouse Management movement type 999** (warehouse supervision). This movement is not linked to Inventory Management and can be used as a template for movement types required only in Warehouse Management. The settings in the master record of this movement type in Customizing for Warehouse Management allow manual creation of a transfer order (that is, without a transfer requirement or delivery as a reference document). You can enter the storage bin manually because you usually have to inform the system which bin stocks have to be moved to which location. The *GR data in quant* indicator is not activated because, generally, the original goods receipt data of the quant is not changed during a stock transfer. If you set the indicator, the creation date of the stock transfer transfer order would be entered as the (new) goods receipt date in the quant data record, as a result of the stock transfer.



Note: If you work with storage unit management, you can transfer a single storage unit or several storage units at once. Storage unit management is a topic in SCM631.

Exercise 24: Stock Transfer of Storage Section Stocks

Exercise Objectives

After completing this exercise, you will be able to:

- Map a stock transfer in Warehouse Management

Business Example

You have to temporarily transfer the stock of the pallet storage area to another storage area.

Task:

Transfer the stock of storage section **001** in storage type **007**, warehouse number **1##** to storage section **002**.

1. First call the transaction for stock transfers using the stock list. In which storage section are the stocks in storage type **007** at the moment? Adjust the display with the help of the SAP List Viewer so that you can see the bin stock of the **storage section**.



Hint: You can call this function by choosing *Current Layout* .

2. Transfer the stock from storage section **001** to storage section **002** in the foreground. The stock transfer transfer orders should be confirmed immediately after the transfer.
3. Check the result by refreshing the stock list and displaying the storage sections again.

Solution 24: Stock Transfer of Storage Section Stocks

Task:

Transfer the stock of storage section **001** in storage type **007**, warehouse number **1##** to storage section **002**.

1. First call the transaction for stock transfers using the stock list. In which storage section are the stocks in storage type **007** at the moment? Adjust the display with the help of the SAP List Viewer so that you can see the bin stock of the **storage section**.



Hint: You can call this function by choosing *Current Layout* .

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Stock Transfer* → *Create Transfer Order* → *From Stock List*. Enter warehouse number **1##** and storage type **007** and choose *Execute* .
 - b) Choose *Current Layout*  and select the hidden field *Storage Section*. Choose *Show selected fields*  to add the field to the list of fields that are currently displayed. Choose *Copy* to complete the adjustment. The selected field now appears as an additional column in the stock list. Most of the stock in storage type **007** is currently in storage section **001**.
2. Transfer the stock from storage section **001** to storage section **002** in the foreground. The stock transfer transfer orders should be confirmed immediately after the transfer.
 - a) Select all of the bin stocks in storage section **001** with *Select all* , deselect the quants you do not want to transfer in storage section **002**, and choose *Stock transf.frgrnd* .
 - b) In the *Specify Destination Data* window, enter storage type **007** and storage section **002**, and set the *Confirm immediately* indicator. Choose *Copy*.
 3. Check the result by refreshing the stock list and displaying the storage sections again.
 - a) Update the stock list display with *Refresh* .
 - b) Choose *Current Layout*  and select the hidden field *Storage Section*. Choose *Show selected fields*  to add the field to the list of fields that are currently displayed. Choose *Copy* to complete the adjustment. The stocks are now in storage section **002**.



Lesson Summary

You should now be able to:

- Distinguish between stock transfers and posting changes
- Name the process for internal warehouse stock transfers
- Perform stock transfers within the warehouse

Lesson: Replenishment Control

Lesson Overview

Storage types from which goods are regularly picked for outbound deliveries or production supply should always have sufficient bin stocks. If you do not put away stocks into these picking storage types directly from goods receipt, you can ensure continuous replenishment from another storage type using **replenishment control**.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the process of replenishment control
- Make the required Customizing settings
- Add the necessary data in the material master

Business Example

You want to replenish the fixed bin storage, used for picking for outbound deliveries, from the reserve storage area.

Process Flow

The internal **stock transfer** process is at the core of all the different types of replenishment control covered in this lesson. Generally, partial stocks are moved from one storage type to another within a warehouse number. As of SAP R/3 4.6C, you can use replenishment control to supply both fixed storage bins and bins in storage types with random storage. The following programs are available in the SAP ECC standard system:

1. Report **RLLNACH1** for fixed bin replenishment based on bin stock only
2. Report **RLLNACH2** for fixed bin replenishment based on bin stock and the current requirements in outbound deliveries
3. Report **RLLNACH4** for replenishment in storage types with random storage

To use these programs, you first have to add some **storage type specific** fields in the second Warehouse Management view of the **material masters** of all of the affected materials. For delivery-related control, you have to enter a **replenishment quantity**. For replenishment control based on the bin stock alone, you have to enter a **minimum** and a **maximum** quantity (for fixed bin materials, the maximum quantity is often already specified for the quantity-based capacity check and this quantity can be used by replenishment control as well).

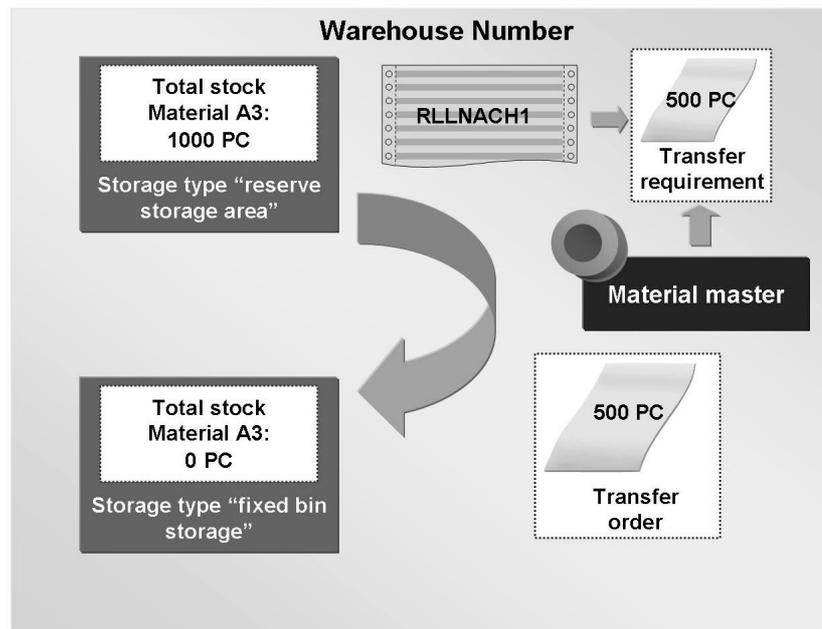


Figure 70: Replenishment control example: report RLLNACH1

For delivery-based replenishment, the system determines the total quantity currently required for outbound deliveries. The system always requests the replenishment quantity or a multiple of the replenishment quantity. If, for example, the total quantity to be delivered is 145 pieces and the replenishment quantity is 100 pieces, the system transfers 200 pieces.



Note: For storage types with random storage, the system distributes the replenishment quantity equally among the empty bins according to the palletization data in the material master.

When you start one of the three programs, the system checks the bin stocks of the relevant storage types, the quantity specifications in the material master, and any open outbound deliveries that require a fixed bin material. In each case, the system creates a **transfer requirement** for the material quantity that has to be transferred from the reserve storage type. The actual stock transfer is carried out using a **transfer order**. The system can create this transfer order in the background. It is advisable to set up one or more **jobs** for regular processing for all three replenishment programs. To do this, create a variant of the corresponding report in the ABAP Editor (transaction SE38) and define a job for the variant in which you set the times and rhythms for starting the program (transaction SM36).



Note: The system uses a transfer requirement which, in contrast to the usual goods receipt and issue processes, was **not** created as a result of an **Inventory Management posting**.

Replenishment Control Customizing

As well as maintaining the master data, it is also useful to create at least one new **Warehouse Management movement type** for use in replenishment control. In the standard system there is already a warehouse management movement type, 320, created for replenishment. You can use movement type **319** (replenishment for production) as a template and change some of the details. In the copy, remove interim storage type 100, the indicator for dynamic storage bin creation, the requirement type, and the *GR data in quant* indicator. Assign this new movement type to the storage type that needs replenishing in the *Define Stock Transfers and Replenishment Control* table. This table is in Customizing under *Logistics Execution → Warehouse Management → Activities → Transfers → Define Stock Transfers and Replenishment Control*.

If you want to make sure that the reserve storage type is always found as the picking storage type for replenishment stock transfers, you can use the *Reference storage type search* indicator. You assign this indicator, which creates links between Warehouse Management movement types and storage types, to your new replenishment movement type. Unlike many other indicators, you do not have to define the indicator in a table in advance, you simply enter a numerical value between one and three digits in the *Ref.Stor.Type Search* field in “master record” of the the movement type of your choice. You then enter this value in a new entry in the **storage type search** table (in the *Reference Storage Type Search* field), with the reserve storage type in first position in the search sequence. If a stock transfer transfer order is created, controlled by your new replenishment type, the system determines this exact table entry on the basis of the indicator and removes the required quantity from the reserve storage type.

Generally, a **storage type indicator for stock removal** is set for the material that is picked and used for the replenishment. The indicator is set to the fixed bin storage type in the first Warehouse Management view. You can enter an indicator for the reserve storage type in the *Stock placement* field. The *Reference storage type search* indicator separates a “normal” stock removal process from a replenishment stock transfer during the search for a storage type for stock removal.

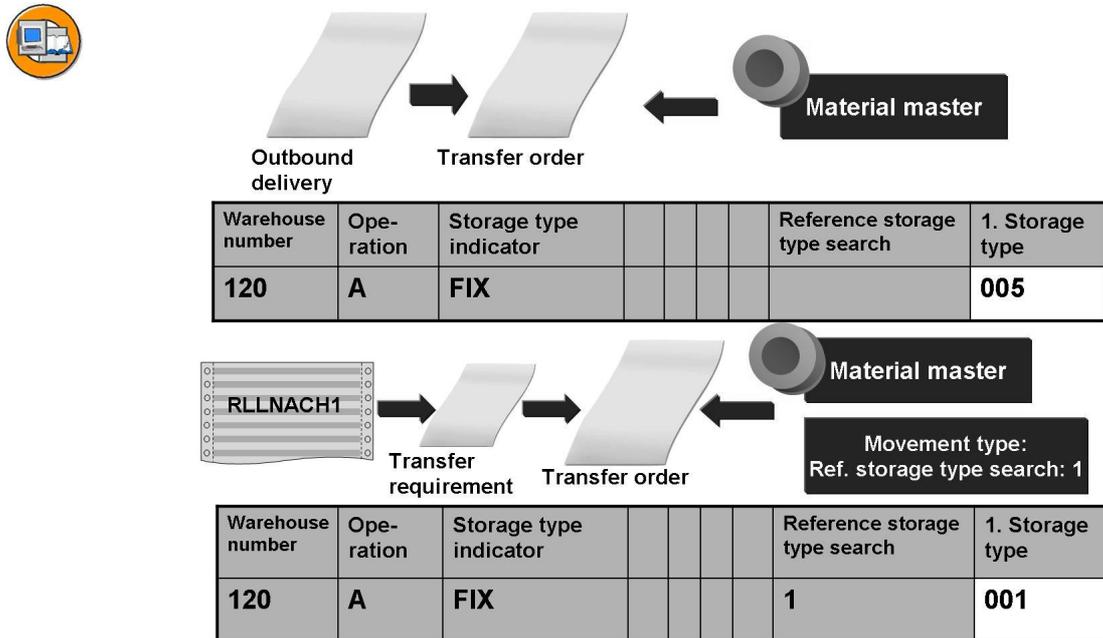


Figure 71: Reference storage type search

Figure 72 illustrates the system process. The transfer order for the stock transfer is controlled by the replenishment movement type. This is flagged with a **reference storage type search** (here, **1**). The transfer order for a stock transfer is a stock removal transfer order, so the system checks the **storage type indicator for stock removal** in the material master of the relevant material. It finds the entry **FIX** and, on the basis of this entry, determines stock removal storage type **001** (high rack storage in SAP ECC). On the other hand, for a stock removal for an outbound delivery, for example, the system reads the first table entry. The system tries to pick from storage type **005**, that is, from the fixed bin.

You can also set up replenishment control so that as soon as a stock removal transfer order is confirmed, a transfer order for stock transfer is created to replenish the storage bin or -- for random storage -- the storage type. No transfer requirement is created in this process. The system only uses the quantity specifications in the material master for orientation when it creates the replenishment transfer order. If you would rather work with this procedure, set the *Transfer orders (immed.) for fixed bin indicator* (**1**) or the *Transfer orders (immed.) random indicator* (**2**) in the *Replenishment method* field in the *Define Replenishment Control for Storage Type* table. You have to remove the *Manual TO creation not allowed* indicator in the replenishment movement type. The system only takes into account the materials that have quantity specifications for replenishment control in their material master records.

Exercise 25: Replenishment Control

Exercise Objectives

After completing this exercise, you will be able to:

- Carry out a replenishment stock transfer

Business Example

You want to replenish the fixed bin storage, used for picking for outbound deliveries, from the reserve storage area.

Task:

Transfer stock to replenish a fixed bin material.

1. First, check the stocks of material **T-BW21-##** in warehouse number **1##**. In which storage type is the material at present?
2. Check the material master of material **T-BW21-##**. From which storage type should the material normally be picked? What would happen if you tried to pick a partial quantity of a material for an outbound delivery now?
3. Before you can trigger replenishment of the fixed bin, you have to add a **minimum quantity** in the second Warehouse Management view at storage type level. Specify that replenishment should be triggered if the bin stock of **T-BW21-##** falls below **50** pieces. The system automatically refills the bin to its maximum quantity.
4. Start the stock transfer from high rack storage to fixed bin storage. In the initial screen of transaction *Replenishment Planning According to Bin Situation* (transaction code LP21), enter plant **1000**, storage location **01##**, warehouse number **1##**, storage type **005**, and material **T-BW21-##**.
5. Create the transfer order for the replenishment stock transfer with reference to the transfer requirement in the background and confirm it in the background.
6. Check the stocks of material **T-BW21-##** in your warehouse number **1##** again.

Solution 25: Replenishment Control

Task:

Transfer stock to replenish a fixed bin material.

1. First, check the stocks of material **T-BW21-##** in warehouse number **1##**. In which storage type is the material at present?
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW21-##** and choose *Enter*.
 - b) There are currently **1050** pieces in storage type **001**.
2. Check the material master of material **T-BW21-##**. From which storage type should the material normally be picked? What would happen if you tried to pick a partial quantity of a material for an outbound delivery now?
 - a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-BW21-##** and choose *Enter*. Select the *Warehouse Management 1* and *Warehouse Management 2* views, choose *Enter*, and enter plant **1000**, warehouse number **1##**, and storage type **005** as organizational levels. Confirm with *Enter*.
 - b) The *Storage type indicator for stock removal* **FIX** is assigned in the *Warehouse Management 1* view. This means that the system would try to remove the requested quantity from fixed bin storage (if all of the Customizing settings were complete). If negative stocks are allowed in the fixed bin storage type or a second storage type is set in the search sequence, the transfer order can still be created.
 - c) A storage bin is assigned as a fixed bin the *Warehouse Management 2* view. A maximum quantity of **500** pieces is specified for the capacity check.

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3. Before you can trigger replenishment of the fixed bin, you have to add a **minimum quantity** in the second Warehouse Management view at storage type level. Specify that replenishment should be triggered if the bin stock of **T-BW21-##** falls below **50** pieces. The system automatically refills the bin to its maximum quantity.
 - a) Choose *Logistics → Logistics Execution → Master Data → Material → Material → Change → Immediately* . Enter material number **T-BW21-##** and choose *Enter*. Select the *Warehouse Management 2* view and confirm with *Enter*. Enter plant **1000**, warehouse number **1##**, and storage type **005** as organizational levels and choose *Enter* again.
 - b) In the *Storage bin stock* section of the second Warehouse Management view, enter **50** in the *Minimum bin quantity* field and save the changes.
4. Start the stock transfer from high rack storage to fixed bin storage. In the initial screen of transaction *Replenishment Planning According to Bin Situation* (transaction code LP21), enter plant **1000**, storage location **01##**, warehouse number **1##**, storage type **005**, and material **T-BW21-##**.
 - a) Choose *Logistics → Logistics Execution → Internal Warehouse Processes → Stock Transfer → Planning of Replenishments → According to Bin Situation*. Enter the following values in the corresponding fields:

<i>Plant</i>	1000
<i>Storage location</i>	01##
<i>Warehouse number</i>	1##
<i>Storage type</i>	005
<i>Material</i>	T-BW21-##

Choose *Execute* .

- b) The system displays a requested quantity of **500** pieces, the maximum storage bin quantity according to the material master. Select the entry for the bin that has to be replenished and choose *Material Staging*.
- c) Save the data to create the transfer requirement for the stock transfer later.

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5. Create the transfer order for the replenishment stock transfer with reference to the transfer requirement in the background and confirm it in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Stock Transfer* → *Create Transfer Order* → *By Replenishment* → *for Material*. Enter warehouse number **1##** and material number **T-BW21-##** and choose *Enter*.
 - b) Select your transfer requirement and choose *TO in Backgr.*
 - c) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Stock Transfer* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.
6. Check the stocks of material **T-BW21-##** in your warehouse number **1##** again.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW21-##** and choose *Enter*.
 - b) Following a successful replenishment stock transfer, there are now **500** pieces of the material in storage type **005**.



Lesson Summary

You should now be able to:

- Explain the process of replenishment control
- Make the required Customizing settings
- Add the necessary data in the material master



Unit Summary

You should now be able to:

- Describe possible ways of executing a posting change in Warehouse Management
- Make the required Customizing settings
- Execute posting changes in Warehouse Management
- Distinguish between stock transfers and posting changes
- Name the process for internal warehouse stock transfers
- Perform stock transfers within the warehouse
- Explain the process of replenishment control
- Make the required Customizing settings
- Add the necessary data in the material master



Test Your Knowledge

1. In the standard system, which Warehouse Management movement type controls most posting changes in Warehouse Management?

2. Storage location to storage location posting changes can also be entered in Warehouse Management.

Determine whether this statement is true or false.

- True
 False

3. Which of the following statements are true?

Choose the correct answer(s).

- A A stock transfer always changes the location of a quant in the warehouse number.
 B A posting change always involves a stock transfer.
 C A posting change changes at least one quant characteristic.
 D A posting change can also be executed without the involvement of Inventory Management.

4. What procedures are available for replenishment control in Warehouse Management in the SAP ECC standard system?



Answers

1. In the standard system, which Warehouse Management movement type controls most posting changes in Warehouse Management?

Answer: Most posting changes are controlled by movement type **309** (general posting change) in Warehouse Management.

2. Storage location to storage location posting changes can also be entered in Warehouse Management.

Answer: False

Storage location to storage location posting changes must always be entered in Inventory Management first. You can only enter changes to the stock category or special stock indicator in Warehouse Management first.

3. Which of the following statements are true?

Answer: A, C, D

A posting change does not always have to involve a stock transfer. The stock affected by a posting change can remain in the same storage bin if the storage type allows mixed storage or if the change was posted for the entire bin stock.

4. What procedures are available for replenishment control in Warehouse Management in the SAP ECC standard system?

Answer: The following methods are available: Fixed bin replenishment based on the bin stock; fixed bin replenishment based on the bin stock and the current requirements in outbound deliveries; and replenishment with random putaway.

Unit 8

Internal Procurement Processes with Warehouse Management

Unit Overview

If production is to be supplied regularly with components from the warehouse, you can use an interface to production control. This unit introduces this interface.



Unit Objectives

After completing this unit, you will be able to:

- Name the organizational prerequisites for mapping internal procurement processes
- Describe the process of staging components from the warehouse
- Explain the process of putting away finished products
- Create the master data required for staging
- Make the required Customizing settings
- Map the process in the system

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Lesson: Process Flow

Lesson Overview

Production supply from the warehouse is a **stock removal operation**. This lesson will introduce the staging process using the interface between Warehouse Management and Production Control (**WM-PP interface**) in comparison to the “normal” case. Staging is explained using the example of a production order, but works in the same way for process orders.



Lesson Objectives

After completing this lesson, you will be able to:

- Name the organizational prerequisites for mapping internal procurement processes
- Describe the process of staging components from the warehouse
- Explain the process of putting away finished products

Business Example

Production should be supplied with components from the warehouse. Once the production process is completed, the end products should be put into storage.

The Interface Between Warehouse Management and Production Control

Staging components for production from the warehouse is mapped as an “other goods issue” in Logistics Execution. If you do not use the WM-PP interface, the **goods issue posting** for the work order generates a **transfer requirement** in an interim storage area, the “goods issue area”. The components requested by the goods issue posting are removed from storage with a transfer order. The confirmation of the **transfer order** usually completes the staging process.

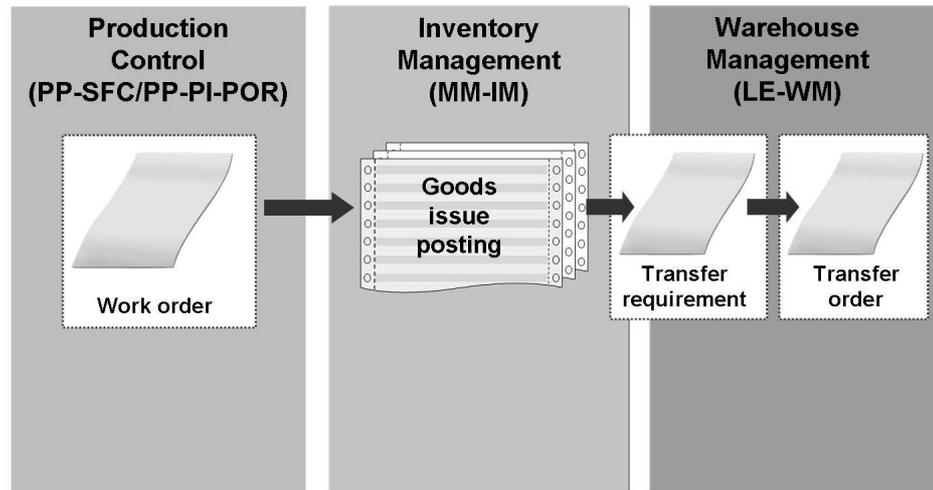


Figure 72: Staging for a work order without using the interface

If you use the **WM-PP interface**, this process flow is **reversed**: The transfer requirement is not created as a result of a goods issue posting or another Inventory Management posting, but rather using requests created with special **transactions** either in a separate step or directly out of the work order. Using the transfer order, the requested components are not transferred to a goods issue area. Instead they are sent to a **separate interim storage type**, “production supply.” The goods issue posting for the components used in the production process completes the staging process. The stocks in the interim storage area are cleared immediately as a result of this Inventory Management posting, so there is no new transfer requirement.



Note: This process can be compared to the process of clearing differences in the goods receipt or goods issue process or following an inventory count.

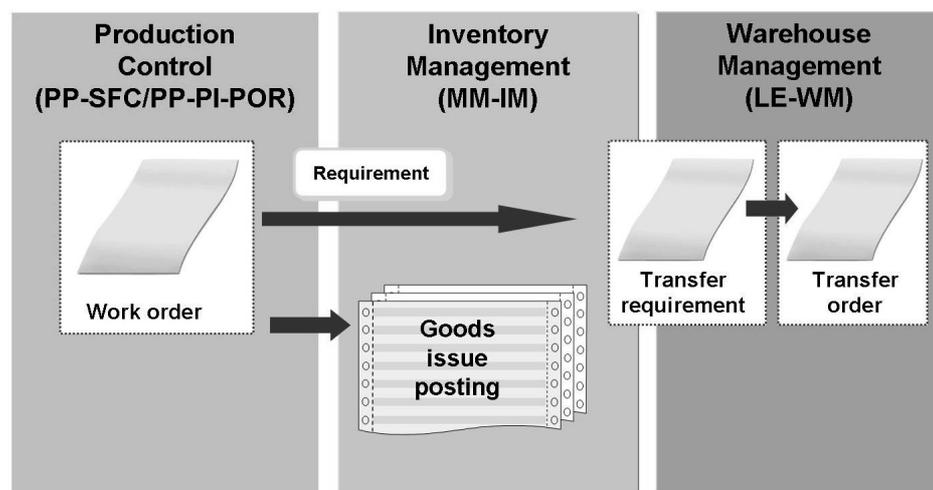


Figure 73: Staging for a work order using the interface

This process has some advantages over the process described above. You can **backflush** components, that is, post the goods issue after completion of the production process together with the confirmation of the work order. You can fine tune how and where you stage materials for production using **control cycles**. This means that you can stage some components for a specific order, others for multiple orders, and others with no reference at all to an order. Order-based staging can be requested directly from the work order. If there are changes to the quantities or dates/times in the plant order, the system can adjust the transfer requirement automatically or create it again.

Staging for a Work Order

The source document for the staging process is always a work order. If you do not use the WM-PP interface, the **goods issue posting** in Inventory Management (in the SAP ECC standard system with movement type **261**) occurs at the start of the process. The system determines the Warehouse Management movement type that is assigned to this Inventory Management movement type in Customizing (**261** in the standard system) and creates a **transfer requirement**. It also maps the material quantities that are to be picked in the next step as **negative quants** in an interim storage area, the “goods issue area.” In the standard system, storage type **914** (“GI Area Production Orders”) is preconfigured for these processes. The required materials are removed from storage and brought to the goods issue area using a transfer order. When the transfer order is confirmed, the quants that have been put away in the goods issue area balance out the negative quants.

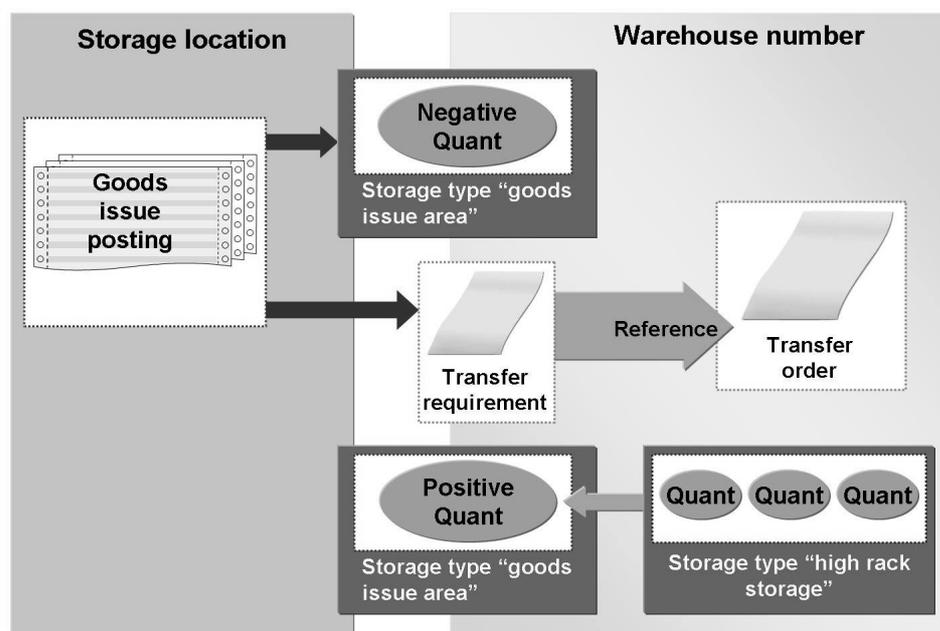


Figure 74: Stock removal following backflushing

If you use the WM-PP interface, the production workers request the components they need using special transactions or – depending on the staging method – directly from the work order. The following transactions are available for requesting components to be staged:

1. Transaction LP10 for **order-related** staging
2. Transaction LP11 for **non-order-related** staging
3. Transaction LP12 for **cross-order** staging

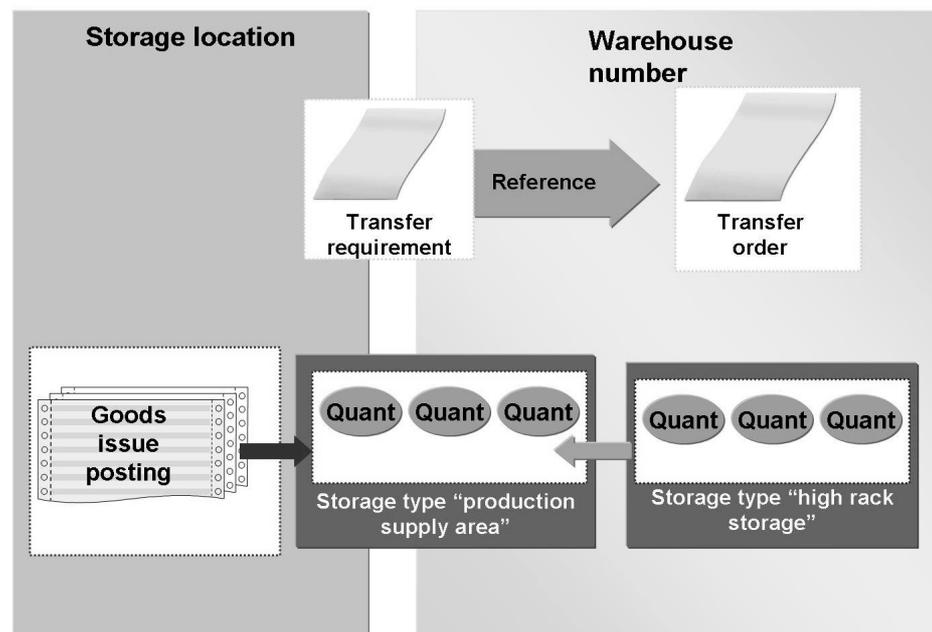


Figure 75: Stock removal via the WM-PP interface

The transactions all generate a **transfer requirement**, which is the basis for the **transfer order** for picking the required components. This staging process is controlled by Warehouse Management movement type **319** (“replenishment for production”) in the SAP ECC standard system. The picked material quantity is placed in interim storage area **100** (“production supply”), which is assigned to this movement type. The **goods issue posting**, which can be either immediate or use backflushing, completes the process. The Inventory Management posting reduces not only the storage location stocks, but also the warehouse number stocks. The consumed quantity is therefore booked out directly from storage type 100 in Warehouse Management.

Putting Away the Finished Product

The putaway of the finished product is the same as an external procurement process, regardless of whether or not you use the WM-PP interface. First the goods receipt for a work order is posted in Inventory Management. This posting

can be linked to the confirmation of the work order or form a separate step. In both cases, a transfer requirement is created, which forms the basis for the putaway transfer order. The putaway of finished products from production is controlled by Warehouse Management movement type **103** (“GR production order”) in SAP ECC. There is also a separate preconfigured goods receipt area (storage type **901**).



Lesson Summary

You should now be able to:

- Name the organizational prerequisites for mapping internal procurement processes
- Describe the process of staging components from the warehouse
- Explain the process of putting away finished products

Lesson: Process Control

Lesson Overview

In this lesson, you will learn about Customizing of the interface between Warehouse Management and production control (WM-PP interface). You will then test the process steps in the system.



Lesson Objectives

After completing this lesson, you will be able to:

- Create the master data required for staging
- Make the required Customizing settings
- Map the process in the system

Business Example

Your company wants to check which steps are necessary to organize the production supply from the warehouse.

Master Data

To use the interface between Warehouse Management and production control, you must create at least one **production supply area (PSA)** and at least one **control cycle** for staging as master data in Warehouse Management.

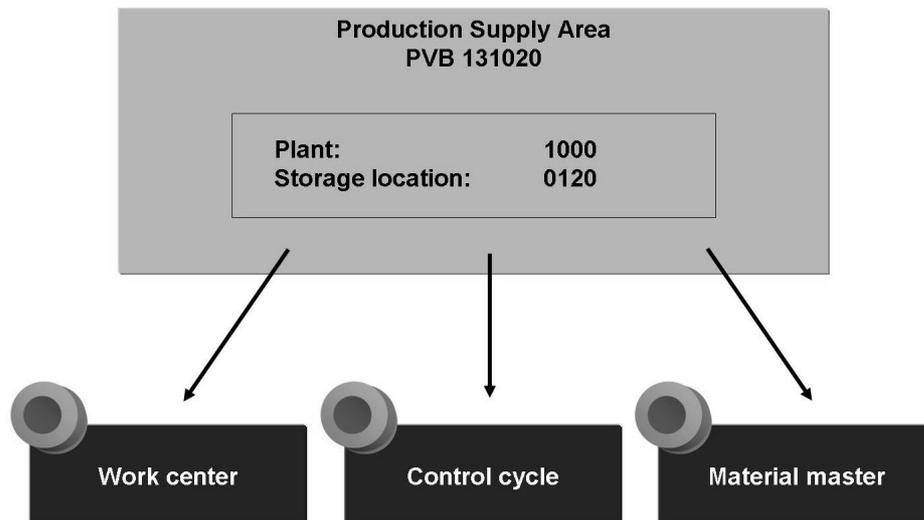


Figure 76: Production supply area

Production supply areas group together **work centers**, created as master data in production control, for the purpose of staging from the warehouse. In deciding how many production supply areas are required, you have to pay considerable attention to the spatial distribution of the work centers you want to supply with materials from the warehouse. However, staging itself does not take place in the production supply area, but rather in a separate **storage type** created specially for this purpose, either in predefined or – for order-based staging – in dynamic **storage bins**. The production supply area can influence the **search** for the staging storage type via the control cycle.

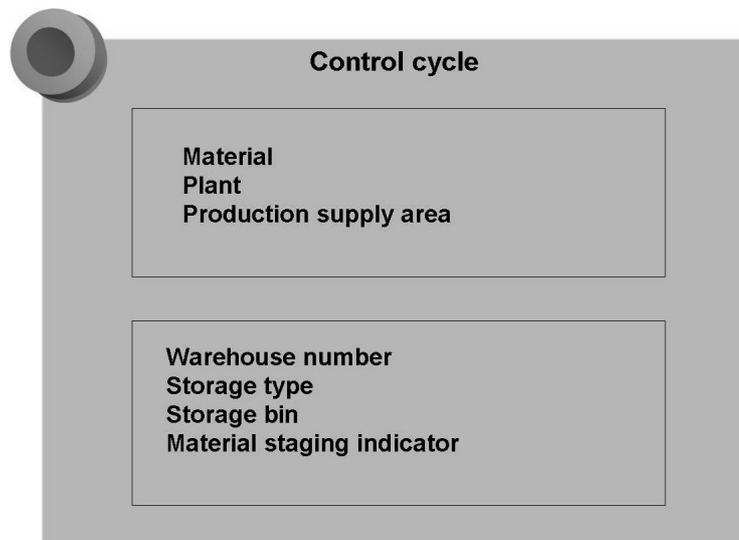


Figure 77: Control cycle

In a **control cycle**, you specify **how** and **where** you want to stage materials from the warehouse. You specify the type of staging using the **material staging indicator** assigned in the control cycle. The following material staging indicators are available in SAP ECC:



- Indicator **1** (pick part)
- Indicator **2** (crate part)
- Indicator **3** (release order part)
- Indicator **4** (manual staging)

A **pick part** is a material that you stage with **relation to an order**. For this type of component, the system requests exactly the amount specified in the work order. Pick parts can be staged in dynamic storage bins because of the relationship to an order. The document number of the order forms the coordinates of the storage bin. You can create control cycles for pick parts **independently of material**. A material-independent control cycle is valid for all materials that are not assigned to a control cycle of their own.

Crate parts are always staged in consistent quantities **independently** of an order. In the control cycle of a material you want to stage as a crate part, you specify how many containers should normally be removed from storage and the quantity in them. Crate part staging is based on KANBAN processing (PP-KANBAN). Production requests filled containers from the warehouse as required. However, the additional controls that are available in the KANBAN solution are not available with the control cycle data.

A crate part is always staged **for multiple orders**. The system checks how many released work orders require the material and in what quantity, and creates a transfer requirement for the total quantity.

For **manual** staging, the transfer order has to be created without a transfer requirement. The consumption posting reduces the stock of the production storage type in the control cycle.

You create production supply areas and control cycles in the application menu under *Logistics → Logistics Execution → Master Data → Warehouse → Production Supply*. You assign production supply areas to work centers under *Logistics → Production → Master Data → Work Centers → Work Center → Change (Basic data view)*.

Customizing Settings

If you decide to use the WM-PP interface, you have to activate it for your warehouse number(s). Once you have activated the interface, the transfer requirements for material staging are created in special transactions (LP10, LP11, and LP12), **not** as a result of Inventory Management postings. Every staging activity triggered in Warehouse Management is controlled by movement type **319** (replenishment for production). This movement type cannot be found using the tables that link Inventory Management and Warehouse Management movement types, as is the case for normal goods issue processes. You therefore have to assign the storage types used in your staging process in Customizing for the WM-PP interface for this special goods issue process. Movement type 319 is already assigned to storage type 100 for the template warehouse number **001**.

You can also access the **production scheduling profile** of production in Customizing for Warehouse Management. These profiles collect certain parameters that influence the process steps of production (for example, order release, batch creation, and goods receipt posting). Here there are also indicators for controlling staging via the WM-PP interface. You can specify that the system create a transfer requirement, or even a transfer order in the background, to request

all of the pick parts immediately on release of the order. For pick parts staged in fixed storage bins, you can also deactivate automatic quantity reduction on creation of the transfer order.



Note: Up to SAP R/3 4.0, the system always reduced the stock removal quantity of pick parts staged for fixed bins if there was already stock in the bins, or if there were open transfer requirements for the material.

Exercise 26: Staging from the Warehouse for a Production Order

Exercise Objectives

After completing this exercise, you will be able to:

- Create a control cycle for staging components from the warehouse
- Request and stage components

Business Example

Various components are needed to manufacture a pump, and these components are stored in different storage types. You have to request these components from the warehouse and stage them in the production supply storage type for a new production run. You post the consumption of the components during the confirmation at the end of the manufacturing process.

Task:

Create a production order, request the components to be staged from the warehouse for this order, and pick the materials.

1. First, check which control cycles already exist for material staging in warehouse number **1##**. For which materials and staging methods are these control cycles valid?



Hint: You can use the control cycle list to display all the the control cycles in a warehouse number (transaction code LS41).

2. Create a new control cycle for material **T-BW01-##**. The material should be staged as a crate part. Each crate should contain **20** pieces. In each staging operation, up to two crates should be picked in storage type **100** and placed in storage bin **PROD-1310**.
3. In the future, the system should create transfer requirements for staging **pick parts** immediately on release of the production order. In Customizing for Warehouse Management, check the production control profile **000001** in plant **1000** for the material that is to be produced. Is it set up properly?



Hint: The creation of transfer requirements on order release is controlled by the indicator **X** (*Only creation of transfer requirement on release*) in the *WM request* field. Please do not change this setting, since all participants work with this profile.

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4. Now create a production order for 10 pumps, **T-MS-##**. The production plant is plant **1000** and the order type has the key **PP01**. Since backward scheduling is set up, enter a **finishing basic date** for the production operation (for example, one week from today). Check the component overview of the the order to see which components are required in which quantities for producing the pump. Release the order for production.
5. Display the transfer requirement for the pick parts that was created in the background as a result of the settings in the production control profile. You can search for it using its requirement type, **P** (*production supply*).
6. Check the stock in warehouse number **1##** of the three remaining components **T-BW01-##**, **T-BW06-##**, and **T-BW07-##**, which are not staged as pick parts. Which of the three components do you still have to request for your production order?
7. Request **one** crate of material **T-BW01-##** be staged (the production plant is **1000**, the production supply area has the key **PVB 1310##**). Where does the system find the replenishment quantity and the destination storage type/bin?
8. Now create the stock removal transfer orders for the transfer requirements in the background, and confirm the documents in the background.
9. Check the stock overview for some of your components again, for example, for pick part **T-BW05-##** and crate part **T-BW01-##**. Where are the picked components now?
10. Once the production process is complete, confirm your production order. The consumed components are backflushed, that is, the goods issue is posted during the confirmation. Are all of the staged components confirmed? Which movement type does is used in Inventory Management?
11. Check your stock again, for example of materials **T-BW05-##** and **T-BW01-##**. What effect did the backflush have on warehouse number **1##**?

Solution 26: Staging from the Warehouse for a Production Order

Task:

Create a production order, request the components to be staged from the warehouse for this order, and pick the materials.

1. First, check which control cycles already exist for material staging in warehouse number **1##**. For which materials and staging methods are these control cycles valid?



Hint: You can use the control cycle list to display all the the control cycles in a warehouse number (transaction code LS41).

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Production Supply* → *Control Cycle Production Supply* → *Display* → *List*. Enter warehouse number **1##** and choose *Execute* .
 - b) There is already a material-independent control cycle for staging pick parts, control cycles for crate parts **T-BW06-##** and **T-BW07-##**, and a control cycle for crate part **T-BW09-##**.
2. Create a new control cycle for material **T-BW01-##**. The material should be staged as a crate part. Each crate should contain **20** pieces. In each staging operation, up to two crates should be picked in storage type **100** and placed in storage bin **PROD-1310**.
 - a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Production Supply* → *Control Cycle Production Supply* → *Create*. Enter material number **T-BW01-##**, plant **1000**, and production supply area **PVB 1310##**, and choose *Enter*.
 - b) In the *Control cycle data* section, enter **2** in the *No. of kanbans* field and **20** in the *Kanban quantity* field. In the *Destination storage bin* area, enter warehouse number **1##**, storage type **100**, and storage bin **PROD-1310**. Using the input help, select the staging indicator **2** (“crate part”), and create the control cycle by saving.

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3. In the future, the system should create transfer requirements for staging **pick parts** immediately on release of the production order. In Customizing for Warehouse Management, check the production control profile **000001** in plant **1000** for the material that is to be produced. Is it set up properly?



Hint: The creation of transfer requirements on order release is controlled by the indicator **X** (*Only creation of transfer requirement on release*) in the *WM request* field. Please do not change this setting, since all participants work with this profile.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Define Production* and then choose *PP* in the *Production View* section.
- b) Select profile **000001** in plant **1000**, and choose *Details* . The indicator **X** is set in the *WM request field* in the *Transport* section.
4. Now create a production order for 10 pumps, **T-MS-##**. The production plant is plant **1000** and the order type has the key **PP01**. Since backward scheduling is set up, enter a **finishing basic date** for the production operation (for example, one week from today). Check the component overview of the the order to see which components are required in which quantities for producing the pump. Release the order for production.
- a) Choose *Logistics* → *Production* → *Production Control* → *Order* → *Create* → *With Material*. Enter material number **T-MS-##**, plant **1000**, and production supply area **PP01**, and choose *Enter*.
- b) Enter **10** in the *Total quant.* field and a future date (for example, current date + one week) in the *Finish* field. Confirm with *Enter*. The system checks the routing and BOM for the material in the background.
- c) In the menu, choose *Goto* → *Overviews* → *Components*. Ten pieces of materials **T-BW01-##** to **T-BW06-##** and 10m² of material **T-BW07-##** are required.
- d) Choose *Release order*  and save your entries.

Continued on next page

5. Display the transfer requirement for the pick parts that was created in the background as a result of the settings in the production control profile. You can search for it using its requirement type, **P** (*production supply*).
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Create Transfer Order* → *For Requirement*. Enter warehouse number **1##** and requirement type **P** and choose *Enter*.
 - b) A transfer requirement for the requirement number of your production order is displayed in the list. Display the document by double-clicking on the document number. It contains pick parts **T-BW02-##** to **T-BW05-##**.
6. Check the stock in warehouse number **1##** of the three remaining components **T-BW01-##**, **T-BW06-##**, and **T-BW07-##**, which are not staged as pick parts. Which of the three components do you still have to request for your production order?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse **1##** and material number **T-BW01-##**, **T-BW06-##**, or **T-BW07-##**, and choose *Enter*.
 - b) There is still enough of materials **T-BW06-##** and **T-BW07-##** (15 pieces and 25m²) in storage type **100**. Therefore, you only have to request material **T-BW01-##**.
7. Request **one** crate of material **T-BW01-##** be staged (the production plant is **1000**, the production supply area has the key **PVB 1310##**). Where does the system find the replenishment quantity and the destination storage type/bin?
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Prepare Production Supply* → *For Crate Part*. Enter material number **T-BW01-##**, plant **1000**, and production supply area **PVB 1310##**. Choose *WM material staging*.
 - b) The current requirement quantity is displayed in the *Replenishment information* section, and the destination storage type **100** and production storage bin **PROD-1310** are displayed in the *Destination storage bin* section. This data comes from the control cycle that you created in step 2.
 - c) Choose *WM material staging* and save your entries to create the transfer requirement.

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8. Now create the stock removal transfer orders for the transfer requirements in the background, and confirm the documents in the background.
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Create Transfer Order* → *For Requirement*. Enter warehouse number **1##** and requirement type **P** and choose *Enter*.
 - b) Select the transfer requirements and choose *TO in Backgr.*
 - c) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Display Transfer Order* → *List*. Enter warehouse number **1##** and enter the current date in the field *TO Date* and choose *Execute* . The transfer orders you just created is listed item-by-item.
 - d) Place the cursor between the storage bin coordinates and the quantity in the row of the first item and choose *Confirmation in background* . Repeat this step for the other items.
9. Check the stock overview for some of your components again, for example, for pick part **T-BW05-##** and crate part **T-BW01-##**. Where are the picked components now?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW05-##** or **T-BW01-##** and choose *Enter*.
 - b) The materials are now in interim storage area **100**.
10. Once the production process is complete, confirm your production order. The consumed components are backflushed, that is, the goods issue is posted during the confirmation. Are all of the staged components confirmed? Which movement type does is used in Inventory Management?
 - a) Choose *Logistics* → *Production* → *Production Control* → *Confirmation* → *Enter* → *For Order*. Enter the document number of your production order and choose *Enter*.
 - b) Select the *Final confirmation* option and choose *Goods movements*. The consumption of components **T-BW01-##** to **T-BW07-##** is posted during confirmation as a goods issue from storage location **01##**, using movement type **261**. Save to enter the confirmation.

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11. Check your stock again, for example of materials **T-BW05-##** and **T-BW01-##**. What effect did the backflush have on warehouse number **1##**?
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and material number **T-BW05-##** or **T-BW01-##** and choose *Enter*.
 - b) Following the goods issue posting as part of the confirmation, there is no more stock of pick part **T-BW05-##** in storage type **100**. The total stock in warehouse number **1##** was reduced by 10 pieces. There are still 10 of the original 20 pieces of crate part **T-BW01-##** in storage type **100**. These can be used for another production order.



Lesson Summary

You should now be able to:

- Create the master data required for staging
- Make the required Customizing settings
- Map the process in the system



Unit Summary

You should now be able to:

- Name the organizational prerequisites for mapping internal procurement processes
- Describe the process of staging components from the warehouse
- Explain the process of putting away finished products
- Create the master data required for staging
- Make the required Customizing settings
- Map the process in the system



Test Your Knowledge

1. What are the differences between the staging process using the WM-PP interface and the process without using the interface?

2. Is it possible to create a control cycle for staging that is not material dependent?



Answers

1. What are the differences between the staging process using the WM-PP interface and the process without using the interface?

Answer: Using the WM-PP interface, transfer requirements are created based on staging requests with special transactions. The goods issue posting completes the process. In a “normal” goods issue, the Inventory Management posting is at the beginning of the process and triggers the creation of a transfer requirement.

2. Is it possible to create a control cycle for staging that is not material dependent?

Answer: You can create a control cycle that is not material dependent for components that are to be staged as **pick parts**.

Unit 9

The Warehouse Activity Monitor

Unit Overview

The warehouse activity monitor is an instrument for monitoring warehouse management processes. This unit introduces the use of this monitor.



Unit Objectives

After completing this unit, you will be able to:

- Describe the functions of the warehouse activity monitor
- Activate the warehouse activity monitor objects
- Define monitoring parameters
- Use the warehouse activity monitor in a process
- Create report variants

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Lesson: Configuration

Lesson Overview

In this lesson, you will learn about the function of the **warehouse activity monitor** in Warehouse Management with SAP ECC, and how you can use it.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the functions of the warehouse activity monitor
- Activate the warehouse activity monitor objects
- Define monitoring parameters

Business Example

Your company wants to use the warehouse activity monitor so that it can react quickly to errors or shortfalls in the warehouse.

Functions

The **warehouse activity monitor** is an instrument for monitoring warehouse movements. It informs you of processes that have failed to run completely or have run with errors, and offers you the opportunity to create or correct missing documents or carry out posting activities that complete your processes. The warehouse activity monitor contains seven **objects** for monitoring. Each object has a two-character numerical key:



- **01** - unconfirmed transfer orders
- **02** - open transfer requirements
- **03** - open posting change notices
- **04** - open deliveries
- **05** - negative stocks
- **06** - interim storage stock
- **07** - critical stocks for production supply

Processing periods are defined in Customizing for each of these objects. A document or stock item is only displayed in the warehouse activity monitor if these periods are exceeded. The objects have corresponding reports for which you can create variants. You can also schedule these report variants as a job to ensure regular checks of documents and stocks.

The reference organizational unit of the warehouse activity monitor is always the **warehouse number**. If the object **unconfirmed transfer orders** is processed, the system searches for transfer orders that were not confirmed within the period set

in Customizing. The selection is restricted in Customizing to certain movement types and, if required, to certain storage types. The check for the objects **open transfer requirement** and **open posting change notices** works in a similar way. If no transfer orders were created for the documents within the specified period, they appear in the warehouse activity monitor.



Note: The system only searches for documents with the status *open*. Generally, the status changes to *complete* when a transfer order is created. However you can also manually flag posting change notices and transfer requirements as being complete.

If the warehouse activity monitor object **open deliveries** is checked, the system searches for outbound deliveries with items that are relevant to Warehouse Management, and that do not yet have the transfer order status *C (complete)*. The periods, which are defined in Customizing for this object, are always valid in terms of dates for certain shipping activities. The system determines these dates on creation of the order and transfers them to the outbound delivery. When the selection report for the object is started, the system compares the planning time from the outbound delivery with the report time and checks if there is enough time to complete the shipping activity based on the period defined in Customizing.

Negative stocks and **stocks in negative storage types** are also displayed in the warehouse activity monitor once the period defined in Customizing has ended. The **critical stocks for production supply** object was created to cover deviations between the transfer requirement quantity in the work order and the transfer requirement used to stage the material for production.



Note: This object is only relevant if production is supplied with material from the warehouse.

Configuration

To use the warehouse activity monitor, you first have to activate the warehouse activity monitor objects that are relevant to your processes in every warehouse number. In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Planning and Monitoring* → *Warehouse Activity Monitor* → *Activate Warehouse Activity Monitor Objects*. For the object **unconfirmed transfer order**, there are selection variants alongside the standard variant. These all give a slightly different screen display of the valuation results. There is only **one** form of result display for the other objects.

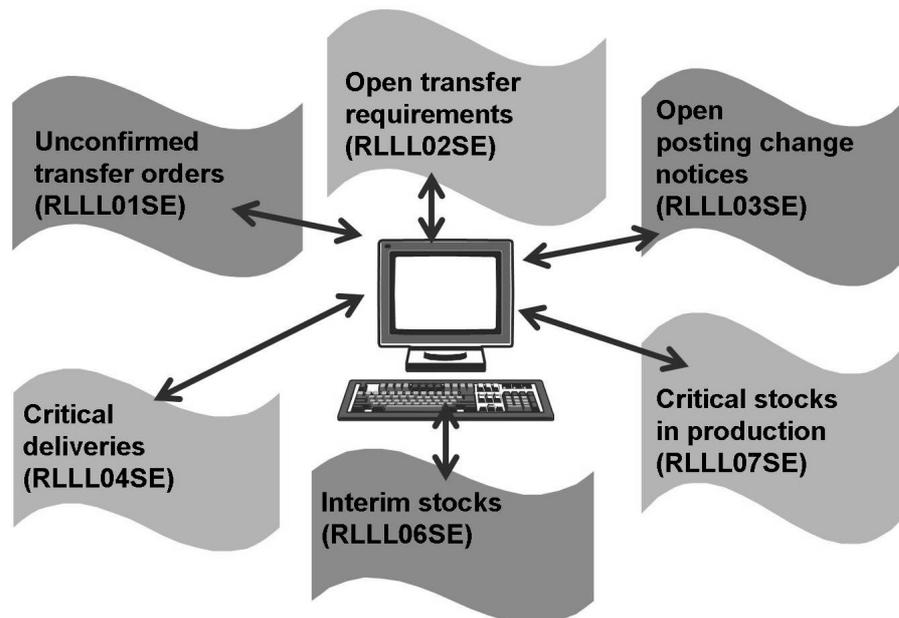


Figure 78: Warehouse activity monitor

In the next step, you define the **check parameters** and the **time values** for identifying “critical” situations for all of the warehouse activity monitor objects that are to be checked in the future. Choose *Logistics Execution* → *Warehouse Management* → *Planning and Monitoring* → *Warehouse Activity Monitor* → *Define Critical Parameters*.

If, for example, you want to regularly check unconfirmed transfer orders, select the object **unconfirmed transfer orders (01)** in the *dialog structure*. Create new table entries for your warehouse number and the Warehouse Management movement types used in your processes. Where necessary, you can also differentiate in this table according to issuing and/or receiving storage type. Based on your experiences, define the *critical durations* for each activity. For example, if you know that a goods receipt for a purchase order is completed within a maximum of five hours if it runs smoothly, enter five hours as the *critical duration* for object **01** and movement type **101**. The next time you call the warehouse activity monitor, if the system finds an unconfirmed putaway transfer order that is older than five hours, this appears as a critical document in the evaluation. You can now check whether there is simply a delay, if an error has occurred, or if there is a shortfall.



Note: All seven of the warehouse activity monitor objects are activated for the template warehouse number **001** in the standard SAP ECC system, and time values have been activated for a selection of parameters for each object as a basis for the check. You can use these table entries as a template and change the time values to suit you. You can also assign a factory calendar to each of the table entries.

Variants and Jobs

The warehouse activity monitor is a report (**RLLL0000**) for which you can create **variants** and which you can schedule to run regularly in the background in one or more **jobs**. You can create warehouse activity monitor variants in either the application menu, in transaction *Warehouse activity monitor* (transaction code LL01), or in Customizing for the warehouse activity monitor under *Report Variants*. If you use the report without variants, the system always proposes **all** warehouse activity monitor objects for valuation. You can use a variant to restrict the object selection and to predefine values for the relevant check parameters (movement type, storage type). This means that you can define a report variant called “goods receipt” in which you have the system check only *unconfirmed transfer orders, open transfer requirements, stocks in interim storage types* and – if you work with outbound deliveries – *negative stocks*. You can also specify check values to restrict the check to movement types 101, 102, 103, and 501, or to storage types 910 and 902.

In many cases, it is sensible to call the warehouse activity monitor at regular intervals to ensure that errors are discovered and corrected as soon as possible after they occur. Use **jobs** for these regular system queries. You can use the “job wizard” in the *Define job* transaction (SM36) to set up jobs according to your individual requirements. You can call this transaction directly in Customizing for the warehouse activity monitor under the *Define Jobs for Selecting Critical Objects*. Here you can also find descriptions of the individual reports for each warehouse activity monitor object. Depending on your specifications, you can check your processes regularly for completion and accuracy using the warehouse activity monitor. It is also possible to connect several jobs to ensure a certain sequence of system reactions.

Exercise 27: Configuring the Warehouse Activity Monitor

Exercise Objectives

After completing this exercise, you will be able to:

- Configure the warehouse activity monitor

Business Example

You want to use the warehouse activity monitor in order to quickly react to errors or shortfalls in the warehouse.

Task:

Activate the object **unconfirmed transfer orders** for warehouse number **1##** and set the required parameters for goods issues without a reference document.

1. Activate the warehouse activity monitor objects **unconfirmed transfer orders (01)** and **stocks in the interim storage areas (06)** for warehouse number **1##**.
2. Define the parameters and threshold values for checking both of the warehouse activity objects. For goods receipts without reference documents (movement type **501**), the unconfirmed transfer orders should be shown as *critical* after **one day**. The settings should be valid for all storage types. The stocks in the goods receipt area (storage type **902**) should also be displayed as “critical” in the warehouse activity monitor after **one day**.

Solution 27: Configuring the Warehouse Activity Monitor

Task:

Activate the object **unconfirmed transfer orders** for warehouse number **1##** and set the required parameters for goods issues without a reference document.

1. Activate the warehouse activity monitor objects **unconfirmed transfer orders (01)** and **stocks in the interim storage areas (06)** for warehouse number **1##**.
 - a) From the application menu, choose *Logistics* → *Logistics Execution* → *Warehouse Management* → *Planning and Monitoring* → *Warehouse Activity Monitor* → *Activate Warehouse Activity Monitor Objects* and then choose the *New Entries* button.
 - b) Enter warehouse activity monitor object **01** in warehouse number **1##**. In the next line, enter warehouse activity monitor object **06** in warehouse number **1##**. Confirm with *Enter* and save the new entries.



Hint: The **display variant** affects how the results are displayed in the warehouse activity monitor. Most objects only have one variant.

2. Define the parameters and threshold values for checking both of the warehouse activity objects. For goods receipts without reference documents (movement type **501**), the unconfirmed transfer orders should be shown as

Continued on next page

critical after **one day**. The settings should be valid for all storage types. The stocks in the goods receipt area (storage type **902**) should also be displayed as “critical” in the warehouse activity monitor after **one day**.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Planning and Monitoring* → *Warehouse Activity Monitor* → *Define Critical Parameters*. Select the entry *Unconfirmed transfer orders* in the *dialog structure* and then choose *New Entries*.
- b) Enter the following values in table:

Warehouse number	1##
<i>Movement type</i>	501
<i>Source storage type</i>	***
<i>Destination storage type</i>	***
Critical duration	1
Time unit	T

Confirm with *Enter* and save.

- c) Select *Stocks in Interim Storage Types* in the *Dialog structure*. Choose *New Entries*.
- d) Enter the following values in table:

Warehouse number	1##
<i>Type</i>	902
Critical duration	1
Time unit	T

Save your changes.



Hint: Leave the *Dynamic storage bin* indicator inactive. Goods receipts without a reference document are always in a **predefined** (not dynamic) storage bin the training system.



Lesson Summary

You should now be able to:

- Describe the functions of the warehouse activity monitor
- Activate the warehouse activity monitor objects
- Define monitoring parameters

Lesson: Usage

Lesson Overview

In this lesson, you will learn how the warehouse activity monitor can be used in logistics processes.



Lesson Objectives

After completing this lesson, you will be able to:

- Use the warehouse activity monitor in a process
- Create report variants

Business Example

Once the configuration has been completed in Customizing, the warehouse activity monitor should be tested in the process.

Usage in Processes

Once you have activated the warehouse activity monitor objects in your warehouse number and assigned the check parameters and time values, you can use the warehouse activity monitor to monitor putaway, picking, and stock transfer activities. The *Warehouse Activity Monitor* transaction (LL01) for executing the program or its variants are in the *Logistics Execution* menu under *Information System*. Choose the *Warehouse* node under *Information System*. You can only evaluate the processes in **one** warehouse number at a time. If you execute program RLLL0100 without variants, the system displays a selection screen with all of the warehouse activity monitor objects. Choose the object you wish to check and enter any additional parameters required, such as the Warehouse Management movement type.



Hint: If you want to assign more than one value to an object, use the *multiple selection*  function.

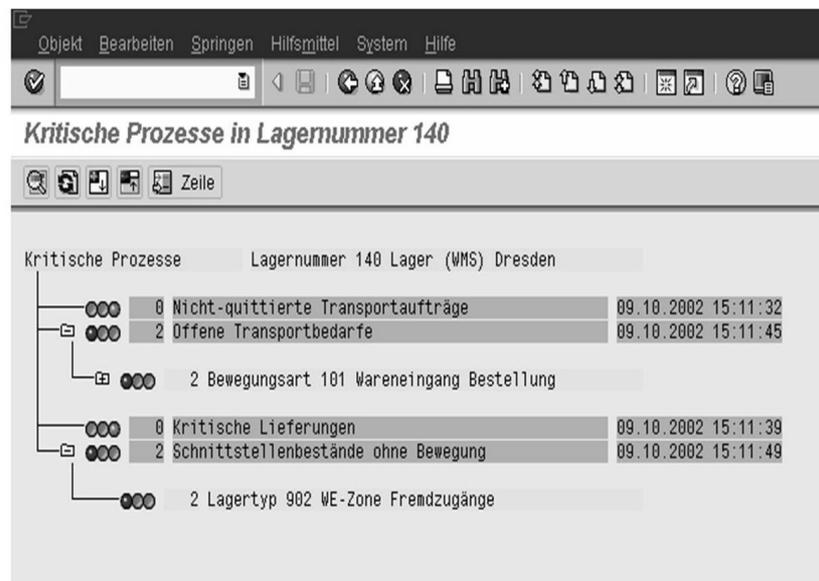


Figure 79: Warehouse activity monitor: evaluation results

Once you have executed the program, the system displays an overview of the *critical processes* in your warehouse number with corresponding traffic lights. The result of the last evaluation is displayed for each of the selected warehouse activity monitor objects. For performance reasons, the system does not automatically carry out a new check of the objects. You have to request a new check for each object by choosing *Edit* → *Determine data again*. If the system discovers a document or stock that has not been processed within the period set in Customizing for the warehouse activity monitor, it displays this as a *critical process* with a red light. By expanding the hierarchical display with the menu entry *Edit* → *Expand subtree*, you can see which activity has not been processed (for example, a goods receipt for a purchase order, posted with movement type 101). You can then choose *Detailed Display*  to determine the exact document, and can generally process it directly from the list display. For example, you can create a transfer order for an open transfer requirement. If you do not want to complete the activity directly (for example, because it requires clarification), you can write a note about it. The system flags processes that you have checked and written a note for, but which have not been completed in the system, with a yellow traffic light. When you call the warehouse activity monitor again at a later time, you can read the note in the *Processing Information* and add to it if required.



Note: This information is only available in the warehouse activity monitor, and only until the activity has been completed.

Report Variants

If you use the warehouse activity monitor without variants, the system always proposes **all** warehouse activity monitor objects for valuation. In many cases, however, you want to check specific objects. You can use a report variant to restrict the object selection and to predefine values for the relevant check parameters (movement type, storage type). If you want to create this kind of report, choose *Report Variants* in Customizing for the warehouse activity monitor. Choose *Define Variant for "Object Overview" Program* to name new variants and to set up objects and parameters according to your specific requirements. Deselect all of the warehouse activity monitor objects that you do not want to check. If required, enter movement types and/or storage types in the next step to restrict the check. Choose *Attributes* (or *Edit* → *Attributes* in the menu) to enter a *description* of the new variant, and to influence any additional fields in the standard settings (for example, to hide them or make them *required entry fields*). Save your new variant.



Note: You can also create variants for individual selection programs of the warehouse activity monitor. Each warehouse activity monitor object is assigned a separate selection program.

The next time you call the warehouse activity monitor, you can access the new variant directly. If you enter the variant name in the *Variant* field in initial screen, the system skips the selection screen and immediately displays the *critical processes* for the objects specified in the variant. You can also create a variant in the *Overview of all critical objects* selection screen by selecting objects, entering any parameters required, and saving the settings as a variant by choosing *Goto* → *Variants* → *Save as Variant*.

If you want to call the warehouse activity monitor at regular intervals in the background, you have to create a report variant before you can define jobs.

Exercise 28: Creating a Report Variant

Exercise Objectives

After completing this exercise, you will be able to:

- Create a report variant for the warehouse activity monitor

Business Example

In the future, you want to regularly check the goods receipt processes in your warehouse number for completion.

Task:

Create a “goods receipt” report variant. This variant should only contain the warehouse activity monitor objects that are relevant for the goods receipt process.

1. Go to *Report Variants* in Customizing for the warehouse activity monitor to create a variant called **GR Group ##** for the goods receipt process check. Include the objects **unconfirmed transfer orders** and **stocks in interim storage areas** in the variant.
2. Specify that the system should only check for unconfirmed transfer orders for movement types **101, 102, 103, 501, and 502**. It should also only consider stocks in interim storage areas **901 and 902**.



Hint: Use the *Multiple selection*  function to enter these values in the variant.

3. Call the warehouse activity monitor and check whether your new variant is available in the input help for the *Variant* field. Run the program with your variant.
4. Update the data for the objects in your variant.



Caution: Choosing *Refresh*  does not update the data. You have to request an update by choosing *Edit* → *Determine data again*.

5. Process the critical processes from the warehouse activity monitor.

Solution 28: Creating a Report Variant

Task:

Create a “goods receipt” report variant. This variant should only contain the warehouse activity monitor objects that are relevant for the goods receipt process.

1. Go to *Report Variants* in Customizing for the warehouse activity monitor to create a variant called **GR Group ##** for the goods receipt process check. Include the objects **unconfirmed transfer orders** and **stocks in interim storage areas** in the variant.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Planning and Monitoring* → *Warehouse Activity Monitor* → *Report Variants* → *Define Variant for "Object Overview" program* and choose *Create*.
 - b) Enter **GR Group ##** in the *Variant* field and choose *Create*.
 - c) Deselect all the objects except *Unconfirmed transfer orders* and *stocks in interim storage areas*.
2. Specify that the system should only check for unconfirmed transfer orders for movement types **101, 102, 103, 501, and 502**. It should also only consider stocks in interim storage areas **901 and 902**.



Hint: Use the *Multiple selection*  function to enter these values in the variant.

- a) Choose *Multiple selection*  for the *Movement type* field in the *Unconfirmed transfer orders* section.
- b) On the *Single vals* tab page, enter movement types **101, 102, 103, 501, and 502**, one below the other, and select *Copy* .
- c) Choose *Multiple selection*  for the *Storage type* field in the *Stocks in interim storage types* section. Enter storage types **901 and 902**, and choose *Copy* .
- d) Choose *Attributes* and enter **Warehouse activity monitor** as the *description*. Save your new variant.

Continued on next page

3. Call the warehouse activity monitor and check whether your new variant is available in the input help for the *Variant* field. Run the program with your variant.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Information System* → *Warehouse* → *Warehouse Activity Monitor*. Enter warehouse number **1##** and call the input help for the *Variant* field.
 - b) Select your variant, **GR Group ##**, choose *Enter*, and then *Execute* . The system displays the *critical processes* in warehouse number **1##** for the two objects in the variant. The traffic lights next to the objects are green because you have not yet updated the data.
4. Update the data for the objects in your variant.

 **Caution:** Choosing *Refresh*  does not update the data. You have to request an update by choosing *Edit* → *Determine data again*.

 - a) Place the cursor on the first object and choose *Edit* → *Determine data again*.
 - b) Confirm the security prompt with *Yes*. The system updates the data.
 - c) Proceed in the same way for the second object. You should have a critical unconfirmed transfer order and corresponding critical interim storage area stock (red traffic light next to the affected objects).
5. Process the critical processes from the warehouse activity monitor.
 - a) Select the object and choose *Detailed Display* 
 - b) Double-click on the document number of the critical transfer order to branch to the display of the first (and only) transfer order item.
 - c) Choose *Transfer order* → *Confirm in background* and return to the warehouse activity monitor with *Exit* 
 - d) Choose *Refresh*  to update the result display and choose *Back* 
 - e) Select the object *Interim storage stock, without movement* and choose *Detailed Display*  once more. The system informs you that the list does not contain any (more) data. Once the putaway transfer order has been confirmed, there is no stock left in interim storage area 902.



Lesson Summary

You should now be able to:

- Use the warehouse activity monitor in a process
- Create report variants



Unit Summary

You should now be able to:

- Describe the functions of the warehouse activity monitor
- Activate the warehouse activity monitor objects
- Define monitoring parameters
- Use the warehouse activity monitor in a process
- Create report variants



Test Your Knowledge

1. Which of the following objects are warehouse activity monitor objects?

Choose the correct answer(s).

- A Open deliveries
- B Open purchase orders
- C Negative stocks
- D Unconfirmed transfer orders
- E Blocked storage bins
- F Stocks in interim storage areas

2. Is it possible to create a separate report variant for each warehouse activity monitor object?



Answers

1. Which of the following objects are warehouse activity monitor objects?

Answer: A, C, D, F

Open deliveries, negative stocks, unconfirmed transfer orders, and stocks in interim storage areas are warehouse activity monitor objects.

2. Is it possible to create a separate report variant for each warehouse activity monitor object?

Answer: Is it possible to create a separate report variant for each warehouse activity monitor object.

Unit 10

Physical Inventory

Unit Overview

Legally approved inventory procedures are available in Warehouse Management with SAP ECC. In this unit, you will learn how to work with these procedures in the system.



Unit Objectives

After completing this unit, you will be able to:

- Explain the inventory procedures in the Warehouse Management system
- Assign inventory procedures to storage types
- Make the settings required for inventory at Customizing and master data level
- Describe the inventory process in Warehouse Management
- Create and process a system inventory record
- Enter and clear inventory differences

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Lesson: Inventory Procedure

Lesson Overview

Legally approved inventory procedures are available in Warehouse Management with SAP ECC. This lessons will teach you how to make the settings required to execute these procedures.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the inventory procedures in the Warehouse Management system
- Assign inventory procedures to storage types
- Make the settings required for inventory at Customizing and master data level

Business Example

After introducing Warehouse Management, your company has to carry out a physical inventory count at bin level. The various procedures need to be checked.

Inventory Procedures in Warehouse Management

If you implement Warehouse Management with SAP ECC, you usually have to execute the legally required inventory counts in **Warehouse Management** (and not in Inventory Management) because Warehouse Management is the more exact subsystem. You count, measure, or weigh **quants** in storage bins to complete your physical inventory. The legally approved inventory procedures are available in SAP ECC, sometimes with a number of variants:

- Annual inventory
- Continuous inventory
- Sample-based inventory

With **annual inventory**, the total stock is counted, measured, or weighed on the balance sheet key date or within a period of 10 days before or after this key date.

Continuous inventory allows physical recording of partial stocks at any time during the financial year. Stocks that have already been counted have to be updated by the balance sheet key date; stocks that have not yet been counted have to be counted by the key date. The quantity-based update of stocks that have already been counted takes place in SAP ECC Warehouse Management and is based on **transfer orders** (usually transfer orders for archiving). In these documents, you can permanently trace when goods movements have taken place.



Note: The value-based update is dealt with in Inventory Management only. The relevant changes are documented in the material document.

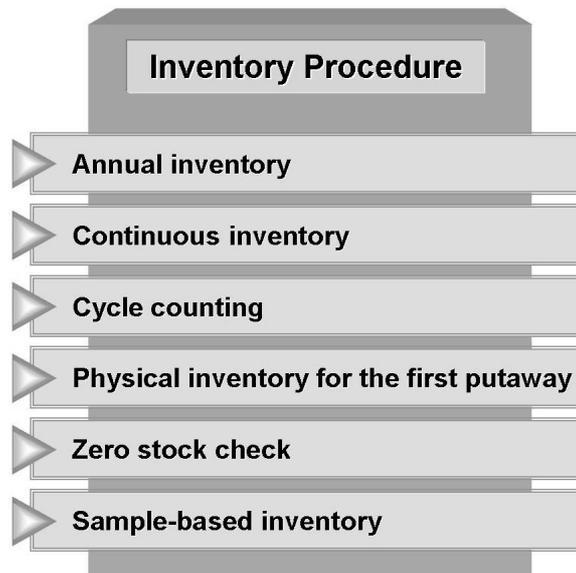


Figure 80: Inventory Procedures in SAP ECC

Along with the actual continuous inventory procedures in Warehouse Management in SAP ECC, there are also **special procedures**, which can all be legally assigned to continuous inventory. You can also use the **inventory on first putaway** procedure. In this case, the system prompts you to use the putaway transfer order, which will fill the storage bin for the first time in the financial year to check that the bin is actually empty. The prompt takes the form of an addition to the document printout or, if mobile data entry is used, a text in the display of the display device. You confirm that the bin is empty when you confirm the transfer order. If unexpected stock is found in the storage bin, this has to be entered in the system as a difference (also during transfer order confirmation).

A further variant of the permanent inventory is the **zero stock check**. This procedure corresponds to the inventory count on the first putaway, but takes place during the stock removal process. If the system calculates that a storage bin should be emptied by a planned stock removal, it sends a prompt to the processor of the transfer order. If there is stock in the storage bin, he/she enters it into the system during the confirmation of the transfer order, and it is later posted as an inventory difference. For the special procedures, the inventory result is recorded at storage bin master data level and at quant level.



Note: You can also use the zero stock check for information purposes, that is, without being part of the inventory. To do this, activate the function in the stock removal control in the relevant storage types. The results of the zero stock check are not updated at storage bin and quant level. The processor of the stock removal transfer order can also carry out a zero stock check manually if required.

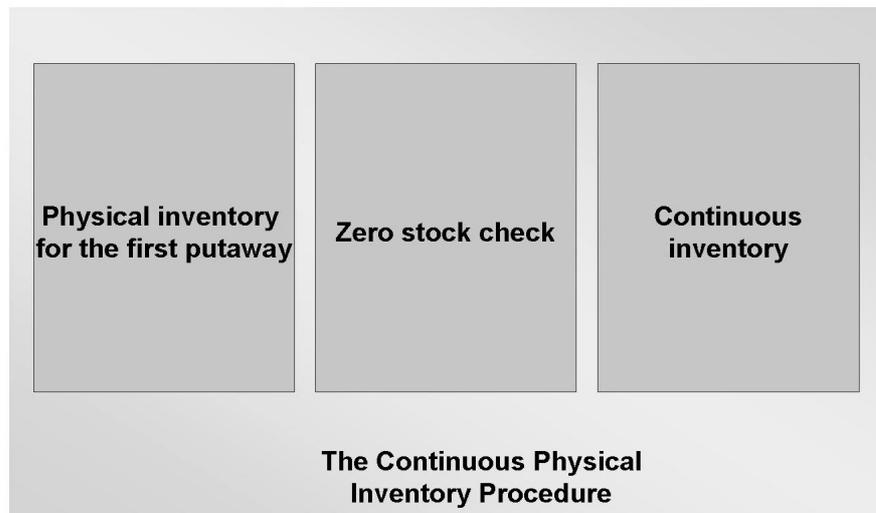


Figure 81: Forms of continuous inventory

A further special form of continuous inventory is **cycle counting**. This procedure is based in an **ABC analysis** of material stocks, optionally on a consumption or requirement basis. Materials that make up a high percentage of the total consumption or requirement (as defined in Customizing) are subject to more inventory counts during the fiscal year than materials from lower value categories. You define these categories and their value-based percentage of the total consumption in Customizing. At the same time, you specify the inventory frequency for each category. This means that you can count the inventory of fast-moving materials monthly, slower-moving materials every quarter or half-yearly, and the rest of the materials once a year according to the legal requirements.

With **sample-based inventory**, only a random part of the material stocks are physically counted, measured, or weighed. A projection of the total value of the warehouse stocks is made on the basis of the sample value. You define statistical parameters in Customizing for the inventory procedure. These parameters are used to decide whether a sample-based inventory was successful (probable degree of confidence, relative statistical error, and relative deviation of book value from actual value).

Configuring the Inventory Procedures

Inventory procedures are assigned at **storage type** level in Warehouse Management. You can assign an inventory procedure to every storage type in your warehouse number in Customizing for Warehouse Management. Certain procedures can be combined. This means that in addition to the permanent inventory, you can also activate the inventory on the first putaway procedure

and/or the zero stock check. The table for assigning inventory procedures to storage types is under *Logistics Execution → Warehouse Management → Activities → Physical Inventory → Define Types per Storage Type*.



Note: You do not assign the sample-based inventory in this table. The assignment is made for individual storage types in the table in Customizing for Inventory Management physical inventory.

You do not have to make any additional Customizing settings for the annual inventory and continuous inventory procedures. For cycle counting and sample-based inventory, however, you have to make some settings in Customizing for Inventory Management, from where these procedures were copied into Warehouse Management. Customizing for cycle counting involves defining categories for the ABC analysis or inventory regularity. The relevant table is under *Materials Management → Inventory Management and Physical Inventory → Physical Inventory → Cycle Counting*. Configuration of the sample-based inventory method involves more effort because, regardless of whether the procedure is used in Inventory Management or Warehouse Management, you have to create at least a detailed **inventory profile**. This profile groups parameters for sample determination and for projecting the sample results. You also need to define **stock management levels** for sampling. In Warehouse Management, the storage types form stock management levels within a warehouse number. The tables for Customizing the sample-based inventory is under *Materials Management → Inventory Management and Physical Inventory → Physical Inventory → Inventory Sampling*.



Note: Cycle counting and sample-based physical inventory as inventory procedures in Inventory Management are covered in detail in **SCM510** (Inventory Management and Physical Inventory).

Handling Physical Inventory Differences

If stock differences are identified during the physical inventory in Warehouse Management, they first have to be posted in WM, that is, put away virtually in an interim storage area. In the SAP ECC standard system, storage type **999** (differences) is available for this purpose. The difference quantities are put away automatically when the block is lifted on the storage bins involved in the inventory. The differences then have to be posted in Inventory Management to correct the storage location stocks.

For a goods receipt for a purchase order or work order, a goods issue for a cost center, or a posting change, the **Inventory Management** posting activity occurs at the **start** of the process. The system determines the relevant Warehouse Management movement type for the activity using the two tables that link the Inventory Management movement types with the Warehouse Management movement types via the reference movement types. When you deal with inventory differences, on the other hand, you post the differences in **Warehouse**

Management first. The system has to search for the corresponding Inventory Management movement type on the basis of the Warehouse Management movement type used. To do this, you have to make entries in the *Define Differences and Document Limits* table and, where necessary, in the follow-on table, *MM-IM Movement Types for Clearing Inventory*. Template warehouse number **001** contains Warehouse Management movement types **712** (Increase Differences) and **711** (Decrease Differences) as default values for posting inventory differences in Warehouse Management. Interim storage area **999** (differences) is assigned to both movement types. Depending on the warehouse number, the system uses the *MM-IM Movement Types for Clearing Inventory* table (T322) to determine the Inventory Management movement type for correcting the storage location stocks. Here you will also find default values that you can change if required (movement types **711** to **718**). The table *Do Not Allow Clearing in Storage Types* is also relevant in this context. Here, you can exclude individual tables from being accessed by the transaction *Clear Differences in Inventory Management* (transaction code LI21). This table is in Customizing under *Logistics Execution* → *Warehouse Management* → *Activities* → *Clear Differences (Interface to Inventory Management)*.



Caution: You can use transaction LI21 to clear stocks in all storage types without putaway and stock removal strategies, which means that you could clear the goods receipt area, for example, “at the touch of a button.” It is therefore advisable to exclude all (interim) storage types apart from the difference storage type from being accessed by this transaction.

Exercise 29: The Continuous Physical Inventory Procedure

Exercise Objectives

After completing this exercise, you will be able to:

- Set up continuous inventory in Warehouse Management

Business Example

You want to use continuous physical inventory in shelf storage in the future. You also want to implement the zero stock check as a special method of continuous inventory.

Task:

Assign the *continuous physical inventory* procedure to shelf storage in your warehouse number and activate the zero stock check.

1. Assign the **PZ** indicator (*continuous inventory*) to storage type **002** in warehouse number **1##**.
2. In addition to the continuous inventory, activate the **zero stock check** in storage type **002**.
3. Check the zero stock check by posting a goods issue for cost center **1000** for **50** pieces of material **T-BW04-##** from storage location **01##**, plant **1000**, using movement type **201**.
4. Remove the requested material quantity from storage using a transfer order in the foreground so that you can access a specific quant.



Hint: Choose *Stock figures*  in the preparation screen of the transfer order to see all of the bin stocks that can be picked.

5. Now try to confirm the transfer order in the background. What happens?
6. Confirm that the bin was emptied by the stock removal and then check the master record of the storage bin. Was the result of the zero stock check recorded as physical inventory?



Hint: You can branch from the transfer order display (item detail) to the master record of the stock removal storage bin.

Solution 29: The Continuous Physical Inventory Procedure

Task:

Assign the *continuous physical inventory* procedure to shelf storage in your warehouse number and activate the zero stock check.

1. Assign the **PZ** indicator (*continuous inventory*) to storage type **002** in warehouse number **1##**.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Physical Inventory* → *Define Types per Storage Type* and select the entry for storage type **002** in your warehouse number **1##**.
 - b) Assign the indicator **PZ** to the storage type using the input help for the *Inventory method* field and save the change.
2. In addition to the continuous inventory, activate the **zero stock check** in storage type **002**.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Physical Inventory* → *Define Types per Storage Type* and select the entry for storage type **002** in your warehouse number **1##**.
 - b) Select the *ZeroCkIn* field. Save the change.
3. Check the zero stock check by posting a goods issue for cost center **1000** for **50** pieces of material **T-BW04-##** from storage location **01##**, plant **1000**, using movement type **201**.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Enter Goods Issue*. Enter movement type **201**, plant **1000**, and storage location **01##**, and confirm your entries with *Enter*.
 - b) Enter cost center **1000**, material number **T-BW04-##**, and quantity **50**, and save to post the goods receipts.

Continued on next page

4. Remove the requested material quantity from storage using a transfer order in the foreground so that you can access a specific quant.



Hint: Choose *Stock figures*  in the preparation screen of the transfer order to see all of the bin stocks that can be picked.

- a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Create Transfer Order* → *For Material*. Enter warehouse number **1##** and material number **T-BW04-##** and choose *Enter*.
 - b) Select your transfer requirement and choose *TO in Foregr.*. Confirm the warning message, “2-step picking relevance will be removed since no relevant group” with *Enter*.
 - c) Choose *Stock figures*  and enter **50** in the *Selected quantity* field next to one of the storage bins with a stock of 50 pieces. The system will remove the **total** bin stock so that the bin is emptied.
 - d) Choose *Post in background*  and create the transfer order by saving.
5. Now try to confirm the transfer order in the background. What happens?
 - a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* indicator in the *Foreground/Backgrnd* field, and choose *Enter*.
 - b) The system forces you to confirm the transfer order in the foreground and issues a dialog box, “Confirm Item: Carry out Zero Stock Check”.

Continued on next page

6. Confirm that the bin was emptied by the stock removal and then check the master record of the storage bin. Was the result of the zero stock check recorded as physical inventory?



Hint: You can branch from the transfer order display (item detail) to the master record of the stock removal storage bin.

- a) Choose *Confirm empty bin*. The transfer order is confirmed.
- b) Choose *Logistics → Logistics Execution → Outbound Process → Goods Issue for Other Transactions → Display Transfer Order → Single Document*. If not already proposed by the system, enter the document number of your transfer order and warehouse number **1##**. Choose *Enter*.
- c) Place the cursor on the coordinates of the source storage bin. Double-click on the bin coordinates to branch to the material master of the storage bin.
- d) Choose the *Inventory* tab page. In the *Status* section, you can see the inventory method (*PN - Continuous inventory based in zero stock check*) and the date of the physical inventory. You will find a relevant entry in the *Storage bin inventory history*.



Lesson Summary

You should now be able to:

- Explain the inventory procedures in the Warehouse Management system
- Assign inventory procedures to storage types
- Make the settings required for inventory at Customizing and master data level

Lesson: Technical Posting Process

Lesson Overview

This lesson covers the technical physical inventory process in Warehouse Management.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the inventory process in Warehouse Management
- Create and process a system inventory record
- Enter and clear inventory differences

Business Example

Your company wants to the continuous inventory process.

Creating and Processing a System Inventory Record

The technical posting process is practically the same for all inventory methods available in Warehouse Management in SAP ECC. The basis of the physical inventory is a **system inventory record** that is printed and later processed further in the system. At the end of the process, any inventory differences are cleared, first in Warehouse Management and then in Inventory Management.

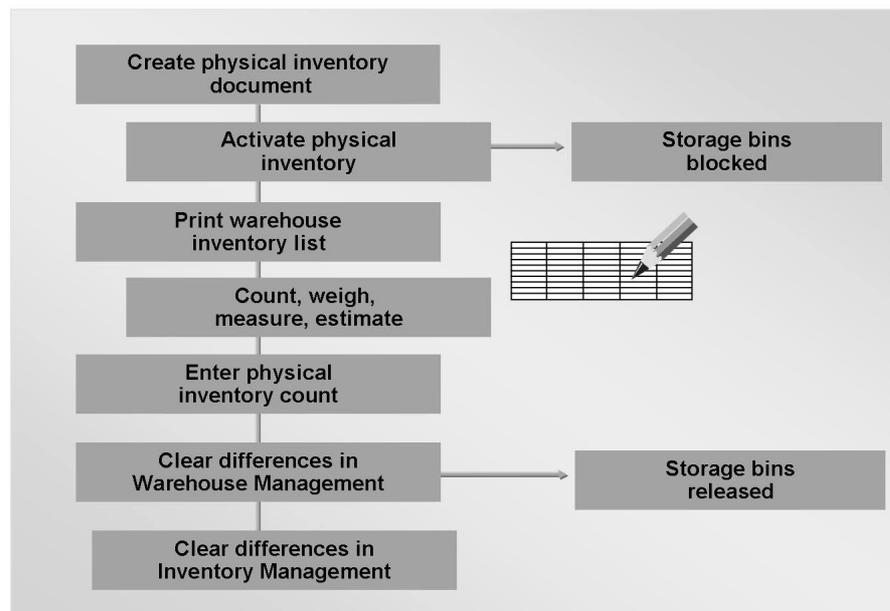


Figure 82: The physical inventory process

In the case of the annual inventory and sample-based inventory, the system first creates a **batch input session** due to the quantity of data. When this session is run, a system inventory record is created. To create the system inventory record for continuous inventory, you enter the storage type and, where required, additional optional parameters for the selection of storage bins. With the standard settings, the system always assumes that you only want to consider the bins for which no inventory has been executed in the fiscal year. However, you can display **all** of the bins in the storage type. To create the record, select the relevant storage bins and activate the selection. When you activate the selection, the system **blocks** all of the storage bins in the record. This means that you cannot put away or pick from the bins for the duration of the inventory. This inventory block is displayed in the storage bin master record. Unlike putaway and stock removal blocks, you cannot remove the inventory block manually; it can only be lifted by clearing the bin once the inventory is complete.

If you use cycle counting as the inventory procedure, you can refer either to the storage types in which the method is permitted or to the relevant material numbers when you create the system inventory document. If you do not make any entries for the material, the system checks all of the materials in the storage types that are relevant for cycle counting, as long as these are assigned to one of the categories of the ABC analysis upon which the inventory method is based.



Note: The **CC physical inventory indicator** is in the *General Plant Data / Storage 1* view in the *General data* section.

You can also execute cycle counting **by quant** in storage types that permit mixed storage. During the physical inventory, the system only blocks those quants that should actually be counted, measured, or weighed, and not the total storage bin stock. In any case, when you create the system inventory record, the system shows which bins stocks are “overdue,” that is, those that should have been counted earlier according to the category assignment of the material. If the stock of a material in category A should have been counted monthly, but the first count did not take place until the third month of the fiscal year, the system would show the inventory count for these material stocks as being *overdue*. If the stocks still were not counted in the current inventory, they would reappear in the next inventory run as being *overdue*.

The subsequent processing of the system inventory record is the same for all of the methods. The record is printed to carry out the actual physical inventory count and to record the results.



Note: You can influence the layout of the list to a certain extent in Customizing. Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Physical Inventory* → *Define Default Values*.

Once the work is finished, the results of the inventory are entered in the system. If stock is reported to be in what should have been empty bins, the system creates a new quant for the stock. The same is valid for material quantities in storage bins

that should actually have contained a different material. Once the results have been entered in the system, you can trigger one or more inventory recounts. A count version of the initial inventory record is created for a recount. Following the recount, the results must be entered in the system once more. Before the recount, you can specify percentage or absolute threshold values for differences. The system only proposes recounts for storage bins with differences that are above this threshold value.

Clearing Inventory Differences

Following the inventory count, the differences recorded in the inventory record have to be cleared in **Warehouse Management**. In this activity, missing quantities or gains are “put away” virtually in an interim storage area for differences (storage type **999** in the SAP ECC standard system). At the same time, the storage bins that were blocked for the inventory count are released.

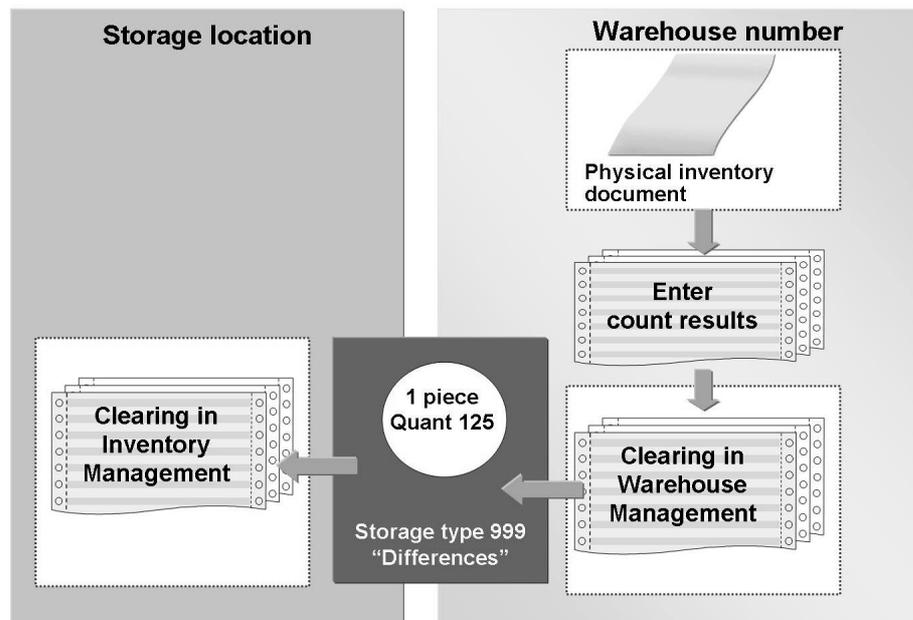


Figure 83: Inventory differences

The correction to the storage location stocks completes the physical inventory. The stocks in storage type **999** are cleared completely. During the posting, the storage location stocks of the materials with missing quantities are reduced, and the storage location stocks of the materials with gains increase. The system documents these stock changes in a material document.

Exercise 30: Continuous Inventory

Exercise Objectives

After completing this exercise, you will be able to:

- Execute continuous inventory in Warehouse Management

Business Example

You want to carry out a physical inventory in your shelf storage area during the vacation shutdown.

Task:

Create a system inventory document for continuous inventory in shelf storage, enter the count results, and clear the differences in Warehouse Management and in Inventory Management.

1. Create a system inventory document for continuous inventory in storage type **002** in warehouse number **1##**. Select two empty storage bins and two bins with stock and activate the system inventory record.
2. Check storage type **002** in the bin status report. Use the SAP List Viewer to show the *Inventory active* indicator and check the storage bin master records (you can branch to these from the bin status report). Was the inventory block set? Which material stock should be found during the count in the bins you have selected? If necessary, make a note of the material number and quantity.



Hint: You can modify the storage bin report display by choosing the *Current Layout* .

3. Display what the physical inventory document would look like in a printout.
4. Enter the results of the physical inventory. For example, you could record that a piece of one of your materials, for example **T-BW05-##**, was found in one of the bins that was supposed to be empty. You can also enter the actual material quantities in the bins with stock as being less than what the system said they ought to be.



Hint: If you enter a count quantity for an empty bin, the system prompts you to enter some data for the new quant. Enter plant **1000** and the current date as the goods receipt date.

Continued on next page

5. **Optional:** Trigger a recount for the two bins in which differences to the book stock were found.



Hint: You enter the results of the recount in the same transaction in which you entered the first results.

6. Clear the inventory differences in Warehouse Management.



Hint: You also have to clear the storage bins for which you did not identify any differences so that the inventory block is lifted.

7. Check the stocks of the materials for which you entered inventory differences. In which storage type are the missing quantities and gains?
8. Correct the storage location stocks of the materials for which you entered inventory differences.
9. Finally, check the stocks of the materials that were affected by the difference posting once more.

Solution 30: Continuous Inventory

Task:

Create a system inventory document for continuous inventory in shelf storage, enter the count results, and clear the differences in Warehouse Management and in Inventory Management.

1. Create a system inventory document for continuous inventory in storage type **002** in warehouse number **1##**. Select two empty storage bins and two bins with stock and activate the system inventory record.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Physical Inventory Document* → *Create* → *Continuous Inventory*. Enter warehouse number **1##** and storage type **002** and choose *Execute* .
 - b) Remove all the selections by choosing *Deselect all* .
 - c) Select two empty storage bins (these have *Empty bin* in the *Comments* field) and two storage bins with stock.
 - d) Choose *Activate*  to activate the physical inventory document and to block the selected the storage bins. Exit the transaction by choosing *Back* .

Continued on next page

2. Check storage type **002** in the bin status report. Use the SAP List Viewer to show the *Inventory active* indicator and check the storage bin master records (you can branch to these from the bin status report). Was the inventory block set? Which material stock should be found during the count in the bins you have selected? If necessary, make a note of the material number and quantity.



Hint: You can modify the storage bin report display by choosing the *Current Layout* .

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Bin Status Report*. Enter warehouse number **1##** and storage type **002** and choose *Execute* .
 - b) Choose *Current Layout* .
 - c) Select the *Inventory active* entry in the table of *hidden fields*. Move the entry to the list of fields that are currently displayed by choosing *Show selected fields*  and *Copy*. The indicator **X** is displayed in the *Inventory active* column for the storage bins selected in the physical inventory document.
 - d) Place the cursor on one of the two bins with stock and click on the bin coordinates. You can see a *Physical inventory is active*  symbol on the *Stor: bin* tab page. Directly below, you can see the bin stock in the *Stock per storage bin* section.
3. Display what the physical inventory document would look like in a printout.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Physical Inventory Document* → *Print Warehouse Inventory List*. Confirm the printing data for the document in the next screen with *Enter*.
 - b) In the transaction menu, choose the entry *System* → *Own Spool Requests* and select the entry **LIST1S** for program **RLLI0400** in the spool request overview.
 - c) Choose *Display contents*  to see a display of the warehouse inventory list.

Continued on next page

4. Enter the results of the physical inventory. For example, you could record that a piece of one of your materials, for example **T-BW05-##**, was found in one of the bins that was supposed to be empty. You can also enter the actual material quantities in the bins with stock as being less than what the system said they ought to be.



Hint: If you enter a count quantity for an empty bin, the system prompts you to enter some data for the new quant. Enter plant **1000** and the current date as the goods receipt date.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Count Results* → *Create* and then choose *Enter*.
- b) First, enter the recorded quantity counted for the two storage bins with stock in the *Counted quantity* field.
- c) In the row of the empty bin that really was empty, set the *Zero* indicator. In the row of the empty bin that actually contained stock, enter the material number in the *Material* field, and the quantity found in the *Counted quantity* field. Confirm your entries with *Enter*.
- d) In the next screen, the system prompts you so enter more data for the new quant in the supposedly empty bin. Enter plant **1000**, storage location **01##**, and the current date in the *GR Date* field, and choose *Enter*.
- e) Confirm the information message that material was found with *Enter* and save the count results.

Continued on next page

5. **Optional:** Trigger a recount for the two bins in which differences to the book stock were found.



Hint: You enter the results of the recount in the same transaction in which you entered the first results.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Count Results* → *Recount* and then choose *Enter*.
 - b) The system only suggests the storage bins with differences for the recount. Choose *Start recount* to create the recount document.
 - c) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Count Results* → *Create* and then choose *Enter*.
 - d) Enter the results of your recount and choose *Enter*.
 - e) If you confirm the material quantity found in the empty bin, you receive another information message telling you that material has been found. Confirm this with *Enter* and save the result.
6. Clear the inventory differences in Warehouse Management.



Hint: You also have to clear the storage bins for which you did not identify any differences so that the inventory block is lifted.

- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Clear Differences* → *Inventory Management* and then choose *Enter*.
 - b) Select all of the storage bins and then choose *Clear*.
7. Check the stocks of the materials for which you entered inventory differences. In which storage type are the missing quantities and gains?
- a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and your material number, and choose *Enter*.
 - b) The inventory gains and losses are in storage type **999**.

Continued on next page

8. Correct the storage location stocks of the materials for which you entered inventory differences.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Clear Differences* → *Inventory Management*. Enter warehouse number **1##** and storage type **999** and choose *Execute* .
 - b) To clear the stocks in storage type **999**, choose *Clear*. You receive a material document for this Inventory Management posting.
9. Finally, check the stocks of the materials that were affected by the difference posting once more.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **1##** and your material numbers, and choose *Enter*.
 - b) The stocks in storage type **999** have disappeared as a result of the clearing; the total stock in the warehouse number and the storage location has increased or decreased.



Lesson Summary

You should now be able to:

- Describe the inventory process in Warehouse Management
- Create and process a system inventory record
- Enter and clear inventory differences



Unit Summary

You should now be able to:

- Explain the inventory procedures in the Warehouse Management system
- Assign inventory procedures to storage types
- Make the settings required for inventory at Customizing and master data level
- Describe the inventory process in Warehouse Management
- Create and process a system inventory record
- Enter and clear inventory differences



Test Your Knowledge

1. Which physical inventory procedures are available in Warehouse Management in SAP ECC?

Choose the correct answer(s).

- A Inventory on first putaway
- B Continuous inventory
- C Sample-based inventory
- D Cycle counting

2. At which organization level do you assign the inventory procedures?

3. Which storage type does the system use to put away inventory differences?



Answers

1. Which physical inventory procedures are available in Warehouse Management in SAP ECC?

Answer: A, B, C, D

All of the procedures listed are available.

2. At which organization level do you assign the inventory procedures?

Answer: You assign the inventory procedures at **storage type level**.

3. Which storage type does the system use to put away inventory differences?

Answer: Storage type **999** is used in the SAP ECC standard system.

Unit 11

Final Exercise

Unit Overview

You now have the opportunity to check what you have learned in the past few days and to further strengthen your knowledge. Your task is to set up a completely new warehouse in the system. The lesson texts and individual exercises should help you to structure the exercise.



Unit Objectives

After completing this unit, you will be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings
- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings

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Lesson: Structural Basics

Lesson Overview

Set up a new warehouse in an SAP ECC system.



Lesson Objectives

After completing this lesson, you will be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings

Business Example

Your company, which manufactures motorcycles, currently only uses SAP ECC Inventory Management. Until now, Warehouse Management was covered by an external system. Now the company wants to introduce SAP ECC Warehouse Management as well. This means that the existing warehouse structures have to be mapped in SAP ECC. You also have to set up inbound, outbound, and stock transfer activities.

Structural Basics

The warehouse building has **high rack storage**, **shelf storage**, and **fixed bin storage**. There is also a **goods receipt area** for receipts from vendors and from production, and a **goods issue area** for shipping and staging for production. Motorcycle helmets, which are delivered from a supplier, undergo a quality inspection before they are put away and are therefore placed in a separate part of the warehouse. The enterprise does not use Quality Management.



Figure 84: Warehouse structure

In the rack storage and shelf storage areas, the storage bins have three-figure coordinates to identify shelf, stack, and level. The fixed bins are numbered according to a simple pattern. The following structures must be mapped:

Storage type	Subdivision	Start value	End value	Increment
High rack storage	Low bins	01-01-01	10-10-10	each by 1
High rack storage	High bins	11-01-01	20-10-10	each by 1
Shelf storage	Headlights	01-01-01	05-05-05	each by 1
Shelf storage	Tail lights	06-01-01	10-05-05	each by 1
Shelf storage	Misc.	11-01-01	15-05-05	each by 1
Fixed bin storage	Total area	FIX-01	FIX-05	each by 1

Crates of a special type can be placed in the lower storage bins in the high rack storage area. The higher bins can take europallets and industrial pallets.

Motorcycle helmets and assembly instructions for fuel tanks should be picked from their fixed bins. Headlights and tail lights should be stored in the shelf storage, but separately. Fuel tanks and tank caps, and the corresponding assembly instructions, are stored in high rack storage. The assembly instructions have to be replenished regularly from the picking fixed bin in high rack storage. The

storage bins in high rack storage have different measurements, therefore materials and their load carriers have to be stored in suitable bins. There should be no mixed storage. There should be no additions to stock in shelf storage and high rack storage, (with the exception of the tail lights). Only complete storage units should be stored in high rack storage. Remaining quantities caused by picking should automatically be transferred to shelf storage. There should be random putaway in high rack storage and shelf storage. The **first in first out** (FIFO) principle should be used for picking.

Overview of the warehouse materials and their storage requirements:

Material number	Description	Storage type/carrier	Special features
T-AS1##	Headlights	Rack storage / europallets (50 pieces)	Separate storage section
T-AS2##	Tail light	Shelf storage / crates (100 pieces)	Separate storage section; addition to storage allowed
T-AS5##	Motorcycle helmet	Fixed bin storage / industrial pallets (20 pieces, max. 200 pieces)	Quality inspection in inspection area
T-AS6##	Tank cap	High rack storage / crates (100 pieces)	Low bins
T-AS7##	Assembly instructions	Fixed bin storage, high rack storage / europallets (50 pieces, max. 500 pieces)	Replenishment control, low bins
T-AS8##	Fuel tank	High rack storage / europallets (20 pieces), industrial pallets (40 pieces)	High bins

The motorcycle helmets should always be posted to quality inspection stock on receipt. The *Purchasing* view is still missing from the material master of the assembly instructions, which are to be procured externally.

All of the materials, with the exception of the motorcycle helmets, currently have stock in storage location **0001** in plant **1000**. In this kind of situation, it is advisable to create a new storage location and link this to the new warehouse number once the configuration in Warehouse Management is complete. The stocks are transferred using a storage-location-to-storage-location posting change.

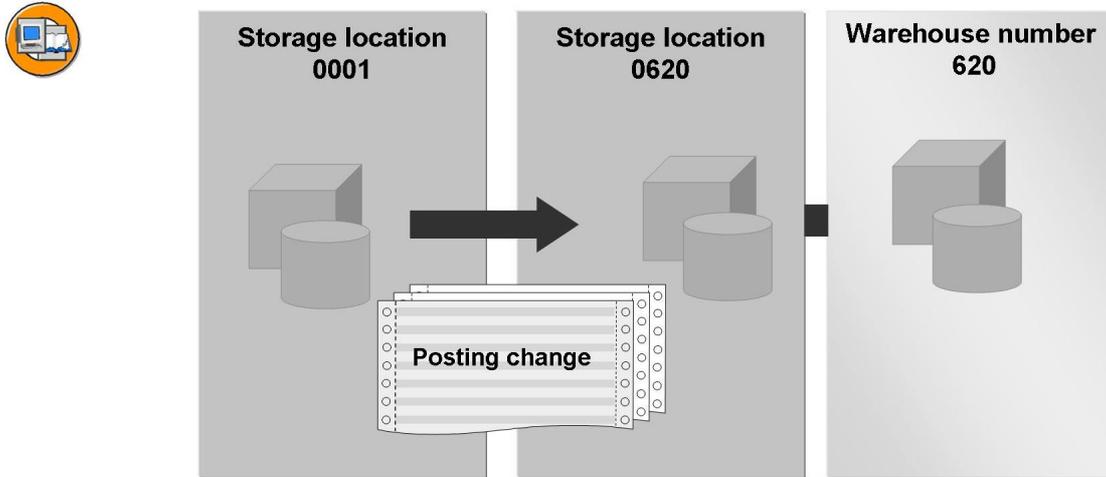


Figure 85: Stock transfer



Hint: The following exercises are designed for participants who do not yet feel comfortable enough to be able to map the above scenario in the system without any instruction. The exercises and their solutions will lead you through the individual configuration steps.

Exercise 31: Setting Up the Basic Structure of the New Warehouse

Exercise Objectives

After completing this exercise, you will be able to:

- Create a storage location and a warehouse number

Business Example

See lesson text

Task:

Create a new storage location with the key **06##** and a new warehouse number with the key **6##**. Give them a description of your choice.

1. Create a new storage location, **06##**, in plant **1000**. In the future, this storage location should take over the stock of materials **T-AS1##**, **T-AS2##**, and **T-AS5##** to **T-AS8##**, which are currently in storage location **0001** (not subject to Warehouse Management).
2. Create a new warehouse number, **6##**, as a copy of the template warehouse number **001**. Enter a description of your choice.



Hint: If you create a copy first and then change the description of the new warehouse number, the **control parameters** of the warehouse number are also transferred when you copy. This means that you only have to change these parameters later if you want to change the settings from the template. The same is valid for the **number ranges**. Use transaction *Organization object warehouse number* (transaction code EC09) to copy from the template warehouse number.

3. Check that the storage types have been copied. Do high rack storage, shelf storage, fixed bin storage, goods receipt, and goods issue areas exist in your new warehouse number, **6##**? Were the storage sections copied from the template as well?

Solution 31: Setting Up the Basic Structure of the New Warehouse

Task:

Create a new storage location with the key **06##** and a new warehouse number with the key **6##**. Give them a description of your choice.

1. Create a new storage location, **06##**, in plant **1000**. In the future, this storage location should take over the stock of materials **T-AS1##**, **T-AS2##**, and **T-AS5##** to **T-AS8##**, which are currently in storage location **0001** (not subject to Warehouse Management).
 - a) In Customizing, choose *Enterprise Structure → Definition → Materials Management → Maintain storage location*. Enter plant **1000** as the work area and choose *Enter*.
 - b) Choose *New Entries* and enter **06##** in the *SLoc* field. Enter a description of your choice and save the new entry.
2. Create a new warehouse number, **6##**, as a copy of the template warehouse number **001**. Enter a description of your choice.



Hint: If you create a copy first and then change the description of the new warehouse number, the **control parameters** of the warehouse number are also transferred when you copy. This means that you only have to change these parameters later if you want to change the settings from the template. The same is valid for the **number ranges**. Use transaction *Organization object warehouse number* (transaction code EC09) to copy from the template warehouse number.

- a) Choose *Enterprise Structure → Definition → Logistics Execution → Define, copy, delete, check warehouse number* and select *Copy/delete/check warehouse number*.
- b) Choose *Copy org.object* . Enter **001** in the *From Warehouse No.* field and **6##** in the *To Warehouse No.* field. Confirm the entries and the subsequent information message about the result of the copy process with *Enter*. Exit the table.
- c) Choose *Define warehouse number* and select warehouse number **6##** in the subsequent screen. Overwrite the description of the template with a description of your choice and save the change.

Continued on next page

3. Check that the storage types have been copied. Do high rack storage, shelf storage, fixed bin storage, goods receipt, and goods issue areas exist in your new warehouse number, **6##**? Were the storage sections copied from the template as well?
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type* and select storage type **001** in warehouse number **6##**.
 - b) If the copy was successful, when you check the list of storage types in warehouse number **6##**, you will see that it includes the storage types needed: **002**, **005**, **902**, **911**, and **916**.



Hint: You can delete unnecessary storage types from the table so that you only see those that are actually used in the input help for the *Storage type* field. If you want to add a storage type in the future, you will always find a template in the template warehouse number **001**.

- c) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Sections* and select the table section for your warehouse number **6##**: All of the storage types copied from the template have at least one storage section.

Exercise 32: Detailed Configuration

Exercise Objectives

After completing this exercise, you will be able to:

- Set up storage types and storage sections

Business Example

See lesson text

Task:

You can keep most of the settings in the template at storage type and storage section level. Make the necessary changes in the individual sections.

1. First check the requirements for **high rack storage** (storage type **001**). Putaway is random. Since the storage bins have different measurements, the **storage unit type check** should be used. Stock is removed using the **FIFO** strategy. There should also be a **requirement to remove all stock**. Any remaining quantities should be transferred to shelf storage (storage type **002**).
2. Check the requirements for **shelf storage** (storage type **002**). Random putaway and **FIFO** picking is defined for this storage type as well. Since materials **T-AS1##** and **T-AS2##** have to be stored separately in shelf storage and, therefore, have to be steered to different storage sections during putaway, you have to activate the **storage section check**. You also have to allow **addition to stock** at material level so that you can add the tail lights, **T-AS2##**, to existing stock in shelf storage.
3. Check the other storage types (fixed bin, goods receipt, and goods issue areas) with regard to the requirements listed in the lesson text. Do you need to make any changes?



Hint: The goods receipt areas (**901, 902**) and the goods issue areas (**911, 914, 916**) have the same settings in the template. so you only have to check one of the storage types.

Continued on next page

4. So that the motorcycle helmets, **T-AS5##**, can be put through quality inspection in an inspection area on receipt, it is advisable to set up a new (interim) storage type, with a key of your choice, for receiving the materials. You can create this storage type as a copy of goods receipt area **902**.



Hint: The template warehouse number, **001**, contains a storage type, **917** (quality assurance) that you can use for this part of the scenario. However, this storage type is designed for use in the interface between Warehouse Management and **Quality Management (QM)**. Therefore, if you are considering implementing Quality Management with SAP ECC in the future, it would be better to reserve storage type **917** for this purpose.

5. Now check the storage sections in your storage types. Only one of the two storage sections copied from the template should be kept in **high rack storage**. Three storage sections are needed in **shelf storage** so that the stock can be split: One storage section each for headlights, tail lights, and other materials. You only have to create the obligatory storage section in the new **interim storage area**. Change the descriptions where necessary, and add the missing storage sections.
6. Since you are working with the **storage unit type check** in high rack storage, you need **storage unit types** for the load carriers you will use in warehouse number **6##** in the future. Check the date copied from the template and change/add to the existing storage unit types. You need crates for the tail lights, **T-AS2##**, and tank caps, **T-AS6##**, and europallets and industrial pallets for the other materials. Delete the unnecessary storage unit types from the table.
7. **Storage bin types** are also required for the **storage unit type check**. Data was copied from the template for this. You need one bin type for low bins and one bin type for high bins in high rack storage.

Solution 32: Detailed Configuration

Task:

You can keep most of the settings in the template at storage type and storage section level. Make the necessary changes in the individual sections.

1. First check the requirements for **high rack storage** (storage type **001**). Putaway is random. Since the storage bins have different measurements, the **storage unit type check** should be used. Stock is removed using the **FIFO** strategy. There should also be a **requirement to remove all stock**. Any remaining quantities should be transferred to shelf storage (storage type **002**).
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **001** in warehouse number **6##** and choose *Details* . You can keep most of the settings copied from the template. The correct storage bin search strategies (**L** and **F**) are already set. The storage unit type search is active.
 - b) In the *Stock removal control* section, remove the indicator in the *Return stock to same storage bin* field and enter **002** in the *Return storage type* field. Save the changes.
2. Check the requirements for **shelf storage** (storage type **002**). Random putaway and **FIFO** picking is defined for this storage type as well. Since materials **T-AS1##** and **T-AS2##** have to be stored separately in shelf storage and, therefore, have to be steered to different storage sections during putaway, you have to activate the **storage section check**. You also have to allow **addition to stock** at material level so that you can add the tail lights, **T-AS2##**, to existing stock in shelf storage.
 - a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **002** in warehouse number **6##** and choose *Details* . You can keep most of the settings copied from the template. The correct storage bin search strategies (**L** and **F**) are already set. The storage section check is active.
 - b) In the *Stock placement control* section, enter the indicator **M** in the *Addn to stock* field.

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3. Check the other storage types (fixed bin, goods receipt, and goods issue areas) with regard to the requirements listed in the lesson text. Do you need to make any changes?



Hint: The goods receipt areas (**901, 902**) and the goods issue areas (**911, 914, 916**) have the same settings in the template. so you only have to check one of the storage types.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage types **005, 901, 902, 911, 914, and 916** in warehouse number **6##**.
 - b) You can keep the settings for these storage types.
4. So that the motorcycle helmets, **T-AS5##**, can be put through quality inspection in an inspection area on receipt, it is advisable to set up a new (interim) storage type, with a key of your choice, for receiving the materials. You can create this storage type as a copy of goods receipt area **902**.



Hint: The template warehouse number, **001**, contains a storage type, **917** (quality assurance) that you can use for this part of the scenario. However, this storage type is designed for use in the interface between Warehouse Management and **Quality Management** (QM). Therefore, if you are considering implementing Quality Management with SAP ECC in the future, it would be better to reserve storage type **917** for this purpose.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **902** in warehouse number **6##** and choose *Copy As...* .
- b) Overwrite the key of the template storage type with a key of your choice and give it a meaningful description. Choose *Enter* and save your entries.



Hint: If you are working with numerical values, use a key that starts with a number other than 0, 1, 2, or 9.

5. Now check the storage sections in your storage types. Only one of the two storage sections copied from the template should be kept in **high rack storage**. Three storage sections are needed in **shelf storage** so that the stock can be split: One storage section each for headlights, tail lights, and other

Continued on next page

materials. You only have to create the obligatory storage section in the new **interim storage area**. Change the descriptions where necessary, and add the missing storage sections.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Sections*. Select storage type **001** in warehouse number **6##**. Change the descriptions copied from the template, for example to “Section 1” and delete the second, unneeded storage area by choosing *Delete* .
- b) In the table entry for warehouse number **6##**, storage type **002**, and storage section **001**, change the description to “Headlights.” Storage section **002** should be called “Tail lights.”
- c) Now create two new storage sections: a storage section (**003**) in shelf storage for “Miscellaneous” and a general area in your new storage type for the motorcycle helmets from step 4. Choose *New Entries* and enter the following data:

WhNo	Type	Section	Storage section description
6##	002	003	Misc.
6##	For example 802*	001	Total area



Hint: Enter the key of your new storage type from step 4.

Save the new entries.

6. Since you are working with the **storage unit type check** in high rack storage, you need **storage unit types** for the load carriers you will use in warehouse number **6##** in the future. Check the date copied from the template and change/add to the existing storage unit types. You need crates for the tail

Continued on next page

lights, **T-AS2##**, and tank caps, **T-AS6##**, and europallets and industrial pallets for the other materials. Delete the unnecessary storage unit types from the table.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Material* → *Define Storage Unit Types* and select warehouse number **6##**.
 - b) Change the description of one of the three storage unit types **BX1**, **BX2**, or **BX3** to “Crate” and delete the two superfluous types by selecting the table entries and choosing *Delete* .
 - c) Decide on one of the two storage unit types **E1** or **E2** for “europallets” and delete the superfluous type as described in step b). Adjust the description if necessary.
 - d) Delete all the remaining storage unit types except **IP** (“industrial pallets”) as described under step b) and save your changes.
7. **Storage bin types** are also required for the **storage unit type check**. Data was copied from the template for this. You need one bin type for low bins and one bin type for high bins in high rack storage.
- a) Choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Storage Bins* → *Define Storage Bin Types* and select warehouse number **6##**.
 - b) You can either create new bin types or change existing ones. For example, you can use **P1** by changing the description to “Low bins.” Add a new bin type, **P2**, for “High bins” in warehouse number **6##** by choosing *New Entries*.
 - c) Delete all the superfluous storage bin types by selecting the relevant table entries and choosing *Delete* . Save the changes.

Exercise 33: Master Data - Storage Bins

Exercise Objectives

After completing this exercise, you will be able to:

- Create storage bins

Business Example

See lesson text

Task:

Storage bins have to be created in storage types **001**, **002**, and **005**.

1. First, create storage bins for high rack storage (storage type **001**) using the batch input procedure. A storage bin structure for high rack storage was copied from the template to warehouse number **6##**. Check to see if the template meets the requirements in the lesson text.



Hint: Use transaction *Batch input: session overview* (transaction code SM35) for the batch input.

2. Two storage bin structures were copied from the template for shelf storage, one each for storage sections **001** and **002**. Use the two templates to create storage bins with values adjusted to suit the requirements listed in the lesson text. Then copy one of the structures to create storage bins in storage area **003**. Remove the specifications for storage bin type, weight and capacity limits, and fire-containment sections before generating the batch input sessions.
3. Create the five fixed bins, **FIX-01** to **FIX-05**, manually.
4. Finally, check the result for all three storage types in the bin status report.

Solution 33: Master Data - Storage Bins

Task:

Storage bins have to be created in storage types **001**, **002**, and **005**.

1. First, create storage bins for high rack storage (storage type **001**) using the batch input procedure. A storage bin structure for high rack storage was copied from the template to warehouse number **6##**. Check to see if the template meets the requirements in the lesson text.



Hint: Use transaction *Batch input: session overview* (transaction code SM35) for the batch input.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Storage Bins* → *Define Storage Bin Structure*, select the entry for warehouse number **6##** and storage type **001**, and choose *Detail* .
- b) Change the start value to **01-01-01** and end value to **10-10-10**. Assign the key **P1** in the *storage bin type* field, remove the weight and fire-containment section specifications, and choose *Enter*. Save your template.
- c) Choose *Environment* → *Create bins* and then *Create by batch inp* in the subsequent screen. Confirm the warning message with *Yes*. The message *File RLLS0500 created* is displayed in the status row.
- d) In the transaction menu, choose *System* → *Services* → *Batch Input* → *Sessions*, select your session, **RLLS0500**, and choose *Process*.
- e) In the dialog box choose, *Background* and then *Process*. The information message “1 session(s) transferred to background processing” is displayed in the status row.
- f) In the storage bin structure table, select the entry for warehouse number **6##** and storage type **001** and choose *Copy as...* .
- g) Overwrite the sequence number with **002**. Change the start value to **11-01-01** and end value to **20-10-10**. Enter **002** again as the storage section and **P2** as the storage bin type. Delete the weight and fire-containment section specifications and choose *Enter*. Save your second template and continue as described in steps 1. c) to 1. e).



Hint: When you confirm the entries with *Enter*, the system returns to the initial screen. Select the new entry and choose *Detail* .

Continued on next page

2. Two storage bin structures were copied from the template for shelf storage, one each for storage sections **001** and **002**. Use the two templates to create storage bins with values adjusted to suit the requirements listed in the lesson text. Then copy one of the structures to create storage bins in storage area **003**. Remove the specifications for storage bin type, weight and capacity limits, and fire-containment sections before generating the batch input sessions.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Storage Bins* → *Define Storage Bin Structure*, select the entry for warehouse number **6##**, storage type **002**, and sequence number **001**, and choose *Detail* .
 - b) Change the end value to **05-05-05**. Remove the storage bin type, weight, capacity, and fire-containment section specifications and choose *Enter*.
 - c) Choose *Environment* → *Create bins* and then the *Create online* button. Confirm the confirmation prompt with *Enter*. The system issues a message telling you that 125 bins have been created.
 - d) To create storage bins for the second storage section, **002**, with start value **06-01-01** and end value **10-05-05**, follow the procedure described in steps a) to c).



Hint: In the storage structures table, select the entry with sequence number **002**.

- e) To create storage bins in storage section **003**, select the entry for warehouse number **6##**, storage type **002**, and sequence number **002**, and choose *Copy as...* .
 - f) Overwrite the sequence number with **003** and change the data as necessary. Create storage bins **11-01-01** to **15-05-05** as described in step c).
3. Create the five fixed bins, **FIX-01** to **FIX-05**, manually.
 - a) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Storage Bin* → *Create* → *Manual* . Enter warehouse number **6##**, storage type **005**, and storage bin **FIX-01** and choose *Enter*.
 - b) Assign storage section **001** and save the entries. You can then enter the bin coordinate **FIX-02** and create all five fixed bins as described in step a). Terminate the storage bin creation with *Cancel* .

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4. Finally, check the result for all three storage types in the bin status report.
 - a) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Bin Status Report*. Enter warehouse number **6##** and storage type **001** and choose *Execute* . A list of all storage bins is displayed.
 - b) Proceed in the same way for storage types **002** and **005**.

Exercise 34: Master Data - Material Masters

Exercise Objectives

After completing this exercise, you will be able to:

- Enhance material masters

Business Example

See lesson text

Task:

You have to add the two Warehouse Management views for your new warehouse number, **6##**, to the master data records of materials **T-AS1##**, **T-AS2##**, and **T-AS5##** to **T-AS8##**, which were previously only subject to Materials Management. For the two fixed bin materials, **T-AS5##** and **T-AS7##**, you also have to add storage type specific fields for the fixed bin storage in the *Warehouse Management 2* view. Add the *Purchasing* view in the material master of material **T-AS7##**, and specify in the material master of material **T-AS5##** that it should always be posted to quality inspection stock on receipt.

1. First, add the *Warehouse Management 1* and *Warehouse Management 2* views for warehouse number **6##** in the material masters listed in the Task. Use the *Mass Maintenance* transaction (transaction code MM17).



Hint: If you are not familiar with the mass maintenance of material masters, use the instructions in the solutions for the exercise.

2. Check the results of the mass maintenance for each of your materials and, if you have not already done so in step 1., add the **palletization data** in the *Warehouse Management 2* view according to the list of requirements in the lesson text.
3. Make the storage type specific entries in the second Warehouse Management view in the material masters of **T-AS5##** and **T-AS7##** for storage type **005** in warehouse number **6##**. Assign a fixed bin to each material. Enter maximum storage bin quantities of **200** and **500** for the capacity check.
4. Add the *Purchasing* view to the material master of fixed bin material **T-AS7##** and set the *Post to insp. stock* indicator in the material master of material **T-AS5##**.

Solution 34: Master Data - Material Masters

Task:

You have to add the two Warehouse Management views for your new warehouse number, **6##**, to the master data records of materials **T-AS1##**, **T-AS2##**, and **T-AS5##** to **T-AS8##**, which were previously only subject to Materials Management. For the two fixed bin materials, **T-AS5##** and **T-AS7##**, you also have to add storage type specific fields for the fixed bin storage in the *Warehouse Management 2* view. Add the *Purchasing* view in the material master of material **T-AS7##**, and specify in the material master of material **T-AS5##** that it should always be posted to quality inspection stock on receipt.

1. First, add the *Warehouse Management 1* and *Warehouse Management 2* views for warehouse number **6##** in the material masters listed in the Task. Use the *Mass Maintenance* transaction (transaction code MM17).



Hint: If you are not familiar with the mass maintenance of material masters, use the instructions in the solutions for the exercise.

- a) In the application menu, choose *Logistics* → *Materials Management* → *Material Master* → *Material* → *Mass Maintenance* and confirm the information message about table selection with *Enter*.
- b) Select the entry for table **MLGN** (*Material data for each warehouse number*) and choose *Execute* . Confirm the warning message about changing objects with *Enter*.
- c) Set the *Do Not Change Existing Data* indicator on the *Data Records to Be Changed* tab page.
- d) Choose the *Data Records to Be Created* tab page and confirm the information message about the activity with *Enter*.
- e) Choose the *Multiple selection* function for the *Material* field and enter the material numbers **T-AS1##**, **T-AS2##**, **T-AS5##**, **T-AS6##**, **T-AS7##**, and **T-AS8##** in the *Multiple selection for material* window on the *Single vals* tab page. Choose *Copy* .
- f) Enter warehouse number **6##**, in the *Warehouse Number* field and confirm the entry with *Enter*. Choose *Execute* .
- g) **Optional:** You can also set the **palletization data** of each material when you create the Warehouse Management views. To do so, choose *Choose selection fields* . In the *Select fields* window, select the following fields in the *Pool* section:

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Loading equipment quantity	MLGN-LHMG1
Loading equipment quantity	MLGN-LHMG2
<i>Storage unit type</i>	MLGN-LETY1
<i>Storage unit type</i>	MLGN-LETY2
Unit of measure	MLGN-LHME1
Unit of measure	MLGN-LHME2

Choose *Choose*  and confirm the selection with *Enter*.

- h) **Optional:** Enter the loading equipment quantity, storage unit type, and unit of measure for each of the materials according to the specifications in the lesson text. You can use the table in the solutions for step 2.d) for help.
- i) Choose *Save*  to create the new views. Confirm the warning message about immediate effectivity with *Enter*: The system displays a list of all of the enhanced material masters. A green traffic light indicates that processing was successful. Do not exit the transaction yet.

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2. Check the results of the mass maintenance for each of your materials and, if you have not already done so in step 1., add the **palletization data** in the *Warehouse Management 2* view according to the list of requirements in the lesson text.
 - a) Select the first entry in the *Messages from the Update Task* (material **T-AS1##**) window and choose *Change object* ()
 - b) Select the *Warehouse Management 1* and *Warehouse Management 2* views, save these settings as default values (*Default values* ) , and choose *Enter*.
 - c) Enter plant **1000** and warehouse number **6##** as organizational levels, save these as default values, and choose *Enter* once more.
 - d) Choose the *Warehouse Management 2* view and, if you have not already done so in step 1., enter the palletization data as follows:

LE quantity	Un	SUT
50	PC	(Your storage unit type for europallets)

Proceed in the same way for the other materials and enter the palletization data as listed in the table below:

Material	LE quantity	Un	SUT
T-AS2##	100	PC	(Your storage unit type for crates)
T-AS5##	20	PC	(Your storage unit type for industrial pallets)
T-AS6##	100	PC	(Your storage unit type for crates)
T-AS7##	50	PC	(Your storage unit type for europallets)
T-AS8##	40	PC	(Your storage unit type for industrial pallets)
	20	PC	(Your storage unit type for europallets)

Once you have finished entering the data, exit the mass maintenance transaction and confirm the warning message about the data buffer with *Enter*.

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3. Make the storage type specific entries in the second Warehouse Management view in the material masters of **T-AS5##** and **T-AS7##** for storage type **005** in warehouse number **6##**. Assign a fixed bin to each material. Enter maximum storage bin quantities of **200** and **500** for the capacity check.
 - a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Create* → *Immediately* . Enter material number **T-AS5-##** and confirm your entry and the subsequent warning message with *Enter*. If you have set the Warehouse Management views as default values, deselect the *Warehouse Management 1* view (otherwise select only the *Warehouse Management 2* view). Choose *Enter*.
 - b) In the *Organizational levels* dialog box, enter **005** in the *Storage Type* field, as well as the plant and warehouse number. Choose *Enter*.
 - c) Using the input help, assign one of the fixed bins in the *Storage bin* field, and enter **200** in the *Maximum bin quantity* field. Save the changes.
 - d) Proceed in the same way for material **T-AS7##**. Enter a maximum storage bin quantity of **500**.
4. Add the *Purchasing* view to the material master of fixed bin material **T-AS7##** and set the *Post to insp. stock* indicator in the material master of material **T-AS5##**.
 - a) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Create* → *Immediately* . Enter material number **T-AS7-##** and confirm your entry and the subsequent warning message with *Enter*.
 - b) If you have saved the Warehouse Management views as default values, deselect them and select the *Purchasing* view instead. Choose *Enter*. If not already set, enter plant **1000** and confirm with *Enter*.
 - c) Save to add the new view.
 - d) Choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately* . Enter material number **T-AS5##** and confirm your entry with *Enter*.
 - e) If required, deselect the *Warehouse Management 1* and *Warehouse Management 2* views, select the *Purchasing* view, and choose *Enter*. Enter plant **1000** as the organizational level and confirm with *Enter*.
 - f) Set the *Post to insp. stock* indicator in the *Other data/manufacturer data* section and save the change.



Lesson Summary

You should now be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings

Lesson: Processes

Lesson Overview

Set up a new warehouse in an SAP ECC system.



Lesson Objectives

After completing this lesson, you will be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings

Business Example

Your company, which manufactures motorcycles, currently only uses SAP R/3 Inventory Management. Until now, Warehouse Management was covered by an external system. Now the company wants to introduce SAP ECC Warehouse Management as well. This means that the existing warehouse structures have to be mapped in SAP ECC. You also have to set up inbound, outbound, and stock transfer activities.

Processes

The transfer orders for **putting away** externally procured materials and materials produced in-house should be created by the system at regular intervals. However, the motorcycle helmet **T-AS5##** is always posted to quality inspection stock on receipt and stored temporarily in a separate inspection area. Once the inspection control is complete, all faultless helmets are posted to unrestricted-use stock. A warehouse activity monitor operator should carry out the posting change. The transfer orders for the putaway are then created manually.

To fulfill express sales orders, transfer orders for **picking** should be created immediately during creation of the outbound deliveries. Collective processing is used for normal cases. Production should not be supplied via the WM-PP interface. Picking for work orders occurs after the withdrawal posting with transfer orders that are created regularly in the background.



Hint: The settings are already in place for immediate transfer order creation (condition records for message type **WMTA** with delivery type **LF** and shipping condition **10**).

Goods receipts without a purchase order, and withdrawal postings to a cost center, should always be processed immediately as single documents.

Overview of the Warehouse Management movement types required in the processes:

Movement type	Description	Special features
101	Goods receipt for purchase order	Automatic transfer order creation
103	Goods receipt for production order	Automatic transfer order creation
201	Goods issue to cost center	Immediate transfer order creation
261	Goods issue to order	Automatic transfer order creation
321	Posting change, quality	Posting change in Warehouse Management first with immediate effect in Inventory Management
501	Goods receipt without purchase order	Immediate transfer order creation
601	Goods issue to delivery note	Immediate transfer order creation for express sales orders (shipping condition “immediately”)

Use this opportunity to check the settings copied from the template for the movement types and change them where necessary. The relevant **reversal movement types** have to be taken into account as well. In this scenario, however, manual processing of reversal processes is required.



Caution: A separate Warehouse Management movement type is necessary for the **special treatment** of the motorcycle helmet **T-AS5##**, which is to be stored temporarily in an inspection area on receipt.

It is also advisable to create a separate movement type for the **replenishment** of the assembly instructions, **T-AS7##**, for example, as a copy of movement type **319**. A movement type of this kind (**320**) already exists in the template warehouse number **001** in the training system.



Hint: The following exercises are designed for participants who do not yet feel comfortable enough to be able to map the above scenario in the system without any instruction. The exercises and their solutions will lead you through the individual configuration steps.

Exercise 35: Putaway and Stock Removal Control

Exercise Objectives

After completing this exercise, you will be able to:

- Set up putaway and stock removal control

Business Example

See lesson text

Task:

Configure the putaway and stock removal control in your new warehouse number, **6##**.

1. First, check the putaway and stock removal strategies in high rack, shelf, and fixed bin storage (storage types **001**, **002**, and **005**). As outlined in the requirement description in the lesson text, putaway in the high rack and shelf storage types should be random. The **first in first out** (FIFO) principle should be used for stock removal. In fixed bin storage, the strategy for the relevant storage type should be used for putaway and stock removal.
2. Check the settings for **storage type determination** for putaway and stock removal against the requirement description in the lesson text, particularly the table entries for the **storage type indicators** relevant to your scenario. You can use the storage type indicators **FIX** and **REG** copied from the template, but you have to assign them correctly in the material masters. Materials **T-AS1##** and **T-AS2##** should be stored in shelf storage and picked from there. Material **T-AS2##** should be able to be added to existing stock for the putaway. Materials **T-AS5##** and **T-AS7##** should be picked from their fixed bins. However, material **T-AS7##** is put away in high rack storage and transferred to its fixed bin using replenishment control.



Hint: In the template, high rack storage is in first position in the storage type search sequence, so you do not have to adjust the material masters of the materials that are to be stored in high rack storage.

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3. The **storage unit type check** is active in high rack storage. Have all of the settings required for this check been set?



Hint: Crates, europallets, and industrial pallets are used in the high rack storage area. Industrial pallets only fit in high storage bins. Europallets and crates on the other hand, fit in both low and high bins.

4. The **storage section check** is active in shelf storage. You have created three storage sections in storage type **002**: “Head lights”, “tail lights”, and “Miscellaneous.” Now define **storage section indicators** for the headlights and tail lights and make corresponding entries for the search sequence in the storage section search. Finally, assign the storage section indicator to the material master records **T-AS1##** and **T-AS2##**.



Hint: You can make use of the storage section indicators transferred from the template by simply renaming them.

5. Set up the replenishment control for fixed bin material **T-AS7##** in warehouse number **6##**. The system should check the stocks in the fixed bin. If stock levels fall below the minimum stock level (**50** pieces), the system should trigger replenishment. Check the Customizing settings. Is movement type **320** assigned to storage type **005** in warehouse number **6##**?

Solution 35: Putaway and Stock Removal Control

Task:

Configure the putaway and stock removal control in your new warehouse number, 6##.

1. First, check the putaway and stock removal strategies in high rack, shelf, and fixed bin storage (storage types **001**, **002**, and **005**). As outlined in the requirement description in the lesson text, putaway in the high rack and shelf storage types should be random. The **first in first out** (FIFO) principle should be used for stock removal. In fixed bin storage, the strategy for the relevant storage type should be used for putaway and stock removal.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Master Data* → *Define Storage Type*. Select storage type **001** in warehouse number 6## and choose *Details* .
 - b) **L (next empty bin)** should be used as the putaway strategy, and **F (FIFO)** as the stock removal strategy.
 - c) Select storage type **002**. The settings should be the same for this storage type.
 - d) In the fixed bin storage type, **005**, putaway strategy **F** and stock removal strategy **P** (both **fixed bin**) are assigned.
2. Check the settings for **storage type determination** for putaway and stock removal against the requirement description in the lesson text, particularly the table entries for the **storage type indicators** relevant to your scenario. You can use the storage type indicators **FIX** and **REG** copied from the template, but you have to assign them correctly in the material masters. Materials **T-AS1##** and **T-AS2##** should be stored in shelf storage and picked from there. Material **T-AS2##** should be able to be added to existing

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stock for the putaway. Materials **T-AS5##** and **T-AS7##** should be picked from their fixed bins. However, material **T-AS7##** is put away in high rack storage and transferred to its fixed bin using replenishment control.



Hint: In the template, high rack storage is in first position in the storage type search sequence, so you do not have to adjust the material masters of the materials that are to be stored in high rack storage.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Type Determination* and then choose *Determine Search Sequence*.
- b) Select the entry for warehouse number **6##** and operation indicator **E**. Storage types **001** and **002** are already defined in the search sequence. You can keep these settings.
- c) Check the entry for storage type indicators **FIX** and **REG**. For **FIX**, storage types **005** and **001** are set in the search sequence. You can keep these settings for replenishment control. Storage type **002** is assigned in the table entry for storage type indicator **REG**. These settings also correspond to your requirements.
- d) In the same way, check the storage type search sequence for stock removal. Since the fixed bin materials should only be picked from the fixed bin, remove storage type **001** from the entry for the storage type indicator **FIX**. Save the change.
- e) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-AS1-##** and choose *Enter*. Choose the *Warehouse Management 1* view, and confirm with *Enter*. Enter plant **1000** and warehouse number **6##** as the organizational levels, and confirm again with *Enter*. Assign **REG** as both the putaway and stock removal indicator and save the changes.
- f) Proceed in the same way for material **T-AS2##**, but set the *Allow addn to stock* indicator as well.
- g) In the material masters for materials **T-AS5##** and **T-AS7##**, assign storage type indicator **FIX** for stock removal. For material **T-AS5##**, it is the putaway storage type indicator as well. Material **T-AS7##** should be put away in high rack storage and then taken to the fixed bin using replenishment control.

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3. The **storage unit type check** is active in high rack storage. Have all of the settings required for this check been set?



Hint: Crates, europallets, and industrial pallets are used in the high rack storage area. Industrial pallets only fit in high storage bins. Europallets and crates on the other hand, fit in both low and high bins.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Bin Type Search* and then choose *Storage type..*
- b) Select the entry for storage type **001** in warehouse number **6##**. Remove all of the storage unit types with the exception of those you are using for crates, europallets, and industrial pallets. Save your changes and exit the table.



Hint: Since you only use the storage unit type check in storage type **001**, you can delete all the other table entries copied from the template.

- c) Choose *storage bin type* and select the entry for your **IP** (industrial pallets) storage unit type in warehouse number **6##**. Assign your storage bin type for “high bins” and remove all other entries.
 - d) Select the entries for your storage unit types “crate” and “europallet.” Assign your storage bin types for low and high bins. Delete any other entries and save your changes.
4. The **storage section check** is active in shelf storage. You have created three storage sections in storage type **002**: “Head lights”, “tail lights”, and “Miscellaneous.” Now define **storage section indicators** for the headlights

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and tail lights and make corresponding entries for the search sequence in the storage section search. Finally, assign the storage section indicator to the material master records **T-AS1##** and **T-AS2##**.



Hint: You can make use of the storage section indicators transferred from the template by simply renaming them.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Strategies* → *Activate Storage Section Search* and then choose *Define*.
- b) Select the entries for warehouse number **6##**. Since you do not work with fast-moving and slow-moving items, change the descriptions to “headlights” and “tail lights.” Save the changes and exit the table.
- c) Choose *Determine search sequence* and select the entries for storage type **002** and warehouse number **6##**.
- d) Remove storage sections **001** and **002** in the default entry (the one without an indicator), and add storage section **003**.
- e) In the entry for storage section indicator **001**, leave only storage section **001**. In the entry for storage section **002**, leave only storage section **002**. Save your changes.
- f) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Material* → *Material* → *Change* → *Immediately*. Enter material number **T-AS1-##** and choose *Enter*. Select the *Warehouse Management 1* view and confirm with *Enter*. Enter plant **1000** and warehouse number **6##** as the organizational levels, and confirm again with *Enter*. Use the input help in the *Storage section* field to assign **001** (“headlights”) and save the changes.
- g) Proceed in the same way for material **T-AS2##** and storage section indicator **002** (“tail lights”).

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5. Set up the replenishment control for fixed bin material **T-AS7##** in warehouse number **6##**. The system should check the stocks in the fixed bin. If stock levels fall below the minimum stock level (**50** pieces), the system should trigger replenishment. Check the Customizing settings. Is movement type **320** assigned to storage type **005** in warehouse number **6##**?
 - a) In the application menu, choose *Logistics → Logistics Execution → Master Data → Material → Material → Change → Immediately*. Enter material number **T-AS7-##** and choose *Enter*. Select the *Warehouse Management 2* view and confirm with *Enter*. Enter plant **1000**, warehouse number **6##**, and storage type **005** as the organizational levels, and confirm again with *Enter*.
 - b) Enter **50** in the *Minimum bin quantity* field and save the changes.
 - c) In Customizing, choose *Logistics Execution → Warehouse Management → Activities → Transfers → Define Stock Transfers and Replenishment Control* and then *Define Replenishment Control for Storage Type*.
 - d) Select the entry for warehouse number **6##** and storage type **005**. Movement type **320** is assigned.

Exercise 36: Connecting Warehouse Management to Inventory Management

Exercise Objectives

After completing this exercise, you will be able to:

- Connect Warehouse Management to Inventory Management

Business Example

See lesson text

Task:

Link warehouse number **6##** with your storage location, **06##**, in plant **1000**. Set up automatic or immediate transfer order creation for goods receipt and goods issue processes. You must also configure the special treatment of the motorcycle helmet **T-AS5##**.

1. Link the combination of plant **1000** and storage location **06##** with warehouse number **6##** to ensure the connection between the new warehouse structure and Inventory Management.
2. Set up automatic transfer order creation for Warehouse Management movement types **101**, **103**, and **261**. When you configure the movement types in detail, bear in mind that you always want to have the system create transfer requirements via Inventory Management postings. Transfer orders should always be created with reference to transfer requirements. Finally, check the reversal movement types **102** and **262**.
3. Create a **variant** for report **RLAUTA10**. In the variant, enter warehouse number **6##** and indicator **A**, which you assigned to movement types.
4. According to the requirement description in the lesson text, you now have to set up immediate transfer order creation in warehouse number **6##** for movement types **201** and **501**. Bear in mind the mail control; If errors occur, the system should inform you with an express mail.
5. For the special treatment of motorcycle helmet **T-AS5##**, create a new Warehouse Management movement type with, for example, the key **901**. Assign your new interim storage type from the “Structural Basics” lesson (“Detailed Configuration” exercise, step 4) to this movement type. You must also enter a storage bin, which you then have to create in the database using the transaction *Create Bins for Interim Storage Types* (transaction code LX20).

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6. Connect your new movement type to Inventory Management via reference movement type **101**. Use a table entry with special stock indicator **C** as a template.



Hint: The *SpStInd* field is directly to the right of the *Reference Mvmt Type* field.

7. Finally, set up the interface to Inventory Management so that stock in quality inspection can be posted directly from Warehouse Management to unrestricted-use stock. This means that Inventory Management movement type **321** has to be properly linked to Warehouse Management movement type **321**. The Warehouse Management movement type must allow manual creation of transfer orders and immediate confirmation.

Solution 36: Connecting Warehouse Management to Inventory Management

Task:

Link warehouse number **6##** with your storage location, **06##**, in plant **1000**. Set up automatic or immediate transfer order creation for goods receipt and goods issue processes. You must also configure the special treatment of the motorcycle helmet **T-AS5##**.

1. Link the combination of plant **1000** and storage location **06##** with warehouse number **6##** to ensure the connection between the new warehouse structure and Inventory Management.
 - a) In Customizing, choose *Enterprise Structure* → *Assignment* → *Logistics Execution* → *Assign Warehouse Number to Plant/Storage Location* and then choose *New Entries*.
 - b) Enter plant **1000**, storage location **06##**, and warehouse number **6##**, and choose *Enter*. Save the new entry.
2. Set up automatic transfer order creation for Warehouse Management movement types **101**, **103**, and **261**. When you configure the movement types in detail, bear in mind that you always want to have the system create transfer requirements via Inventory Management postings. Transfer orders should always be created with reference to transfer requirements. Finally, check the reversal movement types **102** and **262**.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*, select movement type **101** in warehouse number **6##**, and choose *Details* .
 - b) Use the input help for the *Automatic TO* field to assign indicator **A** and save the changes. Proceed in the same way for movement types **103** and **261**.
 - c) For movement types **103** and **261**, remove the *Manual TR creation allowed* indicator and set the *Manual TO creation not allowed* indicator instead. Save the changes.
 - d) Check the reversal movement types **102** and **262**. Leave the settings for movement type **102**, but remove the *Manual TR creation allowed* indicator in movement type **262** and set the *Manual TO creation not allowed* indicator instead. Save the changes.

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3. Create a **variant** for report **RLAUTA10**. In the variant, enter warehouse number **6##** and indicator **A**, which you assigned to movement types.
 - a) In the menu bar of the application menu initial screen, choose *System* → *Services* → *Reporting*. Enter **RLAUTA10** in the *Program* field and choose *Execute* .
 - b) Enter warehouse number **6##** and indicator **A** for automatic transfer order creation. In the transaction menu, choose *Goto* → *Variants* → *Save as Variant*. Enter a description of the variant and a layout description of your choice and save the entries.
4. According to the requirement description in the lesson text, you now have to set up immediate transfer order creation in warehouse number **6##** for movement types **201** and **501**. Bear in mind the mail control; If errors occur, the system should inform you with an express mail.
 - a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then choose *LE-WM Interface to Inventory Management*.
 - b) First select the cross-warehouse-number table entry for movement type **201** without any indicator and choose *Copy As...* .
 - c) Enter **6##** in the *WhN* field, replace the **X** indicator in the *Immed.TO creation* field with **A**, enter the **A** in the *Mail Control for Background Processing* field, confirm the entries with *Enter* and save the new entry.
 - d) Proceed in the same way for movement type **501**.
 - e) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Activate Automatic TO Creation* and then choose *Assign recipient*.
 - f) Select warehouse number **6##**, remove the *Document User* indicator, and enter your user name, **SCM630-##**, in the *Mail Recipient* field instead. Save the change.
5. For the special treatment of motorcycle helmet **T-AS5##**, create a new Warehouse Management movement type with, for example, the key **901**. Assign your new interim storage type from the “Structural Basics” lesson (“Detailed Configuration” exercise, step 4) to this movement type. You

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must also enter a storage bin, which you then have to create in the database using the transaction *Create Bins for Interim Storage Types* (transaction code LX20).

- a) Choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*. Select movement type **101** in warehouse number **6##** and choose *Copy As...* .
 - b) Overwrite the key, **101**, with a new key of your choice and give the new movement type a description, for example “GR Quality Control.”
 - c) Overwrite storage type **902** with the key of your interim storage type from the “Detailed Configuration” lesson and enter a bin description of your choice in the *Stor.Bin* field, for example “INSPECTION.”
 - d) Remove the *Scr.* indicator (dynamic source bin) and the **A** indicator for automatic transfer order creation. Save your changes.
 - e) In the application menu, choose *Logistics* → *Logistics Execution* → *Master Data* → *Warehouse* → *Storage Bin* → *Create* → *For Interim Storage*. Enter warehouse number **6##** and choose *Execute* .
 - f) The system displays a list of all the storage bins in interim storage areas that still have to be created. The list includes your new inspection bin and the other entries that were copied from the standard movement types in the template. Choose *Create bins*.
6. Connect your new movement type to Inventory Management via reference movement type **101**. Use a table entry with special stock indicator **C** as a template.



Hint: The *SpStInd* field is directly to the right of the *Reference Mvmt Type* field.

- a) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Movement Types* and then choose *LE-WM Interface to Inventory Management*.
 - b) Select the cross-warehouse-number entry for reference movement type **101**, special stock indicator **Q**, and movement indicator **B**, and choose *Copy As...* .
 - c) Enter warehouse number **6##** in the *WhN* field and replace Warehouse Management movement type **101** with your new movement type from step 5.b). Choose *Enter* and save the new entry.
7. Finally, set up the interface to Inventory Management so that stock in quality inspection can be posted directly from Warehouse Management to unrestricted-use stock. This means that Inventory Management movement

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type **321** has to be properly linked to Warehouse Management movement type **321**. The Warehouse Management movement type must allow manual creation of transfer orders and immediate confirmation.

- a) Choose *Logistics Execution* → *Warehouse Management* → *Interfaces* → *Inventory Management* → *Define Posting Changes* and then the *New Entries* button.
- b) Enter warehouse number **6##**, Warehouse Management movement type **321**, Inventory Management movement type **321**, and indicator **Q** in the *Stk C SRC* field. Choose *Enter* and save your entries.
- c) In Customizing, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Define Movement Types*, select movement type **321** in warehouse number **6##**, and choose *Details* .
- d) Remove the *Manual TO creation not allowed* indicator, set the *TO item can be confrmd immed.* indicator, and save the changes.

Exercise 37: Final Configuration Test

Exercise Objectives

After completing this exercise, you will be able to:

- Test your settings

Business Example

See lesson text

Task:

First, post the stocks of materials **T-AS1##**, **T-AS2##**, and **T-AS6##** through **T-AS8##** from the previous storage location, **0001**, to the new storage location, **06##**, which is subject to Warehouse Management. Put away all the stocks. Then test further elements of your configuration using concrete examples.

1. Enter the **posting change** of the material stocks with movement type **311** in Inventory Management and put the stocks away. (The issuing storage location is **0001**, and the receiving storage location is **06##**, both in plant **1000**.) Every material except **T-AS7##** has a stock of **100** pieces. You have **50** pieces of **T-AS7##**. Check the stock overview for your warehouse number and then create the putaway transfer order in the foreground. Does the **storage bin search** run as planned?



Hint: Material **T-AS5##** is currently not in the warehouse. Use the “storage bin search log” when you create the transfer order (*Environment* → *Stor.bin search log*).

2. Order 100 pieces of material **T-AS5##** from vendor **1000** and 5000 pieces of material **T-AS7##** (purchasing organization **1000**, purchasing group **000**, and company code **1000**). The net price of material **T-AS5##** should be 23 euros and the net price of material **T-AS7##** should be two euros. Note the document number of the purchase order.
3. Post the goods receipt in your storage location **06##** in plant **1000**.
4. Display the transfer requirements that were created during the goods receipt posting. Did the system determine the expected Warehouse Management movement types and the correct interim storage areas?



Hint: Use the transaction LB13 to find your transfer requirements with the requirement type **B** (*Purchase order*).

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5. Put away material **T-AS5##** and then test the posting change to unrestricted-use stock from within Warehouse Management. Is the material put away in its fixed bin?
6. Run report **RLAUTA10** in dialog mode for putting away material **T-AS7##**. Check whether your settings are correct, using movement type **101** as an example.
7. Now use material **T-AS6##** to test a goods issue to cost center **1000** (five pieces), which you post to Inventory Management (plant **1000**), storage location **06##**, with movement type **201**. Does the system create the transfer order for stock removal immediately, as desired? Are your settings for total stock removal effective? Finally, confirm the transfer order in the background.
8. Use a rush order (sales document type **RO**) to test immediate transfer order creation for express outbound deliveries. Customer **T-S50A##** orders 10 pieces of fixed bin material **T-AS7##**. Enter storage location **06##** as the picking storage location in the order at detail level on the *Shipping* tab page. Was message type **WMTA** processed successfully? Confirm the transfer order created in the background and post the goods issue for outbound delivery.



Hint: The indicator for immediate delivery creation is set in Customizing for sales document type **RO**. When you save the order, the system should create the outbound delivery and then, immediately afterwards, the transfer order.

9. Test your replenishment control settings. Does the system trigger enough replenishment stock for the fixed bin of the material?

Solution 37: Final Configuration Test

Task:

First, post the stocks of materials **T-AS1##**, **T-AS2##**, and **T-AS6##** through **T-AS8##** from the previous storage location, **0001**, to the new storage location, **06##**, which is subject to Warehouse Management. Put away all the stocks. Then test further elements of your configuration using concrete examples.

1. Enter the **posting change** of the material stocks with movement type **311** in Inventory Management and put the stocks away. (The issuing storage location is **0001**, and the receiving storage location is **06##**, both in plant **1000**.) Every material except **T-AS7##** has a stock of **100** pieces. You have **50** pieces of **T-AS7##**. Check the stock overview for your warehouse number and then create the putaway transfer order in the foreground. Does the **storage bin search** run as planned?



Hint: Material **T-AS5##** is currently not in the warehouse. Use the “storage bin search log” when you create the transfer order (*Environment* → *Stor.bin search log*).

- a) In the application menu, choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Via Inventory Management* → *Enter Posting Change*. Enter movement type **311**, plant **1000**, and storage location **0001** and choose *Enter*.
- b) Enter storage location **06##** as the receiving storage location and enter the material items as listed below:

Material	Quantity
T-AS1##	100
T-AS2##	100
T-AS6##	100
T-AS7##	50
T-AS8##	100

Save your entries to post the change for the stocks.

- c) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **6##** and material number **T-AS1-##** and choose *Enter*. The stock is now in interim storage area **921**.

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- d) Choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Via Inventory Management* → *Transfer Order* → *Create* → *For Material Document* and then choose *Enter*.



Hint: If the document number of the material document does not appear by default, use the input help for the *Material document* field.

- e) Choose *Palletization* and then *Putaway foreground* .
- f) To analyze the bin search process for the first transfer order item, choose *Environment* → *Stor.bin search log*. If the system proposal corresponds to your expectations, confirm it with *Enter* and proceed in the same way with the second item for material **T-AS1##**. Choose *Generate + next mat.*
- g) Repeat step e) for all the other items. Pay attention to the **storage type**, **storage section**, and **storage bin types**. To create the transfer order, save your data.
- h) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Posting Change* → *Via Inventory Management* → *Transfer order* → *Confirm* → *Single Document* → *In One Step*. Use the input help to choose the *Background* process indicator and then choose *Enter*.

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2. Order 100 pieces of material **T-AS5##** from vendor **1000** and 5000 pieces of material **T-AS7##** (purchasing organization **1000**, purchasing group **000**, and company code **1000**). The net price of material **T-AS5##** should be 23 euros and the net price of material **T-AS7##** should be two euros. Note the document number of the purchase order.

- a) Choose *Logistics* → *Logistics Execution* → *Materials Management* → *Purchasing* → *Purchase Order* → *Create* → *Vendor/Supplying Plant Known*. Enter the following data in the document header:

<i>Vendor</i>	1000
<i>Purchasing organization</i>	1000
<i>Purchasing group</i>	000
<i>Company code</i>	1000

- b) At item level, enter material number **T-AS5##**, purchase order quantity **100**, net price **23**, plant **1000**, and storage location **06##** in the first row. In the next row, enter **T-AS7##**, purchase order quantity **500**, net price **2**, and the plant and storage location. To create the purchase order, save your entries.
3. Post the goods receipt in your storage location **06##** in plant **1000**.
- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order; Order; Other Transactions* → *Enter Goods Receipt for Purchase Order*. Enter the number of your purchase order and choose *Enter*.
- b) On the *Where* tab page at item level, check whether the motorcycle helmet, **T-AS5##**, will be posted to quality inspection stock. Set the *Item OK* indicator.
- c) Proceed in the same way for the purchase item for material **T-AS7##**, and save the entries to post the goods receipt.

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4. Display the transfer requirements that were created during the goods receipt posting. Did the system determine the expected Warehouse Management movement types and the correct interim storage areas?



Hint: Use the transaction LB13 to find your transfer requirements with the requirement type **B** (*Purchase order*).

- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Requirement*. Enter requirement type **B** and choose *Enter*. The system displays two transfer requirement numbers.
- b) Display the first transfer requirement (material **T-AS7##**). You should see the indicator **A** for automatic transfer order creation in the *Automatic TO* field in the item list.
- c) Display the second transfer requirement (material **T-AS5##**). The *Source storage type* should be your new interim storage area from the “Detailed Configuration” exercise (“Structural Basics” lesson). The new quant should be in the predefined bin in this storage type, according to the settings for your new movement type from step 5 of the “Connecting Warehouse Management to Inventory Management” exercise.

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5. Put away material **T-AS5##** and then test the posting change to unrestricted-use stock from within Warehouse Management. Is the material put away in its fixed bin?
- a) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Create Transfer Order* → *For Material*. Enter warehouse number **6##** and material number **T-AS5##** and choose *Enter*.
 - b) Select your transfer requirement and choose *TO in Foregr.*. On the next screen, choose *Putaway foreground*  and check whether the material is put away in its fixed bin as expected. Confirm the warning message that appears after each document item with *Enter* and save the data to create the transfer order.
 - c) Choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.
 - d) Choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Posting Change* → *Direct to Bin Stock* → *Other Posting Changes*. Enter warehouse number **6##**, movement type **321**, material **T-AS5##**, and plant **1000**, confirm the message that then appears with *Enter* and choose *Execute* .
 - e) Select the bin stock for which the posting change should be executed and choose *Post Change*.
 - f) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **6##** and material number **T-AS5##** and choose *Enter*. The material is now in unrestricted-use stock. Choose *MM stock figures* to check the storage location stocks as well.

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6. Run report **RLAUTA10** in dialog mode for putting away material **T-AS7##**. Check whether your settings are correct, using movement type **101** as an example.
 - a) In the menu of the transaction you used last, choose *System* → *Services* → *Reporting*. Enter **RLAUTA10** in the *Program* field and choose *Execute* .
 - b) Choose *Get Variant...* , select your report variant from step 3 of the “Connecting Warehouse Management to Inventory Management” exercise and choose *Enter*.
 - c) Choose *Execute* . The system informs you in the status bar that the transfer order has been created successfully. You also receive an **express mail**.
 **Hint:** If you only want to be sent a mail if a processing error occurs, choose *Logistics Execution* → *Warehouse Management* → *Activities* → *Transfers* → *Set Up Autom. TO Creation for TRs / Posting Change Notices* in Customizing, followed by *Control data*. Select your entry for warehouse number **6##** and remove indicator **A** in the *Log* field.
 - d) In the application menu, choose *Logistics* → *Logistics Execution* → *Inbound Process* → *Goods Receipt for Purchase Order, Order, Other Transactions* → *Putaway* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.
7. Now use material **T-AS6##** to test a goods issue to cost center **1000** (five pieces), which you post to Inventory Management (plant **1000**), storage location **06##**, with movement type **201**. Does the system create the transfer

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order for stock removal immediately, as desired? Are your settings for total stock removal effective? Finally, confirm the transfer order in the background.

- a) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Enter Goods Issue*. Enter movement type **201**, plant **1000**, and storage location **06##** and choose *Enter*.
 - b) Enter cost center **1000**, material number **T-AS6##**, and quantity **5**, and save to post the goods issue.
 - c) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Bins and Stock* → *Display* → *Total Stock per Material (Warehouse Management)*. Enter warehouse number **6##** and your material number, **T-AS6##**, and choose *Enter*.
 - d) Select the plant/storage location stock line of the high rack storage area and choose *Bin stock*.
 - e) Select the storage bin coordinates and choose the primary mouse button. Choose the *Stock* tab page, select the bin stock row, and choose *Quant*. The number of the transfer order is displayed in the *Document number* field.
 - f) Display the transfer order by double-clicking the document number. Select the item and choose *Single Item* . The system should have created a “return transfer item” for the remaining quantity of 95 pieces, and should then transfer the remainder quant to shelf storage (storage type **002**).
 - g) In the application menu, choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Other Transactions* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.
8. Use a rush order (sales document type **RO**) to test immediate transfer order creation for express outbound deliveries. Customer **T-S50A##** orders 10 pieces of fixed bin material **T-AS7##**. Enter storage location **06##** as the picking storage location in the order at detail level on the *Shipping* tab page.

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Was message type **WMTA** processed successfully? Confirm the transfer order created in the background and post the goods issue for outbound delivery.



Hint: The indicator for immediate delivery creation is set in Customizing for sales document type **RO**. When you save the order, the system should create the outbound delivery and then, immediately afterwards, the transfer order.

- a) Choose *Logistics* → *Sales and Distribution* → *Sales* → *Order* → *Create*. Enter order type **RO** and choose *Enter*.
- b) Enter **T-S50A##** as the sold-to party, a purchase order number of your choice, material number **T-AS7##**, and quantity **10**. Choose *Enter*.
- c) In the transaction menu choose *Goto* → *Item* → *Shipping* and enter **06##** in the *Storage Location* field. Save to create the order. The system issues a message in the status bar to tell you that the outbound delivery has been created for the order.
- d) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Delivery* → *Display*. Enter the document number of the outbound delivery and choose *Enter*.
- e) Choose *Document Flow* . The transfer order has the status “open”.
- f) In the transaction menu, choose *Extras* → *Delivery Output* → *Header*. The message type **WMTA** is displayed with a green traffic light to show that it has been processed successfully.
- g) Choose *Logistics* → *Logistics Execution* → *Outbound Process* → *Goods Issue for Outbound Delivery* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* processing indicator and increase the indicator **2** in the field *Adopt pick. quantity*. Confirm these entries with *Enter*.

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9. Test your replenishment control settings. Does the system trigger enough replenishment stock for the fixed bin of the material?

- a) Choose *Logistics* → *Logistics Execution* → *Internal Warehouse Processes* → *Stock Transfer* → *Planning of Replenishments* → *According to Bin Situation*. Enter the data listed below:

<i>Plant</i>	1000
<i>Storage location</i>	06##
<i>Warehouse number</i>	6##
<i>Storage type</i>	005
<i>Material</i>	T-AS7##

Choose *Execute* .

- b) The requested quantity should be **510** pieces. (The fixed bin storage type **005** has a negative stock of 10 pieces as a result of the goods issue for outbound delivery.) Choose *Material Staging* and save the entries.
- c) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Stock Transfer* → *Create Transfer Order* → *By Replenishment* → *for Material*. Enter warehouse number **6##** and material number **T-AS701** and choose *Enter*. The transfer requirement created as a result of the replenishment request is displayed.
- d) Select the transfer requirement and choose *TO in Backgr.*
- e) Choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Stock Transfer* → *Confirm Transfer Order* → *Single Document* → *In One Step*. Choose the *Background* process indicator and then choose *Enter*.



Lesson Summary

You should now be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings



Unit Summary

You should now be able to:

- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings
- Map the basic structure of a warehouse in Customizing
- Make the necessary assignments
- Make the main control settings



Course Summary

You should now be able to:

- Create the organizational elements of Warehouse Management and assign them to each other
- Use all the relevant master data
- Configure the interface between Inventory Management and Warehouse Management
- Implement putaway and stock removal strategies
- Take into account batch management and Quality Management in the warehouse
- Include Warehouse Management in delivery processes
- Stage components for production from the warehouse
- Set up the warehouse activity monitor as a control instrument
- Execute physical inventory at storage bin level

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Feedback

SAP AG has made every effort in the preparation of this course to ensure the accuracy and completeness of the materials. If you have any corrections or suggestions for improvement, please record them in the appropriate place in the course evaluation.