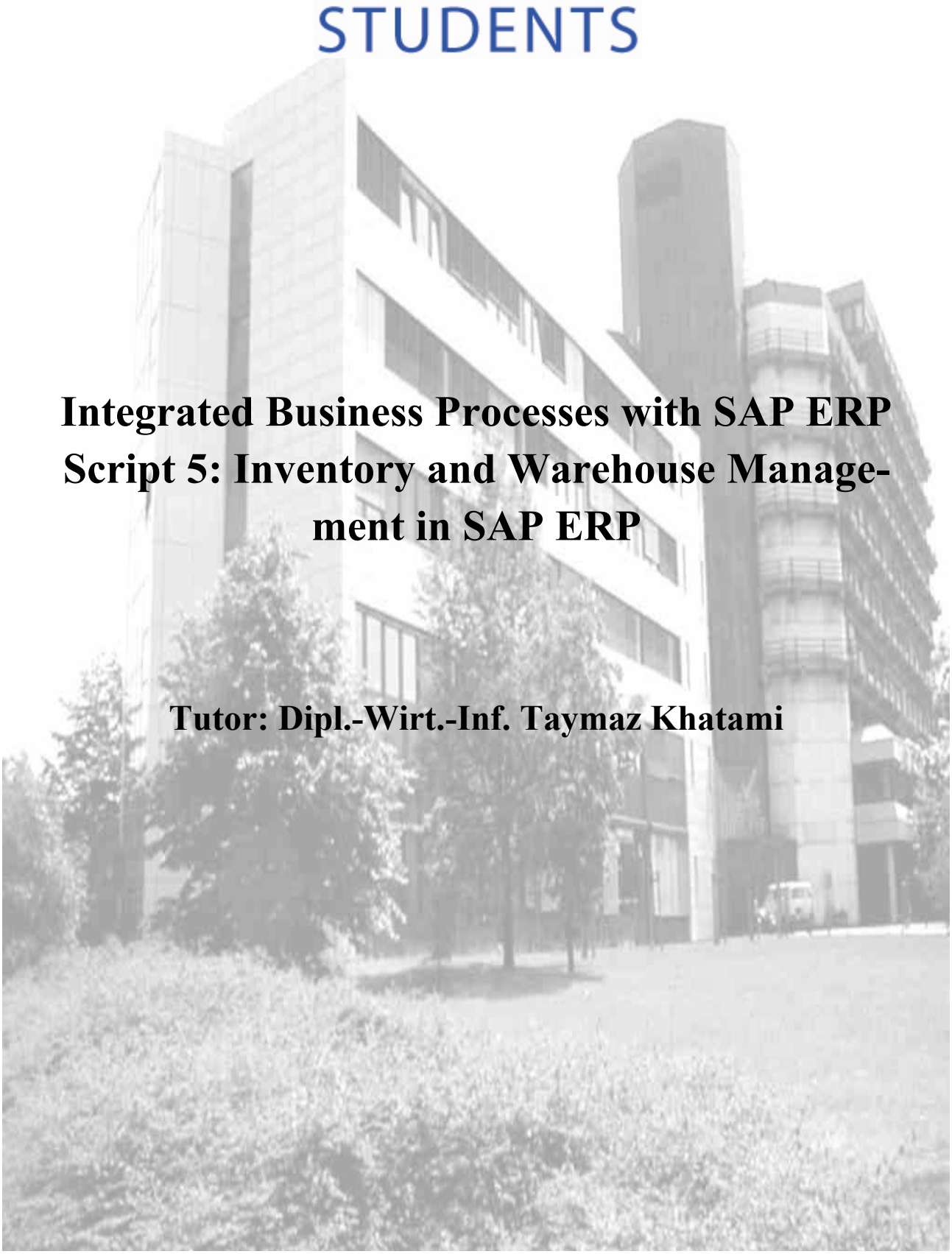
ERP4 STUDENTS



Integrated Business Processes with SAP ERP
Script 5: Inventory and Warehouse Management in SAP ERP

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1 Inventory and Warehouse Management in SAP ERP

This unit aims at giving you an understanding of inventory and warehouse management in the SAP ERP system.

Educational objectives in this unit:
At the conclusion of this unit, you will be able to:

- explain the difference between Stock Transfers and transfer postings
- explain warehouse management functions involved in the posting of goods receipt for purchase order and subsequent stock placement
- explain inventory procedures

Scenario for the case study
In the practical application of this unit, you will maintain master data and expand the master data record of one of your products by another plant. Building on that, you will relocate the product to the new plant.
Finally, you will carry out physical inventory of your product and post the inventory difference. In addition, you will get to know the cycle-counting procedure for physical inventory.
In the subsequent figure, you can see the entire process that you will carry out independently at the SAP ERP system. You will work with the logistic execution (LE) and materials management (MM) modules. Although the process step "enhance material master for new plant" is initiated by the LE module, you can call up the transaction (MM01) from all other submodules (MM, SD, PP, etc.) of the LO functional area as well. Thus, the departments can call up material-specific changes.

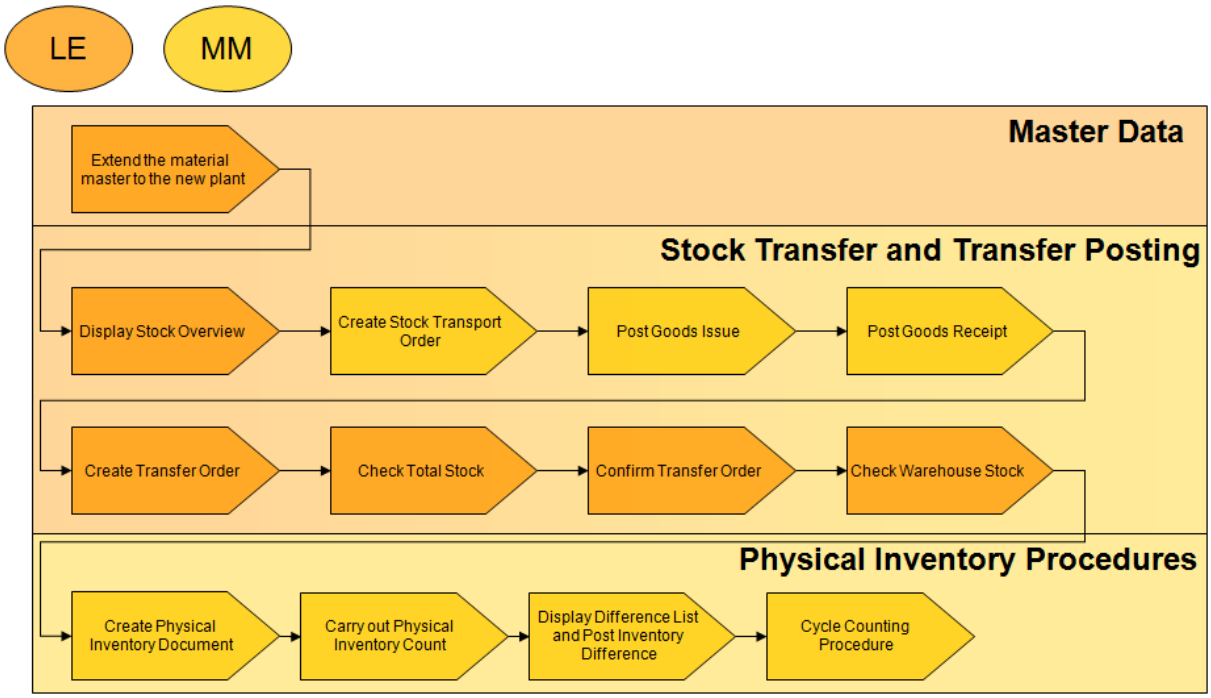
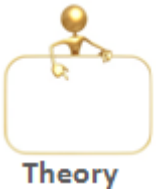


Figure 1: Process Overview: Inventory Management and Warehouse Management System

2 Inventory and Warehouse Management with SAP ERP

This section explains aspects of Inventory and Warehouse Management in SAP ERP. The section provides additional information on goods movement, Stock Transfers and transfer postings as well as Logistics Execution functionalities. Furthermore the physical inventory procedures are explained.

2.1 Theory: Inventory and Warehouse Management with SAP ERP



In this chapter, you will learn certain aspects of Inventory and Warehouse Management in SAP ERP. The focus of this chapter is the transfer of materials within a company.

2.1.1 Goods Movement

There are four different goods movement types in SAP ERP:

A **goods receipt** is a ***goods movement*** in which both the receipt of goods from an external vendor (purchase order) as well as the receipt of goods from production (production order) is posted. Goods receipts always result in an ***increase*** of ***warehouse stock***.

A **goods issue** is a ***goods movement*** in which material withdrawal, goods issue, material consumption or goods shipment is posted to a customer. Goods issues always result in a ***decrease*** of ***warehouse stock***.

A **Stock Transfer** is the **removal of materials** from a particular storage location and their placement into a different storage location. Stock Transfers are possible both within the same plant and between two plants.

A **Transfer posting** leads to a change in the ***stock ID number*** or the ***stock category*** of a material. Transfer postings do not necessarily need to be linked to an actual goods movement. Contrastingly, a Stock Transfer is always linked to the physical movement of goods.

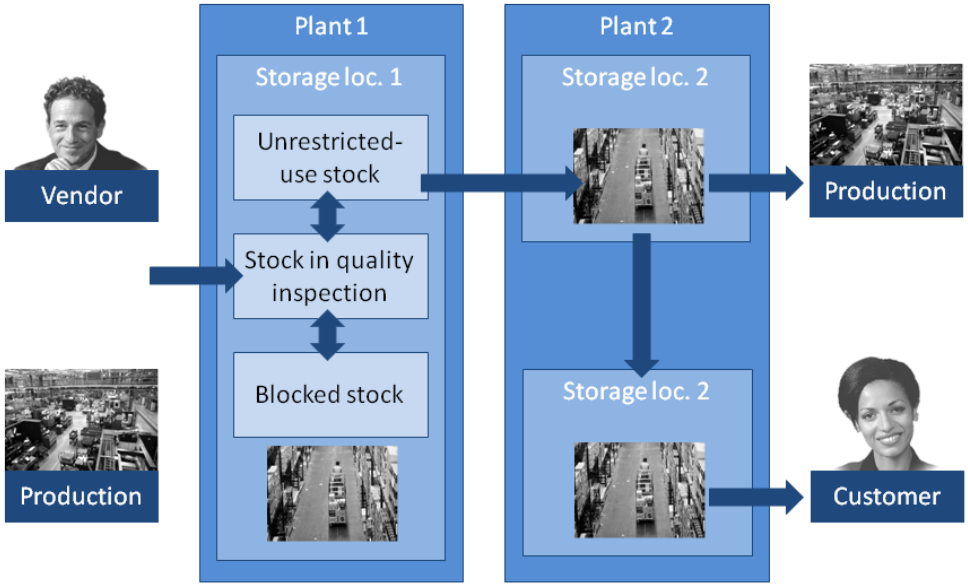


Figure 2: Goods Movement

2.1.2 Transfer Posting and Physical Stock Transfer

Transfer postings in the SAP ERP system focus predominantly on changes regarding ***stock ID*** or ***stock category*** of a material. Transfer postings do not necessarily need to be linked to an actual goods movement. Contrastingly, a **Stock Transfer** is always linked to the physical movement of goods.

Examples for transfer postings:

- stock to stock (e.g., quality inspection stock to unrestricted-use stock)
- material to material

Examples for (physical) Stock Transfers:

- storage location to storage location
- plant to plant

As you can see in the following figure, transfer postings and Stock Transfers can be carried out on different organizational levels.
We speak of a **storage-location-to-storage-location** Stock Transfer in case the Stock Transfer is carried out between two storage locations within ***one*** plant.
In SAP, we speak of a **plant-to-plant** Stock Transfer in case the Stock Transfer is carried out between two plants belonging to the **same** company code (or valuation area).
In case the plants are assigned to different company codes, we speak of **company-code-to-company-code** Stock Transfer.

A Stock Transfer posting is the physical movement of inventory. The one-step procedure consists of the goods issue and the goods receipt entered with a single posting. With the two-step procedure, the goods issue and goods receipt transactions are entered as two separate steps and thus in two separate postings.

Using the two-step procedure, you can only transfer material from unrestricted-use stock at the issuing location to unrestricted use stock at the receiving storage location. After the stock removal posting, the quantity is booked out of the issuing storage location. At the receiving storage location the quantity is already included in the stock for that location, not as unrestricted-use, but as stock in transfer. The quantity is not available for unrestricted use at plant level unit the goods are received.

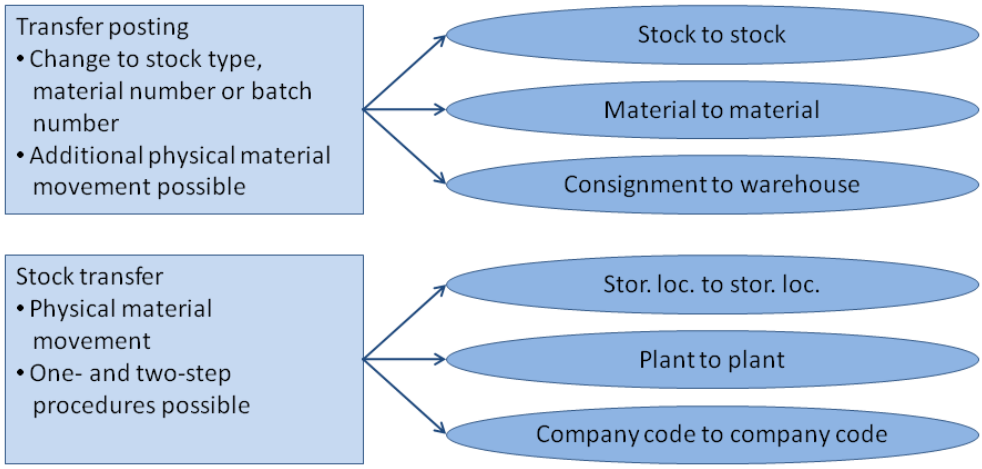


Figure 3: Transfer Posting and Physical Stock Transfer

2.1.3 One-step and Two-step Procedures for Stock Transfers

Stock Transfers and **transfer postings** contain a ***goods issue*** from the issuing point and a ***goods receipt*** at the receiving point. For all Stock Transfers and transfer postings, goods issues or goods receipts can be entered in a single posting.

There is the additional option for some **Stock Transfers** to enter ***goods issue*** and ***goods receipt*** in two separated steps. Thus, both steps are posted separately as well (2 postings). Therefore, concerning Stock Transfers storage-location-to-storage-location and plant-to-plant, we distinguish between ***one-step*** and ***two-step procedures***.

The advantage of the **one-step procedure** is that only one single transaction needs to be entered in the system.

The **two-step procedure** enables you to monitor stocks that are in the process of being transferred from one place to another. Once you have posted the goods issue from the issuing point, the stock is regarded as **in transfer** at the receiving point, and is treated as such in the system.

When users only have **authorizations** for the own plant, two-step procedure is required for Stock Transfers between plants.

At the time of physical inventory, you should not have any stocks in transfer, as those cannot be inventoried because you cannot inventory such stocks.

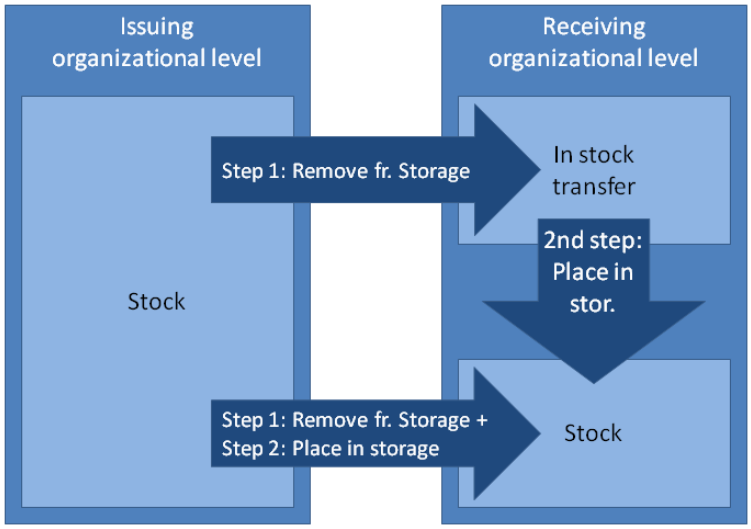


Figure 4: One-step and Two-step Procedures for Stock Transfers

3.1.1.1 Storage-Location-to-Storage-Location: One-step procedure

The **Stock Transfer storage-location-to-storage-location** takes place within the same **plant**. Thereby, you can post the Stock Transfer storage-location-to-storage-location for **all stock types** using the **one-step procedure**. The one-step procedure issues a material document, containing two material document items for each entered item:

- one item for the **material removal (goods issue)** from the issuing storage location
- one item for the **material placement (goods receipt)** at the receiving storage location

For this type of Stock Transfer **no accounting document** is created because the transferred material remains in the same plant and thus, with the same company code (the same accounting data posting data). The accounting data for this material does not change.

*For a **storage-location-to-storage-location** Stock Transfer, an accounting document is only created if the material is split-valuated and the valuation type changes in the course of the transfer.*
The three-digit numbers in this and the following figures refer to the movement type used.

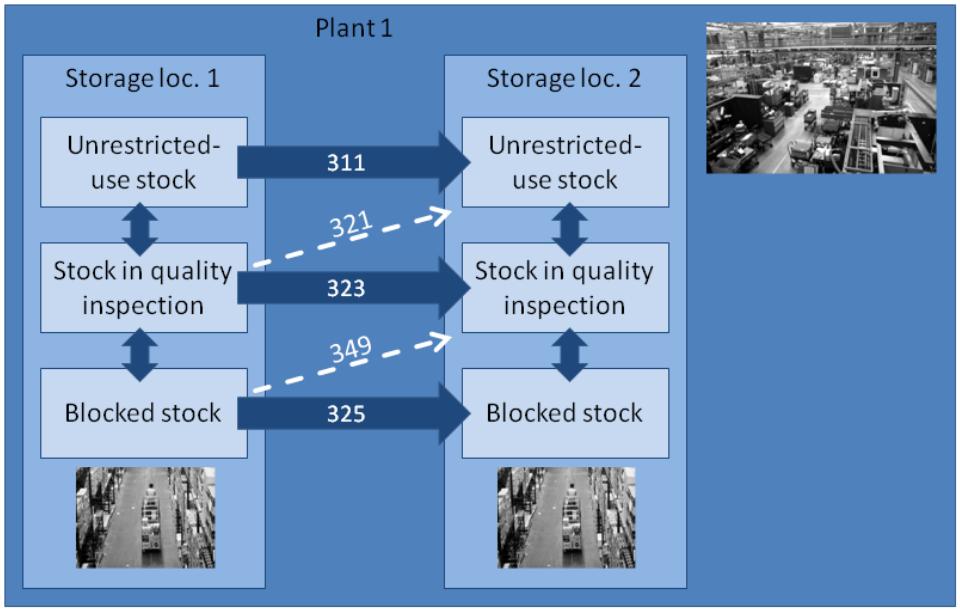


Figure 5: Storage-Location-to-Storage-Location: One-Step Procedure

3.1.1.2 Storage-Location-to-Storage-Location: Two-step Procedure

With the **two-step procedure,** you can only transfer materials from **unrestricted-use stock** of the issuing storage location to the unrestricted-use stock of the receiving storage location. Once the stock removal posting is completed, the quantity is booked out of the issuing storage location. The quantity is already displayed at the stock of the receiving storage location. However, this stock is not included in the unrestricted-use stock at the new storage location; it is considered as **stock in transfer**. Thus, the quantity is not yet available for unrestricted use at plant level. At the time of goods receipt at the receiving storage location, the quantity is posted from stock in transfer to unrestricted-use stock.

Since for the storage-location-to-storage-location transfer using the two-step procedure, goods receipt and goods issue are carried out in two separate steps, two separate material documents are created:

- one for the goods issue (referred to as **removal from storage**)
- one for the goods receipt (referred to as **putaway** or placement in storage)

Valuation in terms of accounting, e.g., reevaluation of the respective material stocks, is not carried out when using the two-step procedure for storage-location-to-storage-location transfer since the company code does not change.

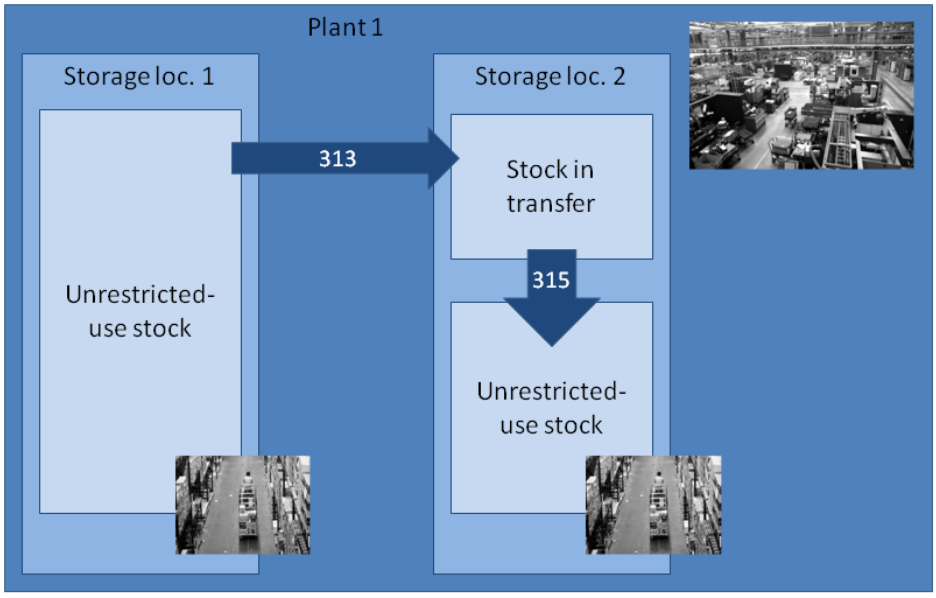


Figure 6: Storage-Location-to-Storage-Location: Two-step Procedure

3.1.1.3 Plant-to-Plant Stock Transfer (Cross-Plant Stock Transfer)

When transferring stock plant-to-plant, the plant between which materials are transferred can be assigned to the same or to different company codes. **Cross-plant transfers** can, as a general rule, be posted only out of **unrestricted-use stock**.

In contrast to the storage-location-to-storage-location transfer, the **cross-plant transfer** affects **financial accounting** and **Material Requirements Planning**.

Effects on **financial accounting** occur in case the plants involved are assigned to different valuation areas:

- A value update is carried out for the stock accounts in case of a cross-plant transfer. Since cross-plant transfers (cross-company code and within the same company code) affect financial accounting (materials are valuated using a different stock account), the SAP system issues an accounting document in addition to the material document. The Stock Transfer is valuated according to the valuation price for the material in the issuing plant.
- In case of cross-company code Stock Transfer, an accounting document is created for each company code at the time of posting. Thus, two accounting documents are created.
- The offsetting entry to the stock posting is carried out to a company-code clearing account.
- Consider that in case the Stock Transfer is entered in two different steps, the valuation is always carried out in the first step.

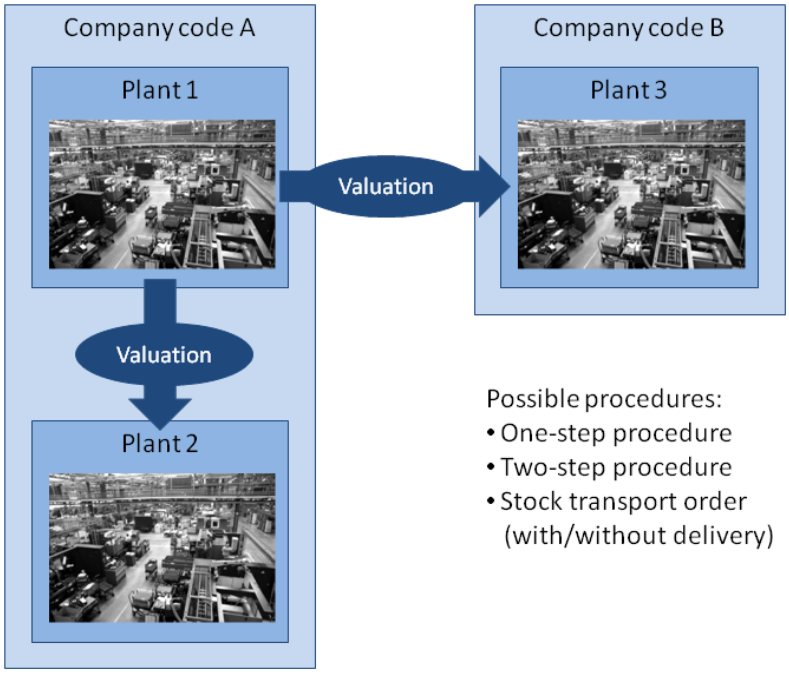


Figure 7: Cross-Plant Stock Transfer

Plant-to-Plant: One-step and Two-step Procedure

In case of a ***plant-to-plant*** Stock Transfer using the **one-step procedure**, goods issue and goods receipts are booked in one single step with one movement type (301) and, thus, only one material document is created.

In case of a Stock Transfer using the **two-step procedure**, the material is taken out of the first plant with the first movement type (303). After this first movement, the stock is in transit on the stock overview to the second plant. The movement into the receiving (second) plant's un-restricted-use stock is carried out with the second movement type (305). Hence, two material documents are created.

Consider that you need to enter not only the material and the issuing organizational levels, but also the receiving plant at the time of removing the material from storage. This additional information is required since valuation of the Stock Transferred is carried out at the time of goods issue and the material is posted to stock in transfer of the receiving plant.

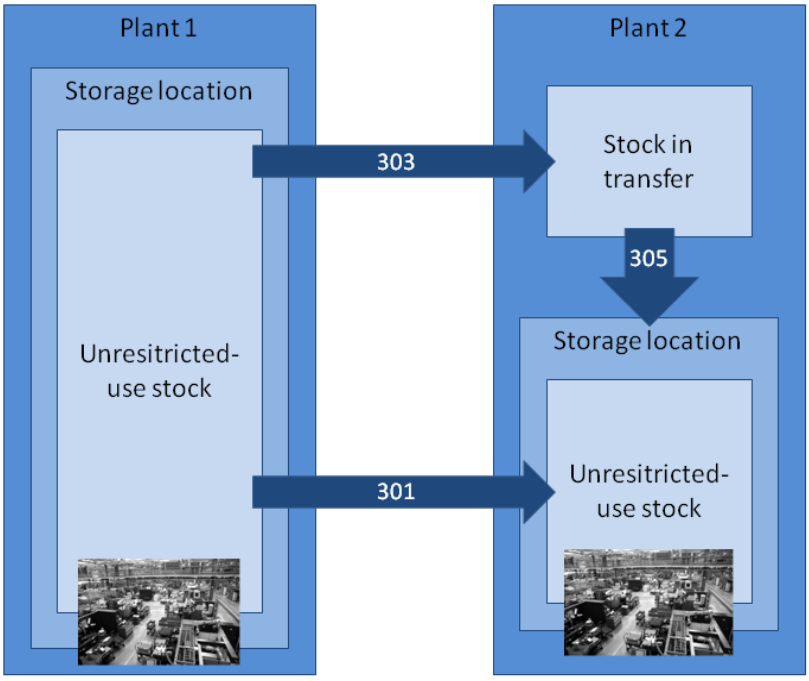


Figure 8: Plant-to-Plant: One-step and Two-step Procedure

2.1.4 Stock Transport Order

A Stock Transfer can be carried out either with or without a **Stock Transport Order**. Stock Transfer using a Stock Transport Order features the following advantages in contrast to a Stock Transfer without a Stock Transport Order:

- The Stock Transfer order is integrated with the MRP application. Thus, purchase requisitions created by MRP can be converted into Stock Transport Orders.
- You can plan goods receipts at the receiving plant.
- Along with delivery costs, you can also enter a carrier/forwarder in a Stock Transport Order.
- Goods receipts can be posted directly to consumption.
- When posting a goods receipt into the warehouse, you can also post the material to stock, in quality inspection or to blocked stock.
- The complete process of goods issue and goods receipt can be monitored by using the purchase order history.

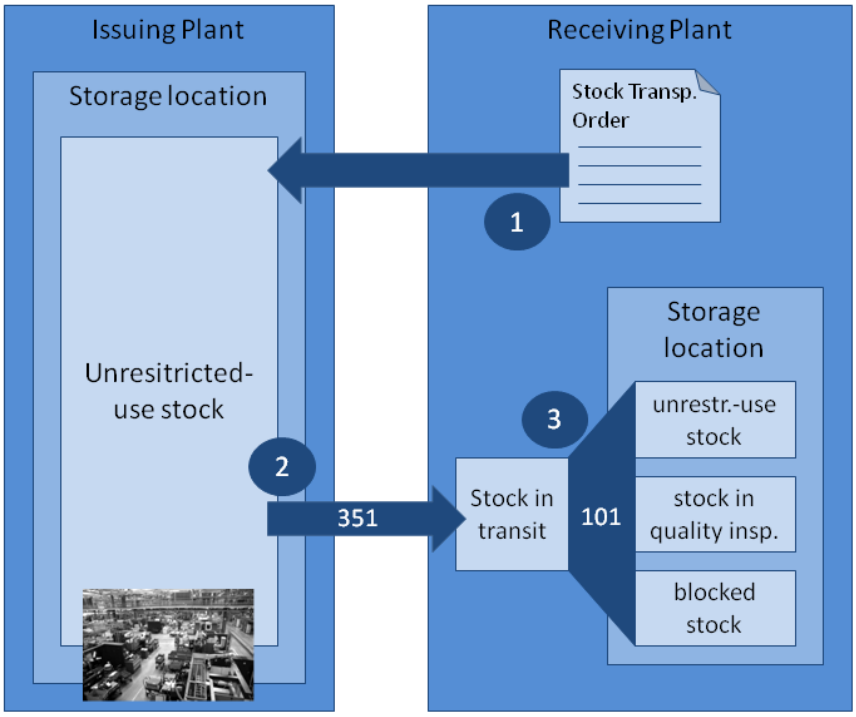


Figure 9: Stock Transport Order

2.1.5 Logistics Execution: Warehouse Management

Logistics execution is the linking element between **procurement** and **distribution**, regardless of whether internal processes or third parties (e.g., vendors, customers, service providers) are involved.

2.1.5.1 Logistics Execution: Process Overview

Logistics execution features two basic forms of **process display** for goods issues and goods receipts (each with reference to a preceding document):

- either, you can initiate the process by creating a delivery or
- by an inventory management posting

If **vendors** need to be included in the goods receipts/goods issues process, you must complete the warehouse management activities (creating and confirming a transfer order) **before** the inventory management posting. This always refers to the delivery.
Note that the transfer order is the document with which all material movements in the warehouse are executed.

The **inventory management posting** can be the first process step as well. The inventory management posting creates a transfer requirement. The transfer requirement is the planning and posting basis of warehouse management activities. Putaway or stock removal with transfer order completes the process.

In many cases, the **cause** of putaway or stock removal determines the form of the process display. In case you have a goods receipt from production, only the goods receipt posting for the

production order with the linked putaway is available. For ***sales order processing***, stock removals are generally linked with the outbound delivery.

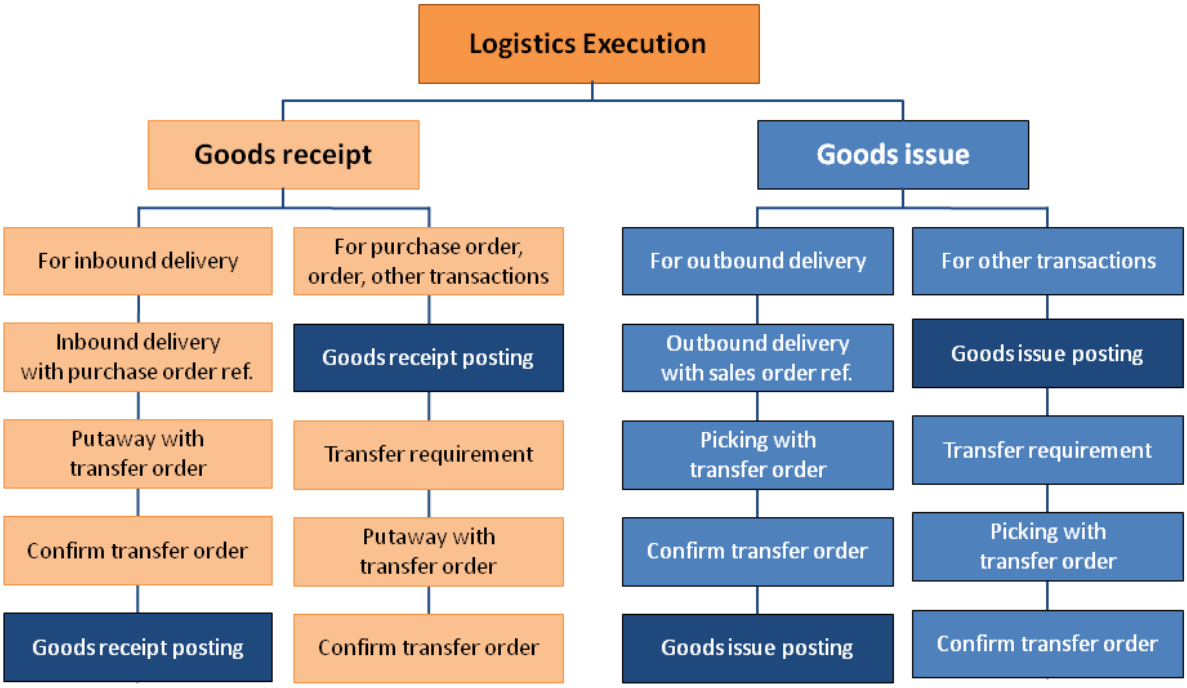


Figure 1: Logistics execution: Process overview

2.1.5.2 Logistics Execution: Organizational Levels

The organizational levels displayed in the following figure are specifically for logistics execution. They are defined in customizing and linked to other organizational levels, some of which are superior to them.

In *Warehouse Management* (WM), a complete physical warehouse is defined under a single warehouse number. Using the warehouse number, you can manage several individual warehouse buildings that, together, form a complete warehouse complex. A warehouse number is always linked with at least one combination of plant and storage location.

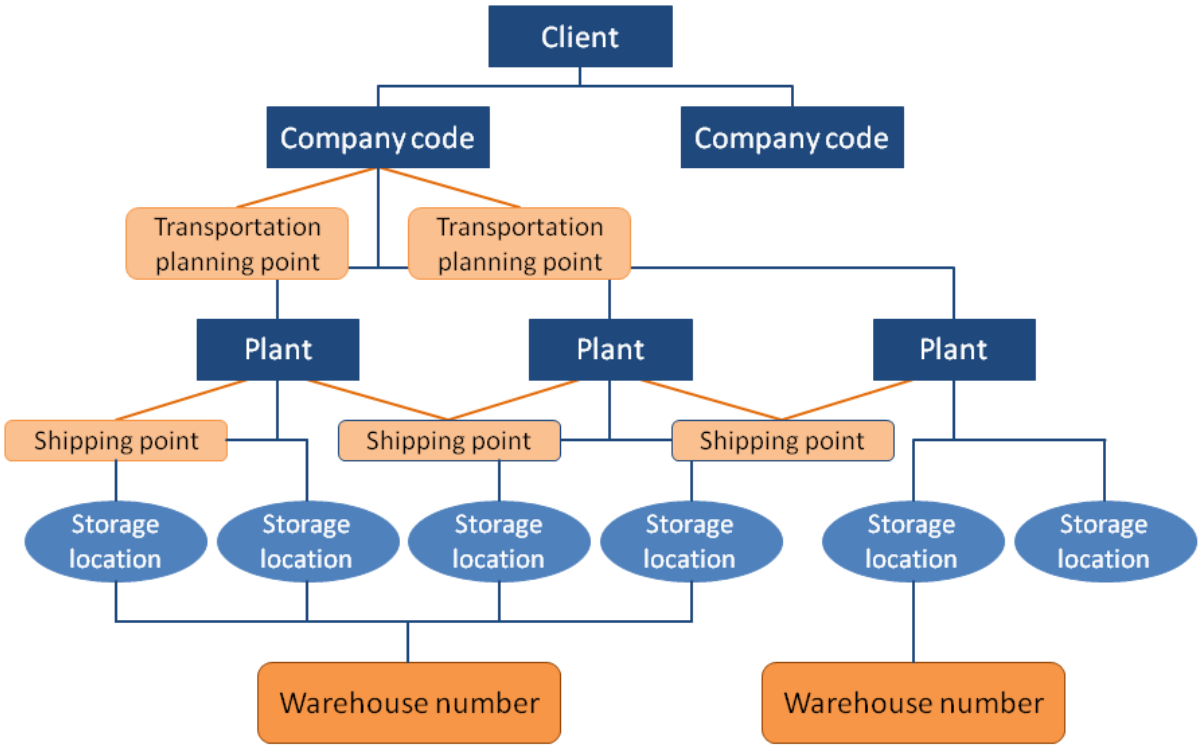


Figure 10: Connecting Warehouse Management to Inventory Management

A **warehouse number** is always linked with a combination of at least one ***plant*** and ***storage location***. This constitutes the link between *warehouse management* and *inventory management*. The storage location is then the organizational level for *quantitative inventory management*.
The **assignment of a warehouse number** to a **plant-storage-location-combination** allows for using *warehouse management functions*. You do not necessarily need to assign all storage locations that have been created with inventory management in one plant to one warehouse number.
You can assign several **plant-storage-location-combinations** to **one warehouse number**. However, the simultaneous assignment of a **plant-storage-location-combination** to multiple **warehouse numbers** is **not** possible.

The **transport planning point** is usually assigned to a **company code**. The direct link between transport planning point and organizational unit on the level at which the balance, profit and loss calculations are carried out (company code level) is required due to shipment cost calculation and settlement. A transport planning point can only be linked with **one** company code.

Shipment points are assigned to multiple **plants**. If corresponding with the spatial conditions, a shipment point can be assigned to several plants at the same time. A plant can contain multiple shipment points.

Substructure of a Warehouse Number
The warehouse structure in Warehouse Management is hierarchical. You can define an entire physical warehouse complex, in WM, by using a single warehouse number. Each of the ware-

house facilities or areas that make up the warehouse complex can be defined as a type of storage area or "storage type" on the basis of its spatial, technical, and organizational characteristics. Each storage type is divided into storage sections. A storage section generally includes all bins that have certain characteristics in common, such as bins for "fast-moving items" near a goods issue area. Each storage type and storage section consists of a row of storage spaces that are referred to in WMS as storage bins. The coordinates of the bins indicate the exact position in the warehouse where goods can be stored.

A warehouse number can be subdivided as follows:
The **interim storage areas** play a special role in warehouse management. These storage types are the ***link to Inventory Management***. Typical examples of these interim storage areas are goods receipts and goods issue areas. All goods movements concerning both inventory management and warehouse management are handled using an interim storage area.

Storage areas within ***storage types*** are created for the additional separation of ***storage space***. There are different criteria for the selection of storage spaces. Thereby, the material to be stored often plays a decisive role. For example, fast-moving items are supposed to be placed in storage space that is accessible easily or perishable goods must be kept refrigerated.

The **picking area** is on the same hierarchical level as the storage section, which can be used to separate the storage type for technical stock removals. In contrast to the stock section, the picking area is optional.

Storage bins are ***master data***, which you create within a storage section.

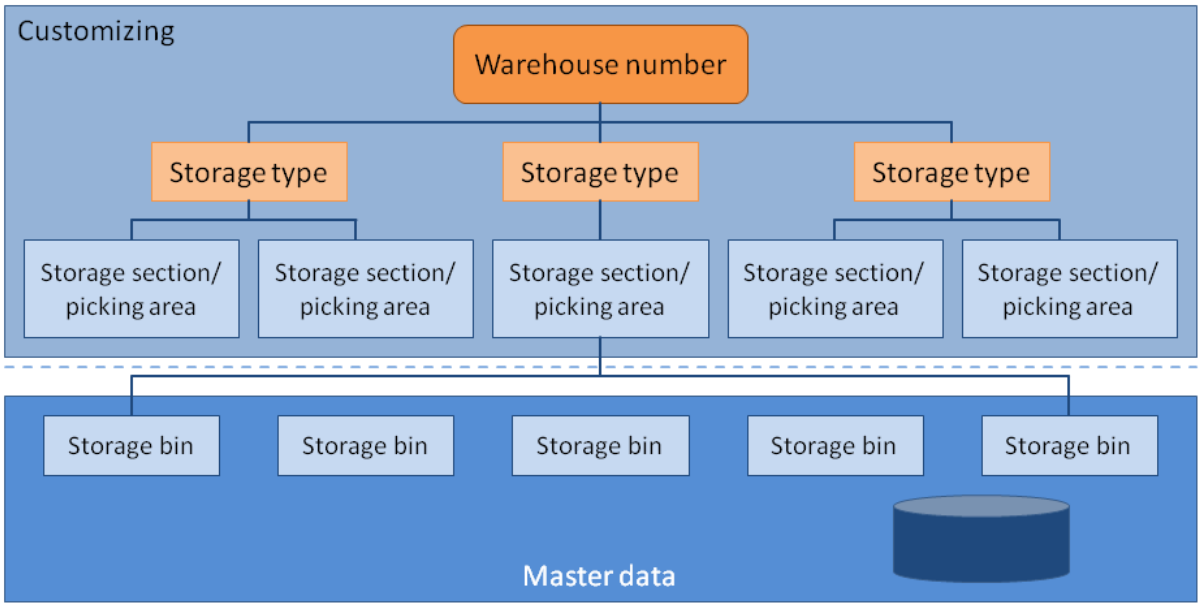


Figure 11: Substructure of a Warehouse Number

2.1.5.3 Process of Goods Receipt with Transfer Order

At the time of the goods receipt posting, the SAP ERP system checks for each PO item whether the **combination of plant and storage location** stated in the goods receipt posting is

subject to warehouse management (i.e., whether a warehouse number was assigned to this combination in customizing). If so, an additional tab for warehouse management (WM) is displayed at item level.

When a goods receipt posting is carried out to a storage location that is subject to warehouse management, the SAP system determines the **assigned warehouse number** and creates a ***transfer requirement*** in addition to the material and accounting documents. This document is the basis for the subsequent putaway (placement in storage).
Note that the transfer order required to put away the materials is created with reference to this transfer requirement.

When a goods receipt is posted to a storage location (which is subject to warehouse management) in addition to the transfer requirement, the system posts the received material quantity into the ***goods receiving zone for external receipts***, which is an ***interim storage area*** in the receiving warehouse number. This material quantity is listed as a **quant** in the interim storage area.
The goods movement from the quantity posted to the **goods receiving area** to the **interior of the warehouse** is carried out using a **transfer order**. The transfer order can be considered as handling instruction for warehouse employees. The transfer order features a reference to the transfer requirement and takes key information from there as well. The employee reports the completion of this operation by confirming the transfer order.
In the **putaway process,** you first determine a ***destination storage type*** and then the ***storage section*** (in case one is foreseen for this storage type). The last step is always determining a ***storage bin***.

After creating the transfer order, the ***stock in the goods receiving area*** is no longer available, since it is in the movement process. Correspondingly, in the warehouse management stock overview, the material that is moved is displayed both in the *stock to be removed* from storage at the *goods receiving area* and *stock to be placed in storage* at the *receiving storage type*. Thus, you can see at a glance that the putaway process is not yet completed entirely.

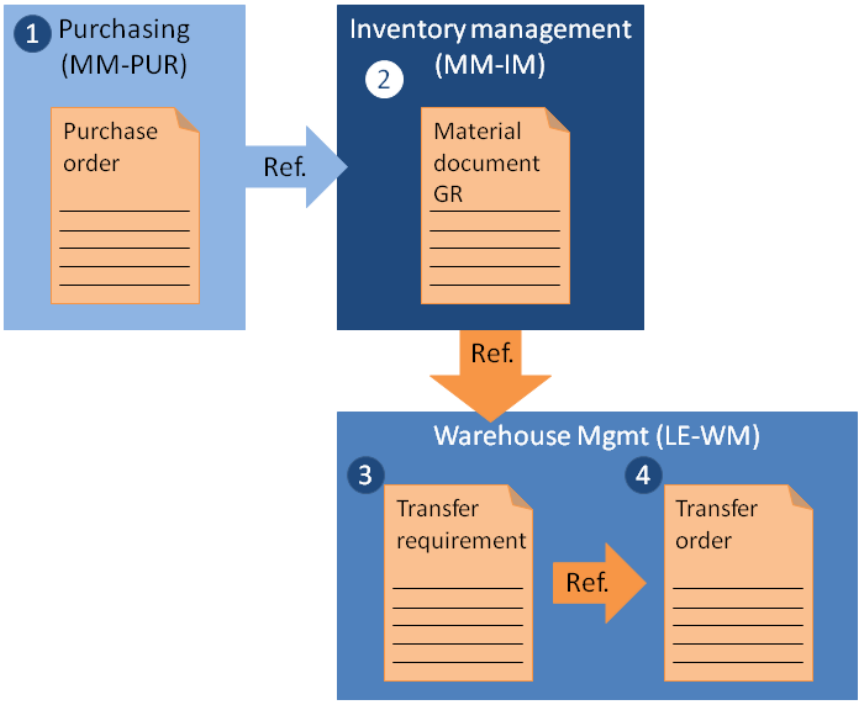


Figure 12: Process of Goods Receipt with Transfer Order

2.1.5.4 Process of Goods Issue with Outbound Delivery

When processing an **outbound delivery** as subsequent document to a sales order, the outbound delivery adopts key data from the sales order, including the scheduled dates for follow-on processes.

Depending on the Customizing settings for the sales document type, the shipping process is scheduled when the sales order is created. Time limits are calculated for certain steps in the process (e.g., loading of the goods). This calculation is carried out for each document item.

In addition, a **picking storage location** is determined for each document item in the outbound delivery. If the system discovers that this storage location has been assigned to a warehouse number in Customizing, it displays this warehouse number in the outbound delivery. In addition, the system assigns an overall picking status and a stock removal status. The user can tell immediately whether the subsequent removal from storage must be performed using a transfer order.

The removal from storage is carried out using a **transfer order**, which is created with reference to the outbound delivery. There is no transfer requirement when creating a transfer order for a delivery.

The completion of the picking process is reported to the system through the confirmation of the transfer order. It is now possible to post the goods issue for the outbound delivery in Inventory Management.

In addition to the manual creation of an individual transfer order for an individual outbound delivery, there are various options for collective processing (e.g., using the outbound delivery

monitor).

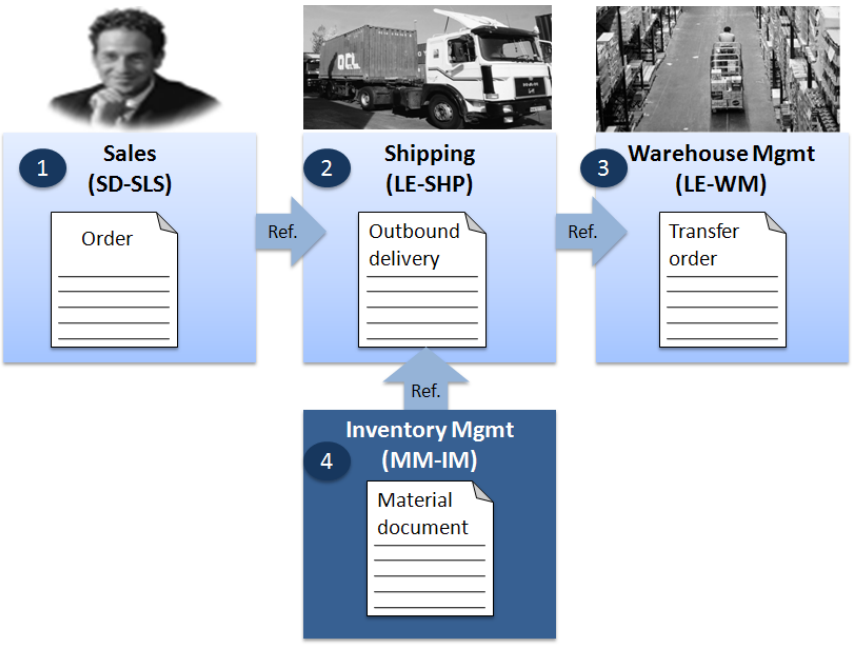


Figure 13: Goods Issue Process with Outbound Delivery

2.2 Practice: Warehouse Management in SAP ERP system

In your company, maintaining material master data is decentralized, i.e., the departments create their data for a material independently. Due to the expected success of the Speedstar, the management decided to store the Speedstar in the Dresden plant (1200) as well to ensure a better supply of the East Germany market. Therefore, the Speedstar is supposed to be extended to the organizational units in Dresden.

Figure 14: Process Overview: Maintaining Master Data

2.2.1 Extend the Material Master to the New Plant

Create the new material master views for the Speedstar by extending the available master record to the plant in Berlin. Therefore, call up the following transaction

Logistics → Logistics Execution → Master Data → Material → Material → Create → Immediately (MM01)

1. Enter material ***Speedstar-xxyy*** and industry sector ***mechanical engineering***. Enter material type ***finished product***. Enter the ***Speedstar-xxyy*** in the field **Copy from…Material** as well and confirm with *Enter*.
2. Select the following views:
   a. **General plant data/storage 1**
   b. **General plant data/storage 2**
   c. **Warehouse management 1**
   d. **Warehouse management 2**
   e. **Accounting 1**
3. In the organizational level section, enter:
   a. **plant** ***1200***
   b. **storage location** ***0140***
   c. **warehouse number** ***140***
   d. **storage type** ***002***
4. In the template section (copy from), enter:
   a. **plant** ***1000***
   b. **storage location** ***0001***
   c. **warehouse number** ***001***
   d. Choose ***Enter.***

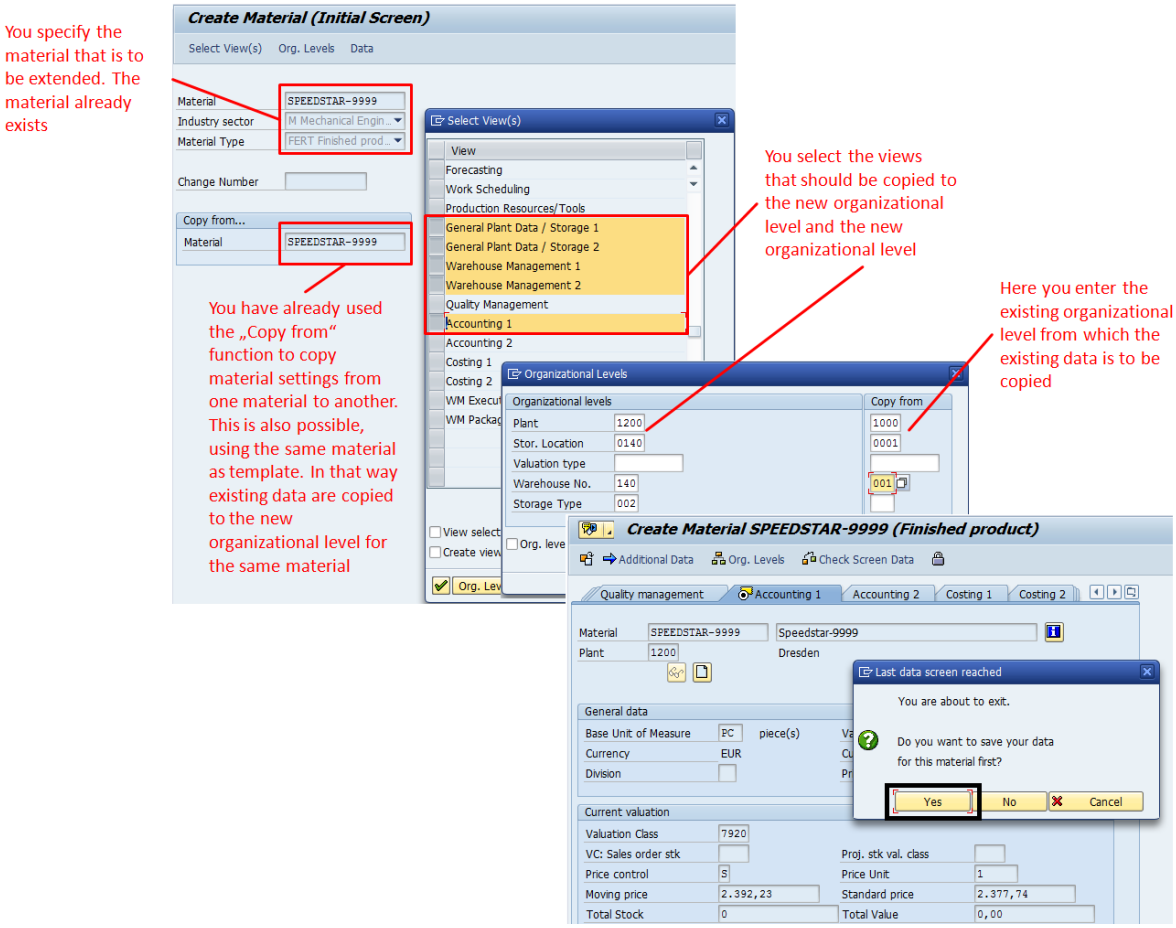


Figure 15: Extend Material Master to new Organizational Level: SAP-System-Screenshot

Please pay attention to the notification in the status bar "*Material exists and is being extended*". Press *Enter* to proceed to the next screen.

5. Skip all selected views by pressing ***Enter(!)*** without entering any data. In doing that, the material master record is "copied" from plant 1000 to the new plant, i.e., the material master record is extended to the new organizational units.
6. ***Save*** your entries when prompted (After pressing Enter in view Accounting 1).

2.2.2 Stock Transfer and Transfer Posting

Now that the material master for the Speedstar was extended to **plant 1200** and **warehouse 0140**, colleagues from Dresden request several racing bicycles that must be transferred from **plant 1000, storage location 0001**. The **plant 1200** (Dresden) uses a ***Stock Transport Order*** to request the goods. Plant 1000 (Hamburg) is in charge of goods issue from its stock. Plant 1200 receives the goods and places them into their warehouse by using the warehouse management system.

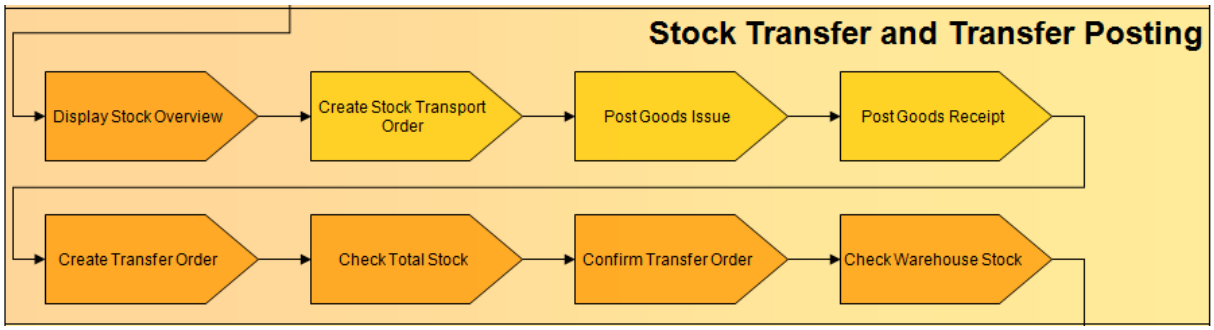


Figure 16: Process Overview: Stock Transfer and Transfer Posting

2.2.2.1 Display Stock Overview

Display the stock overview in **Inventory Management** to view the current stock situation. To display the stock overview, call up the following transaction:

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Inventory Management) (MMBE)

1. Enter material ***Speedstar-xxyy*** and the range from plant ***1000*** to plant ***1200***. Choose execute.
2. You can see that plant 1000 (Hamburg) has got an unrestricted-use stock of 1371 units (alternatively, the number you produced in the previous teaching unit), while no Speedstar is stored in Dresden.

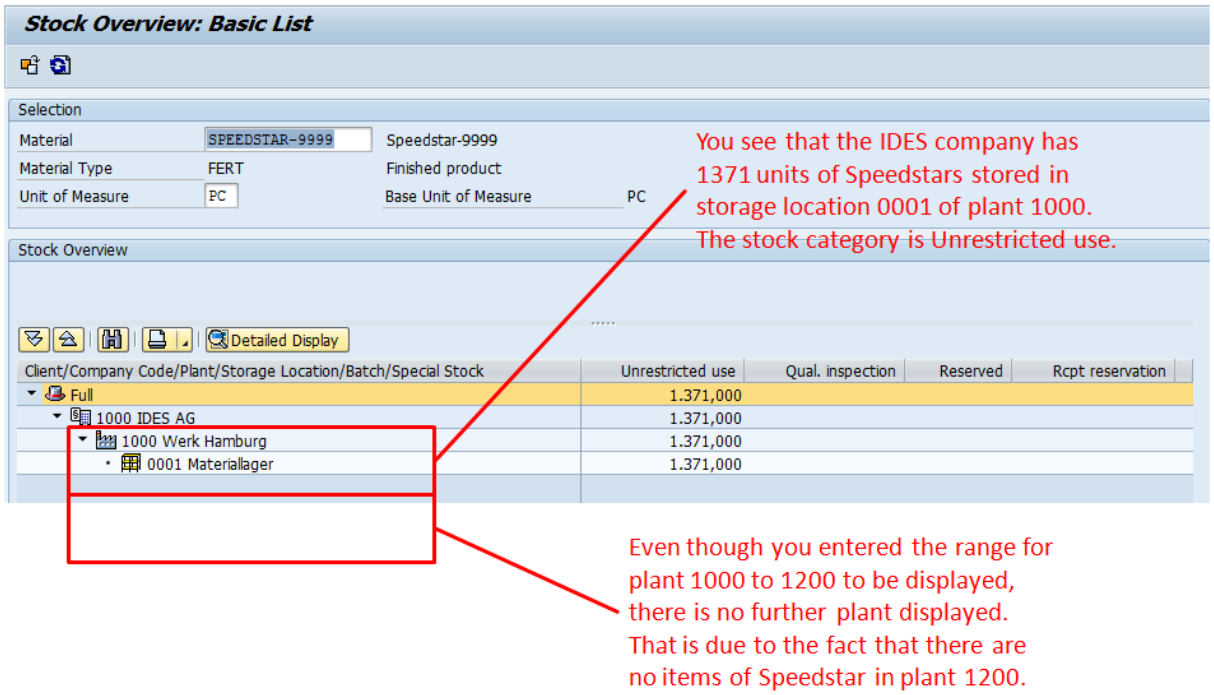


Figure 17: Current Storage Situation in Inventory Management: SAP-System-Screenshot

3. Leave the transaction.

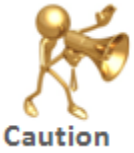
2.2.2.2 Create Stock Transport Order

You will transfer 1000 units from the unrestricted-use stock in Hamburg to Dresden. Therefore, you create a **Stock Transport Order** in plant 1200 (Dresden). As you have learned from the theory, one benefit of using Stock Transport Orders is that "*You can plan goods receipt at the receiving plant*". Without the Stock Transport Order, a goods issue must have been created in Hamburg and the colleagues in Dresden would have no chance to initiate this process.

To create a Stock Transport Order in Dresden choose

Logistics → Materials Management → Purchasing → Purchase Order → Create → Vendor/Supplying Plant Known (ME21N)

1. Select order type **GST GTS Stock Tr Ord** from the left upper drop-down field.



*It is very important that you select the order type **GST GTS Stock Tr Ord**. Note that there are order types that have the same name but a different technical key. The key must be **GST**!*

2. Enter the subsequent header data:
   a. **Supplying plant** ***1000***
   b. **Purch. Org.** ***1000***
   c. **Purchasing group** ***000***
   d. **Company code** ***1000***
3. Expand the position detail and enter the following position data:
   a. **Material** ***Speedstar-xxyy***
   b. **PO quantity** ***1000***
   c. **Plant (Plnt)** ***1200 (Dresden)***
   d. **Storage location (SLoc)** ***0140 (LE Dresden)***

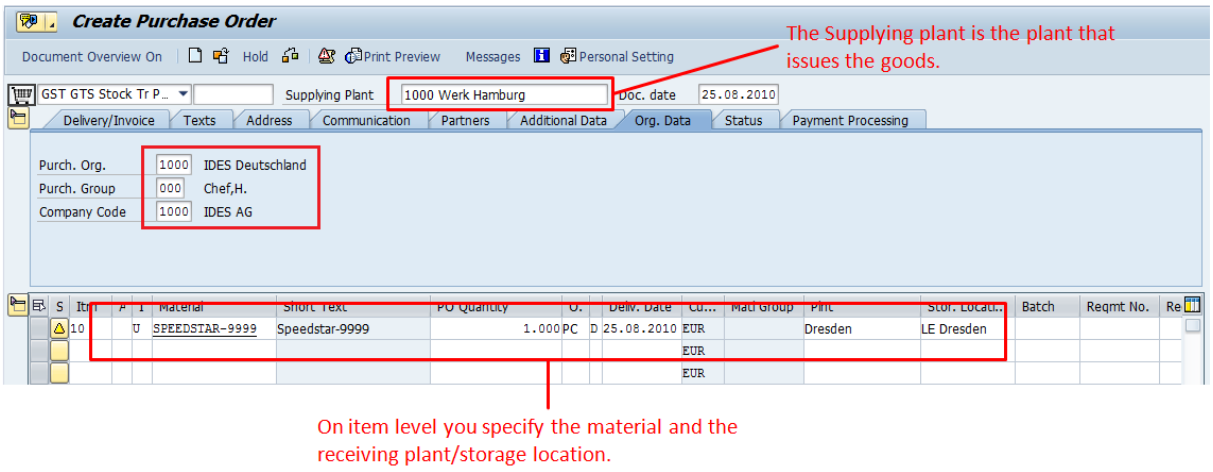


Figure 18: Create Stock Transfer: SAP-System-Screenshot

4. Press *Enter* and after that press *save*. Skip possible notifications by saving again.

5. List the number of the Stock Transport Order on your data sheet and leave the transaction.

Stock Transport order: _____

Display Stock Overview again

Again, display the stock overview in **Inventory Management** to view the stock situation after posting the Stock Transport Order. Call up the following transaction:

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Inventory Management) (MMBE)

1. Enter material ***Speedstar-xxyy*** and the range from plant ***1000*** to plant ***1200***. Choose execute.
2. You can see that plant 1000 (Hamburg) has still an unrestricted-use stock of 1371 units (alternatively, the number you produced in the previous teaching unit), while 1000 units of Speedstar are displayed in stock category On-order stock for Dresden.

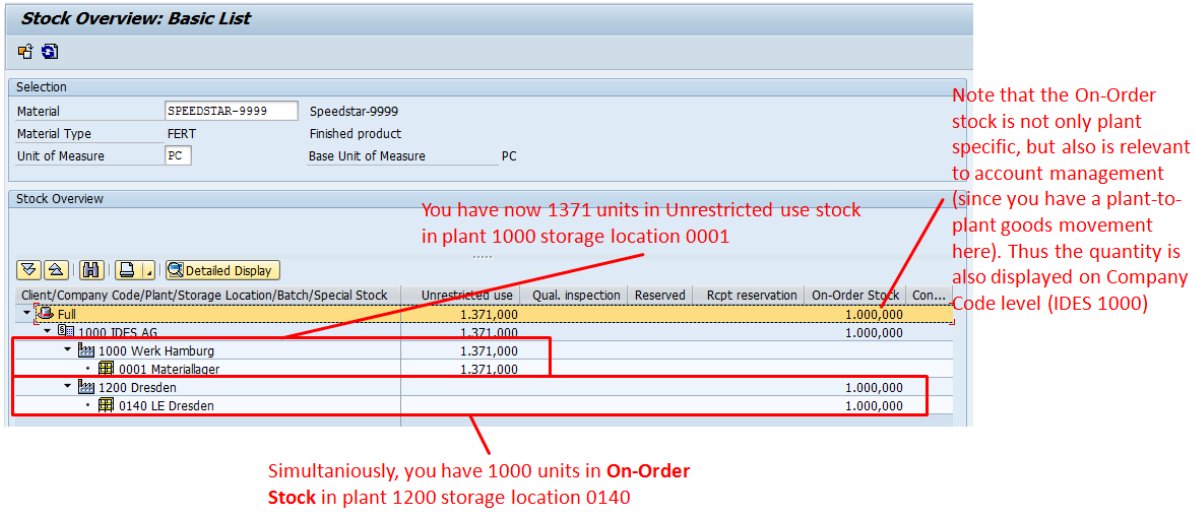


Figure 19: Storage Situation after Stock Transport Order: SAP-System-Screenshot

3. Leave the transaction.

2.2.2.3 Post Goods Issue

Now, post a **goods issue** of 1000 units of the material ***Speedstar-xxyy*** from plant ***1000***, storage location ***0001*** to transfer the material from Hamburg to Dresden. You use your Stock Transfer Order created in Dresden as reference. Therefore, choose

Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → For Purchase Order → PO Number Known (MIGO)

1. Select ***A7 Goods Issue*** from the left drop-down menu and then the ***R01 Purchase Order*** reference (right drop-down filed).

2. Enter the number of your ***Stock Transport Order*** and delete **plant field!** The **movement type** should be **351.**
3. Choose *Enter*.
4. Select the ***Where*** tab from the item detail and enter storage location ***0001***.
5. Check the ***item ok flag***.

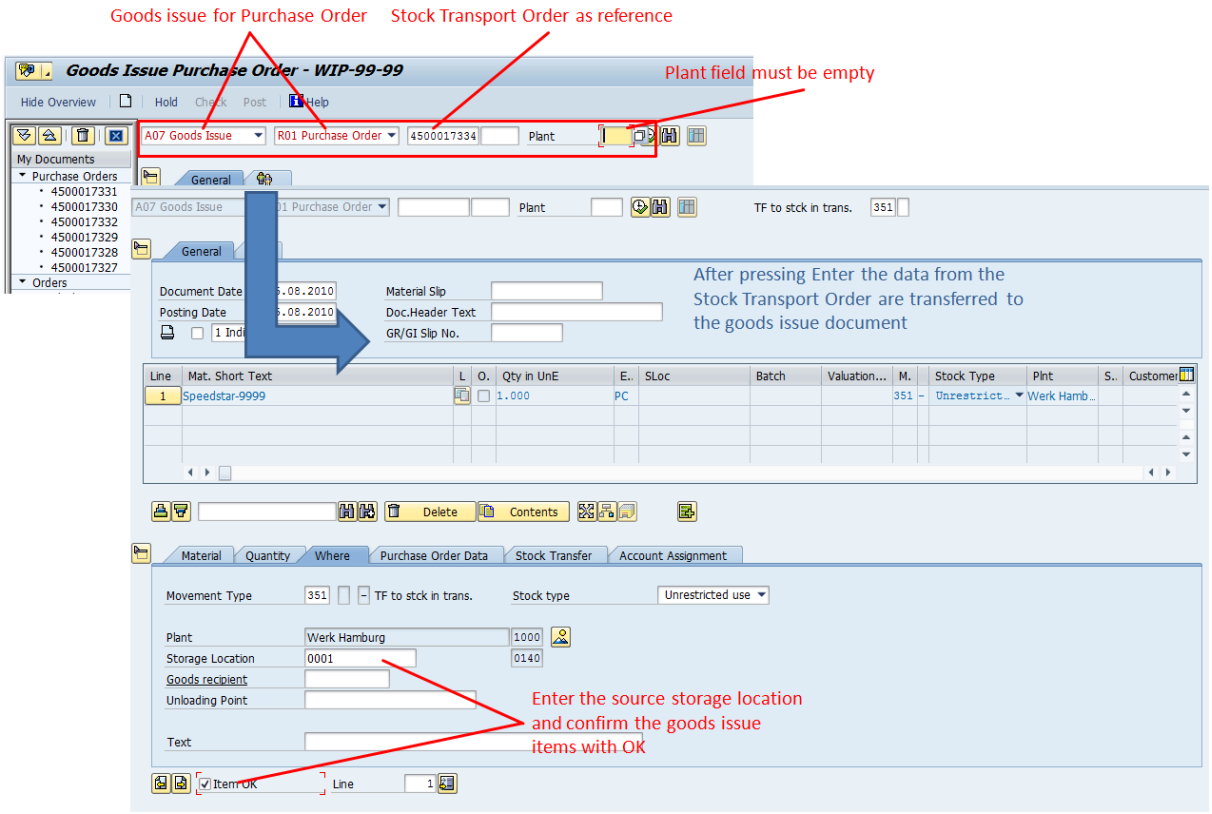


Figure 20: Post Goods Issue: SAP-System-Screenshot

6. *Save* the document.
7. You witness that a material document is created. Remember from the theory: when posting a goods issue, a material document is always created. List the material document number.

Material document number 1: _____

Display Stock Overview once again and take a look at the Material Document

Once again, display the stock overview in **Inventory Management** to view the stock situation after posting the Stock Transport Order. Call up the following transaction:

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Inventory Management) (MMBE)

1. Enter material ***Speedstar-xxyy*** and the range from plant ***1000*** to plant ***1200***. Choose execute.

2. You can see that plant 1000 (Hamburg) has now an unrestricted-use stock of 371 units (alternatively, the number you produced in the previous teaching unit - 1000), since the goods issue post is the final step of the material leaving plant 1000. 1000 units of Speedstar are still displayed in stock category On-order stock for Dresden, since you have not yet posted any goods receipt in Dresden.

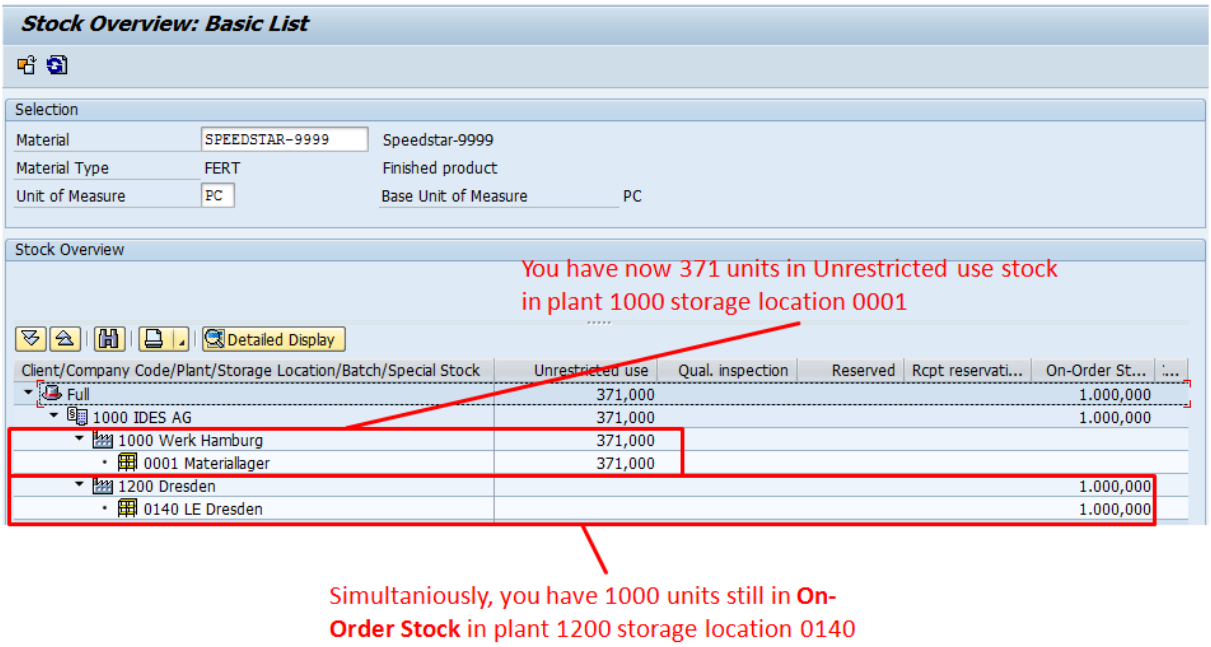


Figure 21: Storage Situation after Goods Issue Post: SAP-System-Screenshot

3. Leave the transaction and display the material document that was generated with the goods issue. Therefore, select

   Logistics → Material Management → Inventory Management → Material Document → Display (MB03)

4. Enter the ***number*** of your **Material Document** and the **current year**.
5. Press *Enter*.
6. You can see the material document of the **goods issue**.

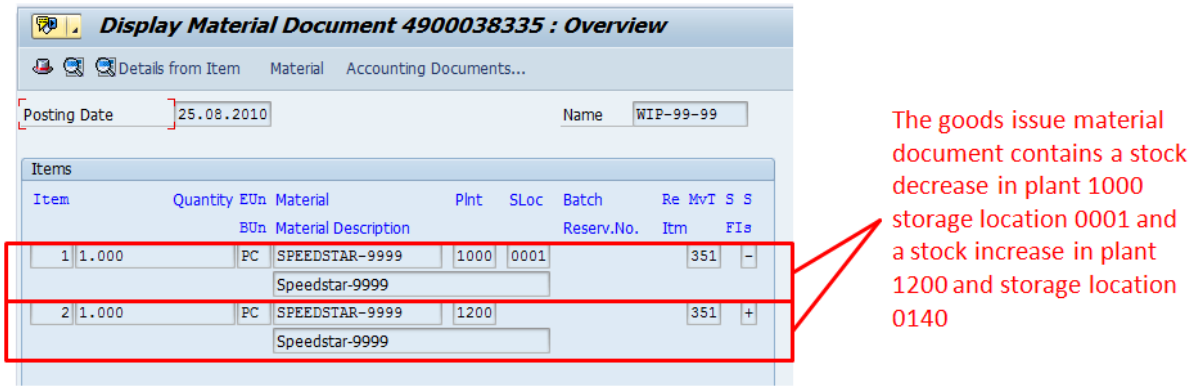


Figure 22: Goods Issue Material Document: SAP-System-Screenshot

7. In a plant-to-plant goods movement one accounting document is always created. Therefore, call transaction MB03 and enter your material document number from the inventory difference post (material document 1).
8. You can see the material document for the goods issue from Hamburg. Press the Accounting Documents... button and double-click on **Accounting document**. You can see the corresponding value-based posting in Account Management.

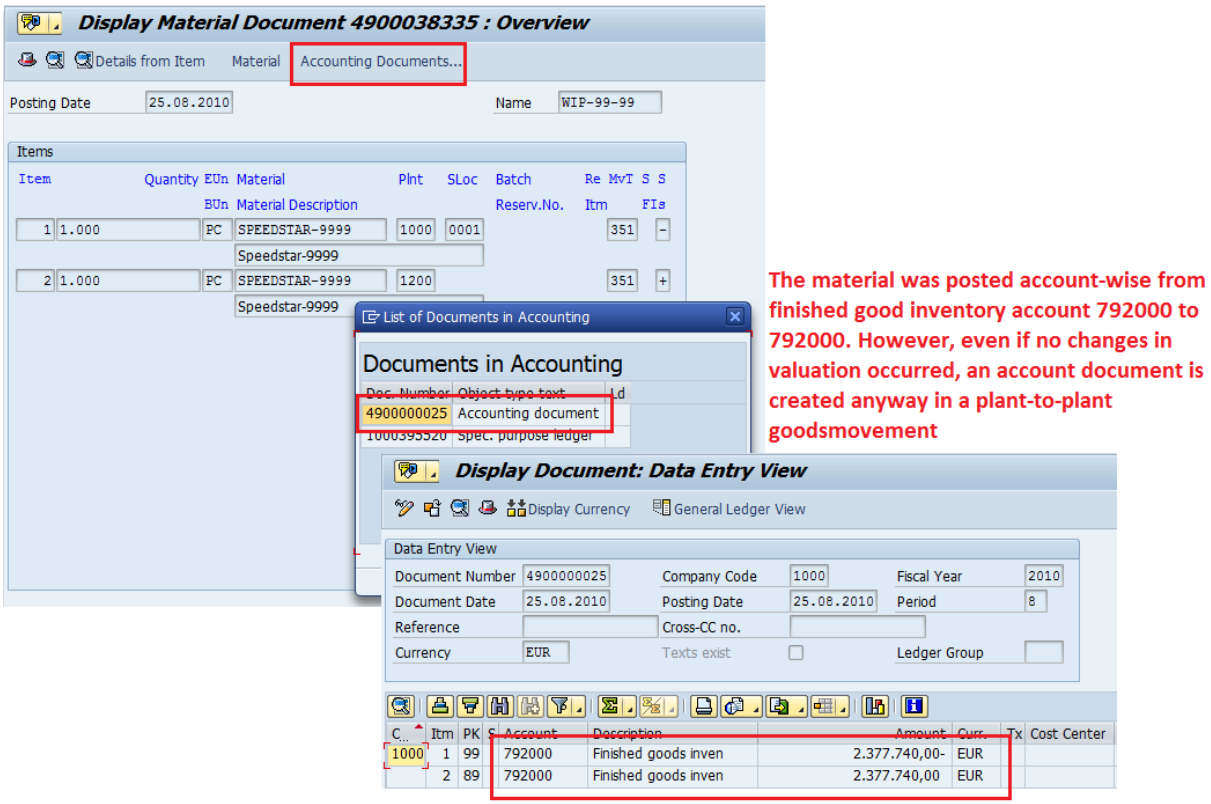


Figure 23: Effects of Goods Movement on Accounting: SAP-System-Screenshot

Go back to the MIGO transaction. List the open purchase order quantity for the material ***Speedstar-xxyy*** in ***plant 1200***, ***storage location 0140*** by

1. Selecting operation ***A04 Display*** and reference ***R02 Material document*** and enter your ***material document number*** once again
2. Select *Execute* ( ).
3. On the ***transfer posting*** tab, select the ***stock overview*** symbol for the destination (**Dest**) position.

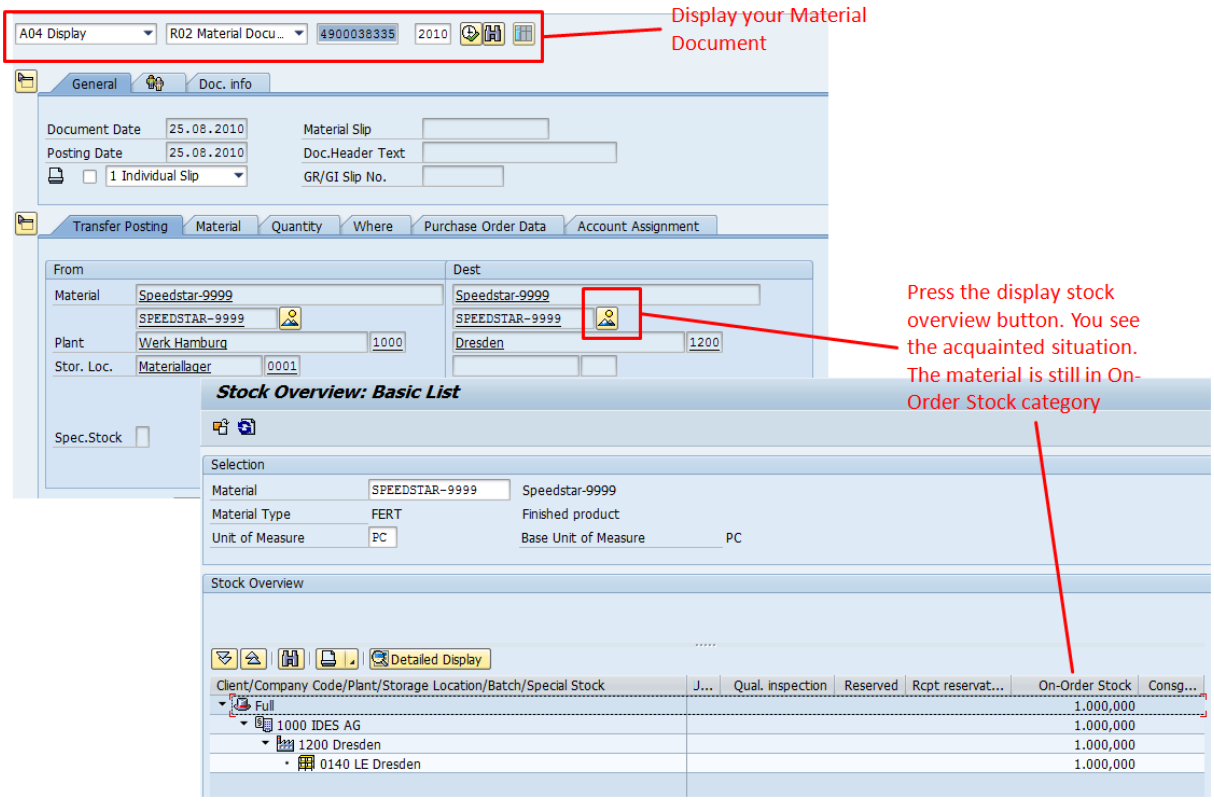


Figure 24: Sock Overview: SAP-System-Screenshot

4. Position the cursor on the ***storage location 0140 LE Dresden*** row and select the ***detailed display*** or scroll to the right. The storage location-specific transfer stock type is referred to as On-Order Stock. Note the On-Order Stock quantity displayed.

   On-Order Stock quantity:_____

2.2.2.4 Post Goods Receipt

Now we assume that transportation of the Speedstars was carried out very quickly. The goods arrived at plant 1200. Post the goods receipt for the Stock Transfer order for the material Speedstar.

Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → For Purchase Order → PO Number Known (MIGO)

1. Select the operation: ***A01 Goods receipt*** and the ***R01 Purchase order*** reference from the drop-down fields.
2. Enter the ***Stock Transport Order*** number. Make sure that the **plant field** is **empty** and choose *Execute*.
3. Check the following data on the ***material, quantity*** and ***where*** tabs
   a. Material ***Speedstar-xxyy***
   b. Quantity ***1000***
   c. Plant ***1200***
   d. Storage location ***0140***
4. In the **delivery note field,** enter *****.

5. Check whether the ***item OK*** flag is set.

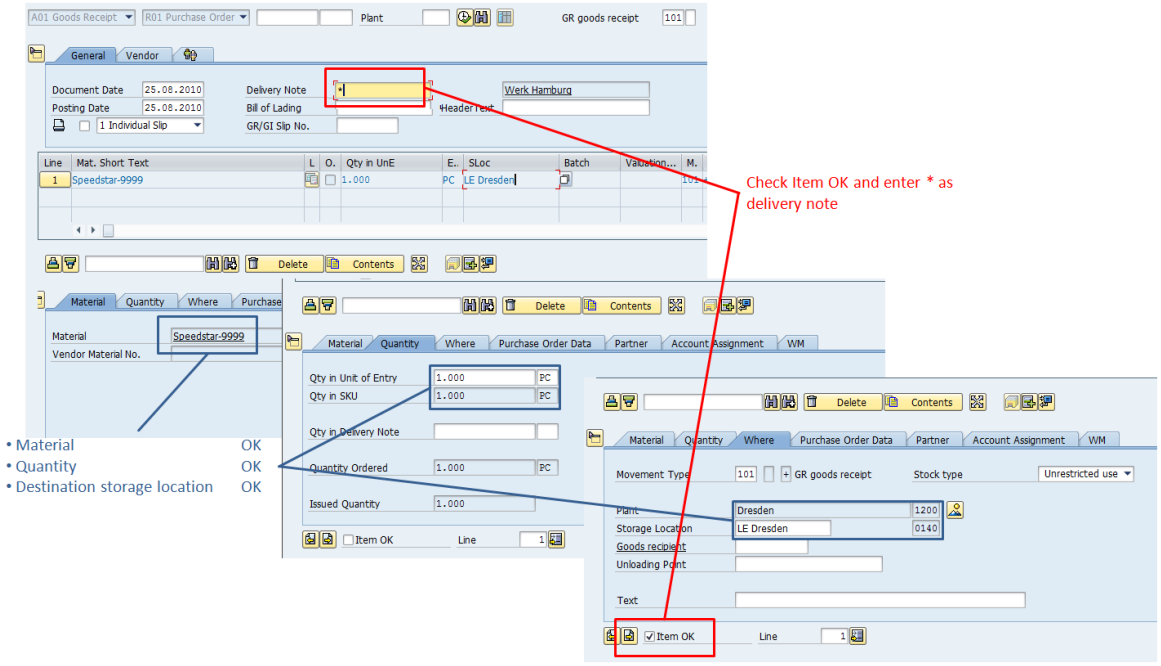


Figure 25: Post Goods Receipt: SAP-System-Screenshot

6. Select *Save*.
7. You see that another material document is created. List the **material document number.**

   Material document number 2: _____

8. Again, call transaction MB03 and enter your material document number from the inventory difference post (material document 2).
9. You see that the goods receipt in Dresden was posted with the movement type 101. Press the Accounting Documents... button here too. You get a message that no accounting document is included.

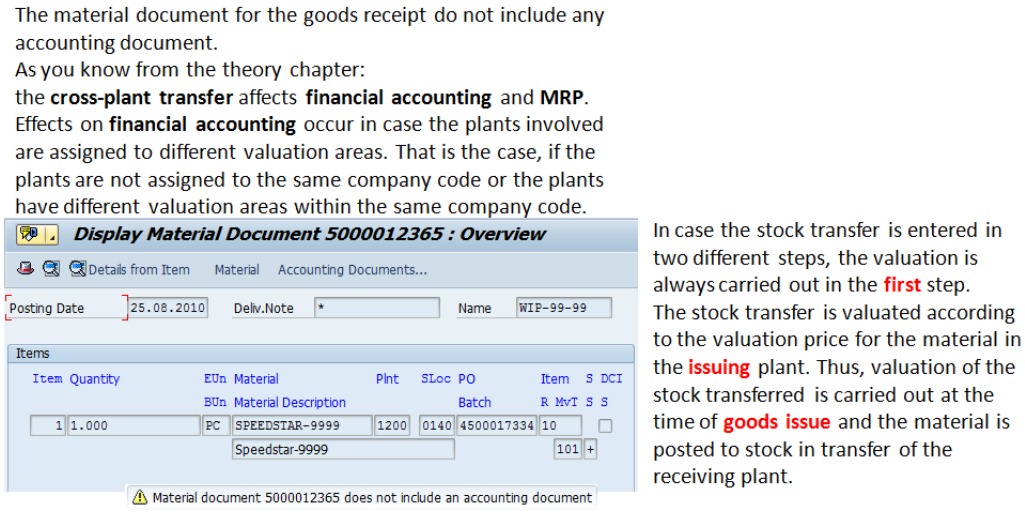


Figure 26: Effects of Goods Receipt on Accounting: SAP-System-Screenshot

The Speedstars were now received in plant 1200. Check the item's storage location in plant 1200, storage location 0140 and determine the storage area (storage type) it is placed now.

1. Remain in the MIGO transaction.
2. Select operation ***A04 Display*** and reference ***R02 Material document***. The newly created material document (**Material document number 2**) should be displayed in the material document field.
3. Choose *Execute*.
4. On the **WM** tab, look for the ***storage type*** and the ***transfer requirement number*** and note them on your data sheet.

   Storage type 1: _____

   TR number: _____

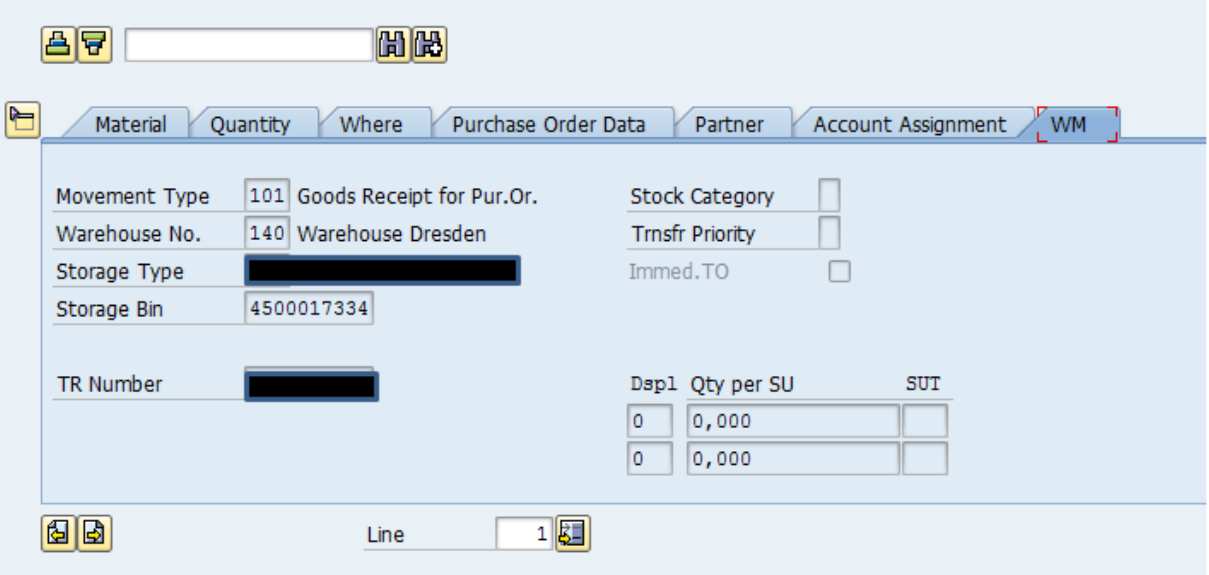


Figure 27: Storage Type and Transfer Requirements Number: SAP-System-Screenshot

2.2.2.5 Create Transfer Order

The goods receipt has created a transfer requirement. Display the transfer requirement and create a transfer order with reference to it in order to move the material within the warehouse from one stock type to another. Choose

Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Create Transfer Order → For Material (LB11)

1. Enter the following data:
   a. Warehouse number ***140***
   b. Material ***Speedstar-xxyy***
   c. Plant ***must be Empty***
   d. Confirm your entries with ***Enter***.

2. Select the ***TR number*** line.
3. In the functions bar, choose ***TO in foreground*** (TO in Foreground).
4. On the screen **create TR and TO** choose ***Edit → Putaway → Background*** from the menu.

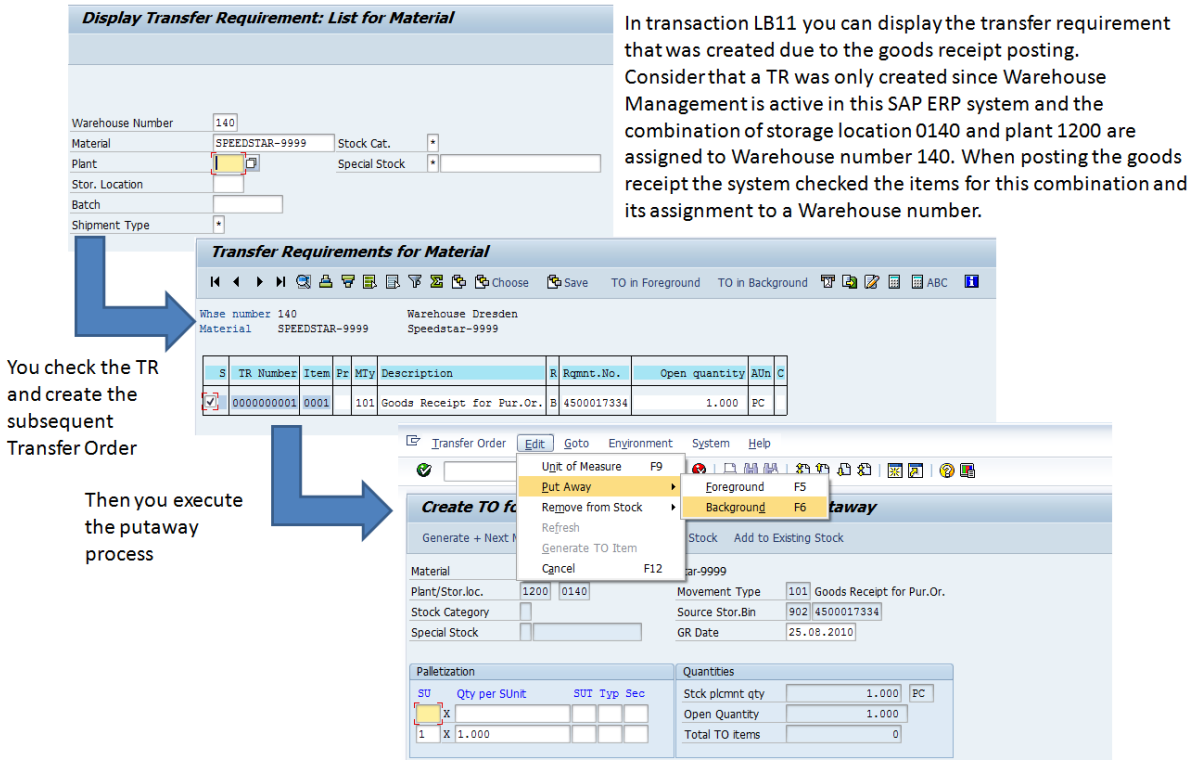


Figure 28: Create Transfer Order: SAP-System-Screenshot

5. With the Transfer Order, the material is moved from Storage type 902 into a new **storage type** in the warehouse and it is assigned to a new **storage bin**. List the storage type (Type) and the destination location (Destination Bin).

Storage type 2: _____

Destination location: _____

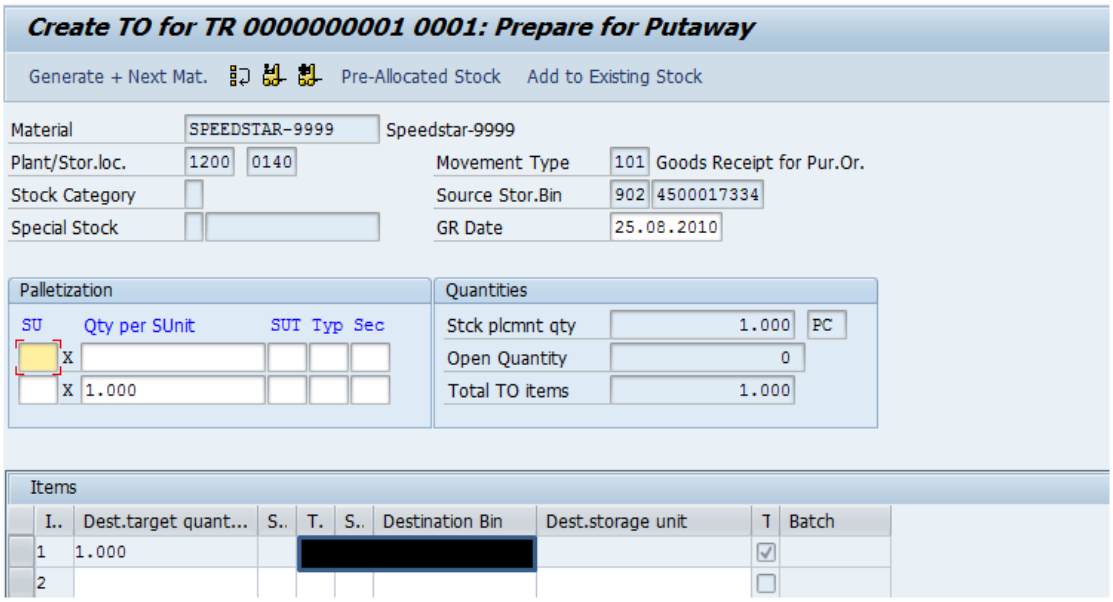


Figure 29: Destination Storage Type and Destination Bin: SAP-System-Screenshot

6. Choose *Save*. List the transfer order and leave the transaction.

   Transfer order: _____

2.2.2.6 Check Total Stock

In Warehouse Management now list the storage types that show the quantity 1000 for the material Speedstar in warehouse 140. Therefore, choose

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Warehouse Management) (LS26)

1. Enter the following data:
   a. warehouse ***140***
   b. material ***Speedstar-xxyy***
   c. choose ***Enter***
2. List the **storage type** of ***Stock for putaway*** and the **storage type** of ***Pick quantity*** where the quantity equals 1000. If you have paid enough attention at the theory part, you will now realize that the current question is, "From which stock type to which stock type was the material moved (or is in the process of being moved) with the transfer order?"

   Putaway type _____

   Pick quantity _____

2.2.2.7 Confirm Transfer Order

Confirm the transfer order to actually move the quantity of 1000 Speedstars to the receiving storage location. Choose

Logistics → Logistics Execution → Inbound Process → Goods Receipt for Purchase Order, Order, Other Transactions → Putaway → Confirm Transfer Order → Single Document → In One Step (LT12)

Enter your ***transfer order number*** and ***warehouse number 140***. Choose ***Enter***. Save the transfer order.

2.2.2.8 Check Warehouse Stock and Inventory Management Stock

Check the warehouse stock in warehouse ***140*** for the material ***Speedstar-xxyy*** again. Therefore, choose

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Warehouse Management) (LS26)

1. Enter the following data:
   - warehouse ***140***
   - material: ***Speedstar-xxyy***
   - Choose *Enter*.
2. 1000 racing bicycles should be in unrestricted-use stock of the warehouse in Dresden with the storage type 002.

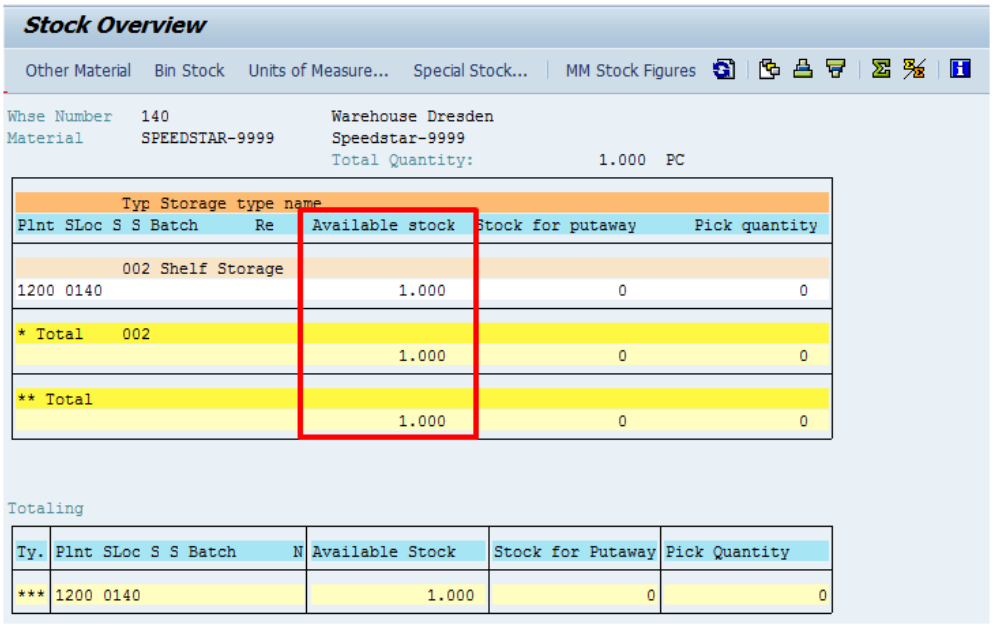


Figure 30: Warehouse Stock: SAP-System-Screenshot

Once again, display the stock overview in **Inventory Management** to view the stock situation after posting the Transfer Order. Call up the following transaction:

Logistics → Logistics Execution → Internal Whse Processes → Bins and Stock → Display → Total Stock per Material (Inventory Management) (MMBE)

1. Enter material ***Speedstar-xxyy*** and the range from plant ***1000*** to plant ***1200***. Choose execute.
2. You can see that plant 1000 (Hamburg) has an unrestricted-use stock of 371 units (alternatively, the number you produced in the previous teaching unit - 1000). 1000 units of Speedstar are now displayed in stock category **Unrestricted use stock** for Dresden.

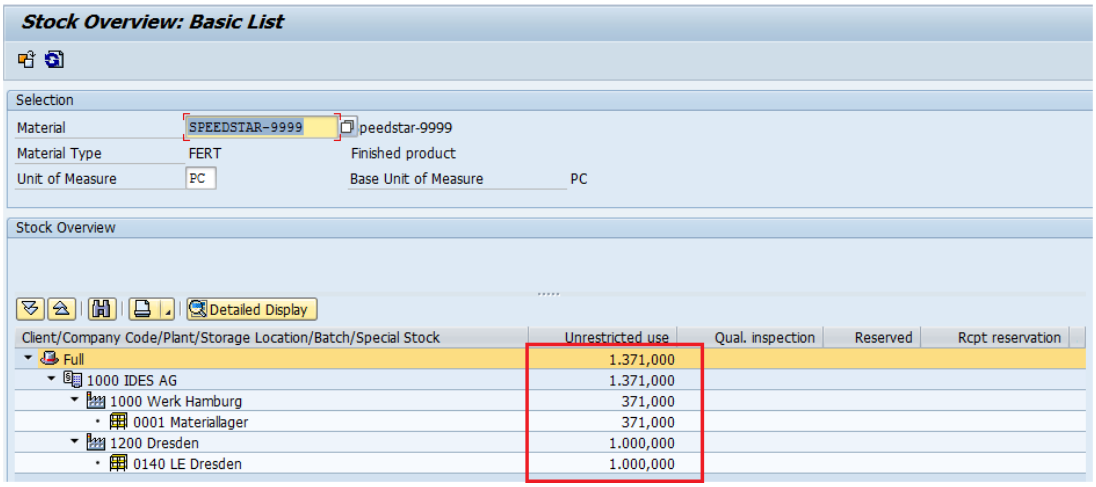


Figure 31: Inventory Management Stock: SAP-System-Screenshot

2.3 Elucidation

What have we learned so far?

We have learned what the organizational levels of Logistic execution are, how they are linked to common organizational levels of the Logistics application and consequently enable Warehouse Management functionalities. Furthermore, we have learned how goods are moved within a plant, between plants and between storage locations. Also goods receipt and goods issue with external resources were discussed.

2.3.1 Goods Movement

There are several types of goods movement in SAP ERP (also refer to teaching unit 1 - Procurement). A process resulting in an inventory change is called **goods movement**. Goods movement refers to both external and internal movements of materials from one location to another.

There are the following types of goods movement in the SAP ERP system:

- **goods receipts**
  - used when delivered from external source (vendor) or when material is delivered from an internal production process
  - always results in an increase of warehouse stock
- **goods issues**
  - used for material withdrawal, material consumption, or goods shipment to customer
  - always results in a decrease of warehouse stock
- **Stock Transfers**
  - used for releasing and transferring a material from one storage location to another
  - can be within a plant or between two different plants
- **transfer posting**
  - changes stock identification (stock ID) or qualification (stock category) of a material
  - independent of whether a physical movement of the material took place or not
  - Examples of transfer postings are:
    - the release of stock for quality inspection (change of stock category)
    - the transfer postings from material to material (change of stock ID)

2.3.2 Transfer Posting and Physical Stock Transfer

Stock Transfers and transfer postings are used to represent organizational-relevant transfers within the company (e.g., decentralized storage).

Difference between Transfer postings and Stock Transfer

You can post both **transfer postings** and **Stock Transfers** in the SAP system. Transfer postings differ from Stock Transfers, in that **transfer postings** are (usually) **not** connected with a

physical goods movement. They involve a change in stock type, batch number, or material number.

Examples for **transfer postings:**

- stock to stock (e.g., quality inspection stock to unrestricted-use stock)
- material to material (e.g., change of material ID)

Examples for **physical Stock Transfers:**

- storage location to storage location (e.g., move material form storage location 0001 to 0002)
- plant to plant (e.g., move material form storage location 0001 in plant 1000 to 0001/2000)
- company code to company code (same as plant to plant, where plants belong to different company codes)

2.3.3 Transfer Postings

A transfer posting usually refers to a change in a material's stock (e.g., release from quality inspection, accepting consignment material). In a transfer posting, the material can remain in its original storage bin or be transferred, thus, do not need to be moved.
Transfer postings are **always** carried out in a **one-step procedure**!

Transfer posting Stock to Stock
There are three types of stock in Inventory Management. Each of these stock types indicates whether the material concerned can currently be used.

- Unrestricted-use stock
- Quality inspection stock
- Blocked stock

At the time of goods receipt, you decide the type of stock to which a given quantity is to be posted. The stock type is relevant for the determination of available stock in Materials Planning (MRP) and for the withdrawal of materials in Inventory Management. You can post withdrawals for consumption from unrestricted-use stock only.
If the utilization of a material changes, you have to carry out **transfer postings between the various stock types**. An example of a transfer posting is the release of a given quantity from stock in quality inspection. This means that the quantity is transferred from stock in quality inspection to unrestricted-use stock.

Transfer Posting Material to Material
If a material changes over time in such a way that it no longer corresponds to the features defined in the material master record, but to the features of a different material number, you have to carry out a transfer posting from material to material. This is often the case in the chemical and pharmaceuticals industry, for example.

Such a transfer posting is always carried out in one step and without advance planning. The posting can only be carried out from the unrestricted-use stock of the issuing material into the unrestricted-use stock of the receiving material.

Prerequisites

- A material master record must already exist for the receiving material.
- Both materials must be kept in the same base unit of measure. The basis for all conversions on posting is always the base unit of measure: the unit of entry in the material document is irrelevant.

Result

A transfer posting from material to material results in the transferred quantity being managed under another material number. The transferred quantity is deducted from unrestricted-use stock of the issuing material and posted into unrestricted-use stock of the receiving material.
One material document is created. For every item you enter, **two material document items** are created:

- an item for the issuing material
- an item for the receiving material

Parallel to the material document, **one accounting document** is created. The issuing material master record determines the value of the transfer posting.

2.3.4 Stock Transfers

In a company, goods movements do not only occur in the form of goods receipts and goods issues. Depending on the organization of the company (e.g., decentralized storage) and its sales policy, internal Stock Transfers might also be necessary.

Stock Transfers can occur at three different levels:

- Stock Transfer from **company code to company code**:
  - A Stock Transfer from company code to company code corresponds to a Stock Transfer from plant to plant, with both plants belonging to different company codes.
- Stock Transfer from **plant to plant**:
  - A Stock Transfer from plant to plant not only leads to a change in stock quantity in both plants; if both plants are assigned to different valuation areas, an accounting document is also created.
  - This type of Stock Transfer can only be carried out from unrestricted-use stock of the issuing plant to unrestricted-use stock of the receiving plant.
  - Stock Transfers from plant to plant are relevant for Material Planning, since Materials Planning operates at plant level.
- Stock Transfer from **storage location to storage location** (in the plant):
  - A Stock Transfer from storage location to storage location in the same plant simply causes an update of the stock quantities in both storage locations. The stock value remains unchanged, and the event is not relevant for accounting.

- A Stock Transfer from storage location to storage location is possible for all stock types.

2.3.4.1 One-step and Two-step Procedures for Stock Transfers

Stock Transfers <u>always</u> contain 2 movements

- a ***goods issue*** from the issuing point
- a ***goods receipt*** at the receiving point

There are three different procedures for carrying out a Stock Transfer:

- Stock Transfer via Stock Transfer posting using the one-step procedure
- Stock Transfer via Stock Transfer posting using the two-step procedure
- Stock Transfer using a Stock Transport Order (see practice chapter)

Advantage of **one-step procedure:**

- only one single transaction is needed

Advantage of the **two-step procedure:**

- Better monitoring of stocks that are in the process of transferring from one place to another. That is, when you have posted the goods issue from the issuing point, the stock is regarded as **in transfer** at the receiving point and is treated as such in the system. You can then display this status and know exactly where the stock currently is.
- The two-step procedure is also required if users have authorizations only for their own plants.

2.3.4.2 Storage-Location-to-Storage-Location

A Stock Transfer from storage location to storage location takes place within a plant. It is usually posted without value, since the transferred material is managed in the same plant and therefore has the same valuation data as before.

Storage-Location-to-Storage-Location: One-step procedure

- takes place within the same **plant**
- can be executed for **all stock types** using the **one-step procedure**
- **one** material document, containing ***two*** material document **items** per material transferred (that is, if you transfer, e.g., Speedstar and Basis-module with one posting, then you will have *four* material document items, that is, two positions for Speedstar and two positions for the Basis-module in your document)
  - One item for the **material removal (goods issue)** from the issuing storage location
  - One item for the **material placement (goods receipt)** at the receiving storage location.
- No **accounting document** is created because the transferred material remains in the same plant and, thus, within the same company code (valuation area). Thus, the accounting data for this material does not change.
  - **Only exception**: If the material is subject to split valuation, and the valuation type of the material changes due to the Stock Transfer, the system also creates an accounting document during the Stock Transfer.

Consider: An accounting document is only created if the material is split-valuated and the valuation type changes in the course of the transfer.

If, in the SAP exam, you get a question like:
"In the storage-location-to-storage-location transfer posting, an accounting document is NEVER created". Then consider this statement as not true, since in rare cases an accounting document is created.
If the question is something like:
"In the storage-location-to-storage-location transfer posting, NO accounting document is created". Well this answer is true!
Consider that words like NEVER and ALWAYS are suspicious in context of the SAP exam. Be careful when reading those words in the SAP exam and well-consider your answer.

Storage-Location-to-Storage-Location: Two-step Procedure

- can only be used to transfer materials from **unrestricted-use stock** of the issuing storage location to the **unrestricted-use stock** of the receiving storage location
- The process:
  - You post the goods issue in the issuing storage location (movement type 313). At this point, the quantity is booked out of the issuing storage location and displayed in the receiving storage location but not included in the unrestricted-use stock. It is considered as **stock in transfer** (**stock category**). You cannot use the material at plant level, yet.
  - Now you post the goods receipt at the receiving storage location, the quantity is posted from stock in transfer to unrestricted-use stock (movement type 315).
- Since goods receipt and goods issue are carried out in two separate steps, **two** separate material documents are created. For every item you enter per material transferred, **two** material document items are created (that is again, if you transfer, e.g., Speedstar and Basis-module with one posting, then you will have four material document items, that is, two positions for Speedstar and two positions for the Basis-module in your document):
  - Upon the removal (goods issue) from storage at the issuing point, the system creates **one** material document with **two** items (positions):
    - An item for the goods issue (referred to as **removal from storage**)
    - An item for the goods receipt (referred to as **putaway** or placement in storage).
  - Upon placement into storage at the receiving point, the system again creates **one** material document.
    - For every item you enter, only **one** material document item (position) is created, because the quantity is only transferred from stock in transfer into unrestricted-use stock at the receiving point.
- Valuation in terms of accounting is not carried out, since the company code does not change. Thus **no** accounting document is created.

2.3.4.3 Plant-to-Plant Stock Transfer (and Company Code to Company Code)

- Plants involved in a plant-to-plant Stock Transfer can be assigned to the same or to different company codes.
- **Plant-to-plant transfers** can only be posted out of **unrestricted-use stock.**
- **Plant-to-plant transfer** can affect **financial accounting** and **MRP.**
- Effects on **financial accounting** occur in case the plants involved are assigned to different ***valuation areas***:
    - The material (the stock accounts - accounts in SAP FI where the material value is posted) that is transferred is valuated with the price of the issuing plant! This valuation is done, since cross-plant transfer, which includes both cross-company code and within the same company code transfers, materials are valuated using a different stock account (in the different plants). Thus, the SAP system creates an **accounting document** in addition to the material document.
    - In case of cross-company code Stock Transfer, an accounting document is created for each company code at the time of posting. Thus, **two** accounting documents are created.
    - The offsetting entry (i.e., the difference between the two valuation amounts that can occur) of the stock posting is carried out to a company-code clearing account.
- Consider that in case the Stock Transfer is entered in two different steps, the valuation is always carried out in the **first** step and, thus, the valuation price of the first (issuing) plant/company code is considered.
- **Example**: You post a plant-to-plant cross company Stock Transfer in a two-step-procedure for material X. The material has a price of 100 € in the issuing plant/company code (P1 and CC1) and a price of 105 € in the receiving plant/company code (P2 and CC2)
    - First step: You post the goods issue in the issuing plant (P1). A material document is created that reduces the stock quantity in this plant (P1). An accounting document is created that reduces the value of the stock in the company code (CC1).
    - Now the material is considered as stock-in-transfer in plant P2. In plant P1 the stock is reduced already. The material transferred is already valued with price 100 € at this point in time.
    - Second step: You post the goods receipt in plant P2 and, thus, moving the material from stock-in-transfer to unrestricted-use-stock. A material document is created that increases the stock quantity in plant P2. The material is valuated with the price of 100 € in the receiving company code and increases the value of the stock in the company code (CC2). Thus, an account document is created in CC2.
    - The offset of 5 € is debited on a material valuation account in SAP FI for company code CC2.

Plant-to-Plant: One-step and Two-step Procedure

- **one-step procedure**:
    - Goods issue and goods receipts are booked in one material document.

  - To carry out a Stock Transfer from plant to plant for a material that is subject to split valuation at the receiving point, you have to use the one-step procedure (or a Stock Transport Order).
- **two-step procedure** needs additional information (besides material to be transferred)
  - issuing organizational levels (plant/company code)
  - receiving plant at the time of removing the material from storage
  - **additional information is required, since**
    - valuation of the Stock Transfer is carried out at the time of goods issue (You need to know the company code at this time for the valuation/price)
    - and the material is posted to stock-in-transfer of the receiving plant (You need to know the receiving plant for the stock-in-transfer storage location)
- **Here again for two-step procedure**: Since goods receipt and goods issue are carried out in two separate steps, two separate material documents are created. For every item you enter, **two** material document items (positions) are created:
  - Upon the removal (goods issue) from storage at the issuing point, the system creates **one** material document with **two** items (positions):
    - an item for the goods issue (referred to as **removal from storage**)
    - an item for the goods receipt (referred to as **putaway** or placement in storage).
  - Upon placement into storage at the receiving point, the system again creates **one** material document.
    - For every item you enter, only **one** material document item (position) is created, because the quantity is only transferred from stock in transfer into unrestricted-use stock at the receiving point.

Summary

The following shows a matrix of outcomes of Stock Transfer and transfer procedure combinations (differences are highlighted in red, important issues are highlighted bold and underlined)

	One-step procedure	Two-step procedure
storage-location -to-storage-location	**One** Material document with **two** items	**Two** Material documents • goods issue **two** items • goods receipt **one** items
	No Accounting document (same plant = same valuation area) Only exception from this rule: split valuation	**No** Accounting document (same plant = same valuation area) Only exception from this rule: split valuation
	Possible for **all** stock types	**Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver)** **Goods are posted in stock-in-transfer before goods receipt posting**
plant-to-plant **plants belong to same company code and have same valuation area**	**One** Material document with **two** items	**Two** Material documents • goods issue **two** items • goods receipt **one** items
	No Accounting document (plants have same valuation area) Only exception from this rule: split valuation	**No** Accounting document (plants have same valuation area) Only exception from this rule: split valuation
	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver)	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver) **Goods are posted in stock-in-transfer before goods receipt posting**
plant-to-plant **plants belong to same company code but have different valuation area**	**One** Material document with **two** items	**Two** Material documents • goods issue **two** items • goods receipt **one** items
	One Accounting document (different valuation areas)	**One** Accounting document (different valuation areas)
	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver)	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver) **Goods are posted in stock-in-transfer before goods receipt posting**
	Valuation price of the issuing plant Offset to clearing account of company code	Valuation price of the issuing plant Offset to clearing account of company code
company-code-to -company-code **plants belong to different company code and thus have different valuation areas**	**One** Material document with **two** items	**Two** Material documents with two items • goods issue **two** items • goods receipt **one** items
	Two Accounting documents (one per company code)	**Two** Accounting documents (one per company code)
	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver)	Goods movement only from Unrestricted-use (Sender) to Unrestricted use (Receiver) **Goods are posted in stock-in-transfer before goods receipt posting**
	Valuation price of the issuing plant Offset to clearing account of company code	Valuation price of the issuing plant Offset to clearing account of company code

2.3.5 Stock Transport Order

- Stock Transfer can be carried out with or without **Stock Transport Order.**
- Using Stock Transport Order features the following advantages:
  - ntegration with MRP application allows to convert purchase requisitions into Stock Transport Orders
  - You can initiate goods receipt at the receiving plant. Thus, goods issue posting in the issuing plant is created subsequently.

- You can post delivery costs and the carrier/forwarder in a Stock Transport Order
- Goods receipt can be posted directly to consumption (process that needs the material, e.g., production).
- When posting a goods receipt into the warehouse, you can also post the material to stock, in quality inspection, or to blocked stock.
- The complete process of goods issue and goods receipt can be monitored by using the purchase order history.

2.3.6 Logistics Execution: Warehouse Management

Logistics execution connects **procurement** and **distribution** in SAP ERP for internal and external processes.

Logistics Execution: Process overview

When using Logistics execution for goods receipt or goods issue, you can choose between two basic forms of **process display** (consecutive transactions):

- initiate the process by creating a delivery (inbound or outbound)
- initiate the process by creating an inventory management posting (purchase order, production order, etc.)

Example of goods receipt using Logistics execution functionality with inbound delivery:

1. **Inbound delivery with reference to purchase order**: You create an inbound delivery in transaction (VL31N) when receiving materials from a vendor. The inbound delivery has a reference to the purchase order and, thus, involves the vendor in the Logistics execution functions. The material received is now in the "entrance area" of your storage location (Storage section).
2. **Putaway with transfer order**: You transfer the material, e.g., to a storage section within the storage location.
3. **Confirm transfer order**: Now the material is, e.g., in the appropriate storage bin.
4. **Goods receipt posting:** Finally you can post the goods receipt and make the material freely available for further processing (sales, production, physical inventory, etc.)

Note that you need to process steps 1 to 3 if you want the vendor included in the goods receipt process.

Note that the transfer order is the document all material movements **within** the warehouse are executed with.

Example of goods receipt using Logistics execution functionality without inbound delivery (LE functions are only used in warehouse intern process):

1. **Goods receipt posting with reference to purchase order or production order, etc.**: You create a goods receipt with reference to a preceding document (e.g., purchase order = external, production order = internal). The vendor is only included, in case of a purchase order, in the document but not in the Logistics execution process (functions). The material received is now in the "entrance area" of your storage location (Storage section).

2. **Transfer requirement**: By standard, the transfer requirement is created automatically by the system.
3. **Putaway with transfer order**: You create a transfer order with reference to this transfer requirement. You transfer the material, e.g., to a storage section within the storage location.
4. **Confirm transfer order**: Now the material is, e.g., in the appropriate storage bin and makes the material freely available for further processing (sales, production, physical inventory, etc.)

Note that the goods issue process is equivalent to the goods receipt process only involving OUTbound delivery and OTHER transactions (e.g,. sales transactions). Just keep in mind that goods receipt includes something coming IN the company/the process and goods issue includes something going OUT the company/the process.

Which process is applied is determined by the type of putaway or stock removal.
Examples:

- In case you have a goods receipt from production, only the goods receipt posting for the ***production*** order with the respective putaway is available.
- For ***sales order processing***, stock removals are generally linked with the outbound delivery.

Logistics Execution: Organizational Levels
The following organizational levels from the standard Logistics application are relevant in the Logistics execution application of SAP ERP:

- Client
- Company Code
- Plant
- Storage Location

That is, those organizational levels already exist, are applied in SAP LO processes and are accompanied by a few organizational levels that are only relevant if Logistic execution functions, e.g., warehouse management is active, are used.
Those additional organizational levels are:

- A **warehouse number** has a 3-digit identification (alphanumeric key) that is valid client-wide. For instance, you used warehouse number 140 for the warehouse that is responsible for Dresden in the practical part of this section.
    - In Warehouse Management (WM), a complete physical warehouse is defined under a single warehouse number. Using the warehouse number, you can manage several individual warehouse buildings that, together, form a complete warehouse complex.
    - This warehouse number is always linked with a combination of at least one **plant** and **storage location** constituting the link between **warehouse management** and **inventory management**.

  - When warehouse management is active (by using a warehouse number) the corresponding storage location is the organizational level for **quantity-based inventory management (not value-based**, which is part of accounting**!)**.
  - The **assignment of a warehouse number** to a **plant-storage-location-combination** allows for using **warehouse management functions**.
  - Not all storage locations or plants have to be assigned to a warehouse number. Furthermore, by no means must all storage locations that have been created with inventory management in one plant be linked to one warehouse number.
  - You can assign several **plant-storage-location-combinations** to **one warehouse number**. That is, e.g., "plant 1000 with its storage location 0001/1000" can be assigned to warehouse number 001 as well as "plant 1100 with its storage location 0001/1100". This depends on the way you want to organize your plant internal logistic execution processes (creation and processing of transfer and transportation orders).
  - You cannot assign a **plant-storage-location-combination** to different **warehouse numbers** at the same time.

- The **transportation planning point:**
  - Transportation planning and processing is based on the shipment document. This document facilitates the flow of information from the shipper to the customer and to any other party who is involved in the transportation of the material.
  - The transportation component includes basic transportation processing functions like (Transportation planning and shipment completion, shipment costs calculation, shipment costs settlement, shipment costs calculation for individual customers, billing of customer freight, management of means of transport and utilities, etc.).
  - Basically, the transportation planning point consists of a group of employees responsible for organizing transportation activities. Each shipment is assigned to a specific transportation planning point for transportation planning and shipment completion. You can define this organizational unit according to your company's needs, for example, according to geographical location or mode of transport.
  - Transportation planning points are usually assigned to a **company code**, but are otherwise independent of other organizational units. This is required, since shipment cost calculation and settlement that occur for the transportation are done on company code level (financial accounting) and are, thus, relevant for balance as well as profit and loss calculations. A transport planning point can only be linked with **one** company code.

- **Shipment points** are
  - An organizational unit in Logistics that performs shipping processing. The shipping/receiving point specifies the location at which the goods receipt process or goods issue process takes place. It is the part of the company responsible for the type of shipping, the necessary shipping materials and the means of transport. Example: Shipping points are a company mail depot or plant rail station.

- A shipping point assigned to multiple **plants**. If corresponding with the spatial conditions, a shipment point can be assigned to several plants at the same time. A plant can contain multiple shipment points.

Substructure of a Warehouse Number

A Warehouse number is divided in several subareas:

- The **interim storage areas** integrate ***Warehouse Management*** with ***Inventory Management***. All goods movements concerning both inventory management and warehouse management are handled using an interim storage area. Examples of interim storage areas are:
  - Goods receipt area
  - Goods issue area
  - Hall with high rack shelves
  - Bulk storage area
  - Picking area with fixed bins
  - Outside storage yard for special goods (This is also used when other areas are already filled to capacity.)
  - Each of the areas listed here are referred to in WM as a **storage type**. WM groups these buildings or areas under a warehouse number.
- A **storage type** is a storage area, warehouse facility, or a warehouse zone that you define in Warehouse Management (WM) for a warehouse number. This is a physical or logical subdivision of a warehouse complex. You can define the following frequently-used physical storage types in WM:
  - Bulk storage
  - Open Storage
  - High rack storage
  - Picking area
  - Shelf storage
  - You can also define storage types in WM that are shared by both the Inventory Management and Warehouse Management application. These are called interim **storage areas** (see above). The following figure displays storage types in a warehouse:

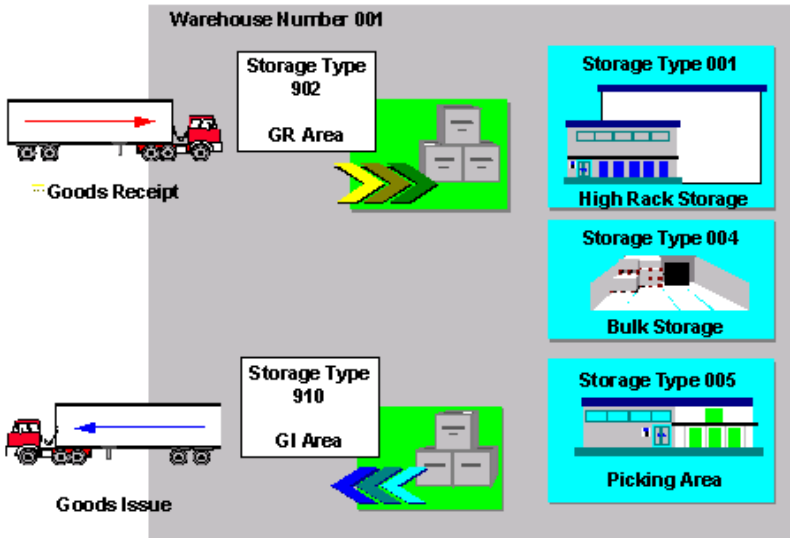


Figure 32: Storage Types in Warehouse Management: help.sap.com

- **Storage sections** are organizational subdivisions of a storage type that groups together ***storage bins*** with similar features for the purpose of putting away stock. The criteria for grouping bins can be defined on a user-individual basis, for example, heavy parts, bulky materials, fast-moving items, slow-moving items. Example for use of storage types:
  - Fast-moving materials, that is, material frequently sold, are supposed to be placed in storage space that is accessible easily. For instance, you place those materials at the entrance of the storage or on the low bins.
  - Perishable goods must be kept refrigerated.
  - For each material type or requirement, you can define special storage sections. The following figure displays storage sections with bins:

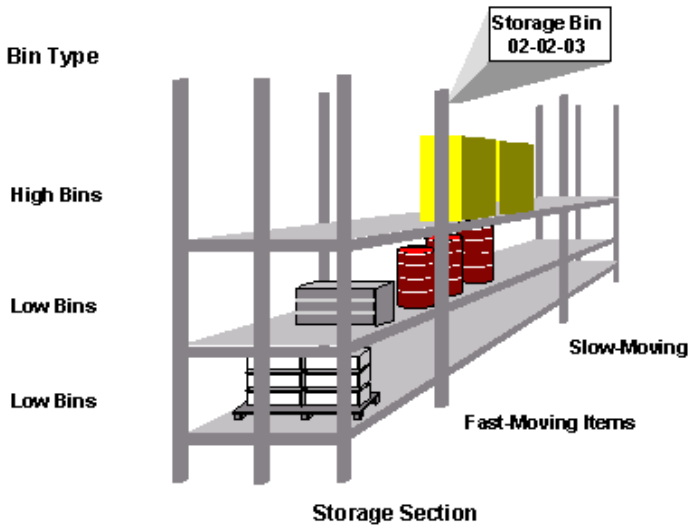


Figure 33: Storage Sections and Bins in Warehouse Management: help.sap.com

- The **picking area** is on the same hierarchical level as the storage section, which can be used to separate the storage type for technical stock removals. A picking area is a section within a storage type in which all picking activities are carried out in the same way. The picking area groups ***storage bins*** together from the viewpoint of ***picking***

strategies and is a counterpart to the storage section which groups bins from the viewpoint of putaway strategies. In contrast to the stock section, the picking area is optional.

- **Storage bins** are ***master data***, which you create within a storage section or picking area. A storage type generally contains several storage spaces or slots. These are called storage bins in Warehouse Management (WM). The storage bin is the smallest available unit of space in a warehouse. Therefore, the storage bin describes the position in the warehouse where the goods are or can be stored.

Process of Goods Receipt with Transfer Order

- You post a goods receipt to a purchase order in SAP ERP: For each item in the purchase order the system checks whether the **combination of plant** and **storage location** stated in each item is **subject to warehouse management** (i.e., whether a warehouse number was assigned to this). If this is the case, at item level in the SAP screen the goods receipt will have an additional tab for warehouse management (WM - also compare with the practice part of this section).
- When posting a goods receipt into a storage location and this storage location is managed by a warehouse number,
    - the SAP system determines the **assigned warehouse number**. Furthermore, **three** documents are created (without WM only two documents):
        - a ***transfer requirement*** (Warehouse Management)
        - a material document (Inventory Management)
        - an accounting document (Accounting Management)
        - The transfer requirement is used as reference for the subsequent putaway (placement in storage) transfer order.
    - In addition to the transfer requirement the system posts the received material quantity into the ***goods receiving zone for external receipts***, which is an ***interim storage area*** in the receiving warehouse number. This material quantity is listed as a **quant** in the interim storage area.
- Now, the material is moved from **goods receiving area** to the **interior of the warehouse**. Therefore, you create a **transfer order**:
    - The transfer order can be considered as handling instruction for warehouse employees.
    - The transfer order references the transfer requirement and takes key information from there as well.
    - The employee reports the completion of this operation by confirming the transfer order.
    - **After creating** the transfer order, the ***stock in the goods receiving area*** is no longer available, since it is in the movement process. Correspondingly, in the warehouse management stock overview, the material that is moved, is displayed both in the *stock to be removed* from storage at the *goods receiving area* and *stock to be placed in storage* at the *receiving storage type*. At this point in time (in the process), you can see that the putaway process has not yet been completed entirely.
- In the **putaway process,** you

- first determine a ***destination storage type***
- and then the ***storage section*** (if one is foreseen for this storage type) which determines a ***storage bin***
- When the putaway process is completed, the material is available for further processing in the receiving plant/storage location

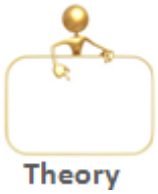
Process of Goods Issue with Outbound Delivery
(Note: The outbound delivery will be discussed in detail in teaching unit 6)

- You post an **outbound delivery** document with reference to a sales order. That is, you want to deliver material you sold to a customer. The data in the delivery document, especially schedule lines, scheduling dates, delivery times and time limits, are copied from the sales order into the delivery. Each position in the sales order document (document items) corresponds to one schedule line.
- A **picking storage location** is determined for each document item in the outbound delivery. If the determined storage location has been assigned to a warehouse number in the organizational structure, the warehouse number is displayed in the outbound delivery. Overall picking status and a stock removal status are assigned to the document.
- The removal from storage is carried out using a **transfer order**, which is created with reference to the outbound delivery. There is no transfer requirement when creating a transfer order for a delivery. The completion of the picking process is reported to the system through the confirmation of the transfer order. It is now possible to post the goods issue for the outbound delivery in Inventory Management.

3 Physical Inventory Management in SAP ERP

In this section, you will learn how physical inventory is carried out in SAP ERP.

3.1 Theory: Physical Inventory Procedures in SAP ERP



Stock management units are the basis of physical inventory in the SAP ERP system. A **stock management** unit is part of the material stock that is not further divisible and for which a separate book inventory exists.

A stock management unit is uniquely characterized by:

- material
- plant, storage location
- stock type
- batch
- special stock

In inventory, each stock management unit is counted separately. The inventory differences are posted for each stock management unit. For example, the unrestricted-use stock, quality inspection stock, and blocked stock of a storage location in a plant must be recorded separately.

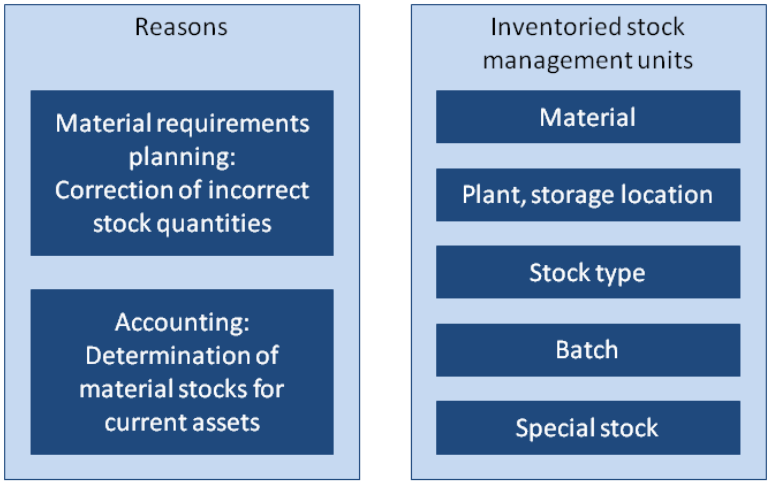


Figure 34: Physical Inventory

3.1.1 Phases of the Physical Inventory Process

The physical inventory process consists of three phases:

1. creation of physical inventory documents
2. entry of count
3. posting of the inventory difference

In the **first phase**, a ***physical inventory document (PI docuemnt)*** is created. The SAP ERP system features several procedures for the mass-generation of physical inventory documents. Usually, the stocks to be counted are selected and then the physical inventory documents are created and printed in the first phase. Using the printed documents, you can start the physical counting process (employee goes through the warehouse and counts the available quantities of the respective material).

In the **second phase,** the ***count results*** are entered in the system. The system determines inventory differences. Inventory differences are the differences between the actually counted units and the units updated in the SAP ERP inventory (book inventory balance). In case of doubtful results, recounts of the affected stock units can be initiated. In this case, additional inventory documents are created.

In the **third phase,** the determined ***inventory differences*** are posted. Thereby, the stock quantity and stock value are updated and the stock accounts (value-based) are updated in accounting. In this last step, posting of difference, has always to be executed, even when there are no differences to post.

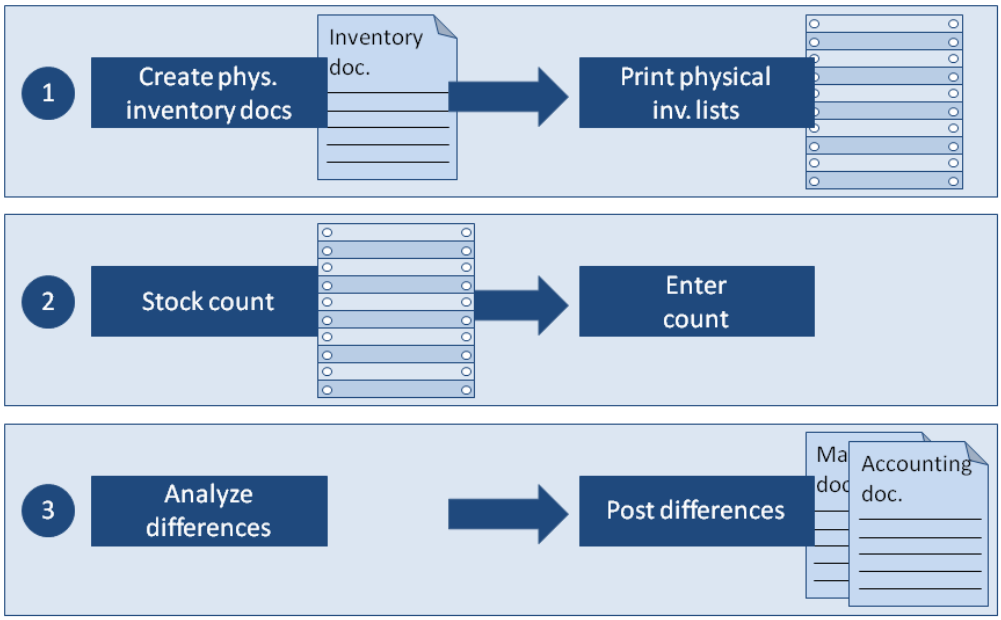


Figure 35: Phases of the Physical Inventory Process

3.1.1.1 Physical Inventory Document

When creating **physical inventory documents**, this is done per ***plant*** and ***storage location***. For the inventory of **special stocks**, the physical inventory document is created ***for each plant, storage location, special stock*** and ***vendor*** or ***customer*** or ***project***, respectively (depending of the special stock).
Other grouping values can be the ***storage bin*** and the ***material group***. The **items** of a physical inventory document are then assigned to a ***storage bin*** or a ***material group***, in addition to the groupings mentioned above.

When you create a physical inventory (PI) document, you can enter a ***physical inventory number*** in the **document header**. (Do not confuse this number with the number of the physical inventory document!). The physical inventory number allows for a facilitated selection of the PI documents to be processed when entering count data, posting differences and in evaluations.
The **status of an item** indicates if an item was (not) processed, counted, posted, or recounted. You can display an overview of the item status in the document statistics. When searching for PI documents, you can also select the status as selection criterion.

You can make the following changes to the header section of a PI document:

- change the planned count date
- set or unset the posting block of freeze book inventory
- create of change the physical inventory number

In a not-yet counted item, you can change the stock type or change the count unit of measure or set the deletion indicator.
In addition, you can enter new items or delete the document as long as no counts were entered.

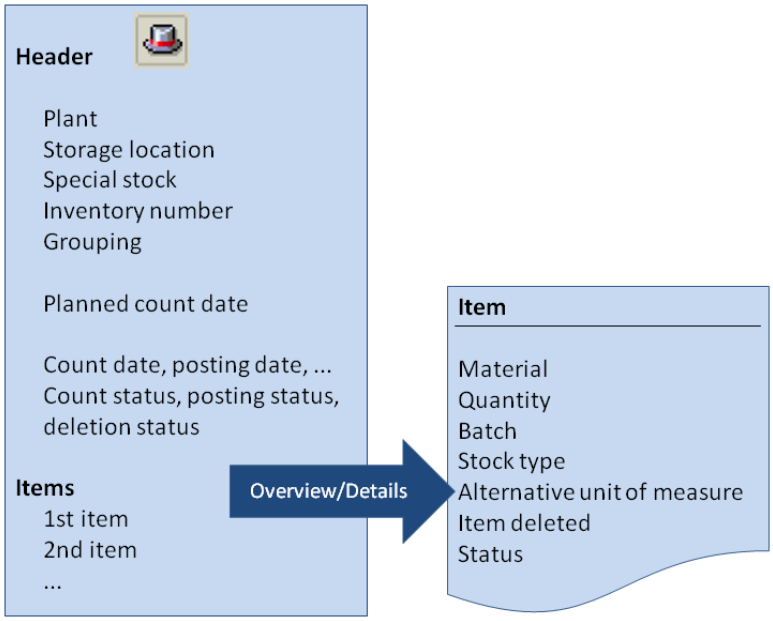


Figure 36: Physical Inventory Document

3.1.1.2 Block Goods Movements

You have the option to block all goods movements for a stock management unit to carry out physical inventory. Using the **posting block indicator** in the PI document header, the system blocks all stock management units of this PI document. In the material master's *storage location view*, the block is displayed with the value X (material blocked for movements due to physical inventory).

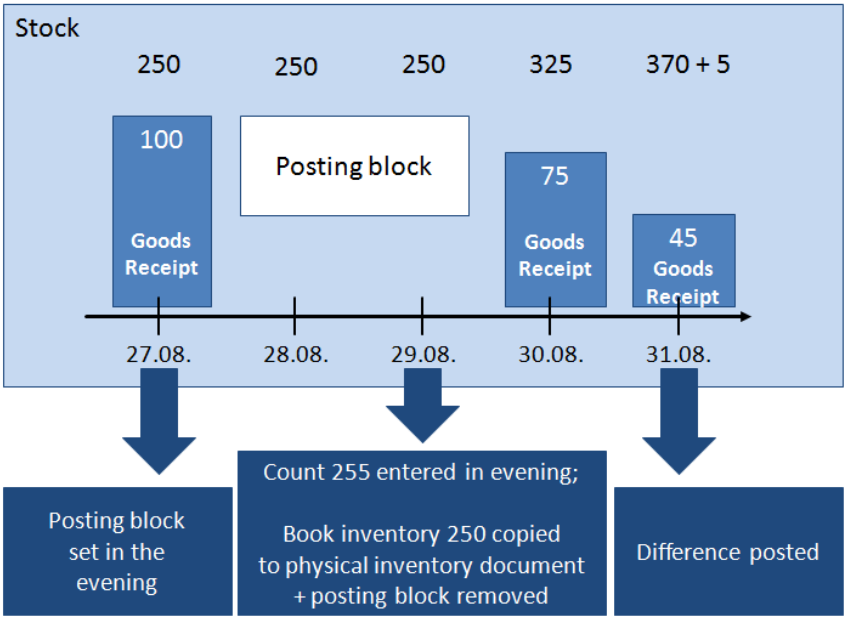


Figure 37: Block Goods Movements

Freeze Book Inventory

In case of blocking of stock management units is not possible due to organizational reasons, you can freeze the book inventory in the PI document at the time of the count.

To freeze the book inventory, you need to activate the ***freeze book inventory*** option in the PI document. This prevents that goods movements change the book inventory number relevant for the inventory-taking process.

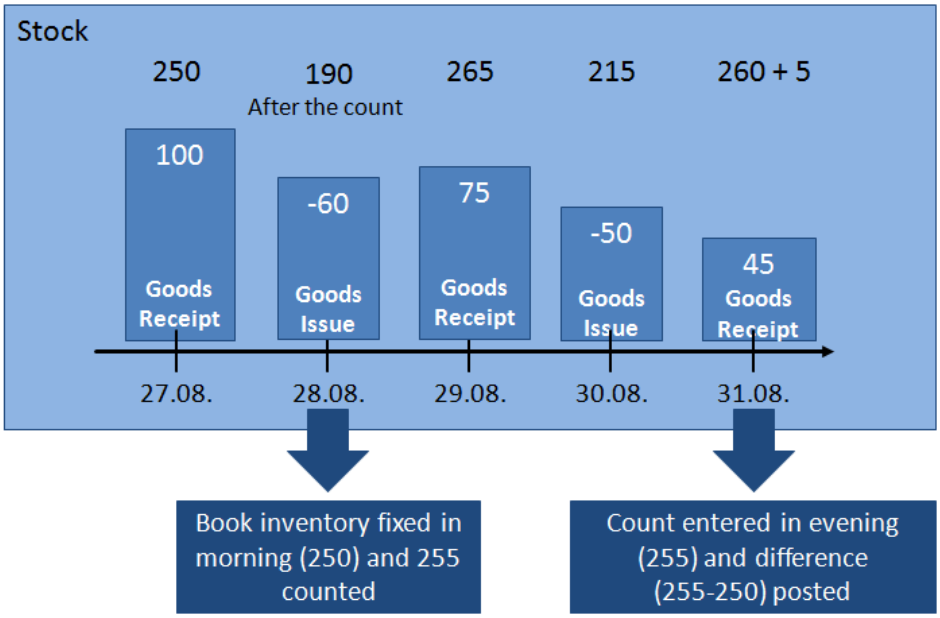


Figure 38: Freeze Book Inventory

3.1.1.3 Physical Inventory Status of an Item

Before performing the **physical inventory count**, you need to print the PI document, so that it can be forwarded to the employee in charge of the count. However, the determined stock figures can be entered in the system with or without reference to the PI document.

You can also enter a percentage variance of the count quantity from the book inventory, for which the system issues a warning message due to inventory differences. This information can be entered on the initial screen of the inventory mask.
Items counted as zero stock can be entered using the zero stock count; thereby, all items that are not yet processed are set to zero stock.

Using the zero stock count and the variance warning can result in an undesired number of warning messages. In the PI document, the count status of the item is set to "counted" and the count date will be updated in the document header.

When saving the inventory document, the book inventory is determined. The difference of the count result to the book inventory is referred to as **inventory difference**. This difference can be analyzed using the ***list of differences***. The difference list contains the following information for each item:

- counted quantity
- book inventory
- difference quantity
- difference amount

Upon the difference list, you can carry out the following functions:

- enter, change, display count
- post differences
- display, change PI document
- recount document or item

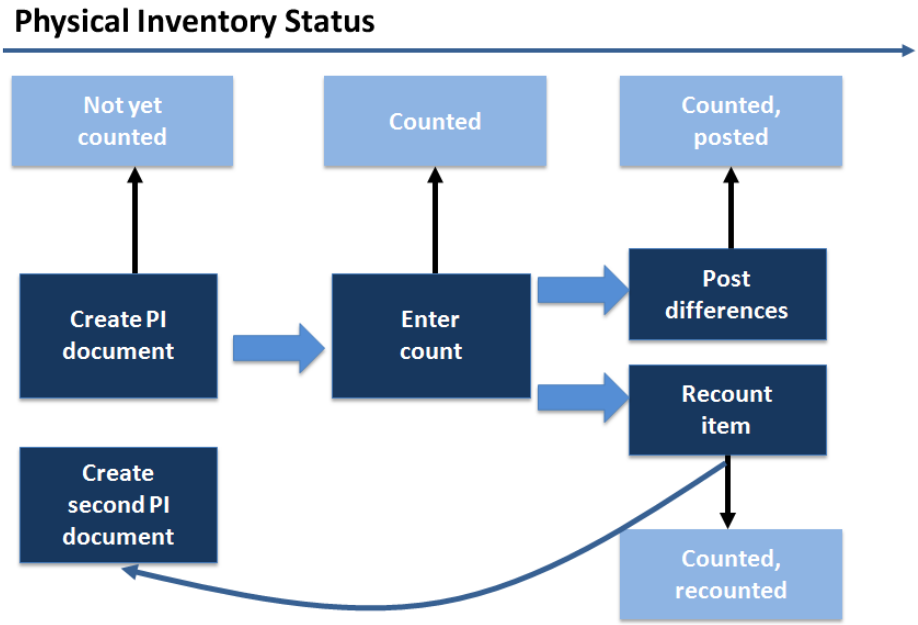


Figure 39: Physical Inventory Status of an Item

3.1.1.4 Post Inventory Differences

Posting of inventory differences can be carried out either using the list of differences or using separate transactions. When posting an inventory difference, the system creates a **material document** correcting the stock numbers. Furthermore, an **accounting document** is created that records the necessary account movements.

Note that you can enter a cause for the determined inventory difference of each item. You can, for example, record that an inventory difference is a result of theft.

In case a document exceeds the **document tolerance** entered for the user group, a user assigned to this ***inventory tolerance group*** is not allowed to post an inventory difference for this document.
In case the total value of the document is below the document tolerance, but particular items exceed the ***maximum amount per item***, the user is not allowed to post the differences for this position but may process the other items.

The system automatically sets the **posting period** of the accounting document at the time of the first count for the physical inventory document. Therefore, the inventory difference must be posted in the same period. Posting in the following period is possible, too, if back posting is allowed in the system.
The **fiscal year** is set when creating the inventory document as specification of the planned count date. All subsequent postings for this document must be carried out in this fiscal year or in the first period of the following fiscal year (in case back posting is allowed).

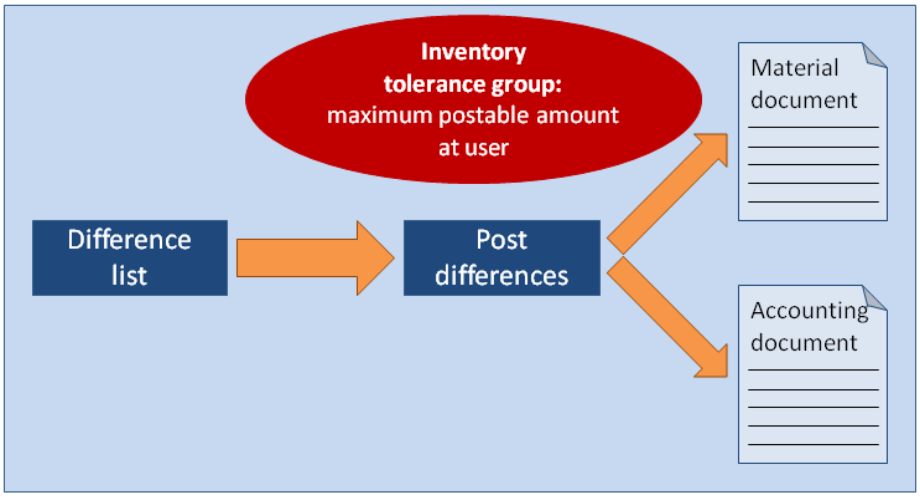


Figure 40: Post Inventory Differences

3.1.2.1 Combination of the Physical Inventory Steps

In every physical inventory, you go through three basic phases:

1. create physical inventory documents
2. enter count
3. post inventory difference

In SAP ERP, you can combine individual phases and carry them out in one single step. The following options are available to combine inventory steps:

Enter count without PI document (1 and 2): When entering a count without PI document, the system automatically creates a PI document at the time of saving. The difference is posted with reference to the PI document.

Enter count and post physical inventory difference (2 and 3): The count results are entered for an existing PI document and the inventory differences are posted as soon as the results are saved.

Enter count without PI document and post inventory difference (1, 2, and 3): All three phases are carried out in one single step. The count results are entered. When they are posted, the system issues a PI document and posts the inventory difference.

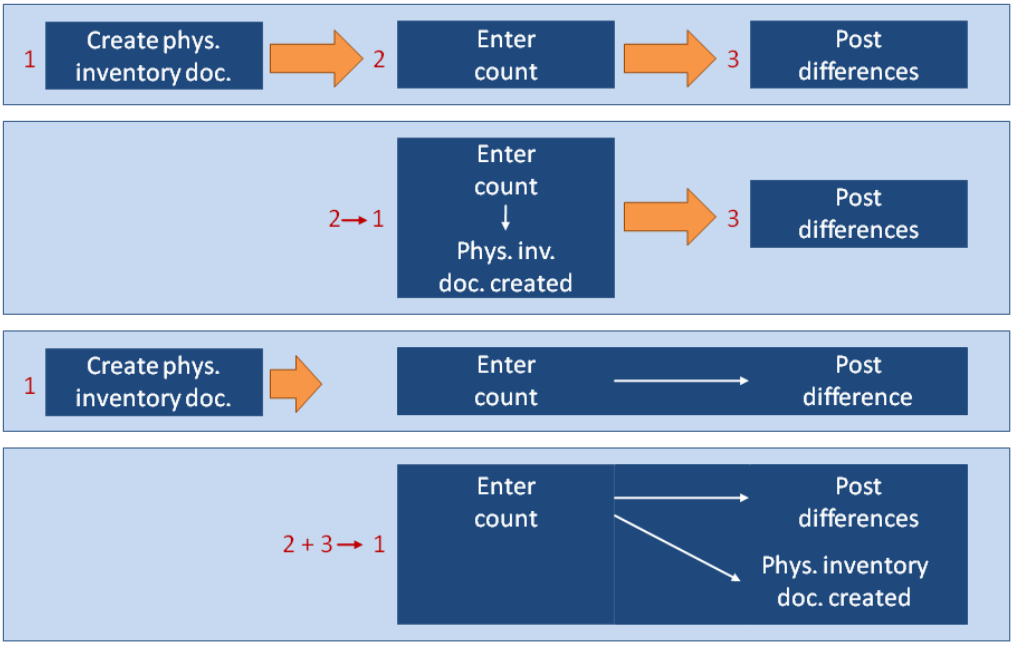


Figure 41: Combination of the Physical Inventory Steps

3.1.2 Cycle Counting Method

The cycle count method is a physical inventory procedure in which the system automatically initiates inventory in pre-defined intervals within a fiscal year. The intervals depend on the cycle counting indicator set for the material. Cycle Counting allows counting fast-moving items more frequently than slow-moving items, for example. Thereby, you mark all materials that are to be included in cycle counting with a cycle counting indicator in the material master record (storage data view). The cycle counting indicator is then used to group the materials together into various cycle counting categories (e.g., A, B, C, and D) depending on the materials' consumption frequency (e.g., A = frequently consumed… D = consumed very seldom). In Customizing for Inventory Management, for each category the time intervals at which the materials are to be counted are defined.

Stock management units of the following stock types can be included in the cycle count method:

- unrestricted-use stock
- quality inspection stock
- blocked stock

The materials indicated with the cycle count indicator, are grouped into categories for each plan. For each category, the number of inventories per year is set.
Inventory document creation is carried out via batch input session. Due to the cycle count indicator set for a material and taking the date of the last inventory into account, the system can determine the due date for the inventory stock unit. When running the session, the PI documents are generated.

You can use the program ABC Cycle Counting Analysis (RMCBINOO) to perform an analysis. In this analysis, the system assigns the materials to the individual categories according to consumption or requirements. You can also specify whether this analysis is to consider only the materials with cycle counting indicator or all materials. The cycle counting indicator in the material master records can be updated automatically by this program.

You have the option of combining individual phase and performing them in a single step similarly to the regular physical inventory procedure.

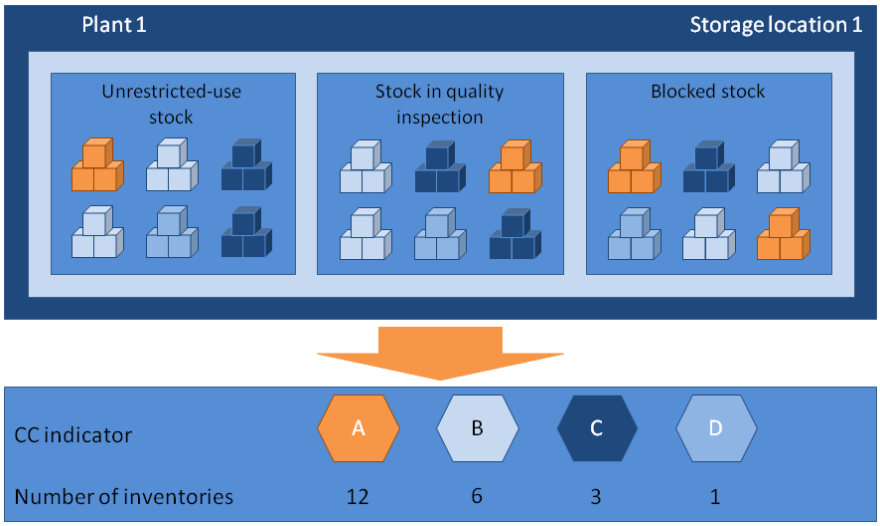


Figure 42: Cycle Counting Method

3.1.2.2 Example: ABC Analysis of the Cycle Count Inventory

The figure below displays the following situation:
The new cycle counting flags (cycle counting indicator: see figure) are determined using an ABC analysis. The system totals the individual parts at the total consumption value or the total requirement value of the materials.
For example, 200 materials are inventoried at a particular storage location. The cycle count indicators were set in customizing as follows:

- A = 12 inventories (56 %) a year, i.e., once a month
- B = 8 inventories (28 %)

- C = 4 inventories (14 %)
- D = 1 inventories (2 %)

The materials are analyzed according to their consumption in the ABC analysis. The first nine materials get the A indicator. They use 56 % of the consumption (sorted in descending order). For material 11, the cycle counting indicator is maintained and fixed manually so that it is no longer possible to change it with a cycle counting report.
Individual values within the report can be changed with *the report* for non-fixed indicators. The value is not fixed and can be modified by the report at any time.

Consumption analysis – the system uses the consumed quantities updated in the material master. The consumption value is determined using the corrected quantity of total consumption and the valuation price of the material of the specified plant.
Requirements analysis – the system determines the total requirements value for a material from independent requirements, sales orders, dependent requirements, requirements from Stock Transport Orders, and the valuation price of the material.

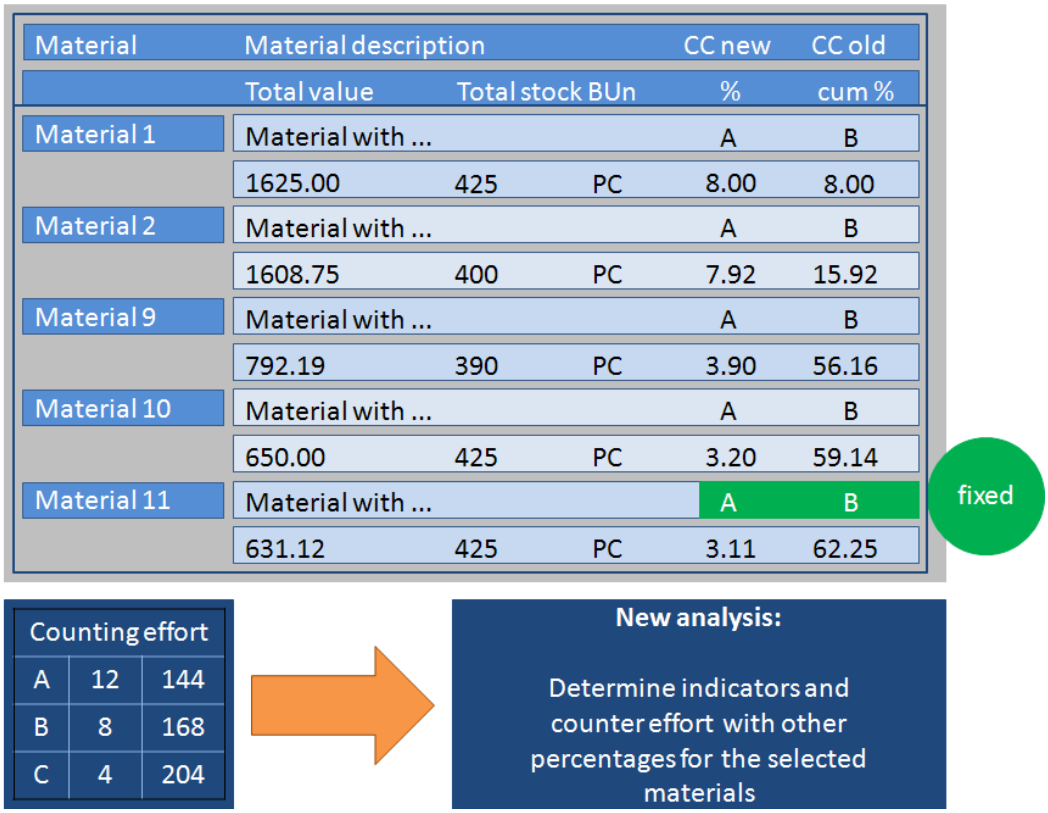


Figure 43: Example: ABC Analysis of the Cycle Count Inventory

3.2 Practice: Physical Inventory Procedures

Now that the Stock Transfer of the Speedstar to Dresden is completed, you want to carry out physical inventory in the plant in Hamburg.

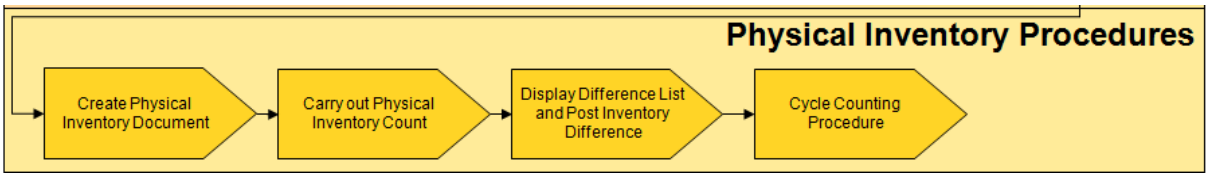


Figure 44: Process overview: Physical Inventory Procedures

3.2.1 Create Physical Inventory Document

Carry out a physical inventory for the material ***Speedstar-xxyy*** in plant ***1000*** and storage location ***0001***. Create a PI document for plant 1000. To carry out a physical inventory, choose

Logistics → Materials Management → Physical Inventory → Phys. Inventory Doc. → Create (MI01)

1. For the planned count date, enter the ***current date***, plant ***1000***, storage location ***0001*** and the physical inventory number (Phys. inventory no.) ***INVxxyy***.
2. Choose *Enter*.
3. Enter your material ***Speedstar-xxyy***.
4. Choose *Save*.
5. List the ***physical inventory document number***.

Physical inventory document number: _____

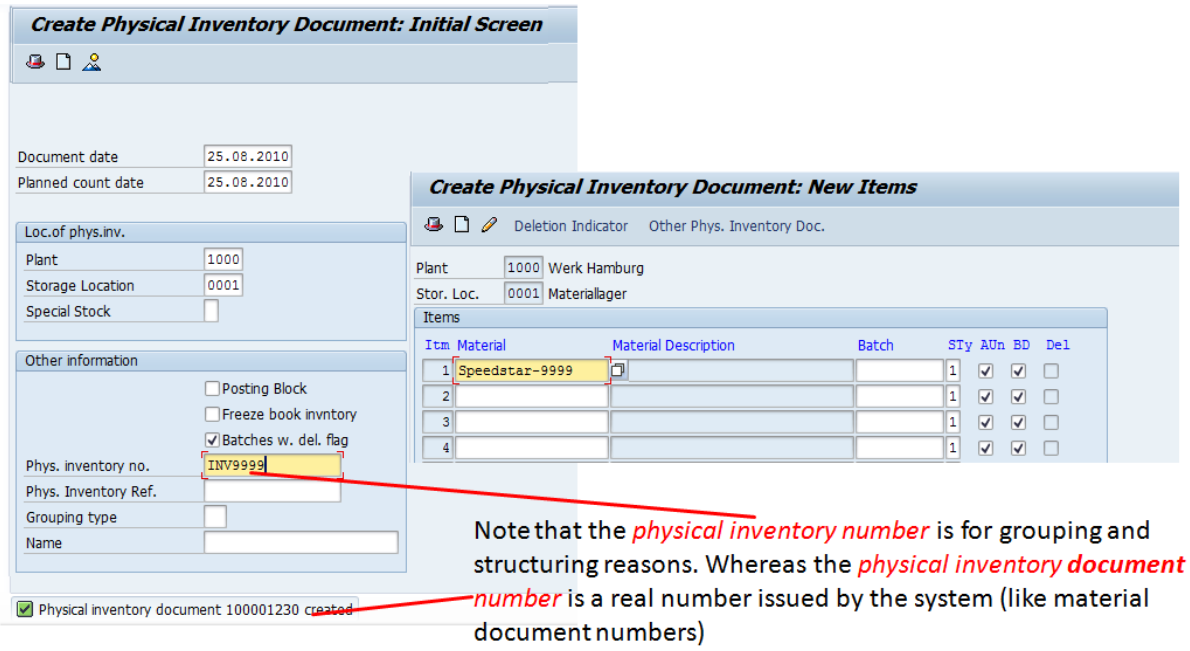


Figure 45: Create Physical Inventory Document: SAP-System-Screenshot

Next, you want to set a physical inventory block for your PI document and, thus, block the Speedstars on stock in plant 1000 for any kind of goods movement, until your inventory process is finished. Therefore, choose

Logistics → Materials Management → Physical Inventory → Phys. Inventory Doc. → Change (MI02)

1. Enter your ***PI document number*** and select ***header*** ( ).
2. Set the ***posting block indicator***.

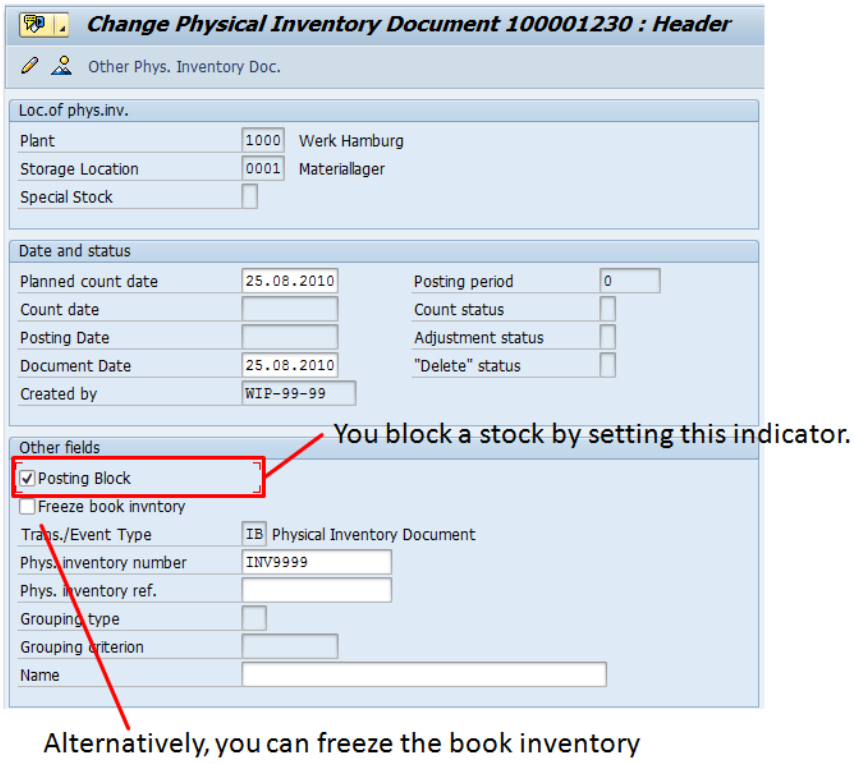


Figure 46: Block Stock for Inventory Process: SAP-System-Screenshot

3. *Save* the document.
4. You can also check the physical inventory block in the material master of Speedstar in the Storage location view.

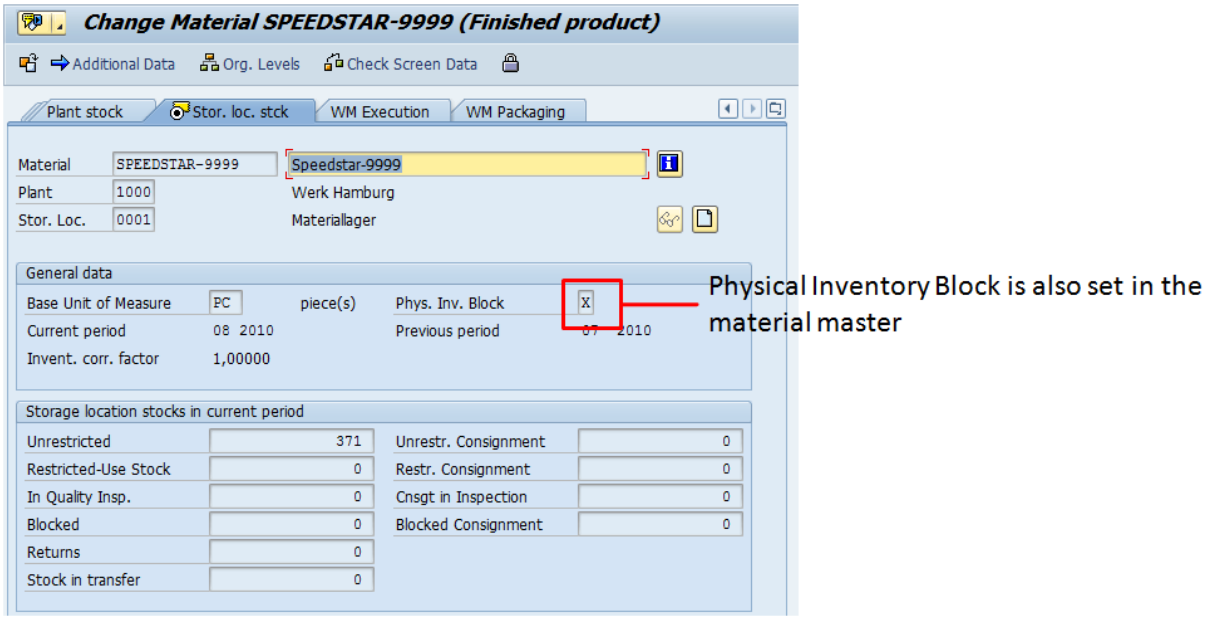


Figure 47: Posting Block Indicator in Material Master: SAP-System-Screenshot

3.2.2 Carry out Physical Inventory Count

You counted the quantity of Speedstars in the storage location and your result is that **350** (**see following note!**) Speedstars are in stock. Enter the result of the physical inventory count in the system.

Note: Depending on the result of your program planning in unit 2, differences to the figures mentioned here may occur. Differences to the figures given in the course of this class (examples visualized in the following screenshots) can occur because of different computing periods or errors in the program planning section. Therefore, check the number of Speedstars in stock with MD04 in plant 1000 before carrying out the next step. In the subsequent section, replace the number 350 by the number of Speedstars in your stock minus 21. This is to ensure that you can complete the scenario given in the entire case study, even if you have made a mistake previously.

Choose

Logistics → Materials Management → Physical Inventory → Inventory Count → Enter (MI04)

1. Enter your ***PI document number*** and choose *Enter*.
2. Enter the ***result of the physical inventory count (350)*** in the **Quantity** field.
3. Choose *Save*.

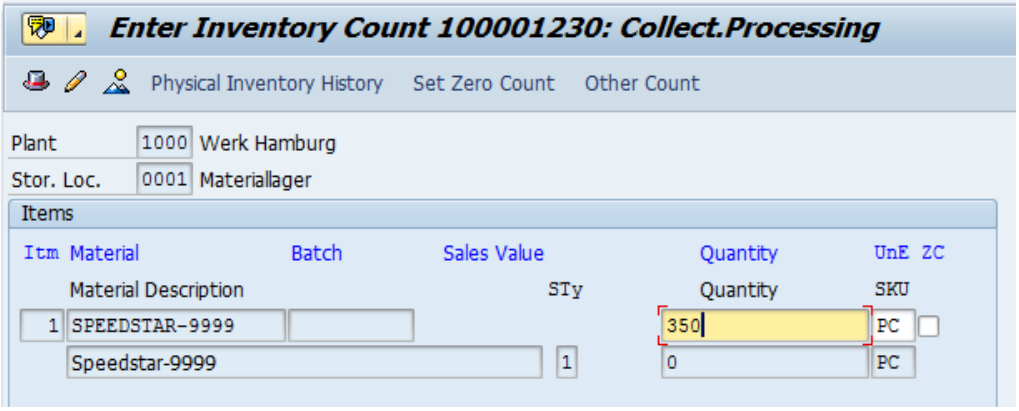


Figure 48: Enter Inventory Count: SAP-System-Screenshot

3.2.3 Display Difference List and Post Inventory Difference

Now you want to display the difference between the inventory quantity (350) and the book quantity (371) in the difference list and post the inventory difference both in Inventory Management and Account Management. Choose

Logistics → Materials Management → Physical Inventory → Difference → Difference List (MI20)

1. Enter the number of ***your PI document number*** as only selection criterion.
2. Choose *Execute*.
3. You can see that a difference of ***21 Speedstars*** is listed. It looks like you have several "pilferers" in your company. Thus, you incurred a valued loss of ***49,932.54 €***.

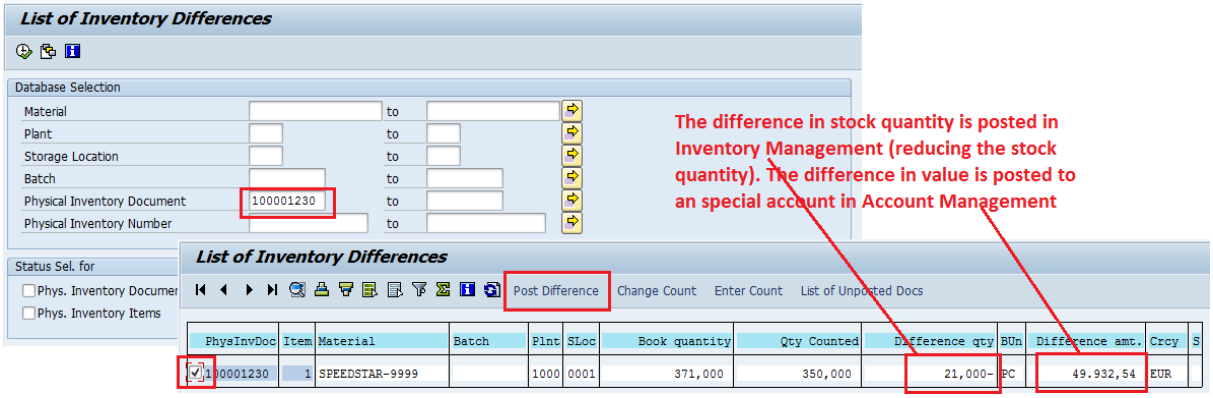


Figure 49: Inventory Difference: SAP-System-Screenshot

4. ***Flag*** the item (select the check-box at the beginning of the row) and choose ***post difference***.
5. On the initial screen for posting inventory differences, select *Save*.
6. List the material document number and close the inventory difference list.

Material document number 3: _____

Next, display the physical inventory statistics. Choose

Logistics → Materials Management → Physical Inventory → Phys. Inventory Doc. → Display (MI03)

1. Enter your ***PI document number*** and choose ***overview*** ( ).
2. Choose ***statistics*** (Statistics...).
3. You can see the result of the physical inventory count.

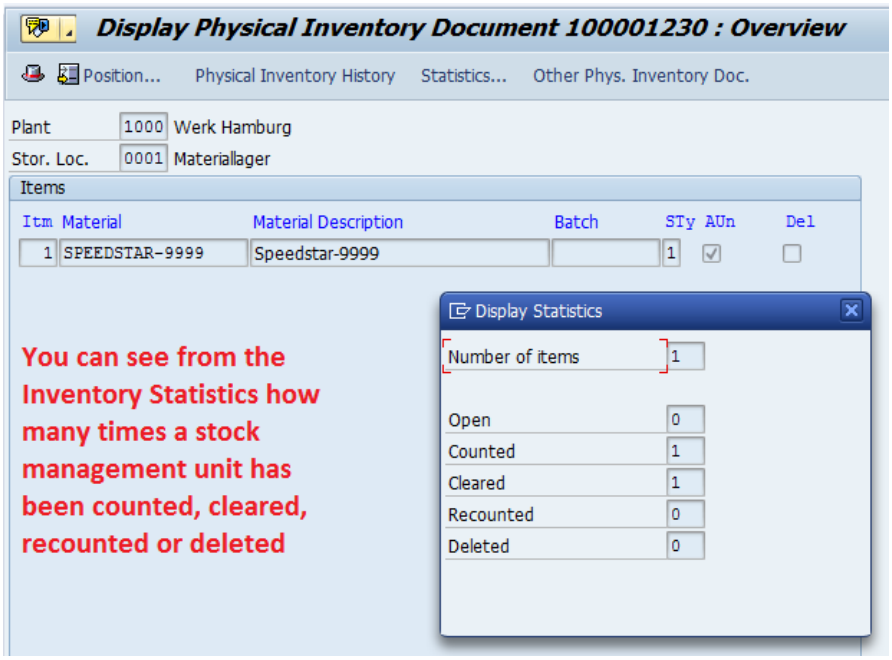
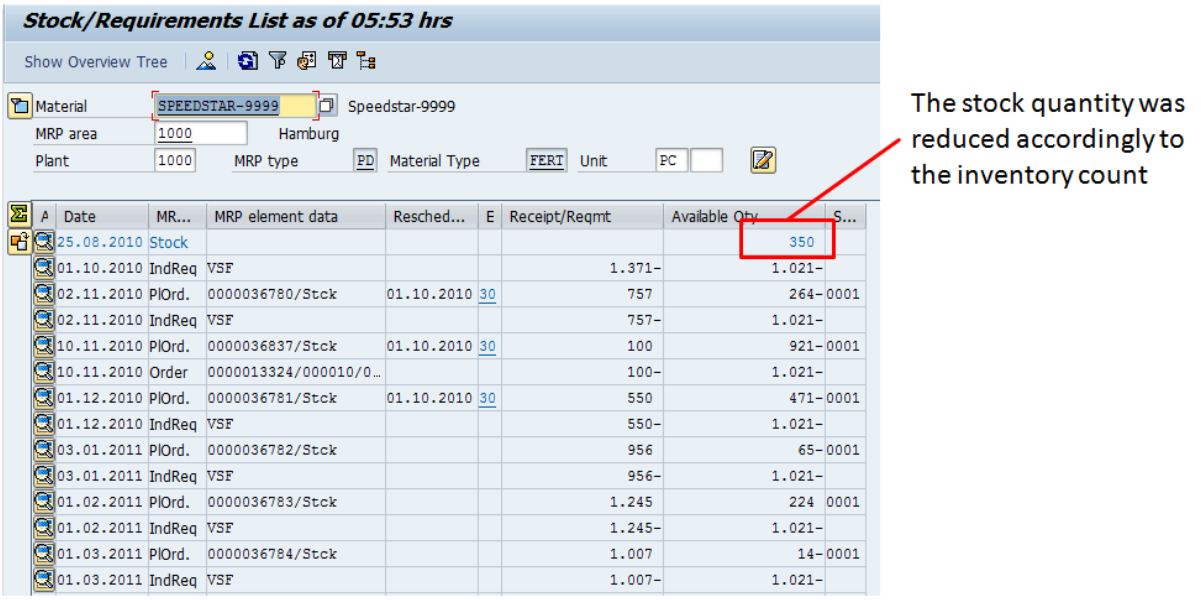


Figure 50: Physical Inventory Statistics: SAP-System-Screenshot

Display the result of the difference posting. Therefore, call up the ***stock/requirements list*** (transaction code **MD04**).

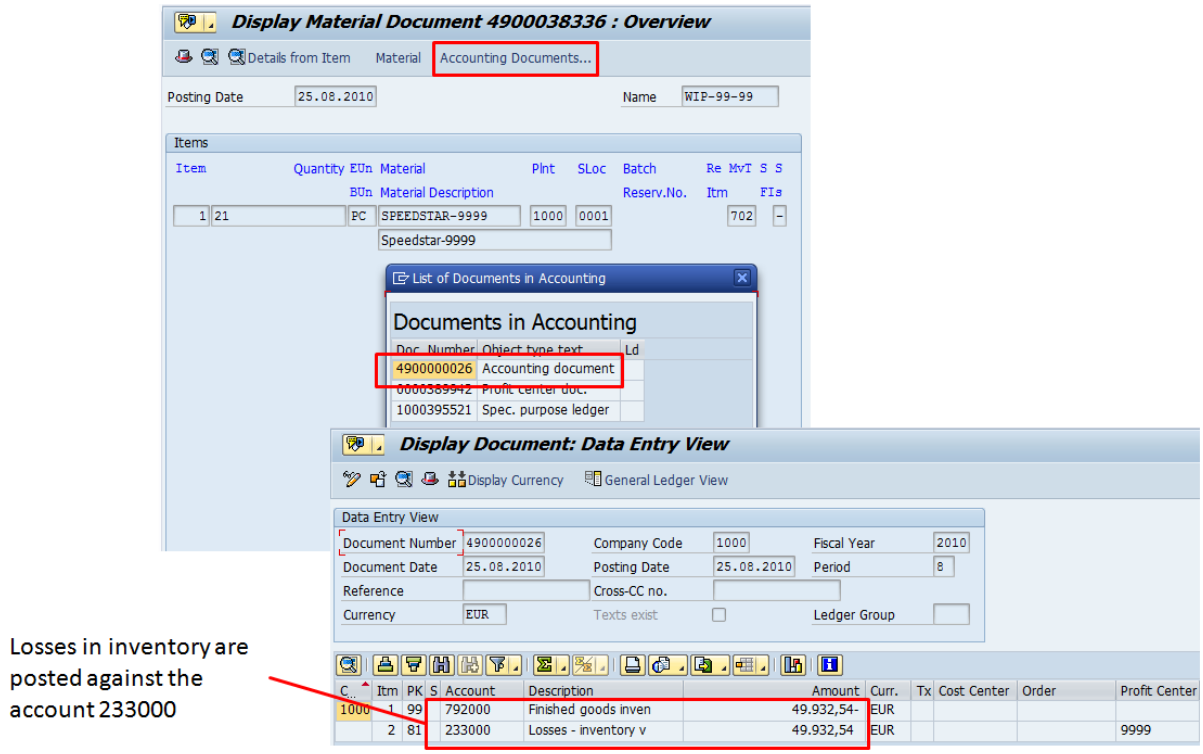
1. Enter your material ***Speedstar-xxyy*** and plant ***1000***.
2. You can see that the unrestricted-use stock was reduced to 350 due to the physical inventory (or rather the number that you have entered in the count).



A	Date	MR...	MRP element data	Resched...	E	Receipt/Reqmt	Available Qty	S...
	25.08.2010	Stock					350	
	01.10.2010	IndReq	VSF			1.371-	1.021-	
	02.11.2010	PlOrd.	0000036780/Stck	01.10.2010	30	757	264-	0001
	02.11.2010	IndReq	VSF			757-	1.021-	
	10.11.2010	PlOrd.	0000036837/Stck	01.10.2010	30	100	921-	0001
	10.11.2010	Order	0000013324/000010/0...			100-	1.021-	
	01.12.2010	PlOrd.	0000036781/Stck	01.10.2010	30	550	471-	0001
	01.12.2010	IndReq	VSF			550-	1.021-	
	03.01.2011	PlOrd.	0000036782/Stck			956	65-	0001
	03.01.2011	IndReq	VSF			956-	1.021-	
	01.02.2011	PlOrd.	0000036783/Stck			1.245	224	0001
	01.02.2011	IndReq	VSF			1.245-	1.021-	
	01.03.2011	PlOrd.	0000036784/Stck			1.007	14-	0001
	01.03.2011	IndReq	VSF			1.007-	1.021-	

Figure 51: Effects of Difference Posting on Stock: SAP-System-Screenshot

3. The difference in terms of accounting is posted to specific adjustment accounts. Therefore call transaction MB03 and enter your material document number from the inventory difference post (material document 3).
4. You see that the inventory difference posting contains ***-21*** units. Press the Accounting Documents... button and double-click on **Accounting document**. You see the corresponding value-based posting in Account Management.



C...	Itm	PK	S	Account	Description	Amount	Curr.	Tx	Cost Center	Order	Profit Center
1000	1	99		792000	Finished goods inven	49.932,54-	EUR				
	2	81		233000	Losses - inventory v	49.932,54	EUR				9999

Figure 52: Effects of Difference Posting on Accounting: SAP-System-Screenshot

3.2.4 Cycle Counting Procedure

To conclude, you want to inventory your finished products using the cycle count procedure. Set the cycle counting (CC) indicator for a report. Therefore, choose

Logistics → Materials Management → Physical Inventory → Special Procedures → Cycle Counting → Set CC Indicator (MIBC)

For setting the CC indicator, select all storage materials with the material type finished product (FERT) in plant 1000 from the report. Determine the indicator using the consumption values since early 2004.

1. Enter the following data:
   a. **Material type** ***FERT***
   b. **Select** ***all materials held in stock***
   c. **Consumption/usage** ***01.01.2004 until today***
   d. **Select** ***display list first***
   e. Select *Execute*
2. Look for your material Speedstar-xxyy in the list.
3. Place the cursor on your material and select ***Change CC indicator***.
4. Enter ***C*** as indicator.
5. Choose *Enter* and *Save*.

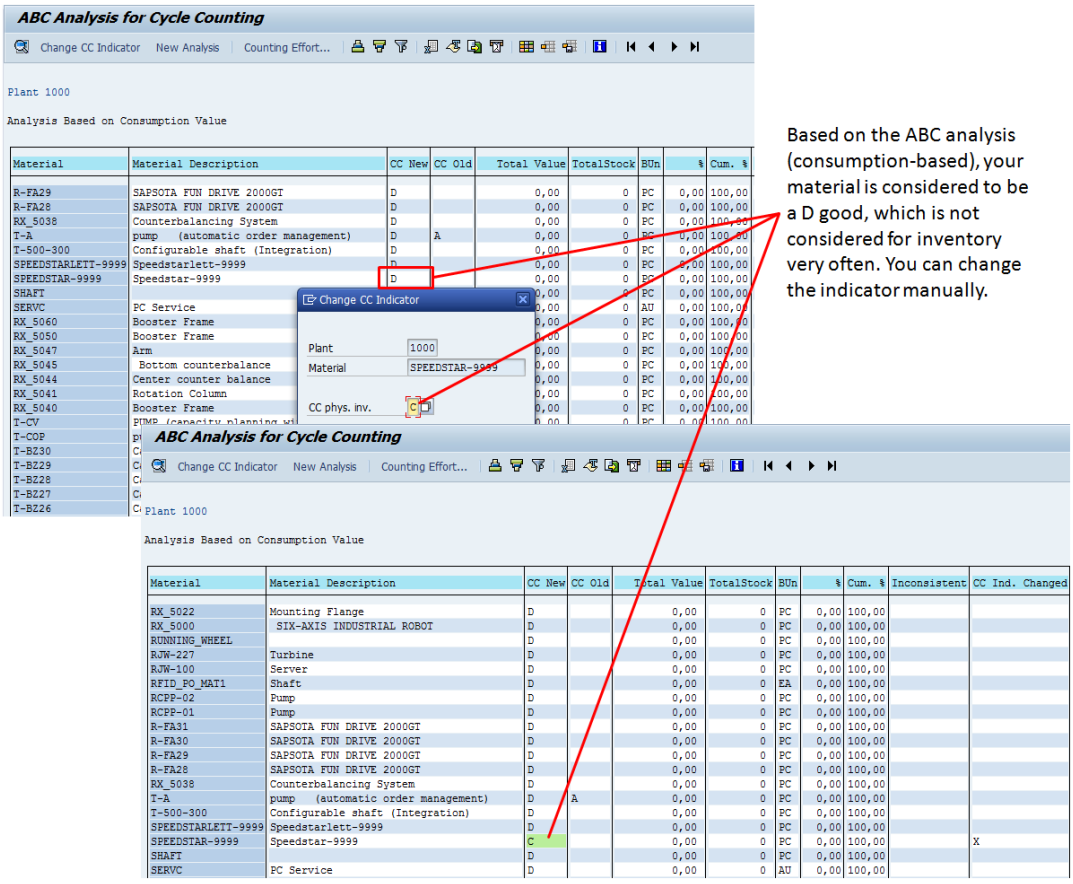


Figure 53: Cycle Counting Procedure: SAP-System-Screenshot

3.3 Elucidation

What have we learned so far?

We have learned how physical inventory is carried out and which phases, and within the phases which elements, are contained in the physical inventory. Furthermore, we have learned about the automatic inventory process using cycle counting method.

3.3.1 Physical Inventory Procedures in SAP ERP

Physical inventory is done to determine the material quantities and their value on stock and to compare it with the quantities in the books. That is, with an inventory you compare what you have in stock with what you should have on stock according to the books.

Stock management units are, therefore, used as basis of physical inventory. Thereby, a stock management unit is a not divisible part of the material stock for which a separate book inventory exists. A stock management unit is uniquely identified by:

- material
- plant, storage location
- stock type
- batch
- special stock

When doing the inventory, each stock management unit is counted separately.

Differences occur between stock and book quantities are also posted for each stock management unit separately.

3.3.2 Phases of the Physical Inventory Process

The physical inventory process consists of three phases:

1. **Creation of physical inventory documents**
   - Create a physical inventory document: a physical inventory document contains, among other things, the following data:
     - the plant and storage location in which the count is to take place
     - when the count is to take place
     - which materials are to be counted
     - for material handled in batches: which batches are to be counted
     - in the case of split valuation: which sub-stocks are to be counted
     - which stock types are to be counted
   - Blocking Materials for Posting: Due to the delay between a material movement and the posting of that movement, there is a short-term discrepancy between actual warehouse stock and book inventory. To avoid such a discrepancy during physical inventory, it is recommended that you block the materials for posting during the physical inventory.
   - Print and distribute the physical inventory document: You must print out the physical inventory document for the physical inventory count and pass it on to the people responsible for doing the counting.

2. **Entry of count**: During the inventory count, all the materials being inventoried are counted and entered physically.
   - The stocks are counted individually for the materials in a physical inventory document.
   - The count results are written on the printout of the physical inventory document.
   - The printout is then directed back to the person responsible, so that he or she can enter the count into the system and analyze it.

3. **Posting of the inventory difference (Physical Inventory Analysis)**
   - Entering the count results in the system: After the count has been taken, you must enter the results of the count into the system. You enter the counted stocks for every item of a physical inventory document. If non-SAP programs are used to carry out the inventory count, you can import the count data into the SAP System.
   - Initiating a recount: You can trigger recounts for individual items in a physical inventory document. This is recommended if you suspect that an error was made during counting. When you initiate a recount, a new physical inventory document is created.
   - Posting inventory differences: If the physical inventory is different from the book inventory, you must correct the book inventory balance by posting the differences. This step ends the physical inventory.
   - Posting of the difference, has always to be executed, even when there are no differences to post.

Physical Inventory Document

- generally created per ***plant*** and ***storage location***
- when **special stocks** are involved per ***plant, storage location, special stock,*** and ***vendor*** or ***customer*** or ***project***
- other grouping values: ***storage bin*** and ***material group***
- has a unique **physical inventory document number**
- You can assign it a **physical inventory number** (do not confuse the two numbers). You can use this to group physical inventory documents that belong together organizationally in order to manage them more efficiently. This allows you to display the physical inventory documents for a particular month or department directly without having to search the list of inventory differences.
- As most documents in SAP ERP, PI documents have besides a header, items that contain the count data. The **status of an item** indicates if an item has or has not been processed yet if it was counted, posted or recounted.
- Document statistics show an overview of the item status. When searching for PI documents, you can also select the status as selection criterion.
- You can make the following changes to the header section of a PI document:
  - change the planned count date
  - set or unset the posting block of freeze book inventory
  - create of change the physical inventory number

  - in a not-yet counted item, you can change the stock type or change the count unit of measure or set the deletion indicator
- In addition, you can enter new items or delete the document as long as no counts were entered.

Block Goods Movements

- All goods movements for a stock management unit can be blocked during physical inventory.
- Therefore, the **posting block indicator** in the PI document header is used and blocks all stock management units of this PI document.
- In the *storage location view* the block is displayed with the value X.

Freeze Block Inventory

- If blocking of stock management units is not possible, you can freeze the book inventory in the PI document at the time of the count.
- Therefore, ***freeze book inventory*** option in the PI document must be activated.
- This prevents that goods movements change the book inventory number relevant for the inventory-taking process.

Physical Inventory Status of an Item

- The PI document is printed first, since the inventory count is entered here by a warehouse employee.
- However, counted stock figures can be entered in the system with or without reference to the PI document.
- A percentage variance can be defined prior to the inventory count. If the difference between the count quantity and the book inventory exceeds this percentage, the system issues a warning message.
- Items counted as zero stock can be entered using the zero stock count; thereby, all items that are not yet processed are set to zero stock.
  - If a quantity of zero was counted for an item, enter this by selecting the ZC (zero count) column. It is not sufficient to enter 0 in the Quantity in column because the system interprets a zero as "not yet counted."
  - When entering inventory counts with reference to a physical inventory document which contains many items with a stock balance of zero, it is possible to set "zero count" automatically for all items not counted.
  - Consequently, you only need to enter the quantity counted for inventory items with stock. You no longer need to set the indicator Zero count for every single item with zero stock.

- **After saving** the inventory document, the book inventory is determined.
- The difference of the count result to the book inventory is the **inventory difference**.
- ***List of differences*** can be used to analyze the difference. It contains:
  - counted quantity
  - book inventory
  - difference quantity

  - difference amount
- The difference list enables to carry out the following functions:
  - enter, change, display count
  - post differences
  - display, change PI document
  - recount document or item

Post Inventory Differences

- Can be carried out either by using the list of differences or using separate transactions (e.g., MI07).
- Posting an inventory difference creates
  - a **material document** for stock number correction,
  - and an **accounting document** for corrections in account management.
- Reason for the determined inventory difference can be entered.

Document tolerance can be defined for different user groups. This means that, e.g., a warehouse manager can define different tolerance groups for his warehouse employees and, thus, assign quantities to those groups that are not allowed to be exceeded. If a user assigned to this ***inventory tolerance group*** does the count and the tolerance is exceeded (e.g., he is allowed to have a difference of 5 units between inventory and book quantity and he counts 6 units in difference), then this employee is not allowed to post the inventory difference for this document. The system issues a warning to the manager, who then takes care either of the inventory or the employee.
The document tolerance is defined as total value of quantity differences that is allowed to occur for all items counted in with the PI document. You also can set individual tolerance quantities for each item in a document. If then the total document tolerance is not exceeded, but for particular items the ***maximum amount per item*** is exceeded, the user is not allowed to post the differences for this position but may process the other items.

- The system automatically sets the **posting period** of the accounting document by using time of the first count for the physical inventory document. The inventory difference must then be posted in the same period or in the following period if back posting is allowed in the system.
- The **fiscal year** is set using the inventory document as specification of the planned count date. Again, all subsequent postings for this document must be carried out in this fiscal year or in the first period of the following fiscal year (in case back posting is allowed).

Combination of the Physical Inventory Steps

- In every physical inventory, you go through three basic phases:
  1. creation of physical inventory documents
  2. entry of count
  3. posting of the inventory difference
- You can combine the individual phases and carry them out in one single step. The following options are available to combine inventory steps:

  - enter count without PI document (1 and 2)
  - enter count and post physical inventory difference (2 and 3)
- Enter count without PI document and post inventory difference (1, 2, and 3)

3.1.3 Cycle Counting Method

Cycle counting is a method of physical inventory whereby inventory is counted automatically at regular intervals within a fiscal year. These intervals depend on the cycle counting indicator set for the material. For instance, Cycle Counting allows you to count fast-moving items more frequently than slow-moving items.
You can create physical inventory documents for the following stock types

- unrestricted-use stock (stock type 1)
- quality inspection stock
- blocked stock

General Procedure:

1. You mark all materials that are to be included in cycle counting with a cycle counting indicator in the material master record (storage data). The cycle counting indicator is used to group the materials together into various cycle counting categories (e.g., A, B, C, and D).
2. You can use the program ABC Cycle Counting Analysis to perform an analysis. In this analysis, the system assigns the materials to the individual categories according to consumption or requirements. You can also specify whether this analysis is to consider only the materials with cycle counting indicator or all materials. The cycle counting indicator in the material master records can be updated automatically by this program.
3. For the planning of cycle counting, run the program *Create physical inventory documents for cycle counting*. This program checks all cycle counting materials to determine whether a physical inventory is due to be carried out.
4. The system calculates the planned count date for all stock types by retrieving the date of last physical inventory of unrestricted-use stock + predefined interval. When the inventory differences are posted, the actual count date is recorded in the physical inventory data of the material as the date of the last physical inventory.

4 Data Sheet

*Congratulations! You completed the **warehouse and inventory management** case study.*

The subsequent case studies are based on the results of this case study. In case your data differs from the description in the script, please contact your tutor prior to processing another case study.

In the case study inventory and warehouse management in SAP ERP, you learned about the functional areas **warehouse management (SAP MM-IM) and logistic execution (SAP LO-LE)**.

Finally, please **submit the carefully completed data sheet** to your tutor (use support email address) for the case study ***inventory and warehouse management***.

Please comply with the naming rules. Non-compliant data sheets will not be accepted; i. e. rename the document that you downloaded from this course's download area as follows:

05-warehouse_inventory-xxyy-zzz-surname.doc

Thereby, you need to replace **xxyy** with your user number **without** the "***WIP***" and without the hyphen (WIP-xx-yy) and replace zzz with the number of the client you are working on.

Example:
Your name is **Max Mustermann,** you are working on **client 901**, and your **user number is** WIP-**99-99**. Then, name the document as follows:

05-warehouse_inventory -9999-901-Mustermann.doc

5 Reflexion

In this section you are confronted with some question regarding the theoretical chapters of this teaching unit. Try to answer the questions on your own before taking a look at the standard solutions.

5.1 Questions

True/False

1. Stock Transfers always involve the physical movement of goods? (True or False)

Multiple Choice

2. You enter a goods receipt against a purchase order. ***Quality inspection*** is required for this goods receipt. Where can this stock type be entered?
   (3 correct answers)
   a. on the Purchase Order document
   b. on the Material Master record
   c. on the Goods Receipt transaction
   d. on the Vendor Master record

3. Which of the following statements is/are correct?
   (2 correct answers)
   a. A Stock Transfer between storage locations is not relevant to accounting.
   b. You can enter Stock Transfers using the transaction MIGO.
   c. You can only carry out Stock Transfers using the one-step procedure.
   d. Stock in transfer is assigned to the issuing storage location.

4. You have created a physical inventory document. At what point are the inventory counts adjusted?
   (1 correct answer)
   a. after the counts are entered
   b. when the posting block is removed
   c. when the differences are posted
   d. after the difference list is generated

5. Which of the following statements about Goods Movements are correct?
(2 correct answers)
   a. A Goods Receipt decreases the warehouse stock.
   b. Movement of Inventory between plants is completed with a Stock Transfer.
   c. Transfer postings result in a physical move of inventory.
   d. A Goods Issue decreases the warehouse stock.

6. Which statements about Goods Receipt to GR Blocked Stock (MvT 103) are correct?
(2 correct answers)
   a. In order to accept the goods that are currently blocked, a Transfer Posting transaction would be used.
   b. The value of the stock is updated.
   c. PO history is not updated.
   d. Blocked stock is visible on the Stock Overview transaction.

7. Which of the following are examples of Stock Transfers?
(2 correct answers)
   a. Quality Inspection to Unrestricted Use movement
   b. Storage Location to Storage Location movement
   c. Material to Material Movement (change the material number)
   d. Plant to Plant movement

8. Which of the following statements about Physical Inventory are correct?
(2 correct answers)
   a. Posted Differences will result in creation of a Material Document and Accounting Document.
   b. The Physical Inventory Document can be created per Plant and Storage Location.
   c. Once a Physical Inventory Document is created, no new items may be added to it.
   d. A Physical Inventory Document cannot be deleted.

9. When you freeze inventory?
(2 correct answers)
   a. All good movements are forbidden.
   b. It prohibits good movements – changes to book inventory.
   c. Allows the posting of differences when the inventory count is saved.

10. What kind of data is part of the Physical Inventory document?
(4 correct answers)
   a. Account Data
   b. Plant/Storage Location
   c. Stock Type
   d. Counting Date
   e. Batches

11. Examples of Transfer Postings?
    (3 correct answers)
    a. Stock-to-Stock
    b. Material-to-Material
    c. Consignment-to-Warehouse
    d. Storage-Location-to-Storage-Location

12. Which of the following statements are correct regarding Movement Type 103 during a goods receipt?
    (2 correct answers)
    a. Material is received into blocked stock.
    b. Conditional Financial Accounting document is created.
    c. Purchase order history is updated.
    d. Material is received into quality inspection stock.

5.2 Standard Solution

True/False

1. Stock Transfers always involve the physical movement of goods? (True or False)

Answer: True

Multiple Choice

2. You enter a goods receipt against a purchase order. ***Quality inspection*** is required for this goods receipt. Where can this stock type be entered?
   (3 correct answers)
   a. on the Purchase Order document
   b. on the Material Master record
   c. on the Goods Receipt transaction
   d. on the Vendor Master record

Answers: a, b, c

3. Which of the following statements are correct?
   (2 correct answers)
   a. A Stock Transfer between storage locations is not relevant to accounting.
   b. You can enter Stock Transfers using the transaction MIGO.
   c. You can only carry out Stock Transfers using the one-step procedure.
   d. Stock in transfer is assigned to the issuing storage location.

Answers: a, b

4. You have created a physical inventory document. At what point are the inventory counts adjusted?
   (1 correct answer)
   a. After the counts are entered.
   b. When the posting block is removed.
   c. When the differences are posted.
   d. After the difference list is generated.

Answer: c

5. Which of the following statements about Goods Movements are correct?
   (2 correct answers)
   a. A Goods Receipt decreases the warehouse stock.
   b. Movement of Inventory between plants is completed with a Stock Transfer.
   c. Transfer postings result in a physical move of inventory.
   d. A Goods Issue decreases the warehouse stock.

Answers: b, d

6. Which statements about Goods Receipt to GR Blocked Stock (MvT 103) are correct?
   (2 correct answers)
   a. In order to accept the goods that are currently blocked, a Transfer Posting transaction would be used.
   b. The value of the stock is updated.
   c. PO history is not updated.
   d. Blocked stock is visible on the Stock Overview transaction.

Answers: a, d

7. Which of the following are examples of Stock Transfers?
   (2 correct answers)
   a. Quality Inspection to Unrestricted Use movement
   b. Storage location to Storage Location movement
   c. Material to Material Movement (change the material number)
   d. Plant to Plant movement

Answers: b, d

8. Which of the following statements about Physical Inventory are correct?
   (2 correct answers)
   a. Posted Differences will result in creation of a Material Document and Accounting Document.
   b. The Physical Inventory Document can be created per Plant and Storage Location.
   c. Once a Physical Inventory Document is created, no new items may be added to it.
   d. A Physical Inventory Document cannot be deleted.

Answers: a, b

9. When you freeze inventory?
   (2 correct answers)
   a. All good movements are forbidden.
   b. It prohibits good movements – changes to book inventory.
   c. Allows the posting of differences when the inventory count is saved.

Answers: b, c

10. What kind of data is part of the Physical Inventory document?
    (4 correct answers)
    a. Account Data
    b. Plant/Storage Location
    c. Stock Type
    d. Counting Date
    e. Batches

Answers: b, c, d, e

11. Examples of Transfer Postings?
    (3 correct answers)
    a. Stock-to-Stock
    b. Material-to-Material
    c. Consignment-to-Warehouse
    d. Storage-Location-to-Storage-Location

Answers: a, b, c

12. Which of the following statements are correct regarding Movement Type 103 during a goods receipt?
    (2 correct answers)
    a. Material is received into blocked stock.
    b. Conditional Financial Accounting document is created.
    c. Purchase order history is updated.
    d. Material is received into quality inspection stock.

Answers: a, c