

SCM610

Delivery Processing in SAP ERP

PARTICIPANT HANDBOOK INSTRUCTOR-LED TRAINING

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Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation



Demonstration



Procedure



Warning or Caution



Hint



Related or Additional Information



Facilitated Discussion



User interface control

Example text

Window title

Example text

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Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Application Consultant

Lesson 1

Explaining the Concept and Structure of the Delivery Document

3

UNIT OBJECTIVES

- Describe the application areas for delivery documents
- Display a delivery document

Explaining the Concept and Structure of the Delivery Document

LESSON OVERVIEW

This lesson introduces you to Logistics Execution and provides an overview of the delivery processes as a part of Logistics Execution. The lesson also explains how you can use a delivery document.

Business Example

Your company creates inbound and outbound deliveries during various procurement and sales processes. The documents created for these deliveries are the basis for various goods receipt, shipping, and warehouse activities. To process the issue of goods, the shipping employees require information, such as the weight of the goods, transportation relevance, and ship-to address.

The goods receipt includes information from the suppliers about inbound deliveries. Inbound delivery activities are then processed using the inbound delivery document. If material is delivered to other plants within the company, you can also use the delivery document to process the shipping activities. For this reason, you require the following knowledge:

- The function and use of the delivery document
- The structure of the delivery document
- The information in the delivery document

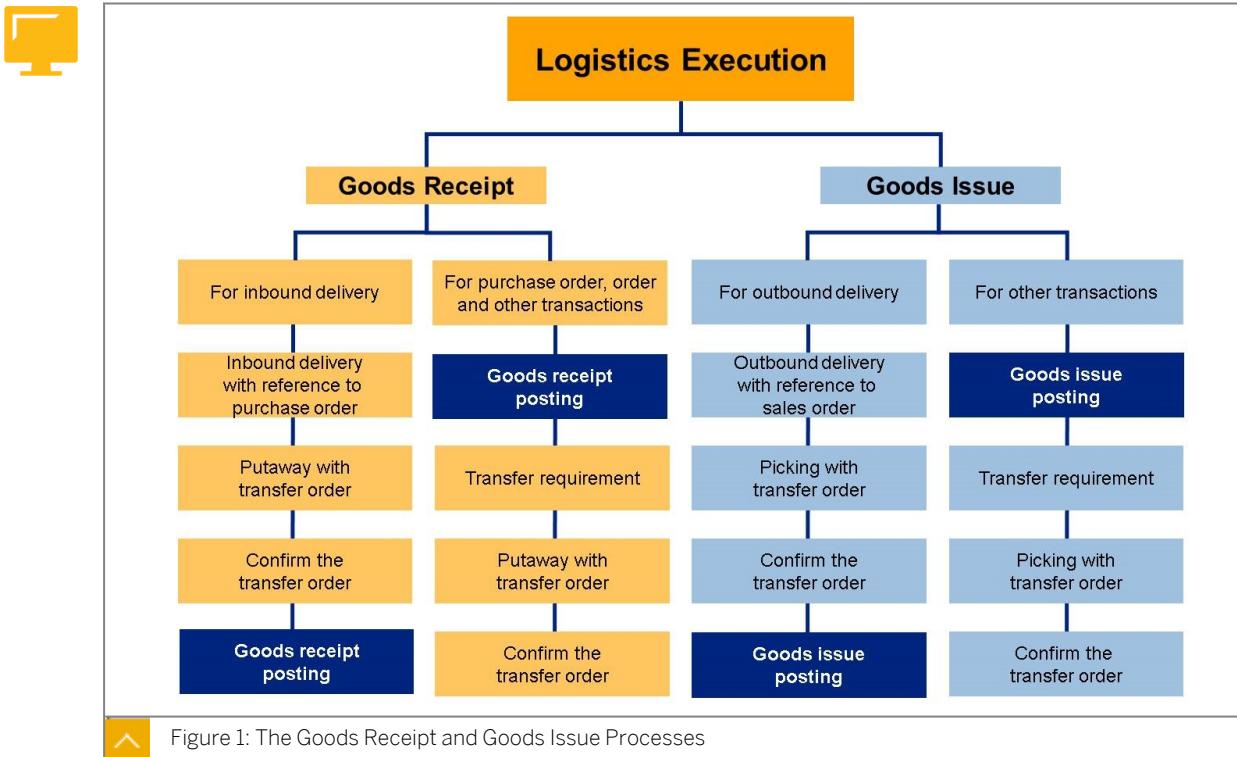


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe the application areas for delivery documents
- Display a delivery document

Logistics Execution – The Goods Receipt and Goods Issue Processes



Logistics Execution provides you with comprehensive functions required to map the implementation of all logistical processes, such as the goods receipt and goods issue processes, regardless of industry or branch.

Logistics Execution provides the link between procurement and distribution, irrespective of whether the processes involved are internal or relate to third parties, such as vendors, customers, or service providers.

Both materials produced in-house and those procured externally are put away and removed from storage using Warehouse Management, in order to supply the enterprise's own production or for delivery to retailers or end users. When using Warehouse Management, the underlying organizational structures can be complex. To accurately map the complicated business situations, Logistics Execution uses separate organizational units and master data stored in the organizational structures in SAP ERP.

You can map processes for goods receipts and goods issues in Logistics Execution by creating a delivery or by placing an inventory management posting (usually with reference to a preceding document) at the beginning of a process.

The figure provides an overview of the document flow and the technical posting procedure for goods receipt and goods issue.

When working with deliveries, Warehouse Management activities, such as creating and confirming a transfer order, are completed before making a posting in inventory management. The goods receipt or goods issue posting always relates to the delivery.



Note:

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

Delivery Documents in Shipping Activities

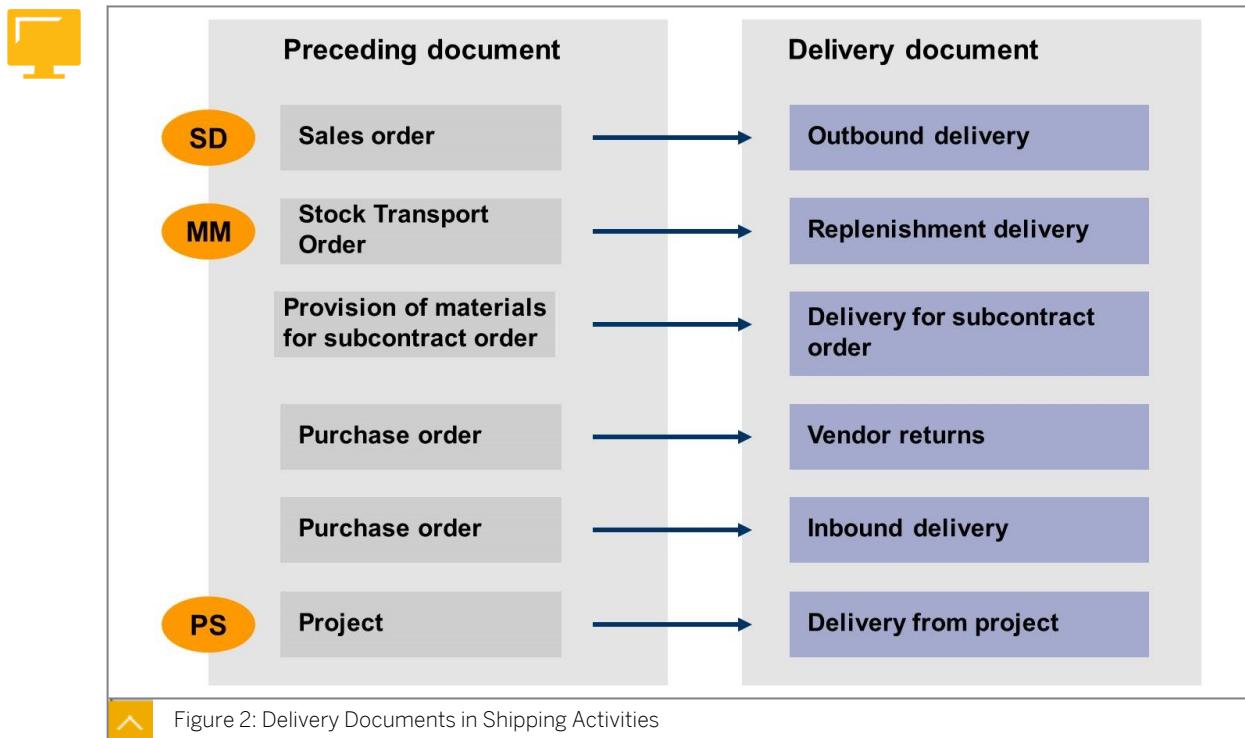
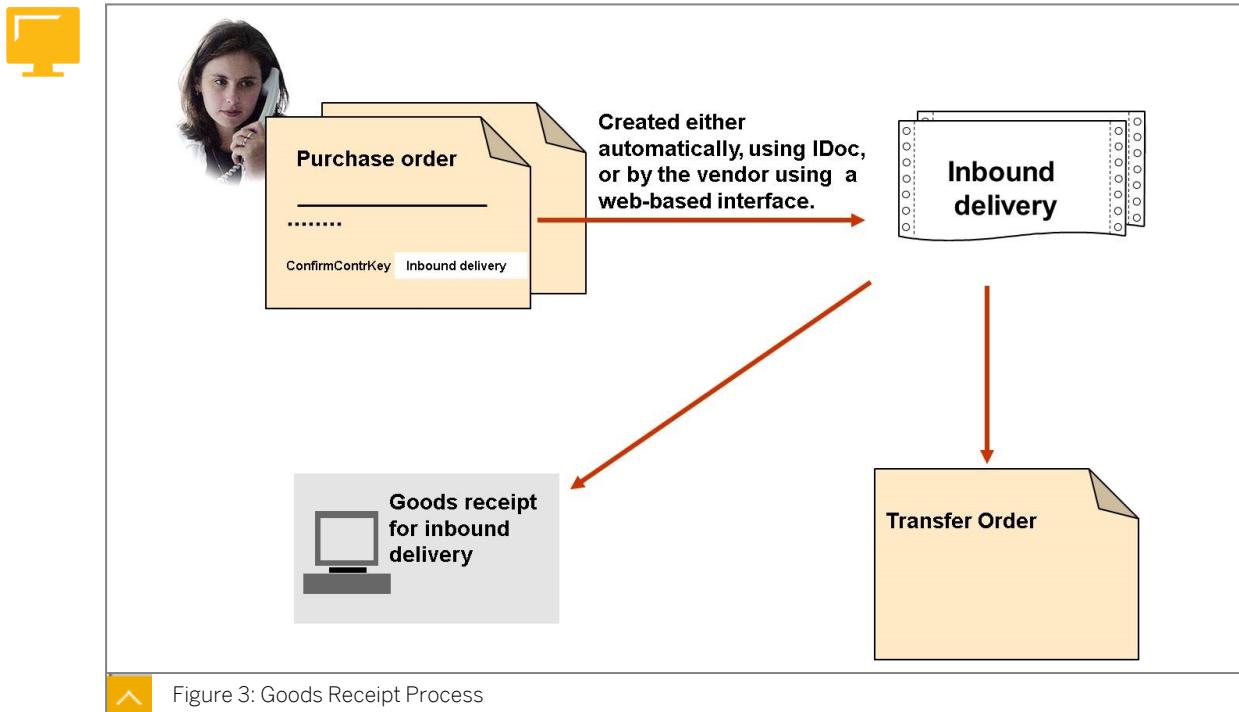


Figure 2: Delivery Documents in Shipping Activities

If you use other processes for buying and selling, you may also need to complete shipping activities, such as picking, packing, and document printing. You can use the delivery documents for these activities as well.

Example: If you want to transfer stock from one plant to another, the plant ordering the stock creates a purchase order in Purchasing, and the plant delivering the stock creates a delivery for that purchase order. Based on this delivery, the goods are picked, packed, and posted as a goods issue. The various business processes are modeled using different delivery types.

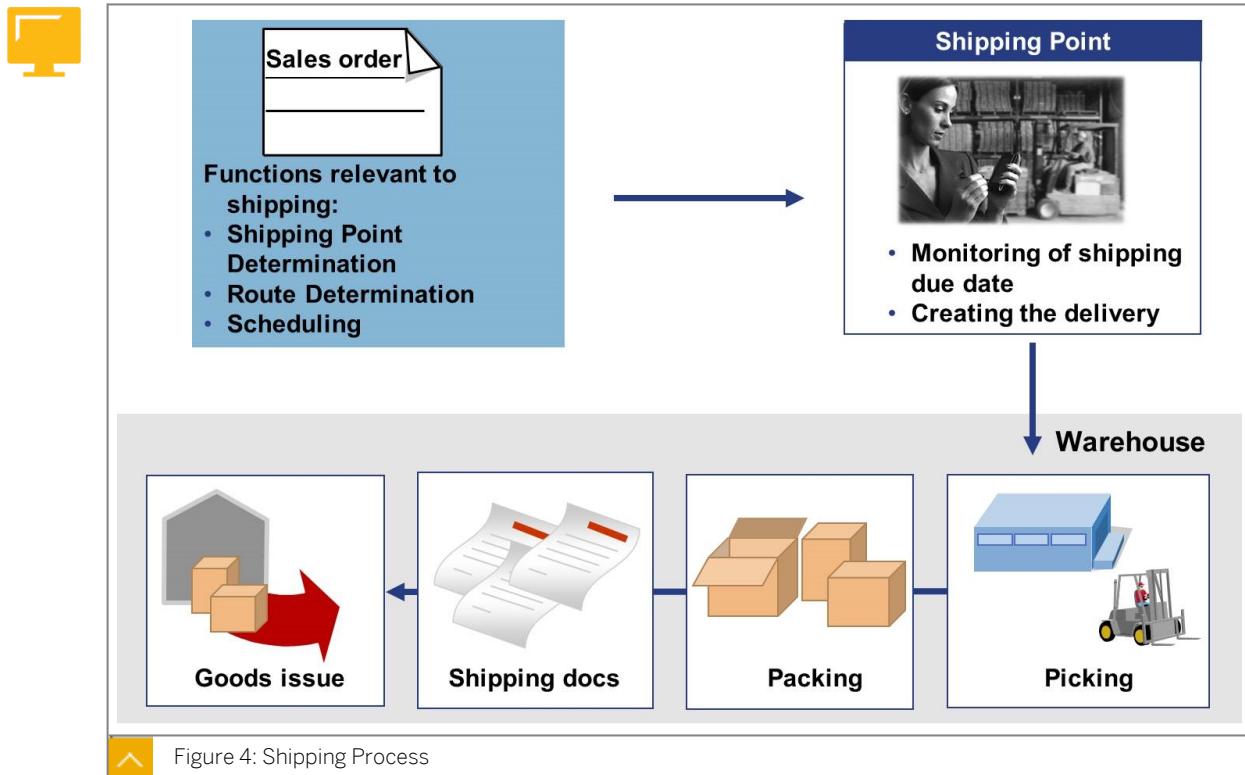
Goods Receipt Process



You can create inbound deliveries for one complete purchase order, partial quantities of purchase order items, or for a combination of several purchase orders.

The inbound delivery then serves as the basis for further activities, such as packing, placing in storage, creating the transfer order, and posting the goods receipt.

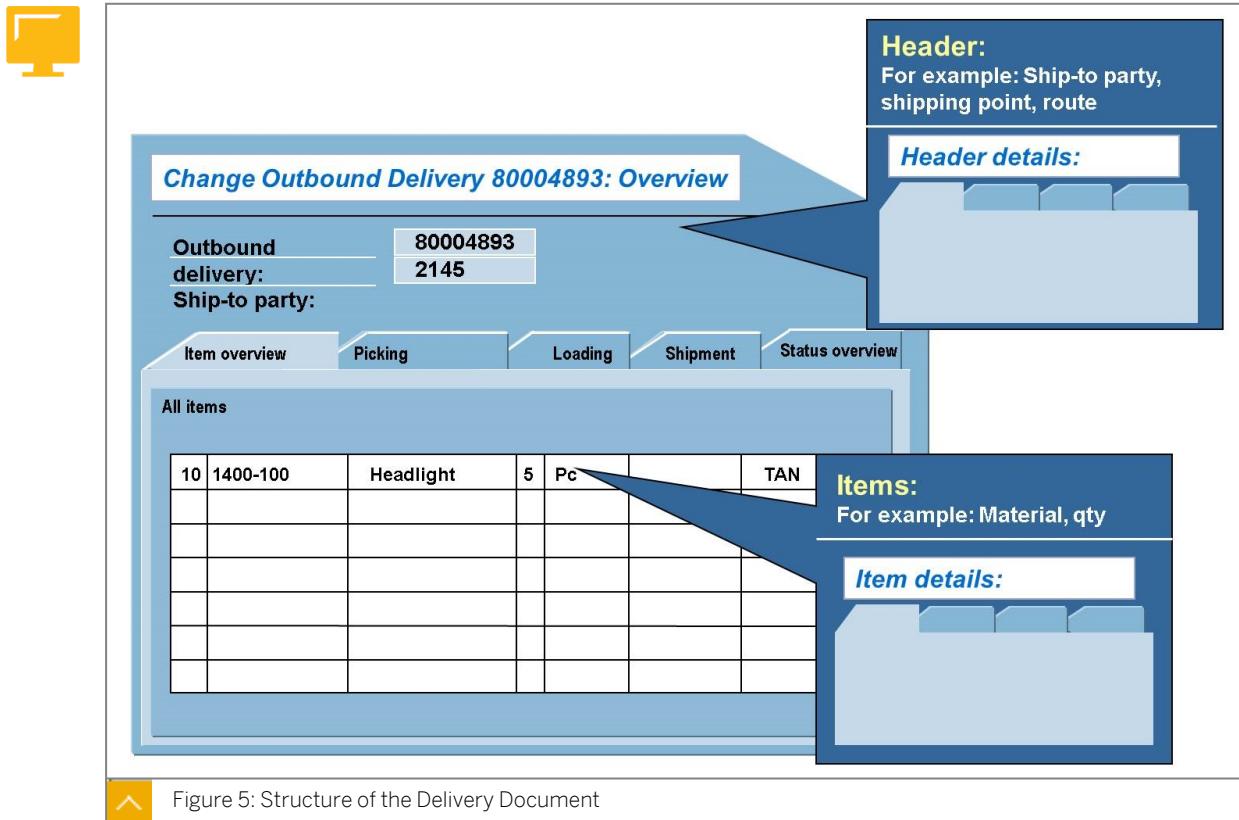
The Shipping Process



In reference to deliveries, the term shipping, or shipping process, describes the movement of outbound goods that usually refer to an order. Shipping also refers to the department that is responsible for the logistical process of delivery processing (picking, packing, loading).

Because delivery documents are also used for other areas, deliveries that refer to a sales document are called outbound deliveries.

Structure of the Delivery Document



A delivery document consists of a header and any number of items. The header contains data that applies to the entire document. This means that the ship-to party, shipping point, route, and so on, are clearly displayed in the header for each outbound delivery. The individual items contain information about the material that needs to be delivered.

The information in the delivery document is displayed on different screens. The overview screen displays the selected header and item data. The data is grouped according to activity on tabstrips. This means that all the important data appears on one screen. You can access the other screens to display detailed information at both the header and item levels. This information is grouped into processes on tabstrips.

At the header level, this information includes data related to processing, picking, loading, shipment, foreign trade/customs, texts, partners, output, package monitoring, and conditions. At the item level, the detailed screen displays similar tabstrips with information about the items.

Differentiation Between Delivery and Shipment Documents

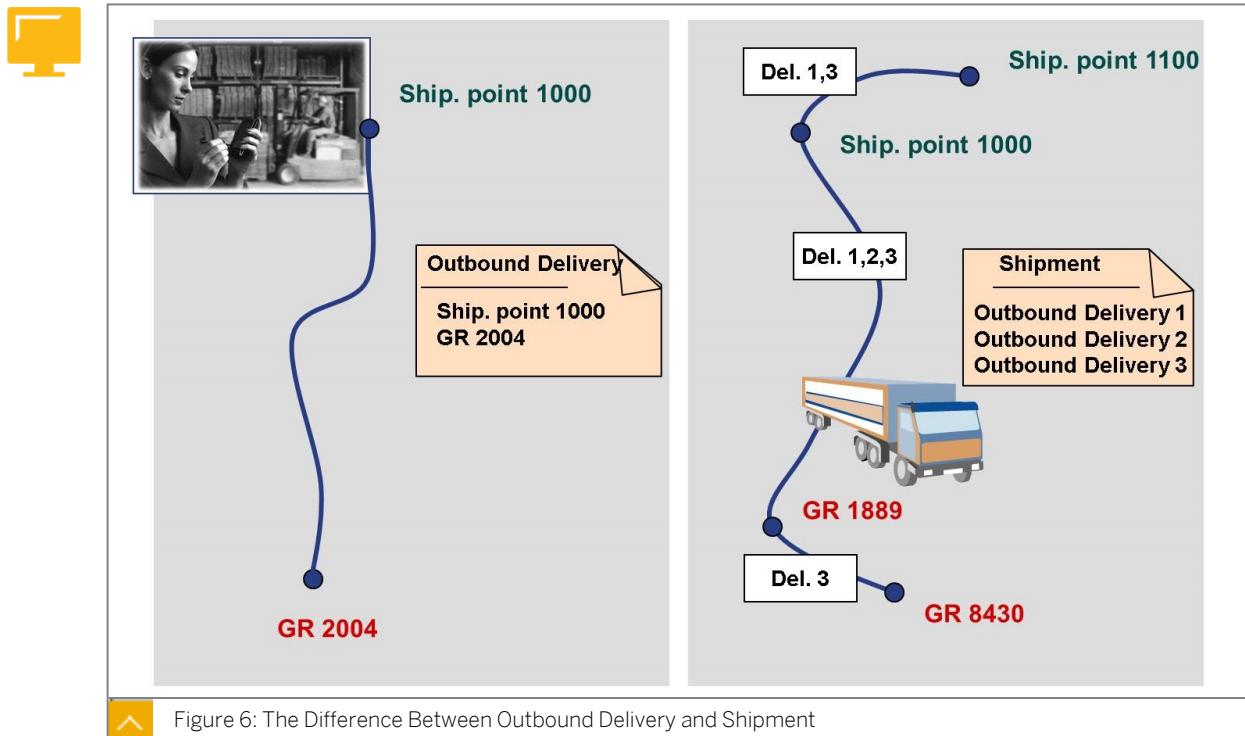


Figure 6: The Difference Between Outbound Delivery and Shipment

The delivery in the SAP system supports the processing of shipping and goods receiving activities in the warehouse and at the shipping point.

The delivery itself simplifies transportation processing. This applies, for example, to shipping, where each outbound delivery starts at a shipping point, continues along a route, and has a ship-to party as the destination. These criteria are the header fields in the outbound delivery.

Consider a situation in which several outbound deliveries are loaded onto a truck, and the truck delivers goods to several shipping points and ship-to parties along a particular route. In this case, you can create a document using the transportation functionality so that outbound deliveries are grouped together on the basis of user-definable criteria, such as same route and transportation requirement. This document is the shipment document.



LESSON SUMMARY

You should now be able to:

- Describe the application areas for delivery documents
- Display a delivery document

Learning Assessment

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

Determine whether this statement is true or false.

- True
- False

2. Which delivery document refers to a sales document?

Choose the correct answer.

- A Inbound delivery
- B Outbound delivery
- C Transfer delivery
- D Posting change

3. At item level, the detailed screen displays similar tabstrips with information about the items.

Determine whether this statement is true or false.

- True
- False

Learning Assessment - Answers

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

Determine whether this statement is true or false.

True

False

You are correct! To move any materials using the Warehouse Management System, a transfer order must be created to execute it. Read more in the lesson, Explaining the Concept and Structure of the Delivery Document, in the course SCM610 or TSCM60 Part 2.

2. Which delivery document refers to a sales document?

Choose the correct answer.

A Inbound delivery

B Outbound delivery

C Transfer delivery

D Posting change

You are correct! Outbound deliveries can be created with reference to a sales document. Inbound deliveries are normally created for purchase orders and stock transport orders. Transfer deliveries do not exist in the standard SAP system. A posting change is normally associated with making adjustments in the financial system and these documents are not delivery related. Read more in the lesson, Explaining the Concept and Structure of the Delivery Document, in the course SCM610 or TSCM60 Part 2.

3. At item level, the detailed screen displays similar tabstrips with information about the items.

Determine whether this statement is true or false.

True

False

You are correct! Delivery documents at both the header and item level contain many similar tabstrips but the information being displayed is obviously different. Read more in the lesson, Explaining the Concept and Structure of the Delivery Document, in the course SCM610 or TSCM60 Part 2.

Lesson 1

Maintaining the Organizational Units for Delivery Processes

17

UNIT OBJECTIVES

- Maintain the organizational units for delivery processes

Unit 2

Lesson 1

Maintaining the Organizational Units for Delivery Processes

LESSON OVERVIEW

This lesson introduces you to the organizational units and structures that are most important for the shipping (goods issue) or goods receipt processes. The lesson also describes the organizational elements of inventory management and Warehouse Management.

Business Example

As a project team member, one of the first tasks in your project is to map the organizational structure in the company for shipping and other related areas. To do this, you need to define the organizational units and assign the ones required for shipping. For example, shipping of refrigerated goods has very specific requirements in your company, so you need a separate organizational unit for this type of shipment. For this reason, you require an understanding of how to define and assign organizational units in the Implementation Guide.

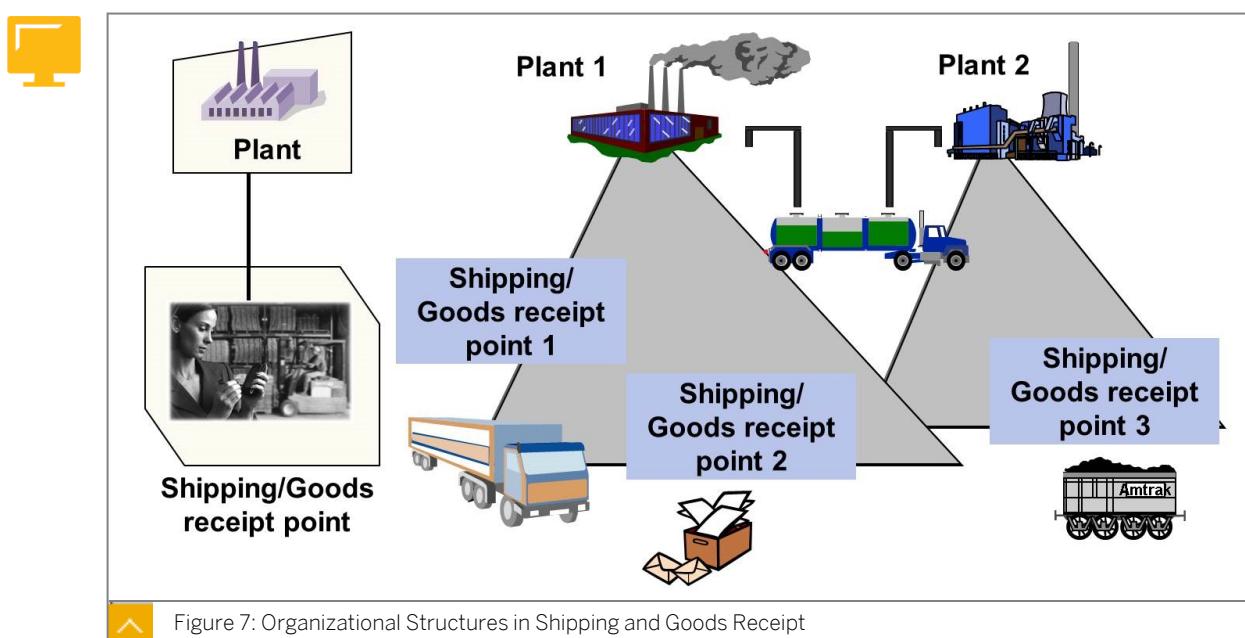


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Maintain the organizational units for delivery processes

Organizational Structures – Shipping and Goods Receipt



A shipping point is an independent organizational unit at a fixed location that processes and monitors outbound deliveries and goods issues. An outbound delivery is processed from a

single shipping point. The responsible shipping point is determined in the order at the item level. A single shipping point can process the outbound deliveries of several different plants. However, this practice is only useful if the plants are located close to each other.

Several shipping points with different loading equipment, different processing times, and so on, can be assigned to one plant. The Customizing application of the enterprise structure defines the allowed combinations of shipping points and plants.

Another organizational unit in shipping is the loading point. The loading point is used to structure shipping. Loading points are defined in Customizing for Logistics Execution and are assigned manually in the delivery document header. If desired, the loading points can be included in the delivery output. Any number of loading points can be assigned to a shipping point but only one shipping point can be assigned to a loading point.

A shipping point can also be set as a goods receipt point, which means the shipping points can also be used for inbound deliveries.

Organizational Structures – Inventory Management

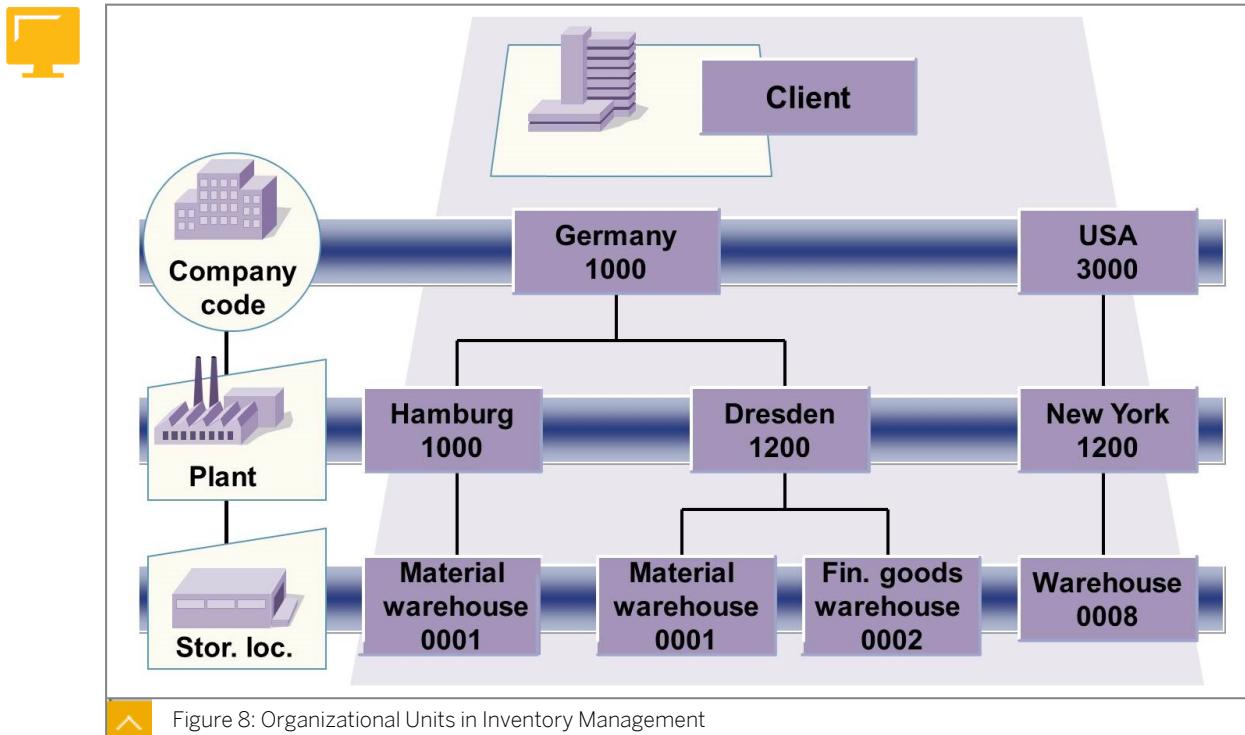


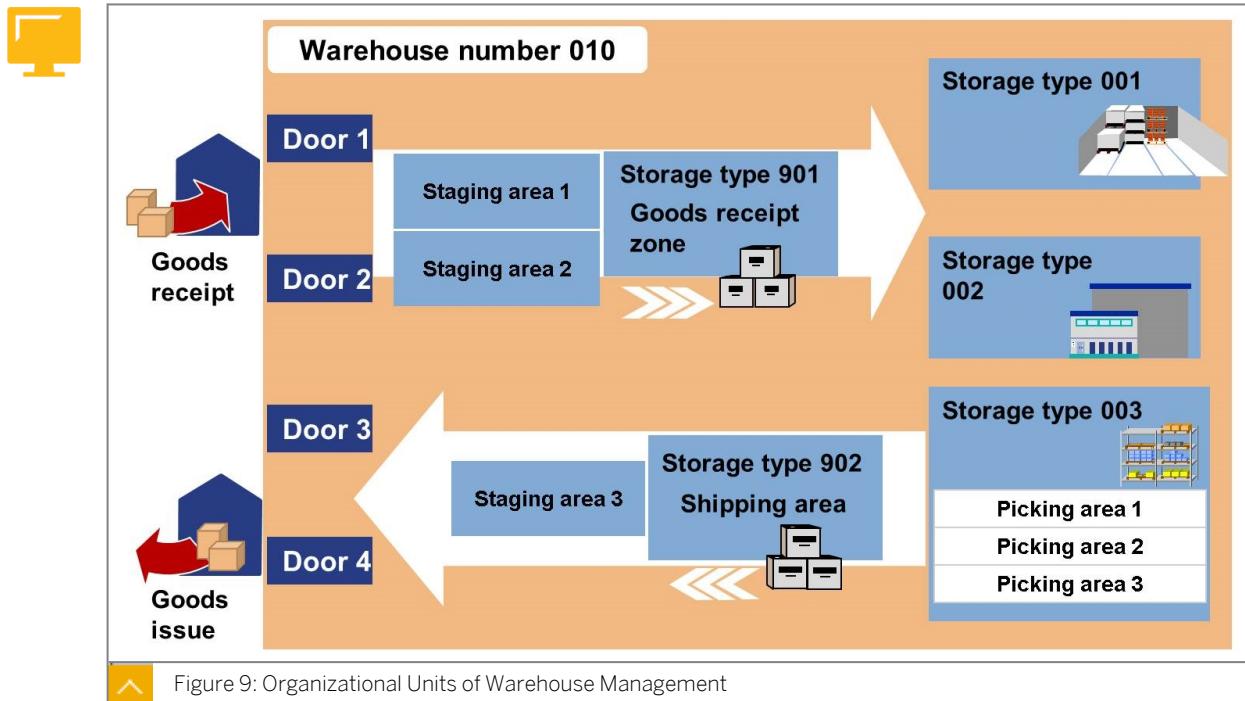
Figure 8: Organizational Units in Inventory Management

You can model the inventory management structure of a corporate group by using clients and company codes. A client represents a corporate group, while a company code represents a legally independent accounting unit.

The plant plays a central role in inventory management. A plant is an organizational unit for dividing an enterprise according to production, procurement, maintenance, and materials planning. Assigned to each plant you have one or several storage locations. Storage locations allow differentiation between the various stocks of a material in a plant. Stock is managed at the level of the storage location.

A plant can only be assigned to one company code. This way, you can manage stocks and stock values independently for individual companies.

Organizational Structures – Warehouse Management



To ensure that you are efficiently processing goods receipts and goods issues in the warehouse, you can use the following organizational units:

- Warehouse number

The warehouse structure is managed under one warehouse number. This number represents the warehouse complex.

- Storage type

The different warehouse areas, which differ from each other with regard to their organizational and technical features, are defined by different storage types (for example, high-rack warehouse area with random storage, picking warehouse area with fixed bins, and shipping area).

- Storage section or picking area

The picking area groups storage bins together within the storage type from the picking perspective. It is the opposite of the storage section, which groups storage bins together from the putaway perspective. For example, a delivery can be split up into different picking areas to make parallel picking possible.

- Storage bin

The storage bin identifies the exact location in the warehouse where goods are stored or can be stored.

- Staging area

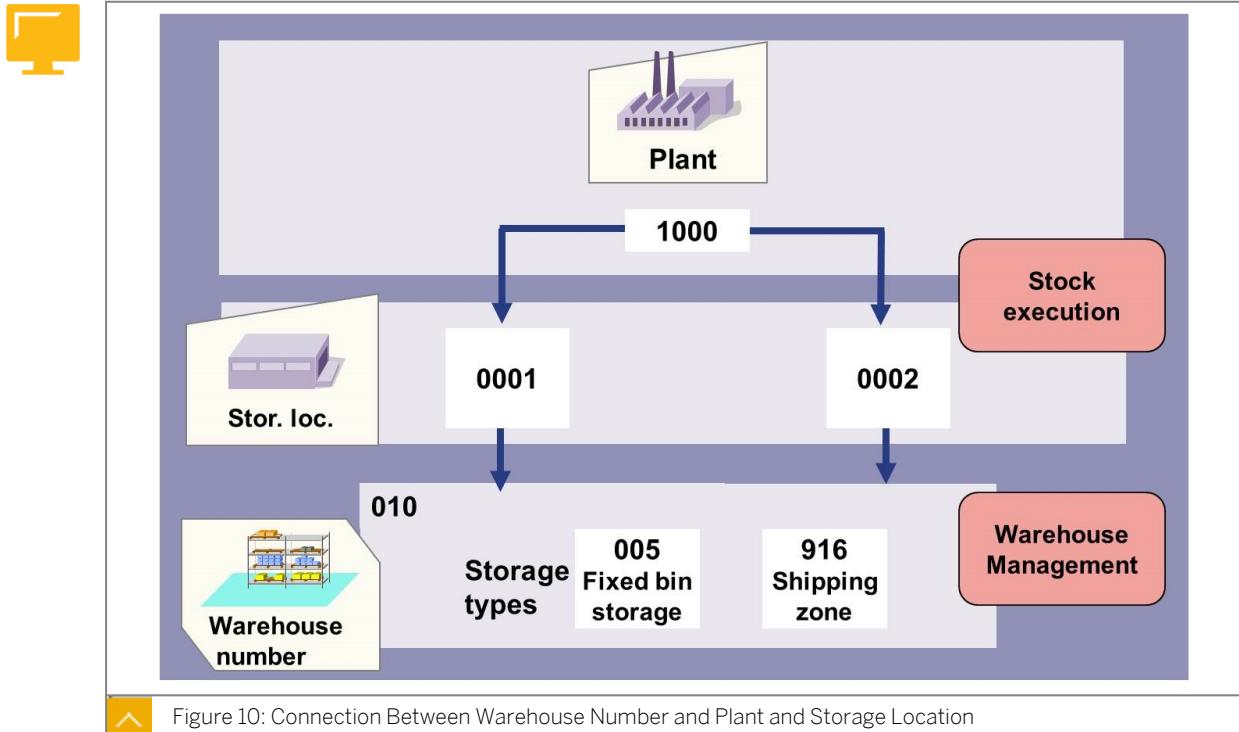
The staging area is an area in the warehouse where goods are stored immediately after unloading or shortly before loading.

- Door

A door is a point within a warehouse that can be used for both the inbound and outbound delivery of goods.

The door and the staging area can be assigned in the outbound delivery header. They can also be determined automatically, depending on the customer.

Connection Between Warehouse Number and Plant and Storage Location



The connection between the organizational units in the warehouse and inventory management results from the assignment of the warehouse number to a combination of plant and storage locations.

Several storage locations within a plant can refer to the same warehouse number. As a result, they form the warehouse complex from the perspective of inventory management.



LESSON SUMMARY

You should now be able to:

- Maintain the organizational units for delivery processes

Learning Assessment

1. Several storage locations within a plant can refer to the same warehouse number.

Determine whether this statement is true or false.

- True
 False

2. A shipping point may also be set as a _____, which means it can also be used for inbound deliveries.

Choose the correct answer.

- A Goods receipt point
 B Loading point
 C Company code
 D Plant

3. A door within a warehouse can be used for both the inbound and outbound delivery of goods.

Determine whether this statement is true or false.

- True
 False

4. The storage bin identifies the exact location in the warehouse where goods are stored or can be stored.

Determine whether this statement is true or false.

- True
 False

Learning Assessment - Answers

1. Several storage locations within a plant can refer to the same warehouse number.

Determine whether this statement is true or false.

True

False

You are correct! In the customizing functions of the system, many storage locations can refer to the same warehouse number. Read more in the lesson, Maintaining the Organizational Units for Delivery Processes, in the course SCM610 or TSCM60 Part 2.

2. A shipping point may also be set as a _____, which means it can also be used for inbound deliveries.

Choose the correct answer.

A Goods receipt point

B Loading point

C Company code

D Plant

You are correct! Shipping points can also be used to represent a goods receipt point for inbound deliveries. A loading point can't be assigned as a shipping point because loading points are dependent upon a shipping point. Shipping points are plant dependent; therefore, they cannot be used to represent a company code. Shipping points are dependent upon a plant; therefore, a shipping point would not be representing a plant. Read more in the lesson, Maintaining the Organizational Units for Delivery Processes, in the course SCM610 or TSCM60 Part 2.

3. A door within a warehouse can be used for both the inbound and outbound delivery of goods.

Determine whether this statement is true or false.

True

False

You are correct! Based on the configuration of a warehouse, a door can be used for the movement of both inbound and outbound materials. Read more in the lesson, Maintaining the Organizational Units for Delivery Processes, in the course SCM610 or TSCM60 Part 2.

4. The storage bin identifies the exact location in the warehouse where goods are stored or can be stored.

Determine whether this statement is true or false.

True

False

You are correct! In the Warehouse Management System a storage bin used to define the exact location of where a good is stored or could be stored. Read more in the lesson, Maintaining the Organizational Units for Delivery Processes, in the course SCM610 or TSCM60 Part 2.

Lesson 1

Controlling Delivery Documents

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UNIT OBJECTIVES

- Use Customizing settings to control delivery documents

Controlling Delivery Documents

LESSON OVERVIEW

This lesson introduces the basic settings in the delivery Customizing. It explains the delivery type and the delivery item category as elementary control objects.

Business Example

In shipping and goods receipt, you map different business transactions using different delivery types. Therefore, you need separate delivery types for processing express deliveries, stock transfers, returns deliveries, and so on. The different delivery types usually require different processing within shipping. (For example, returns deliveries do not require any picking activities.)

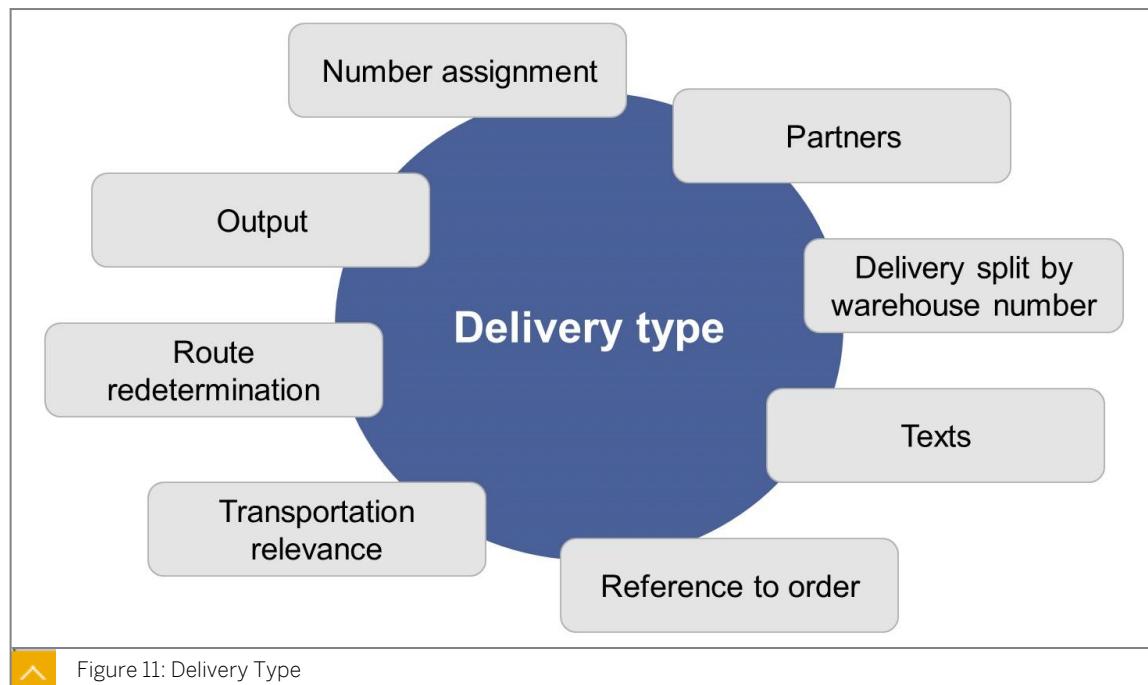


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Use Customizing settings to control delivery documents

Delivery Type



The delivery type controls the entire delivery. You see the delivery type in the delivery header. The delivery types are used to represent the various business transactions in shipping and goods receipt processing.

Examples of delivery types defined in the standard system are as follows:

Delivery Type	Description
EL	Inbound delivery (shipping notification)
LB	Delivery for subcontract order
LF	Outbound delivery
LO	Delivery without reference (no sales order necessary to create a delivery)
LP	Delivery from project
RE	Returns delivery
NL	Replenishment delivery

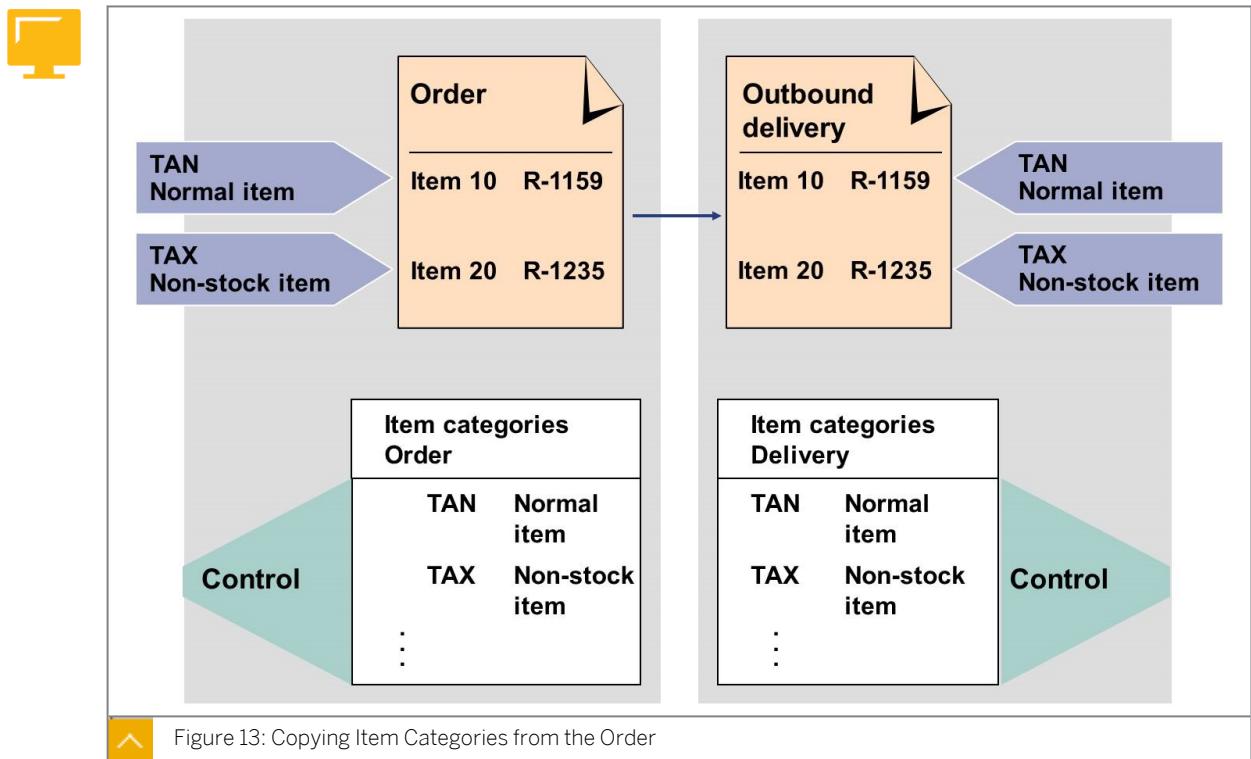
Using control elements, you can configure each delivery type to carry out different functions. You can adjust the delivery types in the standard system to meet your business requirements. However, if you require major adjustments, we recommend that you create a new delivery type.

Delivery Item Categories



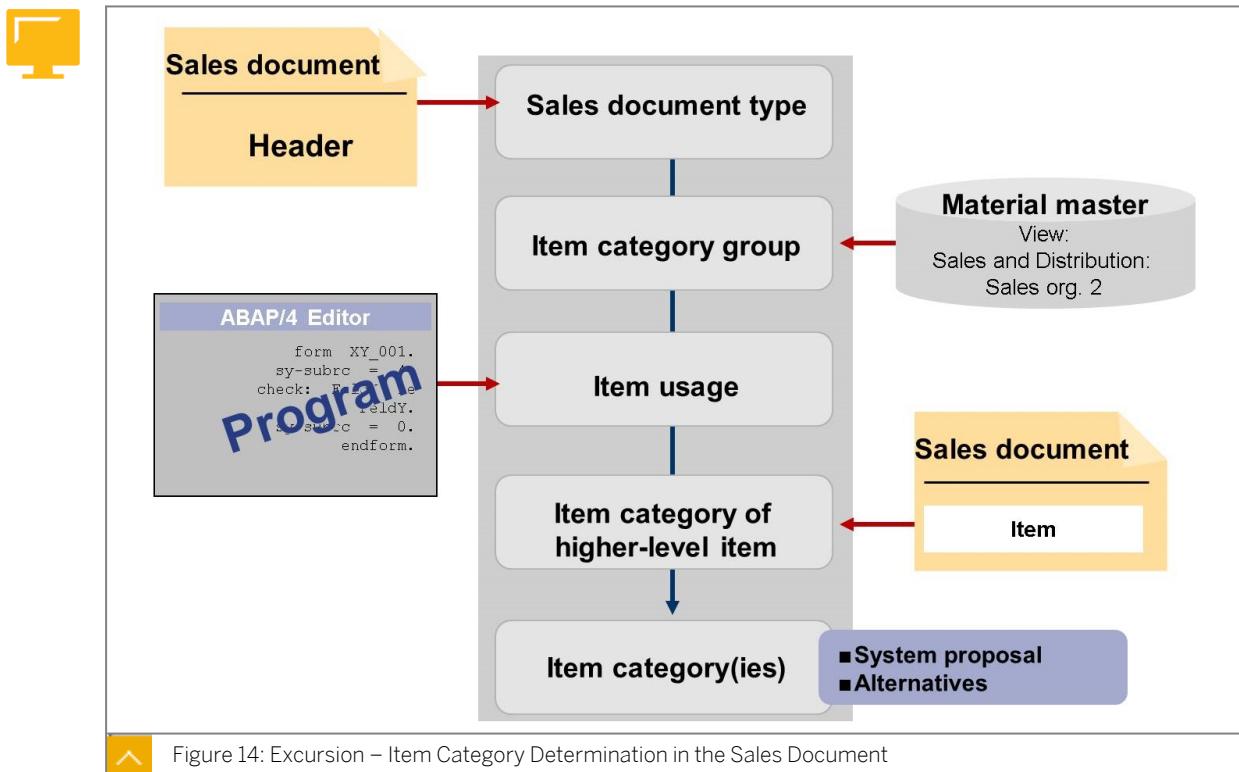
The delivery item category controls how the affected delivery items are handled and processed during the shipping or goods receipt process. The control elements available provide a high degree of automatic determination and checking. You can also configure the item categories to meet the specific requirements of your system installation.

Delivery Item Category Determination



When you copy a sales order item to a delivery, the system copies the item category of the order item to the delivery item. If an order item or the schedule line assigned to it is relevant for delivery, you must define a corresponding item category for the delivery. You must do this under the same key which is used for the order item category.

Item Category Determination in the Sales Document



The system determines the items in the sales order that are relevant for delivery (for example, a standard item in the order is relevant for delivery, and a service item in the order is not relevant for delivery) and transfers it to the delivery item. To understand the Delivery Customizing, it is important that you know about the item category determination in the sales document.

The item category in the sales document is determined by the following factors:

- Sales document type of the order

Depending on your business process, you can specify the order type you want to use when you create an order.

- Item category group

Depending on your business process, you can specify the item category group for each material, sales organization, and distribution channel. Therefore, you can use the material of the sales document item to influence the control (or order item category) of the document item.

- Item category usage

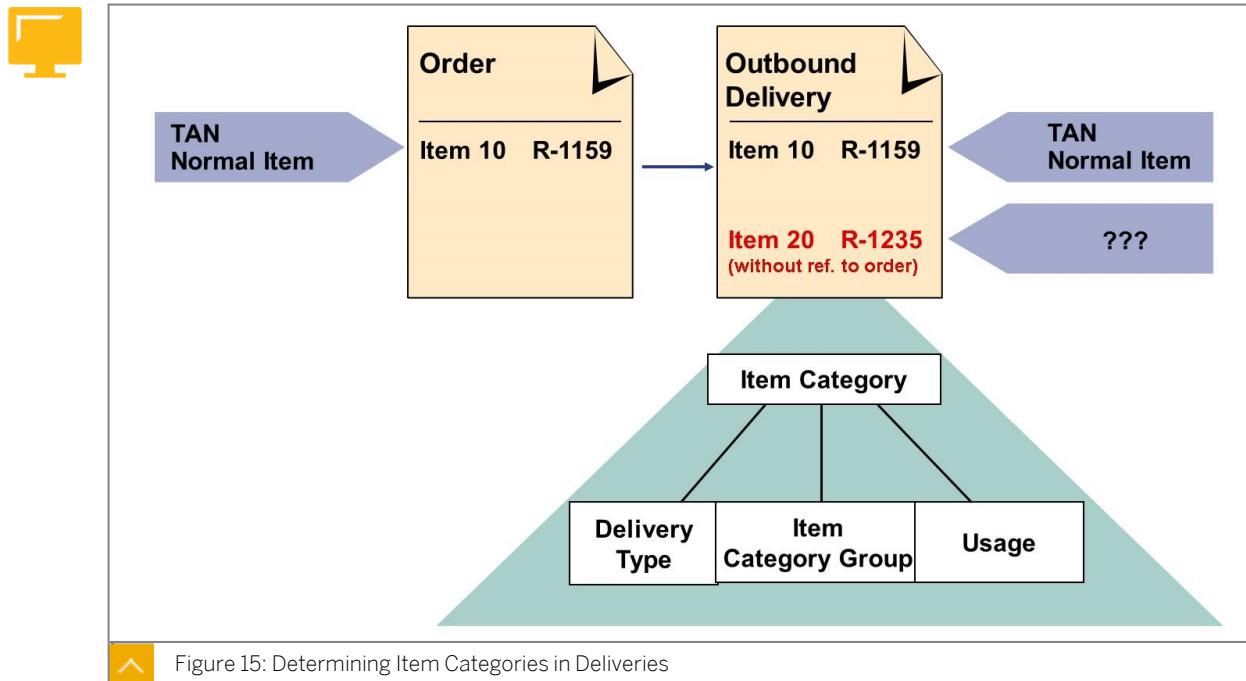
Because of specific functions and processes of the program, the system sets the item category usage to a certain status to reach a very specific item control (order item category). Therefore, item category usage is part of basic programming and plays an important role in determining the order item category. For determining the item category in the order, you can also define an item category usage in the master record for customer material information.

- Item category of higher-level item

If the sales document item is a subitem, the previously determined item category of the higher-level item affects the item category of this subitem.

In Customizing, for possible combinations of these four criteria, you can define an item category as default for the automatic proposal and other item categories as manual alternatives.

Determine Item Categories in Deliveries



For order-independent items in the delivery (for example, packing material), deliveries without reference to an order (delivery type LO), or inbound deliveries (for example, delivery type EL for a purchase order), no item category can be copied from a sales order.

In such cases, the system determines an item category for the delivery according to the assignments specified in Customizing. The item category determination in the delivery is very similar to the item category determination in the order. To determine the item category, the system takes into account the delivery type and the item category group from the material master of the item concerned.

Additional usages are set internally for the following functions:

- PACK for generating packing items
- CHSP for a batch split
- PSEL for product selection
- V for inbound deliveries for purchase orders and for deliveries in stock transport processes

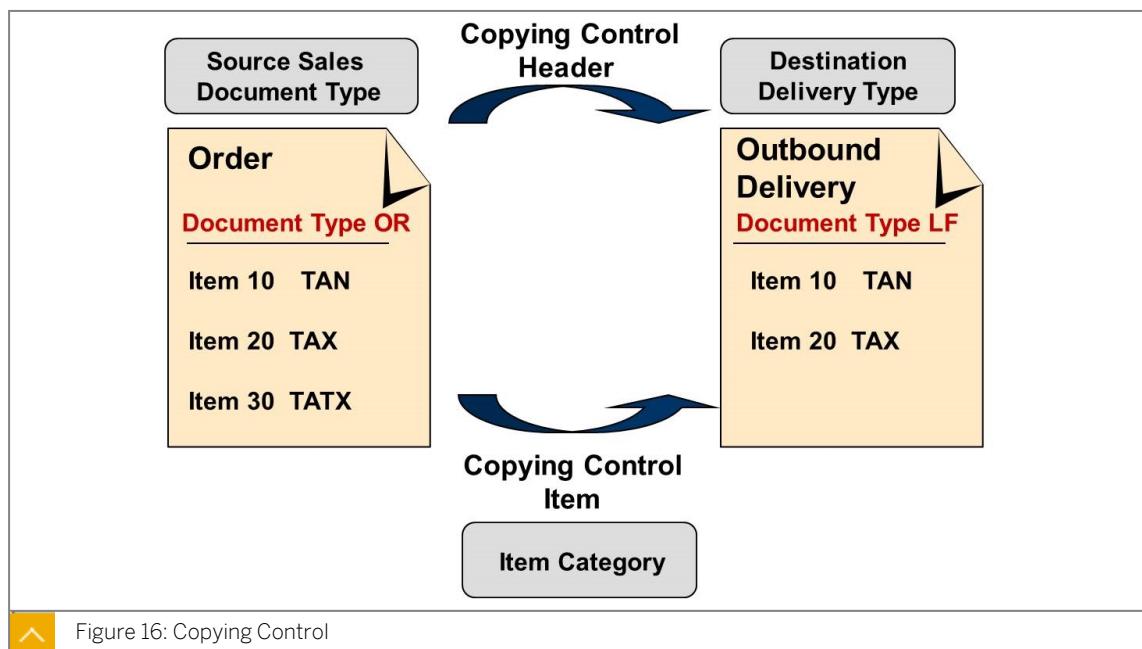
This means that the system can determine a different item category for the delivery items resulting from processes where these specific functionalities are used.

**Note:**

The determination of a usage is hard-coded. This means that the usages are located in the ongoing program of the process. You can only use a code modification (not Customizing) to change the usage determination. However, a usage can be specified in the customer-material info record. The item category determination considers this usage only in the order and not in the delivery.

The material master contains the field item category group twice in the form of a general item category group and an item category group. The general item category group does not refer to the sales organization and distribution channel. You can use this entry for inbound deliveries. The other entry is the item category group maintained on the level of the sales organization and the distribution channel. This is used if the delivery contains a sales organization and distribution channel (for example, outbound deliveries for the sales document).

Copying Control



You specify the following data in the copying control table:

- Which sales and distribution document types can be copied to which delivery types
- Which item categories are copied from reference documents

You can also specify the following data:

- Under what conditions is the data copied from the order to the outbound delivery
- Under what conditions can several orders be combined in an outbound delivery
- Which data is to be transferred
- Whether the reference needs to be recorded in the document flow

The system ships the order items together that are due for delivery and have the same delivery split criteria. If you select order combination, the system groups together all of the

orders or order items that you process together in the process of delivery creation, provided that the order items match the delivery split criteria.

The shipping point, route, and ship-to party are examples of required delivery splitting criteria. Certain delivery splitting criteria in the standard system are optional and can be removed as splitting criteria from the copying control table. You can also define additional splitting criteria that do not allow joint shipping if the defined fields have different values.

Shipping-Relevant Customizing in Sales

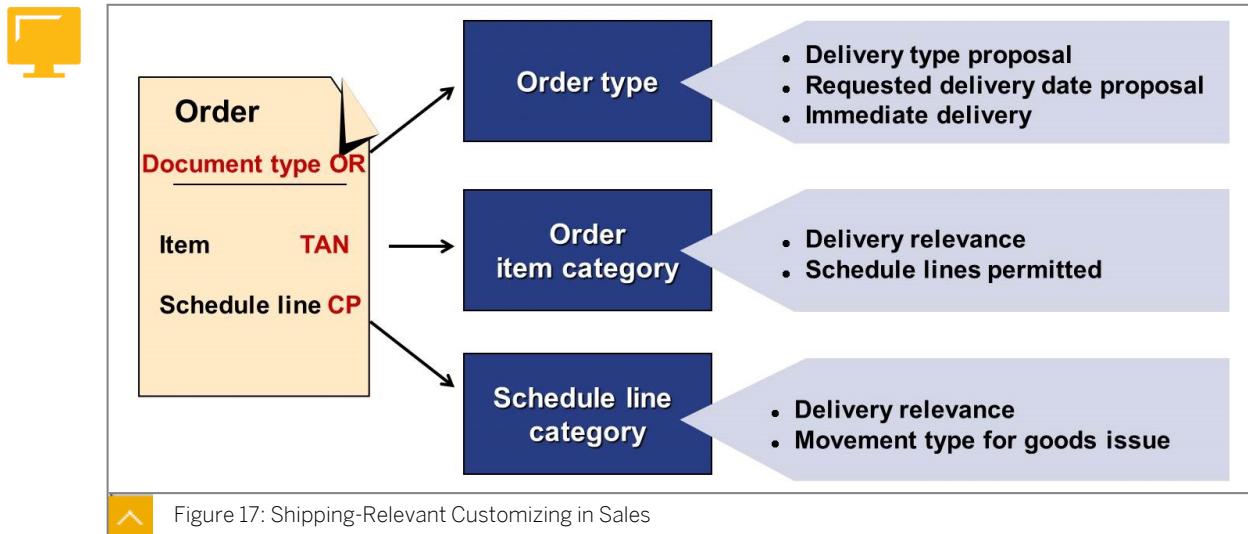


Figure 17: Shipping-Relevant Customizing in Sales

You enter delivery relevant settings in the sales order types by maintaining the following fields/settings:

- Which delivery type the system proposes for the outbound delivery
- Whether the system proposes a delivery date in the field *requested delivery date* in the order and how far it is in the future
- Whether the system creates the outbound delivery automatically in the background when you save the order

Delivery relevance at the order item category level is valid only for text or value items. For example, you can set a text item as relevant for delivery so that the system transfers it to the outbound delivery from the standard order. This means that the text item will be available in the delivery document.

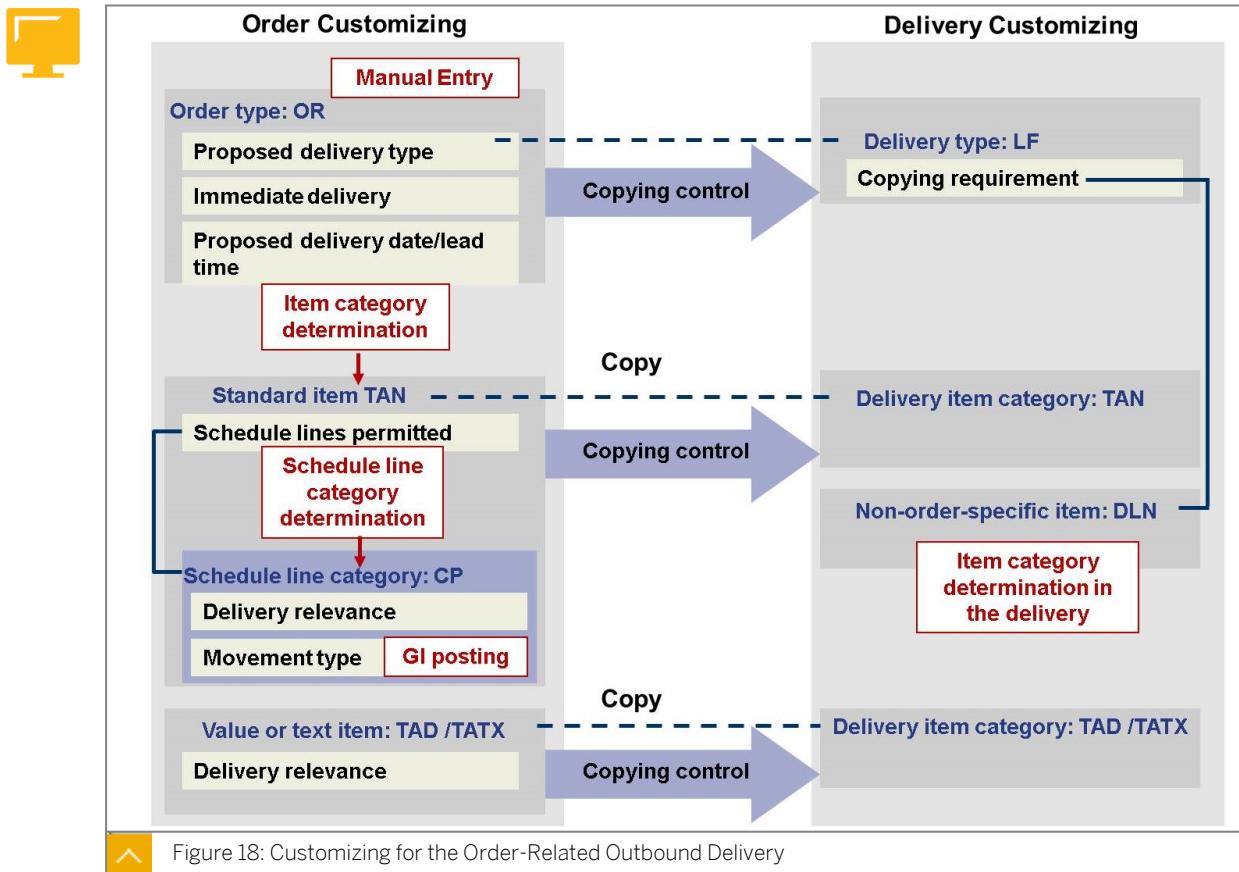
Physical deliveries using the interface for the inventory management component are only possible if you use schedule lines. Therefore, in this standard case, you must allow schedule lines for the order item category. You must also set the schedule line category as relevant for delivery. You must define the goods issue movement type or goods receipt movement type (for returns deliveries) at the schedule line category level.

These shipping-relevant Customizing settings require the following conditions:

- You must define all delivery item categories as item categories in Sales and Distribution. This condition applies even to the item categories that are never found in sales documents (for example, DLN or ELN).
- You must determine a schedule line category in Sales and Distribution for all delivery item categories that do not have sales document category 7. This is because the movement

type comes from the schedule line category. You can directly specify the movement type in Customizing in the delivery item category that has the sales document category 7 (for example, the delivery item category ELN).

Process Customizing



The delivery type controls the delivery document and is located in the header of the delivery document. The system derives the delivery type of the delivery document from the order type of the order that you are delivering. In the transaction “Create Outbound Delivery”, you can select another delivery type for the delivery document. To use a delivery type within the order-related outbound delivery, in copy control you must link the relevant order type to the required delivery types.

To deliver order items, these items must be relevant for delivery. For text and value items, you must define the delivery relevance for the order item category. For normal items, you must control the delivery relevance at the level of the schedule line.

You can define a movement type only for the schedule line category; this creates a connection to inventory management. As a result of this, the system permits schedule lines for standard items and uses the automatic determination of the schedule line category.

For each order item category, there is a delivery item category available in the system. If you create a delivery document with reference to the sales order, the item category in the delivery document will be transferred from the sales order. For delivery items that do not refer to the sales order, the system will not transfer any item categories from the sales order. For these delivery items that do not refer to the sales order, item category determination occurs in the delivery document.

Customizing of the Outbound Delivery Without Order Reference

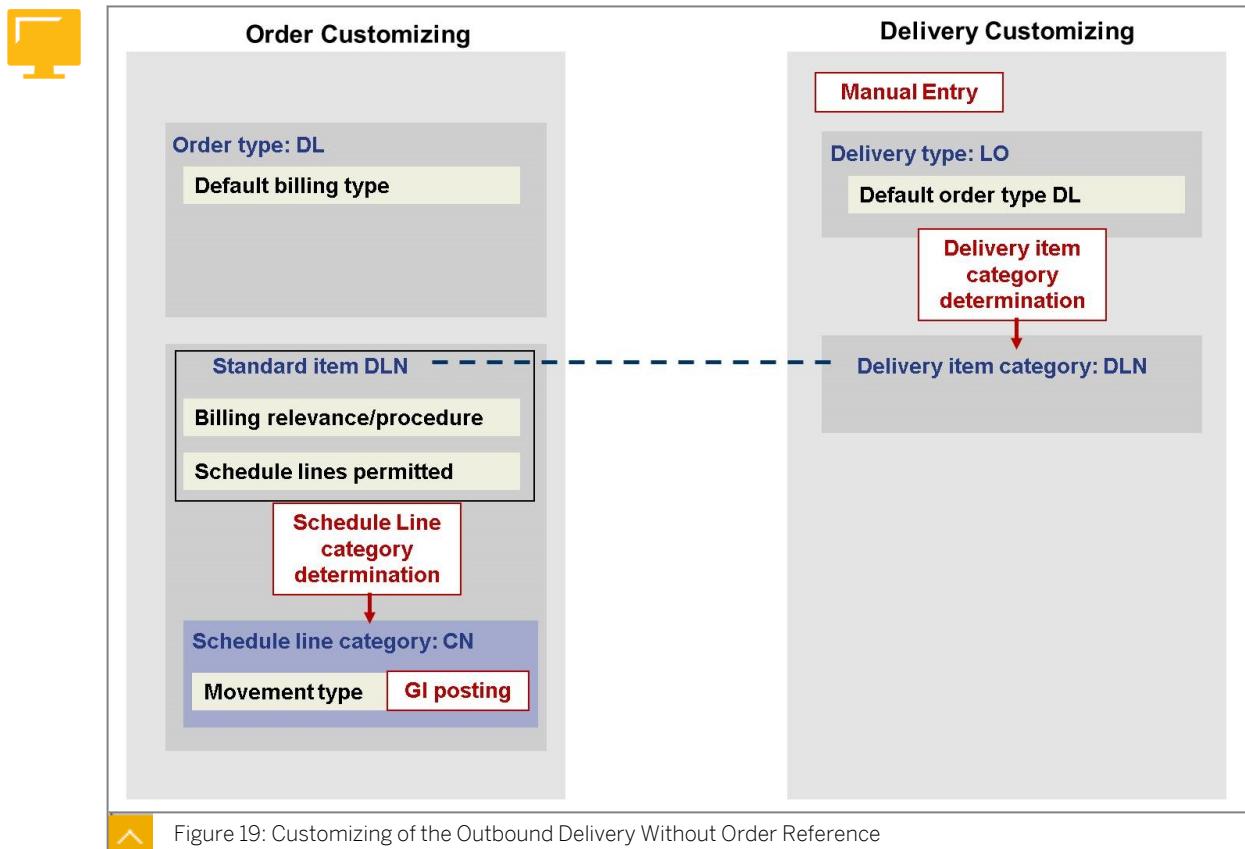


Figure 19: Customizing of the Outbound Delivery Without Order Reference

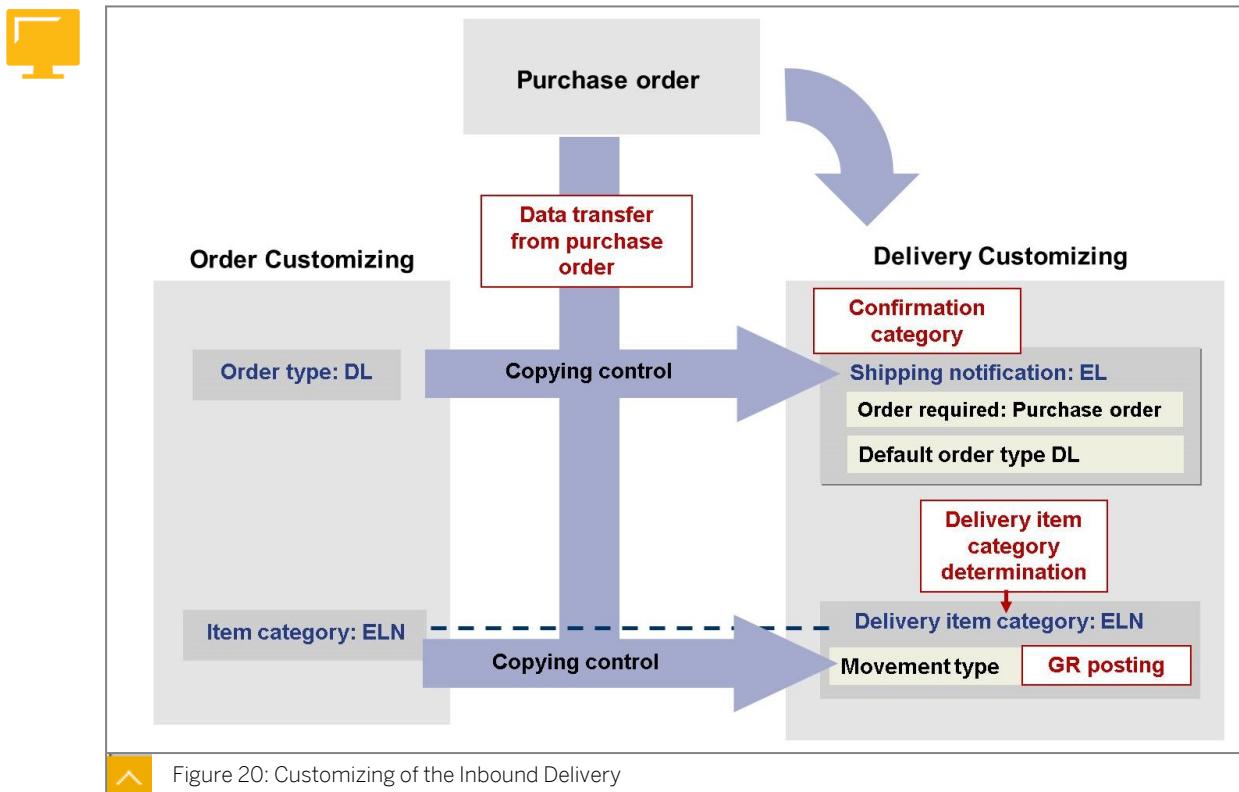
If you create deliveries without order reference, you must manually select the delivery type on the initial screen of the transaction “Create Outbound Delivery without Order Reference”.

For the delivery process (and for the billing process that follows), the system must access the order Customizing. In the system, you have to define a default order type in the Customizing for the delivery type. A delivery without reference does not contain a link to any real sales order. The Customizing for this default order type contains the default billing type for billing this delivery.

When you enter an item in the delivery without order reference, the system uses item category determination to determine the item category for this item. You must ensure that there is a corresponding order item category for this delivery item category. This order item category decides whether this operation is relevant for billing and which billing procedure is to be used.

To create a connection to inventory management for the delivery item, the system must allow schedule lines for the order item category. You can then use the schedule line category determination to determine a schedule line in the order. The movement type defined in the schedule line category controls the goods issue posting of the delivery item.

Customizing of the Inbound Delivery



If you create an inbound delivery with reference to a purchase order, the system determines the delivery type of the inbound delivery from the Customizing of the confirmation category. For this delivery type, the preceding document is defined as a purchase order. In addition, a default order type is defined for this delivery type because you must access order Customizing for this process as well.

The system defines the default order type in the Customizing of the sales documents. The default order type uses the copy control “Order Type to Delivery Type” to transfer information from the purchase order to the delivery using the data transfer routine.

In the delivery document, the system creates delivery items for the items of the purchase order. The delivery item category determination decides the item categories for these items. In this case, you work with the item usage V (purchase order).

A corresponding order item category must exist for this delivery order category so that the system can create a copying relationship between the order and delivery document at the item level. The system uses this copying relationship to provide data from the purchase order using the data transfer routine in the delivery copying control.

For the delivery item category that you use in inbound delivery, for example, ELN, you maintain the movement type in delivery item category configuration. For other item categories, you maintain the movement type in the schedule line category.

Since the delivery item categories are of the type SD document category 7 (inbound delivery/shipping notification), for the delivery item category, you can directly define the movement type for the goods receipt posting of the delivery item.



LESSON SUMMARY

You should now be able to:

- Use Customizing settings to control delivery documents

Learning Assessment

1. Order items that are due for delivery and have the same delivery split criteria are shipped together.

Determine whether this statement is true or false.

- True
 False

2. To determine the item category, the system takes into account the delivery type and the item category group from the material master of the item concerned.

Determine whether this statement is true or false.

- True
 False

3. Delivery relevance at the order item category level is valid only for text items.

Determine whether this statement is true or false.

- True
 False

Learning Assessment - Answers

1. Order items that are due for delivery and have the same delivery split criteria are shipped together.

Determine whether this statement is true or false.

True

False

You are correct! To optimize shipping processes, deliveries that share common delivery requirements are shipped together. Read more in the lesson, Controlling Delivery Documents, in the course SCM610 or TSCM60 Part 2.

2. To determine the item category, the system takes into account the delivery type and the item category group from the material master of the item concerned.

Determine whether this statement is true or false.

True

False

You are correct! Item category determination for a delivery item is a combination of the delivery type, usage and the item category group in the material master. Read more in the lesson, Controlling Delivery Documents, in the course SCM610 or TSCM60 Part 2.

3. Delivery relevance at the order item category level is valid only for text items.

Determine whether this statement is true or false.

True

False

You are correct! The switch for delivery relevance in the Customizing of the order item category is only valid to text items. Read more in the lesson, Controlling Delivery Documents, in the course SCM610 or TSCM60 Part 2.

UNIT 4

The Goods Issue Process Based on the Delivery

Lesson 1

Adjusting Automatic Determination of Relevant Fields for Outbound Delivery Creation

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Adjusting Delivery and Transportation Scheduling

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Processing Outbound Deliveries

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Using the Outbound Delivery Monitor

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UNIT OBJECTIVES

- Adjust the automatic determination of relevant fields for outbound delivery creation
- Adjust delivery and transportation scheduling
- Process outbound deliveries
- Work with the outbound delivery monitor

Unit 4

Lesson 1

Adjusting Automatic Determination of Relevant Fields for Outbound Delivery Creation

LESSON OVERVIEW

This lesson discusses the basic functions of shipping: delivering plant determination, shipping point determination, and route determination.

Business Example

When you configure the SAP ERP application, the shipping points and routes you determine depend on the business process.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Adjust the automatic determination of relevant fields for outbound delivery creation

The Shipping Process

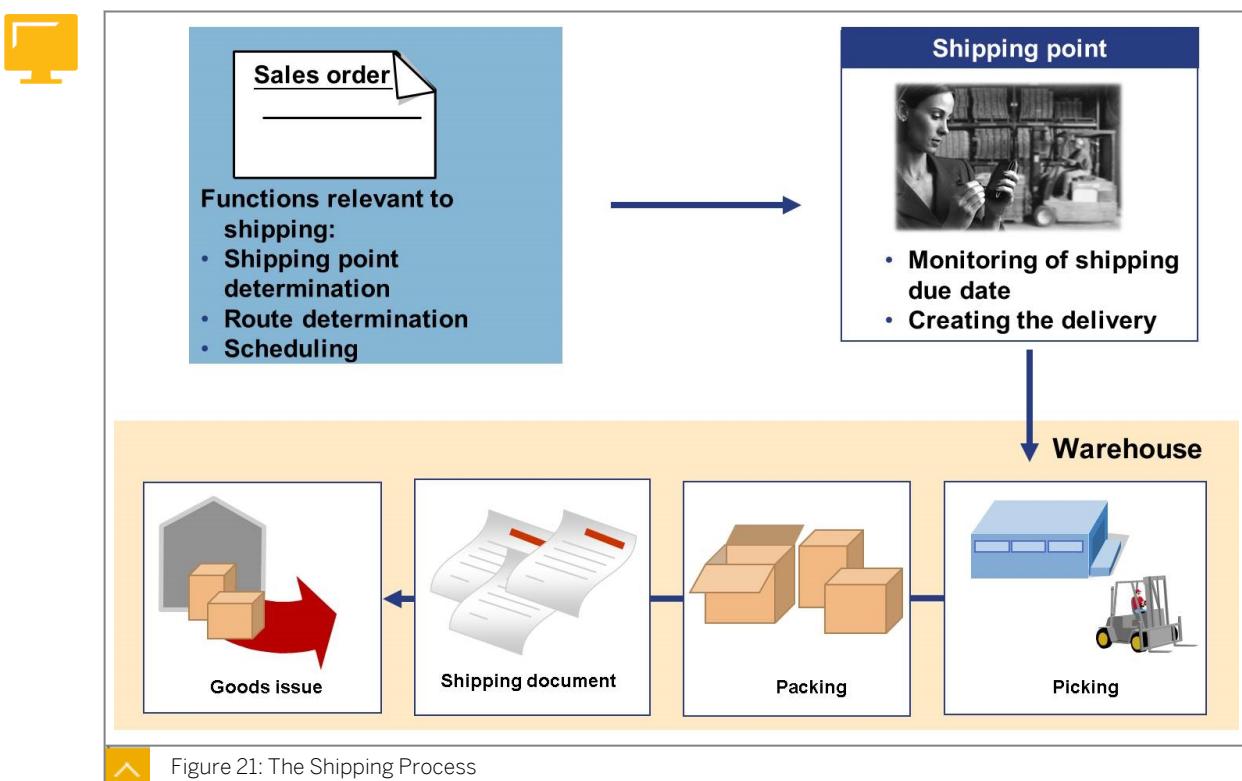


Figure 21: The Shipping Process

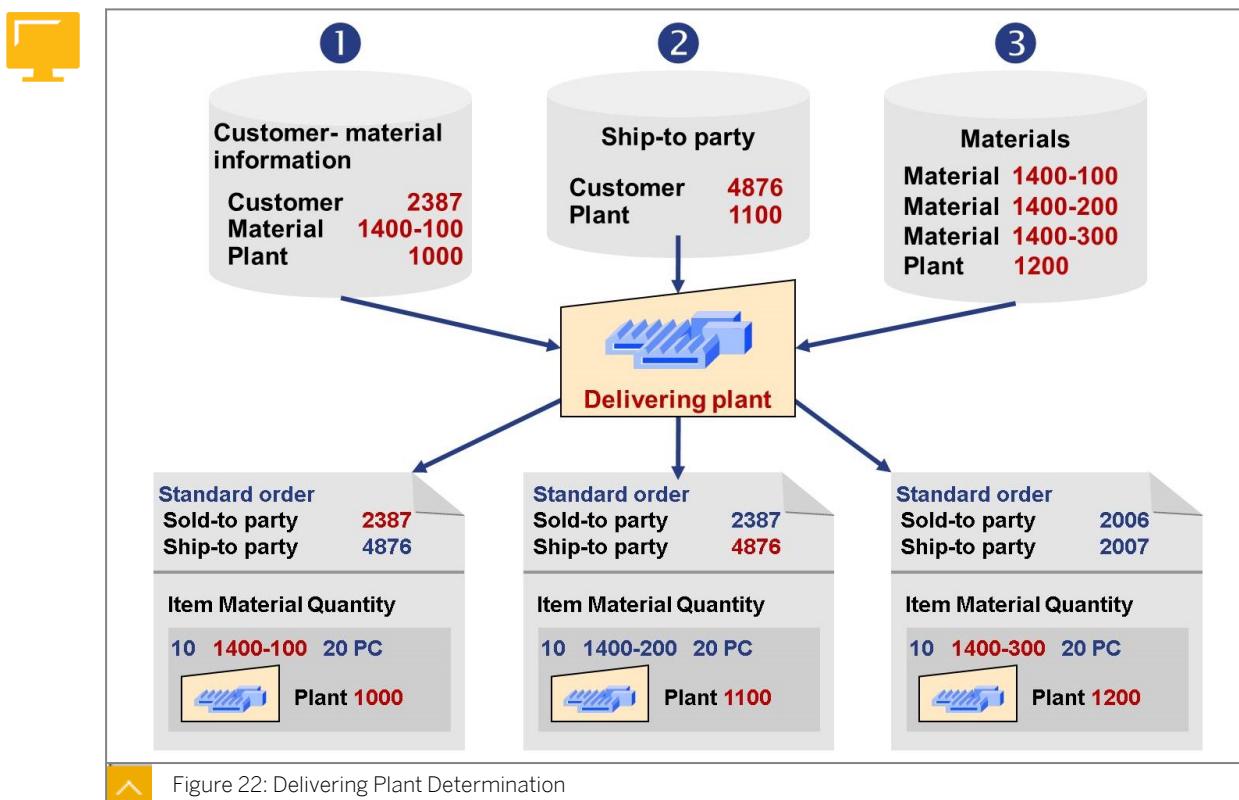
Shipping activities follow sales activities.

SAP ERP supports the following functions within the shipping process:

- Monitoring of deadlines for reference documents due for shipping (for example, customer orders and purchase orders)
- Creating and processing outbound deliveries
- Monitoring goods availability
- Monitoring the capacity situation in the warehouse
- Support for picking (with a link to the Warehouse Management system)
- Packing the delivery
- Printing and distributing shipping documents
- Processing the goods issue
- Controlling (through overviews) deliveries currently in progress, activities still to be performed, and possible bottlenecks

The deliveries in the shipping department that have already been posted for goods issue can form the basis for creating a worklist for billing.

Determination of the Delivering Plant



In a sales order, the system determines the delivering plant for each item based on the determination rule.

The system determines the plant for each item based on the following priorities:

1. Customer-material information record
2. Customer master of the ship-to party

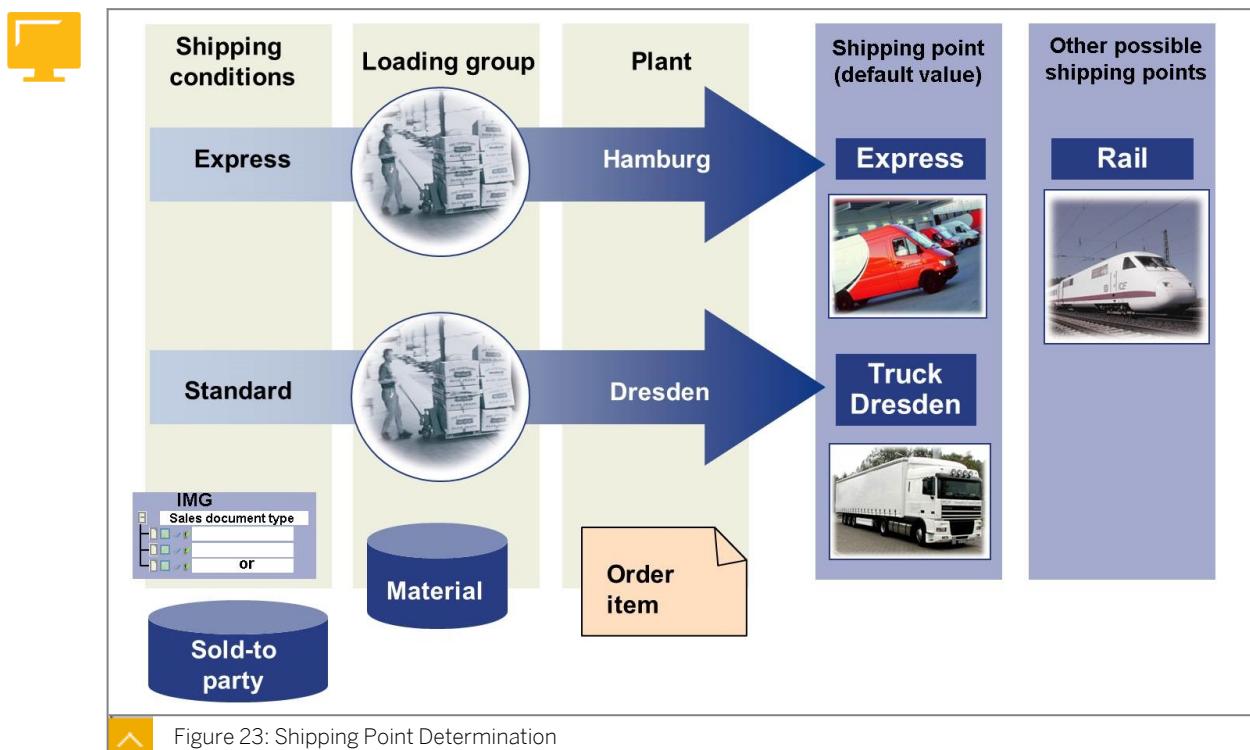
3. Material master

The determination logic is coded, and you can only use the user exit "Source Determination" to change it.

If the system locates a customer-material information master record, and a delivering plant is maintained there, the system proposes this plant with the highest priority for the order item.

If no customer-material information master record exists, or if no delivering plant is maintained there, the system determines the delivering plant using the ship-to party master record. If no plant is maintained in the ship-to party master record either, the system accesses the material master record.

Determination of the Shipping Point



The system determines the responsible shipping point for each order item. It automatically proposes a shipping point, but you can change the shipping point within certain limits.

An outbound delivery is always issued from one shipping point only. The shipping point cannot be changed in the outbound delivery.

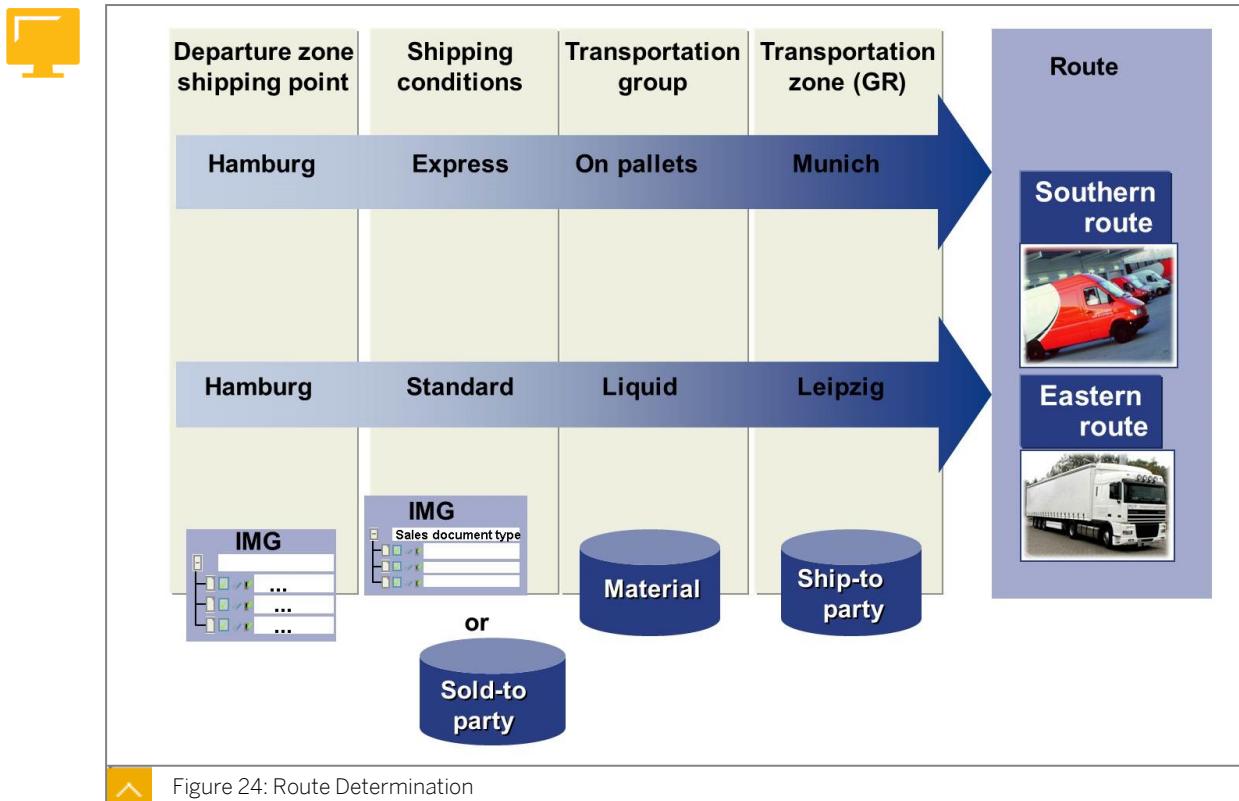
The shipping point depends on the following criteria:

- The delivering plant determined for each order item (from the customer-material information record, the ship-to party customer master record, or the material master record)
- The shipping requirements (for example, express shipping) in the *Shipping Conditions* field
- The required loading equipment within the material master record in the *Loading Group* field

If a shipping condition has been assigned to the sales document type, the system proposes that shipping condition first from the sales document type. If not, the system proposes the shipping condition from the master record of the sold-to party.

The system does not copy order items with different shipping points into the same outbound delivery.

Route Determination



The system carries out automatic route determination in the sales order for each item.

Route determination depends on the following factors

- The country and departure zone of the shipping point (assigned in Customizing)
- The shipping condition from the *sales document type* or the customer master of the sold-to party
- The transportation group assigned to the material
- The country and transportation zone of the ship-to party (assigned in the customer master record)

In the order item, you can manually overwrite the route determined by the system. You can determine the route again in the outbound delivery based on the weight (weight group). The configuration of the delivery type determines whether the route needs to be determined again.



LESSON SUMMARY

You should now be able to:

- Adjust the automatic determination of relevant fields for outbound delivery creation

Adjusting Delivery and Transportation Scheduling

LESSON OVERVIEW

This lesson discusses the concepts of backward scheduling, forward scheduling, precise scheduling, and route schedules. It also discusses how to adjust the Customizing settings for scheduling.

Business Example

When you configure the delivery and transportation scheduling, you must consider various elements. Different shipping activities require different levels of processing and the corresponding periods must be taken into account. For regular outbound deliveries consider using SAP route schedules. For this reason, you require the following knowledge:

- An understanding of how to configure transportation scheduling and use the route schedule function

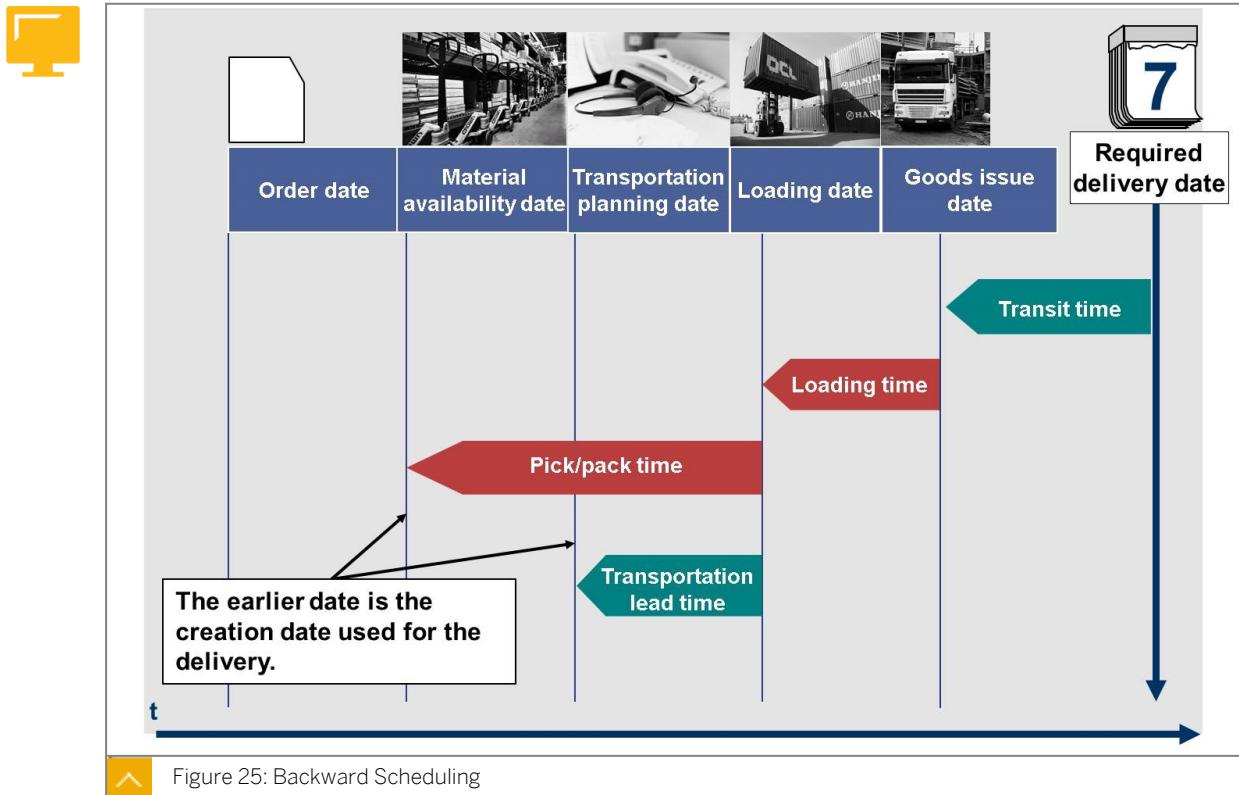


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Adjust delivery and transportation scheduling

Backward Scheduling



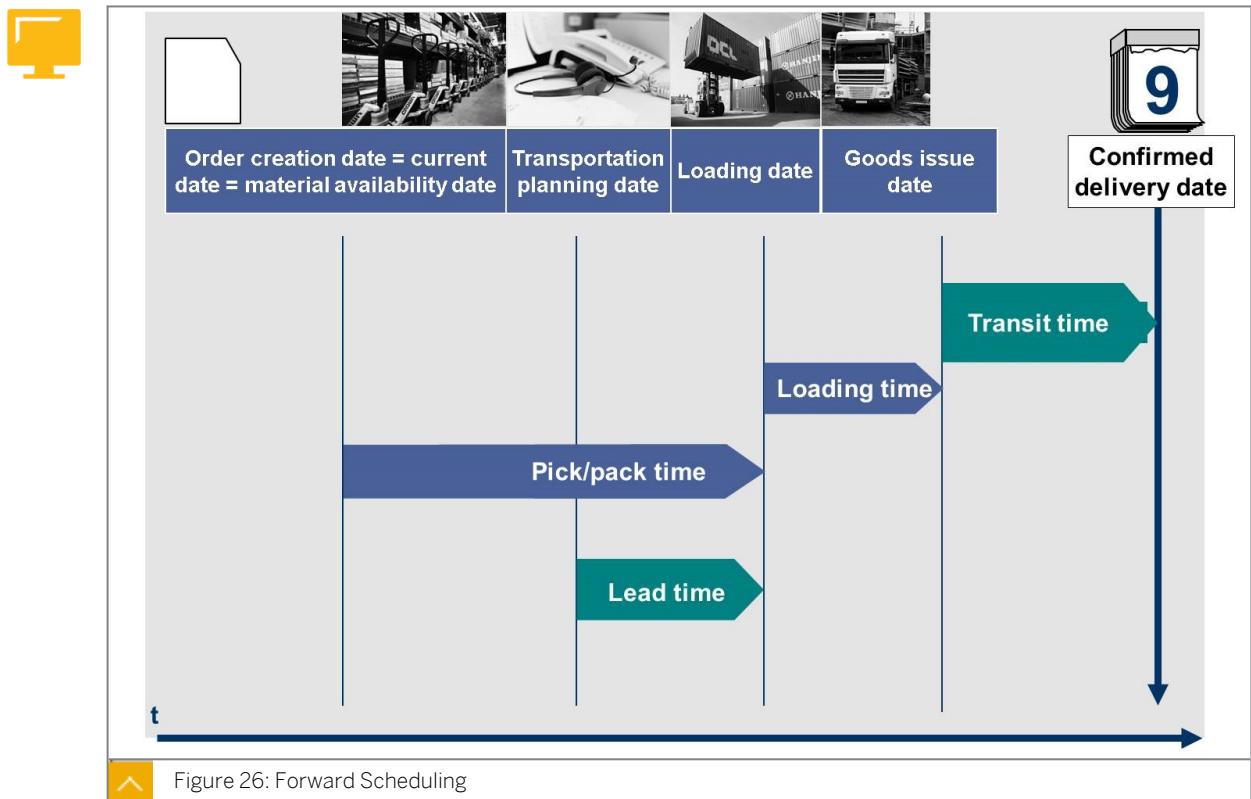
When you create an order, the system can determine the required material availability date based on the delivery date requested by the customer. The goods to be delivered must be available for shipping at that point in time.

Scheduling takes into account the following timeframes:

- **Transit time**
Time required for shipping an outbound delivery to the ship-to party
- **Loading time**
Time required for loading the goods
- **Pick/pack time**
Time required for picking and packing
- **Transportation lead time**
Time required for organizing the transportation

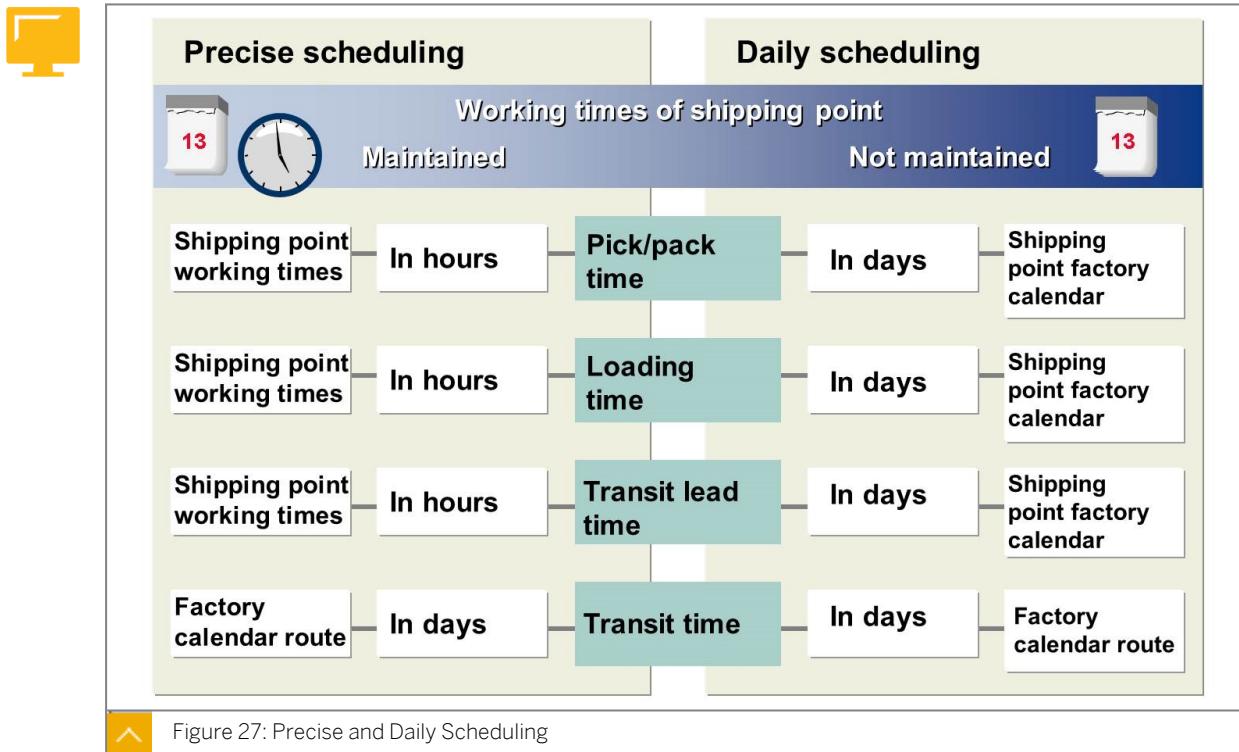
The loading time and pick/pack time come from the shipping point, whereas the transit time and the transportation lead time come from the route.

Forward Scheduling



The system first performs backward scheduling in the order. If this results in a date in the past, the system automatically performs forward scheduling, which confirms a new delivery date. The system also performs forward scheduling if the material is not available on the material availability date. When you create an outbound delivery you can carry out forward scheduling again. Forward scheduling also resolves the “delay” in an outbound order that occurs if the material availability date determined in an order falls before the time when the outbound delivery is created. For each delivery type, you can specify whether rescheduling is needed.

Precise Scheduling



You can determine which scheduling logic the system must use for each shipping point. The working times of the shipping point are taken into account during scheduling. The working hours of a shipping point consist of a calendar, which must agree with the factory calendar stored for the shipping point, as well as a shift sequence. The shift sequence defines the shifts for each weekday, and the shifts define the times for starting and finishing work. The route is used to determine the transportation planning lead time. It is also used to determine the transit time.

If you have maintained the working times of the shipping point, the system performs precise scheduling. Both types of scheduling use the factory calendar of the route to determine when the route is used.

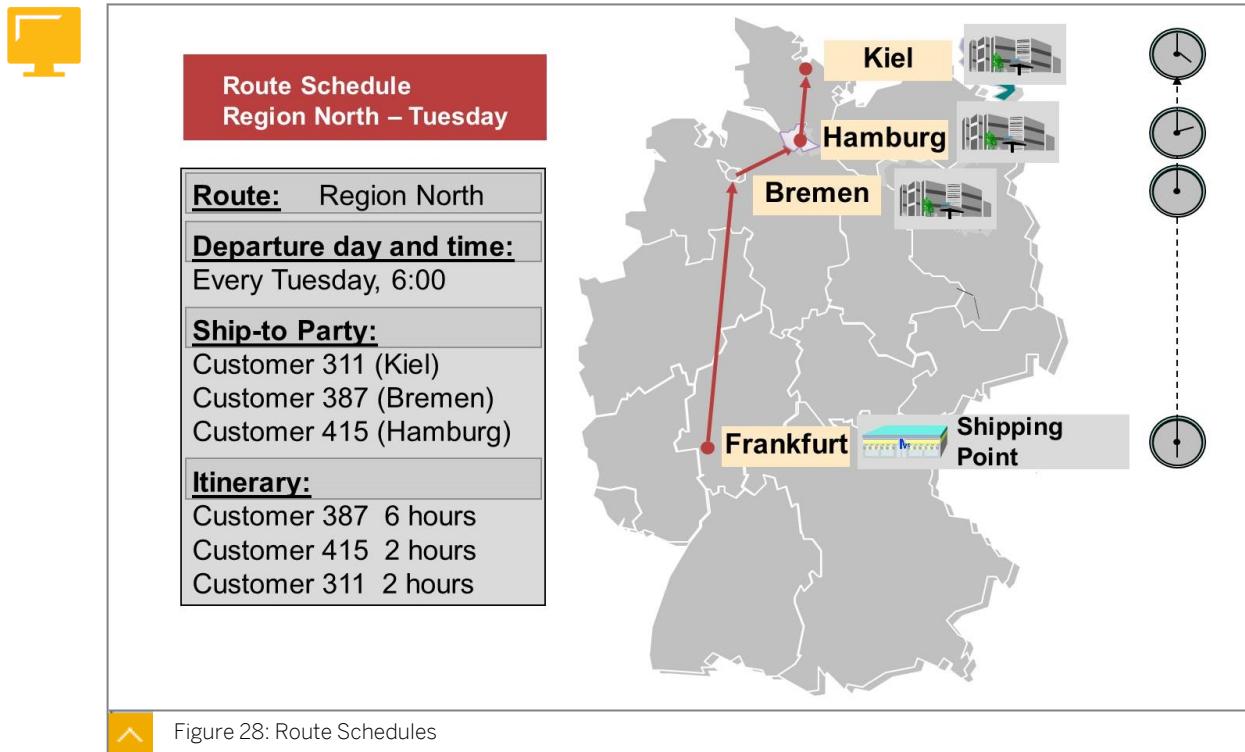
The following are some of the features of precise scheduling:

- The system calculates and displays the results of scheduling down to the minute.
- The system uses the working times of the shipping point.
- Pick/pack and loading times are specified in hours and minutes.

The following are some of the features of daily scheduling:

- The system uses days, hours, and minutes for calculation but only displays the resulting date.
- The system uses the factory calendar of the shipping point.

Route Schedules



You can use a route schedule to organize outbound deliveries from a particular shipping point to different ship-to parties (for example, customer or subsidiary companies) that occur regularly in the same sequence for a certain route. You can also use route schedules as selection criteria for the individual steps in shipping processing. For example, you could pick all the deliveries that belong to the same route schedule together. You can use the delivery monitor to form a group of deliveries.

The route schedule generally contains the following:

- A route
- A weekday as the departure date, along with a departure time
- A list of ship-to parties
- An itinerary (optional)

You can use route schedules in sales orders, stock transfer orders, and outbound deliveries. The system determines them automatically.

In Customizing, you define whether the system should assign a route schedule for each shipping point, order type, purchasing document type, delivering plant, and delivery type. For more information about the route schedule, see SAP Note 146829.



LESSON SUMMARY

You should now be able to:

- Adjust delivery and transportation scheduling

Processing Outbound Deliveries

LESSON OVERVIEW

This lesson provides an overview of the options for creating outbound delivery documents. It discusses how to adapt the processing of delivery due lists to meet the requirements of your company. It also discusses the determination of the picking location and the door and staging areas, and changing and adding to the outbound deliveries.

Business Example

Outbound deliveries can be created using collective processing, which groups together sales orders with identical shipping criteria. The system creates the documents required for the shipping process based on the delivery documents. For this reason, you require the following knowledge:

- An understanding of how to create outbound deliveries using collective processing
- An understanding of how to determine the picking location
- An understanding of how to define the door and staging area and determine them in the outbound delivery
- An understanding of how to change and add to outbound deliveries

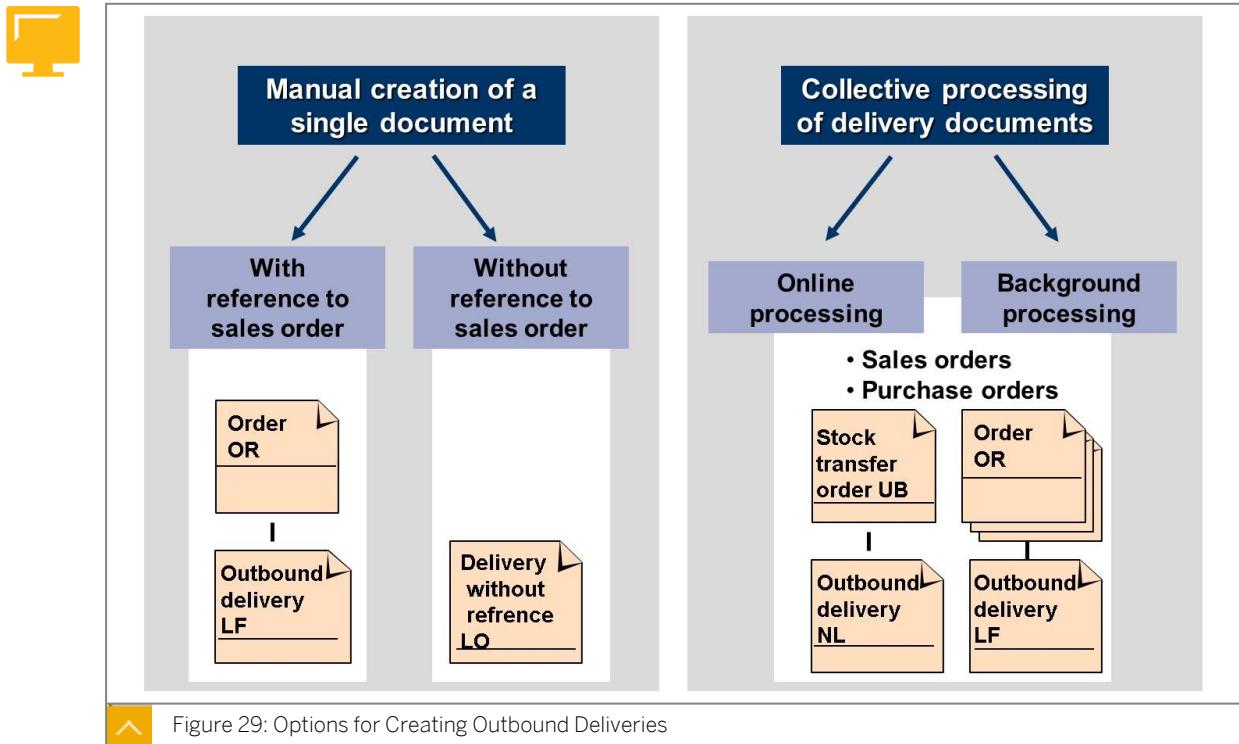


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Process outbound deliveries

Creation of Outbound Deliveries



You can create an outbound delivery manually with or without reference to a particular order. However, if you create a delivery manually, you cannot deliver purchase orders or other requests.

If you use collective processing (delivery list), you can deliver goods for all types of shipping documents. In this case, the system automatically creates multiple outbound deliveries. The creation of outbound deliveries can take place online or in the background (for example, overnight).

Delivery Due List

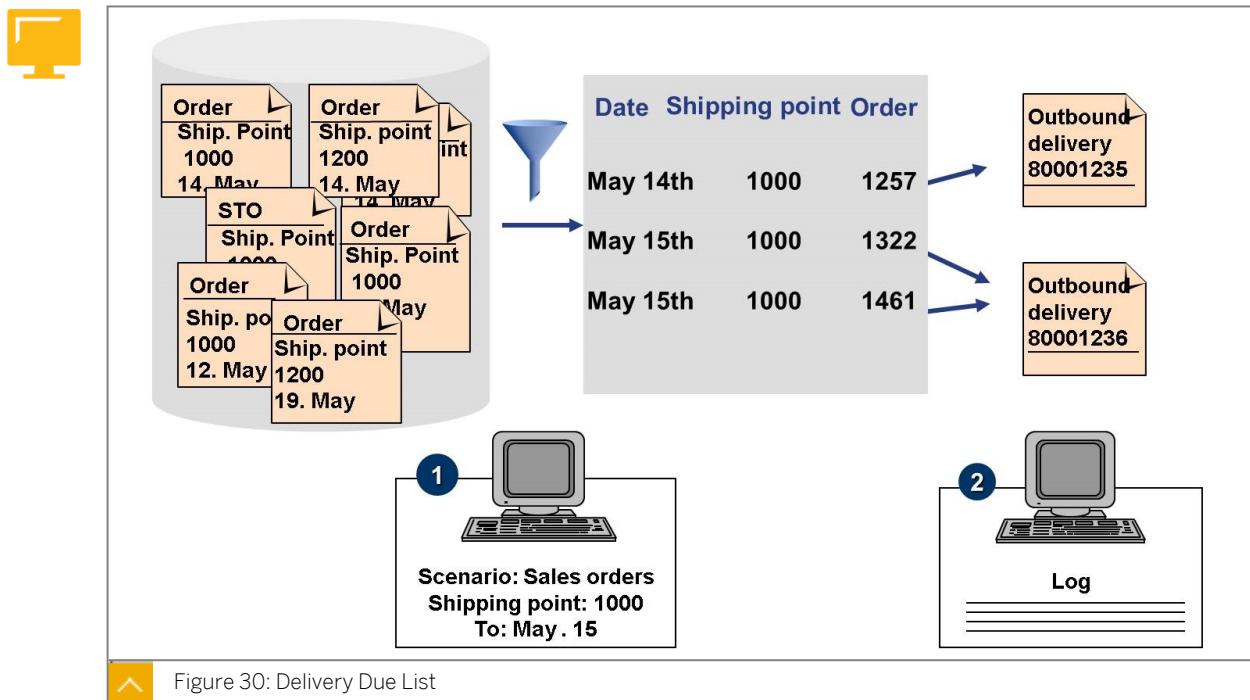
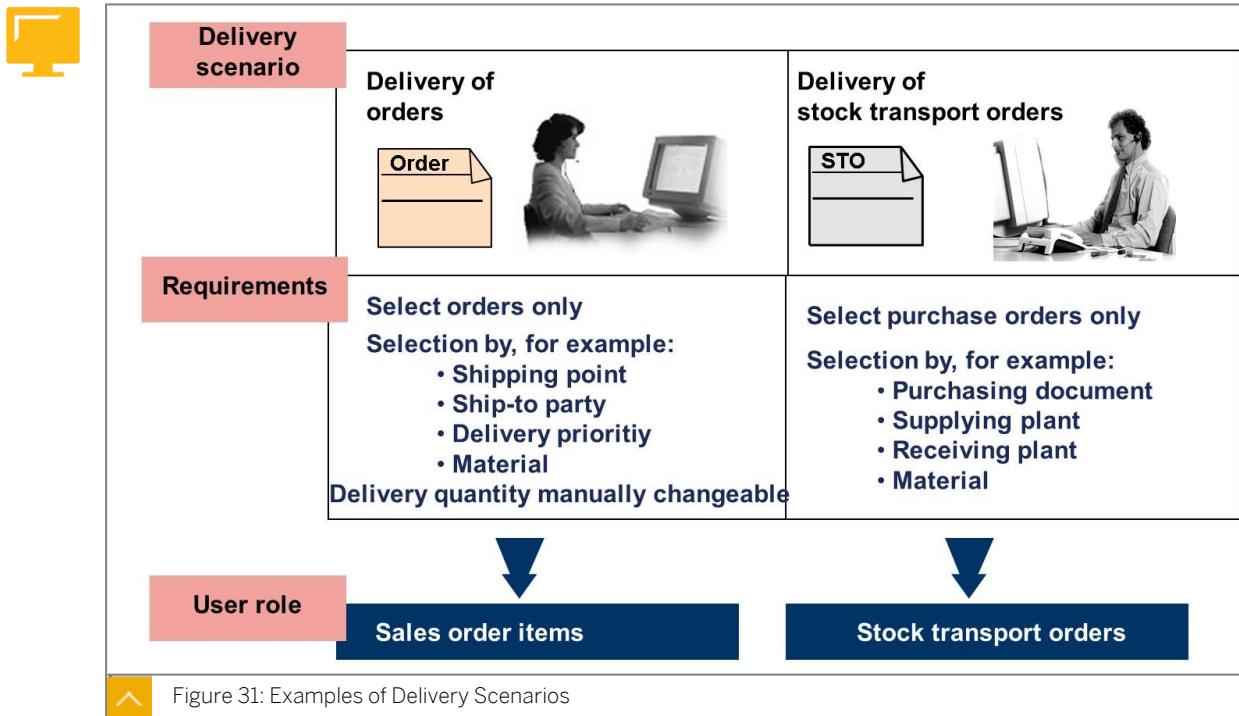


Figure 30: Delivery Due List

The delivery due list is a worklist of all operations requiring deliveries. You use various criteria to select the documents that you need to deliver using collective processing. Then, the system automatically creates the outbound deliveries.

If the shipping criteria (splitting criteria) are the same, the system combines the documents to form one outbound delivery, as required (order combination). Alternatively, the system may split an operation into several outbound deliveries. You can use delivery scenarios to model the different business processes for deliveries. When you process the delivery due list, you just need to choose a scenario.

Delivery Scenarios



A delivery scenario models a business process for delivering goods for orders that are due to ship. For example, a delivery scenario could let you complete deliveries for sales orders on an item-by-item basis. The delivery scenarios are already defined in SAP ERP.

Using user roles (also called list profiles), you can model the requirements resulting from the delivery process. User roles enable you to fine-tune your processing of the delivery due list, allowing you to control the scope of selection, the display of the delivery due list, and the delivery type.

In the standard system, a user role is assigned to each delivery scenario. You can maintain the user roles in Customizing. If users always or frequently work with the same scenario, they can configure it to meet their personal requirements and use it as their default scenario (user specific delivery scenario).

The following parameters and values have to be defined for creating a user-specific delivery scenario:

Parameter ID	Parameter Value
LE_VL10_SZENARIO	VL10
LE_VL10_PROFIL	Key for list profile
LE_VL10_USER_VARIANT	Variant name

Selection and Display of the Delivery Due List

The figure shows a screenshot of the SAP Fiori user interface. On the left, there is a yellow monitor icon. The main area displays a 'Sales orders, fast display' screen with filtering criteria: 'Shipping point/Receiving point' set to '1000 to 1200', and 'Delivery creation date' set to '15.08.00 to 17.08.00'. Below these are tabs: 'Gen. data', 'Sales Orders' (which is selected), 'Material', 'Partners', and 'User Role'. A large, semi-transparent blue box covers the main content area. To the right of this box is a circular arrow icon pointing downwards. Below the arrow is a table titled 'Activities Due for Shipping: Sales orders'.

	Origin.doc	Ship.pt	Route	DS	Plant	
●○○	5613	1000	R124	1	1000	
○○○	5634	1000	R124		1000	
●○○	5645	1200	R125		1200	
●○○	5678	1100	R334		1100	
○○○	5688	1200	R124	1	1200	
●○○	5689	1000	R233		1000	
○○○	5691	1000	R123		1000	
●○○	5698	1200	R125		1200	

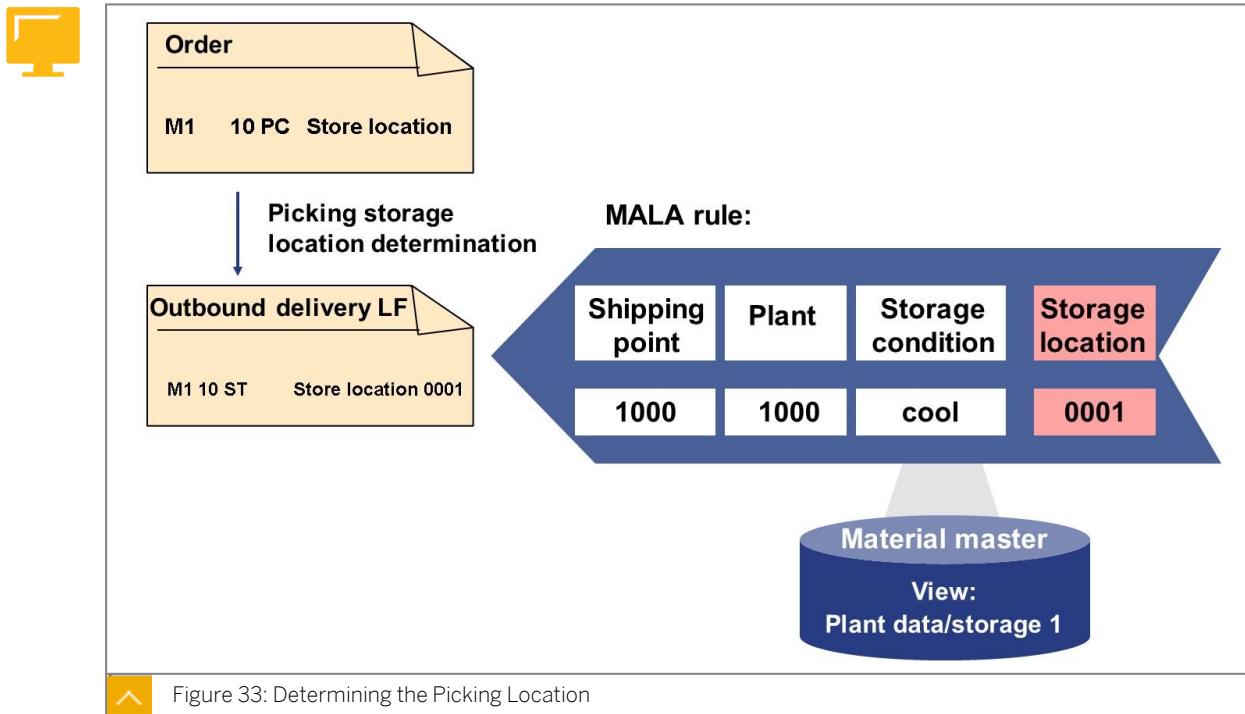
Figure 32: Selecting and Displaying the Delivery Due List

The different criteria for selecting documents due for delivery are displayed on tabstrips. The number of tabstrips and the selection criteria differ according to the delivery scenario and user role.

Users can define variants in their user-specific scenarios and, thus, create user-specific selection criteria. After you have made your selection, the system displays a list of all documents due for delivery that correspond to your selection criteria. The settings in the user role also affect how the list is displayed. There are many SAP List Viewer functions available within the list, such as sort, sum, and filter.

From the list, you can create deliveries online or in the background, and branch to the relevant documents. You can also change the display of the list while you are using it by accessing display variants.

Determination of the Picking Location



If you do not specify any storage location in the order item, the system determines the storage location when it creates the outbound delivery and copies it into the delivery item. The system determines the picking location based on a rule defined in the delivery type.

The following rules are shipped in the standard system:

- **MALA**

The system determines the picking location based on the shipping point, the delivering plant, and the material's storage condition that you have defined in the material master.

- **RETA and MARA**

The system uses these rules mainly in trade scenarios.

You can also use the customer exit in SAP enhancement V02V0002 to implement storage location determination. The picking location search is activated for each delivery item category.

Door and Staging Area

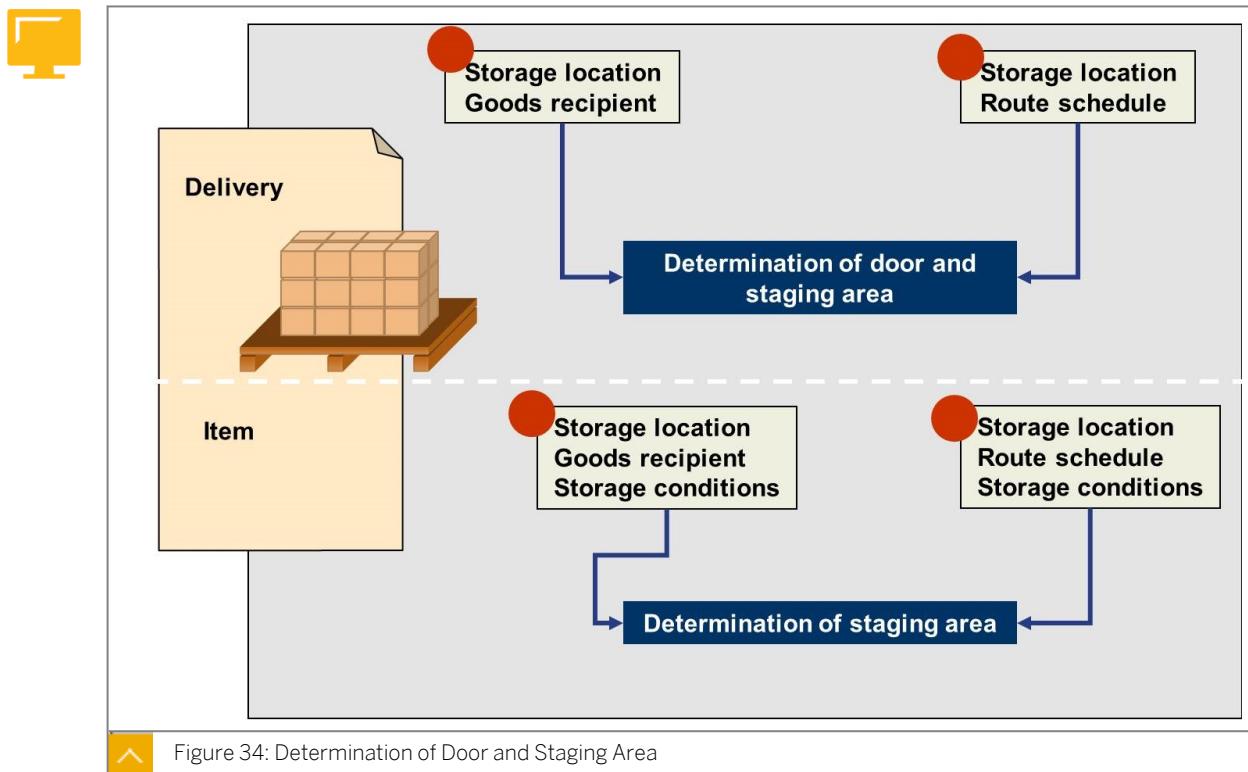


Figure 34: Determination of Door and Staging Area

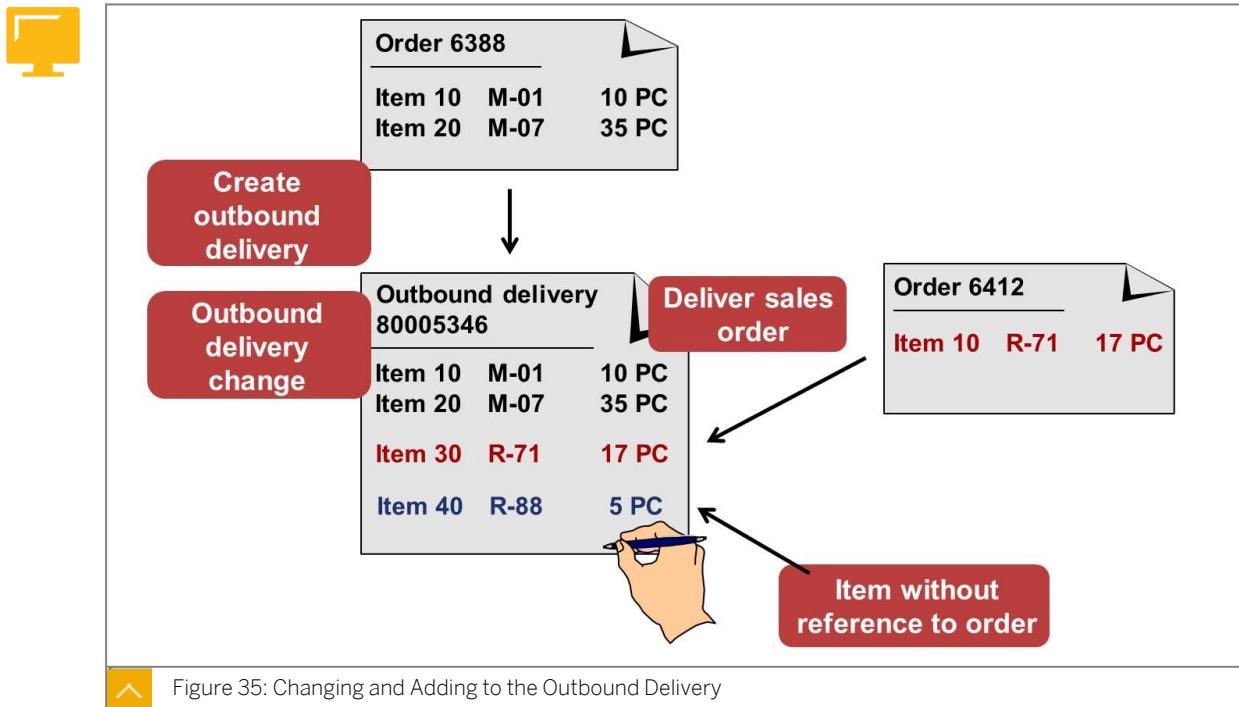
Door or staging area determination can take place at the following levels:

- Delivery header level (depending on the goods recipient or the route schedule)
- Delivery item level (if the storage conditions [from the material master record] are also taken into account)

Note that different staging areas at the delivery item level lead to a transfer order split because the staging area is a header field in the transfer order.

For each delivery type, specify the criteria that you want to use in the determination. You can use user exits at the delivery header level (SAP enhancement v02v0003) and delivery item level (SAP enhancement v02v0004) to implement your own determination.

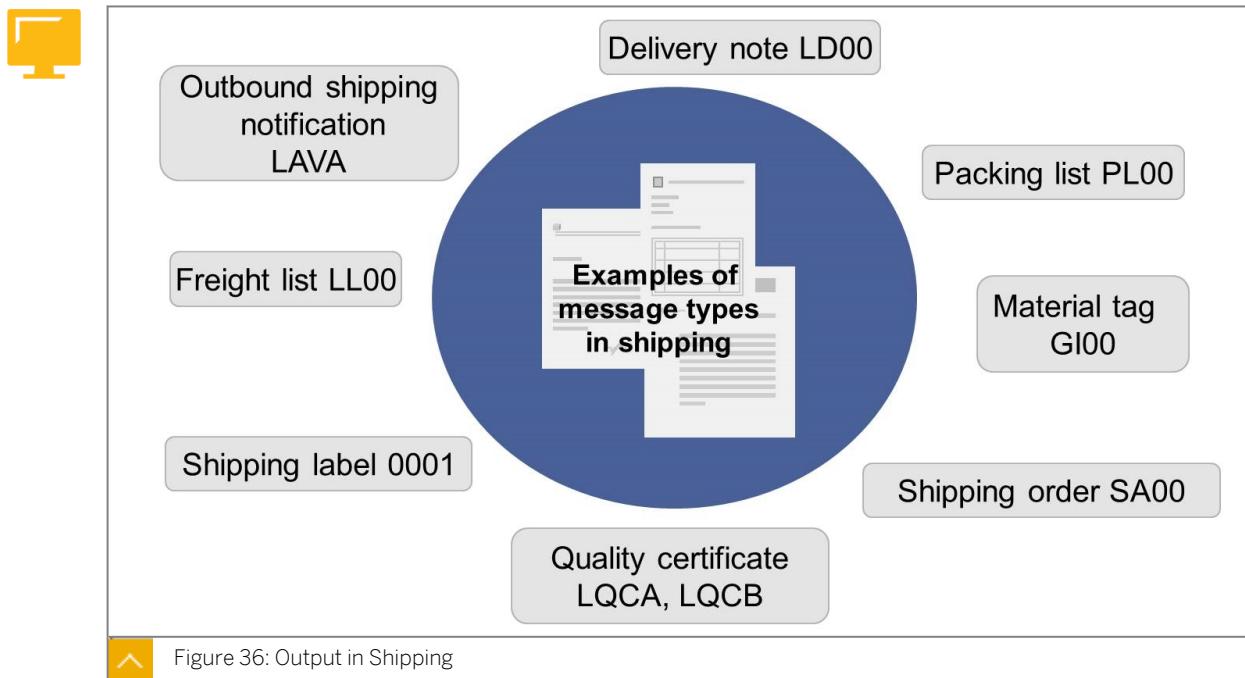
Change of Outbound Deliveries



You can change or add to delivery documents after you have saved them. For example, you could add items to the outbound delivery. These items may refer to other orders (deliver order function). The same split criteria apply to the additional orders as to the combination of orders during collective processing.

You can also add items to the outbound delivery without referring to an order. For this item, the system determines an item category using the usual rules. However, once you have created the outbound delivery, you can no longer change certain information, such as ship-to parties and shipping points.

Output



An output is a communication tool that supports the exchange of information between you and your partners. Output can be sent from different objects such as an outbound delivery, a group of outbound deliveries, or a handling unit. For example, the delivery note and the packing list are created on the basis of the outbound delivery, and the freight list is created on the basis of a group of outbound deliveries.

You can make output determination dependent on different criteria. The condition technique provides you with flexible control options.

With the condition technique, you can transmit the following features of the output:

- How does the system send the output (for example, printout, fax, or electronic data interchange)?
- When does the system create the output (send time)?
- To whom does the system send the output (partner or partner role)?
- To which printer does the system send the output (for print output)?

In the outbound delivery, there is a distinction between header and item output. Header output refers to the entire document (for example, a delivery note), and you can create item output for each document item (for example, an inspection certificate).

For handling units, you can print labels or appendices. The standard system provides sample forms for output types. You can adapt these to suit your own company-specific requirements.



LESSON SUMMARY

You should now be able to:

- Process outbound deliveries

Unit 4

Lesson 4

Using the Outbound Delivery Monitor

LESSON OVERVIEW

This lesson discusses the concept of the outbound delivery monitor.

Business Example

Depending on the business process, you have to perform various functions from the outbound deliveries list that the outbound delivery monitor displays. For this reason, you require the following knowledge:

- An understanding of how to use the outbound delivery monitor

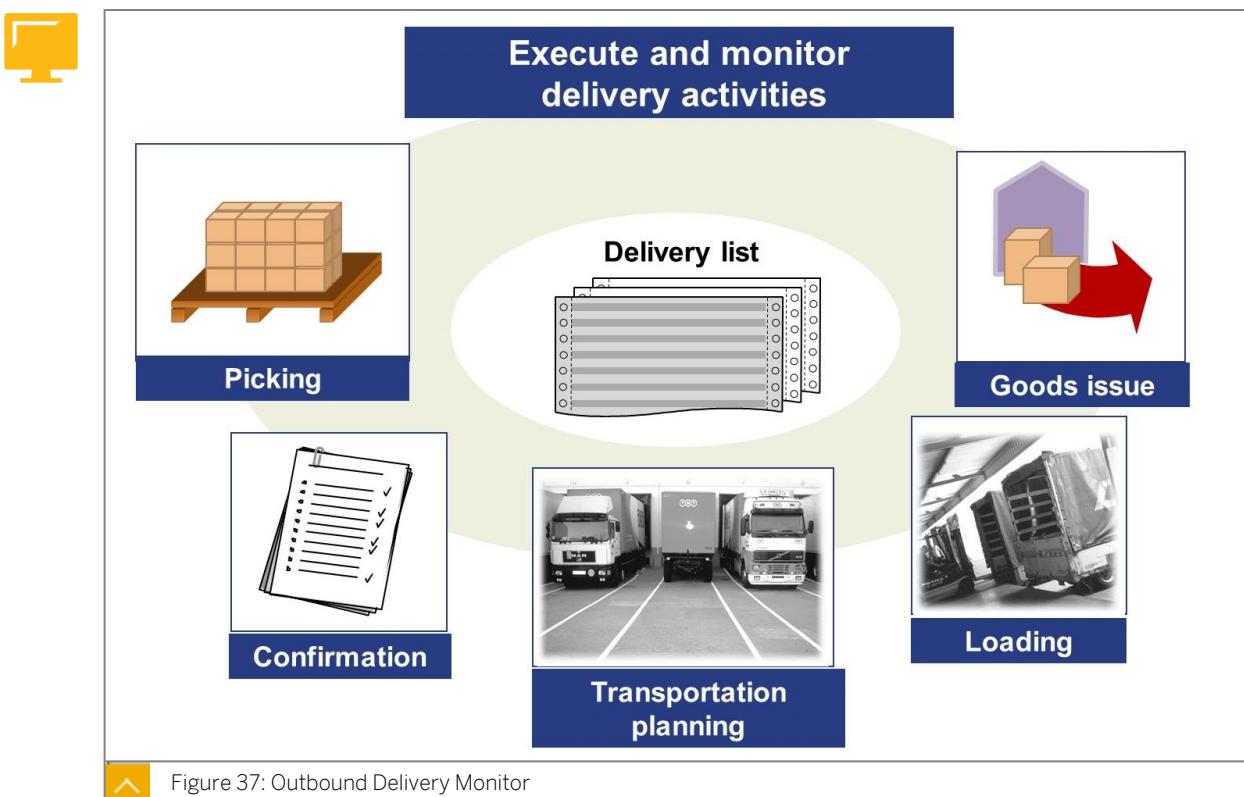


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Work with the outbound delivery monitor

Outbound Delivery Monitor



The outbound delivery monitor displays all deliveries that are still to be processed or that have been processed. The system displays a list of the selected outbound deliveries, and you can perform subsequent functions from this list.

You can define user-specific variants, such as selection variants or display variants, for selecting and displaying documents. You can also use the outbound delivery monitor to execute important follow-on functions in collective processing in the background, such as the creation of transfer orders for picking or the posting of goods issue.

You can use the inbound delivery monitor to monitor and execute inbound delivery activities in the same way.



LESSON SUMMARY

You should now be able to:

- Work with the outbound delivery monitor

Learning Assessment

1. If the system locates a customer-material information master record and finds a delivering plant there, it proposes this plant with the highest priority for the order item.

Determine whether this statement is true or false.

- True
 False

2. You can issue an outbound delivery from two different shipping points.

Determine whether this statement is true or false.

- True
 False

3. The deliveries in the shipping department that have already been posted for goods issue can form the basis for creating a worklist for billing.

Determine whether this statement is true or false.

- True
 False

4. Transit time is the time that the system requires for organizing the transportation.

Determine whether this statement is true or false.

- True
 False

5. In precise scheduling, the system uses days, hours, and minutes for calculation, but only displays the resulting date.

Determine whether this statement is true or false.

- True
 False

6. The working hours of a shipping point consist of a calendar (which must agree with the factory calendar stored for the shipping point) and a shift sequence.

Determine whether this statement is true or false.

True

False

7. The route schedule contains the following:

Choose the correct answers.

A A route

B A weekday as the arrival date, along with an arrival time

C A list of ship-to parties

D An itinerary (optional)

8. If you create an outbound delivery manually, with or without reference to a particular order, you can also deliver purchase orders or other requests.

Determine whether this statement is true or false.

True

False

9. The delivery due list is a worklist of all operations requiring deliveries.

Determine whether this statement is true or false.

True

False

10. As per the RETA rule, the system determines the picking location based on the shipping point, the delivering plant, and the material's storage conditions defined in the material master.

Determine whether this statement is true or false.

True

False

11. Different staging areas at delivery item level lead to a transfer order split because the staging area is a header field in the transfer order.

Determine whether this statement is true or false.

- True
 False

12. The outbound delivery monitor can display all deliveries that the system has processed.

Determine whether this statement is true or false.

- True
 False

13. You can use the outbound delivery monitor to monitor and execute inbound delivery activities.

Determine whether this statement is true or false.

- True
 False

Learning Assessment - Answers

1. If the system locates a customer-material information master record and finds a delivering plant there, it proposes this plant with the highest priority for the order item.

Determine whether this statement is true or false.

True

False

You are correct! In the standard SAP system, a delivering plant is determined first from a customer-material information record. If there is no information record, then the system will look to the Customer Master then the Material Master to determine a delivering plant. Read more in the lesson, Adjusting Automatic Determination of Relevant Fields for Outbound Delivery Creation, in the course SCM610 or TSCM60 Part 2.

2. You can issue an outbound delivery from two different shipping points.

Determine whether this statement is true or false.

True

False

You are correct! Outbound deliveries are created for an individual Shipping Point which is stored in the header of the delivery document. Therefore, only one shipping point can be included in a delivery. Read more in the lesson, Adjusting Automatic Determination of Relevant Fields for Outbound Delivery Creation, in the course SCM610 or TSCM60 Part 2.

3. The deliveries in the shipping department that have already been posted for goods issue can form the basis for creating a worklist for billing.

Determine whether this statement is true or false.

True

False

You are correct! For delivery based billing a good issue must be performed before billing can take place. Read more in the lesson, Adjusting Automatic Determination of Relevant Fields for Outbound Delivery Creation, in the course SCM610 or TSCM60 Part 2.

4. Transit time is the time that the system requires for organizing the transportation.

Determine whether this statement is true or false.

True

False

You are correct! The time that the system requires organizing transportation is called the transportation lead time. Transit time is the time that is required to move the product from the shipping point to the ship-to party. Read more in the lesson, Adjusting Delivery and Transportation Scheduling, in the course SCM610 or TSCM60 Part 2.

5. In precise scheduling, the system uses days, hours, and minutes for calculation, but only displays the resulting date.

Determine whether this statement is true or false.

True

False

You are correct! With precise scheduling, this not only calculates in days, hours and minutes, but it displays both date and time information (down to the minute) in the delivery. Read more in the lesson, Adjusting Delivery and Transportation Scheduling, in the course SCM610 or TSCM60 Part 2.

6. The working hours of a shipping point consist of a calendar (which must agree with the factory calendar stored for the shipping point) and a shift sequence.

Determine whether this statement is true or false.

True

False

You are correct! To perform precise scheduling for a shipping point, a calendar and a shift sequence must be defined so that actual working hours can be determined. Read more in the lesson, Adjusting Delivery and Transportation Scheduling, in the course SCM610 or TSCM60 Part 2.

7. The route schedule contains the following:

Choose the correct answers.

A A route

B A weekday as the arrival date, along with an arrival time

C A list of ship-to parties

D An itinerary (optional)

You are correct! Read more in the lesson, Adjusting Delivery and Transportation Scheduling, in the course SCM610 or TSCM60 Part 2.

8. If you create an outbound delivery manually, with or without reference to a particular order, you can also deliver purchase orders or other requests.

Determine whether this statement is true or false.

True

False

You are correct! Deliveries created without reference to a particular sales order can only be used for outbound sales processes. These delivery types have not been designed to deliver purchase orders or other requests. Read more in the lesson, Processing Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

9. The delivery due list is a worklist of all operations requiring deliveries.

Determine whether this statement is true or false.

True

False

You are correct! The delivery due list is the central worklist for outbound warehousing operations. Read more in the lesson, Processing Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

10. As per the RETA rule, the system determines the picking location based on the shipping point, the delivering plant, and the material's storage conditions defined in the material master.

Determine whether this statement is true or false.

True

False

You are correct! The system determines the picking location based on the shipping point, the delivering plant and the material storage conditions using the MALA rule. The RETA rule is used for trading scenarios. Read more in the lesson, Processing Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

11. Different staging areas at delivery item level lead to a transfer order split because the staging area is a header field in the transfer order.

Determine whether this statement is true or false.

True

False

You are correct! A delivery containing items with different staging areas will force the creation of multiple transfer orders. This is because staging area is in the header of a transfer order. Read more in the lesson, Processing Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

12. The outbound delivery monitor can display all deliveries that the system has processed.

Determine whether this statement is true or false.

True

False

You are correct! One of the features of the outbound delivery monitor is the capacity to display the status of all the deliveries that have been processed. Read more in the lesson, Using the Outbound Delivery Monitor, in the course SCM610 or TSCM60 Part 2.

13. You can use the outbound delivery monitor to monitor and execute inbound delivery activities.

Determine whether this statement is true or false.

True

False

You are correct! The outbound delivery monitor can only monitor outbound deliveries. To monitor inbound delivery activities, the inbound delivery monitor is available. Read more in the lesson, Using the Outbound Delivery Monitor, in the course SCM610 or TSCM60 Part 2.

UNIT 5

Processes and Functions based on the Delivery

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Picking Outbound Deliveries

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UNIT OBJECTIVES

- Use WM and Lean WM for picking
- Process TOS
- Pack materials
- Use further packing functions
- Post a goods issue
- Cancel a goods issue
- Use special functions in deliveries

Unit 5

Lesson 1

Picking Outbound Deliveries

LESSON OVERVIEW

This lesson discusses the picking process in the SAP system. The picking process makes use of transfer orders (TOs) in the SAP system. Therefore, this lesson focuses on creating and processing TOs. This lesson also discusses Lean Warehouse Management (Lean WM).

Business Example

Your company has a fixed storage bin from which the picking-relevant materials are picked. To simplify the picking process, you need to print several outbound deliveries on one pick list. For this reason, you require the following knowledge:

- An understanding of the picking process using TOs
- How to create TOs manually
- How to create TOs using collective processing
- How to confirm TOs

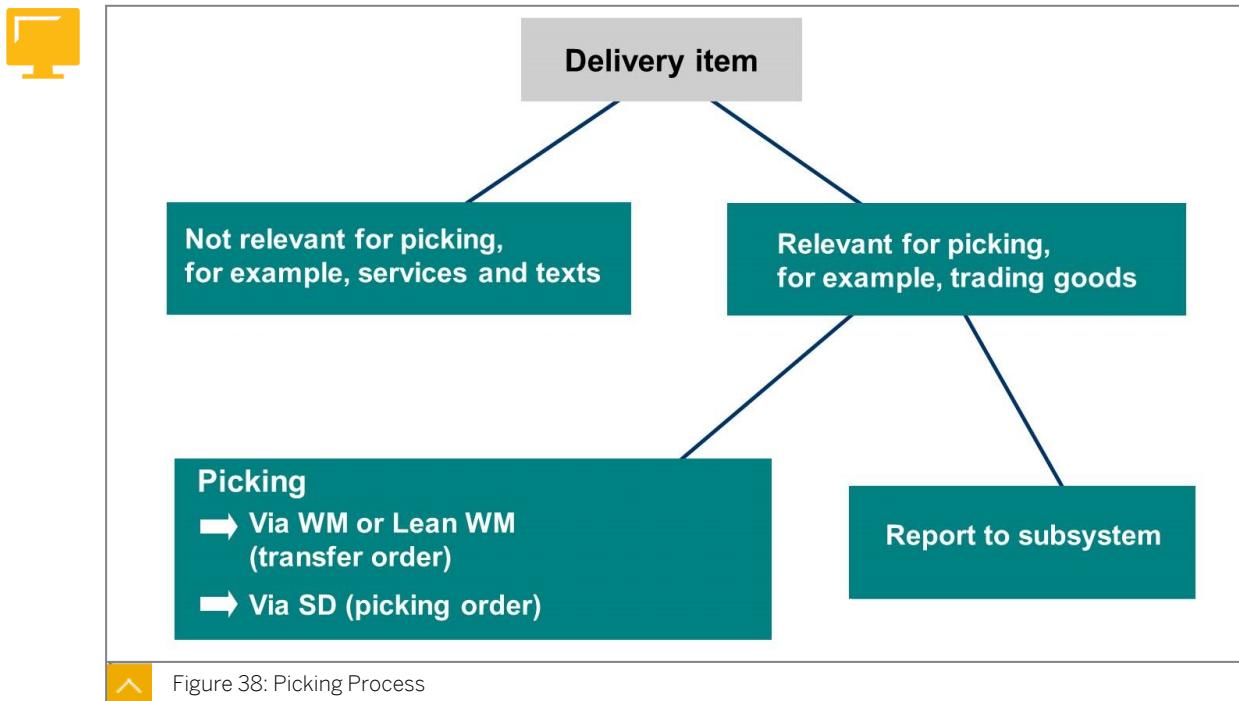


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Use WM and Lean WM for picking
- Process TOs

Overview



Picking is the process of preparing goods for delivery to the customer with special attention to delivery dates, quantity, and quality. A setting in the delivery item category determines whether an item is relevant for picking. Many companies use printed picking lists during the picking process. As an alternative, we recommend that you use the TO functions in WM. You do not need to implement the complete WM system to use the TO functions; Lean WM is sufficient.

Lean WM uses a subset of the functions of WM. With the help of output control for outbound deliveries, you can also transmit data to a subsystem that is implemented for the picking process by using portable data capture (PDC).

In the standard configuration of the SAP system, the prerequisite for posting a goods issue is that all of the goods in an order have been picked.

This means that the delivery quantity and the pick quantity in the outbound delivery must be the same.

Picking Process Using WM and Lean WM

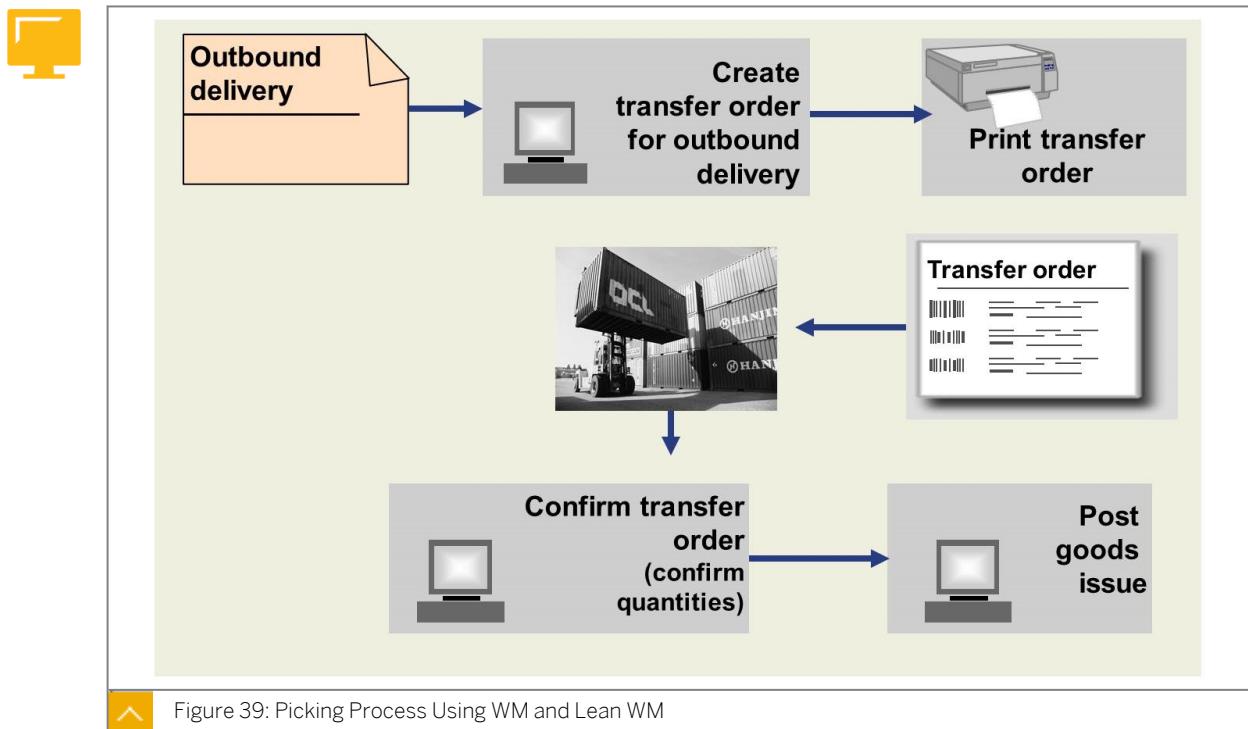


Figure 39: Picking Process Using WM and Lean WM

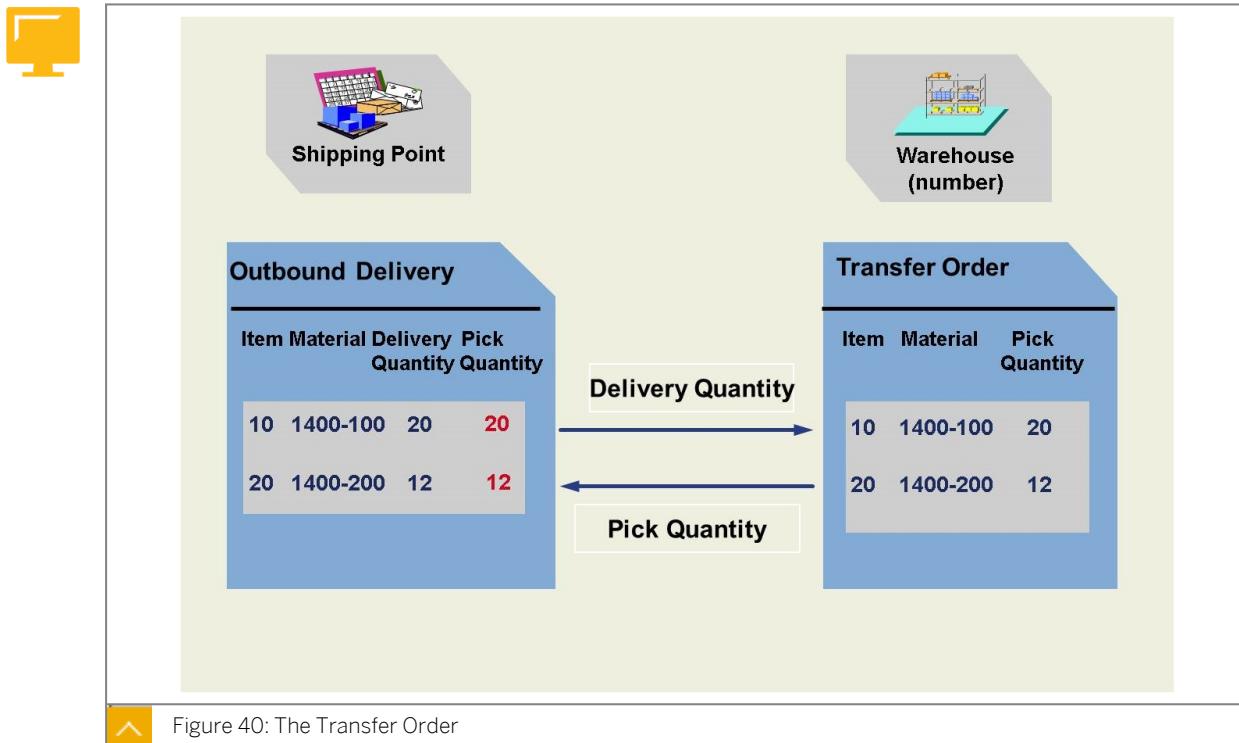
To use WM or Lean WM in picking, you create a TO. A TO is a document that helps you initiate and monitor the movement of goods within a warehouse. You create one or several TOs depending on the type of item to be picked.

Next, you print the TO; you can print TOs manually or set the system to print them automatically. Instead of printing the TO as a picking list, you can transfer the data in the TO to a warehouse unit or to an external system using PDC.

By confirming the TO, you verify the quantities that will be removed from the warehouse. If confirmation is required, you must perform this step manually. If confirmation is not required, the system automatically confirms the quantities when you create and save the TO.

Now, you can post the goods issue and complete the shipping process.

The Transfer Order



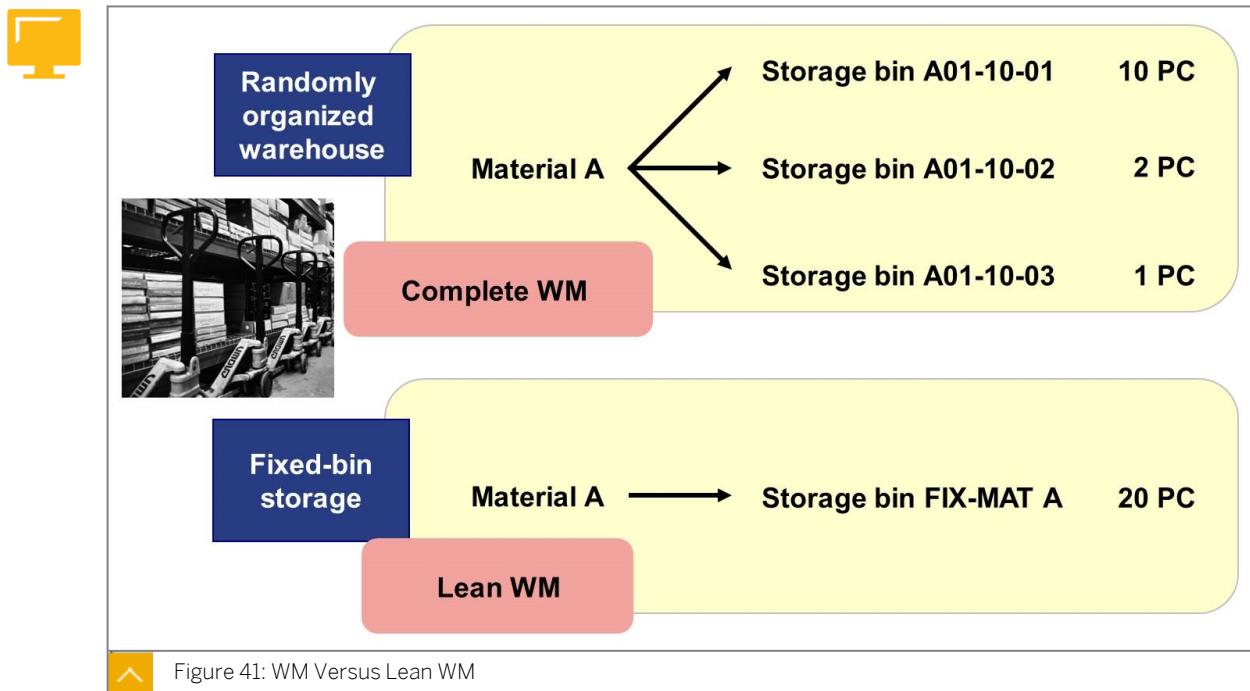
A TO is an instruction to move materials from a source storage bin to a destination storage bin within a warehouse complex.

TOs include the following information:

- Material number
- Quantity to be moved
- Source and destination storage bin numbers

When you create the TO, the system automatically copies the delivery quantity from the outbound delivery as the picking quantity for the TO. The system automatically enters the picking quantity in the outbound delivery. In Lean WM, the picking quantity is initially the same as the delivery quantity.

WM Versus Lean WM



If you have a warehouse with random storage, you need to use the WM system with full functionality. Since a material can be stored in different storage bins or even several storage bins at the same time, you must manage the storage bins in the system.

Because Lean WM does not manage the inventory at storage bins level, it is more suitable for fixed-bin storage. In a fixed-bin storage area, a particular material is always in the same storage bin.

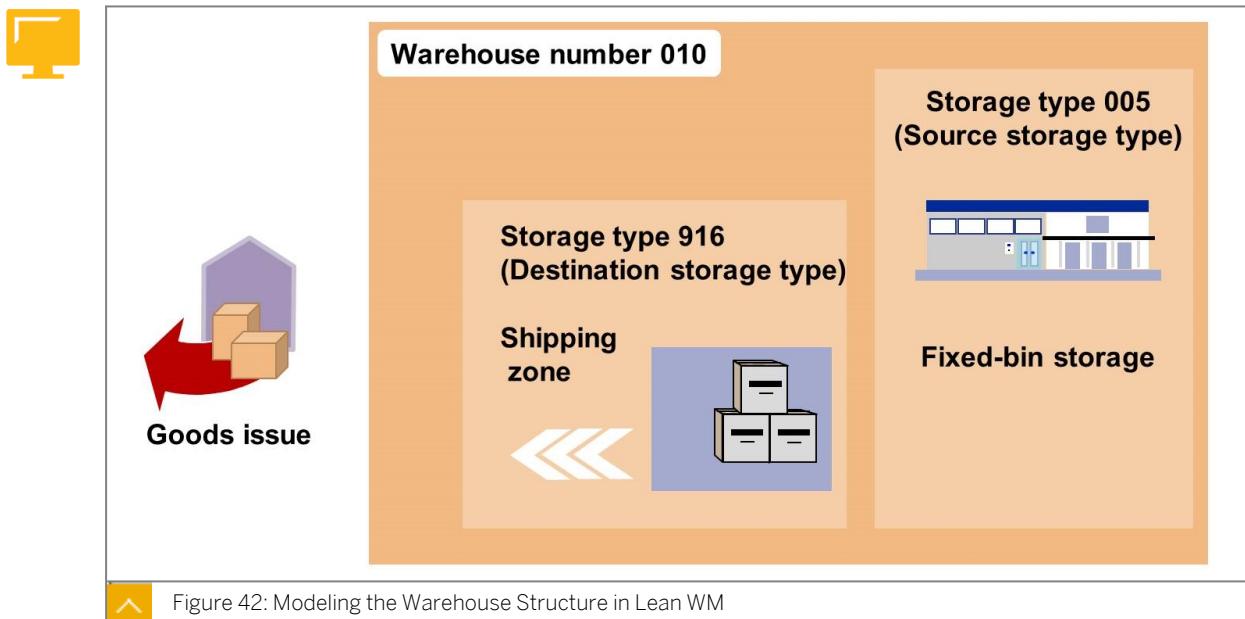
To print the storage bin in the picking document, you need to define the respective data in the material master in the Storage 1 view. Maintenance of further warehouse data and full WM views are not required.

Some of the WM functions not included in Lean WM are as follows:

- Storage sections
- Reserve storage bins
- Strategies for putaway and picking
- Replenishment
- Inventory at storage-bin level

Lean WM considerably reduces the time that you need for implementation.

Modeling the Warehouse Structure in Lean WM



The figure shows a possible model of the warehouse structure of a fixed-bin storage method in the SAP system when using Lean WM.

For Lean WM, you need at least one warehouse number and at least one storage type from which picking takes place. You also need one storage type in which you stage the goods (for example, picking storage type as source storage type and shipping zone as destination storage type).

In the picking area, you can group together storage bins from the stock removal perspective (for example, to distribute the workload evenly).

In addition to the picking area, there are other organizational units in the warehouse. These are the staging areas and the doors. They are defined in the outbound delivery or determined by the system, and can also be printed on the picking documents.

You can activate WM in Customizing at the warehouse number level by assigning a warehouse number to a combination of plant and storage type. In this way, the organizational units in the warehouse are linked to inventory management. Also, through this assignment, a status for WM activities is assigned to the respective items in the outbound delivery.

Create and Print Transfer Orders

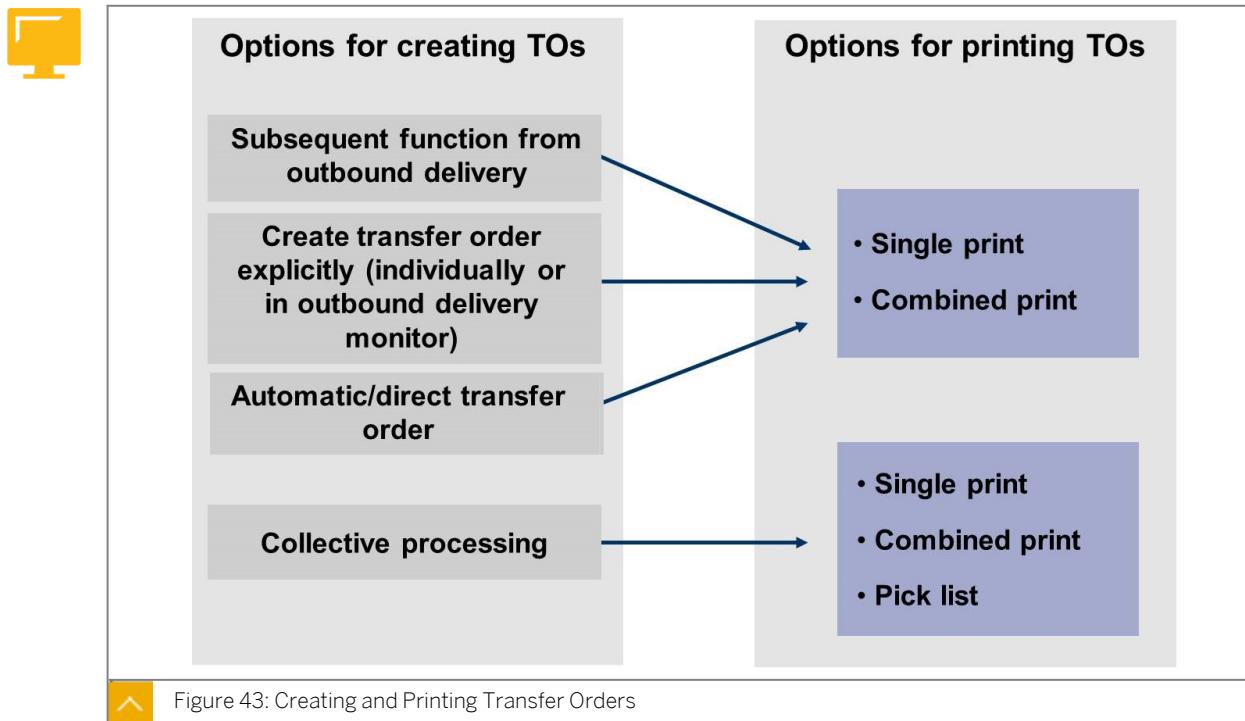


Figure 43: Creating and Printing Transfer Orders

The methods of creating a TO only differ in terms of the degree of automation they involve. In individual cases, you can create the TO as a follow-on function from within the delivery.

You can also create transfer orders explicitly in the following ways:

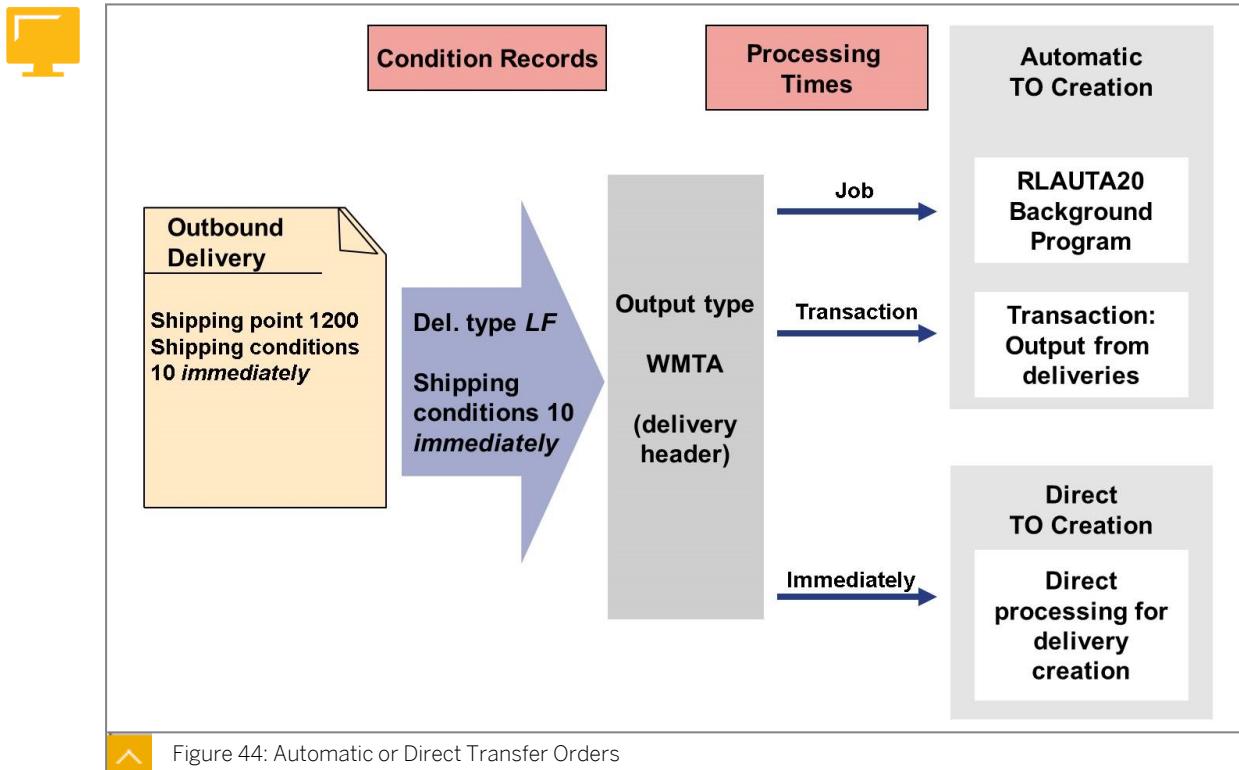
- Create the TO with reference to a specific outbound delivery
- Use the outbound delivery monitor to create transfer orders for several deliveries at the same time

The automatic or direct TO procedure is suitable if you want an outbound delivery to create the transfer order automatically. Using the collective processing procedure, you can group several outbound deliveries for creating TOs.

In WM, you have the following options for printing using a print code:

- Single print
One page for each TO item (for example, item-by-item processing in the warehouse)
- Combined print
One list for the entire TO (also called "combined list")
- Pick list (also known as a "combined pick list")
One list for several TOs that were created in collective processing

Automatic or Direct Transfer Orders



If you do not want to issue the items of several outbound deliveries in one picking list, we recommend the automatic or direct creation of transfer orders. Initiate this processing type through the output control of the outbound delivery. With the condition technique, the system can determine output type Warehouse Management transfer order (WMTA) at the header level of the outbound delivery when creating the delivery. The prerequisite for this determination is that at least one item of the outbound delivery must be relevant for WM picking. The combination "Delivery type and Shipping conditions" (first access) or "Delivery type" (second access) is responsible for determining the output in the standard system.

The processing of output type WMTA triggers the creation of the transfer order.

Depending on the processing time of output type WMTA, you can use the following processing types:

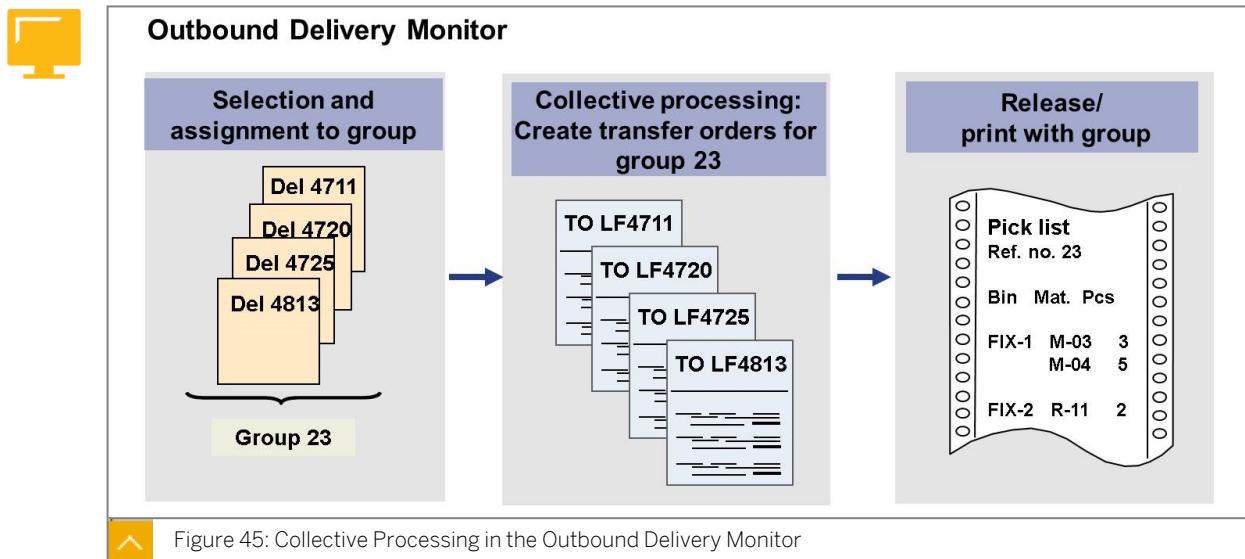
- Automatic transfer order creation: Time 1-3 (Processing later)

In this case, the output is either processed using a selection program in the background or manually using the transaction "Output from deliveries", which can also be planned in the background. During automatic transfer order creation, the output process is independent of outbound delivery creation.

- Direct transfer order creation: Time 4 (Processing immediately)

In this case, the system initiates processing after outbound delivery creation.

Collective Processing



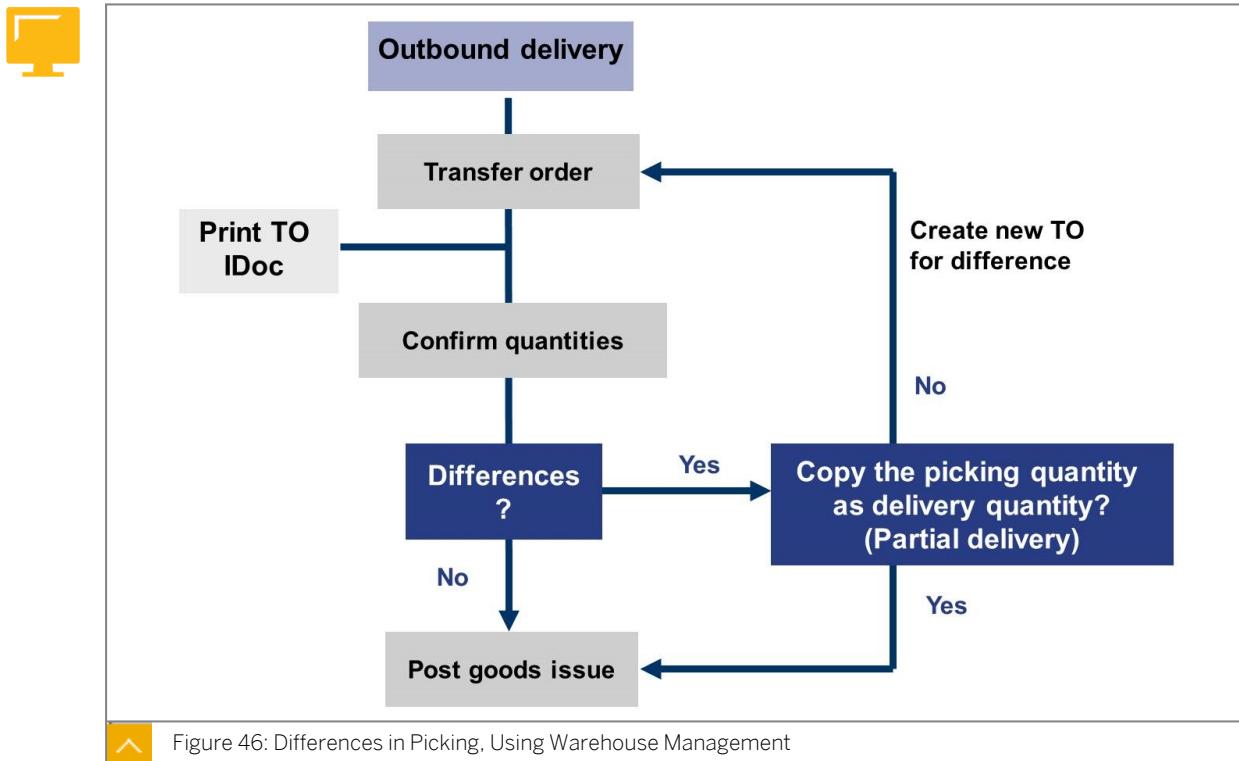
To optimize the picking process, you can also create a picking list for several outbound deliveries. You then sort this list (for example, by storage bin or material) depending on the settings in Customizing. This simplifies the actual search work for the picker in the warehouse.

The prerequisite for creating the picking list is that the TOs must not have already been created individually.

Use the following collective processing procedure to create the picking lists:

1. From the outbound delivery monitor, select the outbound deliveries and create a group for them.
2. Create TOs with reference to the group. This creates a TO for each outbound delivery that you have assigned to the group.
3. Depending on the settings for print control, either the system prints the picking list automatically, or the picker, who calls up this function, prints it manually.

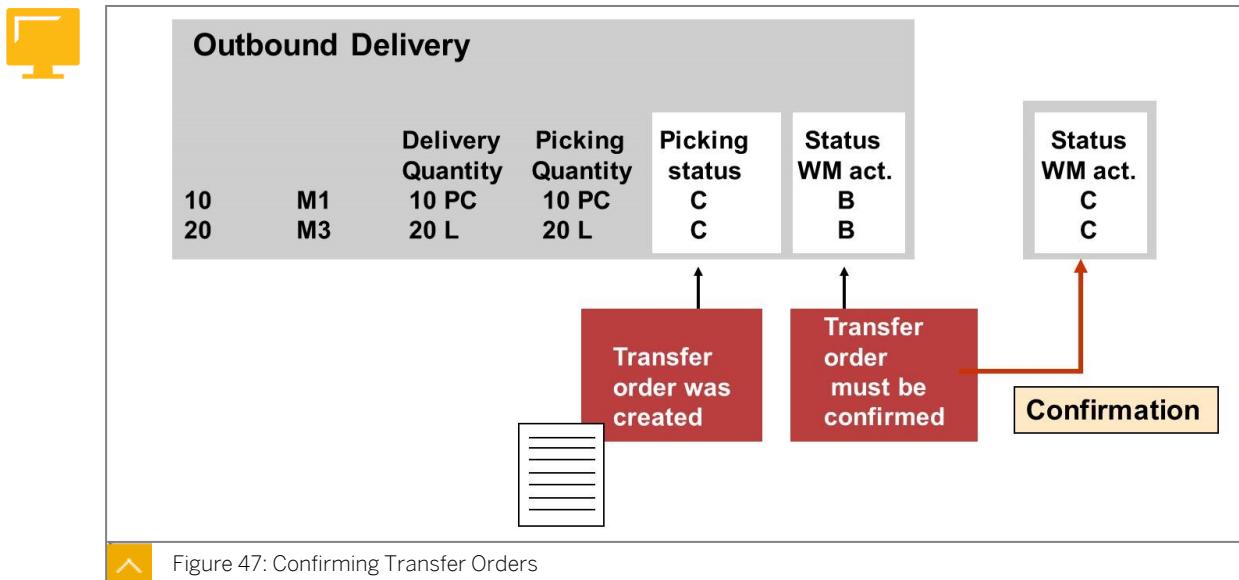
Confirmation of Transfer Orders



In picking, differences may occur between the quantity actually removed and the delivery quantity. However, you can only post a goods issue if the picking quantity and delivery quantity are the same.

One option is to copy the picking quantity as the delivery quantity and perform a partial delivery. In the order, the system sets the status to partially delivered, and a new delivery can be created for the remaining items. Alternatively, you can choose subsequent picking, where you create a new TO for the difference.

Confirming Transfer Orders



When you create the TO, the system sets the delivery quantity as the picking quantity and the picking status to C (fully picked). To set the system to record that the picking procedure is complete, set up the confirmation requirement. You must confirm the TO and the picked quantities before the goods issue can be posted.

During confirmation, you can report differences in quantities. To record the cause for the difference in the system, enter a difference indicator. As soon as confirmation is complete, the system sets the status of the WM activities to C, regardless of the quantity that you have confirmed. The pick quantity only affects the picking status.

In Customizing, you can define the confirmation requirement for each storage type. You can set either "stock removal" (picking) in the source storage type or "stock placement" (putaway) in the destination storage type as requiring confirmation.



LESSON SUMMARY

You should now be able to:

- Use WM and Lean WM for picking
- Process TOs

Packing Materials

LESSON OVERVIEW

This lesson discusses the packing functionality for shipping in the SAP system. It provides an overview of this functionality and the data that has to be maintained in this context. It also discusses Customizing for packing.

Business Example

Your company must pack certain materials into cartons before the goods issue is posted. These cartons are then placed on pallets before being shipped. Individual materials have to be packed in specific cartons. You need a special label for each package. You also want to create a packing list for the entire outbound delivery. You bill the customer for special cartons. You use returnable packaging processing for the pallets. For this reason, you require the following knowledge:

- Definition of the term “packaging materials”
- The process for multi-level packing in Sales and Distribution
- How to create packing instructions and determine records for automatic packing
- How to make the necessary settings for determining permitted packaging materials
- The different follow-on processes for packaging materials



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Pack materials
- Use further packing functions

Packaging Materials

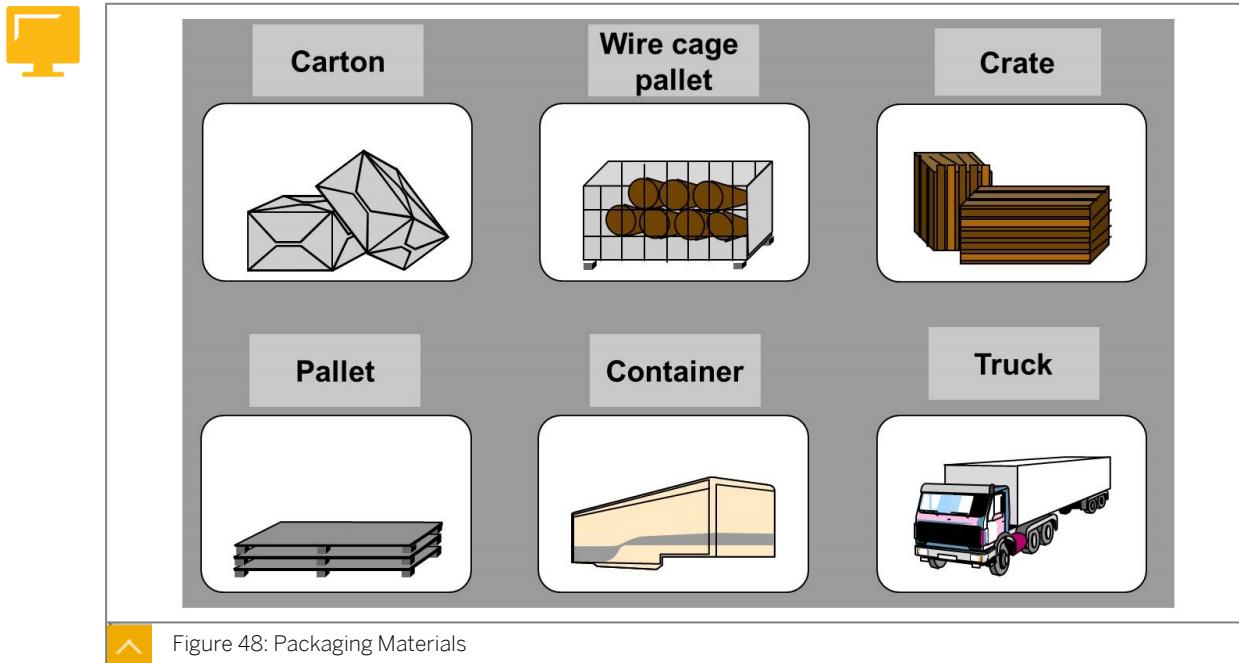
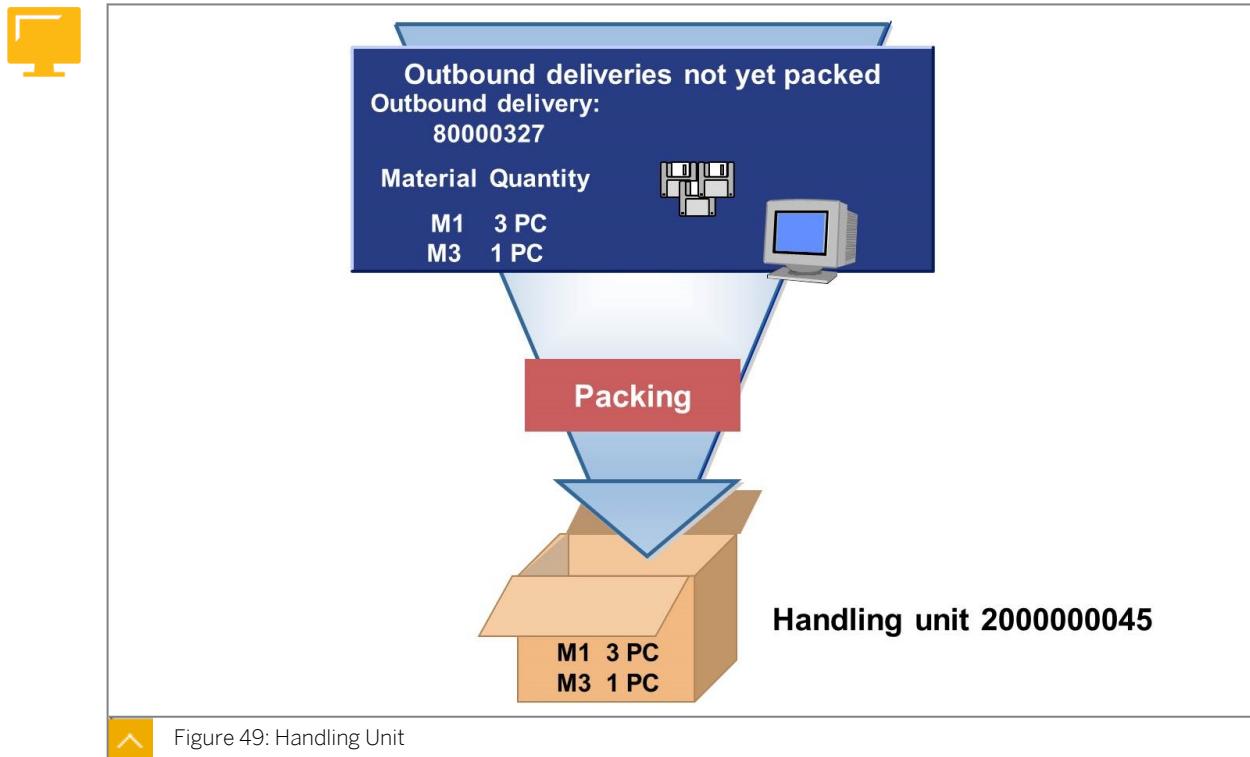


Figure 48: Packaging Materials

Packaging materials are materials that can be used to pack or transport goods. To store packing information for an outbound delivery in the system, you must first specify a packaging material. You must create material master records for the different packaging materials. You can use material type VERP for these materials in the standard system. In the material master, you define special data, such as packing weight and the volume permitted for each packaging material. You can also activate these fields for different material types.

The Packing Process



Selected items from an outbound delivery can be packed in an individual packaging material called a handling unit. The handling unit is assigned a unique sequential number from a predefined number range. The handling unit header contains information about the packaging material that the system uses in packing. The overview screen of the handling unit displays the quantities of the delivery items or other handling units. You can change or enhance the data that the system proposes from the material master record of the packaging material to include additional information, such as a pallet number.

Packing Functions (Multilevel Packing)

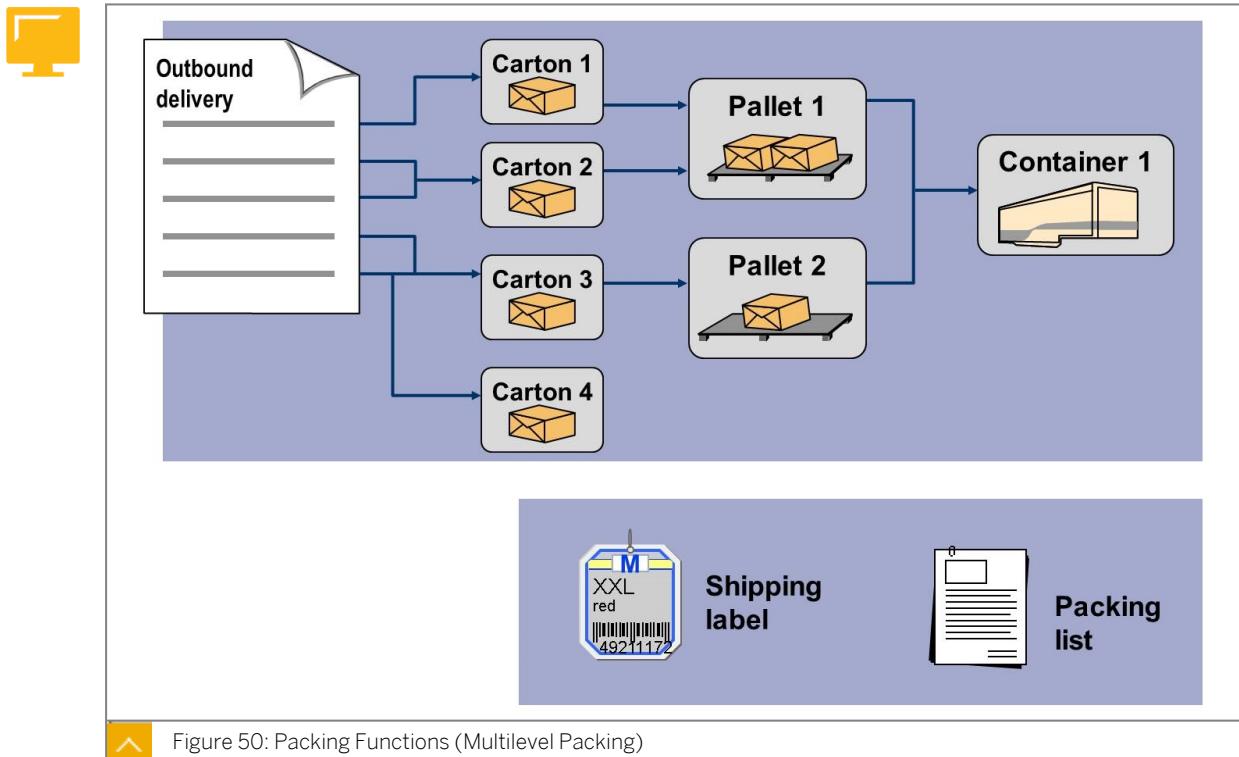


Figure 50: Packing Functions (Multilevel Packing)

Packing is the process of assigning delivery items to packaging materials. This process produces handling units, which can then be packed in additional packing materials. This creates new handling units. You can use as many levels as you require (multi-level packing). You can also unpack items from handling units, as well as empty and delete the handling units. In Customizing, you specify whether each delivery item category is relevant for packing.

You can specify the following settings:

- Packing allowed (default)
- Packing not allowed
- Packing mandatory

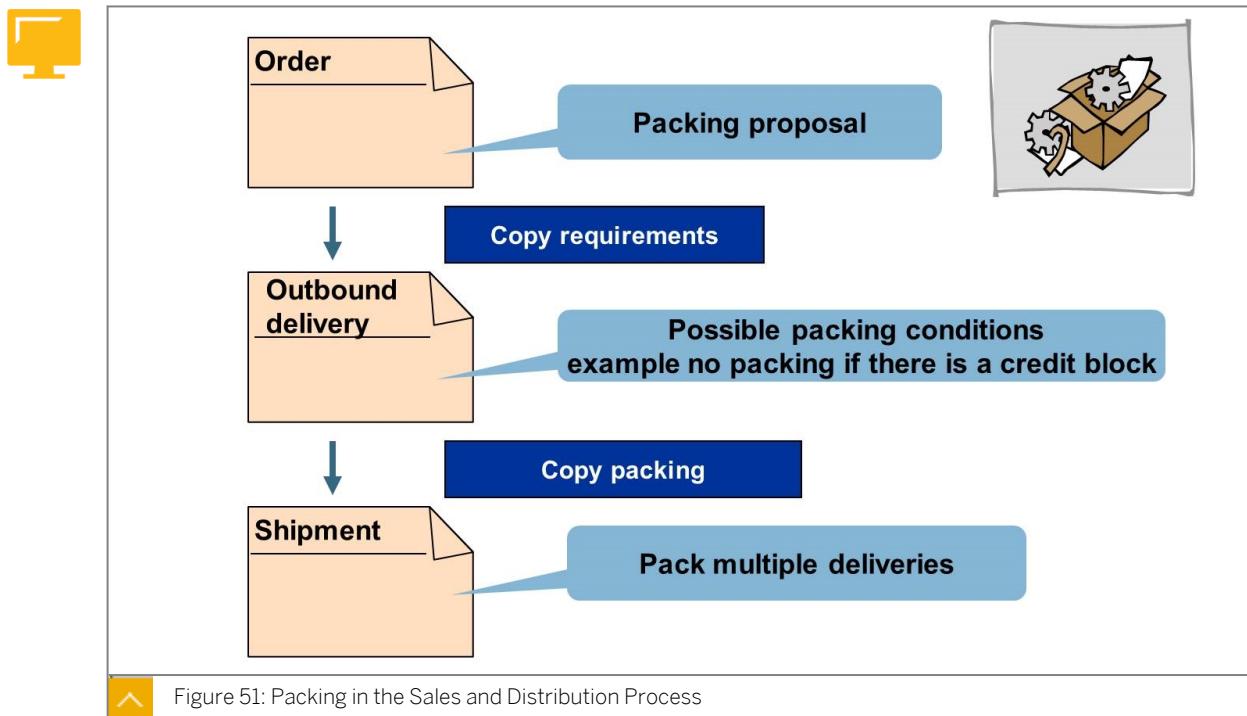
The packing status is updated for each item in the outbound delivery (for example, partially packed or completely packed).

The standard output types that you set up for printing are as follows:

- Packing list (at delivery level)
- Shipping label (at handling unit level)

Using the delivery item category, for items with batch split, you can specify whether the main item (with the accumulated quantity of the batch split items) or the individual batch split items are to be packed. If the individual batch split items are packed, you can identify in which handling unit a specific batch is packed.

Packing in the Sales and Distribution Process



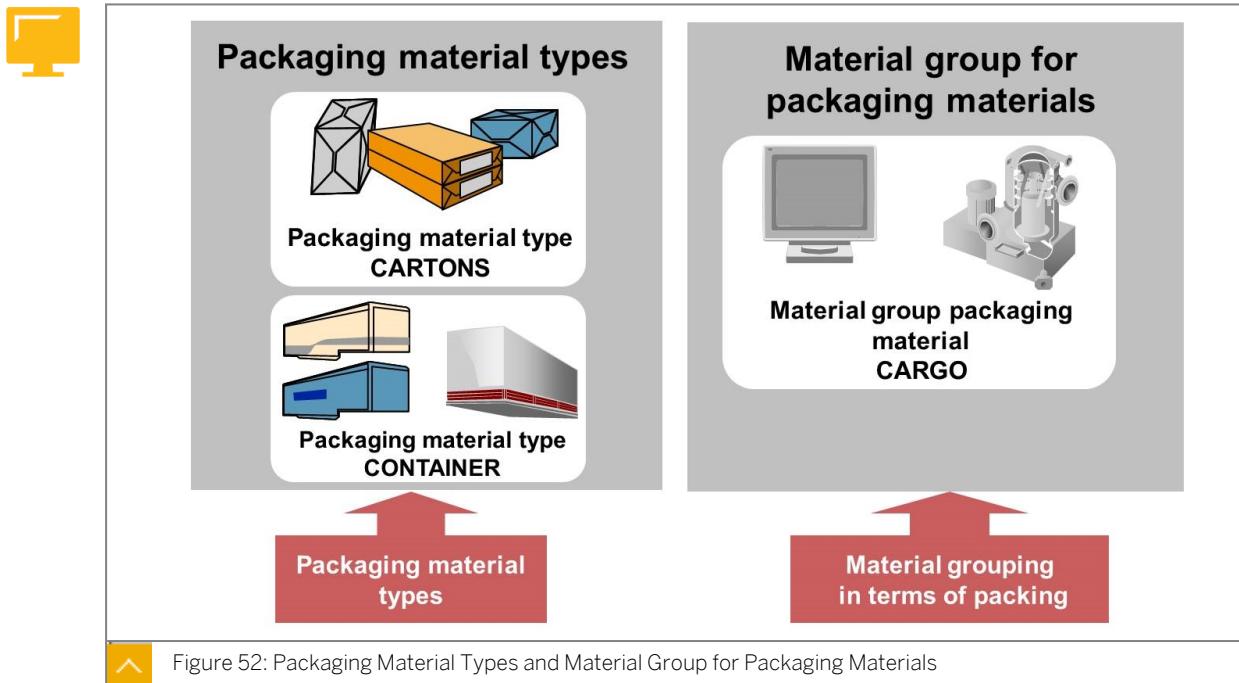
The packing function is available for the following documents:

- In orders (as packing proposals)
- In the inbound delivery
- In the outbound delivery
- In the shipment document

The packing proposal in the order can be copied to the outbound delivery. You control this at the header level in the copy control table for deliveries. To make packing in the outbound delivery subject to certain conditions, make settings in Customizing (with the Standard setting, packing cannot be carried out when the delivery has been blocked by a credit check).

The system copies packing in the outbound delivery to the shipment. You can choose to pack all the deliveries together. Use user exits to specify rules for automatic packing during the creation of outbound deliveries. The resulting proposal contains the packaging materials and the contents of each handling unit. Activate automatic packing for each delivery type separately.

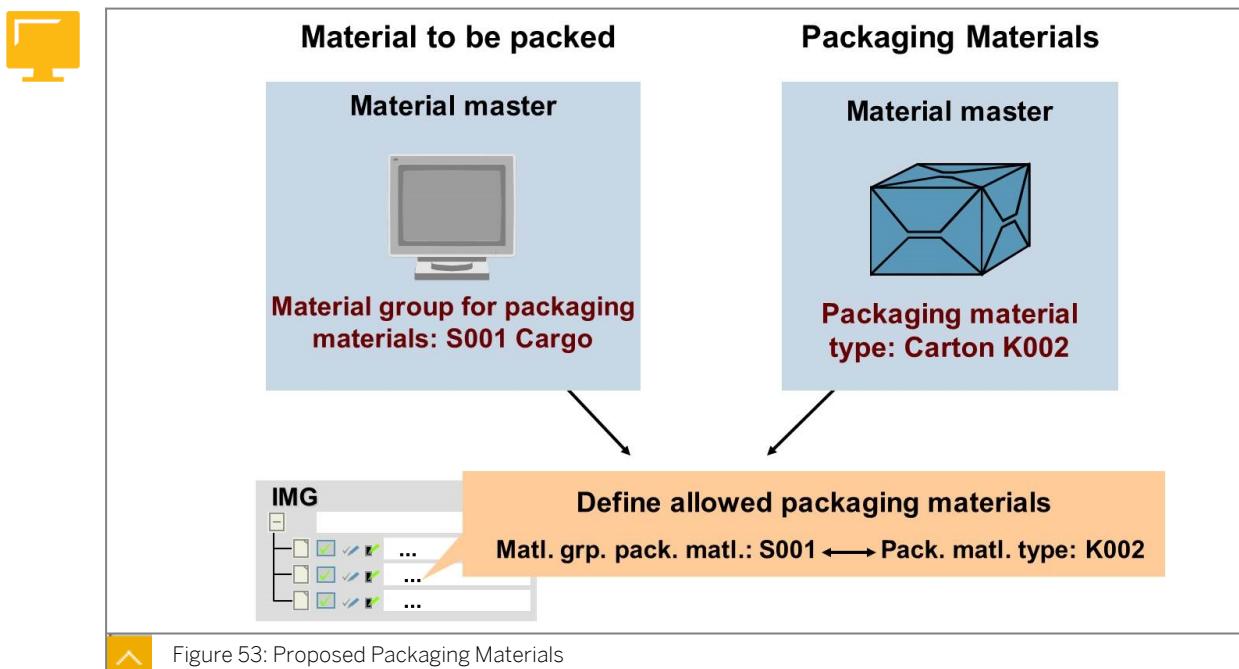
Allowed Packaging Materials



Similar packaging materials are grouped together in packaging material types. You can define controls in Customizing for each packaging material type. You can use these controls, for example, to specify the output determination procedure for output from handling units (such as shipping labels).

The material group for packaging materials is used to group together materials that have similar packing requirements (for example, materials requiring the same packaging materials).

Proposed Packaging Materials

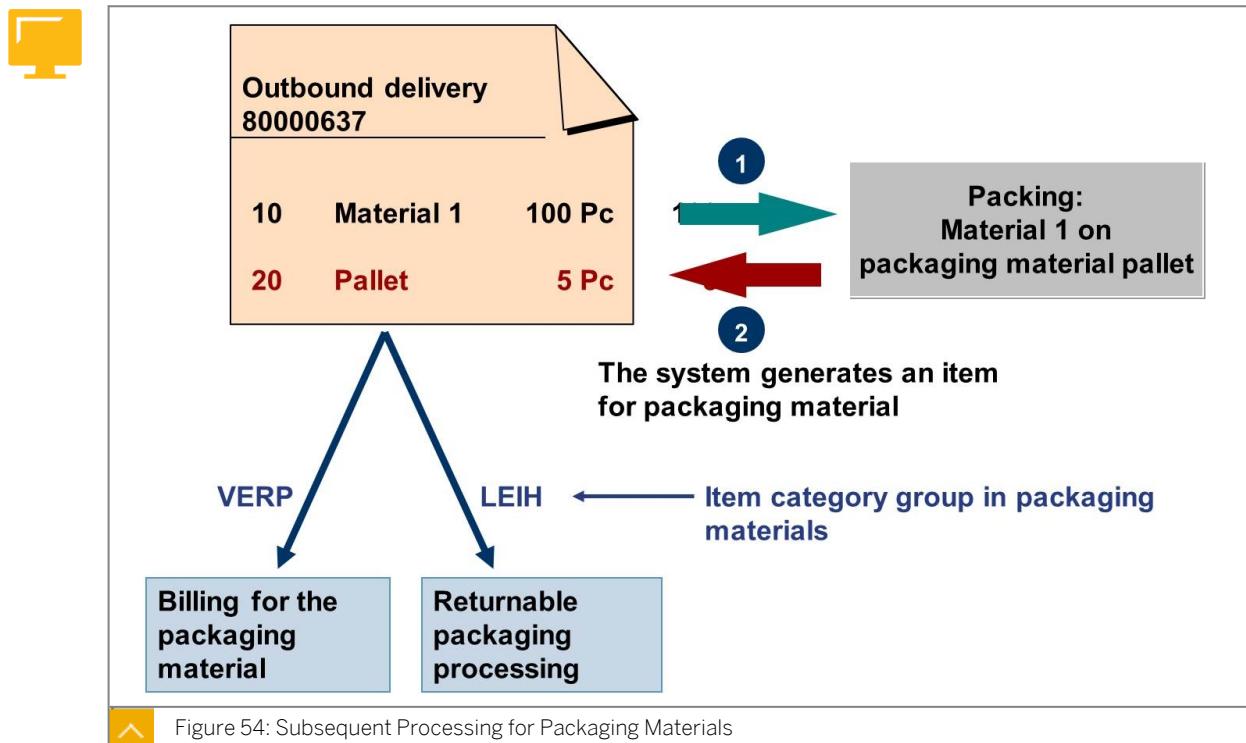


In outbound delivery (during packing processing), you can display the allowed packaging materials.

The packaging materials are proposed from the table "Allowed packaging materials for each material group" that you maintain in Customizing. The system checks whether the packaging material being used for packing is allowed.

However, if the field "Material Group: Packaging Materials" has not been maintained in the material master, this material can be packed in any packaging material depending on the weight and volume check.

Subsequent Processing



You may need to manage stock for packaging materials. To help you do this, the system can generate a separate item in the outbound delivery for each packaging material.

Perform the following tasks to automatically generate items for packaging materials:

- Set item category determination in Customizing. In this context, table entries with PACK usage are relevant.
- The delivering plant must be determined using the plant determination rule in the packaging material type or must be entered manually.

You can bill the customer for the packaging materials, or you can use returnable packaging materials, which are not billed.

If you bill the customer for the packaging materials, then you must create the packaging materials in the material master record with item category group VERP. The item category determination procedure in the standard system determines item category DLN. These items can then be copied to the billing document.

Before using returnable packaging materials, you must create them in the material master record with item category group LEIH (the system determines the item category TAL). When the goods issue is posted, the materials are transferred to special stock for the customer (or a

special stock partner, for example, the forwarding agent). These items will not be copied to the billing document.



Note:

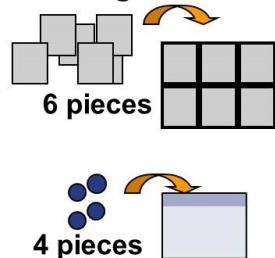
In subsequent processing of returnable packaging, use the order type returnable packaging pickup (AT), and then use returns delivery (RE). If the customer keeps the packaging, use the order type returnable packaging issue (RPI) and then billing.

Packing Instructions



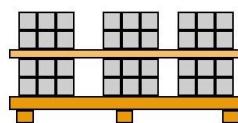
1

Packing instructions



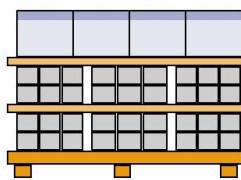
2

Temporary storage



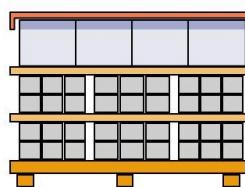
3

Mixed storage



4

Lid



Packing material, rounding rules, and minimum quantities



Figure 55: Packing Instructions

Packing instructions include the following:

- Packaging materials
- Materials to be packed
- Text items
- Subordinate packing instructions
- Rules concerning rounding, minimum quantities, and so on
- Definition of a check profile

Packing Instructions Determination Procedure

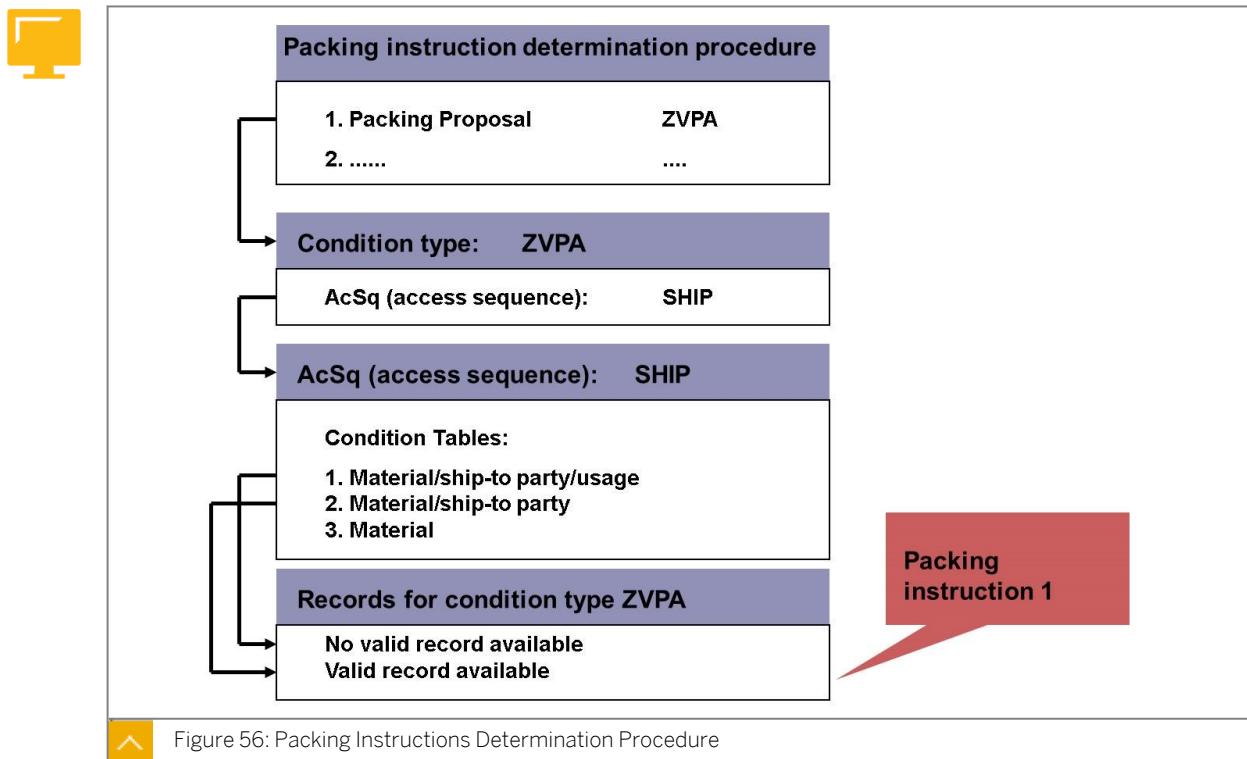


Figure 56: Packing Instructions Determination Procedure

Packing instructions can be used as packing proposals for online processing or as packing rules for automatic packing. Packing instruction determination is carried out using the condition technique, for which you must define a corresponding procedure and condition types. Three standard access sequences are provided for you to use when defining condition types.

You can implement automatic packing using either packing instructions or a customer enhancement (PACKMODI).

Packing Station

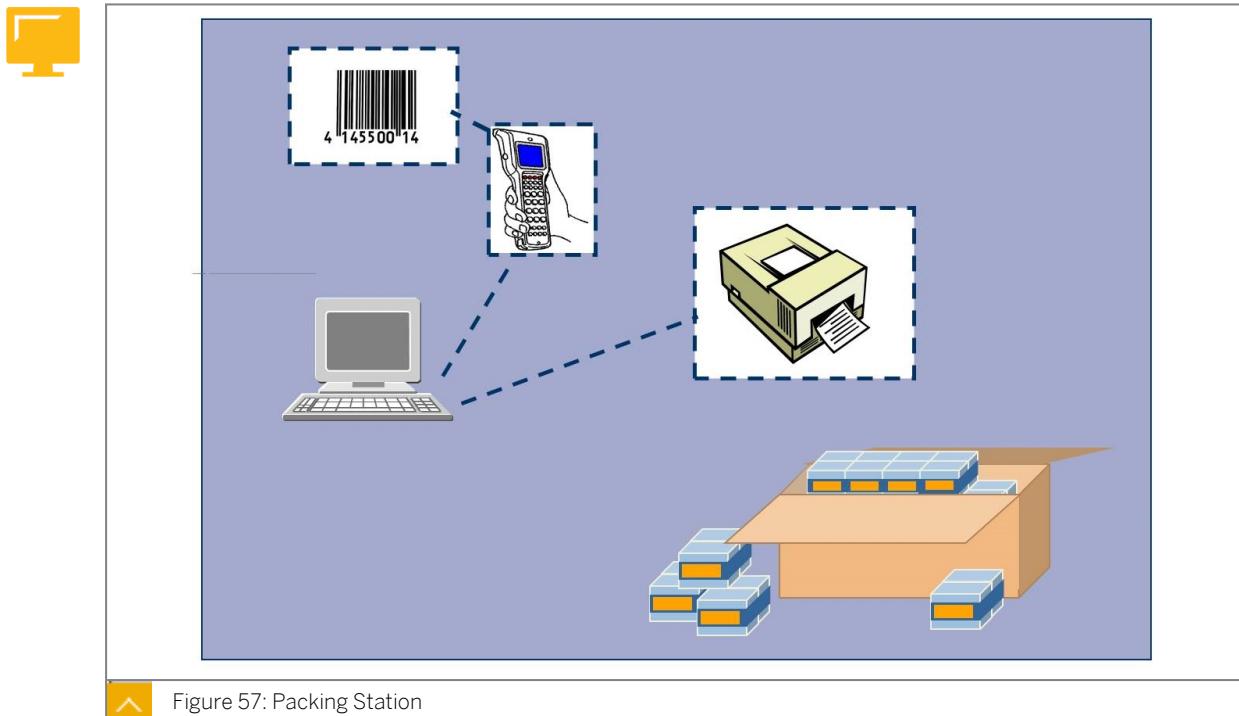


Figure 57: Packing Station

Deliveries and handling units can be packed using a packing station. You can connect a keyboard scanner and scales to the packing station computer to ensure quick and correct data entry. You can also print shipping labels at the packing station to label handling units immediately.

You can control each packing station individually using the terminal ID and use the terminal ID to carry out different processes. Employees use this function to enter the packaging materials actually used in the packing process.



LESSON SUMMARY

You should now be able to:

- Pack materials
- Use further packing functions

Handling Goods Issues

LESSON OVERVIEW

This lesson describes the goods issue process. When the goods issue is posted, the shipping process is complete.

Business Example

When the goods leave the plant, the shipping process is complete. The quantities and values of the stocks are adjusted. You can now create the billing document. If you post a goods issue accidentally, you must cancel it. Some materials are subject to a quality check. You can only post the goods issue if the material passes the quality check. For this reason, you require the following knowledge:

- How to post the goods issue
- An understanding of the effect of the goods issue posting on Sales and Distribution, materials management, and Financial Accounting
- How to cancel a goods issue posting
- How to link Quality Management with the shipping process

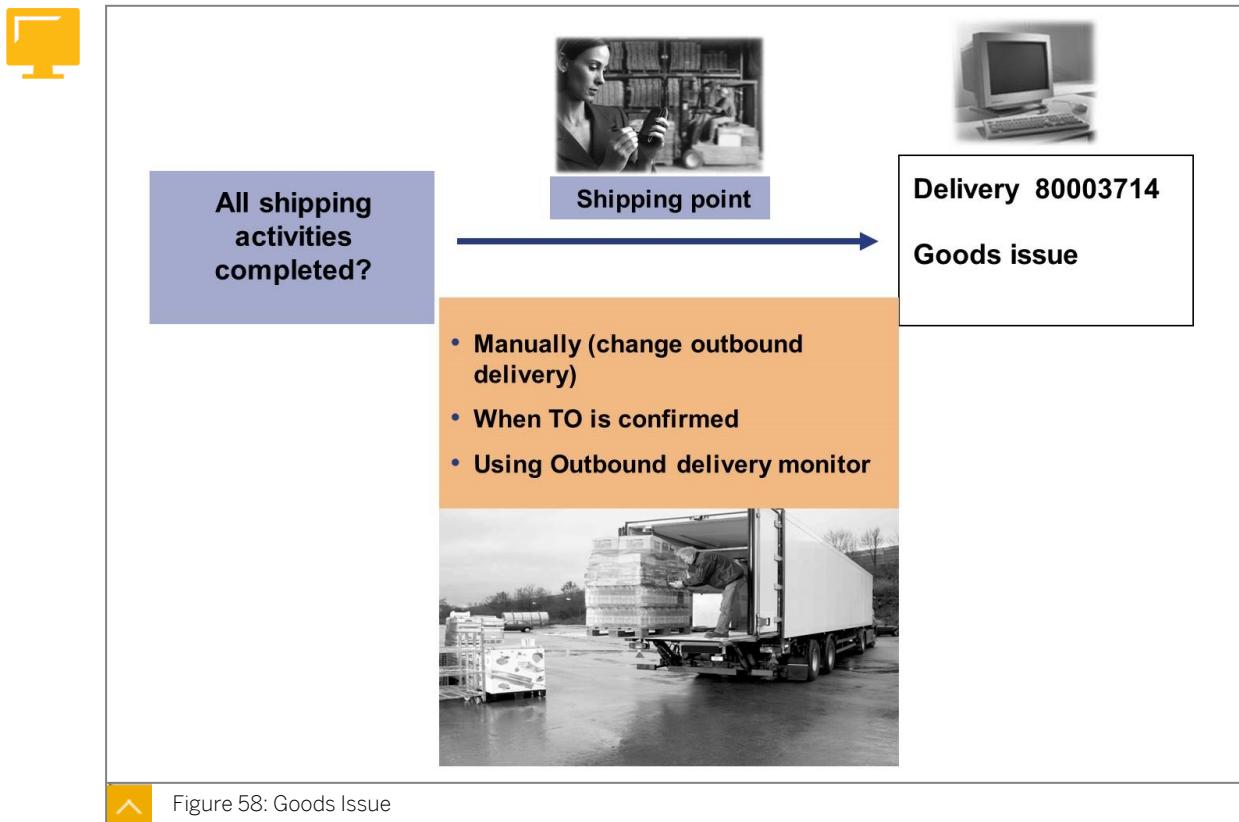


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Post a goods issue
- Cancel a goods issue

Overview



In order for a goods issue to be posted, all mandatory shipping activities need to be performed. For example, if you are working with a picking relevance and confirmation requirement, these steps must first be completed.

The goods issue can be posted by changing a single outbound delivery. Alternatively, you can use the collective processing function to select all deliveries for which goods issues are due to be posted, and then post the goods issues for them. You can also use the outbound delivery monitor to do this.

You can also post the goods issue automatically when the transfer order is confirmed.

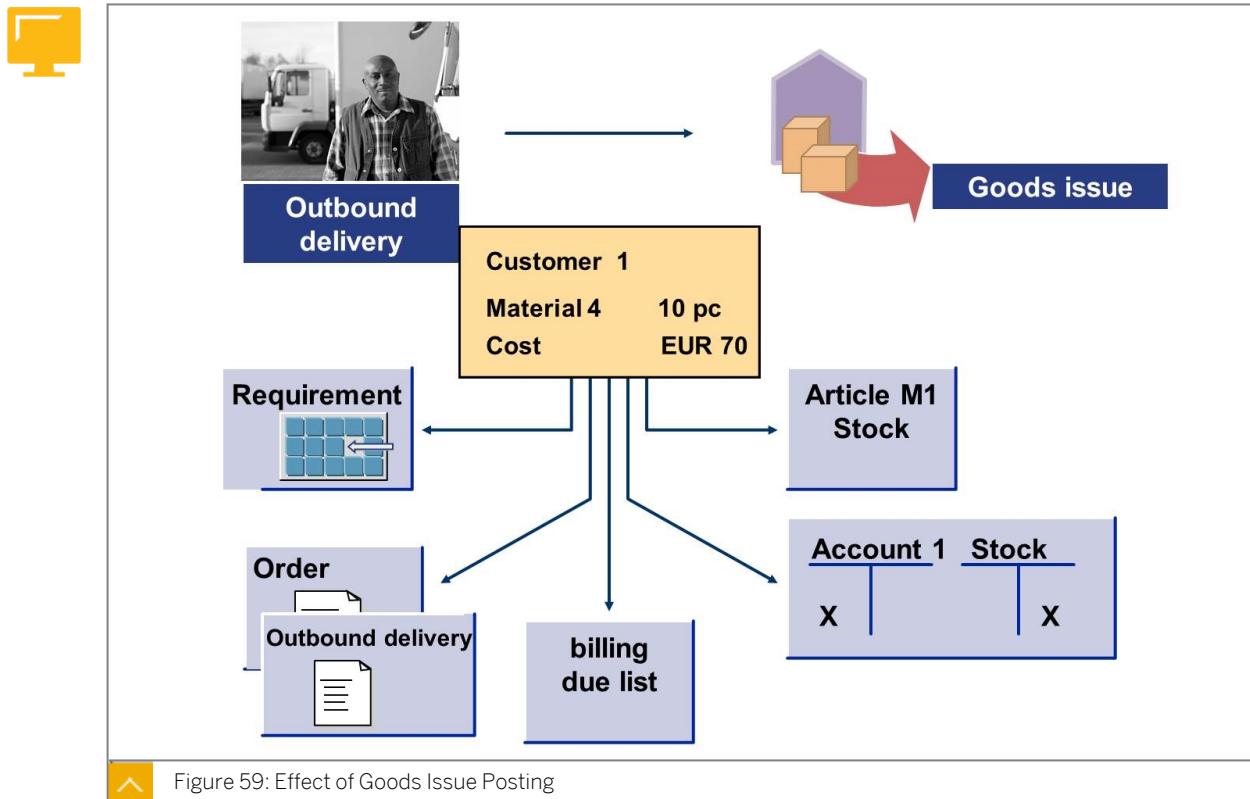
When you process a single outbound delivery, you can specify the actual goods issue date without changing the planned date. A dialog box appears in which you can enter the actual goods issue date, and then post the goods issue for this date.

The corresponding goods issue document is posted with the actual goods issue date. If no explicit specifications are made for the goods issue date, the system takes the current date as the goods issue date.

The goods issue applies to the entire outbound delivery.

Errors are logged when data such as the batch or serial number is missing or when picking has not been carried out fully for the items. In these cases, the system does not post the goods issue.

Effects of Goods Issues



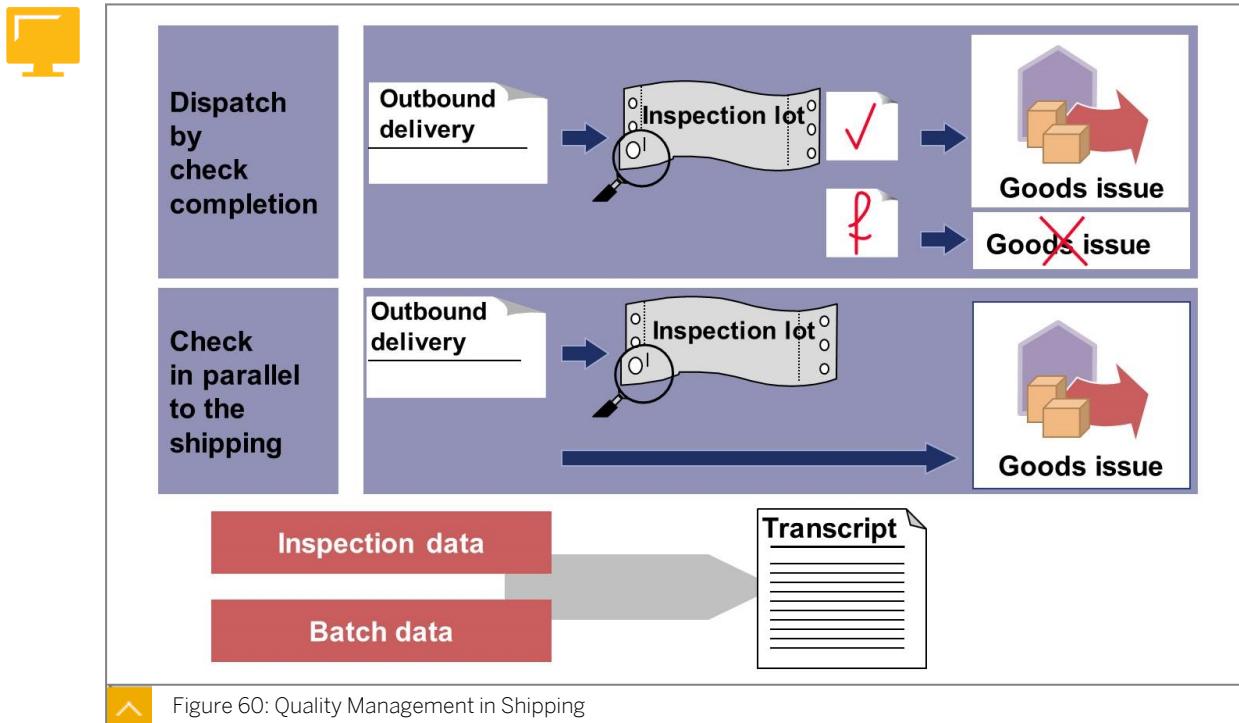
After the goods issue has been posted, the scope of changes that can be made to the outbound delivery becomes limited. In particular, no changes can be made to the quantities. At this point in processing, the delivery document has to reflect the actual physical delivery.

The following are the functions of a goods issue:

- Reduces inventory stock
- Posts the value change to the stock accounts in inventory accounting
- Reduces delivery requirements
- Enters status information in the outbound delivery and the sales order
- Updates the status in the document flow
- Creates a work list for billing

To carry out billing before the goods issue is posted (using the “Create billing document” transaction), you can make the appropriate settings in copy control in Customizing.

Quality Inspections



The Quality Management (QM) component supports Sales and Distribution with quality inspections for goods issues (for example, packing inspections). If a quality inspection is to be carried out for a material, you must specify this requirement in the Quality Management view of the material master.

When the outbound delivery is created, QM automatically creates an inspection lot for the delivery items that are relevant for inspection. The inspection lot tells the quality assurance department that the goods need to be inspected.

Storing the Result of Quality Inspection

You can store the result of the inspection in the system in the following ways:

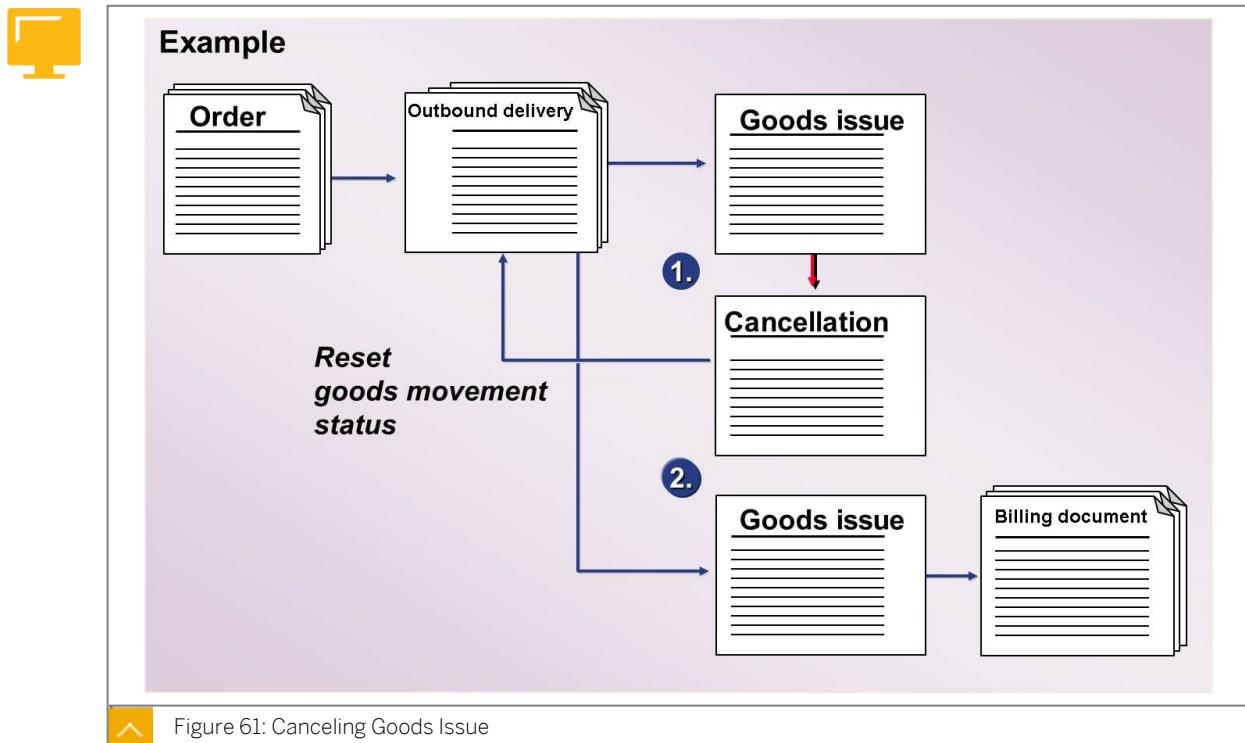
- Damaged goods are stored as defect records.
- Measured values or evaluation codes are stored as characteristic values.
- The type and procedure used by the inspection are stored in the QM master data.

The usage decision represents the completion of a QM inspection. This is where the inspected goods are either accepted for further use or rejected. This is called “accepting” or “rejecting” an inspection lot.

Depending on the customer, or on the customer and the material together, you can specify whether the system must accept the inspection log before it posts a goods issue. If it does not have to be accepted, the quality assurance department can submit the inspection results after the goods issue posting.

You print a certificate of quality from the output control of the outbound delivery at item level. This function is primarily used for materials that are handled in batches.

Cancellation of Goods Issues



If you cancel a goods issue for an outbound delivery, the system does the following:

- Resets the goods issue posting
- Copies the quantities and values from the original goods issue document
- Carries out an inventory posting based on these quantities and values with a reversed +/- sign

If you cancel a goods issue, this affects the entire outbound delivery. The cancellation document created during cancellation is entered in the document flow for the outbound delivery.

After a goods issue has been canceled, the goods movement status of the outbound delivery is reset to "Not yet started". This allows you to further process the outbound delivery as usual. The delivery requirements are also re-created.

Canceling a goods issue comprises two steps if the outbound delivery has been either fully or partially billed. In this case, you must first cancel the billing document. Then, you can cancel the goods issue.

For each movement type in inventory management, you must define a reversal movement type in Customizing. No additional settings are required for the movement types used for goods issue posting in the standard system.

Selecting Outbound Deliveries for Cancellation

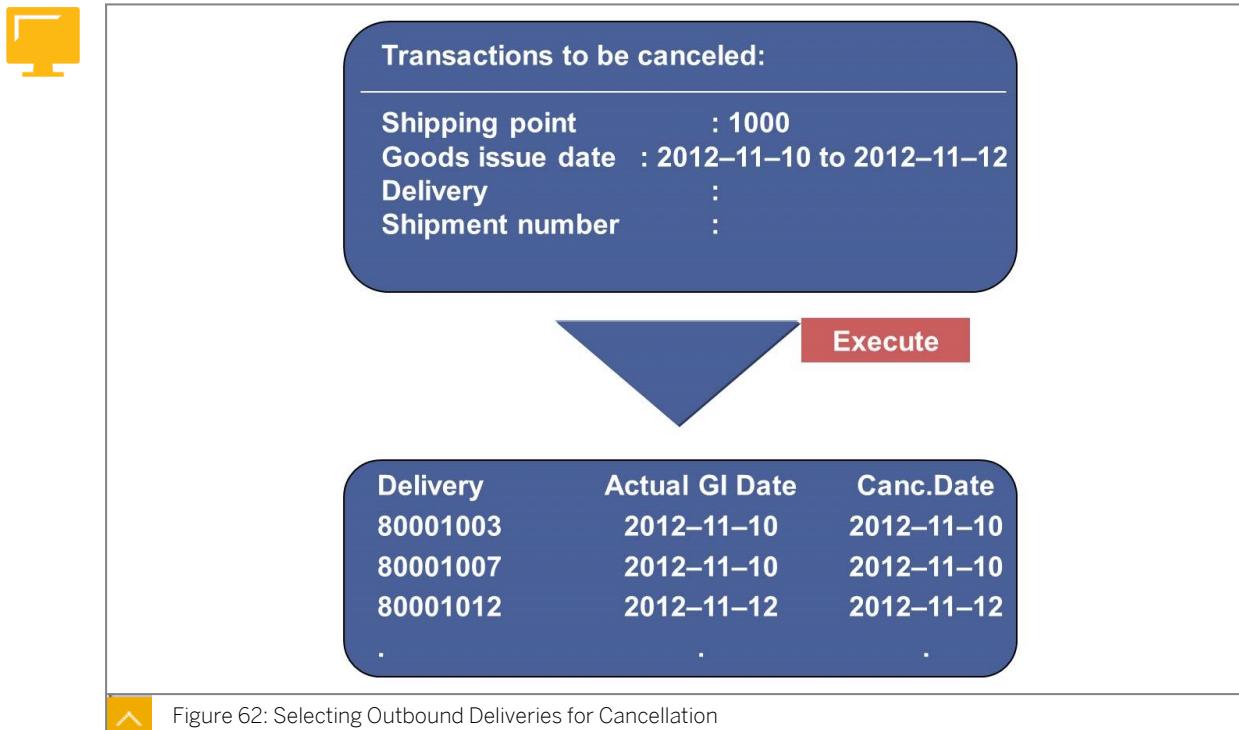


Figure 62: Selecting Outbound Deliveries for Cancellation

On the *Selection* screen, you can select one or more outbound deliveries for which you want to cancel the goods issue posting.

You can enter the following selection criteria:

- Outbound delivery number
- Shipping point
- Route
- Goods issue date
- Group of outbound deliveries
- Shipment number

On the list of the outbound deliveries selected, you can specify a date other than the current date for each delivery if that date does not come before the goods issue date. By double-clicking a list entry, you can directly branch to the outbound delivery. The system generates a log of the cancellations and any errors that occur.



LESSON SUMMARY

You should now be able to:

- Post a goods issue
- Cancel a goods issue

Using Special Functions in Deliveries

LESSON OVERVIEW

This unit provides an overview of the additional functions that can be performed in combination with outbound deliveries. It explains how shipping processes are handled using batches and serial numbers. This lesson also provides information about using conditions in the outbound delivery, the subsequent delivery split, and the proof of delivery (POD).

Business Example

In your company, you need to use batches for certain materials. You need to specify from which batch the system has selected the material at the time of the outbound delivery. Other materials have serial numbers that you need to record at the time of outbound delivery and enter in the system. You often need to record shipping costs, such as packing and postage costs, in the delivery document. During loading, if you notice that a delivery does not fit into a truck, you have to split it into several smaller deliveries. You have an arrangement with some of your customers that they will confirm the receipt of the delivery. You can only create the billing document when you have received this confirmation. For this reason, you require the following knowledge:

- How to specify batches in the outbound delivery
- How to assign a serial number in the outbound delivery
- How to use pricing in the outbound delivery
- How to split an existing delivery into several smaller deliveries
- An understanding of the proof of delivery process

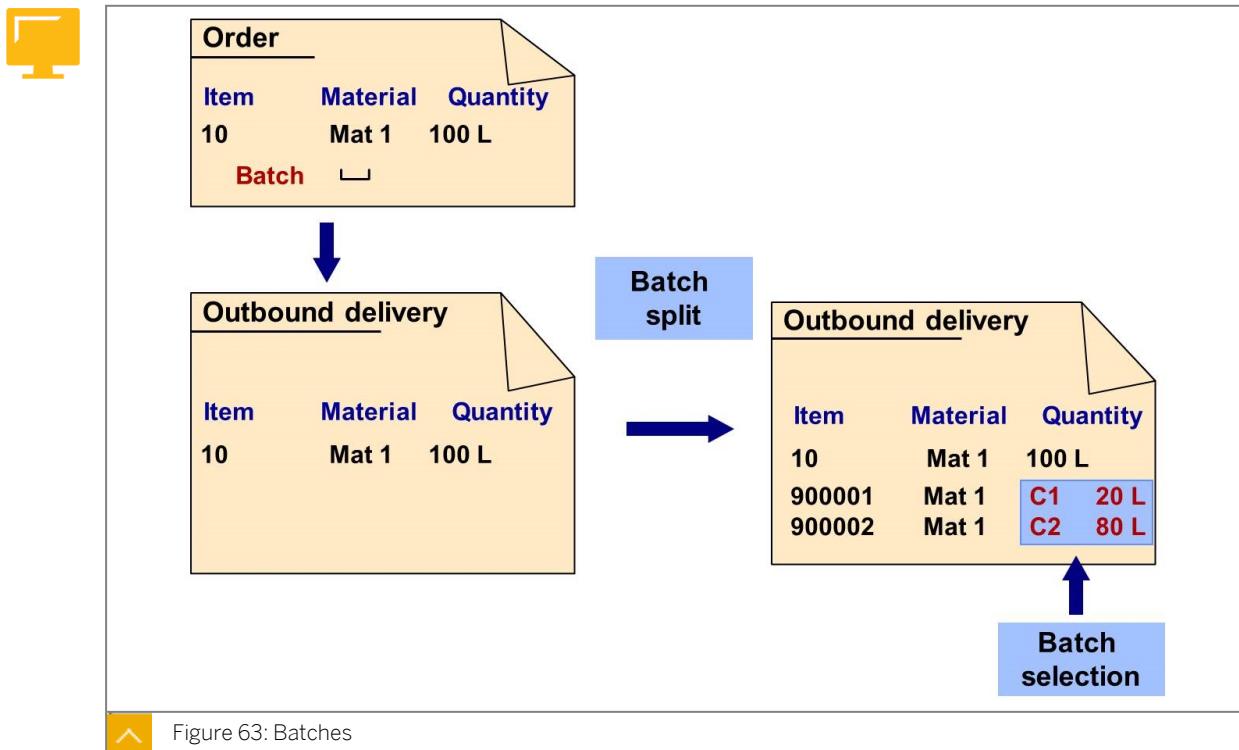


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Use special functions in deliveries

Batches



If a material is batch relevant, it is indicated in the material master record on the *Storage 1* or *Purchasing* screens. You can specify a batch in the sales order item. When delivering this sales order, the batch is copied to the outbound delivery. You cannot change it there.

If a batch has not been specified in the sales order, you can enter one in the *picking overview* screen of the outbound delivery. You must specify a batch before goods are issued. You have to use the batch split function if you want the system to take the delivery quantities of an item from different batches.

Splitting a Batch

You can carry out batch splits as follows:

- Manually, in the *batch split* screen of the delivery item
- Using automatic batch determination when creating the outbound delivery
- Using manually-triggered batch determination in the *batch split* screen
- Using Warehouse Management (WM)

Serial Numbers

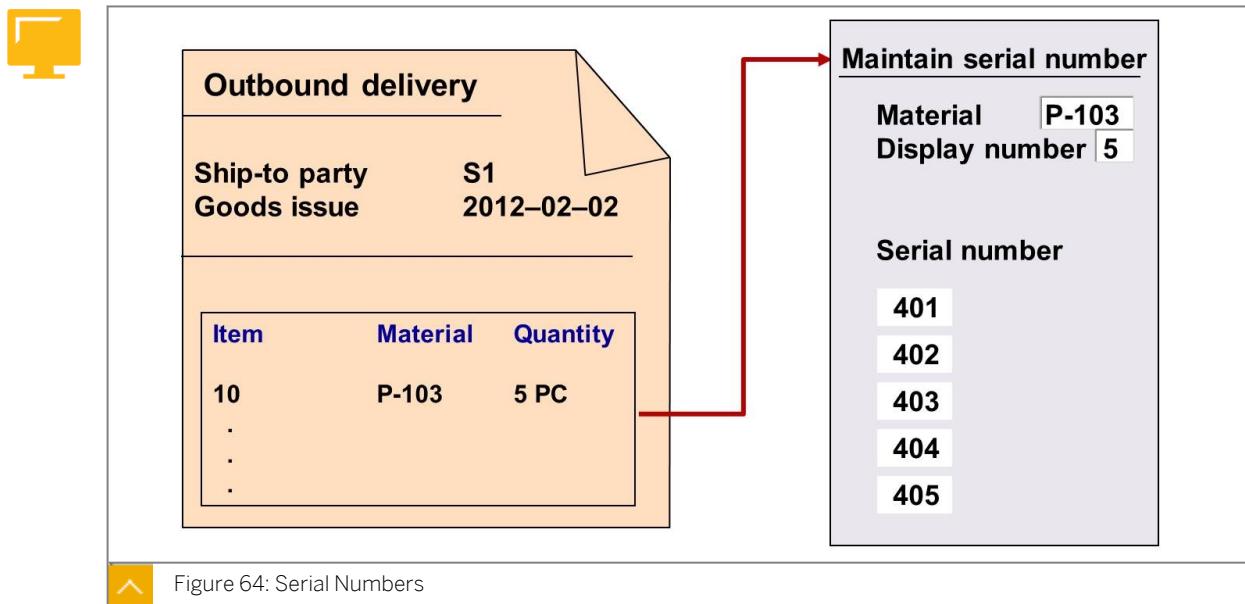


Figure 64: Serial Numbers

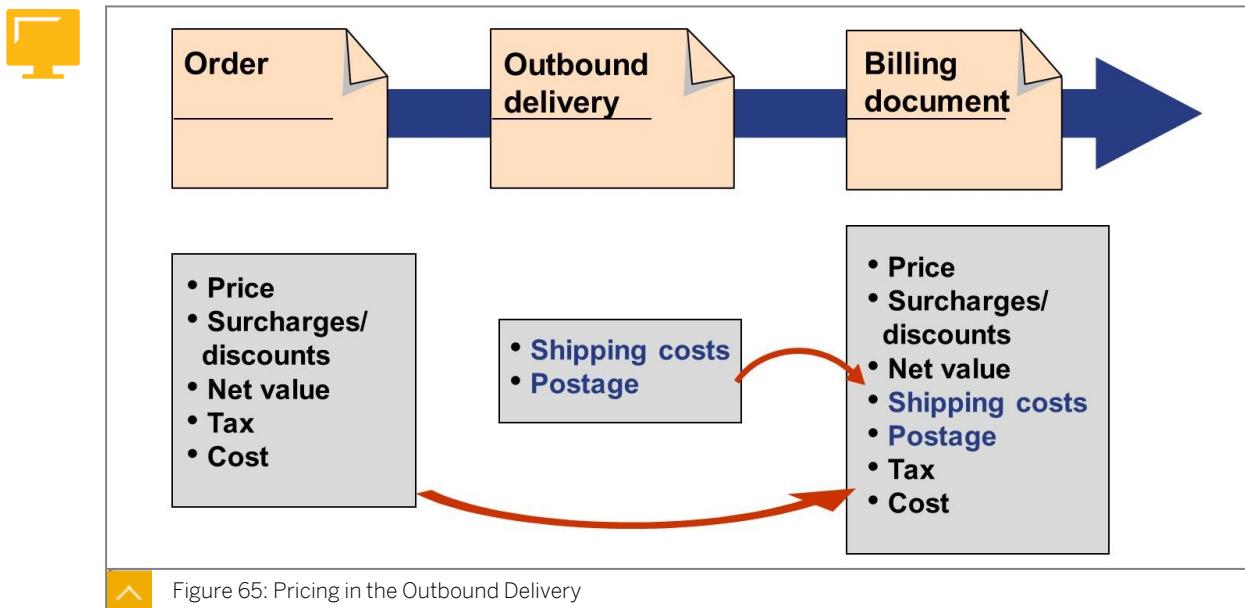
You can assign a unique serial number to each material.

This assignment allows you to do the following:

- Monitor goods movement for individual materials (for example, when selling materials to a customer)
- Manage the maintenance of individual materials more easily in the system if equipment master records exist for these materials

To use serial numbers, enter serial number profiles in the master records for the relevant materials. Serial numbers are usually specified in the delivery item. However, you can also define them in the order. You can also have the system assign the serial numbers automatically. You must specify all serial numbers before posting goods issue.

Pricing

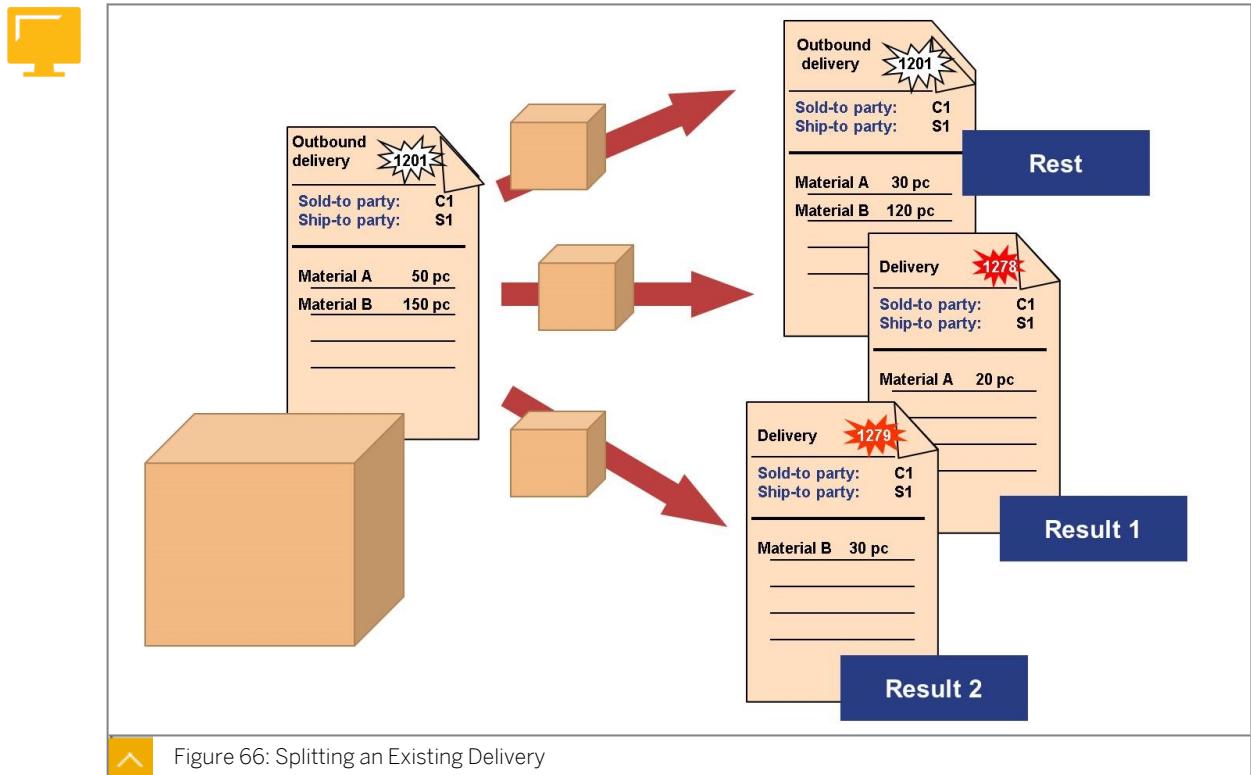


The outbound delivery may contain shipping-related conditions, such as shipping or freight costs (if you are not using the transportation module). You can enter the condition values manually or determine them using the SD pricing condition technique.

You can print the conditions on the delivery note and transfer them in the billing document, but you cannot transfer them from the preceding documents to the outbound delivery.

To implement the conditions, use the standard Customizing settings for pricing (condition type definition, maintaining the pricing procedure). Assign the pricing procedure to the delivery type.

Delivery Split



You can split an existing delivery into several smaller deliveries, which is useful if, for example, there is not enough room in your truck to hold the entire delivery. To do this, you can call up a list and select the outbound delivery items, partial quantities of items, or handling units that are to be taken out of existing deliveries. When you split a delivery, you create one or more new deliveries, called "results", and the "remainder".

When you call the delivery split, specify a split profile to determine the type of split. The split profiles contain control parameters. These profiles are defined in Customizing and assigned to delivery types.

Delivery Interface

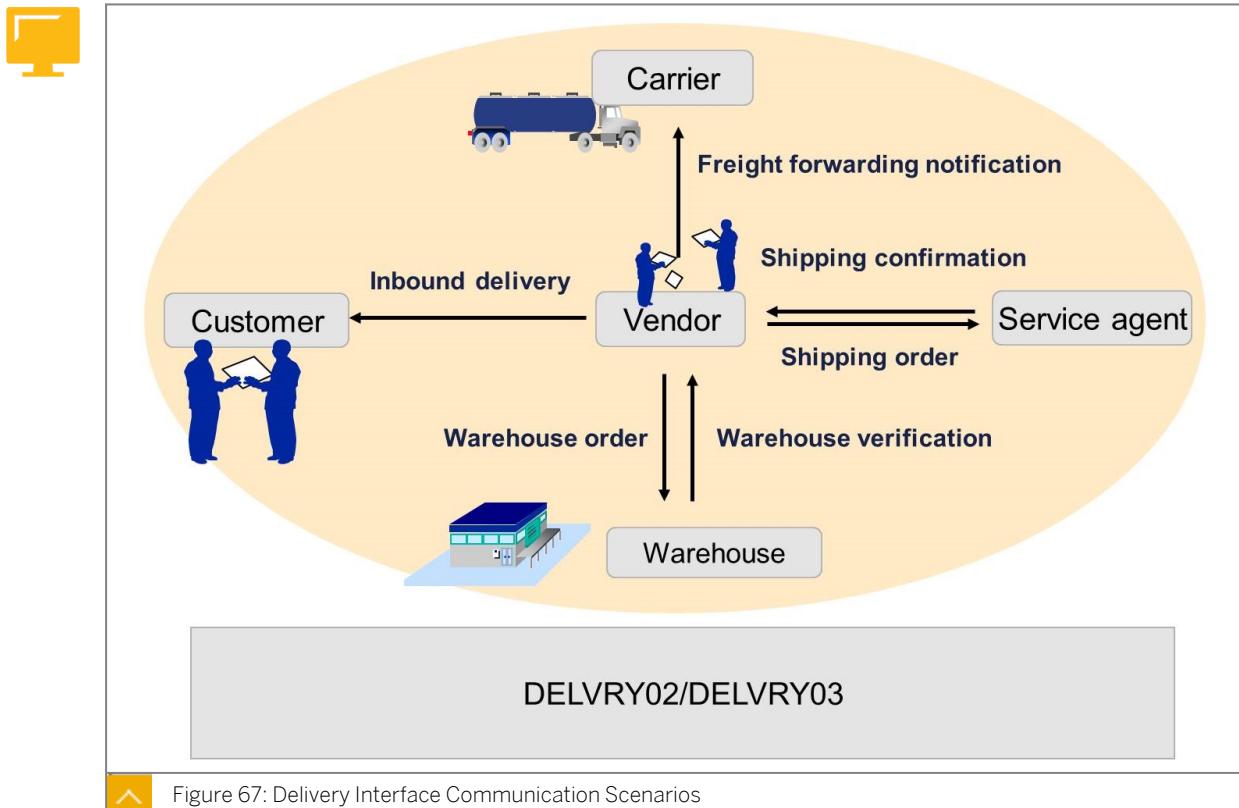


Figure 67: Delivery Interface Communication Scenarios

If business partners are involved in the shipping process, or if some functions are performed by non-SAP systems, you need to exchange information with these other parties or systems. Normally, electronic data interchange (EDI) messages are used for external communication, and Application Link Enabling (ALE) messages are used for internal communication.

The delivery interface groups together all EDI and ALE messages that refer to the delivery. They are all based on the same IDoc (DELVRY02 (4.6A), DELVRY03 (4.6B)). DELVRY02 and DELVRY03 are data structures that consist of segments and contain the fields for the delivery and other fields relevant for shipping, such as route and batch characteristics.

Output control of the delivery at header level triggers the filling of the IDoc fields. The system provides appropriate message types for the communication scenarios that IDoc represents in the standard SAP system.

Incompletion Control

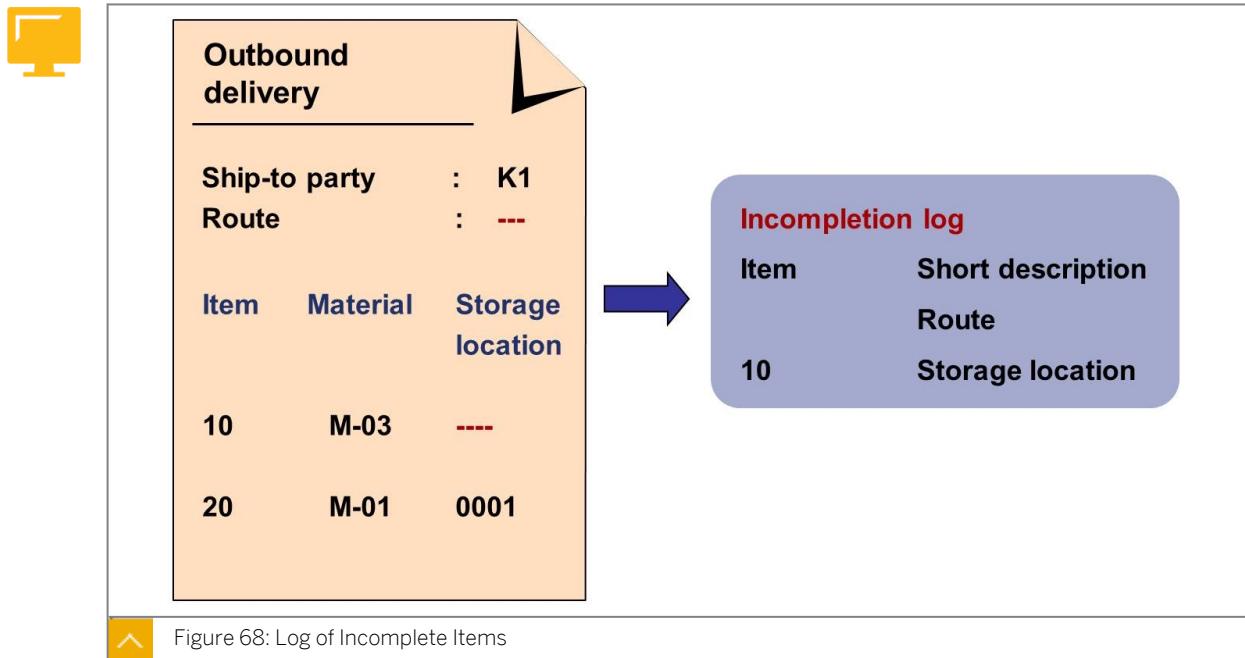


Figure 68: Log of Incomplete Items

When you call up the log of incomplete items, the system checks if the data in the outbound delivery is complete. From the generated list, you can branch directly to the screen for maintaining the incomplete fields.

You can call the log of incomplete items from delivery processing or select incomplete delivery documents using a special report. This creates a worklist of documents that require processing.

In the outbound delivery, the system can check the completeness of a delivery at both header and item level. In Customizing, you can control which fields, if not already specified, cause an outbound delivery to be incomplete, and what effects these incomplete fields have on follow-on activities, such as picking, packing, goods issue, and billing (for example, packing may be not allowed if the item volume is not specified). The selection of the fields that cause a delivery to be incomplete depends on the delivery type and the delivery item category.

In addition, you can set partner functions and texts as "Required" by using the corresponding Customizing functions. If specifications for a required partner function are missing in the document or if a required text does not exist, a note is entered in the log of incomplete items.

Proof of Delivery

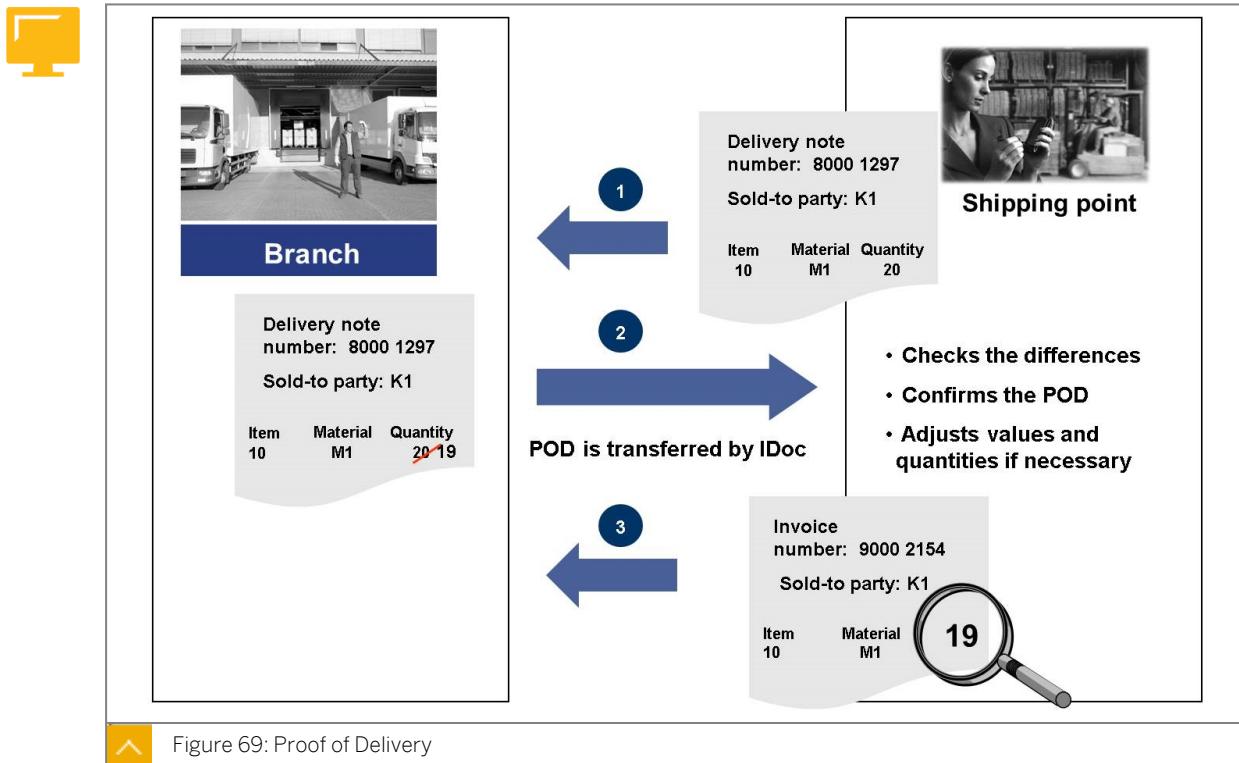


Figure 69: Proof of Delivery

POD is essentially designed to support the process of only creating an invoice once the customer has confirmed the arrival of the materials. After receiving the goods, the ship-to party transfers the POD to the system by IDoc and thereby confirms the quantities for the whole delivery.

In cases for which there are no discrepancies of quantity, this involves no extra effort, because verification and confirmation are automated using the IDoc. If differences are reported, the proof of delivery cannot automatically be confirmed. In such a case, you must continue processing manually.

Processing Documents in Combination with POD

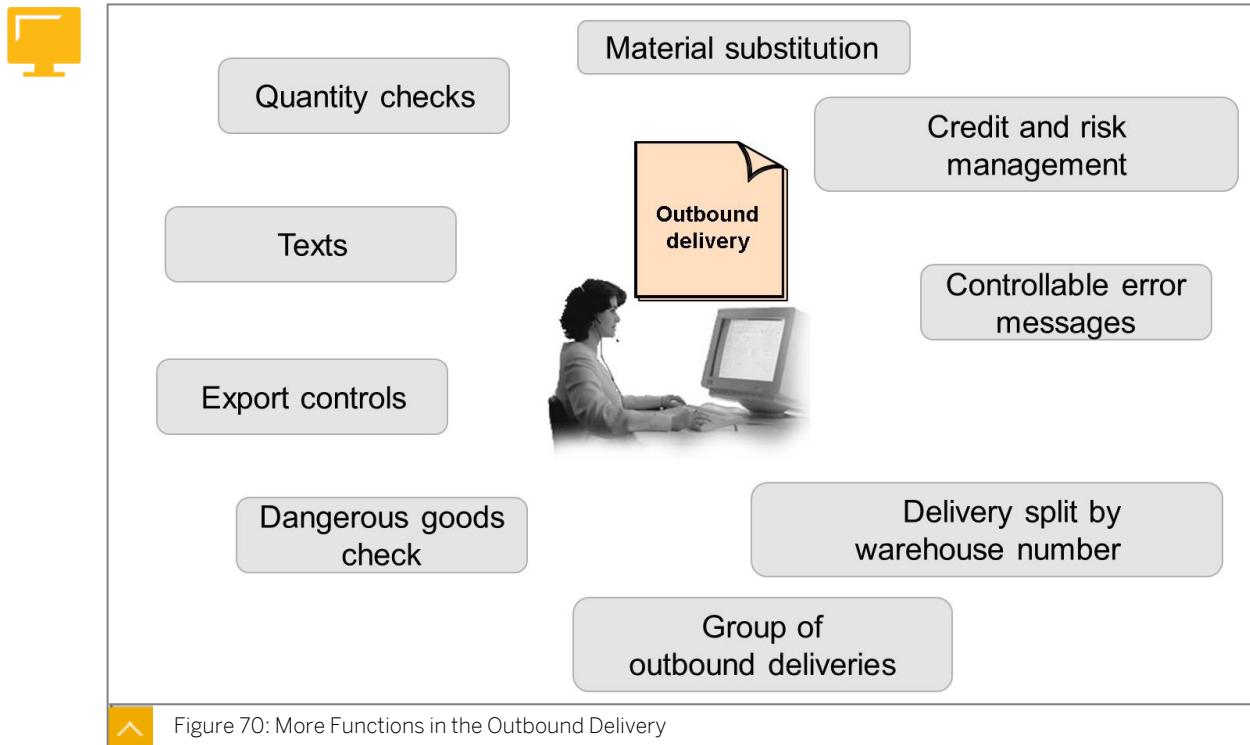
You can use the following worklists for processing documents in combination with POD:

- Outbound deliveries for POD worklist
- Subsequent processing for POD worklist

The system creates the billing document based on the correct, verified quantity. Creating the billing document through the billing due list is blocked until POD has been confirmed.

Before you can use the POD function, you need to define which delivery item categories are relevant for the POD process. You also need to define reasons for deviation, and specify POD relevance for the customer in the customer master record that you are using for the POD process. You can analyze deviation quantities and reasons for deviation (where, when, and why do the deviations occur).

Further Functions



When creating and processing deliveries, you can access numerous other functions that the system can perform either automatically or on request.



LESSON SUMMARY

You should now be able to:

- Use special functions in deliveries

Learning Assessment

1. Using a small part of the functions that the Warehouse Management (WM) component provides is called Lean Warehouse Management (Lean WM).

Determine whether this statement is true or false.

- True
- False

2. As a prerequisite for creating the picking list, you must have created the transfer orders individually.

Determine whether this statement is true or false.

- True
- False

3. Posting a goods issue requires the picking quantity to equal the delivery quantity.

Determine whether this statement is true or false.

- True
- False

4. Which of the following do you require for Lean Warehouse Management (Lean WM)?

Choose the correct answers.

- A At least one warehouse number
- B At least one storage type from which picking takes place
- C One storage type in which you store goods
- D At least one shipping condition

5. To store packing information for an outbound delivery in the system, you must first specify a packaging material.

Determine whether this statement is true or false.

True

False

6. The system uses material grouping for packaging materials to group together materials that have similar packing requirements.

Determine whether this statement is true or false.

True

False

7. You can change packing in the outbound delivery regardless of whether you have posted the goods issue or not.

Determine whether this statement is true or false.

True

False

8. If you cancel a goods issue for an outbound delivery, the system copies the quantities and values from the original goods issue document.

Determine whether this statement is true or false.

True

False

9. After the system has posted the goods issue, you cannot make any changes to the quantities.

Determine whether this statement is true or false.

True

False

10. What are the features of a goods issue?

Choose the correct answers.

- A Reduces inventory stock
- B Reduces delivery requirements
- C Enters status information in the inbound delivery
- D Creates a worklist for billing

11. When you split a delivery, you create one or more new deliveries. What are these deliveries called?

Choose the correct answers.

- A Results
- B Remainder
- C Reminder
- D Feedback

12. When you call up the log of incomplete delivery items, what does the system check?

Choose the correct answers.

- A Data in the outbound delivery is complete
- B Data in the inbound delivery is complete
- C Data in the purchase order is complete
- D Data in the transfer order is complete

13. Assigning a unique serial number to each material allows you to monitor goods movement for individual materials.

Determine whether this statement is true or false.

- True
- False

Learning Assessment - Answers

1. Using a small part of the functions that the Warehouse Management (WM) component provides is called Lean Warehouse Management (Lean WM).

Determine whether this statement is true or false.

True

False

You are correct! For customers who are only interested in using a limited selection of features in the Warehouse Management system, the Lean Warehouse Management system was designed. Read more in the lesson, Picking Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

2. As a prerequisite for creating the picking list, you must have created the transfer orders individually.

Determine whether this statement is true or false.

True

False

You are correct! From the picking list, it is possible to create transfer orders automatically. Read more in the lesson, Picking Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

3. Posting a goods issue requires the picking quantity to equal the delivery quantity .

Determine whether this statement is true or false.

True

False

You are correct! Good issues can only occur when the pick quantity is equal to the delivery quantity. If there is a short pick, a good issue cannot be performed until the shortage is resolved or the delivery quantity is changed. If the delivery quantity is changed, upon posting goods issue, the original order will show as being partially delivered. Read more in the lesson, Picking Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

4. Which of the following do you require for Lean Warehouse Management (Lean WM)?

Choose the correct answers.

- A At least one warehouse number
- B At least one storage type from which picking takes place
- C One storage type in which you store goods
- D At least one shipping condition

You are correct! The minimum configuration for Lean Warehouse Management (Lean WM) is to define one warehouse and define a storage type for picking and another for actual storage. A shipping condition is a field on a sales document and is not required for the creation of Lean WM. Read more in the lesson, Picking Outbound Deliveries, in the course SCM610 or TSCM60 Part 2.

5. To store packing information for an outbound delivery in the system, you must first specify a packaging material.

Determine whether this statement is true or false.

- True
- False

You are correct! For packing to be carried out, you must first specify a packaging material. This is required to determine if the material can be packed into it and also how many products will fit into the packaging material. Read more in the lesson, Packing Materials, in the course SCM610 or TSCM60 Part 2.

6. The system uses material grouping for packaging materials to group together materials that have similar packing requirements.

Determine whether this statement is true or false.

- True
- False

You are correct! To group similar packaging materials together, they are linked using the material grouping for packaging materials. Read more in the lesson, Packing Materials, in the course SCM610 or TSCM60 Part 2.

7. You can change packing in the outbound delivery regardless of whether you have posted the goods issue or not.

Determine whether this statement is true or false.

True

False

You are correct! Once goods issue has been posted, packing cannot be changed. The goods issue must be reversed first and then the goods can be unpacked. Read more in the lesson, Packing Materials, in the course SCM610 or TSCM60 Part 2.

8. If you cancel a goods issue for an outbound delivery, the system copies the quantities and values from the original goods issue document.

Determine whether this statement is true or false.

True

False

You are correct! A reversal of a goods issue is always based on a reversal of the original quantities and values. Read more in the lesson, Handling Goods Issues, in the course SCM610 or TSCM60 Part 2.

9. After the system has posted the goods issue, you cannot make any changes to the quantities.

Determine whether this statement is true or false.

True

False

You are correct! Once the goods issue has been posted, no changes can be made to the document. Read more in the lesson, Handling Goods Issues, in the course SCM610 or TSCM60 Part 2.

10. What are the features of a goods issue?

Choose the correct answers.

- A Reduces inventory stock
- B Reduces delivery requirements
- C Enters status information in the inbound delivery
- D Creates a worklist for billing

You are correct! A goods issue will reduce inventory quantities, reduce delivery requirements and create a worklist for billing. A goods issue does not enter a status in an **inbound** delivery because a goods issue is used in an **outbound** delivery. Furthermore, the goods issue status update is transferred to document flow. Read more in the lesson, Handling Goods Issues, in the course SCM610 or TSCM60 Part 2.

11. When you split a delivery, you create one or more new deliveries. What are these deliveries called?

Choose the correct answers.

- A Results
- B Remainder
- C Reminder
- D Feedback

You are correct! Split deliveries are termed Results and Remainders. Reminder and Feedback are not delivery categories. Read more in the lesson, Using Special Functions in Deliveries, in the course SCM610 or TSCM60 Part 2.

12. When you call up the log of incomplete delivery items, what does the system check?

Choose the correct answers.

- A Data in the outbound delivery is complete
- B Data in the inbound delivery is complete
- C Data in the purchase order is complete
- D Data in the transfer order is complete

You are correct! The incomplete delivery monitor checks completeness of inbound and outbound deliveries. Purchase orders and transfer orders are not checked for incompleteness. Read more in the lesson, Using Special Functions in Deliveries, in the course SCM610 or TSCM60 Part 2.

13. Assigning a unique serial number to each material allows you to monitor goods movement for individual materials.

Determine whether this statement is true or false.

True

False

You are correct! Serial numbering facilitates movements of unique, individual items. Read more in the lesson, Using Special Functions in Deliveries, in the course SCM610 or TSCM60 Part 2.

UNIT 6

Further Application Areas of the Delivery Document

Lesson 1

Transferring Stock Between Plants

123

Lesson 2

Performing Goods Receipts Using Deliveries

129

UNIT OBJECTIVES

- Transfer stock between plants using a stock transport order
- Perform goods receipts using inbound deliveries

Unit 6

Lesson 1

Transferring Stock Between Plants

LESSON OVERVIEW

This lesson discusses the process of transferring stock from one plant to another based on the outbound delivery and how to configure the process of transferring stock.

Business Example

Your company has a central warehouse and several decentralized warehouses that provide the technical service field with spare parts. The spare parts are procured using stock transfers from the central warehouse. To simplify the process of procurement, you need to post a goods receipt automatically at the receiving point when the goods issue is posted. For this reason, you require the following knowledge:

- An understanding of how to set up the procedure for stock transport orders with outbound deliveries for plants
- An understanding of one-step and two-step procedures
- An understanding of how to trigger the stock transfer process using a stock transport order
- An understanding of how to determine important outbound delivery parameters

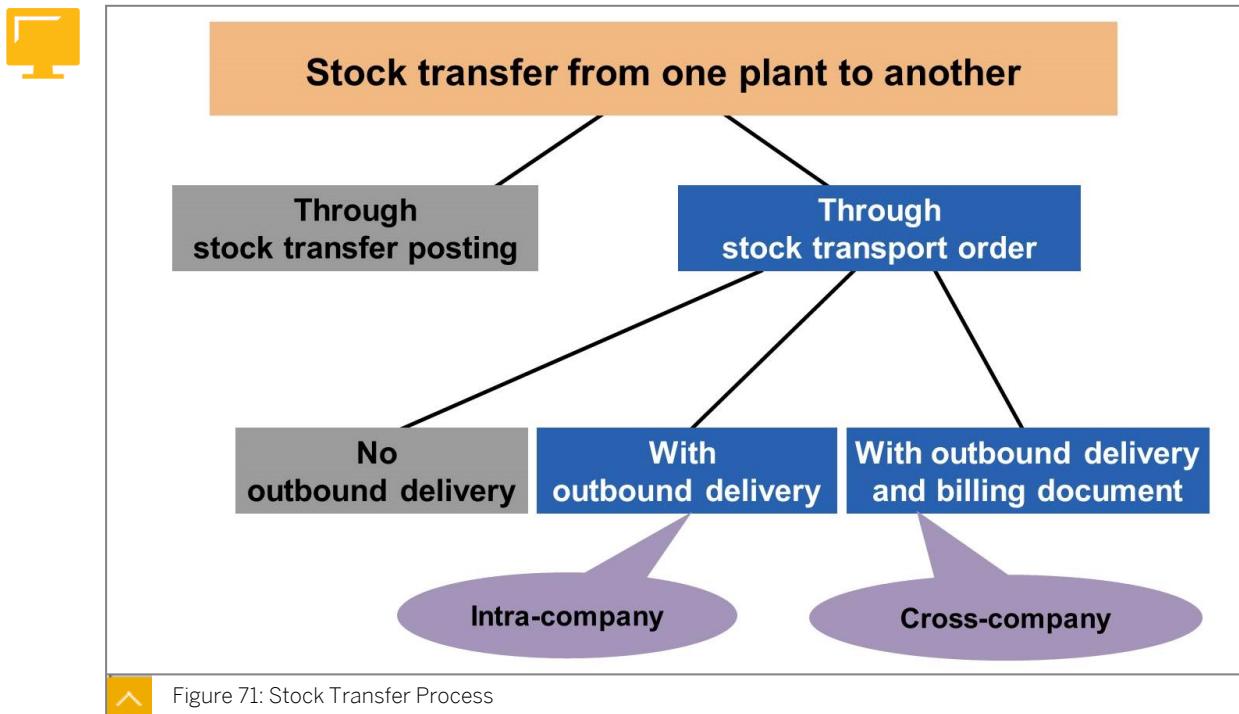


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Transfer stock between plants using a stock transport order

Stock Transfer Process



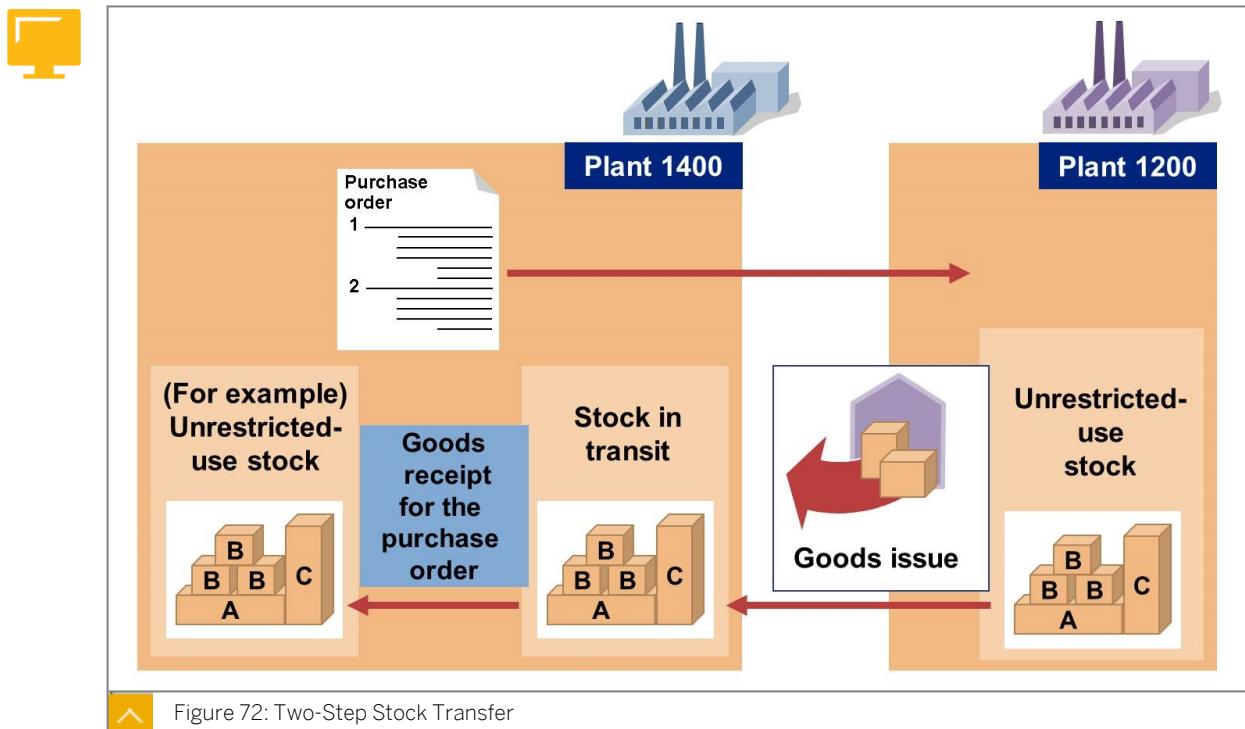
You can execute a stock transfer between two different plants using various procedures. There is a procedure for executing a stock transfer posting using only inventory management. It is also possible to trigger a stock transfer by creating a purchase order (stock transport order).

The use of outbound orders in the stock transfer process has an advantage. Outbound orders enable you to process shipping activities, such as picking, packing, and printing a delivery note, in the SAP system.

If you want to use SAP ERP shipping functions in the stock transfer process, use the "Stock Transport Order with Outbound Delivery" procedure for intra-company operations and the "Stock Transport Order with Outbound Delivery and Billing" for inter-company (cross-company) stock transfers.

You can also use the "Stock Transport Order with Outbound Delivery" procedure for in-plant stock transfers from one storage location to another.

Two-Step Stock Transfer

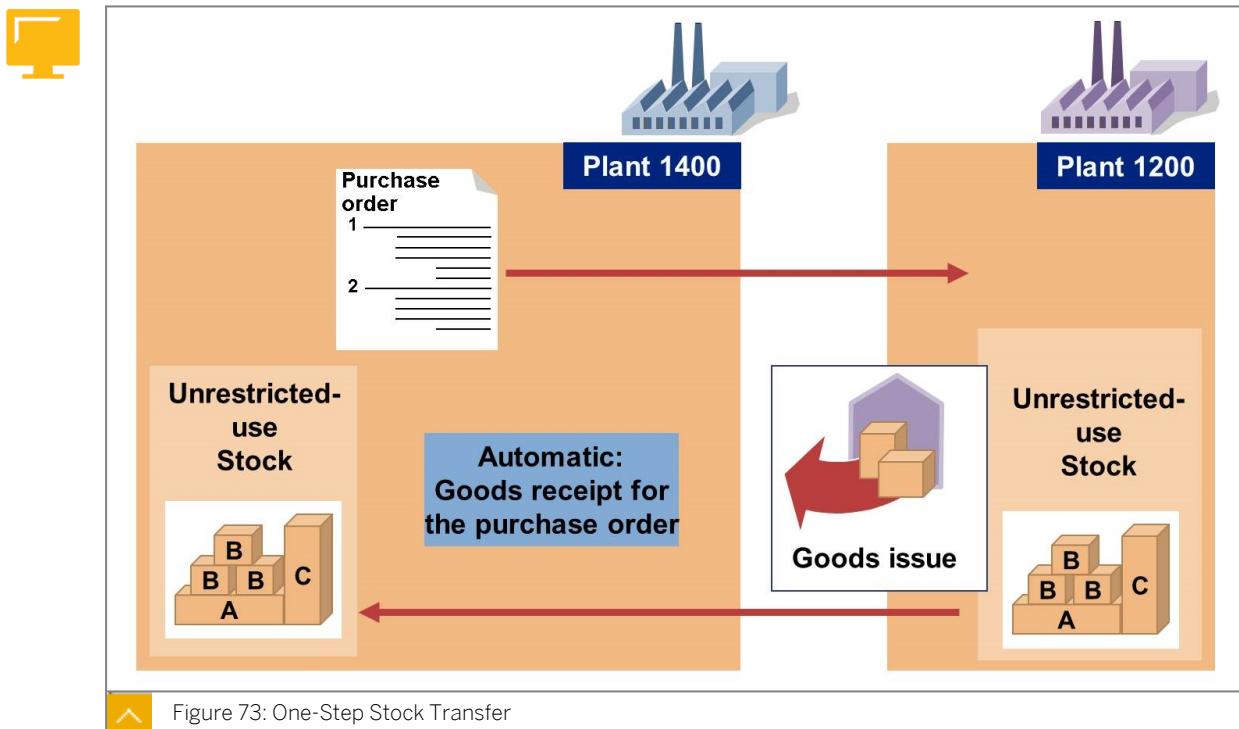


The two-step procedure includes the stock transport order and shipping processing. Here, stock in transit is created when a goods issue is posted. The two-step procedure enables you to monitor stocks that are “on the move.” You can display this information in the stock overview for the material.

A goods receipt is posted when the goods arrive in the receiving plant. Depending on the settings you choose, the goods are then transferred to unrestricted-use stock, blocked stock, or stock reserved for quality inspection.

The stock in transit is valued but not classified as unrestricted-use. It is managed at the level of the receiving plant. The withdrawal is made from unrestricted-use stock.

One-Step Stock Transfer



A one-step procedure is also available for stock transfers using stock transport orders and shipping processing. Stock in transit is not created in the one-step procedure.

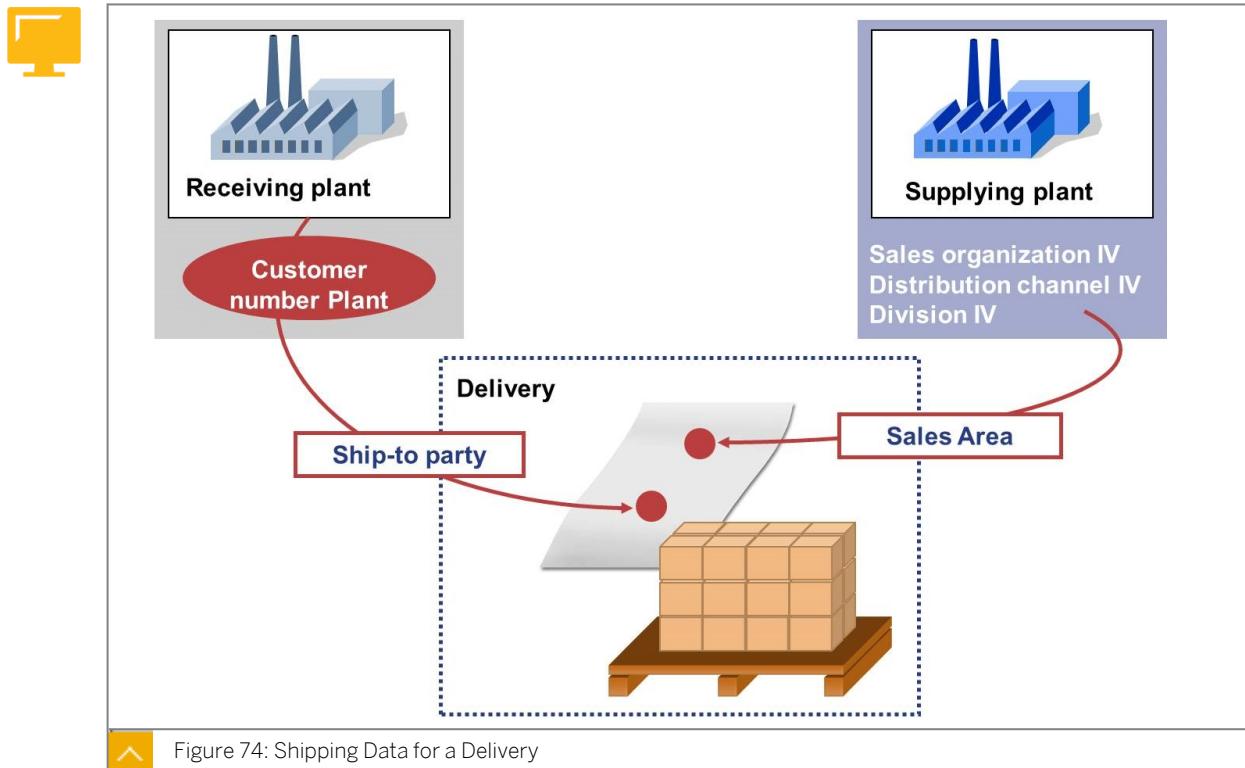
With the posting of the goods issue at the delivering plant, the system posts directly in the unrestricted-use stock of the receiving plant, meaning that there is no need to post a goods receipt at the receiving plant.

The one-step procedure can be useful if, for example, both plants are located near each other or if the receiving plant does not have a technical connection.

When implementing stock transfers for stock transfer posting, you can choose between a one-step and a two-step procedure.

In principle, the one-step stock transfer from one plant to another can only transfer stock from the unrestricted-use stock of the issuing plant to the unrestricted-use stock of the receiving plant.

Relevant Data

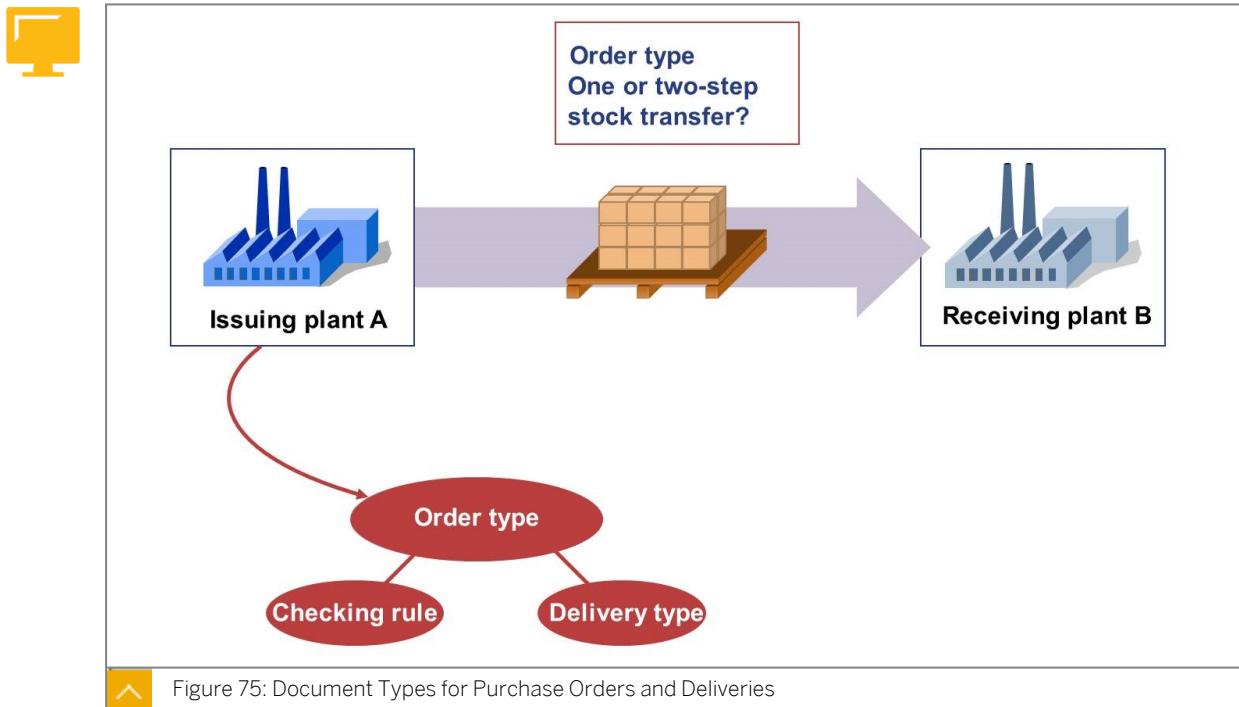


The receiving plant is the ship-to party in a replenishment delivery. A corresponding customer master record must exist so that you can process the stock transfer using an outbound delivery. You can use this customer master record to supply data relevant for shipping, such as the address, transportation zone, and shipping conditions.

The customer master record is assigned to the receiving plant in Customizing. The sales area data (sales organization, distribution channel, and division) is assigned to the supplying plant.

You need to create a customer master record for the receiving plant in this sales area. Company code data does not have to be created if the plant concerned is only used as the receiving plant for intra-company stock transfers.

Document Types



In Customizing, specify the document type of the purchase order for each planned combination of the issuing plant and the receiving plant. In addition, decide whether the stock transfer takes place using a one-step or two-step procedure and whether the system takes under delivery tolerances into account when posting a goods issue.

For the issuing plant, decide on the delivery type and checking rule for the availability check that each order type uses. As of SAP Release 4.7, it is also possible to set a delivery type for intra-company and cross-company operations for each order type, meaning that one purchase order can contain both intra-company stock transfer items and cross-company stock transfer items.



LESSON SUMMARY

You should now be able to:

- Transfer stock between plants using a stock transport order

Performing Goods Receipts Using Deliveries

LESSON OVERVIEW

This lesson discusses the goods receipt process based on inbound deliveries. It also discusses the function of the confirmation control key, the options for creating an inbound delivery, and goods receipt postings for an inbound delivery.

Business Example

Your vendor processes the delivery of goods that you ordered using an inbound delivery. The goods that are delivered are first put away; then the goods receipt is posted with reference to the inbound delivery. For this reason, you require the following knowledge:

- An understanding of the goods receipt process using inbound deliveries
- An understanding of the confirmation of inbound deliveries
- An understanding of how to create and change inbound deliveries

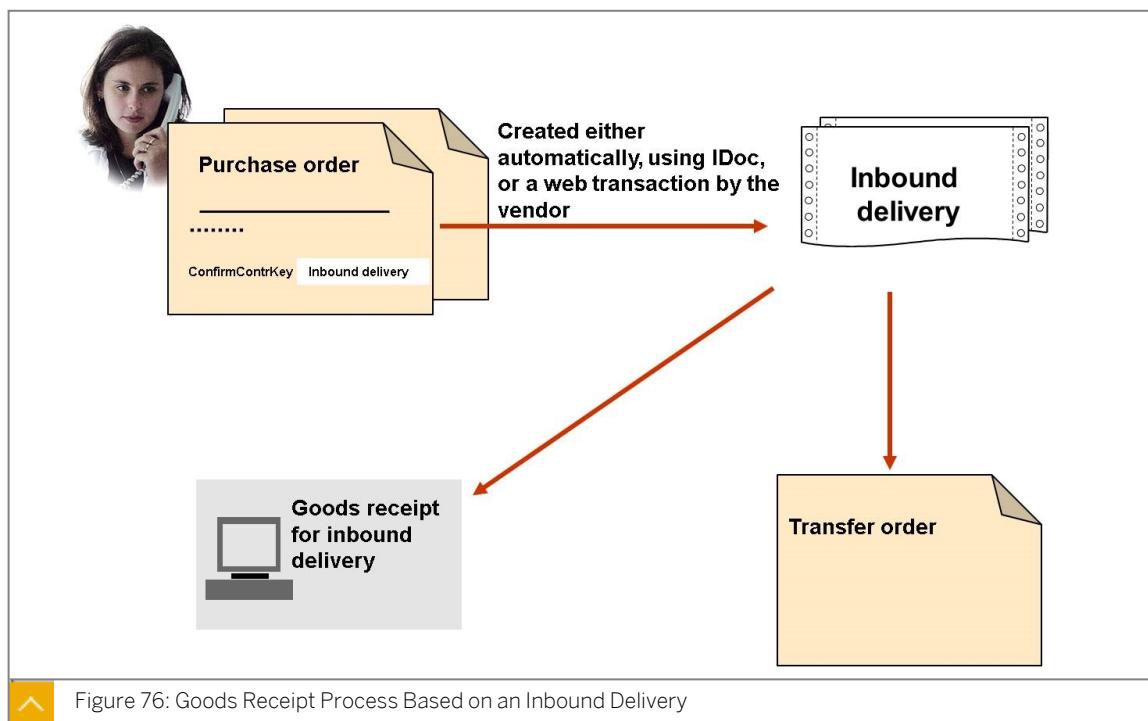


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Perform goods receipts using inbound deliveries

Goods Receipt Process



You can create inbound deliveries for one complete purchase order, partial quantities of purchase order items, or for a combination of several purchase orders. This inbound delivery then serves as the basis for further activities, such as transfer order creation, packing, and goods receipt posting. Inbound shipments are planned on the basis of inbound deliveries.

Prerequisites for Inbound Delivery Creation

The screenshot shows the SAP Fiori interface for creating an inbound delivery. At the top, there's a header bar with tabs: Standard PO, Vendor (selected), C.E.B. Berlin, Document date (2012-07-14). Below the header, there are five tabs: Delivery/Invoice, Conditions, Texts, OrgData, and Communication. The Delivery/Invoice tab is selected. Under Delivery/Invoice, there are three fields: PurchOrg (1000), Purch. group (001), and Company code (1000). Below these, there's a table with columns: Item, Material, Short text, PO quantity, B..., T, Delivery date, An item row is shown: 10 R-1150 Disk drive, 5 pc, Delivery date 2012-07-20. Below the table, it says [10] R-1150, Disk drive, 3.5", HD. At the bottom, there are five tabs: Schedule lines, Conditions, Confirmations, Condition..., and The Conditions tab is selected. Under Conditions, there are four checkboxes: ConfirmControl (selected), Inb. Deliv. (selected), OrderConf. (unchecked), and ConfirmReq. (unchecked). A callout box points to the 'Inb. Deliv.' checkbox with the text 'Enables inbound delivery creation'.

Figure 77: Prerequisites for Inbound Delivery Creation

When you create an inbound delivery, ensure that the purchase order items you include in the order have confirmation control keys.

The confirmation control key governs the following:

- Whether confirmations are expected for specific purchase order items
- Whether these confirmations are relevant for goods receipts or materials planning

If a material document is created when the goods receipt is posted for an inbound delivery, then the goods receipt assignment must be defined in the confirmation control.

Inbound Deliveries

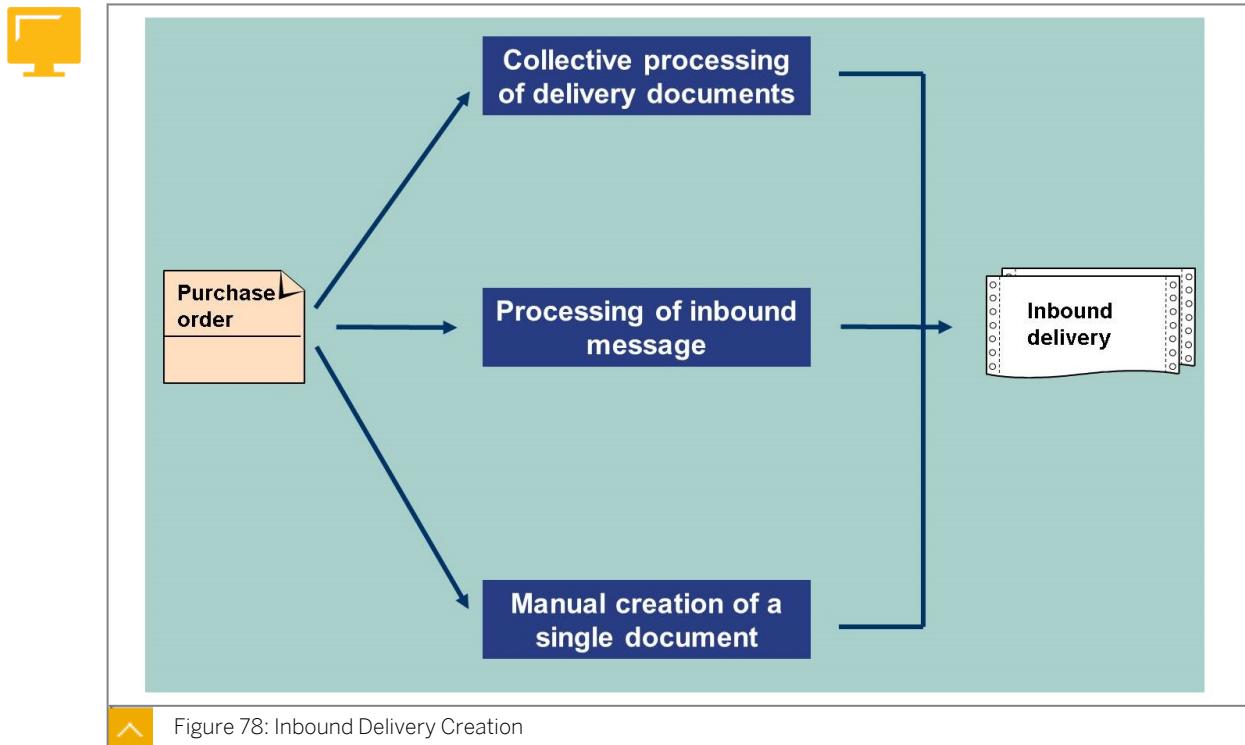
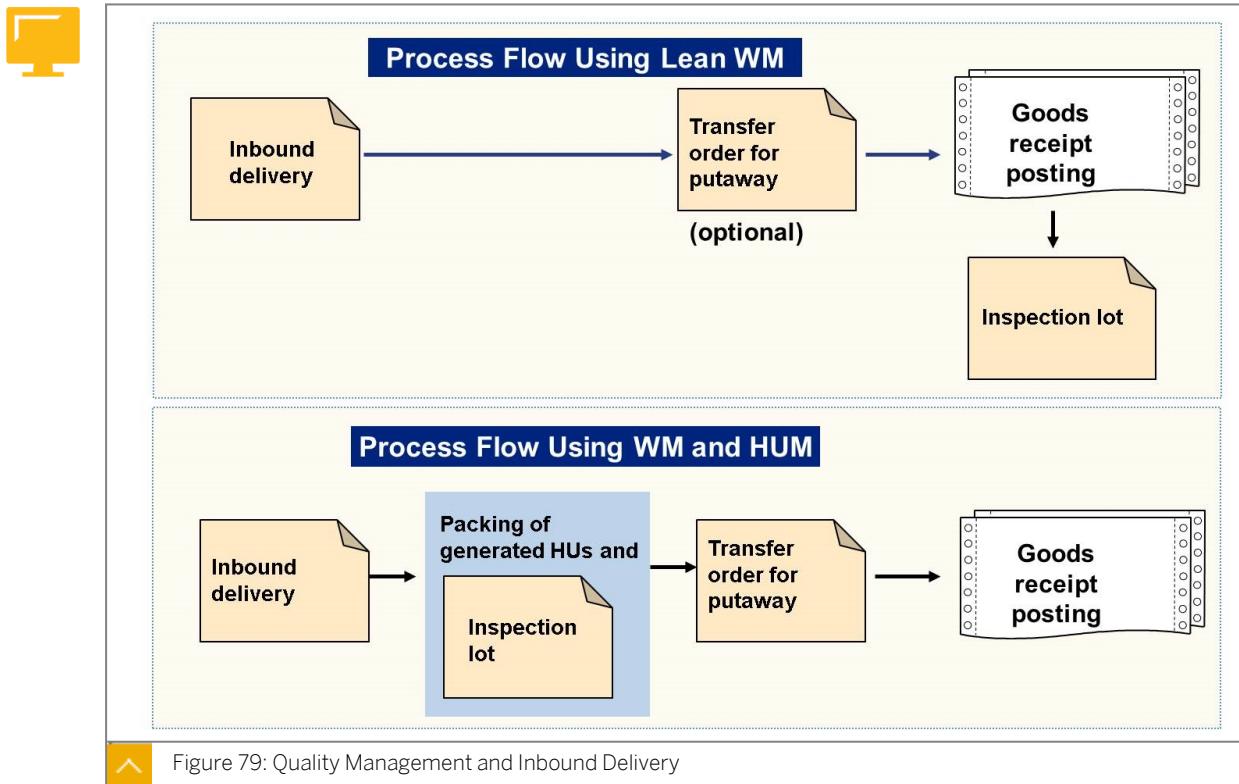


Figure 78: Inbound Delivery Creation

You can use an inbound electronic data interchange (EDI) from your vendor to create an inbound delivery. The message type for this is DESADV.

You can create a delivery manually with reference to a particular purchase order. You can use collective processing to deliver goods for all the purchase orders that are due for shipping. In this case, the system automatically creates multiple inbound deliveries. You can do this either online or in the background.

Quality Management and Inbound Delivery



If the goods receipt process needs to incorporate inbound deliveries and quality management, your enterprise structure dictates the available options. If you use Lean Warehouse Management (Lean WM), there are no restrictions on using inbound deliveries at the same time as quality management.

If you use Warehouse Management (WM) and create a transfer order to put away the inbound delivery, you must also use Handling Unit Management. Because of this requirement, you have to pack materials in the inbound delivery before you can book the goods receipts. Packing automatically generates handling units and inspection lots for the handling units. You can use Customizing to prioritize whether you first execute the putaway or post the goods receipt after packing. However, this decision can only be made using Handling Unit Management.

You can use WM with quality management and without Handling Unit Management only with certain specific settings. The item categories of the inbound delivery are not allowed to be relevant for putaway, thereby ensuring that a connection is not created to WM. The inbound delivery can then only be used for goods receipt posting along with transaction MIGO, which posts goods receipts for purchase order items. This option creates an inspection lot and a quantity with stock category Q with the inspection lot number in WM.

Partial Goods Receipt and Inbound Delivery

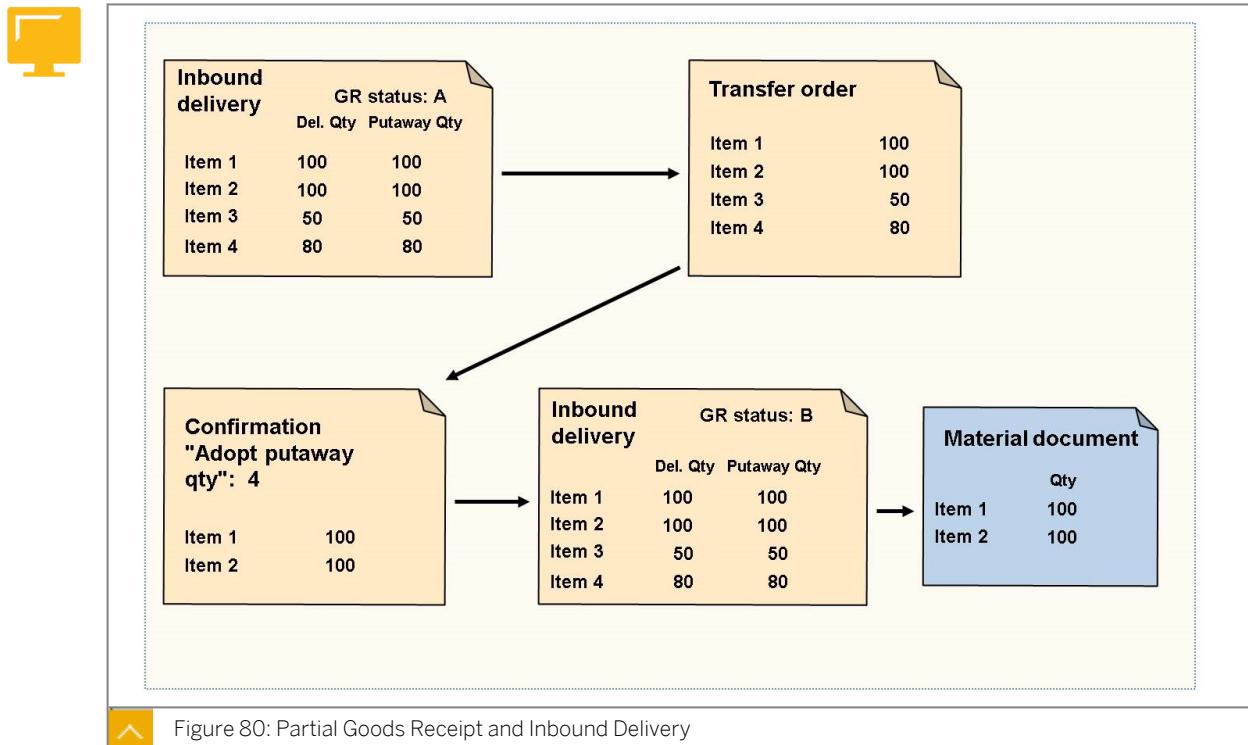
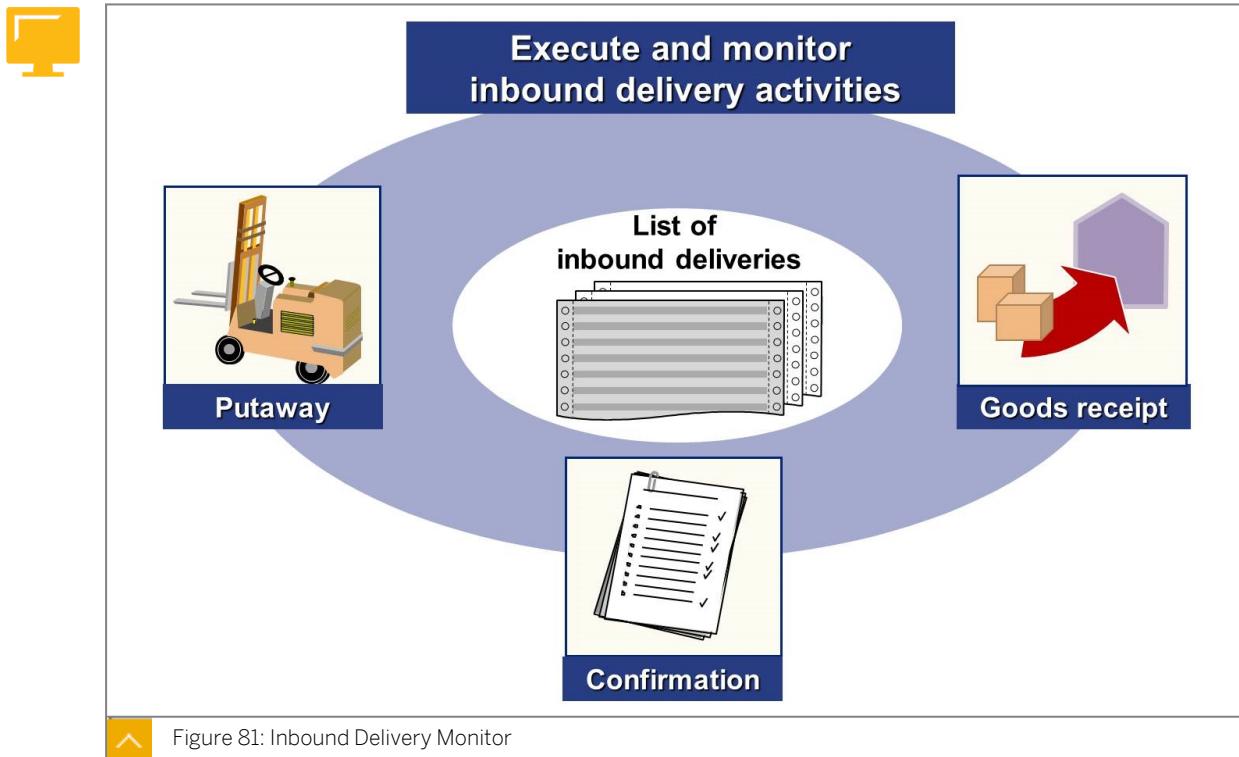


Figure 80: Partial Goods Receipt and Inbound Delivery

You can use the confirmation requirements of the TO to confirm and post goods receipts for individual transfer order items and partial quantities of transfer order items. A material document is generated for each confirmation, and these material documents can be cancelled separately.

For the confirmation, you must select the *Do not take Putaway qty as delivery qty but post GR* option.

Inbound Delivery Monitor



The inbound delivery monitor displays all deliveries that still need to be processed and that have been processed. There are numerous criteria for selecting the required documents. You can also call up information from the delivery environment.

You can define user-specific variants (selection variants and display variants) for selecting and displaying documents. You can use the outbound delivery monitor to monitor and execute outbound delivery activities in the same way (transaction VL060).



LESSON SUMMARY

You should now be able to:

- Perform goods receipts using inbound deliveries

Learning Assessment

1. It is possible to execute a stock transfer between two different plants using different procedures.

Determine whether this statement is true or false.

True

False

2. The one-step stock transfer from one plant to another can only transfer stock from the unrestricted-use stock of the issuing plant to the unrestricted-use stock of the receiving plant.

Determine whether this statement is true or false.

True

False

3. You can have both intra-company stock transfer items and cross-company stock transfer items in one purchase order.

Determine whether this statement is true or false.

True

False

4. The ship-to party in a replenishment delivery represents the supplying plant.

Determine whether this statement is true or false.

True

False

5. If you want the system to create a material document when it carries out the goods receipt posting for an inbound delivery, then you must define the goods receipt in the confirmation control key.

Determine whether this statement is true or false.

True

False

6. The inbound delivery monitor displays all outbound deliveries that the system has processed or has yet to process.

Determine whether this statement is true or false.

True

False

7. You can use collective processing to deliver goods for all purchase orders that the system has yet to ship.

Determine whether this statement is true or false.

True

False

8. When you use Warehouse Management (WM) to create a transfer order to put away the inbound delivery, you also need to use Handling Unit Management.

Determine whether this statement is true or false.

True

False

Learning Assessment - Answers

1. It is possible to execute a stock transfer between two different plants using different procedures.

Determine whether this statement is true or false.

True

False

You are correct! Stock transfers between plants can be performed using a one-step or two-step procedures, they can be a simple inventory management transaction, they can be a stock transport order process or they could be an inter-company sale scenario. Read more in the lesson, Transferring Stock Between Plants, in the course, SCM610.

2. The one-step stock transfer from one plant to another can only transfer stock from the unrestricted-use stock of the issuing plant to the unrestricted-use stock of the receiving plant.

Determine whether this statement is true or false.

True

False

You are correct! Stock transfers between plants can only transfer materials between unrestricted stock types. Read more in the lesson, Transferring Stock Between Plants, in the course, SCM610.

3. You can have both intra-company stock transfer items and cross-company stock transfer items in one purchase order.

Determine whether this statement is true or false.

True

False

You are correct! Intra-company stock and cross-company stock transfer items can be in the same purchase order. Read more in the lesson, Transferring Stock Between Plants, in the course, SCM610.

4. The ship-to party in a replenishment delivery represents the supplying plant.

Determine whether this statement is true or false.

True

False

You are correct! In the replenishment delivery, the supplying plant is determined using plant determination. Read more in the lesson, Transferring Stock Between Plants, in the course, SCM610.

5. If you want the system to create a material document when it carries out the goods receipt posting for an inbound delivery, then you must define the goods receipt in the confirmation control key.

Determine whether this statement is true or false.

True

False

You are correct! The confirmation control key for an inbound delivery controls if a GR is performed. Read more in the lesson, Performing Goods Receipts Using Deliveries, in the course, SCM610.

6. The inbound delivery monitor displays all outbound deliveries that the system has processed or has yet to process.

Determine whether this statement is true or false.

True

False

You are correct! The inbound delivery monitor only monitors inbound deliveries, not outbound ones. Read more in the lesson, Performing Goods Receipts Using Deliveries, in the course, SCM610.

7. You can use collective processing to deliver goods for all purchase orders that the system has yet to ship.

Determine whether this statement is true or false.

True

False

You are correct! Collective processing is a tool designed to provide mass warehouse transaction processing. Read more in the lesson, Performing Goods Receipts Using Deliveries, in the course, SCM610.

8. When you use Warehouse Management (WM) to create a transfer order to put away the inbound delivery, you also need to use Handling Unit Management.

Determine whether this statement is true or false.

True

False

You are correct! HUM is an optional feature in WM. Read more in the lesson, Performing Goods Receipts Using Deliveries, in the course, SCM610.

Lesson 1

Setting Up a Specified Delivery Scenario

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UNIT OBJECTIVES

- Set up a specified delivery scenario in the SAP system

Setting Up a Specified Delivery Scenario

LESSON OVERVIEW

This lesson provides detailed information about the main contents of this course in the form of an integrated exercise. For most parts of this exercise, there is no one “correct” solution. You must consider all possible options to determine the most favorable solution.

Business Example

A new warehouse is set up at your company’s Dresden site to deliver certain materials for cash sales and standard orders. You want to use settings that already exist as templates. For this reason, you must know how to set up the specified delivery scenario in the SAP system.



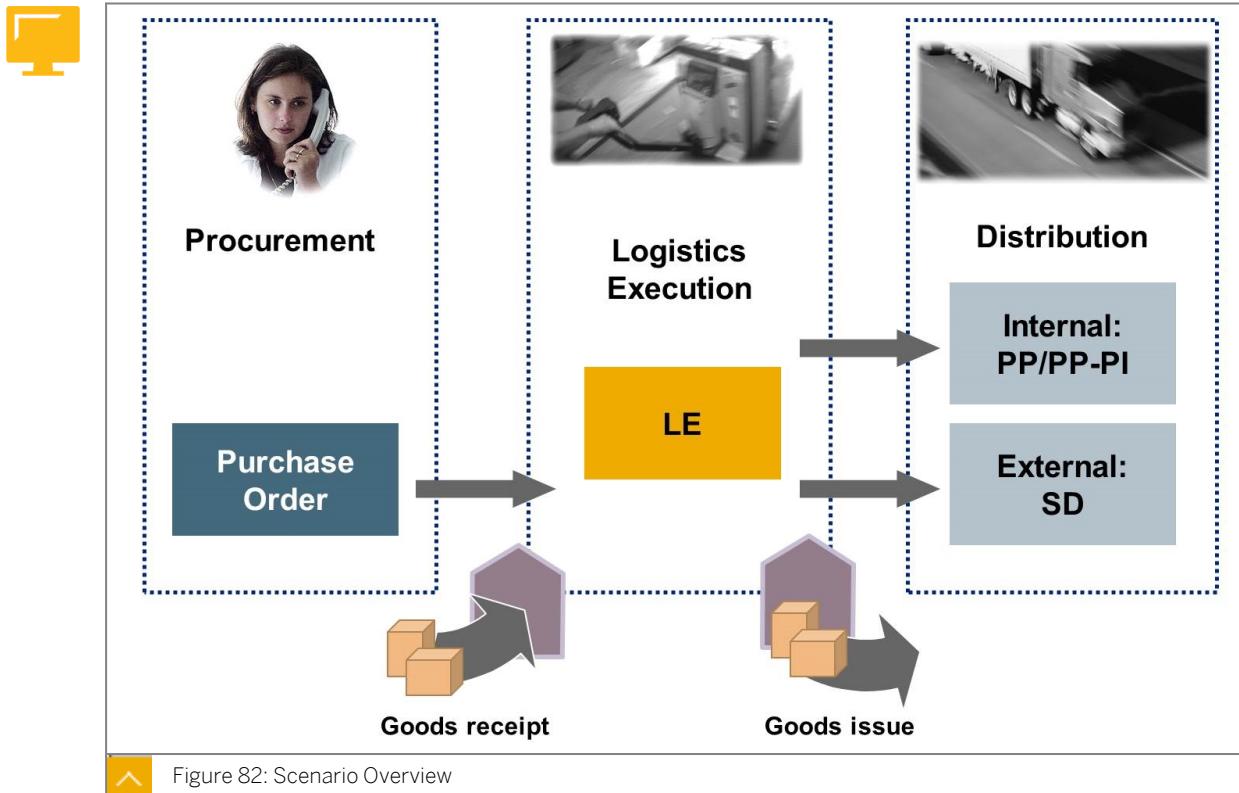
LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Set up a specified delivery scenario in the SAP system

Scenario Description

In previous lessons, you have learned how to set up inbound and outbound delivery processes, as well as how to store and pick materials in a lean WM . In the following exercise, you create some more settings for variations of the inbound and outbound delivery processes and deepen your knowledge of lean WM.



The warehouse in this scenario only uses fixed bins for storage. For purchase orders, you receive an advanced shipping notification from your vendor. You use this information to create inbound deliveries to prepare the goods receipt information. You sell directly to the customer from the warehouse; you also ship deliveries for sale orders from the warehouse. Depending on the availability of materials, you need to decide during the creation of deliveries which materials are going to be delivered to your customer.



LESSON SUMMARY

You should now be able to:

- Set up a specified delivery scenario in the SAP system