

User's Guide for Kit Handling

© Copyright 2008 Infor

All rights reserved. The word and design marks set forth herein are trademarks and/or registered trademarks of Infor and/or its affiliates and subsidiaries. All rights reserved. All other trademarks listed herein are the property of their respective owners.

Important Notices

The material contained in this publication (including any supplementary information) constitutes and contains confidential and proprietary information of Infor.

By gaining access to the attached, you acknowledge and agree that the material (including any modification, translation or adaptation of the material) and all copyright, trade secrets and all other right, title and interest therein, are the sole property of Infor and that you shall not gain right, title or interest in the material (including any modification, translation or adaptation of the material) by virtue of your review thereof other than the non-exclusive right to use the material solely in connection with and the furtherance of your license and use of software made available to your company from Infor pursuant to a separate agreement ("Purpose").

In addition, by accessing the enclosed material, you acknowledge and agree that you are required to maintain such material in strict confidence and that your use of such material is limited to the Purpose described above.

Although Infor has taken due care to ensure that the material included in this publication is accurate and complete, Infor cannot warrant that the information contained in this publication is complete, does not contain typographical or other errors, or will meet your specific requirements. As such, Infor does not assume and hereby disclaims all liability, consequential or otherwise, for any loss or damage to any person or entity which is caused by or relates to errors or omissions in this publication (including any supplementary information), whether such errors or omissions result from negligence, accident or any other cause.

Trademark Acknowledgements

All other company, product, trade or service names referenced may be registered trademarks or trademarks of their respective owners.

Publication Information

Document code	U9540A US
Release	Infor ERP LN 6.1 FP5
Publication date	November 18, 2008

Table of Contents

About this document

Chapter 1 Kit handling in Order Management.....	1-1
Overview of kit handling in Order Management.....	1-1
Extended functionality - component lines.....	1-1
Limited functionality - sales BOM.....	1-2
Component handling.....	1-2
Component handling - component lines.....	1-2
Component handling - sales BOM.....	1-6
To skip phantom levels.....	1-8
To view components.....	1-10
Surplus handling.....	1-11
Sales order unit and rounding factor.....	1-11
Surplus evaluation.....	1-11
BOM change process.....	1-12
Remaining quantity.....	1-12
Chapter 2 Kit handling in Warehouse Management.....	2-1
Overview of kit handling in Warehouse Management.....	2-1
Kit handling support and shipping structure setup.....	2-2
To deliver component items - procedure.....	2-3
Sales and warehousing order structure.....	2-5
Shipping structures.....	2-6
Single order settings.....	2-6
The Ship Kit Complete constraint.....	2-7
How changes in component lines affect outbound order lines and shipment lines.....	2-11
Appendix A Glossary.....	A-1

Index

About this document

Objective

The objective of this guide is to describe kit handling in ERP LN.

Intended audience

This document is intended for persons in charge of kit handling. The intended audience can include key users, implementation consultants, product architects, support specialists, and so on.

Document summary

Chapter number	Content
Chapter 1	Kit handling in Order Management
Chapter 2	Kit handling in Warehouse Management

How to read this document

This document was assembled from online Help topics. As a result, references to other sections in the manual are presented as shown in the following example:

For details, refer to *Introduction*. To locate the referred section, please refer to the Table of Contents or use the Index at the end of the document.

At the end of this document, a glossary is included. Terms explained in the glossary are presented as shown in the following example:

In Common Data, you can link addresses to business partners.

If you view this document online, you can click these terms to go to the term's definition in the glossary.

Customer Support

If you have questions regarding the Infor products described, go to Infor's Customer Support portal at www.infor365.com.

- To access Infor365, go to www.infor365.com and log in. If you do not have an Infor365 account, click **Account Request**, complete the registration form, and a login will be sent to you within 24 hours.
 - To access Infor knowledgebases, documentation, downloads, communities, and incidents, click the appropriate link in the top menu of the home page.
-

- To find your local support phone number, click **Contact Infor** in the top right corner of the home page, enter a product name, and click **Search**.

Chapter 1

Kit handling in Order Management

1

Overview of kit handling in Order Management

If you want to deliver components instead of main items, in the sales order procedure, you can define how components are handled.

- **Extended kit handling functionality**
Components are handled by means of component lines.
- **Limited kit handling functionality**
Components are handled by means of a sales BOM.

Note

Handling components by means of component lines, has the following advantages:

- Overall visibility is provided on the entire structure of the sales order items and their components.
- Individual components can be shipped or directly delivered.
- BOM changes can be processed during the order lead time.
- Invoices can be created for completed sales order line items or for surplus.

Extended functionality - component lines

To handle components by means of component lines, define the following parameters:

- Select the **Extended Kit Handling Implemented** check box in the Sales Order Parameters (tdsls0100s400) session.
- Set the **Component Handling** field to **Component Lines** in the Sales Order Types (tdsls0594m000) session and/or the Sales Order Lines (tdsls4101m000) session.

For details, refer to *Component handling - component lines* (p. 1-2) .

Limited functionality - sales BOM

To handle components by means of a sales BOM, you can choose between:

- Clearing the **Extended Kit Handling Implemented** check box in the Sales Order Parameters (tdsls0100s400) session. As a result, components are always handled by means of a sales BOM.
- Selecting the **Extended Kit Handling Implemented** check box, but setting the **Component Handling** field to **Sales BOM** in the Sales Order Types (tdsls0594m000) session and/or the Sales Order Lines (tdsls4101m000) session.

For details, refer to *Component handling - sales BOM* (p. 1-6) .

Component handling

Component handling - component lines

If you handle components by means of component lines, you can copy a bill of material (BOM) to the lines of a sales order by using the Copy Bill of Material to Sales Order (tdsls4812s000) session. You can also manually enter sales order lines for components. If the sales order line contains a phantom item or a component item to which lower level components are linked, component lines are written to the Sales Order Line Components (tdsls4163m000) session.

To view the component lines, click **Sales Order Line - BOM Components** in the Sales Order Lines (tdsls4101m000) session. The Sales Order Lines - Components (tdsls4601m000) session is started in which you can view, enter, and maintain the component lines that are linked to a specific sales order line. From this session, you can execute all activities and actions that are applicable for a component line.

The following sessions are available as satellites in the Sales Order Lines - Components (tdsls4601m000) session:

- Sales Order Line Components (tdsls4163m000)
- Sales Order Inventory Shortage Lines (tdsls4117m000)
- Release Sales Order Line Components to Warehousing (tdsls4563m000)
- Sales Order Line Component Potential Backorders (tdsls4164m000)
- Sales Order Line Component Actual Deliveries (tdsls4166m000)
- Sales Order Line Component Surplus (tdsls4567m000)
- Sales Order Line Components Monitor (tdsls4560m000)

Note

In the Sales Order Main Items (tdsls4561m000) session, you can view the main item and component items that are copied to the lines of a specific sales order

by means of the Copy Bill of Material to Sales Order (tdsls4812s000) session. To start the Sales Order Main Items (tdsls4561m000) session, click **Sales Order Main Items** on the **Specific** menu of the Sales Order Lines (tdsls4101m000) session.

Delivery

■ Warehouse Management

After the sales order line components are released to Warehouse Management, the warehousing activities on the individual components take place. Based on the sales order line's **Shipping Constraint**, Warehouse Management ships the (individual) components after which the component lines are delivered. For more information, refer to *Overview of kit handling in Warehouse Management (p. 2-1)*.

■ Purchase Control

Sales order lines or sales order line components can also be directly delivered. If a purchase order is generated for a component, each sales order component line is linked to a purchase order line. After receipt of the individual components in Purchase Control, the component lines are delivered.

The link between the generated purchase order line and the sales order component line can be viewed in the following sessions:

- Purchase Order Line - Linked Information (tdpur4502s000)
- Sales Order Line Components (tdsls4163m000)

Deliveries are stored by component in the Sales Order Line Component Actual Deliveries (tdsls4166m000) session. As soon as the quantity of delivered components constitutes a complete sales order line item, the sales order line can be invoiced.

Component back orders

Back orders are created when final shipment is registered for a part of the ordered quantity of a component line in the Sales Order Line Component Actual Deliveries (tdsls4166m000) session.

Back orders can be manually confirmed in the Sales Order Line Component Potential Backorders (tdsls4164m000) session or can be automatically confirmed if the **Confirm Component Backorders Automatically** check box is selected in the Sales Order Parameters (tdsls0100s400) session.

After the back order is confirmed, ERP LN generates a new component line with the **Backorder** check box selected in the Sales Order Line Components (tdsls4163m000) session.

Returns

Both complete sales order line items and individual components can be returned by means of a return order.

- **Complete sales order line items**

After you created a sales order header with a sales order type for return orders and defined the **Original Document Type** and **Original Document No** fields, by clicking **Copy from Original Document**, you can select a sales order line from the actual or history data. Both the selected sales order line and the linked component (history) lines are copied to the return order. The sales order line is not updated with delivery information before all components are finally received in Warehouse Management or Purchase Control. No surplus evaluation takes place for complete sales order line item returns and they are invoiced with a quantity of zero. Based on the actual cost of goods sold of the components, an amount is defaulted to the Change Prices and Discounts of Sales Invoice Lines (tdsls4132m000) session in which you can invoice an amount.

- **Individual components**

To return individual components, dependent on the value of the **Original Document Type**, the following sessions are started from which you can select the lines of the original document to be copied to the current order:

- **Order**

After selecting an **Original Document No** from the Sales Order Lines Monitor (tdsls4510m000) session and clicking **Copy from Original Document** on the sales order header, the Sales Order Line History (tdsls4551m000) session is started if you copy from history and the Select Sales Order Lines for Copying (tdsls4535m000) session is started if you copy from the actual data. Both sessions have a button to zoom to the component lines. From the Sales Order Line Components History (tdsls4553m000) session or the Select Sales Order Line Components for Copying (tdsls4563m100) session, you can select a component line that is copied as a sales order line to the return order.

- **Shipment**

When selecting an **Original Document No** from the Sales Order Lines Monitor (tdsls4510m000), click **Component Shipmnts** in the Sales Order Lines Monitor (tdsls4510m000) session to view the linked shipments in the Select Sales Order Line Component Actual Deliveries for Copying (tdsls4566m100) session. On the sales order header, click **Copy from Original Document** to select a shipment from the Select Sales Order Line Component Actual Deliveries for Copying (tdsls4566m100) session that is copied as a sales order line to the return order.

Note

You can also return goods by manually entering negative order quantities for components and main items. If you enter a negative quantity in the Copy Bill of

Material to Sales Order (tdsls4812s000) session, you can also create a return order for main items.

The link between the return order and the original order can be viewed in the following sessions:

- Linked Order Line Data (tdsls4102s200)
- Sales Order Line Components (tdsls4163m000)

Surplus

If components are delivered, but the quantity of delivered components is not (yet) enough to complete at least one sales order line item, the components are referred to as (temporary) surplus. Surplus information, which you can view in the Sales Order Line Component Surplus (tdsls4567m000) session, is registered by component and is used to determine which order line items can be invoiced.

Surplus is updated when:

- Delivering a new shipment.
- Manually changing a component line and processing the changes by clicking **Submit Changes** on the **Specific** menu of the Sales Order Lines - Components (tdsls4601m000) session.
- Changing the BOM and processing the changes by means of the Process BOM changes to Sales Order (tdsls4263m000) session.

Note

- If surplus exists for an order line, you can use the Delayed Components (tdsls4567m100) session to view the components that delay the invoicing of a complete sales order line item.
- If surplus becomes obsolete, for example due to termination of an order line or BOM changes, you can invoice a surplus quantity in the Change Prices and Discounts of Sales Invoice Lines (tdsls4132m000) session.

For more information, refer to *Surplus handling (p. 1-11)*.

BOM changes

BOM changes can become effective during the order lead time. For example, components are added, deleted, changed, and so on.

If BOM changes apply for open sales orders with sales order line components that are **Free**, or **In Process**, these changes can be processed to the sales order (component) lines. The change process ensures that, for example, expired components or components that require lower net quantities are no longer shipped.

Use the Process BOM changes to Sales Order (tdsls4263m000) session to process the engineering BOM changes to sales orders.

Invoicing

As soon as the quantity of delivered components constitutes a complete sales order line item, an invoice line is created in the Sales Order Invoice Lines (tdsls4106m100) session and the sales order line is updated. If the last invoice line is created, which can be for a complete sales order line item or for surplus, also the **Delivery Date** and the **Delivery Log Date** are updated for the sales order line, which you can view in the Sales Order Invoice Line (tdsls4106m000) and Sales Order Lines Monitor (tdsls4510m000) sessions.

If a surplus quantity must be invoiced, an invoice line is created with a delivered quantity of zero for the sales order line. The defaulted invoice amount for such a line is the actual cost of goods sold of the delivered component lines. The invoice quantity and price are zero. Before you can release the invoice line to Central Invoicing, you must first manually confirm this surplus quantity in the Change Prices and Discounts of Sales Invoice Lines (tdsls4132m000) session.

Note

- Multiple actual delivery lines/ invoice lines can exist for one sales order line. This means that the **Actual Delivery Line Sequence Number**, which is always one for regular sales orders, increases, together with the **Invoice Line** number.
- Each time an invoice line is inserted, the sales order line is updated with the **Delivered Quantity**, **Amount**, and the **Total Discount Amount**.
- In Central Invoicing, you can indicate whether the components and their quantities are printed on the sales invoice.

Component handling - sales BOM

If you handle components by means of a sales BOM, you can copy a bill of material (BOM) to the lines of a sales order by using the Copy Bill of Material to Sales Order (tdsls4812s000) session.

Procedure

Step 1:

Enter the manufactured item, the quantity ordered, and the Phantom Levels to Skip and start the process.

Step 2:

ERP LN adds a sales order line for each position in the bill of material that has no underlying components.

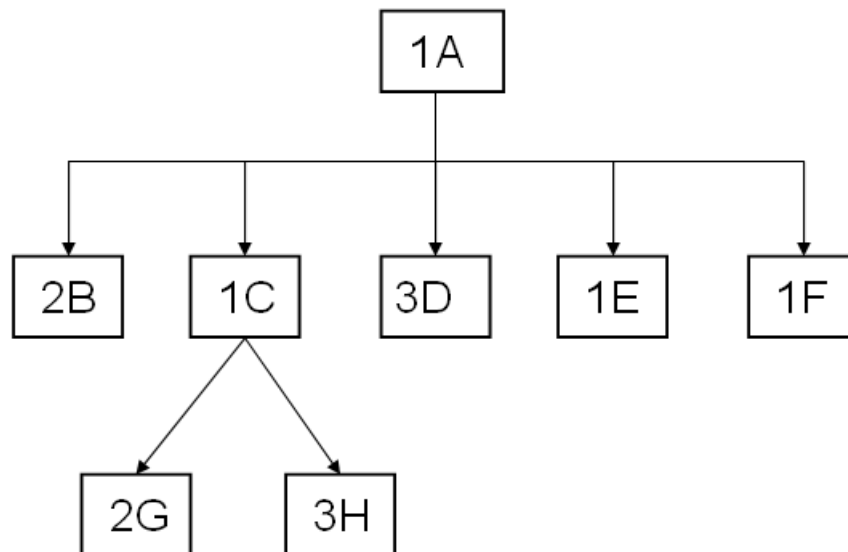
Step 3:

Only the BOM components are copied with an order date that lies between the effective date and the expiry date of the component in question. The item version is also taken into account.

Note

You can view the sales order line BOM components in the Sales Order Bills of Material (tdsls4532m000) session.

The procedure is illustrated by the following bill of material:



If you copy the BOM for 4 units of item A, 6 sales order lines will be added to the order:

- 1 order line with 8 units of item B.
- 1 order line with 8 units of item G.
- 1 order line with 12 units of item H.
- 1 order line with 12 units of item D.
- 1 order line with 4 units of item E.
- 1 order line with 4 units of item F.

After copying, you can still modify order lines. Prices and discounts are automatically determined.

Note

- Instead of copying the BOM to the order line, you can also create a single order line for main item A, with a quantity of 4. In case of issue from

inventory, the components (B, C, D, E and F) will be allocated and issued. A disadvantage of this method is that you cannot deviate from the BOM data.

- Components of (phantom) items cannot be shipped or delivered separately.

To skip phantom levels

If you copy bill of material (BOM) components to a sales order, sales quotation, or purchase order, you can define how phantoms must be copied.

The following parameters determine the default number of bill of material (BOM) levels that are summarized when you use phantoms:

- **Maximum Number of Phantom Levels to be Skipped** in the Sales Parameters (tdsls0100s000) session.
- **Maximum Number of Phantom Levels to be Skipped** in the Purchase Parameters (tdpur0100m000) session.

These parameters provide default values to the same fields in the following sessions:

- Copy BOM Components to Sales Quotation (tdsls1812s000)
- Copy BOM Components to Order (tdpur4812s000)
- Copy Bill of Material to Sales Order (tdsls4812s000), provided **Component Handling** for the order type is set to **Sales BOM** in the Sales Order Types (tdsls0594m000) session.

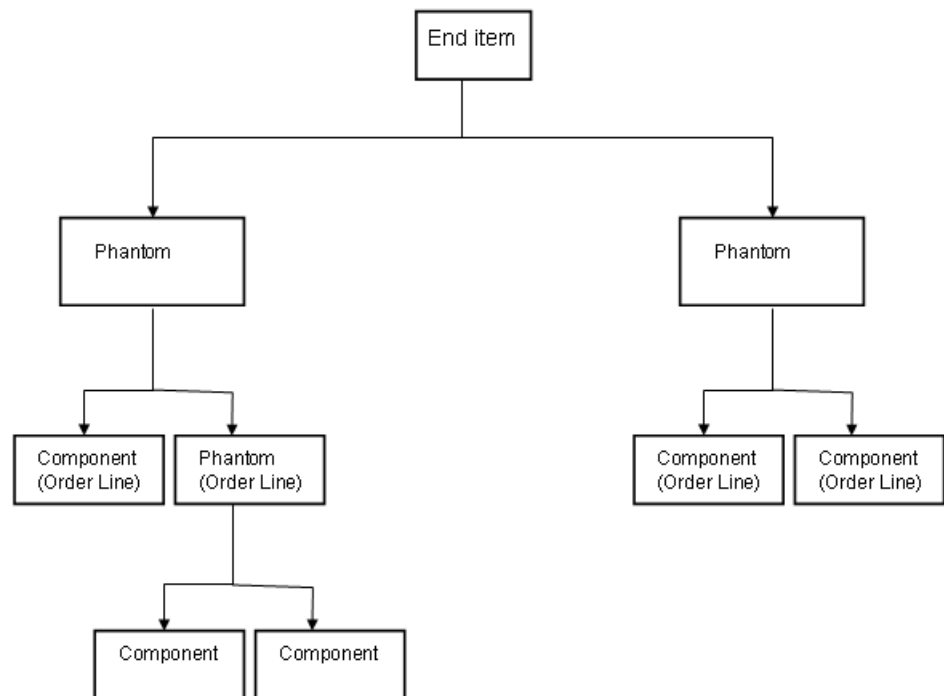
Important!

If **Component Handling** is set to **Component Lines** for the order type, the **Maximum Number of Phantom Levels to be Skipped** field in the Copy Bill of Material to Sales Order (tdsls4812s000) session is set to *one* and disabled.

The **Maximum Number of Phantom Levels to be Skipped** value in these sessions determines how a bill of material (BOM) is copied to the lines of sales order, sales quotation, or purchase order.

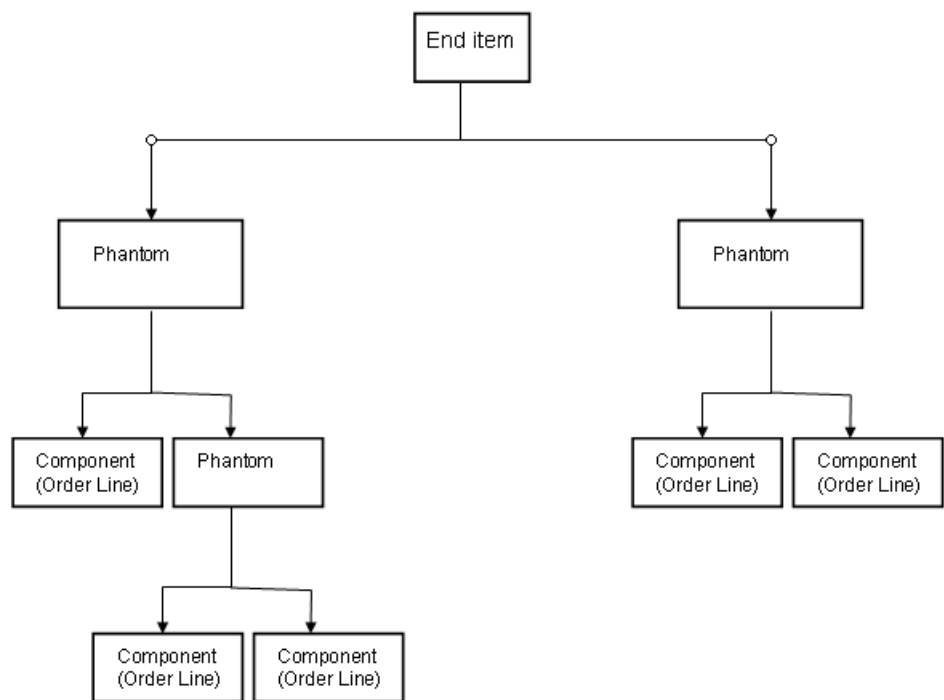
Example- Phantom levels to be skipped = 1

In this example, 4 order lines are generated. The first BOM level, which only contains phantoms, is skipped. For the phantom on the second level, an order line is generated.



Example- Phantom levels to be skipped = 2

In this example, 5 order lines are generated. The phantoms on the first and second BOM level are skipped.

**Note**

This example is only applicable for sales order types with **Component Handling** set to **Sales BOM** in the Sales Order Types (tdsls0594m000) session.

To view components

You can view components in the following sessions:

- **Purchase order**
Purchase Order Line - BOM Components (tdpur4532m000)
- **Sales quotation**
Sales Quotation Bills of Material (tdsls1532s000)
- **Sales order**
If **Component Handling** is set to **Sales BOM**, components can be viewed in the Sales Order Bills of Material (tdsls4532m000) session.
- If **Component Handling** is set to **Component Lines**, components can be viewed in the Sales Order Lines - Components (tdsls4601m000) session.

Note

If **Component Handling** is set to **Component Lines** and, in the first example, the third level would also contain a phantom with components on the fourth level,

both the third level phantom and the fourth level components are written to the Sales Order Lines - Components (tdsls4601m000) session. As a result, these phantoms are handled as single components.

Surplus handling

This topic describes how ERP LN handles a surplus.

You can ship the components of a kit separately. The kit is the item on the sales order line. ERP LN determines when enough items have been shipped to constitute one or more units of the sales order line item. As soon as the shipped items suffice for a sales order line item, ERP LN can create the invoice for the sales order line.

Sales order unit and rounding factor

One unit of a sales order line item is defined according to the item's sales order units of measure and rounded down according to the sales order unit's rounding factor.

For example, if the sales order unit is KG (kilogram), and the rounding factor is 0.1 kg, and the delivered quantity is calculated as sufficient for 0.69 KG of the sales order line item, a quantity of 0.6 KG is considered to be completed.

Surplus evaluation

Surplus evaluation is the process in which ERP LN calculates how many units of sales order line items have been completed and can be invoiced.

Normal shipping

When the shipment of component items is recorded in Warehouse Management, ERP LN performs the surplus evaluation and creates the invoice lines for any completed sales order line item.

If, for the relevant sales order type, the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) activity is set to automatic, every shipment line is evaluated immediately. Every completed sales order line item can result in a separate invoice line.

If, for the relevant sales order type, the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) activity is *not* set to automatic, ERP LN combines multiple shipment lines into one invoice line. ERP LN creates these invoice lines after you click **Release to Invoicing** command in the Sales Order Lines (tdsls4101m000) session.

To check whether an activity is set to automatic, use the Sales Order Types (tdsls0594m000) details session and check the **Automatic** check box.

Manual changes

If, in the Sales Order Line Components (tdsls4163m000) session, you manually change the net quantity of a component line, terminate a component line, or delete a component line, ERP LN selects the **Modified** check box. If you submit these changes, ERP LN performs the surplus evaluation.

To submit these changes, in the Sales Order Lines - Components (tdsls4601m000) session, on the **Specific** menu, click **Submit Changes**.

BOM change process

If you change the sales order line item's bill of material (BOM), and you process these changes, ERP LN performs the surplus evaluation.

Remaining quantity

If you changed the sales order line components manually or you changed the BOM, some components that you shipped already cannot be used to form a complete sales order line item anymore. This is especially the case if a component was terminated.

Partial deliveries and rounding differences can also result in components that cannot be used to complete a sales order line item.

ERP LN invoices these component deliveries as surplus with a sales order line delivered quantity of zero.

Chapter 2

Kit handling in Warehouse Management

2

Overview of kit handling in Warehouse Management

Kit handling facilitates:

- Delivery of incomplete bills of material (BOM) or kits. This is useful if, for example, part of the ordered components are unavailable due to inventory shortages, but the customer needs what is available at short notice.
The remainder can be delivered later, from inventory or through direct deliveries if that is the fastest way to serve the customer. On the sales order line, you can switch from delivery from inventory to direct delivery. You can use shipping constraints to control partial deliveries. For more information, refer to *Kit handling support and shipping structure setup (p. 2-2)* .
To allow delivery of incomplete kits or BOMs, the structure of sales orders and related warehousing orders is adjusted. For more information, refer to *Sales and warehousing order structure (p. 2-5)* .
- Modifications to BOM or kit structures even after they are put on sales orders - the last stage you can implement changes is at confirm shipment. For more information, refer to *Process BOM changes to Sales Order (tdsls4263m000)* and *How changes in component lines affect outbound order lines and shipment lines (p. 2-11)* .
- Changing the ordered quantities on the sales order or cancel orders at advanced stages in the delivery process. For more information, refer to *How changes in component lines affect outbound order lines and shipment lines (p. 2-11)* .
- Flexible shipping structure setup. On the warehousing order type, you can specify how loads and shipments are structured to ship components by subkit. In addition, a graphical user interface allows you to manually adjust the shipping structure generated by ERP LN, optionally using shipping containers if the required parameter is set. For more information, refer to *Sales and warehousing order structure (p. 2-5)* and *Shipping structures (p. 2-6)* .

The warehouse order type settings controlling load and shipment structures and the parameter setting allowing the use of shipping containers support kit handling initiated in the Sales Control module, but they are not required. If not used, however, the shipping structure may not adequately reflect the topkit - subkit - component structure initiated in the Sales Control module.

These settings are also available if kit handling is not implemented in the Sales Control module.

For an overview of the procedure to deliver kit orders, including invoicing after delivery, see *To deliver component items - procedure (p. 2-3)*.

Kit handling support and shipping structure setup

Most of the kit handling functionality is implemented in the Order Management package. For more information, refer to *Overview of kit handling in Order Management (p. 1-1)*. If this functionality is implemented in Order Management, the outbound order structure is adjusted in Warehouse Management. For more information, refer to *Sales and warehousing order structure (p. 2-5)*. The Warehouse Management functionality described in the following list supports kit handling but is also available if kit handling is not implemented in Order Management as described in steps 1 and 2.

1. In the Sales Order Parameters (tdsls0100s400) session, select the **Extended Kit Handling Implemented** check box.
2. In the Sales Order Types (tdsls0594m000) details session, select **Component Lines** in the **Component Handling** field. For corresponding sales order lines, value **Component Lines** is defaulted in the **Component Handling** field.

For each sales order line with value **Component Lines** that is released to Warehouse Management, ERP LN generates a warehousing order set. This facilitates shipping complete and incomplete subkits.

For more information, refer to:

- *Sales and warehousing order structure (p. 2-5)*
- *Overview of kit handling in Order Management (p. 1-1)*

3. Optionally, in the Sales Order Types (tdsls0594m000) details session, link the sales order type to the relevant warehousing order type to ensure that the appropriate warehousing procedure is used.
 4. Optionally, in the Default Order Types by Origin (whinh0120m000) session, link the appropriate warehousing order type to origin **Sales** to accomplish that the warehousing order type is the default warehousing order type for warehousing orders generated from sales orders.
-

5. Optionally, to enforce shipping of complete subkits for individual sales orders or sales order lines:
 - In the **Shipping Constraint** field of the Sales Orders (tdsls4100m000) session or the Sales Order Lines (tdsls4101m000) session, select **Ship Kit Complete**.
 - In the Inventory Handling Parameters (whinh0100m000) session, select the **Check Shipping Constraint during Release Advice** check box. For more information, refer to *The Ship Kit Complete constraint (p. 2-7)*.
6. Optionally, in the Inventory Handling Parameters (whinh0100m000) session, select the **Shipping Containers in use** check box to enable the use of shipping containers. For more information, refer to *To compose shipping containers (p. 2-7)*.
7. Optionally, in the Warehousing Order Type (whinh0110m000) session, select one of the following check boxes to determine the shipping structure for order types involved in delivering subkits:
 - **Single Order Set per Shipment**
 - **Single Order per Load**
 - **Single Order per Shipment**For more information, refer to *Shipping structures (p. 2-6)*.
8. In the Activities by Procedure (whinh0106m000) session, select activity Print Shipping Manifest (whinh4478m000) to enable shipping manifest to be printed for shipment procedures involving subkits.
9. In the Default Devices by User (whwmd1545m000) session, select a default device for activity Print Shipping Manifest (whinh4478m000).
10. Optionally, in the User Profiles (whwmd1140s000) session, you can select the **By Order Set** option for outbound advice and picking lists to print each order set on a new page by default.

To deliver component items - procedure

In this example procedure, the steps are performed manually.

1. In the Sales Orders (tdsls4100m000) session, enter a sales order with an order type for which kit handling is activated. For more information, refer to *Overview of kit handling in Order Management (p. 1-1)*.
 2. Enter a topkit item. For more information, refer to Sales order procedure.
 3. In the Sales Order - Lines (tdsls4100m900) session, enter the subkit items of the topkit item.
 4. In the Sales Order Lines - Components (tdsls4601m000) session, for each subkit item, enter the relevant components. For more information, refer to *Component handling - component lines (p. 1-2)*.
-

5. Release to Warehouse Management to generate warehousing order sets and outbound order lines. For more information, refer to *Sales and warehousing order structure (p. 2-5)*.
6. In Warehouse Management, generate outbound advice. For more information, refer to The outbound procedure.

The outbound advice is manipulated if the following settings are specified:

 - Shipping constraint **Ship Kit Complete**. For more information, refer to *The Ship Kit Complete constraint (p. 2-7)*.
 - One of the following warehouse order type settings:
 - **Single Order Set per Shipment**
 - **Single Order per Load**
 - **Single Order per Shipment**For more information, refer to *Shipping structures (p. 2-6)*.
7. Release the outbound advice.

As a result, ERP LN generates shipment lines, shipments, and loads. For more information, refer to The outbound procedure.
8. Compose the shipping structure as required. Optionally, add shipping containers, move or add shipments, shipment lines, handling units, or loads.

For further information, see:

 - Shipments and loads
 - *Shipping structures (p. 2-6)*
 - Conditions for shipment composition
 - Manually created shipments
 - Handling units
9. Freeze the shipments. For more information, refer to Shipment and load statuses.
10. Print the shipping documents. For more information, refer to The shipment procedure and Shipment and load statuses.
11. Confirm the shipments. The component lines in the Sales Order Lines - Components (tdsls4601m000) session and the Sales Order - Lines (tdsls4100m900) session are updated and invoice lines are created. For more information, refer to Sales order procedure.
12. Invoice the sales order.

Note

Changes in the component lines in the Sales Control module affect the corresponding warehousing outbound order lines and shipment lines. For more information, refer to *How changes in component lines affect outbound order lines and shipment lines (p. 2-11)*.

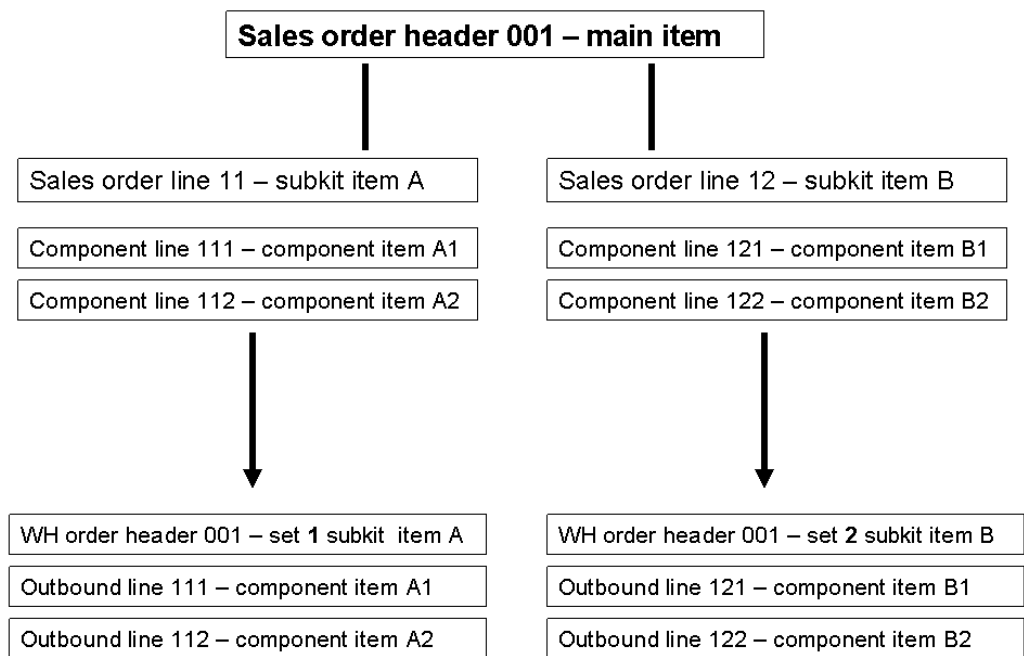
Sales and warehousing order structure

To allow delivery of incomplete bills of material (BOM) or kits, the structure of sales orders and related warehousing orders is adjusted.

If kit handling is specified on the sales order type, the sales order header represents the top kit level and each sales order line represents a subkit level. The components of the subkit are listed in the Sales Order Line Components (tdsls4163m000) session.

When the sales order is released to warehousing, ERP LN generates:

- A warehousing order set for each sales order line. The subkit item from the sales order line is inserted in the field of the **Kit Item** field of the warehouse order header.
- An outbound order line for each component line from the Sales Order Line Components (tdsls4163m000) session.



The warehousing order header lists:

- In the **Order** field, the warehousing order number
- In the **Order Set** field, the warehousing order set number

- The **Order for Kit** check box, which if selected indicates that the warehouse order is a kit order.
- The **Kit Item** field, which shows the ID of the subkit item. The value in this field is taken from the sales order line that initiated the warehousing order set.
- **Quantity in Storage Unit** field showing the quantity of the subkit item for the current order set, which is taken from the sales order line.

In the **Item** field, each outbound order line lists the ID of a component item that belongs to the subkit listed in the warehousing order set header. The **Ordered Quantity in Inventory Unit** field lists the ordered component quantity. For example, if the order header set lists 5 subkits A, and according to the bill of material (BOM), subkit A consists of 20 components A1, the outbound order line for component A1 lists a quantity of 100.

Shipping structures

Single order settings

In addition to the standard requirements described in Conditions for shipment composition and Shipments and loads, the following warehouse order type settings determine how shipment lines, shipments, and, if implemented, shipping containers, are structured to form loads:

- **Single Order Set per Shipment**
- **Single Order per Load**
- **Single Order per Shipment**

Create shipment line

When a shipment line is created for a warehousing order and **Single Order Set per Shipment** or **Single Order per Shipment** is selected for the order type of the warehousing order, the shipment line is linked to an existing shipment if the shipment is linked to the same warehousing order (**Single Order per Shipment** selected) or order set (if **Single Order Set per Shipment** is selected). If no such shipment is present, a new shipment is created. If **Single Order per Load** is selected, a new load is created if no matching load is present.

Shipment lines are generated during the outbound procedure or manually created. For more information, refer to The outbound procedure and Manually created shipments.

Move shipment line

If a shipment line refers to a warehousing order with order type setting **Single Order per Shipment** or **Single Order Set per Shipment**, you can only move

the shipment line to a shipment that refers to the same warehousing order or order set, respectively. You can also move a shipment line to a shipping container and load if the shipment of the shipment line and the destination load and shipping container belong to the same warehousing order.

You can move shipment lines in the Compose Shipping Structure graphical user interface or the Compose Shipment (whinh4231m000) session.

Move shipment

To move a shipment to a load created for a warehousing order with order type setting **Single Order per Load**, the shipment must belong to the same warehousing order.

You can move shipments in the Compose Shipping Structure graphical user interface or the Compose Load (whinh4134m000) session.

To compose shipping containers

You can move shipments from one shipping container to the next within the same load if the status of the shipments and the shipping containers is **Open**.

If a shipment for which the shipping manifest is printed is moved to another shipping container, a new shipping manifest must be printed after the shipment is moved. If a shipment is added to a shipping container for which the shipping manifest is printed, the shipping manifest must be printed again.

If a shipment with a handling unit is moved to a shipping container with a handling unit, the handling unit of the shipment is unlinked from the handling unit of the source container and linked to the handling unit of the destination shipping container. In addition, the gross weights and the net weights of the shipping containers is recalculated. You can use the Compose Shipping Structure graphical user interface to compose shipping containers.

The Ship Kit Complete constraint

Kit handling allows shipping incomplete subkits. For individual sales orders or sales order lines, however, you can use the **Ship Kit Complete** constraint to enforce shipping of complete topkits or subkits. If insufficient inventory is available to fulfil an entire sales order or sales order line, only the inventory that makes up complete topkits or subkits is advised.

Example

A sales order line lists four pieces of subkit A and constraint **Ship Kit Complete** is specified on the sales order line..

Subkit A consists of the following components:

Component	Quantity	Inventory unit
C1	3	pcs
C2	4	pcs
C3	6	pcs

The available inventory for subkit A is:

Component	Quantity	Inventory unit
C1	15	pcs
C2	18	pcs
C3	20	pcs

The sales order line for subkit A results in three outbound order lines within one order set. The ordered quantities for the outbound order lines are:

OOL	Component	Qty sk	Qty BOM	Qty Comp	Inventory unit
001	C1:	4	3	12	pcs
002	C2:	4	4	16	pcs
003	C3	4	6	24	pcs

Legend

OOL	Outbound order line
Qty sk	Ordered quantity of subkits
Qty BOM	Component quantity per subkit
Qty Comp	Ordered quantity per component Qty sk * Qty BOM)

The available inventory is insufficient for component C3. Therefore, ERP LN advises only three instead of four subkits A.. The advised quantities after generating the outbound advices are:

-
- Advice for C1: $3 * 3 = 9$ pcs
-
- Advice for C2: $3 * 4 = 12$ pcs
-
- Advice for C3: $3 * 6 = 18$ pcs
-

Component Subkits		Component qty	Inventory unit
C1:	3	9	pcs
C2:	3	12	pcs
C3	3	18	pcs

For each outbound order line, an inventory shortage message appears if insufficient inventory is available to fulfil the order.

Note

- The **Ship Kit Complete** constraint only works for generated outbound advice. If the outbound advice is manually created or manually changed or deleted after generating the outbound advice, ERP LN does not perform the ship kit complete check for the outbound advice, but postpones this until confirm shipment.
Therefore, if delivery of complete kits is no longer required while the outbound procedure is in process, to bypass the ship kit complete constraint, regenerate the outbound advice (to advise incomplete kits as well) and remove the ship kit complete constraint from the sales order line before confirming the relevant shipments.
- If negative inventory is allowed, ERP LN does not perform the ship kit complete check for generated or manually created outbound advice.

How ERP LN calculates the quantity to be advised

1. For the quantity of ordered subkits from the **Quantity in Storage Unit** field in the Warehousing Orders (whinh2100m000) session, calculate the required quantity for each component of the subkit.
2. For each component, calculate the available quantity taking into account:
 - Inventory commitments

- Allocation buffers
 - Inventory buffers
 - Ownership
 - Specifications,
 - Negative inventory
3. For each component, check for shortages. If present, advise the maximum number of complete subkits that fits into the available inventory.

How changes in component lines affect outbound order lines and shipment lines

If outbound advice does not yet exist, ERP LN automatically updates warehousing outbound order lines with changes in sales order lines or component lines. These changes include:

- Item quantity changes
- BOM structure changes:
 - New sales order line and component line if new subkit is added to BOM, which results in new warehousing order sets and outbound order lines
 - New component lines if components are added to subkits of BOM, which results in new outbound order lines
- Cancellation of component or sales order lines, which results in the automatic removal of the corresponding outbound order lines

If outbound advice or picking lists exist, a component line can be:

- Changed or deleted after manually removing the relevant outbound advice or picking lists.
- Cancelled, ERP LN then automatically removes the outbound advice or picking lists.

If shipment lines exist, to cancel, delete, or change a component line, for the shipment lines:

1. Set the shipped quantity to 0.
 2. Confirm.
 3. Use the Easy Inventory Movement (whinr1250m000) session or the Easy Inventory Movement (Range) (whinr1252m000) session to transfer the unshipped goods from the staging location back to the storage location.
-

Appendix A

Glossary

A

activity

A step that you must carry out for the purchase/sales order type. An activity represents the sessions or the manual action that you must carry out for the purchase/sales order type.

activity

A step in a warehousing procedure. An activity corresponds with a session of the Warehouse Management package. For example, the inbound activity **Generate Inbound Advice** is performed using the Generate Inbound Advice (whinh3201m000) session.

address

A full set of addressing details, which include the postal address, access numbers for telephone, fax, and telex, e-mail and Internet address, identification for taxation purposes, and routing information.

allocation buffer

Inventory that is allocated to a specification. This inventory is not allocated to a specific order, but can be consumed by any order line with a specification whose characteristics match the characteristics of the specification of the allocation buffer.

back order

An unfilled customer order, or partial delivery at a later date. A demand for an item whose inventory is insufficient to satisfy demand.

bill of material (BOM)

A list of all parts, raw materials, and subassemblies that go into a manufactured item and show the quantity of each of the parts required to make the item. The BOM shows the single-level product structure of a manufactured item.

BOM level

When a product is manufactured, components are assembled into subassemblies, and those subassemblies are in turn assembled into the final product. The components that go together at each stage are described in a bill of material. Each stage is one level in the bill of material.

The listing of the wheel components is one level in the bill of material. The listing of the subassemblies of the bicycle is the highest level, and is frequently referred to as level zero.

Example

A bicycle has one frame and two wheels. The frame is made of three tubes. The wheels are each made of one rim, one hub, and 35 spokes.

business partner

A party with whom you carry out business transactions, for example, a customer or a supplier. You can also define departments within your organization that act as customers or suppliers to your own department as business partners.

The business partner definition includes:

- The organization's name and main address.
- The language and currency used.
- Taxation and legal identification data.

You address the business partner in the person of the business partner's contact. The business-partner status determines if you can carry out transactions. The transactions type (sales orders, invoices, payments, shipments) is defined by the business partner's role.

component

An item that is sold, and invoiced in combination with other items as part of a kit.

cost of goods sold

Cost of Goods Sold (COGS) is the expense a company incurs in order to manufacture, create, or sell a product. It includes the purchase price of the raw material as well as the expenses of turning it into a product.

direct delivery

The process in which a seller orders goods from a buy-from business partner, who must also deliver the goods directly to the sold-to business partner. By means of a purchase order that is linked to a sales order or a service order, the buy-from business partner delivers the goods directly to the sold-to business partner. The goods are not delivered from your own warehouse, so Warehouse Management is not involved.

A seller can decide for a direct delivery because:

- There is a shortage of available stock.
- The ordered quantity cannot be delivered in time.
- The ordered quantity cannot be transported by your company.
- Costs and time are saved.

effective date

The first day on which a record or a setting is valid. The effective date often includes the effective time.

expiry date

The last day on which a record is valid. If you do not specify an expiry time, the validity expires at the end of the expiry date, at 24:00 hours.

handling unit

A uniquely identifiable physical unit that consists of packaging and contents. A handling unit can contain items registered in Warehouse Management and other handling units. A handling unit has a structure of packaging materials used to pack items, or is a part of such a structure.

A handling unit includes the following attributes:

- Identification code
- Packaging item (optional)
- Quantity of packaging items (optional)

If you link an item to a handling unit, the item is packed by means of the handling unit. The packaging item refers to the type of container or other packing material of which the handling unit consists. For example, by defining a packaging item such as Wooden Crate for a handling unit, you specify that the handling unit is a wooden crate.

See: handling unit structure

inventory buffer

A repository where inventory can be reserved for special purposes. A separate order origin (called inventory buffer) is used to do this.

inventory commitment

The reservation of inventory for an order without taking into account the physical storage of the goods within the warehouse. Previously referred to as hard allocation.

kit

A predefined list of items to be delivered together when ordered by the customer.

You can define kits to facilitate order entry. A kit is ordered and priced as a single item. For internal order entry and warehousing purposes, the kit item is a list of components. On the sales order line, the components are linked. The cost price of the kit is the sum of the components' cost prices.

The components of a kit can be of the following types:

- Purchased items
- Manufactured items

Example: The components of a PC kit usually consist of the main cabinet, a monitor, a keyboard, and a mouse. In the Do-It-Yourself market, a toolshed kit can contain the parts for the walls and the roof, a door with hinges, a door handle, and a lock.

kit order

A sales order or warehousing order created using the extended kit handling functionality.

load

In ERP LN, all goods and/or shipments carried by one means of transport on a specific date and time and using a specific route.

main item

The end result of a production order.

A main item is either be changed to an end item (for delivery to a warehouse), or delivered directly to the customer in bulk.

manufactured item

The items that can be manufactured end products and subassemblies. A manufactured item is usually associated with a bill of material and a routing that describe the components used to assemble it and the manner in which it is assembled. Manufactured items are also referred to as production items and can be purchased.

order date

The date on which the order is manually entered into the system or is automatically generated.

order set

The order set groups order lines of the same order together according to the following attributes:

- Ship-from partner
- Ship-to partner
- Ship-from address
- Ship-to address
- Carrier
- Shipping date
- Original company

ownership

Indicates if, and at which point in the supply chain, the ownership of goods changes from the supplier to the customer. Ownership changes also occur between departments or business units within an organization. When the ownership changes, payment is due.

In traditional, non-VMI scenarios, the ownership of an item changes from the supplier to the customer after the customer has received the item from the supplier. The customer must pay for the item on receipt of the goods.

In various subcontracting scenarios, ownership will not change during any of the inbound or outbound warehousing processes. In such cases, the ownership is customer owned.

In vendor managed inventory (VMI) scenarios, the ownership can be consigned. If the ownership is consigned, the ownership change is either time based or consumption based.

- **Consumption based**
The customer issues the goods to sell them or to consume them
- **Time based**
Some time after:
 - The customer receives the goods
 - The last issue or receipt of the goods

For time based ownership change, the period of time is laid down in the contract between the customer and the supplier.

phantom

An assembly that is produced as part of a manufactured item, and that can have its own routing.

A phantom is usually not held in inventory, although occasionally some inventory can exist. The planning system does not create material requirements for a phantom, but drives the requirements straight through the phantom item to its components. Phantoms are mainly defined to create a modular product structure.

Example

The door of a refrigerator is defined as a phantom item in the bill of material of a refrigerator. The materials of the door are listed on the production order's material list for the refrigerator.

rounding factor

Indicates how ERP LN rounds off entered and calculated amounts or quantities. The quantities and amounts are rounded off to the nearest multiple of the rounding factor. For example, if the rounding factor is 0.030000, a quantity of 2,11 is rounded off to 2,10 ($= 70 * 0.030000$). A quantity of 2,12 is rounded off to 2,13 ($= 71 * 0.030000$).

The following differences exist between rounding factors for currencies and for units:

- ERP LN applies the rounding factor for units immediately when the users enter the data. ERP LN applies the rounding factor for currencies not to the amounts entered, but after performing the applicable calculations.
- In some cases, you can change rounding factors for units, but you cannot do this for currencies.

sales order

An agreement that is used to sell items or services to a business partner according to certain terms and conditions. A sales order consists of a header and one or more order lines.

The general order data such as business partner data, terms of payment, and terms of delivery are stored in the header. The data about the actual items to be supplied, such as price agreements and delivery dates, is entered on the order lines.

sales order lines

A sales order contains items that are delivered to a customer, according to certain terms and conditions. The lines of a sale order are used to record the items ordered, as well as the associated price agreements and delivery dates.

sales order type

The order type, which determines the sessions that are part of the order procedure and how and in which sequence this procedure is executed.

sales order units of measure

The units in which item dimensions in sales orders are expressed.

shipment

All goods that are transported to a specific address on a specific date and time by using a specific route. An identifiable part of a load.

shipment line

An individual line of detail in a shipment.

shipping container

A subdivision of a load that contains shipments. The packaging items defined for a container determines the type of container.

shipping manifest

A shipping document that describes the content of the shipping structure consisting of loads, shipments, and, if implemented, containers, created for a warehousing order or order set. The shipping structure can contain separate items or items included in BOM or kit structures.

specification

A collection of item-related data, for example, the business partner to which the item is allocated or ownership details.

ERP LN uses the specification to match supply and demand.

A specification can belong to one or more of the following:

- An anticipated supply of a quantity of an item, such as a sales order or production order
- A particular quantity of an item stored in a handling unit
- A requirement for a particular quantity of an item, for example a sales order

subkit

A phantom item that represent a number of component items or a main item for a (sub-) assembly.

warehousing procedure

A procedure to handle warehousing orders and handling units. A warehousing procedure comprises various steps, also called activities, that a warehousing order or a handling unit must take to be received, stored, inspected, or issued. A warehousing procedure is linked to a warehousing order type, which in turn is allocated to warehousing orders.

Index

activity, A-1, A-1
address, A-1
allocation buffer, A-1
back order, A-1
bill of material (BOM), A-1
BOM
 copying to a sales order, 1-2, 1-6
BOM level, A-2
business partner, A-2
component, A-2
component handling
 component lines, 1-2
 sales BOM, 1-6
Component line and outbound line
 results of changes, 2-11
component lines, 1-1
Compose
 load, 2-6
 shipment, 2-6
 shipping container, 2-6
cost of goods sold, A-2
direct delivery, A-3
effective date, A-3
expiry date, A-3
handling unit, A-3
inventory buffer, A-3
inventory commitment, A-4
kit, A-4
kit handling
 overview, 1-1
Kit handling
 change component line, 2-11
 order structure, 2-5
 overview, 2-1
 procedure, 2-3
 setup, 2-2
 ship kit complete, 2-7
 shipping structures, 2-6

kit order, A-4
Kitting
 surplus evaluation, 1-11
 surplus handling, 1-11
load, A-4
Load
 structure, 2-6
main item, A-4
manufactured item, A-4
order date, A-5
order set, A-5
ownership, A-5
phantom, 1-8, A-6
phantom level
 skipping, 1-8
rounding factor, A-6
sales BOM, 1-1
sales order, A-6
 copying from a BOM, 1-2, 1-6
sales order lines, A-6
sales order type, A-7
sales order units of measure, A-7
shipment, A-7
Shipment
 structure, 2-6
shipment line, A-7
Shipment line
 structure, 2-6
Shipping constraint
 ship kit complete, 2-7
shipping container, A-7
Shipping container
 structure, 2-6
shipping manifest, A-7
specification, A-7
subkit, A-7
Surplus evaluation, 1-11
Surplus handling, 1-11

warehousing procedure, A-8
