Infor LN User Guide for Kit Handling

Important Notices

Trademark Acknowledgements

Publication Information

Document code	crosskitug (U9540)
Release	10.6 (10.6)
Publication date	August 5, 2024

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About this document

This document explains the handling of components in Sales and Warehousing.

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, etc.

References

Use this guide as the primary reference for kit handling. Use the current editions of these documents for information that is not covered in this guide:

- *User Guide for Sales Orders U9845 US*
- *User Guide for the Inbound Goods Flow U9788 US*
- *User Guide for the Outbound Goods Flow U9794 US*

How to read this document

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Text in italics followed by a page number represents a hyperlink to another section in this document.

Underlined terms indicate a link to a glossary definition. If you view this document online, clicking the underlined term takes you to the glossary definition at the end of this document.

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Chapter 1
Kit handling in Sales

1

Overview of kit handling in Sales

In the sales order procedure, you can deliver components instead of main items. Components can be handled by component lines or by a sales BOM.

Note

Handling components using component lines has the following advantages:

- Overall visibility is provided on the complete 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.

Component lines

To handle components using component lines, specify these parameters:

- Select the **Extended Kit Handling Implemented** check box in the Sales Order Parameters (tdsls0100s400) session. If you multisite, this check box can also be selected in the Sales Offices (tdsls0512m000) session.
- Specify **Component Lines** in the **Component Handling** field of the Sales Order Types (tdsls0594m000) or the Sales Order Lines (tdsls4101m000) session.

For more information, refer to *Component handling - component lines (p. 8)*.

Sales BOM

To handle components using a sales BOM, perform one of the following:

- Clear the **Extended Kit Handling Implemented** check box in the Sales Order Parameters (tdsls0100s400) and Sales Offices (tdsls0512m000) sessions. If this check box is cleared, components are always handled using a sales BOM.

- Select the **Extended Kit Handling Implemented** check box, but specify **Sales BOM** in the **Component Handling** field of the Sales Order Types (tdsls0594m000) or the Sales Order Lines (tdsls4101m000) session.

For more information, refer to *Component handling - sales BOM (p. 11)*.

Component handling

Component handling - component lines

If you handle components using component lines, you can copy a bill of material (BOM) to the lines of a sales order in the Copy Bill of Material to Sales Order (tdsls4812s000) session. You can also manually specify 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 generated in the Sales Order Line Components (tdsls4163m000) session.

To view the component lines, click **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 complete all activities and actions that are applicable for a component line.

Note

In the Sales Order Main Items (tdsls4561m000) session, you can view the main item based on which a sales order line is generated in the copy bill of materials (BOM) to sales order process. To start the Sales Order Main Items (tdsls4561m000) session, click **Sales Order Main Items** on the appropriate menu of the Sales Order Lines (tdsls4101m000) session.

Delivery

- **Warehousing**
  After the sales order line components are released to Warehousing, the warehousing activities on the individual components take place. Based on the sales order line's **Shipping Constraint**, Warehousing ships the (individual) components after which the component lines are delivered. For more information, refer to *Overview of kit handling in Warehouse Management (p. 17)*.
- **Procurement**
  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 Procurement, the component lines are delivered.
  The link between the generated purchase order line and the sales order component line can be viewed in these 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. When the quantity of delivered components constitutes a complete sales order line item, the sales order line can be invoiced.

Component backorders

Backorders are created when a 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.

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

After the backorder is confirmed, a new component line is generated with the **Backorder** check box selected in the Sales Order Line Components (tdsls4163m000) session.

Returns

Complete sales order line items with linked components and individual components can be returned by a return order.

- **Complete sales order line items**
  After you created a sales order header with a sales order type for return orders and specified the **Original Document Type** and **Original Document No** fields, click **Copy from Original Document** to select a sales order line from the actual or history data. 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 Warehousing or Procurement. No surplus evaluation takes place for complete sales order line item returns; they are invoiced based on the setting of the **Order Line Price for Returns** check box in the Sales Order Parameters (tdsls0100s400) session.
- **Individual components**
  To return individual components, depending 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 you select an **Original Document No** from the Sales Order Lines (tdsls4101m000) session and click **Copy from Original Document** on the sales order header, the Sales Order Actual Delivery Line History (tdsls4556m000) session is started if you copy from history; if you copy from the actual data, the Sales Order Lines (tdsls4101m000) session is started. In both sessions, you can 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 you select an **Original Document No** from the Sales Order Invoice Lines (tdsls4106m100) session, you can zoom to 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 specifying negative order quantities for components and main items. If you specify 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 these sessions:

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

Surplus

You can ship the components of a kit separately. The kit is the item on the sales order line. LN determines when enough items are 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, the invoice can be created for the sales order line.

If components are delivered, but the quantity of delivered components is not enough to complete at least one sales order line item, the components are referred to as 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.

For more information, refer to *Surplus handling (p. 15)*.

BOM changes

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

If BOM changes apply to open sales orders with sales order line components that are **Free** or **In Process**, the changes can be processed to the sales order (component) lines. Consequently, 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

When 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. When the last invoice line is created, which can be for a complete sales order line item or for surplus, the **Actual 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) session.

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 the line depends on the value of the **Zero Surplus Invoice** check box in the Sales Order Parameters (tdsls0100s400) session. The invoice quantity and

the price are zero. Before you can release the invoice line to Invoicing, you must first confirm the 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. Therefore, the **Actual Delivery Line Sequence Number** increases together with the **Invoice Line** number.
- Each time an invoice line is inserted, the sales order line is updated with the **Delivered Quantity**, **Delivered Amount**, and the **Line Discount Amount**.
- In Invoicing, you can indicate whether the components and their quantities are printed on the sales invoice.
- For staggered consignments, in the Intrastat Transactions (tccom7171m000) session, transactions are logged for the Intrastat declaration when shipments are confirmed for the components. These records have the **Awaiting Final Shipment** status. When all component deliveries took place for a specific sales order line and the total of the invoice(d) amounts is clear, this total amount is distributed across the logged intrastat records based on valuation price and quantity. You can view the calculated amounts for the intrastat records in the **Declaration Invoice Value** field of the Intrastat Transactions (tccom7171m000) session. For more information, refer to Valuation price and invoice amounts for staggered consignments.

Component handling - sales BOM

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

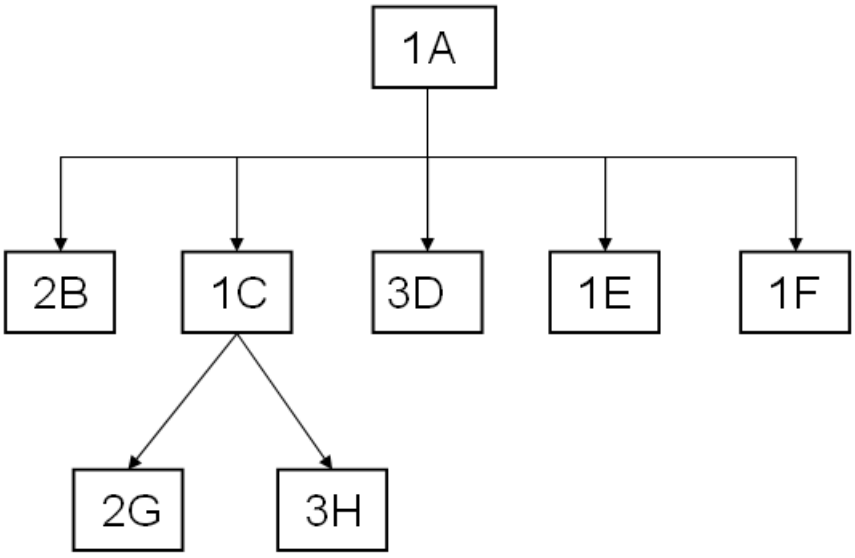
To copy the BOM:

1. Specify the manufactured item, the quantity ordered, and the Phantom Levels to Skip and start the process.
2. A sales order line is added for each position in the bill of material that has no underlying components.
3. Only the BOM components are copied for which the order date is between the effective date and the expiry date of the component. The item version is also taken into account.

Note

- You can view the sales order line BOM components in the Sales Order Line - BOM Components (tdsls4532m000) session.
- Components of (phantom) items cannot be shipped or delivered separately.

This diagram shows a 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.

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.

Skipping phantom levels

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

These 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 Procurement Parameters (tdpur0100m000) session

The previous parameters provide default values to the same fields in these sessions:

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

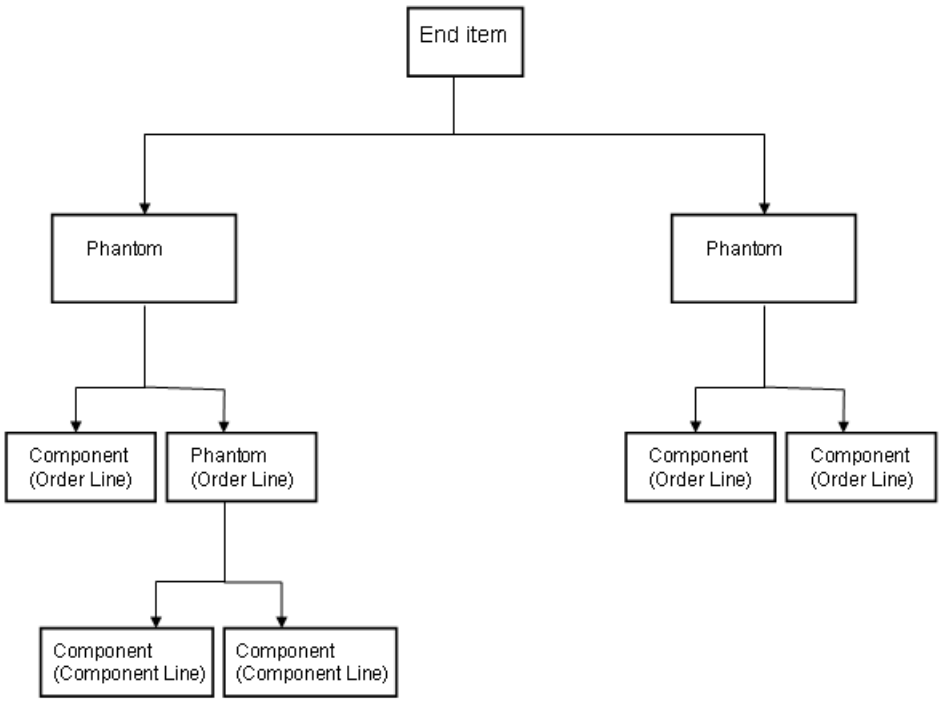
The **Maximum Number of Phantom Levels to be Skipped** value in these sessions determines how a bill of material (BOM) is copied to the lines of sales order, sales quotation, or purchase order.

Important!

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

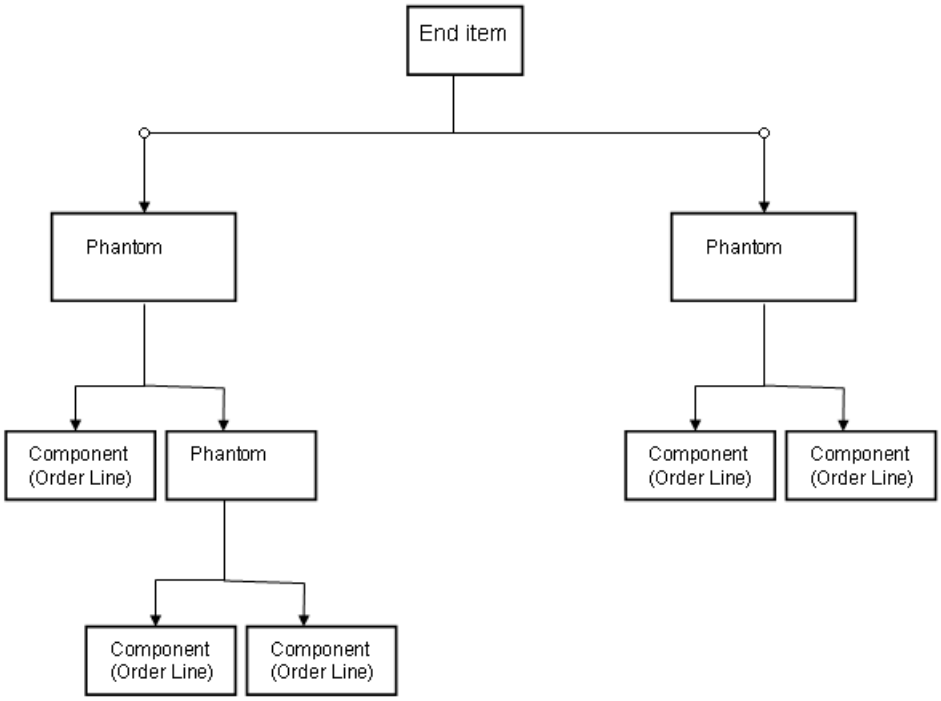
Example- Phantom levels to be skipped = 1

In this example, 4 order lines and 2 component lines are generated. The first BOM level, which contains only phantoms, is skipped. An order line is generated for the phantom on the second level.



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.



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

Viewing components

You can view components in these sessions:

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

Note

If **Component Handling** is **Component Lines** and, in the first example, the third level would also contain a phantom with components on the fourth level, the third level phantom and the fourth level components are written to the Sales Order Lines - Components (tdsls4601m000) session. Therefore, these phantoms are handled as single components.

Surplus handling

If components are delivered, but the quantity of delivered components is not enough to complete at least one sales order line item, the components are referred to as 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 you do the following:

- Deliver a new shipment
- Manually change a component line and process the changes by clicking **Submit Changes** on the appropriate menu of the Sales Order Lines - Components (tdsls4601m000) session
- Change the BOM and process the changes using 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 because an order line is terminated or a BOM is changed, you can invoice a surplus quantity in the Change Prices and Discounts of Sales Invoice Lines (tdsls4132m000) session.

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.

Evaluating surplus

Surplus evaluation is the process to calculate how many units of sales order line items are completed and can be invoiced.

Delivering shipments

When the shipment of component items is recorded in Warehousing, the surplus evaluation is performed and the invoice lines are created for any completed sales order line item.

If, for the relevant sales order type, the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) activity is:

- Automatic, a shipment line is immediately evaluated. Every completed sales order line item can result in a separate invoice line.
- Nonautomatic, when you click the **Release to Invoicing** command in the Sales Order Lines (tdsls4101m000) session, multiple shipment lines are combined on one invoice line.

An activity is executed automatically if the **Automatic** check box is selected for the activity in the Sales Order Types (tdsls0594m000) details session.

Changing component lines

If, in the Sales Order Line Components (tdsls4163m000) session, you manually change the net quantity of a component line, or you terminate or delete a component line, the **Modified** check box is selected. When you submit the changes, the surplus evaluation is performed.

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

Changing BOMs

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

Invoicing surplus quantity

If you manually change the sales order line components or you change the BOM, components that you shipped already might no longer be used to constitute a complete sales order line item. Partial deliveries and rounding differences can also result in components that cannot be used to complete a sales order line item.

These component deliveries are invoiced as surplus with a delivered quantity of zero for the sales order line.

The **Zero Surplus Invoice** check box in the Sales Order Parameters (tdsls0100s400) session determines how the surplus quantity is invoiced.

Chapter 2
Kit handling in Warehousing

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. 18)*.

  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. 20)*.

- 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. 30)*.

- 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. 30)*.

- 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 LN, optionally using shipping containers if the required parameter is set. For more information, refer to *Sales and warehousing order structure (p. 20)* and *Shipping structures (p. 22)*.

  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. 19)*.

Kit handling support and shipping structure setup

Most of the kit handling functionality is implemented in Sales. For more information, refer to *Overview of kit handling in Sales (p. 7)*. If this functionality is implemented in Sales, the outbound order structure is adjusted in Warehousing. For more information, refer to *Sales and warehousing order structure (p. 20)*. The Warehousing functionality described below supports kit handling but is also available if kit handling is not implemented 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 Warehousing, LN generates a warehousing order set. This facilitates shipping complete and incomplete subkits.

   For more information, refer to:
   - *Sales and warehousing order structure (p. 20)*
   - *Overview of kit handling in Sales (p. 7)*
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 becomes the default 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) 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. 26)*.
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.
7. Optionally, in the Warehousing Order Types (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. 22)*.

8. In the Activities by Procedure (whinh0106m000) session, select activity Print Shipping Manifest (whinh4478m000) to enable shipping manifests 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 Warehousing User Profiles (whwmd1140s000) session, 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 Sales (p. 7)*.
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. 8)*.
5. Release to Warehousing to generate warehousing order sets and outbound order lines. For more information, refer to *Sales and warehousing order structure (p. 20)*.
6. In Warehousing, 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. 26)*.
   - 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. 22)*.
7. Release the outbound advice.

   As a result, 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. 22)*
   - Conditions for shipment composition
   - Manually created shipments
   - Handling units
9. Freeze the shipments. For more information, refer to Shipment and load status.
10. Print the shipping documents. For more information, refer to The shipment procedure and Shipment and load status.
11. Confirm the shipments. The component lines in the Sales Order Lines - Components (tdsls4601m000) and Sales Order - Lines (tdsls4100m900) sessions 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. 30)*.

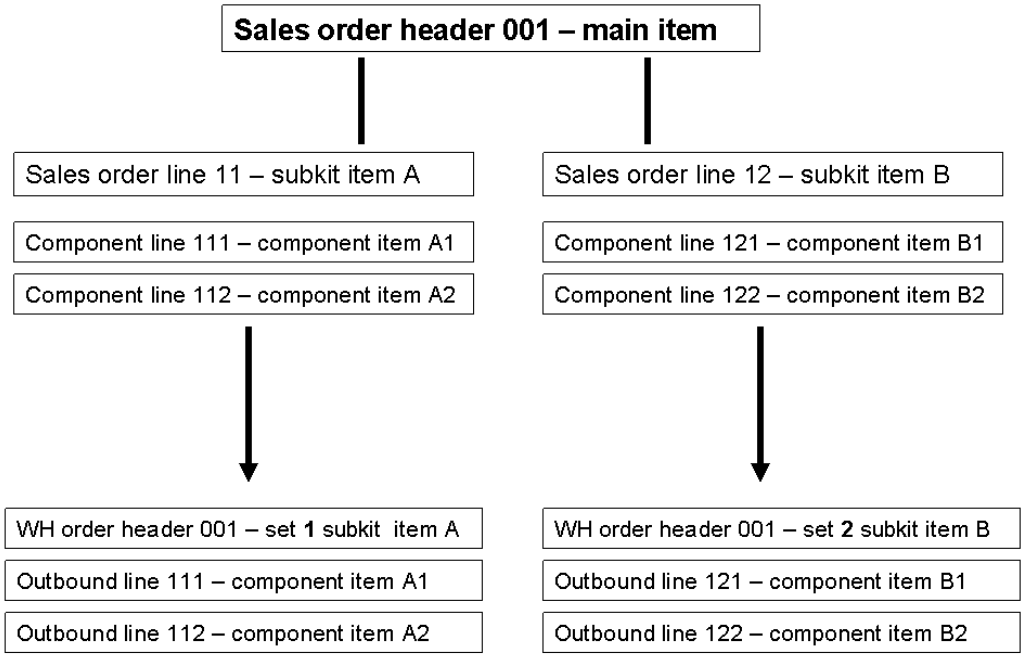
Sales and warehousing order structure

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, LN generates:

- A warehousing order set for each sales order line. The subkit item from the sales order line is inserted in 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 Quantityin 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 containers 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.

Compose Shipping Structure - Container Handling

This topic describes whether containers, if applicable, must be created manually or whether LN generates the first container automatically. The following **Container Handling** options are available:

- **Manual**
- **Automatic**
- **Not Applicable**

The shipping container indicates how the shipments are packed for transportation. Multiple containers can be linked to a load. Multiple shipments, (for different ship-to codes) can be linked to one shipping container.

Manual

The creation of shipping containers and the assignment of shipments to shipping containers is a fully manual process. When LN creates a shipping structure, by default all the shipments are added to the node *Without Containers* in the Compose Shipping Structure graphical browser framework (GBF). You must manually create shipping containers and move the shipments from *Without Containers* to these newly created shipping container.

Note

The **Manual** option is not applicable for the following **Inventory Transaction Type**:

- **Receipt**
- **WIP Transfer**

Automatic

The **Automatic** option indicates that LN generates a first shipping container and assigns the shipments to this shipping container automatically. LN automatically generates a shipping container during load/shipment building and links this container to the load/shipments.

Note

The **Automatic** option is not applicable for the following **Inventory Transaction Type**:

- **Receipt**
- **WIP Transfer**

Not Applicable

The **Not Applicable** option indicates that the concept of shipping containers is not in use. LN does not generate shipping containers. If the option is **Not Applicable**, you cannot create shipping containers even manually.

Note

The **Not Applicable** option is not applicable for the following **Inventory Transaction Type**:

- **Issue**
- **Transfer**

(Automatic) Linking of Shipments to Containers

Example

The following example scenarios describe how shipments are linked to shipping containers and how shipping containers are created in case no container is available:

- *Scenario 1: Load status = Open*

  The number of containers with status Open = one: New shipments must be linked to that container.

  Example
  - Container 1 with status = Confirmed
  - Container 2 with status = Confirmed
  - Container 3 with status = Frozen
  - Container 4 with status = Open

  In this case, new shipments are linked to the container with status Open.

- *Scenario 2: Load status = Open*

  The number of containers with status Open = two : New shipments must be linked to node "Without Containers."

  Example :
  - Container 1 with status = Confirmed
  - Container 2 with status = Confirmed
  - Container 3 with status = Open

- Container 4 with status = Open

In this case, new shipments are linked to node "Without Containers" to let the user decide which container must be used.

- *Scenario 3: Load Status = Open*

  The number of containers with status Open = Zero.

  In this case, a new container is generated and the new shipments are linked to this new container.

- *Scenario 4: Load status = Frozen/Confirmed.*

  In this case, a new load and container are generated and the new shipments are linked to this new container.

Shipping constraints

LN records the shipping constraints on the warehouse order header and the outbound order lines. If a shipping constraint is defined at header level of a manual warehouse order, the shipping constraint is defaulted to all the outbound order lines. For warehouse orders of the origin sales order or sales schedule, the shipping constraint is retrieved from Sales. For all other non-manual origins, the shipping constraints are defaulted as **None**, which means that the shipping constraints can be defined manually on the warehousing order.

Warehouse order header

You can specify these shipping constraints for the warehouse order header:

- **None**

  No shipping constraint applies. LN handles the orders based on the available inventory. Sufficient inventory results in a complete shipment.

  In case of insufficient inventory, and:

  - If the **Use Contracts for Schedules** check box is selected in the Sales Schedule Parameters (tdsls0100s500) session, the back orders are not created automatically in case of partial shipment. In this situation, LN communicates the shipped quantity back to the sales schedule and, based on the shipping details, the user decides on how to deal with the short-shipped quantity. LN clears the **Create Backorders** check box in the Outbound Order Lines (whinh2120m000) session.

    This process applies only for the sales schedules which are created if the **Use Contracts for Schedules** check box is selected.

  - If contracts are not used for sales schedules, LN automatically creates a backorder in case of a partial shipment. LN selects the **Create Backorders** check box in the Outbound Order Lines (whinh2120m000) session.

- **Ship Order Complete**
  The total order must be shipped in a single shipment. Therefore, LN does not allow partial deliveries. The lack of inventory results in the postponement of the shipment .
- **Ship Set Complete**
  A warehouse order set is based on the sales order set, which is recorded on the Warehouse order header. More than one warehousing order set can belong to a sales order set. For the origin sales this constraint means that the complete sales order set must be shipped at once, which implies that the related warehouse order set(s) must be shipped completely.
- **Ship Kit Complete**
  This can be applied only for a kitting order and means that kits have to be shipped completely. It will be possible to ship less items than ordered but only when the related kit structures are complete with all their components. LN assigns a unique set number to the component lines that constitute a main item/kit, which must be shipped in one set.

Note

The **Ship Kit Complete** option is not applicable to:

- Warehouse orders that are created manually.
- Non-manual warehouse orders that have an origin other than sales order and sales schedules.

Outbound order line

You can specify these shipping constraints for the outbound order lines:

- **None**
  No shipping constraint applies.
- **Ship Line Complete**
  The total quantity of the outbound order line must be shipped as a single shipment.
- **Ship Line & Cancel**
  If sufficient inventory exists, this results in a complete shipment of the outbound order line. A lack of inventory does not result in a back order but in the cancellation of the order for the remaining quantity. LN links a predefined cancel reason to the order line.

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, LN advises only three instead of four subkits A. For the last subkit, a back order is generated. 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, 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, LN does not perform the ship kit complete check for generated or manually created outbound advice.

How 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, 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, 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 Inventory Movement (whinr1250m000) session or the Inventory Movement (Range) (whinr1252m000) session to transfer the unshhipped 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 our for the purchase/sales order type.

activity

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

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.

appropriate menu

Commands are distributed across the **Views**, **References**, and **Actions** menus, or displayed as buttons. In previous LN and Web UI releases, these commands are located in the *Specific* menu.

backorder

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.

component

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

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 Warehousing is not involved.

In a Vendor Managed Inventory (VMI) setup, a direct delivery is achieved by creating a purchase order for the customer warehouse.

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. 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

Intrastat declaration

A statistics report on the physical goods flows between the member states of the European Union (EU). The information about the nature, origin, and extent of the goods flows must be reported regularly with an EU Intrastat declaration.

These statistics must be reported regularly with an EU Intrastat declaration. The EU Intrastat declaration is required by the national tax authorities in the framework of the European Common Market since 1993 (EC '93).

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 includes a list of components and is ordered and priced as a single item. On the sales order line, the components are linked. The standard cost of the kit is the sum of the components' standard cost.

Example: The components of a PC kit usually include 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 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.

multisite

Refers to the management of multiple sites within a single (logistic) company.

In a multicompany structure, which includes several companies, multisite applies to each of the logistic companies.

order date

The date on which the order is manually specified or is automatically generated.

order set

The order set groups order lines of the same order.

The order lines are grouped if the following attributes match:

- 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, which is referred to as internal ownership. 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 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:

- LN applies the rounding factor for units immediately when the users enter the data. 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, payment terms, and delivery terms 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 whom the item is allocated or ownership details.

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

staggered consignments

The delivery of several components of a complete product at different times. Staggered consignments are not declared until the last consignment is delivered.

subkit

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

surplus

A quantity of one or more shipped components that makes an incomplete kit. The remaining components must still be delivered, unless completion of the sales order line is impossible for some reason.

topkit

An item representing a group of items that make up a set, for example, an airplane modification set consisting of the materials and tools to convert a passenger plane to a freight carrier plane, or the end-item - the highest level - of a bill of material (BOM) of a manufactured item. A topkit consists of various subkits.

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.

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