Infor LN User Guide for Automotive

Table of Contents

About this document

About this document

This document includes the functionality specific to the automotive industry, focusing on the automotive functions in Sales, Warehousing, Invoicing, and Financials.

Objective

The objective of this guide is to describe LN functionality specific to the automotive industry.

Intended audience

The intended audience can include key users, implementation consultants, product architects, support specialists, and so on.

Document summary

Chapter number	Content
Chapter 1	Automotive in Sales
Chapter 2	Automotive in Warehousing
Chapter 3	Automotive in Invoicing
Chapter 4	Automotive in Financials

How to read this document

This document was assembled from online Help topics. As a result, references to other sections in the manual are present.

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, 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.

Comments?

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Chapter 1
Automotive in Sales

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General and master data

Overview of sales schedule handling

Sales schedules are used to support long-term sales projects with frequent deliveries. They represent schedules for specific goods that are used between trade partners.

Because sales schedules provide a more detailed way to specify delivery dates and times for items, use sales schedules instead of standard sales orders when you require full visibility and time phasing of material requirement information, for example, in a just-in-time (JIT) environment.

Sales schedules can be referenced or non-referenced.

After approval, a sales schedule is a legal obligation to deliver items according to the agreed terms and conditions, including specific prices and discounts.

Sales schedule master data

Before you can complete the sales schedule procedure, you must specify the sales schedule master data.

For more information, refer to:

- Sales item data
- Sales organizational data

You must also specify:

- The parameters on the **Schedules** tab of the Sales Contract Parameters (tdsls0100s300) session.

- A number group for sales schedules in the **Number Group Sales Orders / Sales Schedules** field of the Sales Order Parameters (tdsls0100s400) session.

- Logistic agreements in the Sales Contract Line Logistic Data (tdsls3102m000) session, if the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session.

- Logistic agreements in the Item - Sales Business Partner (tdisa0510m000) session, if the **Use Contracts for Schedules** check box is cleared in the Sales Contract Parameters (tdsls0100s300) session.
- The **Automatically Process Sales Schedule Releases** check box in the Sold-to Business Partners (tccom4110s000) session.

Note

If the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session, a sales schedule can only be created if it is linked to an active sales contract. In addition, if the **Use Terms and Conditions for Schedules** check box is also selected in the Sales Contract Parameters (tdsls0100s300) session, it is also mandatory for the sales schedule to have a linked terms and conditions agreement.

For more information, refer to:
- Sales contracts - overview
- Overview of terms and conditions
- *Automatic sales schedule processing (p. 11)*

Sales schedule procedure

The sales schedule procedure consists of the following processes:

1. To create and update sales releases
2. To create and update sales schedules
3. To determine and use sales schedule authorizations
4. To determine and use sales schedule cumulatives
5. To approve sales schedules
6. To release sales schedules or planned warehouse orders to Warehousing
7. To release sales schedules or planned warehouse orders to Invoicing
8. To process sales schedules

For more information, refer to *Sales schedule procedure (p. 37)*.

Note

A simplified sales schedule solution to generate sales orders in time is the creation of non-referenced sales schedules from contract deliveries. For more information, refer to Scheduled requirements for a sales contract.

Additional processes

The following are optional for sales schedules:

- **Additional information fields**
  You can define <u>additional information</u> fields. Their content is transferred from the sales schedule via the warehouse order to the shipment in Warehousing. For more information, refer to *Additional information fields (p. 13)*.

- **Consumptions**
  You can register and process <u>consumptions</u> for sales schedules. For more information, refer to *Inventory consumption handling (p. 15)*.

- **Additional costs**
  You can calculate <u>additional costs</u> for sales shipments to which sales schedule lines are linked. For more information, refer to *Additional costs - shipment based (p. 22)*.

- **Planned warehouse orders**
  You can use <u>planned warehouse orders</u> in the sales schedule procedure. For more information, refer to *Planned warehouse orders (p. 25)*.

Automatic sales schedule processing

You can automate the processing of <u>sales schedules</u>. For each activity, you specify whether the activity is run automatically or manually.

The execution of the schedule procedure activities starts when a sales release is processed into a sales schedule or a sales schedule is created. All automatic activities are executed successively until an activity is defined as non-automatic. After you manually executed the non-automatic activity, LN executes the next automatic activity, and so on. Therefore, for each activity, you specify whether the activity is run automatically or manually.

Note

For referenced and non-referenced schedules, the **Automatically Process Sales Schedule Releases** check box in the Sold-to Business Partners (tccom4110s000) session determines whether or not sales releases are automatically converted to sales schedules with the **Created** status.

The **Use Contracts for Schedules** and **Use Terms and Conditions for Schedules** check boxes in the Sales Contract Parameters (tdsls0100s300) session determine the session from which LN retrieves the automatic processing data.

- **Use Contracts for Schedules is cleared**
  Data is retrieved from the Items - Sales Business Partner (tdisa0510m000) session.

- **Use Contracts for Schedules is selected and Use Terms and Conditions for Schedules is cleared**
  If the sales schedule is based on a sales contract with a linked <u>terms and conditions agreement</u>, automatic processing data is retrieved from the Schedule Terms and Conditions (tctrm1131m000) session. If no terms and conditions agreement is linked to the contract, data is retrieved from the Sales Contract Line Logistic Data (tdsls3102m000) session.

- **Use Contracts for Schedules and Use Terms and Conditions for Schedules are selected**
  The sales schedule must be based on a sales contract with a linked terms and conditions agreement. Therefore, automatic processing data is retrieved from the Schedule Terms and Conditions (tctrm1131m000) session.

Search logic for the retrieval of automatic sales schedule processing data

Use Contracts for Schedules	Linked terms and conditions agreement?	Automatic processing data retrieved from session:	Automatic processing data
Selected	Yes	Schedule Terms and Conditions (tctrm1131m000)	**Non-referenced schedules** 1. **Automatically Adjust Sales Schedules** 2. **Automatically Approve Non-referenced Sales Schedules** 3. **Automatically Release Non-referenced Sales Schedules to Order** and **Automatically Release Backorders for Non-Referenced Schedules** **Referenced schedules** 1. **Automatically Approve Referenced Sales Schedules** 2. **Automatically Release Referenced Sales Schedules to Order** and **Automatically Release Backorders for Referenced Schedules**
Selected	No	Sales Contract Line Logistic Data (tdsls3102m000)	**Automatically Approve Referenced Sales Schedules**
Cleared	Not applicable	Items - Sales Business Partner (tdisa0510m000)	**Automatic approval**

Note

- For automatically executed activities, no process reports are printed.
- If errors occur when executing a sales schedule activity through a batch session, you can select a device to print the errors.

Additional information fields

Additional information fields

You can define additional information fields that can be linked to LN tables. The contents of these additional fields can be transferred between LN tables, which allows users to enter additional information at sales schedules.The additional information is passed via the warehouse order to a shipment in warehousing. Additional information fields are meaningless to LN as no functional logic is linked to the contents of these fields.

To define additional information fields

To use additional information fields, you must first define the desired additional fields using the Additional Information Definition (tcstl2100m000) session. You can link a maximum of 26 alphanumeric string fields, with a length of 30 characters per field, to a table. After specifying the Additional Information Definitions, additional information fields are ready for use. In the user interface the additional information fields are added to the standard LN fields. When you, for example, link additional information fields to the Warehousing Orders (whinh200) table, the additional information fields are visible and can be edited in the corresponding Warehousing Orders (whinh2100m000) session. Additional information can only be created or updated by the sessions of the parent objects. The additional information fields are displayed in a separate tab of the session. You can link additional information fields to a table as per the business needs. The linked fields become effective after the fields are set to active in the Additional Information Definition (tcstl2100m000) session. Additional information fields can also be deactivated at any time.

> **Note**
>
> A limited set of LN tables is prepared for linking additional information fields. For more information, refer to Related topics.

Example

LN can transfer additional information fields between tables, for example, from a sales schedule to a warehouse order. Transfer will only take place when additional fields have the same field name in the Additional Information Definition (tcstl2100m000) session. For example, an additional field with the field name *Point of Usage* is linked to the sales schedule table, and you want to transfer the value of the *Point of Usage* field from a sales schedule to the warehouse order, then the same field name called, *Point of Usage*, must be used in the additional information definition of the warehouse order.

> **Note**
>
> The transfer of additional fields is application logic which is hard coded in LN. LN offers a limited set of *transfer points*. For more information, refer to Related topics.

Additional information fields - Sales

The table below provides an overview of the tables in Sales to which you can link additional information fields. The table also contains the corresponding sessions which display the additional information fields.

Table	Session
tdsls308	Sales Release Lines (tdsls3508m000)
tdsls315	Sales Release Line Details (tdsls3515m000)
tdsls316	■ Sales Release Lines - Sequence Shipping Schedule (tdsls3116m000) ■ Sales Release Line Details - Pick-up Sheet (tdsls3116m100)
tdsls311	Sales Schedules (tdsls3111m000)
tdsls307	Sales Schedule Lines (tdsls3107m000)
tdsls320	Sales Schedule Planned Warehouse Orders (tdsls3520m000)
tdsls450	Sales Schedule History (tdsls3560m000)
tdsls451	Sales Schedule Line History (tdsls3561m000)

Note

- Usually, additional information is retrieved from a Business Object Document (BOD). However, as long as it is allowed to update a sales release or sales schedule, you can also edit the additional information fields on a sales release or sales schedule.
- Additional information can only be available in the Sales Schedule Planned Warehouse Orders (tdsls320) table if the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session.

Additional information can be transferred from one table to another table.

The following flows of additional information are supported in Sales:

- Material release / Shipping schedule
- Sequence shipping schedule
- Pick-up sheets

Material release/ Shipping schedule

The additional information is transferred as follows:

- **Header flow**
  Sales Release Lines (tdsls3508m000)-> Sales Schedules (tdsls3111m000)-> Warehousing Orders (whinh2100m000).

- **Line flow**
  Sales Release Line Details (tdsls3515m000)-> Sales Schedule Lines (tdsls3107m000)-> Sales Schedule Planned Warehouse Orders (tdsls3520m000)-> Outbound Order Lines (whinh2120m000).

Sequence shipping schedule

The additional information is transferred as follows:

- **Header flow**
  Sales Release Lines - Sequence Shipping Schedule (tdsls3116m000)-> Sales Schedules (tdsls3111m000)-> Warehousing Orders (whinh2100m000).
- **Line flow**
  Sales Release Lines - Sequence Shipping Schedule (tdsls3116m000)-> Sales Schedule Lines (tdsls3107m000)-> Sales Schedule Planned Warehouse Orders (tdsls3520m000)-> Outbound Order Lines (whinh2120m000).

Pick-up sheet

The additional information is transferred as follows:

- **Header flow**
  Sales Release Line Details - Pick-up Sheet (tdsls3116m100)-> Sales Schedules (tdsls3111m000)-> Warehousing Orders (whinh2100m000).
- **Line flow**
  Sales Release Line Details - Pick-up Sheet (tdsls3116m100)-> Sales Schedule Lines (tdsls3107m000)-> Sales Schedule Planned Warehouse Orders (tdsls3520m000)-> Outbound Order Lines (whinh2120m000).

Inventory consumption handling

In vendor managed inventory (VMI) and subcontracting environments, consumptions are recorded to view and maintain consumption data in the supplier's or manufacturer's administrative warehouse. This warehouse mirrors the customer's or subcontractor's warehouse from which the customer/subcontractor consumes materials supplied by the supplier/manufacturer.

Handling inventory consumptions includes the creation and processing of these consumptions.

> **Note**
>
> In this topic, supplier refers to the supplier or the manufacturer; customer refers to the customer or the subcontractor, and VMI warehouse refers to the customer's or the subcontractor's warehouse from which the customer or the subcontractor consumes goods supplied by the supplier or manufacturer.

Consumption master data

To record inventory consumptions in the supplier's administrative warehouse and to update the inventory levels and start up invoicing:

1. In the Implemented Software Components (tccom0100s000) session, select:
    - The **VMI (supplier side)** check box to maintain consumptions in VMI environments.
    - The **Subcontracting with Material Flow (manufacturer)** check box to maintain consumptions in subcontracting environments.

2. In the Terms and Conditions (tctrm1100m000) session, define terms and conditions for the relevant business partners, warehouses, and items.

3. In the Schedule Terms and Conditions (tctrm1131m000) session, select the **External Packing Slip is Mandatory** check box if the consumption line must include an external packing slip for a schedule. Specify the **Duplicate External Packing Slip Allowed** check box to allow or prevent, for a combination of sold-to business partner, ship-to business partner, and item, using an external packing slip that was already used before.

4. In the **Method of Inventory Update** field of the Logistics Terms and Conditions (tctrm1140m000) session, to enable the creation of consumptions in the Inventory Consumption (tdsls4140m000) session for subcontracting scenarios, select one of the following:
    - **Receipts and Consumption**
    - **Receipts, Consumption and Inventory Balance**
    - **Inventory Balance as Consumption**

    For VMI scenarios, selecting these options is not required, but if you do not select any of these options, received quantities are not shown in the Inventory Consumption (tdsls4140m000) session.

For further information on how to set up the VMI functionality, see: VMI customer forecast - setup and VMI supplier forecast - setup. For information on subcontracting, see Overview of subcontracting.

Consumptions

Consumption records are generated or manually created. They show the received quantities provided by the supplier and the subsequent consumptions by the customer.

A consumption record consists of a header and one or more lines.

- **Consumption header**
  When the VMI warehouse is replenished, LN generates a consumption header. Headers of consumption records contain the name of the customer, the VMI warehouse, and the aggregated received and consumed item quantities. They are viewed and maintained in the Inventory Consumptions (tdsls4140m000) session.

- **Consumption line(s)**
  When the customer consumes material, a consumption line is created. Details of individual consumptions are viewed and maintained in the Inventory Consumption Lines (tdsls4141m000) session.

- Consumption lines are automatically entered after receiving the LoadInventoryConsumption <u>Business Object Document (BOD)</u>, or manually, resulting from an e-mail or a phone call from the customer.

After the consumption is entered, it must be processed to:

- Invoice the customer for the consumed quantities, if invoicing is applicable.
- Decrease the inventory levels of the administrative warehouse.

Note

In the customer's LN system, consumptions are generated in the Consigned Consumptions (whwmd2551m000) and the Inventory Receipt Transaction Consumptions (whina1514m000) sessions. For more information, refer to Consumption records.

Processing consumptions

To determine whether invoicing is applicable and to start up invoicing for the relevant customer, and to lower the inventory levels in the administrative warehouse, you must process the inventory consumptions as follows:

- In the Inventory Consumption Lines (tdsls4141m000) session, from the <u>appropriate</u> menu, select **Process Consumption Line** to process selected consumption lines.
- In the Inventory Consumption (tdsls4140m000) session, from the <u>appropriate</u> menu, select **Process Inventory Consumption** to process the consumption lines of the selected item.
- Use the Process Inventory Consumption (tdsls4290m000) session to process a range of consumptions.

After the consumptions are processed, the orders and schedules linked to the consumptions are shown in the Orders by Inventory Consumption Line (tdsls4142m000) session.

Note

You can access all of these sessions from the Inventory Consumption - Lines (tdsls4640m000) session.

How LN processes consumptions - outline

Step 1: Link consumption record to replenishment order/schedule

To determine whether invoicing is applicable and to start up invoicing for the relevant customer, LN links the consumption to the order/schedule with which the item was received in the VMI warehouse as follows:

1. Subcontracting reference present on consumption line?

   If yes, the consumption is linked to the corresponding purchase material supply line. For more information, refer to Subcontracting order and Process returns.

   If no:

2. Packing slip present? If yes, search for a matching sales schedule shipment and link the consumption to the schedule.

If no:

3. Customer order reference present? If yes, the consumption is linked to that order. For more information, refer to VMI order/schedule and Process returns.

   If no:

4. Customer schedule reference present? If yes, the consumption is linked to that schedule.

   If no:

5. Search for a **Pay on Use** sales order line to link the consumption to. If found, refer to VMI order/schedule.

   If not found:

6. Search for a **Pay on Use** sales schedule line to link the consumption to. If found, refer to VMI order/schedule.

   If not found:

7. Create a consignment invoicing sales order to settle the invoicing of the consumed quantity. For more information, refer to Sales consignment invoicing orders with origin **Consumption**.

If the **Invoicing Required** check box is cleared on the consumption line, LN automatically lowers the inventory level. For more information, refer to Adjust inventory level in administrative warehouse.

Step 2: Process returns

If the **Return** check box is selected on the consumption line, no invoicing is required.

If the sales order found is **Pay on Use**, an invoicing line is created, but on this invoicing line the returned consumption quantity is shown in the **Returned Consumption Quantity** field of the Sales Order Invoice Lines (tdsls4106m100) session, and no invoicing takes place.

If the subcontracting reference is filled or the returned item is a packaging item, the consumption line's **Processed** check box is selected, and no further action is taken.

To return quantities, you must manually create a sales return order and link it to the relevant order/schedule. For more information, refer to Sales return orders.

> **Note**
>
> The search order listed above is leading. If, for example, a consumption line contains a subcontracting reference and a customer order number, the customer order number will be ignored, even if a search on subcontracting reference fails.

To link consumptions to the replenishment order

The following can be applicable for a consumption record:

- It is linked to the replenishment subcontracting order
- It is linked to the replenishment VMI order/schedule
- It cannot be linked to a replenishment order/schedule

Subcontracting order

To link a consumption line to a subcontracting purchase order, LN first uses the subcontracting reference and then the consumed item to find the relevant material supply line matching the subcontracting purchase order. The material line whose item matches the inventory consumption line's item is selected.

For costing purposes, the used materials must be booked on the correct subcontracting purchase order. Therefore, the **Subcontracting Reference** field in the Inventory Consumption Lines (tdsls4141m000) session is mandatory.

Usually, the subcontractor is not invoiced for materials supplied by the manufacturer and consumed by the subcontractor to produce the items for the manufacturer.

For consumption lines linked to an **Operation Subcontracting** material supply line or an **Item Subcontracting** material supply line, the **Consumed Quantity** field in the Purchase Order Material Supply Lines (tdpur4116m000) session is updated after receipt of a consumption message from the subcontractor, which in turn triggers the update of the inventory levels. For more information, refer to Adjust inventory level in administrative warehouse

For further information about the order flow between manufacturer and subcontractor, and operation and item subcontracting, see To subcontract operations (manufacturer's side) and Item subcontracting - procedure.

Note

LN only searches for a subcontracting order if, in the Implemented Software Components (tccom0100s000) session, **Subcontracting with Material Flow (subcontractor)** is selected.

VMI order/schedule

To link a consumption line to a vendor managed inventory (VMI) order or schedule, LN first uses the packing slip to search for a matching sales schedule shipment and link the consumption to the schedule. If no packing slip is available, the customer order/schedule reference is used.

In VMI environments, the customer order/schedule reference is not mandatory. If an inventory consumption line contains a customer order/schedule reference, LN searches for a sales order/schedule line with a customer order/schedule, position, and sequence identical to the customer order/schedule reference, to determine the payment. For sales schedules, LN searches for the first sales schedule line with a matching customer schedule reference. Consumption lines are linked to this specific sales schedule, irrespective of whether or not consecutive schedule lines have a different customer schedule reference.

If the payment found is **Pay on Use**, inventory levels are updated and invoicing is triggered. For the order/schedule lines linked to the consumption line, LN creates invoicing lines in the Sales Order Invoice Lines (tdsls4106m100) session or Sales Schedule Invoice Lines (tdsls3140m200) session.

If the payment found is **Pay on Receipt** or **No Payment**, only the inventory levels are updated. For more information, refer to Adjust inventory level in administrative warehouse.

If no packing slip or customer order/schedule reference is available and the **Invoicing Required** check box is selected, the following applies:

1. LN searches for the oldest sales order/schedule with payment type **Pay on Use** that is not yet fully consumed. If a matching sales order/schedule line is found, LN creates an invoice line linked to that sales order line or sales schedule.

2. If no matching line is found, LN creates a consignment Invoicing sales order based on the **Consignment Invoicing Order Type** field in the Sales Order Parameters (tdsls0100s400) session.

If a **Pay on Use** sales order/schedule line is used and the total consumed quantity exceeds the ordered quantity, LN creates an invoicing line for the part that "fits". For the remainder, LN searches for other **Pay on Use** sales order/schedule lines to create invoicing lines. For the consumed quantities for which no sales order/schedule line is found, LN creates a consignment invoicing sales order.

For each invoice line created, LN updates the inventory levels with the invoiced quantities. For more information, refer to Adjust inventory level in administrative warehouse.

> **Note**
>
> LN only searches for **Pay on Use** sales order/schedule lines if, in the Implemented Software Components (tccom0100s000) session, **Ownership External** is selected.

Sales consignment invoicing orders with origin Consumption

If a consumption cannot be linked to a replenishment order, a sales consignment invoicing order is generated to settle the invoicing of the consumed quantity. These orders receive the **Consumption** origin and their order type is retrieved from the **Consignment Invoicing Order Type** field in the Sales Order Parameters (tdsls0100s400) session.

Updating inventory levels for these orders is handled by Warehousing, because warehouse activities are part of the order procedure of a sales consignment invoicing order.

If a consignment invoicing order is released to Warehousing, processing the resulting outbound order lines handles inventory level adjustments. It is recommended to set the activities of the warehousing order type linked to the consignment invoicing order type to automatic. For more information, refer to To define warehousing procedures.

> **Note**
>
> - The price for sales consignment invoicing orders is always based on the consumption date.
> - You cannot cancel or delete sales orders with the **Consumption** origin, nor cancel, delete, or add corresponding lines or change item and quantity.

Adjust inventory level in administrative warehouse

LN automatically updates the inventory levels of the administrative warehouse without performing the outbound and shipment procedures. To register the inventory reduction, LN creates a sales order of type **Sales (Manual)** and a shipment.

You can view this sales order and shipment in the Item - Warehouse - Inventory Transactions (whinr1510m000) and the Inventory Receipt Transaction Consumptions (whina1514m000) session. The ownership of this sales order is **Customer Owned**, because invoicing and payment is performed based on the originating **Pay on Use** sales order/schedule, the consignment invoicing order, or the subcontracting purchase order.

Prices and discounts

When LN creates an invoicing line, the following are applicable:

- **Sales order**
  LN determines prices and discounts based on the values of the originating sales order line, using either the consumption or replenishment date, depending on the **Price Determination Based on** parameter setting in the Order Terms and Conditions (tctrm1130m000) session.
- **Sales schedule**
  LN determines prices and discounts based on the values of the first schedule line linked to the originating sales schedule.

Note

- In the Sales Order Invoice Lines (tdsls4106m100) session, consumption invoice lines are linked to a sales order line. In the Sales Schedule Invoice Lines (tdsls3140m200) session, consumption invoice lines are linked to a sales schedule header. If you release such consumption invoice lines to Invoicing, required information on prices, tax, and so on is retrieved from the first schedule line linked to the sales schedule. Information from successive schedule lines is not taken into account.
- The price for sales consignment invoicing orders is always based on the consumption date.

Pay on Use sales order/schedule lines

For sales order/schedule lines with payment type **Pay on Use**, the activity **Release to Invoicing** is part of the order procedure. Those lines can:

- Register consumptions
- Be invoiced, that is, invoicing lines are created for the consumption lines they are linked to
- Have the **Self Billing** check box selected

Note

This is applicable in an extended consignment setup, in which you directly link the invoicing for a consumption of consignment inventory to the replenishment order or schedule.

In a basic consignment setup, in which the order and schedule procedures are split into a replenishment part and an invoicing part, the following are applicable:

- Invoicing is not available for consignment replenishment orders, which are sales orders for which the **Consignment Replenishment** check box is selected in the Sales Order Types (tdsls0594m000) session.

■ Because for consignment replenishment orders **Release to Invoicing** is not part of the order procedure, consumptions can be invoiced using a **Consignment Invoicing** sales order. These are sales orders for which the **Consignment Invoicing** check box is selected in the Sales Order Types (tdsls0594m000) session.

For more information, refer to Consignment in Sales and Procurement.

Additional costs for sales schedules

Additional costs - overview

You can specify additional costs that can be placed on a sales order or shipment to charge extra costs for an order or shipment.

Additional costs- set up

Before additional costs can be linked to sales orders and schedules, you must define the master data.

For more information, refer to:

■ Additional costs – setup

Additional costs - types

Additional costs can be order based or shipment based.

■ **Order based**
Additional costs are calculated for a sales order or sales order line. After sales order approval, additional costs are placed on an order as extra cost (items) after the last item recorded.

■ **Shipment based**
Additional costs are calculated for a sales shipment or shipment line. After confirmation of a shipment, a sales shipment cost order is generated containing all additional costs for one shipment (line).

Note

Order-based additional costs are only applicable for sales orders and not for sales schedules.

For more information, refer to:

■ Additional costs - order based
■ *Additional costs - shipment based (p. 22)*

Additional costs - shipment based

Shipment based additional costs are calculated for sales shipments or shipment lines. After confirmation of a shipment (line), a sales cost order is generated based on the shipment (line). A sales cost order with the **Shipment** origin includes all additional costs for one shipment (line).

Note

- Multiple sales order lines and sales schedule lines can be linked to one shipment.
- The sales shipment cost order and the order/schedule lines that are linked to a shipment, receive a common shipment ID. Based on this ID, a complete shipment can be invoiced to the customer. The relevant order/schedule lines and the sales shipment cost order can be released to invoicing together.

Shipment based additional costs - procedure

These steps are completed in the shipment based additional costs procedure:

Step 1: Generating a sales shipment cost order

If an additional cost set with valid <u>additional cost lines</u> is found for a shipment (line), the shipment-dependent and item-dependent additional costs are added to the shipments as separate shipment lines in the Shipment Lines (whinh4131m000) session. The additional shipment cost lines are generated in Warehousing. When the shipment is confirmed, a sales order with the **Shipment** origin is generated in the Sales Orders (tdsls4100m000) session.

The following apply to these sales orders:

- The sales order type and order series are retrieved from the **Shipment Cost Order Type** and **Shipment Cost Order Series** fields in the Sales Order Parameters (tdsls0100s400) session.
- The **Shipment** field is automatically filled for these orders in the Sales Orders (tdsls4100m000) session.
- Only cost and service items can appear on this sales order.
- The **Additional Cost Line** check box is selected for the generated sales order lines.
- The additional cost amount is displayed in the **Amount** field and the **Price** field is empty on the sales order line. The **Amount** can be changed until the activity Maintain Deliveries Sales Order Lines (tdsls4101m200) is executed. After this, the delivered amount can be changed in the Change Prices and Discounts after Delivery (tdsls4122m000) or Change Prices and Discounts of Sales Invoice Lines (tdsls4132m000) sessions.

Step 2: Approving the sales shipment cost order

The **Automatic Approve Shipment based Cost Orders** check box in the Sales Order Parameters (tdsls0100s400) session determines how the sales shipment cost order must be approved.

Step 3: Issuing the additional cost line items

Based on the value of the **Release to Warehouse** check box in the Items - Sales (tdisa0501m000) session, issuing the cost item is carried out in Warehousing or in Sales.

Therefore, either the Release Sales Orders to Warehousing (tdsls4246m000) or the Maintain Deliveries Sales Order Lines (tdsls4101m200) activity must be executed for the sales order line.

If Maintain Deliveries Sales Order Lines (tdsls4101m200) is not executed before Release Sales Orders/Schedules to Invoicing (tdsls4247m000), the activity is set to **Executed** during execution of the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) session. Therefore, it is not mandatory to execute Maintain Deliveries Sales Order Lines (tdsls4101m200).

Step 4: Releasing the sales shipment cost order to Invoicing

The sales shipment cost order and the order/schedule lines that are linked to a shipment have a common shipment ID. Based on this ID, you can invoice a complete shipment to the customer. If you select the **Shipment** check box in the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) session, the sales shipment cost order and the order/schedule lines that are linked to the shipment, are released to Invoicing together.

The **Release Additional Cost Lines Automatically to Invoicing upon** field in the Sales Order Parameters (tdsls0100s400) session determines how the sales shipment cost order must be released to Invoicing.

You can view the shipment IDs in these sessions:

- **Sales shipment cost order**
  Sales Orders (tdsls4100m000)
- **Sales shipment cost order lines**
  Linked Order Line Data (tdsls4102s200)
- **Sales order lines**
  Sales Order Actual Delivery Lines (tdsls4106m000)
- **Sales schedule lines**
  Sales Schedule Actual Delivery Lines (tdsls3140m000)

Step 5: Processing the additional cost lines

Process the sales orders and sales schedules together with the additional cost lines in the Process Delivered Sales Orders (tdsls4223m000) and Process Delivered Sales Schedules (tdsls3223m000) sessions.

Additional cost calculation for shipments/shipment lines

The calculation of additional costs for shipments/shipment lines is based on the value of the **Method of Additional Cost Calculation** field in the Sold-to Business Partner (tccom4110s000) session. For the shipments, the **Method of Additional Cost Calculation** must be **Header Based**; for the shipment lines, it must be **Line Based**.

The additional costs are calculated for sales orders and sales schedules if the **Calculate Additional Costs for Shipments** check box is selected in the Inventory Handling Parameters (whinh0100m000) session.

- **Sales orders**
  The additional costs are calculated with the cost set of the business partner (and/or item).

- If the **Method of Additional Cost Calculation** is **Header Based** in the Sold-to Business Partner (tccom4110s000) session, the additional cost lines are based on totals per shipment and the link to the originating shipment line is not saved.
- If the **Method of Additional Cost Calculation** is **Line Based**, the additional costs are calculated for every originating order line and the link to the originating shipment line is saved.
- **Sales schedules**
  The **Header Based** additional costs are calculated with the cost set of the business partner (and/or item). The additional cost lines are based on the totals per shipment and the link to the originating shipment is not saved.
- The **Line Based** additional costs are calculated for the cost set of the contract. This calculation is always independent of the **Method of Additional Cost Calculation**. The generated additional cost lines are linked to the originating order line. The quantities of all the shipment lines can be added before the costs are calculated. This is applicable for serials in inventory that have multiple shipment lines per order line.

Confirm shipment

For confirmed shipment lines, the additional costs are recalculated if the status of the additional cost line is **Not Calculated**. If the status is **Modified**, LN checks if you want to recalculate additional costs or skip the recalculation. After the additional costs are recalculated, the **Additional Costs** field in the Shipments (whinh4130m000) session is set to **Calculated**.

Compose shipment

The related additional cost lines must be processed for the selected options in the Compose Shipment (whinh4231m000) session.

If, on the appropriate menu, you click:

- **Split Line**, the status of the originating shipment line is reset to **Modified** and the additional cost lines are removed. While confirming the originating line, the additional costs are recalculated.
- **Move to Shipment**, the additional costs of the originating shipment line are moved to the new shipment line.

Print packing slips and delivery notes

In the Print Packing Slips (whinh4475m000) and Print Delivery Notes (whinh4477m000) sessions, the header based additional costs are printed as first lines. The line based additional costs are printed below the linked shipment line.

Sales schedule planned warehouse orders

Planned warehouse orders

You can use planned warehouse orders to decouple schedule updates and revisions from warehouse orders and to consolidate sales schedule lines by quantity and by date.

Note

- To use planned warehouse orders, you must select the **Use Contracts for Schedules** check box in the Sales Contract Parameters (tdsls0100s300) session. Planned warehouse orders are created during sales schedule approval.

- If you are allowed to ship only full packaging material for sales schedule lines, in the Sales Contract Line Logistic Data (tdsls3102m000) session, a package definition is specified for which the **Full Packages Only** check box is selected in the Handling Unit Templates (whwmd4160m000) session. In this case, the ordered quantity on a planned warehouse order often is not the sum of the linked sales schedule line(s), but is adjusted to comply with the quantity specified in the package definition.

- A many-to-many relationship can exist between warehouse orders (outbound lines) in Warehousing and schedule lines in Sales.

Creating planned warehouse orders

When a sales schedule line with the **Firm** or **Immediate** requirement type is approved, LN completes the following steps:

1. Creates a planned warehouse order with the same number as the sales schedule in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session. For referenced schedules, a reference distribution is created below the planned warehouse order line in the Planned Warehouse Order Reference Distribution (tdsls3522m000) session.

2. Creates a link between the planned warehouse order and the sales schedule line (revision) in the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.

3. Checks whether the sales schedule line can be consolidated by quantity. In this case, multiple schedule lines are combined into one planned warehouse order. The planned warehouse order's ordered quantity is a grouped quantity and the same planned warehouse order is linked to various schedule lines. For more information, refer to *Consolidating schedule lines on planned warehouse orders (p. 28)*.

4. Checks whether the sales schedule line can be consolidated by date. In this case, the planned warehouse order's **Requirement Start Date** or **Planned Receipt Date** is changed into a pre-defined delivery moment, which reduces deliveries. You can also manually specify options for consolidating sales schedule lines on planned warehouse orders during and after sales schedule approval. For more information, refer to *Consolidating schedule lines on planned warehouse orders (p. 28)*.

Note

For sales schedule lines with the following characteristics, no planned warehouse orders can be created:

- The sales schedule line is linked to a material release that does not contain the actual order. For such schedule lines, the **Use Material Release for Firm Requirements** check box is cleared in the Sales Contract Line Logistic Data (tdsls3102m000) session.

- The **Customer Requirement Type** and **Requirement Type** fields have different values in the Sales Schedule Lines (tdsls3107m000) session.

Handling planned warehouse orders

After creation, the following steps are carried out for a planned warehouse order:

Step 1: Release the planned warehouse order to Warehousing

Releasing the planned order to a real warehouse order is executed as follows:

- Automatically, if the **Automatically Release Non-referenced Sales Schedules to Order** or **Automatically Release Referenced Sales Schedules to Order** check boxes are selected in the Schedule Terms and Conditions (tctrm1131m000) session.
- Manually, in the Release Sales Schedules to Order (tdsls3207m000) and Release Pick-up Sheets to Warehousing (tdsls3207m100) sessions.

Step 2: Execute deliveries for the planned warehouse order

For more information, refer to *Delivering planned warehouse orders (p. 34)*.

Step 3: Release the planned warehouse order to Invoicing

Releasing to Invoicing is executed as follows:

- By actual delivery/invoice line for the planned warehouse order in the Sales Schedule Invoice Lines (tdsls3140m200) session.
- For a range of planned warehouse orders in the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) session.

Step 4: Process the planned warehouse order

If, in the Process Delivered Sales Schedules (tdsls3223m000) session, the sales schedules linked to the **Invoiced** planned warehouse order are processed, the planned warehouse order is also processed.

During processing, the turnover history is logged, the contract is updated, and the schedule line status is updated.

> **Note**
>
> You can use the Sales Schedule - Lines (tdsls3611m000) session to execute all of these steps.

Updating planned warehouse orders

When new sales releases are processed, sales schedule line updates or new schedule line revisions can lead to updates on the planned warehouse order and planned warehouse order links. How LN handles the schedule line updates or the new schedule line revisions depends on the status of the planned warehouse order and, if applicable, the status of the warehouse order.

For more information, refer to *Updating planned warehouse orders (p. 31)*.

Consolidating schedule lines on planned warehouse orders

If planned warehouse orders are used, you can consolidate sales schedule lines by quantity and/or by date.

Consolidation by quantity means that multiple schedule lines are combined into one planned warehouse order. The planned warehouse order's ordered quantity is a grouped quantity and the same planned warehouse order is linked to various schedule lines.

Consolidation by date means that shipments for scheduled items are consolidated into pre-defined delivery moments on planned warehouse orders.

Master data

In the Sales Contract Line Logistic Data (tdsls3102m000) session, these consolidation fields must be specified:

- **Delivery Pattern**
  If this field is specified, LN automatically consolidates sales schedule lines by quantity and/or by date.
- **Allow Consolidation of References**
  Determines whether or not referenced schedule lines can be consolidated by quantity for the same **Shipment Reference**.
- **Ignore Additional Information during Consolidation**
  Determines whether or not schedule lines with different contents in their additional information fields can be consolidated.

Consolidating requirements by quantity

Consolidation by quantity enables you to combine multiple schedule lines of a specific sales schedule into one planned warehouse order.

In the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session, schedule lines are combined in the same planned warehouse order if the sales schedule line fields are the same, except for these fields, which can differ:

- Dates
- Quantities
- **Reference**
- **Customer Schedule Number**
- **Packaging Reference A**
- **Packaging Reference B**
- **Additional Field**, provided the **Ignore Additional Information during Consolidation** check box is selected

If schedule lines differ in, for example, price information or sales unit, they cannot be consolidated. In this case, multiple planned warehouse orders can be created for the same shipment reference.

Note

Referenced schedule lines can be consolidated into one planned warehouse order only if they have the same shipment reference.

If the **Schedule Line Text** check box is selected for a sales schedule line, this schedule line can never be consolidated by quantity.

These are applicable for consolidation by quantity:

- Information from the first schedule line linked to the planned warehouse order is taken as the basis for consolidation. This means that information from other schedule lines can be lost.
- If consolidation results change over time because of new information on incoming schedule revisions, unexpected underdelivery or overdelivery situations can arise with unexpected planned warehouse order creation.

Example

For schedule SCH0001, the first revision contains the following data:

Schedule line	Ordered Quantity	Delivery Point
10	15	001
20	35	001

Schedule lines 10 and 20 are consolidated into one planned warehouse order (SCH0001) with an ordered quantity of 50.

The second schedule revision contains the following data:

Schedule line	Ordered Quantity	Delivery Point
10	17	001
20	37	002

Because of the changed delivery point, these schedule lines can no longer be consolidated by quantity into one planned warehouse order.

Dependent on the (planned) warehouse order's status, the following are applicable:

- **Update allowed**
  The quantity of the existing planned warehouse order for delivery point 001 is reduced and set to 17.

- The quantity of the first planned warehouse order link is reduced and its revision is updated and the second planned warehouse order link is deleted.
- A second planned warehouse order and a link is created for the second schedule line.
- **Update not allowed**
  The first planned warehouse order for delivery point 001 is processed in Warehousing.
- The quantity of the first new schedule line for delivery point 001 is ignored; only the revision on the planned warehouse order link is updated.
- For the second schedule line, a new planned warehouse order and planned warehouse order link are created. The end result is an overdelivery.

Note

LN always gives a warning message if new schedule revisions or updates lead to unexpected (over)deliveries. This enables you to manually intervene in the shipment process, if desired.

Consolidating requirements by date

Consolidation by date enables you to change the delivery moments for scheduled items into fixed delivery moments on planned warehouse orders.

During sales schedule approval, the following dates in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session can be changed into one of the delivery moments defined in the pattern:

- **Shipment Based**
  Requirement Start Date
- **Receipt Based**
  Planned Receipt Date

As a result, planned warehouse orders have dates that are in accordance with the desired delivery moments as specified in the **Delivery Pattern** field of the Sales Contract Line Logistic Data (tdsls3102m000) session.

Manual consolidation options

Although automatic consolidation of schedule lines drastically reduces the number of planned warehouse orders, you may still consider the number of planned warehouse orders too high.

To further reduce or to control the number of planned warehouse orders, you can manually specify consolidation options during or after schedule approval. For existing or new planned warehouse orders, you can consolidate schedule line requirements for a specific requirement start date, including past requirements, into one planned warehouse order.

You can use the Approve Sales Schedules (tdsls3211m000) and Approve Pick-up Sheets (tdsls3211m200) sessions to specify consolidations options during approval.

You can use the Consolidate Planned Warehouse Orders (tdsls3220m000) and Consolidate Planned Warehouse Orders (Pick-up Sheets) (tdsls3220m100) sessions to specify consolidations options after schedule approval.

You can specify these consolidation options:

Ignore Delivery Pattern	-
Move Past Requirements	**New Requirement Start Date**
Move Nonpattern Requirements	**New Requirement Start Date**
Combine Planned Warehouse Orders	**New Requirement Start Date**
Original Requirement Start Date From	**Original Requirement Start Date To**

Example

Delivery pattern: ship on Wednesday 7 November, 11.00 am

Today: 1 November

Schedule line	Quantity	Start date	Requirement
1	3	Wednesday 31 October, 7.00 am	past
2	5	Monday 5 November, 7.00 am	nonpattern
3	2	Wednesday 7 November, 11.00 am	pattern

Depending on your settings, one planned warehouse order can be created with a quantity of 10 for, for example, Monday 5 November, 11.00 am.

Updating planned warehouse orders

If a planned warehouse order exists for a schedule line, the schedule line can be updated by processing new sales releases.

For the following sales schedules, processing a sales release gives the following results:

- **Non-referenced schedules**
  A new sales schedule revision number.

- **Referenced shipping schedules**
  A new sales schedule revision number if the **Schedule Revisions for Referenced Shipping Schedules** check box is selected in the Schedule Terms and Conditions (tctrm1131m000) session.

- An updated schedule line if the **Schedule Revisions for Referenced Shipping Schedules** check box is cleared in the Schedule Terms and Conditions (tctrm1131m000) session.

- **Sequence Shipping Schedules**
  A new sales schedule revision number if the **Schedule Revisions for Sequence Shipping Schedules** check box is selected in the Schedule Terms and Conditions (tctrm1131m000) session and all release lines of a specific release have the same item, sales office, ship-to business partner, and customer order number.

- An updated schedule line if the **Schedule Revisions for Sequence Shipping Schedules** check box is cleared in the Schedule Terms and Conditions (tctrm1131m000) session.

Updating (planned) warehouse orders

When approving new schedule line revisions or schedule line updates, LN searches for existing planned warehouse orders with a status other than **Finalized** or **Canceled**.

Planned warehouse orders are selected based on the following data:

- **Non-referenced Shipment Based schedules**
  Schedule, **Schedule Type** and **Requirement Start Date** from the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.

- **Non-referenced Delivery Based schedules**
  Schedule, **Schedule Type** and **Requirement Planned Receipt Date** from the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.

- **Referenced schedules**
  Shipment Reference, **Customer Schedule Number** and **Reference** from the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session for the same schedule and schedule type.

- **Pick-up sheets**
  Sold-to Business Partner, **Ship-to Business Partner** and **Shipment Reference** from the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session for the same schedule and schedule type.

The last planned warehouse order is selected first for updating the quantity and other information. If no existing planned warehouse orders can be updated, new planned warehouse orders can be created.

The following parameters control the planned warehouse order update and creation:

- **Warehousing Order Types (whinh0110m000)**
  Allow Updating Outbound Order Lines upto and including

- **Schedule Terms and Conditions (tctrm1131m000)**
  Always Automatically Update and Create New Planned Warehouse Orders

- **Only Create Additional Planned Warehouse Order for Quantity Increases**

Existing planned warehouse order can be updated

After approval, schedule line updates or new schedule line revisions are handled as follows:

- The planned warehouse order is updated in the Sales Schedule Planned Warehouse Orders (tdsls3520m000)
- The existing planned warehouse order link is updated in the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.
- The warehouse order, if available, is updated in the Outbound Order Lines (whinh2120m000) session.

Note

Approving schedule lines with zero quantities sets the **Status** of the planned warehouse order and the linked warehouse order to **Canceled**. Planned warehouse orders are also canceled when new revisions for non-referenced schedules do no longer match with the existing **Requirement Start Date** for **Shipment Based** schedules and the **Planned Receipt Date** for **Delivery Based** schedules.

Existing planned warehouse order cannot be updated - creation of new planned warehouse order is allowed

After approval, schedule line updates or new schedule line revisions are handled as follows:

- **Schedules with revisions**
  The existing planned warehouse order cannot be updated, but the **Schedule Revision** is updated in the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session for the existing planned warehouse order link. As a result, the existing planned warehouse order is linked to the latest revision.
- A new planned warehouse order is created in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session with an **Ordered Quantity** that reflects the difference between the new original ordered quantity and the old original ordered quantity.
- A new link is created between the new planned warehouse order and the new sales schedule line revision in the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.
- **Schedules without revisions**
  The existing planned warehouse order and the revision for the existing planned warehouse order link cannot be updated.
- A new planned warehouse order is created in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session with an **Ordered Quantity** that reflects the difference between the new original ordered quantity and the old original ordered quantity.
- A new link is created for the new planned warehouse order with the same sales schedule line revision as the previous planned warehouse order (revision 1) in the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session.

Note

If, for sequence shipping schedules with revisions, a planned warehouse orders cannot be updated, it is not allowed to create a new planned warehouse order for the complete or remaining quantity. You must take manual action, for example, by updating the shipping sequence information in the Shipping Sequence (whinh4520m000) session.

LN gives a message when schedule revisions/updates cannot update the warehousing process and unexpected or undesired deliveries will take place. If desired, you can manually intervene in the shipment process.

Simulating the update of planned warehouse orders

Before a sales schedule (revision) is approved, you can first simulate the schedule approval to view the expected updates to the existing planned warehouse orders. This enables you to understand the changes and to, for example, manually intervene or not approve this sales schedule (revision) and wait for the next changed schedule (revision).

Dependent on the type of schedule, you can simulate the sales schedule approval as follows:

- By selecting the **Simulate Approval** check box in the Approve Sales Schedules (tdsls3211m000) and Approve Pick-up Sheets (tdsls3211m200) sessions.
- By clicking **Simulate Approval** on the appropriate menu of the Sales Schedule - Lines (tdsls3611m000), Sales Schedules (tdsls3111m000), and Pick-up Sheets (tdsls3107m100) sessions.
- By selecting the **Simulate Approval** check box in the Process Sales Releases (tdsls3208m000) session for referenced schedules without revisions.

Open planned warehouse orders

If a sales release is converted into a new sales schedule revision, LN assumes that the same number of sales schedule lines (requirements) are communicated as on the previous revision. However, it can occur that a specific sales schedule line is no longer communicated on the new sales schedule revision. As a result, the planned warehouse order linked to this old sales schedule line stays 'open'.

If this 'open' planned warehouse order still allows updates, the **Ordered Quantity** of this planned warehouse order is reduced with the sales schedule line's **Ordered Quantity** from the Sales Schedule Planned Warehouse Order Links (tdsls3521m000) session for the previous revision. When the quantity of the planned warehouse order becomes zero, its status is set to **Canceled**.

Delivering planned warehouse orders

When deliveries are executed for a planned warehouse order with the **Released to Warehousing** or **Partially Delivered** status, a record is inserted in the Sales Schedule Actual Delivery Lines (tdsls3140m000) session. The planned warehouse order, warehouse order link(s), and schedule line(s) are updated with the delivery information.

Note

For referenced schedules, a reference distribution is available below the actual delivery line in the Sales Schedule Actual Delivery Line Reference Distribution (tdsls3542m000) session.

Overdeliveries

If more is delivered than originally ordered and multiple schedule lines are linked to one planned warehouse order, an overdelivery is registered on the last planned warehouse order link and related schedule line.

Example

Schedule line	Ordered Quantity
10	10
20	30

Schedule lines 10 and 20 are consolidated into one planned warehouse order with an original ordered quantity of 40.

If a quantity of 50 is delivered, the following are applicable:

- A delivered quantity of 10 is registered on planned warehouse order link for schedule line 1
- A delivered quantity of 40 is registered on planned warehouse order link for schedule line 2

If the total shipped amount exceeds the originally ordered, total schedule amount, the business partner balance is adjusted.

Underdeliveries

If, due to inventory shortages, original ordered quantities cannot be shipped for planned warehouse orders, the following fields in the Sales Contract Line Logistic Data (tdsls3102m000) session determine how the shortage is handled:

- **Shipping Constraint**
- **Ship & Carry Forward**

Shipping Constraint

- **Ship Line Complete**
  The planned warehouse order must be delivered as a whole. Lack of inventory results in the postponement of shipment of the planned warehouse order.
- **Ship Line & Cancel**
  The available inventory is shipped. If sufficient inventory exists, this results in a complete shipment. Lack of inventory results in cancellation of the planned warehouse order for the remaining quantity.
- **None**
  No shipping constraint applies. You can define the **Ship & Carry Forward** field.

Ship & Carry Forward

- **No**
  Lack of item inventory results in a back order for the planned warehouse order.

- **Carry Forward or Cancel**
  The remaining required quantity is transferred to the earliest next planned warehouse order that can be updated for the same schedule. If the next planned warehouse order can no longer be updated, a new planned warehouse order is created for the remaining required quantity. This new planned warehouse order is linked to the original planned warehouse order.

- If no next planned warehouse order can be found, the remaining required quantity for the planned warehouse order is canceled. Therefore, the **Canceled Quantity** is filled in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session.

- **Carry Forward or Create Backorder**
  The remaining required quantity is transferred to the earliest next planned warehouse order that can be updated for the same schedule. If the next planned warehouse order can no longer be updated, a new planned warehouse order is created for the remaining required quantity. This new planned warehouse order is linked to the original planned warehouse order.

- If no next planned warehouse order can be found, lack of item inventory results in a back order for the planned warehouse order.

Ship & Carry Forward set to No

If a final shipment is received from Warehousing and the delivered quantity is less than the original ordered quantity for the planned back order, a new planned warehouse order is created for the original planned warehouse order in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session.

The following apply to this new planned warehouse order:

- The **Backorder (Y/N)** check box is selected.
- The **Status** is **Planned**.
- The **Parent Warehouse Order Line** and **Parent Order Warehouse Order Line Sequence** fields are filled to refer to the original planned warehouse order.
- The **Requirement Start Date** and **Planned Receipt Date** are defaulted from the original planned warehouse order.
- This planned warehouse order is automatically released to Warehousing if the **Automatically Release Backorders for Referenced Schedules** or **Automatically Release Backorders for Non-Referenced Schedules** check boxes are selected in the Schedule Terms and Conditions (tctrm1131m000) session.

Ship & Carry Forward set to Carry Forward or Cancel or Carry Forward or Create Backorder

If a final shipment is received from Warehousing and the delivered quantity is less than the original ordered quantity for the planned warehouse order, the following steps are completed:

1. The remaining required quantity is transferred to the earliest next planned warehouse order that can be updated for the same schedule.

The **Ordered Quantity** and **Carry Forward Quantity** are updated in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session. Also the **Parent Warehouse Order Line** and **Parent Order Warehouse Order Line Sequence** fields are filled to refer to the original planned warehouse order. The **Ordered Quantity** of the planned warehouse order link(s) and the related schedule line(s) are not updated. Shipping the next warehouse order is handled as an <u>over-delivery</u>. This means that the last planned warehouse order link and last schedule line are updated with a delivered quantity higher than originally ordered.

2. If the next planned warehouse order can no longer be updated, a new planned warehouse order is created for the remaining required quantity. This new planned warehouse order is linked to the original planned warehouse order and the last schedule line.

    The **Ordered Quantity** is the remaining required quantity of the original planned warehouse order.

3. If no next planned warehouse order can be found, and the **Ship & Carry Forward** field is set to:

    ▪ **Carry Forward or Cancel**, the remaining required quantity for the planned warehouse order is canceled. The **Canceled Quantity** is filled in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session.

    ▪ **Carry Forward or Create Backorder**, a new planned warehouse order is created for the remaining required quantity. This new planned warehouse order is linked to the original planned warehouse order.

Note

Back orders cannot be created or inventory shortages cannot be carried forward if planned warehouse orders are created for:

▪ <u>Pick-up sheets</u>
▪ <u>Sequence shipping schedules</u>
▪ Referenced schedules linked to a warehousing order for which the **Unique Shipment Reference per Shipment** check box is selected in the Warehousing Order Types (whinh0110m000) session.
▪ Referenced schedules with consolidated references

For these schedules, the remaining required quantity for the planned warehouse order is canceled.

Sales schedule procedure

Sales schedule procedure

The main sales schedule procedure consists of the following parts:

1. To create and update sales releases.
2. To create and update sales schedules.
3. To determine and use sales schedule authorizations.

4. To determine and use sales schedule cumulatives.
5. To approve sales schedules.
6. To release sales schedules or planned warehouse orders to Warehousing.
7. To release sales schedules or planned warehouse orders to Invoicing.
8. To process sales schedules.

Step 1: To create and update sales releases

In the sales schedule procedure, sold-to business partners use sales releases to inform you about their long term and short term schedule requirements. These requirements are usually received by electronic data interchange (EDI), but can also be received by a Business Object Document (BOD) or can be manually entered.

The schedule requirements in a sales release represent a customer's external view.

For more information, refer to *Sales releases (p. 41)*.

Step 2: To create and update sales schedules

Sales schedule requirements can be manually processed into sales schedules in the Process Sales Releases (tdsls3208m000) session, or can be automatically processed if the **Automatically Process Sales Schedule Releases** check box is selected in the Sold-to Business Partners (tccom4110s000) session. You can also manually enter sales schedules.

The following are applicable to sales schedules:

- The schedule requirements in a sales schedule represent a supplier's internal view.
- A sales schedule line contains a **Requirement** in time, used for scheduling. This requirement type can be **Immediate**, **Firm**, or **Planned**.
- For non-referenced schedules, schedule updates are handled by sales schedule revision numbers. For referenced schedules, schedule updates can be handled by just updating the schedule or by inserting new sales schedule revision numbers.
- Sales schedule lines can receive a required quantity of zero. In this case, LN directly cancels the sales schedule line.

You can view sales schedule data in the following sessions:

- Sales schedules in the Sales Schedules (tdsls3111m000) session.
- Sales schedule lines in the Sales Schedule - Lines (tdsls3107m000) session.
- Pick-up sheets in the Pick-up Sheets (tdsls3107m100) session.
- Pick-up sheet lines in the Pick-up Sheet - Lines (tdsls3107m200) session.
- Sequence shipping information in the Sequence Shipping Information (tdsls3517m000) session.

For more information, refer to

- *EDI and sales schedules (p. 41)*
- *Sales schedule line requirement type (p. 51)*
- *Sales schedule revisions (p. 49)*

- *Referenced sales schedules (p. 44)*
- *Pick-up sheets (p. 46)*
- *Zero required quantity for sales schedule lines (p. 53)*

Step 3: To determine and use sales schedule authorizations

In the sales schedule procedure, you ship the goods based on the requirement type. The **Firm** requirement type, however, can deviate from the earlier received **Planned** requirement type. When authorizations are used, before the **Firm** requirement type is communicated, your sold-to business partners give you permission to fabricate goods or to buy raw materials up to a certain quantity level before they really need the goods. The essence of an authorization is that your sold-to business partners bear the risk if they do not need the goods. In other words, they must pay for the fabrication and/or raw materials, whether or not the goods are actually called-off.

Authorization quantities can only be calculated for schedules that are received in a material release.

For more information, refer to *Sales schedule authorizations (p. 55)*.

Step 4: To determine and use sales schedule cumulatives

In the sales schedule procedure, cumulatives (CUMs) are used to monitor total cumulated quantities of sales schedules.

The following types of sales schedule cumulatives are available:

- **Shipped CUM**
  The total cumulated quantity that you shipped for a specific sales schedule.
- **Received CUM**
  The total cumulated quantity that your ship-to business partner received for a specific sales schedule.
- **Invoiced CUM**
  The total cumulated quantity that you invoiced for a specific sales schedule.

For non-referenced sales schedules, cumulatives enable you to:

- Check and adjust the sales schedules for underdelivery and overdelivery.
- Monitor whether your business partner's received CUM matches with your shipped CUM. If not, the disputes can be solved.

LN:

- Does not check or adjust **Material Releases**, referenced schedules, pick-up sheets, and delivery contracts for underdelivery or overdelivery.
- Only matches received CUMs with shipped CUMs for **Material Releases** and **Shipping Schedules**.
- Does not calculate sales schedule cumulatives for **Pick-up Sheets**.

For more information, refer to

- *Sales schedule cumulatives (p. 60)*

- *Adjusting sales schedules (p. 72)*
- *Reconciling sales schedules (p. 76)*

Step 5: To approve sales schedules

To be able to actually process sales schedules, the sales schedules with the **Created** status must be approved. If a sales schedule is approved, it receives the **Approved** status.

If the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session, when the sales schedule is approved, LN creates a planned warehouse order.

For non-referenced sales schedules, during the approval process:

- You can check and adjust the sales schedules for underdelivery and overdelivery.
- LN reconciles the sales schedule. Reconciling means checking whether your business partner's **Received CUM** matches with your **Cumulative Shipped Quantity**. If the CUMs do not match, disputes are generated that must be solved.

For more information, refer to:

- *Approving sales schedules (p. 69)*
- *Planned warehouse orders (p. 25)*
- *Adjusting sales schedules (p. 72)*
- *Reconciling sales schedules (p. 76)*

Step 6: To release sales schedules to Warehousing

Approved sales schedules or planned warehouse orders must be released to Warehousing.

For more information, refer to *Sales schedules and Warehousing (p. 87)*.

Step 7: To release sales schedules to Invoicing

If the items that are ordered with the sales schedule line or planned warehouse order are (partially) shipped, you can invoice the delivered goods. To be able to send the invoice, you must release the sales schedule or planned warehouse order to Invoicing.

You can also release invoice correction records to Invoicing. For example, if shipped items are lost during shipment and you do not want your business partner to pay for these lost items.

For more information, refer to *Sales schedules and Invoicing (p. 89)*.

Step 8: To process sales schedules

If the invoice for a sales schedule line is sent, the sales schedule line has the **Invoiced** status. You can process sales schedules whose lines have the **Invoiced** status. Use the Process Delivered Sales Schedules (tdsls3223m000) session to process sales schedules.

For more information, refer to *Processing and deleting sales schedules (p. 92)*.

Note

If the relation with a business partner for an item has come to an end or if you want to change the logistic agreements between you and your business partner, you can terminate the sales schedule. For more information, refer to *Terminating sales schedules (p. 93)*.

EDI and sales schedules

Incoming EDI messages, sent by a sold-to business partner or ship-to business partner, can provide the information based on which you can process sales schedules to deliver the requirements of the sold-to business partner.

The following EDI messages are used to import data from your sold-to business partner or ship-to business partner into sales schedules:

Material Release

Examples of material release messages are: BEM MRL001 (BEMIS). The data imported with this message consists of long-term planning information from your business partner (for instance, from MRP).

Shipping Schedule

Examples of a shipping schedule messages are: BEM SHP001 (BEMIS). The data imported with this message consists of short term ordering information (for instance, the requirements for the next two weeks).

Sequence Shipping Schedule

Examples of sequence shipping schedule messages are: BEM SEQ001 (BEMIS). This message contains the same data as the BEM SHP001 message, but also includes a specific sequence in which the material must be unloaded at the delivery dock.

Note

Received EDI messages can be processed automatically or interactively. When the previously-mentioned EDI messages are processed, LN puts through the received data to the sales release and sales schedule sessions.

Sales releases

Sales releases are used to group, by release type, a customer's sales schedule requirements. Sales releases are usually received by electronic data interchange (EDI), but can also be manually specified, or received by a Business Object Document (BOD). Sales releases or separate release lines can be processed and converted to sales schedules. A sales release represents the external customer view for schedule requirements, while the sales schedule represents the internal supplier view.

Sales release revision numbers identify the updates that were sent to the business partner.

The first sales release that is created for a specific combination of the following characteristics receives the sales release revision number one:

- **Sold-to BP**
- **Ship-to BP**
- **Ship-to Address**
- **Release Type**
- **Shipment/Receipt**
- **Schedule Quantity Qualifier**
- **Release Origin**
- **Customer Release**

When a new sales release revision is created for these characteristics, a sales release revision is created with revision number two, and so on.

> **Note**
>
> If the **Automatically Process Sales Schedule Releases** check box is cleared in the Sold-to Business Partners (tccom4110s000) session, you can update sales releases before they are converted to sales schedules in the Process Sales Releases (tdsls3208m000) session. If the **Automatically Process Sales Schedule Releases** check box is selected, sales releases are automatically converted to sales schedules, which means you cannot update them.

Sales release types and sales schedule types

Sales releases and sales schedules are always of a specific type. Sales releases can only contain sales schedules of the same type.

The following types are available:

- **Material Release**
  Over the long term and mid term (in general periods of some months), planning information is supplied from the business partner. In general, a material release can be considered as a planning release. For non-referenced schedules, however, the material release can also contain the actual order. In this case the release is called a material release with shipping capabilities.

- **Shipping Schedule**
  On a shorter time basis, shipping releases that contain more detailed and fixed information are sent. This information is gathered on the basis of shop floor requirements, miscellaneous orders, and so on. Shipping schedules contain ordering information and inform you about actual deliveries. This sales schedule type can be used for non-referenced sales schedules as well as referenced sales schedules.

- **Sequence Shipping Schedule**
  Over the short term (in general a period of twenty days of which five days are fixed), sequence shipping information is communicated. Sequence shipping schedules are a supplement to the material release or the shipping schedule with precise information about the production or deliveries of the requirements. These schedules can include the production or delivery sequence, and the order, the place, and the time of unloading after shipment. This sales schedule type is only used if the sales schedule is referenced.

■ **Pick-up Sheet**
Over the short term, pick-up information is supplied from the business partner. A pick-up sheet is a document that constitutes a list of items to be picked-up at the supplier's site by a specific carrier for transport to the customer on a specific day. In general, these are daily requirements. Sales releases of the **Pick-up Sheet** type are converted to referenced sales schedules of the **Shipping Schedule** type.

Note

The type of sales schedule that you can receive for a specific item and business partner combination is determined by one of the following:

■ The field settings in the **Schedule Message Types** group box of the Sales Contract Line Logistical Data (tdsls3102m000) session.

■ The **EDI message** field in the Items - Sales Business Partner (tdisa0510m000) session.

You can view sales release data in the following sessions:

Sales release type	Sales releases	Release lines	Release line details
Material Release	Sales Releases (td-sls3512m000)	Sales Release - Lines (tdsls3508m000)	Sales Release Line Details (tdsls3515m000)
Shipping Schedule	Sales Releases (td-sls3512m000)	Sales Release Lines (td-sls3508m000)	Sales Release Line Details (tdsls3515m000)
Sequence Shipping Schedule	Sales Releases (td-sls3512m000)	Sales Release Lines - Sequence Shipping Schedule (td-sls3116m000)	-
Pick-up Sheet	Sales Releases (td-sls3512m000)	Sales Release Lines - Pick-up Sheet (td-sls3109m000)	Sales Release Line Details - Pick-up Sheet (td-sls3116m100)

Note

You can also use the Sales Release - Lines (tdsls3612m000) session to view, enter, and maintain sales release data.

Sales release lines

Whether a sales release line refers to a sales schedule or to a sales schedule line, depends on the release type. If the release type is:

■ **Material Release** or **Shipping Schedule**, a sales release line refers to a sales schedule.

- **Sequence Shipping Schedule**, a sales release line refers to a sales schedule header, sales schedule line, and sequence shipping information.
- **Pick-up Sheet**, a sales release line refers to a combination of carrier and shipment reference.

Sales release line details

If the release type is:

- **Material Release** or **Shipping Schedule**, a sales release line detail refers to a sales schedule line.
- **Pick-up Sheet**, a sales release line detail refers to a sales schedule header, sales schedule line, and pick-up sheet line.

Referenced sales schedules

On referenced sales schedules, schedule requirements are communicated based on (shipment) references.

- A **Reference** is used to identify specific requirements that your business partner needs in a specific sequence at a specific line station of the assembly line.
- A **Shipment Reference** is used to identify the shipment. If you use <u>pick-up sheets</u>, the shipment reference also identifies the pick-up sheet for the linked sales schedule line.

If you receive a referenced sales schedule, the **Referenced Schedule** check box is selected in the Sales Schedules (tdsls3111m000) session.

Master data

To use referenced schedules, the following master data setup is required:

- **Items - Sales Business Partner (tdisa0510m000)**
  Select the **Referenced Schedule** check box.
- Set the **EDI message** field to **Shipping Schedule**, **Shipping Schedule only**, or **Sequence Shipping Schedule**.
- **Sales Contract Line Logistic Data (tdsls3102m000)**
  Select the **Referenced Schedule** check box.
- Select the **Use Message Shipping Schedule**, **Use Message Sequence Shipping Schedule**, or **Use Message Pick-up Sheet** check boxes.

The value of the **Use Contracts for Schedules** check box in the Sales Contract Parameters (tdsls0100s300) session determines the session from which the master data is retrieved.

Note

If the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session, the following are applicable:

- The **Schedule Revisions for Referenced Shipping Schedules** and **Schedule Revisions for Sequence Shipping Schedules** check boxes in the Schedule Terms and Conditions (tctrm1131m000) session determine whether <u>sales schedule revision numbers</u> are used.

- When a <u>planned warehouse orders</u> line is linked to one or more referenced schedule lines, the references are stored in the Planned Warehouse Order Reference Distribution (tdsls3522m000) and Sales Schedule Actual Delivery Line Reference Distribution (tdsls3542m000) sessions.

Referenced shipping schedules

If you receive an update of a referenced shipping schedule, the **Schedule Revisions for Referenced Schedules** check box in the Schedule Terms and Conditions (tctrm1131m000) session determines how the update is processed.

- If this check box is selected, a new <u>sales schedule revision number</u> is created.

- If this check box is cleared, the sales schedule is updated. To keep track of the updates, LN files the sales schedule line updates as revisions in the Sales Release Line Details (tdsls3515m000) session (unless the schedule line is manually specified or updated). From the <u>appropriate</u> menu of this session, you can start the Sales Schedule - Lines (tdsls3107m000) session to view the sales schedule line to which the sales release line detail record refers.

Note

- For each **Reference**, only one sales schedule line can exist.
- For each **Shipment Reference**, multiple sales schedule lines can exist.

Pick-up sheets

If a referenced sales schedule of the **Shipping Schedule** type is created for a <u>pick-up sheet</u>, LN:

- Selects the **Linked to Pick-up Sheets** check box in the Sales Schedules (tdsls3111m000) session.

- Enters pick-up sheet header information in the Pick-up Sheets (tdsls3107m100) session, which contains business partner, carrier, and reference data.

- Enters pick-up sheet line information in the Pick-up Sheet - Lines (tdsls3107m200) session, which contains item, quantity, and date data. A pick-up sheet line refers to a sales schedule line. Therefore, if you double-click a pick-up sheet line, the Sales Schedule - Lines (tdsls3107m000) session is started.

For more information, refer to *Pick-up sheets (p. 46)*.

Sequence shipping schedules

If you receive an update of a sequence shipping schedule, the **Schedule Revisions for Sequence Shipping Schedules** check box in the Schedule Terms and Conditions (tctrm1131m000) session determines how the update is processed.

- If this check box is selected, a new <u>sales schedule revision number</u> is created.
- If this check box is cleared, the sales schedule is updated. To keep track of the updates, LN files the sales schedule line updates as revisions in the Sequence Shipping Information (tdsls3517m000) session.

If a referenced sales schedule line of the **Sequence Shipping Schedule** type is created, LN enters:

- Sequence shipping information in the Sequence Shipping Information (tdsls3517m000) session, which informs you about the sequence in which your ship-to business partner needs the items on the assembly line at a specific line station.
- Shipping sequence details in the Shipping Sequence (whinh4520m000) session after release to Warehousing. In this session, you can view the shipping sequence data for each reference. You must ship the goods in the sequence that is specified in this session. Only the latest revision of the shipping sequence information is displayed.

Each sales schedule line results in one shipping sequence detail line. For more information on shipping sequence details, refer to *Sales schedules and Warehousing (p. 87)*.

Approving referenced sales schedules

Referenced sales schedule can be automatically or manually approved. For more information, refer to *Approving sales schedules (p. 69)*.

Note

For referenced sales schedules, no adjustments take place.

Pick-up sheets

A pick-up sheet is a list of items that a carrier must pick-up at the supplier's site for transport in one shipment to the customer on a specific day. A pick-up sheet is identified by a specific reference number, called the shipment reference, which originates from the customer. This shipment reference is used to identify pick-up sheets, shipments, and payments. Usually, the shipment exactly covers the pick-up sheet requirements, but the required goods on the pick-up sheet are spread among different sales schedules.

You can only use pick-up sheets if the following check boxes are selected in the Sales Contract Line Logistical Data (tdsls3102m000) session for the sales contract to which the sales schedule is linked:

- **Referenced Schedule**
- **Use Shipment Reference**
- **Use Message Pick-up Sheet**

Sales schedule requirements are grouped in pick-up sheets based on the following common characteristics:

- **Sold-to Business Partner**
- **Ship-to Business Partner**
- **Shipment Reference**
- **Carrier/LSP**
- **Start Date**
- **End Date**

The following are applicable to a pick-up sheet:

- Over-deliveries are not allowed.

- Shortages must be communicated to the customer as soon as possible.

- The contract that is linked to a sales schedule determines whether or not a sales schedule can contain requirements for pick-up sheets.

- Because pick-up sheets must be regarded as firmly settled, they cannot be automatically updated or automatically adjusted. Until approval, only manual changes are allowed.

Pick-up sheet procedure

The main pick-up sheet procedure consists of the following steps:

Step 1: To create and update sales releases

A pick-up sheet is manually entered or received by a Business Object Document (BOD) in the following sessions:

- Sales Releases (tdsls3512m000)

- Sales Release Lines - Pick-up Sheet (tdsls3109m000)

- Sales Release Line Details - Pick-up Sheet (tdsls3116m100)

Step 2: To create and update pick-up sheets

Sales releases of the **Pick-up Sheet** type can be manually processed into referenced sales schedules of the **Shipping Schedule** type in the Process Sales Releases (tdsls3208m000) session, or can be automatically processed. This depends on the setting of the **Automatiallly Process Sales Schedule Releases** check box in the Sold-to Business Partners (tccom4110s000) session.

If sales schedules are created for pick-up sheets, the following is executed:

- The **Referenced Schedule** and **Linked to Pick-up Sheets** check boxes are selected for the sales schedule in the Sales Schedules (tdsls3111m000) session.

- Pick-up sheet header information is entered in the Pick-up Sheets (tdsls3107m100) session, which contains business partner, carrier, and reference data.

- Pick-up sheet line information is entered in the Pick-up Sheet - Lines (tdsls3107m200) session, which contains item, quantity, and date data. A pick-up sheet line refers to a sales schedule

line. Therefore, if you double-click a pick-up sheet line, the Sales Schedule - Lines (tdsls3107m000) session is started.

Step 3: To approve pick-up sheets

If you can deliver the pick-up sheet line quantities, the pick-up sheets with the **Created** status must be approved. Pick-up sheets are automatically approved, or must be manually approved in the Approve Pick-up Sheets (tdsls3211m200) session. This depends on the setting of the **Automatically Approve Referenced Sales Schedules** check box in the Schedule Terms and Conditions (tctrm1131m000) or Sales Contract Line Logistic Data (tdsls3102m000) sessions.

If the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session, LN creates a planned warehouse order when the pick-up sheet is approved.

Note that one pick-up sheet can be linked to multiple sales schedules and that the lines of a pick-up sheet can be sales schedule lines of different sales schedules.

If you cannot deliver the pick-up sheet line quantities, you must discuss this with your customer and manually update the required quantities on the pick-up sheet.

For more information, refer to:
- *Approving sales schedules (p. 69)*
- *Planned warehouse orders (p. 25)*

Step 4: To release pick-up sheets to Warehousing

Approved pick-up sheets or planned warehouse orders for pick-up sheets are automatically released to Warehousing, or manually in the Release Pick-up Sheets to Warehousing (tdsls3207m100) session. This depends on the setting of the **Automatically Release Referenced Sales Schedules to Order** check box in the Schedule Terms and Conditions (tctrm1131m000) session.

In Warehousing, you can convert the pick-up sheet quantities to a final transport order that is communicated to the carrier. Based on this transport order, the transport planning and routing is optimized and the carrier's copy of the pick-up sheet is created.

You can process the pick-up sheet, prepare the shipment, create the appropriate delivery documents, and transfer the goods to the staging zone. When the items are picked up, the carrier checks the staged goods on quantities, customer item code, handling units of the goods, and so on. Next, the carrier transfers the goods to the customer. Optionally, you can notify the customer about departure of the goods.

For more information, refer to *Sales schedules and Warehousing (p. 87)*.

Step 5: To receive payments

Payment, which is triggered based on the receipt of the goods, is generally executed by means of self-billing. A payment notification is sent to you and the carrier.

For more information, refer to Self billing.

Based on the **Shipment Reference**, you can also release a pick-up sheet or a planned warehouse order for a pick-up sheets to Invoicing in the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) session.

For more information, refer to *Sales schedules and Invoicing (p. 89)*.

Step 6: To process sales schedules

In the Process Delivered Sales Schedules (tdsls3223m000) session, you can process sales schedules with the **Invoiced** status.

For more information, refer to *Processing and deleting sales schedules (p. 92)*.

Sales schedule revisions

Sales schedule revision numbers are used to uniquely identify the revision of the sales schedule. They indicate the sales schedule updates that are sent by your business partner.

> **Note**
>
> LN automatically uses revision numbers for non-referenced sales schedules. For referenced shipping schedules and sequence shipping schedules, the **Schedule Revisions for Referenced Shipping Schedules** and **Schedule Revisions for Sequence Shipping Schedules** check boxes in the Schedule Terms and Conditions (tctrm1131m000) session determine whether revision numbers are used.

The first sales schedule that is created for a specific combination of the following characteristics receives the <u>sales schedule revision number</u> one:

- **Sold-to Business Partner**
- **Ship-to Business Partner**
- **Item**
- **Sales Office**
- **Invoice-to Business Partner**
- **Pay-by Business Partner**
- **Schedule Type**
- **Referenced Schedule**
- **Contract**
- **Contract Position**
- **Contract Office**
- **Customer Order**, if the **Use Customer Order for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session and the **Action on Deviating Customer Order** is set to **Block** in the Sales Contracts (tdsls3500m000) session.

When a new sales schedule is received for these characteristics, a sales schedule revision is created with revision number two, and so on.

For sequence shipping schedules, a new schedule revision is created only if all release lines of a specific release have the same item, sales office, ship-to business partner, and customer order number.

When the new sales schedule revision is approved, the previous sales schedule revision and its requirements are no longer valid and LN replaces this sales schedule revision. Whether a sales schedule line that is linked to the old sales schedule revision can receive the **Replaced** status depends on the schedule line's current status and the existence of a linked outbound order line.

Replacement allowed

If a sales schedule revision is replaced and a related sales schedule line has the **Created**, **Adjusted**, or **Approved** status, the sales schedule line's status is changed to **Replaced**.

Note

If a sales schedule line is already approved in the approval process, the results of the approval process are undone if the schedule line:

- Has the **Approved** status.
- Has the **Order Generated** status and the outbound process is not yet started for the schedule line.

Replacement not allowed

If a sales schedule revision is replaced and a linked sales schedule line has the **Goods Delivered**, **Released to Invoicing**, or **Invoiced** status, you must finish the sales schedule procedure for these sales schedule lines until they have the **Processed** status.

In other words, although the revision as a whole is inactive, these schedule lines must still be processed on the previous revision because they are too far in the process.

Replacement under restrictions

If a sales schedule line is released to Warehousing, the related outbound order line determines whether the sales schedule line can be replaced.

You can specify until when an outbound order line is allowed to be updated, canceled, and removed on the **Outbound Process** tab of the Warehousing Order Types (whinh0110m000) session.

Sales schedule status

The status of a sales schedule that is replaced depends on the statuses of its sales schedule lines:

- If not all sales schedule lines have the **Processed**, or **Replaced** status, the sales schedule receives the **Replacing in Process** status.
- If all sales schedules lines have the **Processed**, or **Replaced** status, the sales schedule receives the **Replaced** status.

Tip

- If you want to decouple sales schedule revisions and warehouse orders, you can use planned warehouse orders. Planned warehouse orders handle the revisions of a sales schedule line

and maintain the link between the sales schedule line (revision) and the real warehouse order to which the planned warehouse order is released. For more information, refer to *Planned warehouse orders (p. 25)*.

■ You can delete old sales schedule revisions in the Delete Sales Schedule Revisions (tdsls3212m000) session.

■ You can print the differences between revisions of a sales schedule in the Print Sales Schedule Variances (tdsls3415m000) session.

Sales schedule line requirement type

A requirement type represents a requirement in time, used for scheduling.

On a sales schedule line, the following requirement types can be communicated:

■ **Immediate**
These schedule requirements have a start date in the past at the time of creation. As a result, an under-delivery is applicable. These requirements must be shipped as soon as possible.

■ **Firm**
These schedule requirements are handled as actual orders that can be shipped.

■ **Planned**
These schedule requirement are sent to you for planning purposes only.

Note

■ The value of the **Requirement** field in the Sales Schedule - Lines (tdsls3107m000) session determines the actions LN carries out when you approve a sales schedule line. For more information on approving sales schedules, refer to *Approving sales schedules (p. 69)*.

■ If the **Requirement** is **Firm** but the **Start Date** of the sales schedule line is before the system date, LN sets the **Requirement** to **Immediate**

Schedule types and requirement types

The **Use Contracts for Schedules** check box in the Sales Contract Parameters (tdsls0100s300) session determines from which session LN retrieves the data to determine the type of sales schedule and the requirements that can be received.

■ **Use Contracts for Schedules is cleared**
Data is retrieved from the Items - Sales Business Partner (tdisa0510m000) session.

■ **Use Contracts for Schedules is selected**
Data is retrieved from the Sales Contract Line Logistic Data (tdsls3102m000) session.

Items - Sales Business Partner (tdisa0510m000)

The **Requirement** is determined as follows:

Schedule Type	EDI message	Requirement
Shipping Schedule	**Shipping Schedule only**	**Firm** or **Immediate**
Material Release	**Shipping Schedule** or **Sequence Shipping Schedule**	**Planned**
Material Release	**Material Release**	Depends on the **Trans. Time Fence**

Sales Contract Line Logistic Data (tdsls3102m000)

The **Requirement** is determined as follows:

Schedule Message Types					Schedule Type	Requirement
Use Message Material Release	**Use Material Release for Firm Requirements**	**Use Message Shipping Schedule**	**Use Message Sequence Shipping Schedule**	**Use Message Pick-up Sheet**		
yes	no	yes	yes	yes	**Shipping Schedule** or **Sequence Shipping Schedule**	**Firm** or **Immediate**
yes	no	yes	yes	yes	**Material Release**	**Planned**
yes	yes	not applicable	not applicable	not applicable	**Material Release**	Depends on the **Transaction Time Fence**
no	no	yes	not applicable	not applicable	**Shipping Schedule**	**Firm** or **Immediate**

no	not applicable	no	yes	no	**Sequence Shipping Schedule**	**Firm** or **Immediate**
no	no	not applicable	not applicable	yes	**Shipping Schedule**	**Firm** or **Immediate**

Transaction Time Fence

If you only use material releases, the **Requirement** depends on the value of the **Transaction Time Fence** field.

- **All Lines**
  The **Requirement** is **Firm**
- **Lines in the FAB Period**
  If the sales schedule line's **Start Date** is before the FAB period's end date, the **Requirement** is **Firm**.
- If the sales schedule line's **Start Date** is after the FAB period's end date, the **Requirement** is **Planned**.
- **Lines in the Firm Period**
  The **Requirement** is equal to the **Customer Requirement Type**.

Legend

- The **Trans. Time Fence** is specified in the Items - Sales Business Partner (tdisa0510m000) and Sales Contract Line Logistic Data (tdsls3102m000) sessions.
- The **EDI message** is specified in the Items - Sales Business Partner (tdisa0510m000) session.
- The **Schedule Message Types** are specified in the Sales Contract Line Logistic Data (tdsls3102m000) session.
- The **Schedule Type** is specified in the Sales Schedules (tdsls3111m000) session.
- The **Customer Requirement Type** is specified in the Sales Schedule - Lines (tdsls3107m000) session.
- The FAB period is the sales schedule's **Generation Date** as specified in the Sales Schedules (tdsls3111m000) session plus the number of days as specified in the **FAB Period** field of the Items - Sales Business Partner (tdisa0510m000) or Sales Contract Line Logistic Data (tdsls3102m000) sessions.

Zero required quantity for sales schedule lines

You can receive sales schedule lines with a required quantity of zero. The sales schedule line quantity can also be changed to zero when the sales schedule procedure is completed. When a sales schedule receives a required quantity of zero, an attempt to cancel the sales schedule line or the planned warehouse order is performed.

A sales schedule line can receive a required quantity of zero due to the following reasons:

- The sales schedule is adjusted. For more information, refer to *Adjusting sales schedules (p. 72)*.
- You manually reduce the required quantity to zero in the Sales Schedule - Lines (tdsls3107m000) session.
- The processed <u>sales release</u> contains a quantity of zero for the schedule line.

It depends on the current status of the sales schedule line or the planned warehouse order if the sales schedule line or the <u>planned warehouse order</u> can be canceled.

Cancellation allowed

Sales schedule lines with the **Created**, **Adjusted**, or **Approved** status and planned warehouse orders with the **Planned** status can always be canceled.

Note

If a sales schedule line is already approved in the approval process, the results of the approval process are undone if the schedule line:

- Has the **Approved** status.
- Has the **Order Generated** status and the outbound process is not yet started for the schedule line.

Cancellation not allowed

Sales schedule lines with the **Goods Delivered**, **Released to Invoicing**, or **Invoiced** status and planned warehouse orders with the **Finalized**, **Released to Invoicing**, or **Invoiced** status cannot be canceled. You must finish the sales schedule procedure until they receive the **Processed** status.

Cancellation under restrictions

If a sales schedule line and linked planned warehouse order are released to Warehousing, the related outbound order line determines whether the planned warehouse order/sales schedule line can be canceled.

Note

You can specify until when an outbound order line is allowed to be canceled and removed on the **Outbound Process** tab of the Warehousing Order Types (whinh0110m000) session.

Order Generated or Released to Warehousing statuses

The following apply to a sales schedule line with the **Order Generated** status or a planned warehouse order with the **Released to Warehousing** status:

- If the outbound order line is allowed to be canceled, the outbound order line is deleted and the planned warehouse order/sales schedule line gets the **Canceled** status.

- If the outbound order line is not allowed to be canceled, the outbound order line and the planned warehouse order are set to **Canceled** and the sales schedule line gets the **Canceling in Process** status.

- If the outbound order line that is set to **Canceled** gets the **Shipped** status, the sales schedule line receives the **Canceled** status.

Partially Shipped or Partially Delivered statuses

The following apply to a sales schedule line with the **Partially Shipped** status or a planned warehouse order with the **Partially Delivered** status:

- If the outbound order line for the remaining quantity is allowed to be removed, the planned warehouse order receives the **Finalized** status and the sales schedule line receives the **Goods Delivered** status.

- If the outbound order line for the remaining quantity is not allowed to be removed, the outbound order line is set to **Canceled** and the sales schedule line keeps the **Partially Shipped** status. When the **Canceled** outbound order line receives the **Shipped** status, the sales schedule line receives the **Goods Delivered** status.

- The canceled part of the planned warehouse order quantity is updated on the planned warehouse order as the **Canceled Quantity**. Sales schedule lines linked to this planned warehouse order receive the **Goods Delivered** status.

- Sales schedule lines that are linked to a canceled planned warehouse order, have cancellation history records. The sum of the canceled quantities of these history records is equal to the canceled quantity of the linked planned warehouse order.

Sales schedule cumulatives and authorizations

Sales schedule authorizations

Sales schedule items are shipped based on the requirement type. The **Firm** requirement type, however, can deviate from the earlier received **Planned** requirement type.

If you use authorizations, your sold-to business partners give you permission to fabricate goods or to buy raw materials for a certain quantity level before communicating the **Firm** requirement type. By using this process, sold-to business partners must pay for the fabrication and/or raw materials regardless of whether the goods are called-off.

Several types of authorizations are available:

- **FAB authorization**
  The valid authorization to start the production for a quantity of items required on a sales schedule.

- **High FAB authorization**
  The highest FAB authorization that you received from your business partner for a specific sales schedule, counted from the latest CUM reset date on. Your business partner must pay for this quantity of produced but not yet shipped items.

- **RAW authorization**
  The valid authorization to buy raw material that is needed to produce a quantity of items that is required on a sales schedule.
- **High RAW authorization**
  The highest RAW authorization that you received from your business partner for a specific sales schedule, counted from the latest CUM reset date on. Your business partner must pay for the raw materials that you bought for this quantity of items.

Note

- In Sales, LN does not calculate any FAB or RAW authorization values, because you receive the authorizations from your business partner.
- FAB and RAW authorizations are only communicated for <u>material releases</u>.
- The High FAB authorization and High RAW authorization are not communicated by your sold-to business partner. LN calculates these values by searching for the highest sent FAB/RAW authorizations.

To receive authorizations

You receive the FAB/RAW authorizations for a sales schedule from your sold-to business partner. So, the FAB/RAW authorizations that you receive in the Sales Schedules (tdsls3111m000) session, reflect the FAB/RAW authorizations that are linked to your business partner's purchase release lines. If the sales schedule is approved, LN files the received FAB/RAW authorizations in the FAB/RAW Authorizations (tdsls3134m000) session.

For more information on how your business partner determines the FAB/RAW authorizations, if your business partner uses LN, refer to Purchase schedule authorizations.

To reset authorizations

It depends on the value of the **Synchronize Cums** check box in the Schedule Terms and Conditions (tctrm1131m000) how and when the authorizations are reset.

Synchronize Cums is selected

If you want the cumulatives to be synchronized and reset based on the cumulative data received from an external component, your shipped cumulatives are compared and synchronized with the shipped cumulatives received from the external component when processing a sales release into a sales schedule (revision).

After a shipped cumulative record is found, the **Customer CUMs Reset Date** from the Sales Release Lines (tdsls3508m000) session can fall after the **Cumulative Reset Date** in the Shipped CUM (tdsls3532m000) session. In this case, the authorizations must be reset.

To reset FAB and RAW authorizations

Before authorizations can be reset, a reset quantity must be calculated.

This quantity is calculated as follows:

`Cumulative Shipped Quantity` from Shipped CUM (tdsls3532m000) – `Cumulative Shipped Quantity` from Sales Release Lines (tdsls3508m000)

For an example on resetting FAB/RAW authorizations, *To synchronize CUMs based on external component data (p. 65)*.

Synchronize Cums is cleared

Over time, the FAB authorizations and RAW authorizations can be incremented to very high values. To reduce these values, you can reset the FAB/RAW authorizations in the Reset Cumulatives (tdsls3230m000) session. Authorizations cannot be reset exactly when the year is changing. As a result, updates can be stored in the FAB/RAW Authorizations (tdsls3134m000) session after the reset date. By calculating a reset quantity, these values are also included in the reset process.

To reset the FAB/RAW authorizations successfully, the following conditions must be fulfilled:

■ Suppliers and customers must use the same <u>CUM reset date</u> when resetting the FAB/RAW authorizations in the Reset Cumulatives (tdsls3230m000) session and the Reset Cumulatives (tdpur3230m000) session.

■ Resetting can only take place when the releases sent by the customer, are received and approved by the supplier. If not, suppliers cannot approve releases that are processed after the reset date, because the reset dates are different.

■ Suppliers must not update incoming releases or manually create new releases, because resetting can then result in wrong quantities.

Note

■ You cannot reset FAB/RAW authorizations for the sales schedule if a reconciliation record exists with the **Dispute** status and the **Transaction Date** is before the CUM reset date. You can view sales schedule reconciliation records in the Sales Schedule Reconciliation (tdsls3131m000) session.

■ The FAB/RAW information, as stored in the Sales Schedules (tdsls3111m000) session for a specific sales schedule revision, is never updated during the reset process. It is kept as history information.

To reset FAB and RAW authorizations

Step 1: To determine a reset quantity

If you reset FAB/RAW authorizations, LN first determines the reset quantity. LN retrieves the reset quantity from the last FAB/RAW authorizations record prior to the **CUM Reset Date** that you specified in the Reset Cumulatives (tdsls3230m000) session. Which quantity is the reset quantity depends on the **CUM Model used**, as specified in the Item - Sales Business Partner (tdisa0510m000) session and/or the Sales Contract Line Logistic Data (tdsls3102m000) session.

If the **CUM Model used** is:

■ **Order Based**, the **Prior Required CUM** is the reset quantity.

- **Receipt Based**, the **Received CUM** is the reset quantity.

Step 2: To create a new FAB/RAW authorization record

LN creates a new FAB/RAW authorization record in the FAB/RAW Authorizations (tdsls3134m000) session:

- With a **Reset Date** equal to the **CUM Reset Date** as specified in the Reset Cumulatives (tdsls3230m000) session.
- For which the **Prior Required CUM** or the **Received CUM** is reset.
  If the **CUM Model used** is:
  - **Order Based**, LN decreases the **Prior Required CUM** with the reset quantity.
  - **Receipt Based**, LN decreases the **Received CUM** with the reset quantity.

To reset high FAB and high RAW authorizations

How the high FAB authorizations and high RAW authorizations are reset, is based on the setting of the **Authorizations to be** parameter in the Item - Sales Business Partner (tdisa0510m000) session/ Sales Contract Line Logistic Data (tdsls3102m000) session:

- **Carried Forward**
  The high FAB authorizations and high RAW authorizations are reduced by the reset quantity.
- **Reset**
  The high FAB authorizations and high RAW authorizations are equalized to the FAB authorization and RAW authorization values.

Carried Forward

If already FAB/RAW authorization records exist with release dates that are later than the **CUM Reset Date**, LN copies these records with the following adjustments:

- The **FAB Authorization**, **RAW Authorization**, **High FAB**, and **High RAW** are decreased with the reset quantity.
- The old **Reset Date** is replaced with the new **Reset Date**.

Reset

If already FAB/RAW authorization records exist with release dates that are later than the **CUM Reset Date**, LN:

- Decreases the **FAB Authorization** and **High FAB** of these records with the FAB reset quantity.
- Decreases the **RAW Authorization** and **High RAW** of these records with the RAW reset quantity.
- Replaces the old **Reset Date** with the new **Reset Date**.

Example

- FAB period = 4 weeks.

- Cumulative model = **Order Based**.
- Reset date = start week 3.
- The schedule lines are generated before the reset takes place.
- Schedule line 2 is received in week 3.
- Schedule line 3 is received in week 5.

Week	Line 1	-	Line 2	-	Line 3	-	CUMs after reset
-	Qty.	CUM	Qty.	CUM	Qty.	CUM	-
1	20	20	-	20	-	20	20
2	20	40	-	40	-	40	40
3	20	60	5	45	-	45	5
4	20	80	5	50	-	50	10
5	20	100	5	55	20	70	30
6	20	120	55	110	5	75	35
7	-	-	5	115	5	80	40
8	-	-	5	120	5	85	45
9	-	-	-	-	5	90	50
10	-	-	-	-	5	95	55

Authorizations to be **Carried Forward**

TOTALS	CUM Line 1	CUM line 2	CUM line 3	CUMs after reset
Start CUM	0	40	50	10
FAB	80	110	85	45
High FAB	80	110	110	70

The reset date starts in week 3. Because of the **Order Based** CUM model, resetting is performed based on the prior required CUM. At the end of week 2, the reset quantity is 40. When authorizations must be **Carried Forward**, the authorization cumulatives are updated by -40 from the reset date on (week 3).

If you take the same example, however, with the authorizations reset rather than carried forward, the high FAB is not updated but equalized to the FAB quantity. The calculation then arrives at:

TOTALS	CUM Line 1	CUM line 2	CUM line 3	CUMs after reset
Start CUM	0	40	50	10
FAB	80	110	85	45
High FAB	80	110	110	45

Sales schedule cumulatives

Cumulatives (CUMs) are the year-to-date totals for quantities shipped, received, and invoiced. You can use cumulatives to track if the sales schedule is ahead or behind schedule compared to the demand.

The following types of sales schedule cumulatives are available:

- **Shipped cumulatives**
  The total cumulated quantity that you shipped for a specific sales schedule. You can view the shipped CUMs in the Shipped CUM (tdsls3532m000) session and in the Sales Schedules (tdsls3111m000) session.
- **Received cumulatives**
  The total cumulated quantity that your ship-to business partner received for a specific sales schedule. You can view the received CUMs in the Shipped CUM (tdsls3532m000) session, the Sales Schedules (tdsls3111m000) session, and in the FAB/RAW Authorizations (tdsls3134m000) session.

- **Invoiced cumulatives**
  The total cumulated quantity that you invoiced for a specific sales schedule. You can view the invoiced CUMs in the Invoiced CUM (tdsls3533m000) session and in the Sales Schedules (tdsls3111m000) session.

Note

If the sales schedule is based on a sales contract with a linked terms and conditions agreement, in the Schedule Terms and Conditions (tctrm1131m000) session:

- Use the **Method of Shipped CUM update** field to define when the shipped CUMs are updated in the Shipped CUM (tdsls3532m000) session.

- Use the **Method of Last Shipment ID Determination** field to define how the last <u>shipment</u> is determined for calculating <u>received cumulatives</u>.

Synchronizing schedule cumulatives

- **Based on cumulative model**
  If both customers and suppliers use LN to communicate schedule requirements, shipped cumulatives are updated by you. Cumulative data is synchronized based on an order based or receipt based cumulative model. For more information, refer to *To synchronize CUMs based on cumulative model (p. 62)*.

- **Based on external component data**
  If an external component communicates schedule requirements to LN, shipped cumulatives can be updated by the external component. In this case, cumulatives are synchronized with the cumulative data received from the external component. For more information, refer to *To synchronize CUMs based on external component data (p. 65)*.

Using sales schedule cumulatives

In the sales schedule procedure, cumulatives are used:

- To keep track of total cumulated quantities.

- To check and adjust the sales schedules for under-delivery and over-delivery. For more information, refer to *Adjusting sales schedules (p. 72)*.

- To monitor whether your business partner's received CUM matches with your shipped CUM. If not, disputes are generated that must be solved. For more information, refer to *Reconciling sales schedules (p. 76)*.

Note

- Referenced sales schedules, material releases, pick-up sheets, and delivery contracts are not checked or adjusted for under-delivery or over-delivery.

- If you synchronize sales schedule cumulatives based on external component data, you can still execute the adjustment functionality. However, this is not logical, because schedule adjustment is probably also handled by the external component.

- If you synchronize CUMs based on external component data, the sales schedule reconciliation functionality is not applicable.

To synchronize CUMs based on cumulative model

If both customers and suppliers use LN to communicate schedule requirements, cumulatives are synchronized based on an order based or receipt based cumulative model, which you can define in the **CUM Model used** field of the Items - Sales Business Partner (tdisa0510m000) and/or the Sales Contract Line Logistic Data (tdsls3102m000) session.

For more information on how to use these models, refer to *Adjusting sales schedules (p. 72)*.

> **Note**
>
> If the sales schedule is based on a sales contract with a linked <u>terms and conditions agreement</u> and if, in the Schedule Terms and Conditions (tctrm1131m000) session, the **Synchronize Cums** check box is selected, cumulatives are synchronized and reset based on the cumulative data received from the external component. For more information, refer to *To synchronize CUMs based on external component data (p. 65)*.

To reset cumulatives

Over time, the cumulatives can be incremented to very high values. To reduce these values, you can reset the cumulatives in the Reset Cumulatives (tdsls3230m000) session. Although this reset is usually performed at the end of the year, the CUMs cannot be reset exactly when the year is changing. As a result, updates can be stored in the cumulative sessions after the reset date. By calculating a reset quantity, these values are also included in the reset process.

To reset the cumulatives successfully, the following conditions must be fulfilled:

- Suppliers and customers must use the same <u>CUM reset date</u> when resetting the cumulatives in the Reset Cumulatives (tdsls3230m000) session and the Reset Cumulatives (tdpur3230m000) session.
- Resetting can only take place when the releases sent by the customer, are received and approved by the supplier. If not, suppliers cannot approve releases that are processed after the reset date, because the reset dates are different.
- Suppliers must not update incoming releases or manually create new releases, because resetting can then result in wrong quantities.

> **Note**
>
> - You cannot reset the sales schedule cumulatives for the sales schedule if a reconciliation record exists with the **Dispute** status and a **Transaction Date** before the CUM reset date. You can view sales schedule reconciliation records in the Sales Schedule Reconciliation (tdsls3131m000) session.
> - The cumulatives as stored in the Sales Schedules (tdsls3111m000) session for a specific sales schedule revision, are never updated during the reset process. They are kept as history information.

To calculate the reset quantity

Step 1: To determine a reset quantity

If you reset cumulatives in the Reset Cumulatives (tdsls3230m000) session, LN first determines the reset quantity. LN retrieves the reset quantity from the last CUM record prior to the **CUM Reset Date** that you specified in the Reset Cumulatives (tdsls3230m000) session. Which quantity is the reset quantity depends on the **CUM Model used**.

If the **CUM Model used** is:

- **Order Based**, the **Prior Required CUM** is the reset quantity.
- **Receipt Based**, the **Received CUM** is the reset quantity.

Step 2: To create new cumulative records

LN creates a new:

- Shipped CUM record in the Shipped CUM (tdsls3532m000) session.
- Invoiced CUM record in the Invoiced CUM (tdsls3533m000) session.

For the new CUM records, the following applies:

- The **CUM Reset Date** is equal to the **CUM Reset Date** that you specified in the Reset Cumulatives (tdsls3230m000) session.
- The **Status** is **Reset**.

To reset the shipped CUM

For a new shipped CUM record, LN decreases the following quantities with the reset quantity:

- **Cumulative Shipped Quantity**.
- **Received CUM**.

If already shipped CUM records exist with transaction dates later than the **Cumulative Reset Date**, LN copies these records with the following adjustments:

- The **Cumulative Shipped Quantity** and **Received CUM** are also decreased with the reset quantity.
- The old **Cumulative Reset Date** is replaced with the new **Cumulative Reset Date**.

To reset the invoiced CUM

In case of a new invoiced CUM record, LN decreases the **Cumulative Invoiced Quantity** with the reset quantity.

If already invoiced CUM records exist with invoice dates later than the **Cumulative Reset Date**, LN copies these records with the following adjustments:

- The **Cumulative Invoiced Quantity** is also decreased with the reset quantity.
- The old **Cumulative Reset Date** is replaced with the new **Cumulative Reset Date**.

Example 1 - To reset the cumulatives for an Order Based CUM model

- Reset date = start week 3
- The schedule lines are generated before the reset takes place
- Schedule line 2 is received in week 3
- Schedule line 3 is received in week 5

Week	Line 1	Prior required CUM before reset	Line 2	Prior required CUM before reset	Line 3	Prior required CUM before reset	Prior required CUM after reset
1	20	20	-	20	-	20	20
2	20	40	-	40	-	40	40
3	20	60	5	45	-	45	5
4	20	80	5	50	-	50	10
5	20	100	5	55	20	70	30
6	20	120	55	110	5	75	35
7	-	-	5	115	5	80	40
8	-	-	5	120	5	85	45
9	-	-	-	-	5	90	50
10	-	-	-	-	5	95	55

TOTALS	CUM line 1	CUM line 2	CUM line 3	CUMs after reset
Start CUM	0	40	50	10

The reset date starts in week 3. Because of the **Order Based** CUM model, resetting is carried out based on the prior required cumulatives. At the end of week 2, the reset quantity is 40. As a result, all CUMs are updated by -40 from the CUM reset date (week 3) on.

Example 2 - To reset the cumulatives for a Receipt Based CUM model

Take the same data from the previous example, but also take into consideration the following data:

Week	Received qty.	Received CUM before reset	Received CUM after reset
1	10	10	10
2	25	35	35
3	20	55	20
4	-	55	20
5	5	60	25

The reset date starts in week 3. Because of the **Receipt Based** CUM model, resetting is done based on the received cumulatives. At the end of week 2, the reset quantity is 35. As a result, all CUMs are updated by -35 from the CUM reset date (week 3) on.

The totals from example 1 would then arrive at:

TOTALS	CUM line 1	CUM line 2	CUM line 3	CUMs after reset
Start CUM	0	40	50	15

To synchronize CUMs based on external component data

If an external component communicates schedule requirements to LN and you want the cumulatives to be synchronized and reset based on the cumulative data received from the external component, select the **Synchronize Cums** check box in the Schedule Terms and Conditions (tctrm1131m000) session.

Note

If the **Synchronize Cums** check box is cleared, cumulatives are updated based on an order based or receipt based cumulative model, as defined in the **CUM Model used** field of the Sales Contract Line Logistic Data (tdsls3102m000) session. For more information, refer to *To synchronize CUMs based on cumulative model (p. 62)*.

To compare and synchronize cumulative data

If you have agreed to synchronize CUMs, the external component provides the **Cumulative Shipped Quantity** and **Last Shipment** when sending a new sales release line in the Sales Release Lines (tdsls3508m000) session. When the sales release is processed into a sales schedule (revision), your

shipped cumulatives are compared and synchronized with the shipped cumulatives received from the external component.

Based on the following fields, the cumulative data is compared:
- **Cumulative Shipped Quantity**
- **Last Shipment**
- **Schedule**

Note
- If more than one shipped cumulative record is found with the same shipment number, the shipped CUM record with the latest **Transaction Date** is used for comparison.
- If no shipped cumulative record can be found for the sales release line's **Last Shipment**, LN warns that the cumulatives will not be synchronized, but that you can continue processing the sales release.

To synchronize shipped cumulatives

After a shipped cumulative record is found, the following can be applicable:
- The sales release line's **Cumulative Shipped Quantity** is equal to your **Cumulative Shipped Quantity**. Therefore, the shipped cumulative record is set to **Matched** in the Shipped CUM (tdsls3532m000) session. All preceding records with the **Created** status are updated to **Matched (no feedback)**.
- The sales release line's **Cumulative Shipped Quantity** is higher or lower than your **Cumulative Shipped Quantity**. Therefore, your shipped CUM is adjusted with a correction value to equal the external component's shipped CUM. This shipped cumulative record receives the **Synchronize** status. All preceding records with the **Created** status are updated to **Matched**.

Example

Sales Release Lines (tdsls3508m000)			Shipped CUM (tdsls3532m000)						
Shipped CUM	Sched-ule	Ship-ment	Shipped CUM	Sched-ule	Ship-ment	Transac-tion date	Status	Shipped quantity	New shipped CUM
-	DJ0001	-	10	DJ0001	XXX-1	1 April	Matched	10	10
20	DJ0001	YYY-2	15	DJ0001	YYY-2	1 May	Matched	5	15
-	DJ0001	-	-	DJ0001	YYY-2	Current date	Synchro-nize	5	20

| - | DJ0001 | - | 25 | DJ0001 | ZZZ-3 | 1 June | Created | 10 | 30 |
| - | DJ0001 | - | 50 | DJ0001 | VVV-4 | 1 July | Created | 25 | 55 |

For the cumulative record with the **Synchronize** status, the following is applicable:

- Correction value = Sales Release Lines (tdsls3508m000) session's shipped CUM – Shipped CUM (tdsls3532m000) session's shipped CUM.
- Shipped quantity = correction value.
- New shipped CUM = old shipped CUM + correction value.

To reset cumulatives

After a shipped cumulative record is found, the **Customer CUMs Reset Date** from the Sales Release Lines (tdsls3508m000) session can differ from the **Cumulative Reset Date** in the Shipped CUM (tdsls3532m000) session.

The following can be applicable:

- The sales release line's **Customer CUMs Reset Date** is earlier than your **Cumulative Reset Date**. LN warns that the cumulatives will not be reset, but that you can continue processing the sales release.
- The sales release line's **Customer CUMs Reset Date** is later than your **Cumulative Reset Date**.
  In this case, sales schedule cumulatives are reset in the following sessions:
  - Shipped CUM (tdsls3532m000)
  - Invoiced CUM (tdsls3533m000)
  - FAB/RAW Authorizations (tdsls3134m000)
  These cumulative records receive the **Reset** status.

Note

Based on the **Transaction Date** in the Shipped CUM (tdsls3532m000) session, LN determines the applicable invoiced cumulative record and authorization record.

To calculate the reset quantity

Before cumulatives can be reset, a reset quantity must be calculated.

This quantity is calculated as follows:

Cumulative Shipped Quantity from Shipped CUM (tdsls3532m000) – **Cumulative Shipped Quantity** from Sales Release Lines (tdsls3508m000)

Example

Sales Release Lines (tdsls3508m000)

Schedule	YYYYY1
Last Shipment	XXXXX1
Shipped CUM	80
Customer Reset Date	10/10/10

The current cumulatives are as follows:

Shipped CUM (tdsls3532m000)		Invoiced CUM (tdsls3533m000)		FAB/RAW Authorizations (td-sls3134m000)	
Schedule	YYYYY1	**Schedule**	YYYYY1	**Schedule**	YYYYY1
Last Shipment	XXXXX1	-	-	**FAB Authoriza-tion**	100
Shipped CUM	100	**Invoiced CUM**	100	**RAW Authoriza-tion**	100
Customer Re-set Date	9/10/10	**Customer Re-set Date**	9/10/10	**Customer Re-set Date**	9/10/10
Transaction Date	15/11/10	**Transaction Date**	15/11/10	**Release Date**	15/11/10

After processing the sales release, the new cumulatives are as follows:

Shipped CUM (tdsls3532m000)		Invoiced CUM (tdsls3533m000)		FAB/RAW Authorizations (td-sls3134m000)	
Schedule	YYYYY1	Schedule	YYYYY1	Schedule	YYYYY1
Last Shipment	-	-	-	-	-
Shipped Quantity	-20	Invoiced Quantity	-20	FAB Authorization	80
Shipped CUM	80	Invoiced CUM	80	RAW Authorization	80
Customer Reset Date	10/10/10	Customer Reset Date	10/10/10	Customer Reset Date	10/10/10
Transaction Date	0	Transaction Date	0	Transaction Date	0
Status	Reset	Status	Reset	-	-

Note

You cannot manually reset cumulatives in the Reset Cumulatives (tdsls3230m000) session.

Approving sales schedules

Sales schedules with the **Created** or **Adjusted** status must be approved before they can be processed. After approval, the sales schedule has the **Approved** status. It depends on the type of schedule how you can approve sales schedules.

Approving referenced schedules

If the sales schedule is a referenced schedule, the sales schedule line can be automatically or manually approved.

Automatic approval

Select the **Automatically Approve Referenced Sales Schedules** check box in the following sessions:

1. **Schedule Terms and Conditions (tctrm1131m000)**
   This session is checked if the sales schedule is based on a sales contract with a linked <u>terms and conditions agreement</u>.

2. **Sales Contract Line Logistic Data (tdsls3102m000)**
   This session is checked if the sales schedule is based on a <u>sales contract</u>.

3. **Items - Sales Business Partner (tdisa0510m000)**
   This session is checked if the sales schedule is based on item and sales business partner information.

Note

- The **Use Contracts for Schedules** check box in the Sales Contract Parameters (tdsls0100s300) session determines whether the sales schedule must be linked to a sales contract.

- LN immediately approves each referenced sales schedule line separately when it is created.

Manual approval

If the **Automatically Approve Referenced Sales Schedules** check box is cleared, you can approve a referenced sales schedule:

- By sales schedule header, in the Approve Sales Schedules (tdsls3211m000) session, or from the <u>appropriate</u> menu of the Sales Schedules (tdsls3111m000) session.

- By <u>pick-up sheet</u>, in the Approve Pick-up Sheets (tdsls3211m200) session, or from the <u>appropriate</u> menu of the Pick-up Sheets (tdsls3107m100) session.

- By sales schedule line, from the <u>appropriate</u> menu of the Sales Schedule - Lines (tdsls3107m000) session. In this case, you can approve a referenced schedule, reference by reference.

For more information on referenced sales schedules, refer to *Referenced sales schedules (p. 44)*.

Approving non-referenced schedules

If the sales schedule is a non-referenced schedule, the sales schedule line can be automatically or manually approved.

- **Automatic approval**
  If the sales schedule is based on a sales contract with a linked <u>terms and conditions agreement</u> and if, in the Schedule Terms and Conditions (tctrm1131m000) session, the **Automatically Approve Non-referenced Sales Schedules** check box is selected for the terms and conditions agreement, sales schedule approval is automatically executed.

- **Manual approval**
  By sales schedule header, in the Approve Sales Schedules (tdsls3211m000) session.

- From the <u>appropriate</u> menu of the Sales Schedules (tdsls3111m000) session.

For non-referenced sales schedules, during the approval process:

- You can optionally check and adjust the sales schedules for underdelivery and overdelivery.

- Sales schedules can be reconciled. Reconciling means checking whether your business partner's **Received CUM** matches with your **Cumulative Shipped Quantity**. If the CUMs do not match, disputes are generated that must be solved.

For more information on:

- Adjusting sales schedules, refer to *Adjusting sales schedules (p. 72)*.
- Reconciling sales schedules, refer to *Reconciling sales schedules (p. 76)*.

Approval process

The requirement on the sales schedule line determines the actions LN takes when you approve a sales schedule.

Immediate or Firm

If you approve a sales schedule line and the **Requirement** is **Immediate** or **Firm**:

- LN creates planned inventory transactions in the Planned Inventory Transactions (whinp1500m000) session.
- LN updates the available-to-promise in the Item Master Plan (cprmp2101m000) session. For more information on updating the ATP, refer to *Sales schedules and Enterprise Planning (p. 80)*.
- And the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session, a planned warehouse order is automatically generated or updated. For more information, refer to *Planned warehouse orders (p. 25)*.
- And no price is entered in the Sales Schedule - Lines (tdsls3107m000) session, LN searches for a sales contract to be linked to the sales schedule line. If an **Active** normal contract is available for the item, sold-to BP, ship-to BP, and sales office combination, LN links this sales contract to the sales schedule line and uses the sales contract prices and discounts for the sales schedule. If no sales contract can be linked, LN uses the prices and discounts as specified in the Pricing module. To retrieve the correct price at the right moment, LN uses the **Start Date** from the Sales Schedule - Lines (tdsls3107m000) session. If no price is specified in Pricing, LN retrieves the price from the Item - Sales (tdisa0501m000) session.
- LN updates the sales contract line's **Called Quantity** if a sales contract is linked to the sales schedule line.
- LN creates history for the sales schedule and sales schedule lines, which you can view in the Sales Order/Schedule History (tdsls5505m000) session.
- LN updates Quality on what is expected to be inspected.
- And a sales schedule reconciliation record with the **Dispute** status exists for that sales schedule in the Sales Schedule Reconciliation (tdsls3131m000) session, LN prints a warning message on the approval report. For more information on handling shipped CUM records with the **Dispute** status, refer to *Reconciling sales schedules (p. 76)*.
- LN updates the business partner's open balance, which you can view in the Sales Schedule - Lines (tdsls3107m000) session.

Planned

If you approve a sales schedule line and the **Requirement** is **Planned**:

- LN updates the available-to-promise in the Item Master Plan (cprmp2101m000) session. For more information on updating the ATP, refer to *Sales schedules and Enterprise Planning (p. 80)*.
- LN updates the **Unconfirm. Cust.Ord.** quantity in the Item Master Plan (cprmp2101m000) session.
- LN creates FAB/RAW authorizations in the FAB/RAW Authorizations (tdsls3134m000) session.
- And a sales schedule reconciliation record with the **Dispute** status exists for that sales schedule in the Sales Schedule Reconciliation (tdsls3131m000) session, LN prints a warning message on the approval report.

Note

- You can undo the approval of the sales schedule. If you do so, the results of the approval process are deleted and the sales schedule's status is set to **Created**. To undo the approval of the last sales schedule revision, on the appropriate menu of the Sales Schedules (tdsls3111m000) session, click **Restore Schedule**. However, you cannot use this functionality if you use planned warehouse orders.
- If the **Use Confirmation** check box is selected in the Sold-to Business Partners (tccom4110s000) session, you cannot approve sales schedules before the **Confirmed Quantity** and **Confirmation Date** fields are filled on the sales schedule line(s).

Adjusting sales schedules

Before a non-referenced sales schedule is approved, you can check the sales schedule for underdelivery and overdelivery.

Note

- Referenced sales schedules, material releases, pick-up sheets, and delivery contracts are not checked or adjusted for underdelivery or overdelivery.
- Sales schedule adjustment is an optional step in the sales schedule procedure.
- If you synchronize sales schedule cumulatives based on external component data, you can still execute the adjustment functionality. However, this is not logical, because schedule adjustment is probably also handled by the external component. For more information, refer to *To synchronize CUMs based on external component data (p. 65)*.

To adjust the incoming sales schedule requirements, execute one of the following:

- Run the Adjust Sales Schedules (tdsls3210m000) session.
- Run the Approve Sales Schedules (tdsls3211m000) session with the **Adjust** check box selected.

Note

If the sales schedule is based on a sales contract with a linked terms and conditions agreement and if, in the Schedule Terms and Conditions (tctrm1131m000) session, the **Activity Adjust Sales Schedules Applicable** and **Automatically Adjust Sales Schedules** check boxes are selected for the terms and conditions agreement, sales schedule adjustment is automatically executed.

The calculation that takes place to identify an underdelivery or an overdelivery depends on the CUM model that you use. This CUM model is specified in the **CUM Model used** field of the Items - Sales Business Partner (tdisa0510m000) and/or Sales Contract Line Logistic Data (tdsls3102m000) session.

The following CUM models are available:

- **Order Based**
- **Receipt Based**

Note

LN can only calculate an overdelivery or underdelivery if the **Cumulative Reset Date** is equal for all the sales schedule's cumulatives.

Order Based

If you have agreed with your business partner to use an **Order Based** CUM model, your business partner provides the **Prior Required CUM** when sending a new sales schedule requirement. Each time your business partner sends requirements, a new sales schedule revision number is created.

To determine an overdelivery or underdelivery for an **Order Based** CUM model, LN carries out the following calculation:

```
Total Adjustment Quantity = Shipped CUM - prior required CUM.
```

Note

You can view the **Shipped CUM** and the **Prior Required CUM** in the Sales Schedules (tdsls3111m000) session.

If the result of this calculation is negative, you have shipped less than your business partner required. As a result, LN creates a new sales schedule line for the total adjustment quantity. The **Requirement** of this sales schedule line is **Immediate**.

If the result of this calculation is positive, you have shipped more than your business partner required. Therefore, LN decreases the required quantity of the next sales schedule line with the total adjustment quantity. If the sales schedule line's required quantity is decreased, the sales schedule line receives the **Adjusted** status. If the total adjustment quantity is equal to or higher than the required quantity of the next sales schedule line, LN cancels this sales schedule line, which therefore gets the **Canceled** status. LN keeps on canceling sales schedule lines and adjusting sales schedule line requirements until the total adjustment quantity is balanced. For more information on what happens with sales schedule lines that get a zero required quantity, refer to *Zero required quantity for sales schedule lines (p. 53)*.

Note

If the result of the calculation is positive, the result is first subtracted from overdelivered lines (if present) and then from not yet delivered lines.

Example

Next schedule issue date in Purchase Control: 18-09

Date	17-09	18-09	19-09	20-09	21-09
Line Number	1	-	-	2	3
Ordered	10	-	-	10	10
Received	10	-	-	10	0
Still needed	-	-	-	-	10

Because line number two is already received before the next schedule issue date, the quantity of 10 is put into inventory. Suppose the demand of 10 on 20-09 changes into a demand of 20 on 19-09, Enterprise Planning uses the 10 from inventory and adds another line with another 10:

Date	17-09	18-09	19-09	20-09	21-09
Line Number	1	-	4	2	3
Ordered	10	-	10	10	10
Received	10	-	0	10	0
Still needed	-	-	10	-	10

When Purchase Control communicates the quantities to Sales Control, the schedule line quantities that are delivered on or after the next issue date, and are therefore considered an overdelivery, are communicated in one line on the schedule issue date:

Date	17-09	18-09	19-09	20-09	21-09
Ordered	-	10	10	-	10

If in Sales Control, the total shipped quantity is 20, LN carries out the following calculation:

```
Total shipped CUM (20) - Prior required CUM (10) = 10.
```

Sales Control adjusts the overdelivery as follows:

Date	17-09	18-09	19-09	20-09	21-09
Ordered	-	-	10	-	10

The required quantity of the first sales schedule line is adjusted, which was the delivered line from Purchase Control.

Receipt Based

If you have agreed with your business partner to use a **Receipt Based** CUM model, your business partner provides the **Received CUM** when sending a new requirement on the sales schedule. The **Received CUM** contains the sum of all quantities that your business partner previously received on the sales schedule. Each time your business partner sends requirements, a new sales schedule revision number is created.

To be able to determine an overdelivery or underdelivery for a **Receipt Based** CUM model, LN carries out the following calculation:

```
Total Adjustment Quantity = Shipped CUM - Received CUM.
```

> **Note**
>
> You can view the **Shipped CUM** and the **Received CUM** in the Sales Schedules (tdsls3111m000) session.

If the result of this calculation is positive, you have shipped more than your business partner received. As a result, LN assumes that the difference between the **Shipped CUM** and the **Received CUM** is in transit. Therefore, LN decreases the required quantity of the next sales schedule line with the total adjustment quantity. If the sales schedule line's required quantity is decreased, the sales schedule line receives the **Adjusted** status. If the total adjustment quantity is equal to or higher than the required quantity of the next sales schedule line, LN cancels this sales schedule line, which therefore gets the **Canceled** status. LN keeps on canceling sales schedule lines and adjusting sales schedule line requirements until the total adjustment quantity is balanced. For more information on what happens with

sales schedule lines that get a zero required quantity, refer to *Zero required quantity for sales schedule lines (p. 53)*.

If the result of this calculation is negative, you have shipped less than your business partner received. In this case, LN does not adjust sales schedule lines, but adds a warning message on the report. The reason for this is that in a **Receipt Based** CUM model, your business partner is responsible for solving the difference (see also: Purchase schedule cumulatives). In this case, you can decide to create a **Correction** record in the Sales Schedule Invoice Lines (tdsls3140m200) session. For more information on invoice corrections, refer to *Sales schedules and Invoicing (p. 89)*.

After LN has carried out the adjustment process and the adjusted and newly created sales schedule lines are not yet approved, you can approve them in the Approve Sales Schedules (tdsls3211m000) session.

Reconciling sales schedules

Material releases and shipping schedules with non-referenced items can be reconciled, which means that your business partner's **Received CUM** is matched with your **Cumulative Shipped Quantity**. If the cumulatives (CUMs) do not match, disputes are generated that you must resolve.

Important!

- In the Item - Sales Business Partner (tdisa0510m000) or Sales Contract Line Logistic Data (tdsls3102m000) session, the **Consider Planned/Actual Delivery Date during Reconciliation** check box determines how the **Shipped CUM** is calculated in the Sales Schedule Reconciliation (tdsls3131m000) and Shipped CUM (tdsls3532m000) sessions.
- If the sales schedule is based on a sales contract with a linked terms and conditions agreement:
  - And the **Synchronize Cums** check box is selected in the Schedule Terms and Conditions (tctrm1131m000) session, you cannot reconcile sales schedules.
  - You can specify how the last shipment is determined for calculating received cumulatives in the **Method of Last Shipment ID Determination** field of the Schedule Terms and Conditions (tctrm1131m000) session.

To insert reconciliation records

When you confirm a shipment for a sales schedule, LN creates a sales schedule reconciliation record in the Sales Schedule Reconciliation (tdsls3131m000) session with the following information:
- The date on which the items are shipped.
- The number of the shipment with which the goods are shipped.
- The quantity that you shipped with that specific shipment.
- The last quantity that is received for the sales schedule.
- The total cumulated quantity that you already shipped for the sales schedule.

For each shipment, one reconciliation record is created with the **Created** status.

When you approve a sales schedule, LN:

1. Inserts the number of the last shipment that your business partner received for the sales schedule in the Sales Schedule Reconciliation (tdsls3131m000) session.

2. Inserts the last quantity that your business partner received for the sales schedule in the Sales Schedule Reconciliation (tdsls3131m000) session.

3. Calculates the new **Received CUM** by adding the **Last Receipt Quantity** to the **Received CUM** of the concerned and next reconciliation records.

4. Compares the business partner's **Received CUM** with your **Cumulative Shipped Quantity**. If these CUMs are equal, the reconciliation record receives the **Matched** status. If these CUMs are unequal, the reconciliation record receives the **Dispute** status.

> **Note**
>
> When you approve a sales schedule for which a reconciliation record with the **Dispute** status exists, a warning message is printed on the approval report. For more information on approving sales schedules, refer to *Approving sales schedules (p. 69)*.

Reconciliation statuses

A reconciliation record can have the following statuses:

■ **Created**
The sales schedule reconciliation record is created and you have not yet received your business partner's received CUM and last receipt quantity for the concerned shipment.

■ **Matched**
You received your business partner's received CUM and last receipt quantity for the concerned shipment and these quantities are equal to your shipped CUM and shipped quantity.

■ The shipped CUM and CUM reset date that you received from an external component are equal to your shipped CUM and CUM reset date.

■ If a shipped cumulative record has the **Synchronize** status, the previous record is set to **Matched**.

■ **Dispute**
You received your business partner's received CUM and last receipt quantity for the concerned shipment and these quantities are unequal to your shipped CUM and shipped quantity.

■ **Reconciled**
You discussed the difference between your business partner's received CUM and your shipped CUM, and as a result you have adjusted the received CUM to equal the shipped CUM.

■ **Adjusted**
You discussed the difference between your business partner's received CUM and your shipped CUM, and as a result you have adjusted the shipped CUM to equal the received CUM.

■ **Adjusted and Reconciled**
You discussed the difference between your business partner's received CUM and your shipped CUM, and as a result you have adjusted the shipped CUM and the received CUM.

- **Matched (forced)**
  The received CUM and last receipt quantity that you received from your business partner for the concerned shipment are unequal to your shipped CUM and shipped quantity, but a later entry has already received the status **Matched**.

- If a sales schedule reconciliation record has the status **Dispute**, and its shipped CUM is updated as a result of adjusting previous records with the **Dispute** status, the current record is set to **Matched (forced)** if, after correction, quantities match.

- **Matched (no feedback)**
  You have not yet received your business partner's received CUM and last receipt quantity for the concerned shipment, but a later entry has already received the status **Matched** or **Reconciled**. The received CUM and last receipt quantity remain zero.

- You have not yet received an external component's shipped CUM for the concerned shipment, but a later entry has already received the status **Matched**.

- **Synchronize**
  The shipped CUM that you received from an external component is unequal to your shipped CUM , and as a result your shipped CUM is adjusted with a correction value to equal the external component's shipped CUM.

- **Reset**
  The sales schedule cumulative record or the sales schedule authorization record are reset in the Reset Cumulatives (tdsls3230m000) session.

- The CUM reset date that you received from an external component is later than your CUM reset date, and as a result the sales schedule cumulative record or sales schedule authorization record are reset.

To solve disputes

You can use the Sales Schedule Reconciliation (tdsls3131m000) session to solve disputes between your shipped cumulatives and your sold-to business partner's received cumulatives for a specific sales schedule. Only if a reconciliation record has the **Dispute** status, you can adjust the record.

To handle sales schedule reconciliation records with the **Dispute** status, select one of the following on the appropriate menu of the Sales Schedule Reconciliation (tdsls3131m000) session:

- **Reconcile Received CUMs**
  LN adjusts the **Received CUM** to equal the **Cumulative Shipped Quantity**. The reconciliation record gets the **Reconciled** status.

- **Adjust Shipped CUMs**
  LN adjusts the **Cumulative Shipped Quantity** to equal the **Received CUM**. The sales schedule reconciliation record gets the **Adjusted** status.

- **Adjust and Reconcile**
  The Enter new CUMs (tdsls3131s000) session starts in which you can specify the quantity that must replace the current **Received CUM** and **Cumulative Shipped Quantity**. The sales schedule reconciliation record gets the **Adjusted and Reconciled** status.

Note

If a record obtains the **Dispute** status because the quantity shipped is more than the quantity that you reported shipped, you must record an extra quantity shipped in Warehousing instead of choosing **Adjust Shipped CUMs**, or **Adjust and Reconcile**. The reason for this is that if you adjust the shipped CUM, no invoice is raised for the additionally shipped goods.

When the dispute is solved:

- All previous records with the **Dispute** status receive the **Matched (forced)** status. Previous records with the **Created** status receive the **Matched (no feedback)** status.
- LN adjusts the **Cumulative Shipped Quantity** of the following records according to the adjustment. The **Received CUM** of successive records is not updated.
- For records with the **Adjusted** or **Adjusted and Reconciled** status, LN redetermines the status of the following records based on the new **Cumulative Shipped Quantity**. If, after adjustment, the **Cumulative Shipped Quantity** of a record with the **Dispute** status turns out to be correct, the sales schedule reconciliation record's status changes from **Dispute** into **Matched (forced)**.
- And you have chosen to adjust the received CUM, your sold-to business partner must also adjust the received CUM. For invoiced purchase schedule lines, the received CUM can be updated in the Update Received CUMs (tdpur3432m000) session. If the received CUM is not updated on the purchase side as well, each time the purchase schedule is sent, it will cause a dispute.
- The shipped CUM records in the Shipped CUM (tdsls3532m000) session are updated according to the adjustments you made in the Sales Schedule Reconciliation (tdsls3131m000) session.

Loss of inventory

If as a result of the discussion with your business partner on a reconciliation record with the **Dispute** status is decided to adjust the **Cumulative Shipped Quantity**, you can also agree with your business partner on who will pay for the loss of inventory.

The following possibilities exist:

- You pay for the loss of inventory. In this case, you must create a **Correction** record in the Sales Schedule Invoice Lines (tdsls3140m200) session. This will result in a credit invoice to your business partner.
- Your business partner pays for the loss of inventory. In this case, you must not create a **Correction** record in the Sales Schedule Invoice Lines (tdsls3140m200) session.

Note

You can also check whether you must create an invoice correction in the Sales Schedule Invoice Lines (tdsls3140m200) session by comparing the **Cumulative Invoiced Quantity** from the Invoiced CUM (tdsls3533m000) session with the **Received CUM** after reconciliation. As a result, you can view whether you invoiced your customer too much or too little compared to the receipts.

For more information on shipment corrections and sales schedule invoices, refer to *Sales schedules and Invoicing (p. 89)*.

Sales schedules and Enterprise Planning

When a sales schedule is approved, planned requirements are calculated and planned supply is generated in Enterprise Planning based on the sales schedule's planned and firm requirements.

Enterprise Planning handles sales schedules as normal sales orders.

To handle sales schedule requirements in Enterprise Planning

After a sales schedule is approved, it depends on the type of schedule how Enterprise Planning handles the sales requirements.

Shipping schedules and sequence shipping schedules

If you approve a **Shipping Schedule** or **Sequence Shipping Schedule**, LN stores the sales requirements in:

- The Planned Inventory Transactions (whinp1500m000) session as a planned inventory transaction of type **Sales Schedule**.
- The Item Master Plan (cprmp2101m000) session as a customer order.
- The Item Order Plan (cprrp0520m000) session as an order of type **Sales Schedule**.

Material releases

If you approve a **Material Release**:

- **Item Master Plan (cprmp2101m000)**
  LN stores the sales requirements for the related item in the **Unconfirm. Cust.Ord.** field.
- **Item Order Plan (cprrp0520m000)**
  The requirements are shown as an order of type **Sales Schedule**

Customer orders for the item represent normal sales orders plus the schedule requirements in the material release that have the **Requirement** set to **Firm**. In Enterprise Planning, customer orders are added to the demand for the item and consumed from the forecast. Sales requirements that originate from a **Material Release** end up as unconfirmed customer orders in the item master plan. These requirements do not affect the planning in Enterprise Planning and are only displayed to show which part of the customer orders is not yet confirmed.

In the Item Order Plan (cprrp0520m000) session, you can view the sales requirements of a **Material Release** as sales schedule forecast.

Master planning and order planning

When you update or simulate the master plan or the order plan, LN takes into account the required quantities of sales schedules.

LN retrieves:

- The planned quantities for a **Shipping Schedule** or **Sequence Shipping Schedule** from the Planned Inventory Transactions (whinp1500m000) session.
- The quantities for a **Material Release** from the Sales Schedule - Lines (tdsls3107m000) session.

Change of quantity and dates

If order quantities or (delivery) dates of a sales schedule change, and the **Online ATP Update in EP** check box is selected in the EP Parameters (cprpd0100m000) session, Enterprise Planning performs an ATP update for the item. This update is similar to the ATP update that Enterprise Planning carries out if anything changes in planned receipts or planned issues in the Planned Inventory Transactions (whinp1500m000) session.

In case of changes, Enterprise Planning also sets the net change date in the Items - Planning (cprpd1100m000) session, so changes are taken into account during a planning run.

To retrieve required quantities for a plan period

A **Shipping Schedule** or **Sequence Shipping Schedule** can end in the middle of a plan period. As a result, an overlap exists between the **Shipping Schedule** or **Sequence Shipping Schedule** and the **Material Release** in that specific plan period.

For this reason, LN distinguishes between a **Material Release** that overlaps a **Shipping Schedule** or **Sequence Shipping Schedule**, and a **Material Release** that does not.

To determine planned quantities for a material release that does not overlap a (sequence) shipping schedule

For a **Material Release** that does not overlap a **Shipping Schedule** or **Sequence Shipping Schedule** in a plan period, LN retrieves the total required quantity for the plan period from the Sales Schedule - Lines (tdsls3107m000) session.

LN uses the following parameters from the Sales Contract Line Logistic Data (tdsls3102m000) or the Item - Sales Business Partner (tdisa0510m000) session to determine whether or not the planned requirements are accumulated:

- **Distribute Planned Requirements**
- **Accumulate Demand On Start Date Of The Period**

Note

If the **Distribute Planned Requirements** is cleared, the **Accumulate Demand On Start Date Of The Period** is always selected.

Examples

Example 1

The **Distribute Planned Requirements** check box and the **Accumulate Demand On Start Date Of The Period** check box are both selected.

Day	1	2	3	4	5
MRL001	50	-	-	-	-
SHP001 / SEQ001	-	-	-	-	-
Planning, sales schedule forecast	50	-	-	-	-

The first day is filled with the total quantity of the material release, because the **Accumulate Demand On Start Date Of The Period** check box is selected.

Example 2

The **Distribute Planned Requirements** check box is selected and the **Accumulate Demand On Start Date Of The Period** check box is cleared.

Day	1	2	3	4	5
MRL001	50	-	-	-	-
SHP001 / SEQ001	-	-	-	-	-
Planning, sales schedule forecast	10	10	10	10	10

The total quantity of the material release, which must not be accumulated, is divided over the five calendar days in the plan period.

To determine planned quantities for a material release that overlaps a (sequence) shipping schedule

For a **Material Release** that overlaps a **Shipping Schedule** or **Sequence Shipping Schedule** in a plan period, LN uses the following parameters from the Sales Contract Line Logistic Data (tdsls3102m000) or the Item - Sales Business Partner (tdisa0510m000) session to determine how to calculate and distribute the planned requirements:

- **Nett Planned Requirements**
- **Linear Estimate**

- **Distribute Planned Requirements**

> **Note**
>
> If the **Nett Planned Requirements** check box is cleared, the **Linear Estimate** check box is also cleared and disabled.

Examples

Example 1

The **Nett Planned Requirements** check box is cleared and the **Distribute Planned Requirements** check box is selected.

Day	1	2	3	4	5
MRL001	50	-	-	-	-
SHP001 / SEQ001	20	10	-	-	-
Planning, sales schedule	20	10	-	-	-
Planning, sales schedule forecast	10	10	10	10	10

Because the **Nett Planned Requirements** is cleared, planned quantities can be entered for all days in the period, including the days that are filled by the shipping schedule (day 1 and 2).

Because the **Distribute Planned Requirements** is selected, LN equally spreads the total quantity of the material release over the number of days in the period.

Example 2

The **Nett Planned Requirements**, **Linear Estimate**, and **Distribute Planned Requirements** check boxes are all selected.

-	Week 1					Week 2					Week 3				
Day	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
MRL001	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-
SHP001 / SEQ001	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Planning, sales schedule	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Planning, sales schedule forecast	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10

- **Week 1**
  A material release exists, but the entire period is filled by the shipping schedule. As a result, Enterprise Planning only takes into account the shipping schedule.
- **Week 2**
  An overlap exists between the material release and the shipping schedule.
- Because the **Nett Planned Requirements** is selected, planned quantities are only applicable for the days that are not filled by the shipping schedule (day 3, 4, and 5).
- Because the **Linear Estimate** check box is selected, LN divides the quantity of the material release by the number of days in the plan period (50/5 = 10) and then determines the planned requirements for the non-overlapping period (10 * 3 = 30).
- Because the **Distribute Planned Requirements** is selected, the days that are not filled by the shipping schedule, receive the calculated quantity of 10 (30/3).
- **Week 3**
  Only a material release exists and Enterprise Planning takes into account the related quantity.
- Because the **Distribute Planned Requirements** is selected, LN equally spreads the total quantity of the material release over the number of days in the period.

Example 3

The **Nett Planned Requirements** check box is selected and the **Linear Estimate** and **Distribute Planned Requirements** check boxes are cleared.

-	Week 1					Week 2					Week 3				
Day	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
MRL001	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-
SHP001 / SEQ001	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Planning, sales schedule	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Planning, sales schedule forecast	-	-	-	-	-	-	-	29	-	-	50	-	-	-	-

- ■ **Week 2**
  Because the **Linear Estimate** check box is cleared, LN distributes the material release in week 2 without linear estimate. This means that LN subtracts the shipping schedule quantity from the total material release quantity for the period (50 - 21 = 29).
- ■ Because the **Distribute Planned Requirements** check box is cleared, the first day of week 2 that has no shipping schedule quantity, is filled with the remaining quantity of the material release.
- ■ **Week 3**
  The first day of week 3 is filled with the total quantity of the material release, because the **Distribute Planned Requirements** check box is cleared.

Example 4

This example shows what happens if the quantity of the material release changes from 50 to 60. In this example, the **Nett Planned Requirements** and **Distribute Planned Requirements** check boxes are selected and the **Linear Estimate** check box is cleared.

-	Week 1					Week 2					Week 3				
Day	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
MRL001	-	-	50	-	-	-	50	–>	60	-	-	-	50	-	-
SHP001 / SEQ001	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Update	-	-	-	-	-	-	-	+3	+3	+4	-	-	-	-	-
Planning, sales schedule	10	9	8	12	10	12	9	-	-	-	-	-	-	-	-
Planning, sales schedule forecast	-	-	-	-	-	-	-	13	13	13	10	10	10	10	10

Week 2

- Because the **Linear Estimate** check box is cleared, LN calculates the remaining quantity as follows: 60 - 12 - 9 = 39.
- Because the **Distribute Planned Requirements** check box is selected, LN equally spreads the remaining quantity of the material release over the number of days in the period.
- Because the **Nett Planned Requirements** is selected, planned quantities are only entered for the days that are not filled by the shipping schedule (day 3, 4, and 5).

Now that planned quantities are increased, Enterprise Planning decreases the ATP quantities for the item.

Example 5

This example shows what happens if the quantity of the shipping schedule changes from 9 to 15 on day 2 of week 2. In this example, the **Nett Planned Requirements** and **Distribute Planned Requirements** check boxes are selected and the **Linear Estimate** check box is cleared.

-	Week 1					Week 2					Week 3				
Day	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
MRL001	-	-	50	-	-	-	-	60	-	-	-	-	50	-	-
SHP001 / SEQ001	10	9	8	12	10	12	15	-	-	-	-	-	-	-	-
Update	-	-	-	-	-	-	+6	-2	-2	-2	-	-	-	-	-
Planning, sales schedule	10	9	8	12	10	12	15	-	-	-	-	-	-	-	-
Planning, sales schedule forecast	-	-	-	-	-	-	-	11	11	11	10	10	10	10	10

This change results in a change in the Planned Inventory Transactions (whinp1500m000) session. LN sends this change to Enterprise Planning for the ATP update.

Obviously, changes in the shipping schedule quantities also affect the material release for week 2.

Week 2

- Because the **Linear Estimate** check box is cleared, LN calculates the remaining quantity as follows: 60 - 12 - 15 = 33.
- Because the **Distribute Planned Requirements** check box is selected, LN equally spreads the remaining quantity of the material release over the number of days in the period.
- Because the **Nett Planned Requirements** is selected, planned quantities are only entered for the days that are not filled by the shipping schedule (day 3, 4, and 5). On day 2, the firm quantity of 15 replaces the earlier received planned quantity.

Now that planned quantities are decreased, Enterprise Planning increases the ATP quantities for the item.

Sales schedules and Warehousing

After the ordered items on a sales schedule line are approved, you can ship them. To ship the items, you must release the sales schedule to Warehousing.

Note

One of the following must be released to Warehousing:

- Approved sales schedule lines with the **Requirement** set to **Immediate** or **Firm**.
- Planned warehouse orders, which are generated for approved sales schedule lines if the **Use Contracts for Schedules** check box is selected in the Sales Contract Parameters (tdsls0100s300) session.

Releasing sales schedules and planned warehouse orders to Warehousing

If the sales schedule is based on a sales contract with a linked terms and conditions agreement, the sales schedule or planned warehouse order is automatically released to Warehousing if, in the Schedule Terms and Conditions (tctrm1131m000) session, the following check boxes are selected:

- **Automatically Release Referenced Sales Schedules to Order**
- **Automatically Release Non-referenced Sales Schedules to Order**
- **Automatically Release Backorders for Referenced Schedules**
- **Automatically Release Backorders for Non-Referenced Schedules**

If these check boxes are cleared, you must use the Release Sales Schedules to Order (tdsls3207m000) or Release Pick-up Sheets to Warehousing (tdsls3207m100) session to release the sales schedule, pick-up sheet, or planned warehouse order to Warehousing.

If a sales schedule (line) or planned warehouse order is released to Warehousing, LN creates a warehousing order for the sales schedule/planned warehouse order and creates outbound order lines for the sales schedule lines/planned warehouse orders. When an outbound order line is created for a sales schedule line, the sales schedule line receives the **Order Generated** status. When an outbound order line is created for a planned warehouse order, the planned warehouse order receives the **Released to Warehousing** status.

Note

LN carries out the outbound procedure and shipment procedure as specified for the warehousing order type that is linked to the warehousing order.

Releasing sequence shipping schedules to Warehousing

If a sales schedule line of the **Sequence Shipping Schedule** type is created, sequence shipping information is created in the Sequence Shipping Information (tdsls3517m000) session. In this session, LN keeps track of the sequence shipping information revisions.

After the sales schedule line is released to Warehousing, LN also creates sequence shipping data in the Shipping Sequence (whinh4520m000) session of Warehouse Management. In this session, only the latest revision of the shipping sequence information is filed.

The shipping sequence information informs you about the sequence in which your ship-to business partner needs the items on the assembly line. Therefore, you must ship the goods in the sequence that is specified in the Shipping Sequence (whinh4520m000) session. The shipping sequence data is used

to create shipments and shipment lines. LN creates a shipment for each shipment reference. Each shipping sequence results in a shipment line.

Shipping for sales schedules

If, in Warehousing, items are shipped for a sales schedule line, LN assigns one of the following statuses to the sales schedule line and planned warehouse order:

- **Sales schedule line**
  - **Partially Shipped**
    A part of the ordered quantity is shipped. If planned warehouse orders are used, this status is not applicable for the sales schedule line.
  - **Goods Delivered**
    The entire ordered quantity is shipped.

- **Planned warehouse order**
  - **Partially Delivered**
    The first shipment line is confirmed in Warehousing for this warehouse order. Other lines are still to be confirmed.
  - **Finalized**
    The last shipment is confirmed in Warehousing for this warehouse order or the shipment process is finished without an actual shipment, for example when a warehouse order is canceled.

If items are shipped for a sales schedule line, LN:

- Updates the total quantity shipped for the sales schedule in the Shipped CUM (tdsls3532m000) session and the Sales Schedules (tdsls3111m000) session.
- Creates an actual delivery line with the **Goods Delivered** status in the Sales Schedule Actual Delivery Lines (tdsls3140m000) session.
- Updates the **Last Shipment ID**, **Last Delivery Date**, and the **Delivered Quantity** in the Sales Schedule - Lines (tdsls3107m000) session.

Note

If not the entire ordered quantity is shipped and the sales schedule is terminated, the sales schedule line receives the **Goods Delivered** status. As a result, the remaining ordered quantity that is not shipped can no longer be shipped. For more information on terminating sales schedules, refer to *Terminating sales schedules (p. 93)*.

Sales schedules and Invoicing

After the ordered items on a sales schedule line are partially or fully delivered, you can invoice the delivered goods. To send the invoice, you must release the sales schedule to Invoicing.

Actual deliveries, invoice lines, and invoice corrections

To be able to invoice (partial) shipments, LN files actual deliveries in the Sales Schedule Actual Delivery Lines (tdsls3140m000) and Sales Schedule Actual Delivery Lines (tdsls3140m100) sessions.

You can use the Sales Schedule Invoice Lines (tdsls3140m200) to invoice and correct delivered quantities.

Note

Actual delivery lines can also be considered as invoice lines.

Actual delivery

In the Sales Schedule Actual Delivery Lines (tdsls3140m000) and Sales Schedule Actual Delivery Lines (tdsls3140m100) sessions, LN files all deliveries that take place for a sales schedule line or planned warehouse order. When a sales schedule line's or planned warehouse order's ordered quantity is (partially) delivered, LN creates an actual delivery line with the **Goods Delivered** status for the delivered quantity. Invoicing of delivered items takes place based on the actual delivery details that are specified in these sessions. This setup enables you to invoice partial deliveries as well.

An actual delivery line goes through the following statuses:

1. **Goods Delivered**
2. **Released to Invoicing**
3. **Invoiced**
4. **Processed**

Invoice correction

You can use the Sales Schedule Invoice Lines (tdsls3140m200) session to correct delivered quantities. These corrections take place for financial, not logistic reasons. If, for example, shipped items are lost during shipment and you do not want to invoice your business partner for these lost items, you can reduce the delivered quantity. To do so, select an invoice line and, from the appropriate menu, choose **Enter Invoice Correction**. As a result, you can specify the **Correction Quantity** in the details session. The **Shipment Type** is set to **Correction** for the correction record.

You can create invoice corrections for sales schedule lines with a status other than **Processed**.

An invoice correction record goes through the following statuses:

1. **Created**
2. **Released to Invoicing**
3. **Invoiced**
4. **Processed**

Note

You must confirm an invoice correction record with the **Created** status before it can be released to Invoicing. To confirm the invoice correction record, from the appropriate menu of the Sales Schedule Invoice Lines (tdsls3140m200) session, choose **Confirm Invoice Correction**.

If you confirm a correction record, LN:

- Creates a financial transaction of the **Shipment Variance** type in the Integration Transactions (tfgld4582m000) session.
- Decreases the business partner's open balance with the correction amount.
- Updates the sales contract data, if a sales contract is linked.
- Inserts a record in the sales schedule history.
- Does not update the shipped CUMs, because the shipment correction is only executed for financial reasons and not logistic.

Releasing invoice lines and invoice corrections to Invoicing

To release invoice lines and invoice corrections to Invoicing, from the <u>appropriate</u> menu of the Sales Schedule Invoice Lines (tdsls3140m200) session, choose **Release Sales Orders/Schedules to Invoicing**. As a result, the Release Sales Orders/Schedules to Invoicing (tdsls4247m000) session is started.

The following data in the following order is released to Invoicing:

1. Invoice lines with the **Goods Delivered** status.
2. Confirmed correction records with the **Created** status.

Note

- Releasing of invoice lines and then correction records is performed in sequence of sequence number (sequence of creation).
- If you release a sales schedule/planned warehouse order to Invoicing, the status of the actual delivery line, invoice line, and correction record is changed to **Released to Invoicing**.

If a sales schedule is released to Invoicing, LN determines the **Delivered Amount** as follows:

- **Invoice line**
  Delivered Quantity/ Ordered Quantity * Schedule Line Amount
- **Correction record**
  Correction Quantity/ Delivered Quantity of the invoice line * **Delivered Amount** of the invoice line.

Note

- LN retrieves the **Ordered Quantity** and **Schedule Line Amount** from the Sales Schedule - Lines (tdsls3107m000) session.
- If all invoice lines and correction records for a sales schedule line have the **Released to Invoicing** status, the sales schedule line's status also becomes **Released to Invoicing**.

Creating and posting invoices in Invoicing

The creation and posting of the invoices for sales schedules occurs in the Invoices (cisli3105m000) session in Invoicing.

Note

LN creates a credit invoice (line) for invoice correction records.

When an invoice is sent for the sales schedule line's invoice line or correction record:

- The invoice lines or correction records receive the **Invoiced** status and the **Invoice Number** and **Invoice Date** fields are filled in the Sales Schedule Actual Delivery Lines (tdsls3140m000), Sales Schedule Actual Delivery Lines (tdsls3140m100), and Sales Schedule Invoice Lines (tdsls3140m200) sessions.
- LN updates the total invoiced quantity for the sales schedule in the Invoiced CUM (tdsls3533m000) session and the Sales Schedules (tdsls3111m000) session.
- LN updates the Sales Schedule - Lines (tdsls3107m000) session with the invoice data.

If all invoice lines and correction records for a sales schedule line/planned warehouse order have the **Invoiced** status, the status of the sales schedule line/planned warehouse order also becomes **Invoiced**.

Processing and deleting sales schedules

After the invoice for a sales schedule line is sent, the sales schedule line has the **Invoiced** status. You can process and delete sales schedules that contain lines with the **Invoiced** status.

Use the Process Delivered Sales Schedules (tdsls3223m000) session to process sales schedules.

Use the Delete Sales Schedules (tdsls3224m000) session to delete processed or canceled and replaced sales schedules.

Processing

If you process sales schedules in the Process Delivered Sales Schedules (tdsls3223m000) session, LN:

- Creates sales schedule turnover history for the processed sales schedules. You can view the turnover history in the sales order/schedule history sessions.
- Updates the sales contract line's **Invoiced Quantity** if a sales contract is linked to the sales schedule line.
- Changes the sales schedule status, the sales schedule line status, and the sales schedule line's actual delivery line status from **Invoiced** to **Processed**.
- Processes the linked planned warehouse orders with the **Invoiced** status.

Note

You cannot process sales schedules for which uninvoiced invoice corrections exist.

If you process a sales schedule for which not all sales schedule lines, sales schedule actual delivery lines, or invoice corrections have the **Invoiced** status, LN:

1. Changes the status of the sales schedule lines, actual delivery lines, and invoice corrections with the **Invoiced** status to **Processed**.

2. Does not change the status of the sales schedule lines, actual delivery lines, and invoice corrections that do not have the **Invoiced** status.

3. Changes the sales schedule status to **Processing in Progress**.

If, for a sales schedule with the **Processing in Progress** status, the not yet processed sales schedule lines, actual delivery lines, or invoice corrections receive the **Invoiced** status, LN automatically processes these sales schedule lines, actual delivery lines, and invoice corrections and changes the sales schedule's status to **Processed**.

Deleting

In the Delete Sales Schedules (tdsls3224m000) session, you can delete **Canceled**, **Replaced**, and **Processed** sales schedule lines.

If you delete a processed sales schedule, LN deletes all data related to the sales schedule, such as:

- The sales schedule and sales schedule lines.
- The pick-up sheet and pick-up sheet lines.
- The sales release, release lines, and release line details.
- The sequence shipping information.
- The sales schedule actual delivery lines.
- The shipped CUM.
- The invoiced CUM.
- The FAB and RAW authorizations.

Note

- Sales schedule lines can only be deleted after successful deletion of the linked warehouse order, the planned warehouse order links, and the planned warehouse order(s).
- When all lines of a schedule are deleted, LN also deletes the schedule header.

Terminating sales schedules

If your relationship with a business partner has ended and you want to change the sold-to business partner specific item data, you can terminate the sales schedule. The status of the linked planned warehouse orders or sales schedule lines can affect the termination process.

Note

Use the Terminate Sales Schedules (tdsls3211m100) session to terminate sales schedules.

Created, Adjusted, Approved, or Planned

If you terminate a sales schedule and a related sales schedule line has the **Created**, **Adjusted**, or **Approved** status, the sales schedule line's status is changed to **Canceled**.

If you terminate a sales schedule and a related planned warehouse order has the **Planned** status, the planned warehouse order's status is changed to **Canceled**.

Note

If one of the following sales schedule lines is canceled, the results of the approval process are undone:

- A sales schedule line with the **Approved** status.
- A sales schedule line with the **Order Generated** status for which the outbound process is not yet started.

Order Generated or Released to Warehousing

If you terminate a sales schedule and a linked sales schedule line has the **Order Generated** status or a linked planned warehouse order has the **Released to Warehousing** status, the related outbound order line determines whether the planned warehouse order/sales schedule line can be canceled:

- If the outbound process is not yet started, the outbound order line is deleted and the planned warehouse order/sales schedule line receives the **Canceled** status.
- If the outbound process is started, the outbound order line and the planned warehouse order are set to **Canceled** and the sales schedule line receives the **Canceling in Process** status.
- If the outbound order line that is set to **Canceled** gets the **Shipped** status, the sales schedule line receives the **Canceled** status.

Partially Shipped or Partially Delivered

If you terminate a sales schedule and a linked sales schedule line has the **Partially Shipped** status, or a linked planned warehouse order has the **Partially Delivered** status, the related outbound order line determines whether the planned warehouse order/sales schedule line can be canceled.

- **Outbound process not yet started**
  The outbound order line for the remaining quantity is deleted. The planned warehouse order receives the **Finalized** status and the sales schedule line receives the **Goods Delivered** status.
- **Outbound process started**
  The outbound order line for the remaining quantity is set to **Canceled** and the sales schedule line keeps the **Partially Shipped** status. If the outbound order line that is set to **Canceled** gets the **Shipped** status, the sales schedule line receives the **Goods Delivered** status.
- The canceled part of the planned warehouse order quantity is updated on the planned warehouse order as the **Canceled Quantity**. Sales schedule lines linked to this planned warehouse order receive the **Goods Delivered** status.
- Sales schedule lines linked to a canceled planned warehouse order have cancellation history records. The sum of the canceled quantities of these history records is equal to the canceled quantity of the linked planned warehouse order.

Goods Delivered, Finalized, Released to Invoicing, Invoiced

If you terminate a sales schedule and a linked planned warehouse order has the **Finalized**, **Released to Invoicing**, or **Invoiced** status, or a sales schedule line has the **Goods Delivered**, **Released to**

Invoicing, or **Invoiced** status, you must finish the sales schedule procedure until they have the **Processed** status.

Sales schedule status

The status of a sales schedule that is terminated depends on the statuses of its planned warehouse orders/sales schedule lines:

■ If not all planned warehouse orders/sales schedule lines have the **Processed** or **Canceled** status, the sales schedule has the **Termination in Process** status.

■ If all planned warehouse orders/sales schedules lines have the **Processed** or **Canceled** status, the sales schedule receives the **Terminated** status.

If a sales schedule has the **Termination in Process** or **Terminated** status, no new revisions can be added to the sales schedule.

Sales order/schedule history

You can use sales order/schedule history to track the creation and modification of sales orders, installment orders, and sales schedules. You can keep certain information after the original order/schedule is completed.

Orders/schedules are registered in history if the following applies:

■ For sales orders, the **Log Order History**, **Log EDI Order History** and **Log Actual Order Delivery History** check boxes are selected in the Sales Order Parameters (tdsls0100s400) session.

■ For sales order installments, the **Log Order History** and/or **Log EDI Order History** check boxes are selected in the Sales Order Parameters (tdsls0100s400) session.

■ For sales schedules, the **Log Schedule History** and **Log Actual Schedule Delivery History** check boxes are selected in the Sales Contract Parameters (tdsls0100s300) session.

The following record types are available in the history sessions:

■ **Intake**
The order/schedule line was added, changed, or deleted.

■ **Cancellation**
The order/schedule line was canceled.

■ **Turnover**
The order line was processed in the Process Delivered Sales Orders (tdsls4223m000) session, or the schedule line was processed in the Process Delivered Sales Schedules (tdsls3223m000) session.

Contents of history files

The order/schedule history files contain:

- All created order/schedule (line) transactions. These order/schedule (line)s have not been processed.
- All invoiced order/schedule (line)s. These are the processed order/schedule (line)s. When an order is invoiced, the history also includes the gross profit of the order line.

The following fields determine if, when, and how and the order/schedule history files are updated

Sales orders

Field	Retrieved from session
Log Order History	Sales Orders (tdsls4100m000)
Log EDI Order History	Sales Orders (tdsls4100m000)
Start Logging History at	Sales Orders (tdsls4100m000)
Level of Intake Logging	Sales Order Parameters (tdsls0100s400)
Log Actual Order Delivery History	Sales Order Parameters (tdsls0100s400)
Log Component History	Sales Order Parameters (tdsls0100s400)

Sales order installments

Field	Retrieved from session
Log Order History	Sales Order Parameters (tdsls0100s400)
Log EDI Order History	Sales Order Parameters (tdsls0100s400)
Start Logging History at	Sales Order Parameters (tdsls0100s400)
Level of Intake Logging	Sales Order Parameters (tdsls0100s400)

Sales schedules

Field	Retrieved from session
Log Schedule History	Sales Schedules (tdsls3111m000)

Level of Intake Logging	Sales Contract Parameters (tdsls0100s300)
Log Actual Schedule Delivery History	Sales Contract Parameters (tdsls0100s300)

Note

- For sales schedules, history logging always starts during approval.
- If planned warehouse orders are used for sales schedules, sales schedule line history is based on the planned warehouse order information.

Clearing history files

You can restrict the total amount of history data with the Archive/Delete Sales Order/Schedule History (tdsls5201m000) session.

History files are the basis for statistics. Before you clear the history files, determine whether the statistics are fully updated. If the history files are cleared before the update, you cannot fully update the statistics.

Note

You cannot modify the history data. It is only used for information purposes.

Chapter 2
Automotive in Warehousing

<div style="text-align: right">**2**</div>

Handling units

Global Update of Handling Units

In various industries, goods are picked from an anonymous stock, which means that no handling units are present in the stock, and moved to the staging area. At the staging area, final preparations are carried out to make the goods ready for shipment. Goods are packed in packaging materials such as crates and pallets. In this business scenario, handling units are created automatically during the confirmation of the pick. LN creates handling units based on the packaging definition of the warehouse order outbound line. The packaging definition defaulted at the warehouse order outbound line is usually a packaging definition which is applied for the item or item/business partner combination under normal conditions.

At times there can be shortage of packaging materials. In most cases the shipment of goods cannot wait until the correct packaging materials are available. In practice, alternative packaging materials are used, for example, another type/size of box or another pallet can be used. This means that a new packaging definition must be applied which is different from the one that is applied under normal conditions. The use of alternate packaging material means that the handling unit structure, which is already generated by LN when the pick is confirmed, must be changed.

To suit the needs of your business, LN allows you to do the following:

- Select an alternate packaging definition

- Compose a shipment line specific handling unit template (Specific Packaging)

The following options in the Shipment Lines (whinh4131m000) session > <u>appropriate</u> menu > **Handling Units** allow you to easily replace the packaging materials in the generated handling units:

- **Alternative Package Definition**: For details, refer to the online Help of the Select Alternative Package Definition (whinh4231m400) session.

- **Specific Packaging**: For more information, refer to *Shipment Line Specific Handling Unit Template (p. 100)*.

LN disables both options if the following happens:

- The **Package Definition** field in the Shipment Lines (whinh4131m000) session is not of type **Variable** or empty.

- The status of the shipment line is not **Open**.

- The handling unit does not refer to inventory. The HU linked to the shipment line contains the information about the linked lots. In this scenario, the removal of handling units at shipment line level is not allowed because relevant inventory characteristic information only present at the handling unit linked to the shipment line will be lost. This information is not stored in the shipment line.

- The Generation of handling unit is not allowed when the following happens:

  - The shipment line is marked as **Manual** in the Shipment Lines (whinh4131m000) session.
  - The warehouse is WMS controlled.
  - The manual outbound process is not allowed.
  - Handling units must be in use in shipments.
  - The quantity **Not Shipped** in the Shipment Lines (whinh4131m000) session is greater than zero.

- You cannot see both the options if you do not select the **Handling Units in Use** check box in the Master Data Parameters (whwmd0100s000) session.

Shipment Line Specific Handling Unit Template

You can compose a shipment line specific packaging structure. The shipment line specific packaging structure is only applied to the concerning shipment line and cannot be reused for other shipment lines. For example, you normally put boxes on a pallet but you now want to put boxes in a container. LN supports this action by creating a shipment line specific handling unit template.

> **Note**
>
> To implement the Specific Packaging functionality, you must select the **Handling Units in Use** check box in the Master Data Parameters (whwmd0100s000) session.

Specific Packaging --> Shipment Line Specific Handling Unit Template

To replace specific packaging material, you can click underline appropriate option > **Handling Units** > **Specific Packaging** in the Shipment Lines (whinh4131m000) session. The Handling Unit Templates (whwmd4160m000) session starts. In this session you can define the shipment line specific handling unit template.

If case there is no pre-existing specific shipment line handling unit template, the following steps are carried out:

1. LN generates a new handling unit template ID.

2. LN defaults a new shipment line specific template. The defaulted template is copied from the following:

     a. The **Package Definition** field in the Shipment Lines (whinh4131m000) session.

     b. The package definition on the outbound line.

     c. If both package definitions in the steps above are empty, no shipment line specific template is defaulted.

3. Auxiliary packaging, if present, is copied to the new shipment line specific template.

Click the **(Re)generate Handling Unit** button in the Handling Unit Templates (whwmd4160m000) session to create a new handling unit structure based on this shipment line specific handling unit template.

> **Note**
>
> LN removes shipment line specific handling unit templates when the corresponding shipment line is deleted from the system.

Examples of Changing Handling Units (Single Item<=> Multi-Item)

LN generates only single-item handling units. The composition of multi-item handling units is a manual process. You can change a single-item handling unit into a multi-item handling unit. When you change a single-item handling unit into a multi-item handling unit, often a different label layout applies. For details, refer to the online Help of:

- **Automatic Labeling of Multi-Item Handling Unit** field in Warehouses (whwmd2500m000) session.

- **Multi-Item Label Layout** field in Handling Units (whwmd5130m000) session.

Example

A shipment contains two items, inner mirror and outer left mirror of a car. Initially the shipment has two shipment lines, one line for item inner mirror and one for item outer left mirror. Assume that there are 2 single-item masters and every master has 2 singles (this means that: every (single item) parent handling unit contains 2 child handling units. This means that there are 4 single-item singles (this means that there are four child hadling units). The table below shows the defined label layout codes.

Selling Item	Packaging Info Single	Packaging Info Master
Inner Mirror	KLT1234, Label Layout Code Single-Item = AAA	Pallet, Label Layout Single-Item = KKK, Label Layout Multi-Item = LLL
Outer Left Mirror	KLT5678, Label Layout Code Single-Item = BBB	Container, Label Layout Single-Item = MMM, Label Layout Multi-Item = NNN

Different Scenarios

- *Scenario 1:* The singles containing the outer left mirrors are manually taken from the container and put on the pallet containing the inner mirrors. This means that the pallet becomes a multi-item handling unit. Multi-item label Layout LLL is now used for printing the label for the pallet. Label layouts AAA and BBB are still used for printing the labels of the singles. Multi-item label layout NNN of the container does not play a role.

- *Scenario 2:* Now in the alternative procedure, the singles containing the inner mirrors are manually taken from the pallet and put in the container containing the outer left mirrors. This means that the container becomes a multi-item handling unit. Multi-item label Layout NNN is now used for printing the label for the Container. Label layouts AAA and BBB will still be used for printing the labels of the singles. Multi-item label layout LLL of the Pallet does not play a role.

- *Scenario 3:* A brand new master handling unit is created. The singles are taken from the pallet and the container and put on the brand new handling unit. When creating the brand new handling unit, no package definition is available and also no default label layout is available. In this case it is the responsibility of the end-user to manually populate the desired label layout code.

Shipment building

Shipment Building Based on Shipment Reference

Shipment building is the process that automatically creates shipments based on picked outbound advices.

The existing shipment building criteria are as follows:

- Ship-from Type, Ship-from Code, Ship-from Address
- Ship-to Type, Ship-to Code, Ship-to Address
- Planned for Load Plan (Y/N)
- Manual Shipment (Y/N)
- Office
- Office Company
- Route
- Delivery Terms
- Point of Title Passage
- Motive of Transport
- Carrier
- Planned Delivery Date
- Delivery Point
- Shipment Reference

The shipment reference determines, among other criteria, how the goods issued/picked up from the supplier warehouse are grouped into shipments. The items on sales schedule lines that have the same shipment reference must be shipped as one shipment to the customer. In the automotive business this

is called a Pickup Sheet (PUS) process. The shipment reference is primarily populated for warehouse orders with origin *Sales Schedule*. The value of the shipment reference is passed from Sales to Warehousing by the **Shipment Reference** field in the Sales Schedule Planned Warehouse Orders (tdsls3520m000) session.

Based on the *Shipment Reference*, the following two shipment building parameters are available in the Warehousing Order Types (whinh0110m000) session:

- **Unique Shipment Reference per Shipment**

  If this check box is selected, LN creates a unique shipment for each shipment reference number. Creation of multiple shipments for the same shipment reference is not allowed in the following cases:

  - The Ship-to business partner of the shipments is same.

  - The Ship-to business partner is different, but shipments have the same Sold-to business partner. Conversely, this means that when the ship-to BP's differ and their related sold-to BP's differ, LN allows the same shipment reference for creation of multiple shipments.

  This parameter has the following consequences:

  - The *Shipment Reference* criterion overrules the shipment building criterion for *Planned Delivery Date*. When the planned delivery date is not the same for all schedule lines, but the schedule lines have the same shipment reference, LN creates one shipment that contains all the schedule lines for this shipment reference.

  - LN does not create outbound advices and shipment lines for *pickup sheet lines* that have full shortage of items. Other lines of the same pickup sheet can be picked and shipped. The outbound line for which the shortage of items occurred remains open and has the pickup sheet number of the already shipped pickup sheet. Processing of this remaining outbound line can result in a shipment that has the already used pickup sheet number. You can cancel the schedule line or provide the schedule line with a new pickup sheet number.

  Note

  - If a confirmed shipment already exists for the same shipment reference, LN stops the creation of the shipment and displays an error message.

  - Splitting/composing shipments must not result in multiple shipments per pickup sheet number and vice-versa. If shipment composition results in duplicate pickup sheet numbers, LN stops the creation of shipments and displays an error message.

- **Single Shipment Reference per Shipment**

  If this check box is selected, LN allows creation of multiple shipments for the same *Shipment Reference*. This parameter has the following consequences:

  - For two shipment lines that have the same shipment reference and different planned delivery dates, LN creates two shipments that have the same shipment reference.

  - Outbound Lines that have different shipment reference numbers are put on different shipments.

■ If other shipment building criteria allow, outbound lines that have the same shipment reference number are put on the same shipment. Otherwise, outbound lines are put on separate shipments.

All possible shipment reference scenarios are listed in the table below.

Contents Existing Shipment Header	Shipment Reference Outbound Line	Related Order Type is Single Reference	Action
Single Reference=No, Shipment Reference= empty	empty	no	Add to Shipment
	empty	yes	Add to Shipment
	AAA	no	Add to Shipment
	AAA	yes	Create New Single Reference Shipment
Single Reference=No, Shipment Reference= AAA In this scenario, the shipment reference at the shipment header is manually filled by the end-user.	empty	no	Add to Shipment
	empty	yes	Add to Shipment
	AAA	no	Add to Shipment
	AAA	yes	Add to shipment if all shipment lines have reference "AAA" and make it a single reference shipment, otherwise create new single reference shipment
	BBB	No	Add to Shipment
	BBB	Yes	Create New Single Reference Shipment
Single Reference=Yes, Shipment reference= AAA	empty	no	create new shipment
	empty	yes	create new shipment

AAA	no	Add to Shipment
AAA	Yes	Add to Shipment
BBB	No	Create new ship-ment
BBB	Yes	Create New Single Reference Ship-ment

Single Reference=Yes,Ship-ment Reference=Empty	Not Applicable	

Freight Integration

The **Shipment Reference** field which, among others, is used for the *Pickup Sheet* process, is transferred from the Outbound Order Lines (whinh2120m000) session to the corresponding freight order if Freight is implemented. In the Freight package, this shipment reference must be taken into account, if filled, as a *Shipment Building* criterion during the Load Building procedure through the Generate Plan (fmlbd0280m000) session.

That is, if the **Single Shipment Reference per Shipment** check box is selected and the Generate Plan (fmlbd0280m000) session is run, multiple shipments must be generated if different shipment references are applicable, even though these shipments are to be delivered at the same destination address at the same time, that is, within the same load.

If the **Unique Shipment Reference per Shipment** check box is selected and the Generate Plan (fmlbd0280m000) session is run, for example, for a particular period/freight order range and the same Reference is linked to multiple freight order lines (outbound lines) with different delivery times/dates, LN must still generate one single shipment per reference. This implies that the delivery time/date range on the order lines is extended so that both lines can be included in one and the same shipment. To create one single shipment, other criteria, if applicable, must also be met.

Shipment building based on delivery points

Shipment building is the process that automatically creates shipments based on (picked) outbound advices.

The value of the delivery point is passed from Sales to Warehousing by the **Delivery Point** field in the Sales Schedule - Lines (tdsls3107m000) session. The delivery point is passed to the warehouse order outbound line when a schedule line is transferred to Warehousing.

These shipment building criteria are available:

- Ship-from Type, Ship-from Code, Ship-from Address
- Ship-to Type, Ship-to Code, Ship-to Address

- Planned for Load Plan (Y/N)
- Manual Shipment (Y/N)
- Office
- Office Company
- Route
- Delivery Terms
- Point of Title Passage
- Motive of Transport
- Carrier
- Planned Delivery Date
- Delivery Point
- Shipment Reference

Originally, in LN, the ship-to business partner and related ship-to address is the most detailed level at which the destination of goods is defined. However, often the premises of customers / Original Equipment Manufacturers (OEM) are huge and goods can be received at multiple delivery points. For efficient goods handling, the supplier / shipping company must know the specific delivery point at which the goods must be unloaded. This objective is achieved by adding delivery points to delivery addresses and including them as shipment building criteria.

LN groups the outbound advices that have the same *Delivery Point* as shipment lines in one shipment. You can use the **Single Delivery Point per Shipment** check box in the Warehousing Order Types (whinh0110m000) session to group the shipment lines by delivery points during shipment building. If this check box is selected, LN groups the outbound lines in the following manner :

- Outbound lines that have the same delivery point are put on the same shipment, as shipment lines, provided other shipment building criteria allow this. Otherwise, outbound lines are put as shipment lines on separate shipments. This effectively means that the creation of multiple shipments for the same delivery point is permitted in specific cases.

- Outbound Lines that have different delivery points are put on different shipments.

The following example explains the scenario in which shipments are created based on delivery points:

Order	Position	Ship-to BP	Delivery Point	Shipment
SSC000123	10	VW	Dock A	SHP000234
SSC000123	20	VW	Dock B	SHP000235
SSC000124	10	Opel	Dock A	SHP000236
SSC000125	10	VW	Dock A	SHP000234
SSC000126	10	Opel		SHP000237

Freight Integration

In case a delivery point is present on an outbound order line and the **Single Delivery Point per Shipment** check box in the Warehousing Order Types (whinh0110m000) session is selected, the delivery point is passed to the corresponding freight order (if Freight is implemented). The **Single Delivery Point per Shipment** check box cannot be modified in Freight. In other words, Freight load building always follows the shipment building instructions from Warehousing. This implies that the planning engine in Freight builds separate shipments per delivery point instead of per delivery address, which may result in multiple shipments per unloading address within one load.

Length of ASN Number

LN allows you to limit the length of generated shipment and load numbers and, therefore, the length of the ASN number. This feature makes it possible to satisfy requirements and standards of specific branches of industry, such as the VDA standard which limits the length of the ASN number to a maximum of 8 characters. VDA (Verband der Automobilindustry) is a German organization which serves the interests of the automobile industry.

Example

The example below illustrates how a load or shipment number is generated.

Length Series = 3	
Series = AAA	
First Free Number = 23	
Load Length / Shipment Length = 9	Number = AAA000023
Load Length / Shipment Length = 8	Number = AAA00023
Load Length / Shipment Length = 6	Number = AAA023

When LN creates loads and shipments in Freight, LN applies the **Load Length** and **Shipment Length** defined in the Inventory Handling Parameters (whinh0100m000) session of Warehousing.

Note

When Freight is implemented and no Warehousing parameters are defined, LN uses the actual length of the load and shipment fields.

Logistic service providers (LSP) - packaging item registration

Logistic service providers (LSP) are handled as a separate VMI consignment type of warehouse in LN Warehousing. Ownership of inventory rests with the supplier.

Note

- The logging of packaging item transactions at the moment of consumption by the customer is not based on consumed stock point information from the VMI/LSP warehouse. Packaging material transactions must be logged separately from the regular item consumptions, and are processed during the processing of sales consumptions.

In an LSP-based scenario, the consumption messages to the supplier are always sent by the LSP and never by the end customer (OEM).

Prerequisites

LN records the packaging item transactions only when the following occurs:

- The **Extended Packaging Item Registration** check box is selected in the Master Data Parameters (whwmd0100s000) session.

- The **Accountable** check box is selected in the Packaging Items (whwmd4505m000) session.

- The **Inventory Management** check box is cleared.

Important!

There are two LSP scenarios in which LN receives the consumption messages and updates associated packaging accounts:

- The LSP (VMI) warehouse is directed/managed by and probably located at the customer's site.

- The LSP (VMI) warehouse is directed by a third party, possibly closely related to the supplier.

To indicate the applicable scenario, the **Update Shipping Material Account during** field in the Warehouses (whwmd2500m000) session presents you with the following choices:

- **Shipment to VMI Warehouse**: Use when the LSP warehouse is managed by the customer.
- **Consumption by Customer**: Use when the LSP warehouse is directed by the supplier or a closely related third party.

Usage of option **Shipment to VMI Warehouse**- Scenarios

You must use the **Shipment to VMI Warehouse** option when the following occurs:

- When the shipping material accounts must be updated when the goods leave the warehouse of the supplier to be shipped to the VMI (LSP) warehouse. In LN, the sales transfer orders are used for this VMI scenario to deliver the goods from a supplier warehouse to a *VMI warehouse (LSP)*.

- When the shipping material account must be updated when the consumption messages sent by the LSP never contain packaging information. The shipping material accounts must be updated when goods are shipped (transferred) from the supplier warehouse to the LSP warehouse.

Usage of option **Consumption by Customer**- Scenarios

You must use the **Consumption by Customer** option when the following occurs:

- Shipping material accounts must be updated when the consumption, by the customer/OEM, is processed.

- The consumption message sent by the LSP (to the supplier) must contain all the necessary packaging information.

The **Update Shipping Material Account during** field on the ship-to VMI (LSP) warehouse, (to which goods are transferred) determines which scenario applies.

Shipping Material Accounts

The topic describes the packaging item registration functionality.

Shipping Material Accounts

Shipping Material Accounts are used to communicate with a business partner about quantities of packaging items and payments of packaging items. The shipping material account is used to group packaging items for the purpose of reporting to business partners. For details, refer to the online Help of Shipping Material Accounts (whwmd4170m000) session.

Note

LN records the packaging item transactions only when the :

- **Extended Packaging Item Registration** check box is selected in the Master Data Parameters (whwmd0100s000) session.

- **Accountable** check box is selected in the Packaging Items (whwmd4505m000) session.

Important!

You can copy all items from one business partner to another business partner within the same shipping material account.

Search of Shipping Material Accounts (SMA)

When LN records a shipping material transaction, LN searches for a shipping material account (SMA) to be linked to the transaction in the following hierarchy :

1. LN searches for a SMA that has a combination of business partner, packaging item and transaction date of the transaction.

    The step 1 can also result in an empty SMA. This means that the item is excluded from accounting for the specific business partner. If a SMA is found in step 1, then the search action stops else step 2 is executed.

2. LN searches for a SMA that has a combination of business partner, and transaction date of the transaction.

In the steps above, LN searches for an entry in the shipping material account that has an effective date which is most close to the transaction date. Expiry date for the shipping material account are not defined.

The expiry date of an existing entry in the shipping material account is determined by the effective date of a new entry in the accounting scheme.

Packaging Item Registration

LN record the received and issued quantities of packaging items by date. LN updates the session during the receipt and shipping process for transactions that have a packaging item. Packaging item can be linked to a handling unit, receipt line, shipment or container. The Packaging Item Transactions (whinr1115m000) session is updated even if no shipping material account is used for packaging items.

You can also enter the packaging item transactions manually.

Important!

- Transfer orders and adjustment orders are not logged in the packaging item transactions as no business partner is related to these processes.

- Container related shipments for sales transfer orders are not logged, because no unique link can be determined between a container and the sales order.

For sales orders of type transfer, an exception is made to support a VMI scenario where goods flow through a *VMI warehouse*. The transfer sales orders are used for VMI scenario that deliver the goods from own warehouse to a *VMI warehouse* and after that the issue to the customer is carried out. The business partner is determined at the original sales order. You can select the stage in the supply process at which the packaging item related transactions are updated by LN in the **Update Shipping Material Account during** field of Warehouses (whwmd2500m000) session (in case of a logistical service provider (LSP) scenario). The field is enabled only for VMI warehouses in which warehouse management is not carried out by own company.The packaging item related transactions can be updated by LN at the following points in supply process:

- **Shipment to VMI Warehouse**: The shipping material account must be updated during shipment of (packaging) items from the normal warehouse to the VMI warehouse.

- **Consumption by Customer**: The shipping material account must be updated during shipment of (packaging) items from the VMI warehouse (Logistical Service Provider (LSP) warehouse) to the customer/OEM (Original Equipment Manufacturer).

- **Not Applicable**: LN assigns this value for warehouses in which the own company is doing inventory management. To record the packaging item transactions, you must select the **Extended Packaging Item Registration** check box in the Master Data Parameters (whwmd0100s000) session.

Limitations

- Only logistic data is stored in the session. No financial data is stored. So invoicing is a manual action.

- Only receipts and shipments that are related to a business partner are updated in the packaging item transactions session. Also, the sessions that record related packaging item balances are

updated only for business partner-related transactions. So warehouse transfer orders and inventory adjustments are not taken into account. For sales orders of type transfer, an exception is made to support a VMI scenario where goods flow through a *VMI warehouse* (For more information, refer to *Logistic service providers (LSP) - packaging item registration (p. 108)*).

- The logging of packaging item transactions at the moment of consumption by the customer is not based on consumed stock point information from the VMI / LSP warehouse. Packaging material transactions must be logged separately from the regular item consumptions and are processed during the processing of (sales) consumptions.

Shipping Material Accounting Scheme

LN link business partners and packaging items combinations to shipping material account (SMA). The business partner and item combination identify the shipping material account for a packaging item transaction. The Shipping Material Accounting Scheme (whwmd4171m000) session is used to find the correct shipping material account for a packaging item transactions.

The business partner and item link to shipping material account is based on effective dates. You can also specify a future effective date to make a new set of shipping material accounts available for the future. If you do not specify an item, it indicates that an SMA is linked to a BP for all items. If you do not specify a SMA , it indicates that an item is not accountable.

The following are the important characteristics of the shipping material accounting scheme :

- Business Partner/Item

  This is the most detailed level tracking of packaging item transactions. The accounts are defined for a business partner and a specific item.

- Business Partner

  This is a more global level which can be defined by keeping the item field empty. This level can be used in case you want to combine all items for a (group of) business partner(s) in one account.

When linking accounts to transactions, LN first tries to retrieve an account at the business partner/item combination level. If business partner/item combination account is not found, LN falls back to the more general business partner level and tries to find an account to link to the transaction.

In case shipping material accounting schemes are defined at business partner level, all items for a (group of) business partner(s) are linked to one account. Following options are available in case you want to exclude specific packaging items from detailed transaction logging :

- You can mark the item as not accountable. You must clear the **Accountable** check box for a item in the Packaging Items (whwmd4505m000) session. As a result, the item is not be available at all for shipping material accounting.

- You can define an entry in the shipping material accounting scheme in which you keep the **Shipping Material Account** field empty.

- You can define a dummy shipping material account and create entries for this dummy account in the shipping material accounting scheme.

When searching for a shipping material account (SMA) for a transaction, LN searches for an entry in the shipping material accounting scheme that has an effective date which is most close to the transaction date. Expiry dates are not defined. The expiry date of an existing entry in the shipping material accounting scheme is determined by the effective date of a new entry in the accounting scheme.

Multiple business partners can be linked to the same shipping material accounting scheme. The following are the possible scenarios :

Scenario 1 : All packaging items linked to one SMA.

This scenario can be achieved by defining an entry in the accounting scheme in which :

- You specify the business partner
- You do not specify the item

Business Part-ner	Item	Effective Date	SMA
VW1			SMA_VW_ GLOBAL
VW2			SMA_VW_ GLOBAL

Scenario 2 : All possible packaging items are linked to one SMA , with the possibility to exclude specific items for accounting.

You can achieve this scenario by defining an entry in the accounting scheme in which you specify the business partner and but do not specify the item. In addition to this, the user must defined an entry in the accounting scheme in which both the business partner and item are specified but the shipping material account is not specified.

Business Part-ner	Item	Effective Date	SMA
VW1			SMA_VW_ GLOBAL
VW1	Foil		
VW2			SMA_VW_ GLOBAL
VW2	Foil		

Scenario 3 : Linking a specified subset of the packaging items to a SMA.

Only the selected items are linked to the SMA. You can achieve this scenario by defining a set of entries in the accounting scheme in which both the business partner and item are specified, one entry for every single item.

Business Part-ner	Item	Effective Date	SMA
VW1	KLT345		SMA_VW_SPEC
VW1	KLT521		SMA_VW_SPEC
VW1	KLT978		SMA_VW_SPEC
VW2	KLT345		SMA_VW_SPEC
VW2	KLT521		SMA_VW_SPEC
VW2	KLT978		SMA_VW_SPEC

Scenario 4 : The majority of packaging items must be linked to one account, a small subset of the packaging items must be linked to a different account.

You can achieve this scenario by setting up two accounts. In the accounting scheme one entry is created in which the business partner is specified but the item is not specified. Other entries are created having both the item and business partner filled.

Business Partner	Item	Effective Date	SMA
VW1			SMA_VW_GLOBAL
VW1	KLT345		SMA_VW_SPEC
VW1	KLT521		SMA_VW_SPEC
VW1	KLT978		SMA_VW_SPEC
VW2			SMA_VW_GLOBAL
VW2	KLT345		SMA_VW_SPEC
VW2	KLT521		SMA_VW_SPEC
VW2	KLT978		SMA_VW_SPEC

CINDI process

Automobile manufacturers use various delivery concepts/ procedures while ordering components from suppliers which result in procedural and informative requirements that all automotive suppliers must meet. One of these procedures is called CINDI, an extensive procedure consisting of four aspects:

- Transport ID
- Distribution Zone/ Routing Code
- RAN/ KANBAN number/ Delivery call number.
- Point of consumption/ Point of destination

Transport ID

The Transport ID is sent by the customer organization as a shipping instruction to the supplier to indicate which deliveries (load/ shipments) must arrive at the factory.

LN allows you to reuse the existing shipment reference as the Transport ID. In case only one Transport ID is allowed per shipment , the **Unique Shipment Reference per Shipment** check box in the Warehousing Order Types (whinh0110m000) session must be selected. In case the Transport ID is not provided by the customer, LN creates a temporary ID because defining the shipment reference is mandatory. However, the ID can be manually replaced with the final Transport ID during the outbound process, at a later date. The temporary ID can be maintained up to the status **Frozen** or **Shipped** before being replaced by the final Transport ID.

The user is responsible for the timely replacement of the temporary ID with the final Transport ID (Shipment Reference) at the appropriate time.

Distribution Zone/ Routing Code

The supplier can also be informed about the more specific destinations within the organization for which a delivery is intended. These destinations are defined as the Distribution Zone or Routing Code. These are the intermediate locations to which the goods are moved after the receipt, at the unloading dock.

If the Distribution Zone (or Routing Code) is provided by a customer organization, this must always be used as a package building criterion. For this purpose, an extra reference field is added on the sales schedule line called **Packaging Reference A** which is picked up by the warehouse order, outbound, and shipping procedure as a criterion while generating handling units during shipment.

The requirements/ items within a Transport ID that are destined for the same Distribution Zone can be combined into the same handling unit; the requirements/ items may not be merged with items/ handling units, destined for other distribution zones.

The Distribution Zone/ Routing Code must be available as extra information and printed on labels and documents to enable the OEM personnel to immediately recognize the (intermediate) destination of a handling unit.

Point of consumption/ Point of destination

The point of consumption (POC) or point of destination (POD) is the final destination of the received items. It is usually the production or assembly line on which the components are used.

If the Point of consumption (POC) is defined by the customer organization, and thus recorded on the sales schedule, the POC is used as handling unit building criterion. A new handling unit is initiated for each POC. Consequently a new reference field **Packaging Reference B** is added. The field is retrieved from the sales schedule and can be viewed using the **Reference Distribution** option from the **References** menu in the Outbound Order Lines (whinh2120m000) session and the **Reference Distribution** option from the **References** menu in the Shipment Lines (whinh4131m000) session.

When handling units are built, the singles (= lowest packaging level example, a box) created must contain items destined for the same point of consumption/ point of destination. Items can only be packed and

shipped in the same box (single), if the point of consumption/ point of destination of the box and the picked goods is the same.

For easy allocation to the precise POC, information of the POC must be printed on the packaging labels.

RAN/ KANBAN number/ Delivery call number

The RAN (Registration Authorization Number) can also be provided by the customer organization. This number can be used as an additional constraint during the building of master handling units (= top level packaging item example pallets), for scenarios where only one KANBAN/ RAN number is allowed per master handling unit. Such master handling units are called Homogeneous, while multi-RAN or MixRAN handling units are called Heterogneous.

The RAN information can be printed on the labels and the shipping documents.

Full packaging of material

The material quantities and packaging method received by the car manufacturers. Car manufacturers frequently accept only full packaging material (crates, boxes, pallets and so on); this is applicable to all levels within a packaging structure or only to specific levels. In LN, this can be managed using **Full Packages Only** functionality at each packaging level in a handling unit structure.

The impact of the **Full Packages Only** functionality:

Order entry

When the **full packages only** functionality is implemented for a node/ level within the handling unit template related to a sales schedule, the planned warehouse order quantity becomes a multiple of the full package quantity. When the package definition is defined for the sales contract line logistic data, a relation can be established between the sales schedule and the handling unit template used. This enables the user to activate the **Full Packages Only** functionality for a sales schedule.

When a planned warehouse order is created for which the **Full Packages Only** check box is selected on the package definition or handling unit template, the order quantity may not necessarily be the sum of the linked sales schedule line or lines as the quantity can be adjusted to meet 'full packages only' criterion. The multiple of a packaging item quantity on an order is determined from the package definition and the item. For example:

Node	Packaging Item	Packaging Item Quantity	Quantity in Storage Unit	Full Package Only
1	Pallet	1	0 pcs	No
2	Box	10	0 pcs	Yes
3			100	Yes

In the example, order quantities must be a multiple of the packaging item quantity of 10 pcs (100pcs of node 3 packed in 10 boxes of node 2). The storage unit is the same as the inventory unit. In case the storage unit box is used, allows 4 pcs per box, this happens:

Node	Packaging Item	Packaging Item Quantity	Quantity in Storage Unit	Full Package Only
1	Pallet	1	0 pcs	No
2	Crate	10	0 pcs	Yes
3			40 box	Yes

In the example, order quantities must be multiple of 16 pcs (40 box of node 3 packed in 10 crates of node 2) * 4 (conversion of pcs to box is 4).

Outbound Processes

After the generation of the outbound advice for the outbound order line; the outbound advices can be modified manually. When an outbound advice is adjusted or a shortage has been identified, resulting in a quantity that is not a multiple of the full package quantity, a warning message is displayed, stating that the 'full packages only' criterion is not met. However, LN allows the user to continue the process.

The same principle is applicable in case of partial shipments. A deviation from the 'full packages only' criterion is allowed and semi-filled packages can be delivered. When the warning message is displayed during the generation of the outbound advice, the quantities can be changed to match the 'full packages only' criterion.

Note

LN does not perform the 'full packages only' check again during the confirmation of a shipment.

Packaging Reference Distribution

When goods are picked and linked to a shipment, the packaging reference distribution is created or updated below the shipment line and is used when handling units are generated for a shipment line. This is applicable only for the shipment lines that are created for a sales schedule.

The distribution is created based on the outbound order line reference distribution. The following table describes these references:

Reference	Description
Shipment Reference	Transport ID
Reference	In the automotive industry, master handling units must be shipped with the same Reference. The user is allowed to model the level of Single Reference in the handling unit template.
Packaging Reference A	In the automotive industry, whole master handling units must be shipped with the same Reference A. The user is allowed to model the level of Single Reference A in the handling unit template.
Packaging Reference B	In the automotive industry, single handling units must be shipped with the same Reference B. The user is allowed to model the level of Single Reference A in the handling unit template.

Packaging and shipment processes for delivery of items

Industries require various packaging and shipment processes for efficient delivery of products.

To enhance the packaging and shipment processes, you can use these features:

- Fill up handling units
- *Full packaging of material (p. 118)*
- *Packaging Reference Distribution (p. 120)*
- Shipping Sequence
- Consolidate Stockpoint details

Fill up handling units

Handling units can be filled up and shipment lines can be consolidated based on the **Consolidate Stock Points in one Shipment Line** parameter in the Inventory Handling Parameters (whinh0100m000) session.

The prerequisites to fill up handling units within the same handling unit structure:

■ The package definition of the shipment line must match the package definition of the picked goods.

  ■ The package definition code must be identical.

  ■ Templates are also compared when dealing with the multi-item structure:
    ■ The number of nodes must be the same.
    ■ The quantity of packaging items must be the same.
    ■ The auxiliary packaging must be identical.
    ■ The quantity of the auxiliary packaging must be the same.

■ The handling units must not be in stock, but they must be generated during the confirm pick process. When the handling units are picked from stock, the **Shipment** on the picking list is filled. In this situation, the picking list is closed and the contents are transferred to the **To Shipment Handling Unit**.

■ If used, the single packaging references must match the handling unit template.

■ When filling up, the item that is put in the single handling units must match the picked item.

■ Goods picked and placed within the same shipment are filled up in the handling unit structure, if possible.

Fill-up conditions

When starting the shipment building process, LN checks for existing shipment lines that can be used to ship the goods. When handling units are generated during picking, and the picked goods have no handling unit yet, the package definition of the outbound order line is used. When the package definition is filled, LN searches for existing shipment lines with the same package definition with related handling unit, based on this package definition. When no package definition is defined for the outbound order line, the shipment building process searches for shipment lines without a package definition. When handling units are generated during picking, shipment lines with a related handling unit are also selected and filled up accordingly.

When a shipment line that can be used for the picked goods is identified, these actions are executed:

■ Validate current handling unit structure against the package definition. If the validation fails, a new handling unit structure is created for the picked goods. This happens only when all the shipment line related handling units have the **Status** set to **Staged**. In case there are handling units with the **Status** set to **Open**, the fill-up is performed without the validation.

■ Add the picked goods to the singles that are not full yet, so contents are added to existing handling units. Related constraints:

  ■ The item of the single handling unit must be the same as the picked item.

- Reference, Packaging Reference A and Packaging Reference B must be identical.
- Add packages on the master handling unit(s) (if there is still space available on the master handling unit)

Constraints for single item:

- The reference of the master handling unit must match the picked reference when for the master, the **Single Reference** check box is selected in the Handling Units (whwmd5130m000) session.
- The Packaging Reference A of the master handling unit must match picked packaging reference A when for the master, the **Single Packaging Reference A** check box is selected in the Handling Units (whwmd5130m000) session.
- The Packaging Reference B of the master handling unit must match picked packaging reference A when for the master, the **Single Packaging Reference B** check box is selected in the Handling Units (whwmd5130m000) session.

Constraints for multi-item:

- The **Generate Multi-Item Shipment Handling Units** check box in the Warehousing Order Types (whinh0110m000) session must be selected for the order type that is related to the picking list that is just picked.
- The handling unit templates must match (except for the contents within the packaging item) the packaging items.
- The Reference of the master handling unit must match the picked reference when the **Single Reference** indicator is selected on the master.
- The **Packaging Reference A** of the master handling unit must match the picked packaging reference A when the **Single Packaging Reference A** check box is selected on the master.
- The **Packaging Reference B** of the master handling unit must match the picked packaging reference A when the **Single Packaging Reference B** check box is selected on the master.
- Add new master handling unit when the contents cannot be added to the existing masters or the single reference constraints do not match, and there are goods that still require packing.

Validate packaging reference distribution/CINDI

In order to prevent the shipping of incorrect structures, a validation of the structure must be performed before the confirmation of the shipment. For the shipment line that is to be confirmed/frozen, the packaging reference distribution is validated against the handling unit structure. For more information on CINDI, see *CINDI process (p. 116)*.

Compose handling Unit

When handling units are composed, additional checks must be executed with respect to the references. When moving handling units from one parent to another, LN considers the handling unit building constraints.

Example

The handling unit is defined:

Node	Packaging Item	Single Packaging Reference	Single Packaging Reference A	Single Packaging Reference B
1	Pallet	V	V	X
2	Box	V	V	V

The handling unit structure is present:
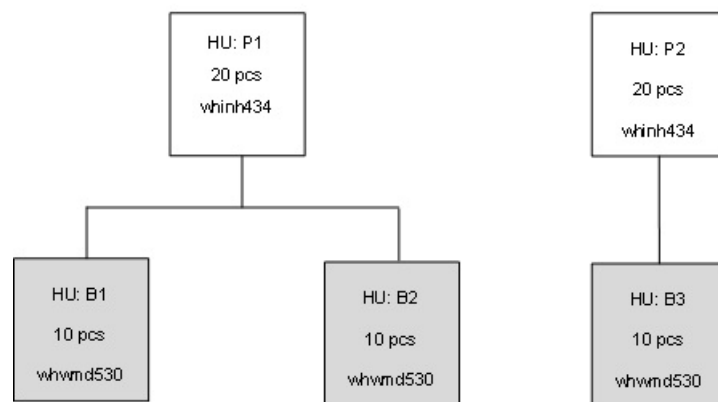
For handling unit P1 these references are filled:

- Reference: REF001
- Reference A: REFA001
- Reference B: REFB001

For handling unit P2 these references are filled:

- Reference: REF001
- Reference A: REFB001
- Reference B: REFB001

When the user want to move the handling unit B2 from P1 to P2 the user will get an error message, because the reference A of the parent handling unit (pallet) are not matching. This table indicates when moving of complete boxes is allowed:

Source (box/crate) ↘ Target (Pallet)		Pallet P1 — Single Reference: V, Single Reference A: V, Single Reference B: V			Pallet P2 — Single Reference: X, Single Reference A: V, Single Reference B: V			Pallet P3 — Single Reference: V, Single Reference A: X, Single Reference B: X			Pallet P4 — Single Reference: X, Single Reference A: X, Single Reference B: X		
		Ref 001	Ref A A01	Ref B B01	Ref 001	Ref A A02	Ref B B02	Ref 002	Ref A A01	Ref B B01	Ref 002	Ref A A01	Ref B B01
Reference	001	V			X			X			V		
Reference A	A01												
Reference B	B01												
Reference	001	X			V			V			V		
Reference A	A02												
Reference B	B01												
Reference	002	X			X			V			V		
Reference A	A01												
Reference B	B01												
Reference	001	X			X			X			V		
Reference A	A01												
Reference B	B02												
Reference	002	X			V			V			V		
Reference A	A02												
Reference B	B02												
Reference	003	X			X			X			V		
Reference A	A03												
Reference B	B03												

Compose shipment

When a shipment line is moved from one shipment to another, the shipment line reference distribution is also moved into the new shipment line. The reference distribution is copied/ updated. The handling units must be filled-up manually by composing the handling unit structure.

Split shipment line

When shipment lines are split, the packaging reference distribution is also split. When a handling unit is split from the shipment line, the handling unit reference fields are used to determine which part of the shipment line reference distribution must be copied.

However, when there are no handling units and there is a shipment line reference distribution present, the split off quantity inherits a part of the packaging reference distribution assigned. LN prioritizes the highest distribution line till the whole split quantity is assigned.

Shipping documents

Generally, handling units are printed on shipping documents. When a multi-item handling unit structure is present for a shipment, the multi-item level is not printed.

Additional information fields

Additional information fields

You can define additional information fields that can be linked to LN tables. The contents of these additional fields can be transferred between LN tables, which allows users to enter additional information at sales schedules.The additional information is passed via the warehouse order to a shipment in warehousing. Additional information fields are meaningless to LN as no functional logic is linked to the contents of these fields.

To define additional information fields

To use additional information fields, you must first define the desired additional fields using the Additional Information Definition (tcstl2100m000) session. You can link a maximum of 26 alphanumeric string fields, with a length of 30 characters per field, to a table. After specifying the Additional Information Definitions, additional information fields are ready for use. In the user interface the additional information fields are added to the standard LN fields. When you, for example, link additional information fields to the Warehousing Orders (whinh200) table, the additional information fields are visible and can be edited in the corresponding Warehousing Orders (whinh2100m000) session. Additional information can only be created or updated by the sessions of the parent objects. The additional information fields are displayed in a separate tab of the session. You can link additional information fields to a table as per the business needs. The linked fields become effective after the fields are set to active in the Additional Information Definition (tcstl2100m000) session. Additional information fields can also be deactivated at any time.

Note

A limited set of LN tables is prepared for linking additional information fields. For more information, refer to Related topics.

Example

LN can transfer additional information fields between tables, for example, from a sales schedule to a warehouse order. Transfer will only take place when additional fields have the same field name in the Additional Information Definition (tcstl2100m000) session. For example, an additional field with the field name *Point of Usage* is linked to the sales schedule table, and you want to transfer the value of the *Point of Usage* field from a sales schedule to the warehouse order, then the same field name called, *Point of Usage*, must be used in the additional information definition of the warehouse order.

Note

The transfer of additional fields is application logic which is hard coded in LN. LN offers a limited set of *transfer points*. For more information, refer to Related topics.

Additional information fields - Warehousing

The table below provides an overview of the tables in Warehousing to which you can link <u>additional information fields</u>. The table also contains the corresponding sessions which display the additional information fields. You can also edit the additional information fields using the sessions in the table below:

Table	Session	Description
whinh200	whinh2100m000	Warehousing Orders
whinh250	whinh2550m000	Warehousing Orders History
whinh220	whinh2120m000	Outbound Order Lines
whinh270	whinh2570m000	Outbound Order Lines History
whinh430	whinh4130m000	Shipments
whinh450	whinh4550s000	Shipment History
whinh431	whinh4131m000	Shipment Lines
whinh451	whinh4551s000	Shipment Line History
whwmd530	whwmd5130m000	Handling Units
whwmd531	Whwmd5531m000	Handling Unit Version History

Additional information can be transferred from one table to another table. The following flows of additional information are supported in Warehousing:

Header Flow: Warehousing Orders (whinh2100m000)-> Shipments (whinh4130m000)-> Handling Units (whwmd5130m000)

The additional information on the warehouse order header can be retrieved from the initiating object, for example, a sales schedule header, or specified manually. The additional information is passed from the warehouse order header to the shipment header.

Additional information is not overwritten during the transfer process. This rule applies at the level of individual fields. For example, in two warehouse orders, the first has additional field 1 populated and the second has additional field 2 populated. Both warehouse orders result in the same shipment. The shipment header will have additional field 1 populated from the first warehouse order and additional field 2 populated from the second warehouse order. The below table provides some possible scenarios, Warehouse Order 1 is the first order being linked to the shipment:

Warehouse Order 1		Warehouse Order 2		Shipment	
Content Field 1	Content Field 2	Content Field 1	Content Field 2	Content Field 1	Content Field 2
Sample_x	Sample_y	Sample_z		Sample_x	Sample_y
		Sample_q	Sample_r	Sample_q	Sample_r
Sample_s		Sample_q	Sample_r	Sample_s	Sample_r

When handling units are in use, and handling units are created automatically for the shipment header during confirmation of the pick. The additional information can be passed from the shipment header to the generated handling unit.

Line Flow: Outbound Order Lines (whinh2120m000)-> Shipment Lines (whinh4131m000)-> Handling Units (whwmd5130m000)

The additional information on the outbound order line can be retrieved from the initiating object, for example, a sales schedule line, or specified manually for the manual warehouse order types. The additional information is then passed from the outbound order line to the shipment line.

When handling units in stock are used in the outbound and shipment process, manually specified additional information can already be present at these handling units. The additional information of the shipment line will be merged with the additional information of the handling unit. Existing additional information of the handling unit is not overwritten by additional information from the shipment line. This rule applies at individual additional information field level. The table below outlines some scenarios:

Shipment Line		Handling Unit before merge		Handling Unit after merge	
Content Field 1	Content Field 2	Content Field 1	Content Field 2	Content Field 1	Content Field 2
Sample_x	Sample_y			Sample_x	Sample_y
Sample_x	Sample_y	Sample_q		Sample_q	Sample_y
Sample_x	Sample_y	Sample_q	Sample_r	Sample_q	Sample_r

Chapter 3
Automotive in Invoicing

<div style="text-align: right">3</div>

Self-billed invoice matching

Self-billed invoices can be *automatically* matched based on:

- **Fixed criteria**
  These fields are *fixed* matching criteria:
  - **Invoice-to Business Partner**
  - **Currency**
  - **Unit Delivered Quantity**
  - **Tax Country**
  - **Tax Code**

  Note: Only billable lines that have status **Confirmed** and for which the **Receive Invoice** check box was selected, will be considered for matching.

- **Optional criteria**
  These fields are *optional* matching criteria:
  - **Sales Order**
  - **Customer Order Number**
  - **Shipment**
  - **Shipment Line**
  - **Packing Slip**
  - **Packing Slip External**
  - **Item**
  - **VAT Number Customer**
  - **Shipment Reference**
  - **Ship-to Address**
  - **Delivery Point**

  To include or exclude (optional) fields for field matching, use the Match Codes (tcmcs0158m000) session. In this session, you can create multiple match codes that can be assigned to the various invoice-to business partners.

Note

- For each match, identified by a <u>matched SBI relations code</u>, LN creates a line in the Self-Billed Invoice Line Relations (cisli5110m000) session. This session allows authorized users to approve rejected matches or to cancel successful matches.
- To *manually* match self-billed invoices, use the Match Self-Billed Invoices (cisli5200m000) session or the Self-Billed Invoice Header (cisli5100m000) session.

Approve matched self-billed invoices

After self-billed invoices have been matched, they must be approved. To manually approve a range self-billed invoices, use the Approve Matched Self-Billed Invoices (cisli5210m000) session.

Note

- Even if, in the Sales Invoicing Parameters (cisli0100m000) session, in addition to the **Automatic Match Self-Billed Invoice** check box, **Automatic Approve Self-Billed Invoice** is selected, the approval step applies for those matches that were initially rejected by LN but later on accepted by an authorized user.
- Matched self-billed invoices can only be approved by users who are listed in the Self-Billing Approve Authorizations (cisli0120m000) session.

The self-billed invoice matching process

The self-billed invoice matching process consists of the following steps:

Step 1: Match self-billed invoices

To have LN automatically match <u>self-billed invoice lines</u> with sales and warehousing order lines, run the Match Self-Billed Invoices (cisli5200m000) session. When you click **Match**, LN performs self-billed invoice matching based on a number of fixed criteria, and the <u>match code</u> assigned to the invoice-to business partner.

For each match, identified by a <u>matched SBI relations code</u>, LN creates a line in the Self-Billed Invoice Line Relations (cisli5110m000) session.

Step 2: Approve matched self-billed invoices

If you are authorized to do so, you can approve the self-billed invoices using the Approve Matched Self-Billed Invoices (cisli5210m000) session. When you click **Approve**, LN checks whether the selected matches are within the tolerances set for you in the Self-Billing Approve Authorizations (cisli0120m000) session.

To cancel approved matches, use the Self-Billed Invoice Line Relations (cisli5110m000) session.

Note

To combine the two steps into one, ensure that in the Sales Invoicing Parameters (cisli0100m000) session both of the following check boxes are selected:

- **Automatic Match Self-Billed Invoice**
- **Automatic Approve Self-Billed Invoice**

Setting up self-billed invoice matching

To set up self-billed invoice matching:

1. In the Terms and Conditions Line (tctrm1620m000) session, on the Invoicing tab, ensure that *both* of the following check boxes are selected:
   - **Self-Billing**
   - **Receive Invoice**
2. In the Match Codes (tcmcs0158m000) session, define at least one match code.
3. In the Sales Invoicing Parameters (cisli0100m000) session, on the **Defaults** tab, under **Self-Billed Invoice**, enter these fields as required:
   - **Match Code** (mandatory)
   - **Automatic Match Self-Billed Invoice** (recommended)
   - **Automatic Approve Self-Billed Invoice**
4. In the same session, on the **Number Groups** tab, enter a number group and series for self-billed invoices.
5. In the Self-Billing Approve Authorizations (cisli0120m000) session, define minimum and maximum amounts and percentages for users when they approve matched self-billed invoices.

Self-billed invoices related to sales schedules

Partial invoicing of billable lines

A received invoice can be for a smaller quantity than the quantity of the billable line. In such a case, you can invoice the partially matched billable line.

Quantity differences at approval

During approval of matched self-billed invoices and billable lines two kinds of quantity variance may occur:

- The self-billed invoice quantity exceeds the billable line quantity.

In this case, the approval is canceled.

- The self-billed invoice quantity is less than the billable line quantity.

  In this case, the billable line will be split to allow for approval. The remaining quantity of the billable line can then be matched later.

Interim cost

As a result of the splitting of billable lines, interim cost may not be balanced in reporting currency. Therefore, if - after the billable line is completely invoiced - differences exist, run the Calculate Rounding Currency Differences for Integration Accounts (tfgld4295m500) session.

Interim revenue and COGS posting

For a self-billed billable line, interim revenue and interim COGS integration transactions are posted when the billable line is approved. When the invoice is posted in LN, these interim revenues and costs are reversed.

Price variance

If there is a price difference between a self-billed invoice and the billable lines, the price of the self-billed invoice is used for invoicing and the creation of Accounts Receivable transactions. Any price difference is also posted as a price difference integration transaction. The price difference is stored in the **Invoiced Amount Variance** field of the Invoice - Lines (cisli3110m000) session.

Note

- Any discount variance is ignored. All variances between the received self-billed invoice and the billable line are considered as solely arising from price variance.
- For the price variance to be accurate, the match code must be defined to create unique links between the self-billed invoice lines and the billable lines. Otherwise, the variance amount is allocated to one of the billable lines. In that case, the price variance may be attributed to the incorrect sales schedule line.

Quantity differences

A billable line may not be completely invoiced by the customer. The reason could be a lost shipment, quality issues, etc. In that case, you can close such billable lines.

Write off billable lines

In the Billable Lines (cisli8110m000) session, you can select billable lines (sales schedule with **Receive Invoice** selected and status **Confirmed**) that need to be written off and, from the appropriate menu, select **Write Off Self-Billed Invoice**. For the remaining quantities of these billable lines, an invoicing correction will be created, confirmed, and released to Invoicing. The invoice correction billable line and

the original billable line that is selected for write-off, will be combined and invoiced together via the composing reference.

Transaction type for billable lines written off

The invoices created during write-off are not real invoices, but are created for the reason of posting the integration transactions. To distinguish these invoices and to enable combining of billable lines with positive and negative amounts, in the Invoicing Parameters by Source Type (cisli0101m000) session, ensure that a transaction type exists for source type **Sales Order** and invoicing scenario **Write Off Self-Billed Invoice**.

Composing

The transaction type specified for invoicing scenario **Write Off Self-Billed Invoice** is used during composing when handling the billable lines that are selected for write-off. To minimize the number of invoices, all billable lines selected for write-off are handled in a single billing request and using a single composing reference.

Evaluated receipt settlement – setup

To set up evaluated receipt settlement (ERS):

1. **CMG Parameters (tfcmg0500m000)**
   - On the **Miscellaneous** tab, in the **Shipment** section, ensure to select the **Receipts Against Shipments** check box.
   - On the **Cash Details** tab, in the **Cash Application Options** section, select these check boxes and related actions:
     - **Allow Overpayment**
     - **Allow Underpayment**
     - **Allow No Invoice Found**
     - **Default Remittance Advice Reason**
   - On the same tab, in the **Remittance Advice** section, specify this data:
     - **Number Group**
     - **Series**

2. **Terms and Conditions Line (tctrm1620m000)**
   On the **Invoicing** tab, ensure to select the **Self-Billing** check box.

Appendix A
Glossary

A

additional cost line

Includes a cost item that can be linked as additional costs to an order or shipment. Examples of additional cost lines are administrative costs added to the order costs if the order amount is lower than a certain value, or freight costs added to the order if the total weight of the sold/purchased goods exceeds a certain value.

additional costs

Charges for extra services, such as extra packaging, insurance, and so on. Additional costs are added to the freight costs of a shipment, load, or a freight order cluster. They are levied for shipment lines or freight order cluster lines, which can be invoiced to the customer. This depends on the agreements made with the business partner.

additional costs

The cost items that can be placed on an order or shipment to charge extra costs for an order or shipment.

additional information fields

User-defined fields that can be linked to LN tables.

The contents of additional fields can be transferred between LN tables. Additional information fields are meaningless to LN as no functional logic is linked to the contents of these fields.

See: *Additional information fields (p. 13)*

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.

administrative warehouse

A warehouse that offers a view of a warehouse that is managed by a business partner. An administrative warehouse corresponds with a physical warehouse controlled by the business partner's system. In that physical warehouse, the inbound and outbound processing takes place. The administrative warehouse mirrors the inventory levels present in the business partner's warehouse.

Administrative warehouses are used in situations such as the following:

- The warehouse is located at your site, but a supplier manages and possibly owns the inventory until you use the items.
- The warehouse is located at a customer's site. You own the inventory until the customer uses the items, but the customer manages the inventory.
- The warehouse is located at a subcontractor's site. You own the unfinished goods present in the warehouse, but the subcontractor manages the inventory.

Administrative warehouse is not one of the warehouse types that you can define in LN, setting up an administrative warehouse requires various parameter settings.

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.

ATP

See: *available-to-promise (p. 138)*

available-to-promise

The item quantity that is still available to be promised to a customer.

In LN, available-to-promise (ATP) is part of a more extended framework of order promising techniques called capable-to-promise (CTP). If an item's ATP is insufficient, CTP goes beyond ATP in that it also considers the possibility of producing more than was initially planned.

In addition to the standard ATP functionality, LN also uses channel ATP. This term refers to the availability of an item for a certain sales channel, taking into account the sales limits for that channel.

For all other types of order promising functionality used in LN, the term CTP is used.

Acronym:

Abbreviation: ATP

Business Object Document (BOD)

An XML message used to exchange data between enterprises or enterprise applications. The BOD is composed of a noun, which identifies the message content, and a verb, which identifies the action to be taken with the document. The unique combination of the Noun and the Verb forms the name of the BOD. For example, noun ReceiveDelivery combined with verb Sync results in BOD SyncReceiveDelivery.

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.

consumption

The issue from the warehouse of consigned items by or on behalf of the customer. The customer's purpose is to use these items for sale, production, and so on. After the items are issued, the customer becomes the owner of the items and the customer must pay the supplier.

CUM reset date

The date and time at which a schedule's cumulatives/ authorizations are reset.

cumulatives (CUMs)

The year-to-date totals for quantities shipped, received, required, and invoiced.

Cumulatives are used as schedule statistics to track if its status is ahead or behind schedule compared to the demand.

electronic data interchange (EDI)

The computer-to-computer transmission of a standard business document in a standard format. Internal EDI refers to the transmission of data between companies on the same internal company network (also referred to as multisite or multicompany). External EDI refers to the transmission of data between your company and external business partners.

evaluated receipt settlement (ERS)

A process where there is no invoice between the supplier and the customer. Payments are initiated by the customer and based on the deliveries done by the supplier. The payments to be made are recorded in advance by the customer in a remittance advice EDI message and are sent to the supplier who will subsequently be able to reconcile the relevant open entries.

item master plan

An item-specific, overall logistic plan that contains planning data and logistic targets for sales, internal and external supply, and inventory. All planning data in the item master plan is specified by plan period. Enterprise Planning uses this data to carry out master-planning simulations.

Within the item master plan, you can distinguish the following subplans:

- demand plan
- supply plan
- inventory plan

In addition, an item's master plan contains information about actual demand, actual supply, planned supply in the form of planned orders, and expected inventory.

If an item has a master plan and channels have been defined for this item, each channel usually has its own channel master plan. A channel master plan contains channel-specific information only, that is, demand data and information about sales restrictions.

Item master plans and channel master plans are defined within the context of a scenario. These scenarios can be used for what-if analyses. One of the scenarios is the actual plan.

logistic agreements

Conditions that must be formally agreed upon between a supplier and a customer regarding logistic data, such as schedule messages, frozen periods, authorizations, delivery patterns, carrier, and so on.

master-based planning

A planning concept in which all planning data is accumulated into time buckets with predefined lengths.

In master planning, all demand, supply, and inventory data is handled in terms of these time buckets, and is stored in master plans.

In master planning, supply is planned in the form of a supply plan. This supply plan is calculated on the basis of demand forecasts, actual orders, and other information. For production planning, this planning method only considers critical requirements, as recorded in an item's bill of critical materials and bill of critical capacities.

Note

In Enterprise Planning, you can maintain a master plan for an item, even if you plan all supply with order planning.

match code

A code that defines a set of additional criteria that must be applied when self-billed invoices are automatically matched with corresponding order data.

matched SBI relations code

A number that identifies a set of matched (customer) self-billed invoice lines with billable lines.

material release

A schedule on which forecasted information is provided about shipping times, delivery times, and quantities.

In general, a material release can be considered as a planning release. However, the material release can also contain the actual order.

nonreferenced schedule

A schedule that contains lines without a reference number. Because no specific requirement exists for the schedule line, nonreferenced schedule lines can first be clustered and then ordered, shipped, and received together.

normal contract

A customer-oriented contract, agreed upon by suppliers and customers, that is used to record specific agreements. A normal contract is usually valid for approximately one year.

A normal contract cannot be activated if another active contract exists for the same business partner in a specific period.

open balance

The balance of all unpaid invoices relating to one particular business partner.

order-based planning

A planning concept in which planning data is handled in the form of orders.

In order planning, supply is planned in the form of planned orders. LN takes into account the start and finish dates of individual planned orders. For production planning, this method considers all material and capacity requirements, as recorded in an item's BOM and routing.

Note

In Enterprise Planning, you can maintain a master plan for an item, even if you plan all supply with order planning.

outbound-order line

A warehouse-order line that is used to issue goods from a warehouse.

An outbound-order line gives detailed information about planned issues and actual issues, for example:
- Item data.
- Ordered quantity.
- Warehouse from where the goods are issued.

over-delivery

A positive deviation from the original ordered quantity.

package definition

A particular configuration of items and their packaging. A package definition for an item can, for example, be the following: a pallet contains 12 boxes and each box contains 4 pieces.

See: general-level package definition, item-level package definition

packaging item

The containers or supports that are used to hold and move goods within manufacturing, distribution processes, and, specifically, within the warehouse. For example: boxes, pallets.

packing slip

An order document that shows in detail the contents of a particular package for shipment. The details include a description of the items, the shippers or customers item number, the quantity shipped, and the inventory unit of the shipped items.

pattern

A scheme on which you can define the day of the week, day of the month, or day of the year, and the time of the day you want an activity, such as a release or a delivery, to be carried out.

pick-up sheet

A list of items to be picked-up at the supplier's site by a specific carrier for transport to the customer on a specific day.

planned warehouse order

An order created in Sales that forms the basis for most schedule-related processes. Planned warehouse orders, which are created during sales schedule approval, decouple schedule updates and revisions from warehouse orders. They serve as the interface between Sales on one hand and Warehousing and Invoicing on the other hand.

prior required CUM

A schedule's total required CUM calculated from the last CUM reset date through the (next) schedule issue date.

In contrast to required CUM, prior CUM also includes the requirements of released schedule lines for which no receipts are booked yet.

received cumulative

A schedule's total received cumulative quantity, calculated from the CUM reset date on up to the last transaction date, which is the receipt date. Received CUMs are updated as soon as receipts are made for the schedule line(s).

referenced schedule

A schedule that contains lines with reference numbers. When goods are shipped, received, and invoiced, the reference numbers are used to communicate with suppliers and other LN packages.

release type

A classification used to specify the type of the release based on which schedule requirements are grouped and EDI messages can be generated. These messages are indicated by the used schedule.

requirement type

Three requirement types exist that represent a requirement in time, used for scheduling.

The available requirement types are:

- **Immediate**
- **Firm**
- **Planned**

For non-referenced schedules, requirement types are linked to segments.

For pull forecast schedules, the requirement type is always **Planned** or **Immediate**. For pull call-off schedules, the requirement type is always **Firm**.

sales contract

Sales contracts are used to register agreements about the delivery of goods with a sold-to business partner .

A contract is comprised of the following:

- A sales contract header with general business partner data, and optionally, a linked terms and conditions agreement.
- One or more sales contract lines with price/discount agreements and quantity information that apply to an item or price group.

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 installment

An order that is not paid for immediately but in partial amounts or percentages of the total net amount.

You can send invoices for a percentage of the total net amount on the sales order, before or after the ordered goods are actually delivered. In this case, a number of installment lines is added to the sales order. An installment line consists of an amount and a number of additional details.

Billed installments are settled (subtracted from the goods amount) when the goods are delivered and invoiced.

sales release

Identifies, by one release number, those sales schedules that share the following common characteristics:

- Sold-to business partner.
- Ship-to business partner.
- Ship-to address.
- Release type (material release/ shipping schedule/ sequence shipping schedule/ pick-up sheet).
- Shipment based schedule/ receipt based schedule.
- Schedule quantity qualifier.
- Forecast horizon start and end.
- Sales release origin.
- Customer release.
- (Customer order).

sales schedule

A timetable of planned supply of materials. Sales schedules support long-term sales with frequent deliveries. All requirements for the same item, sold-to business partner, ship-to business partner, and delivery parameter are stored in the same sales schedule.

sales schedule revision number

A number that uniquely identifies the revision of the sales schedule. The sales schedule revision number indicates the sales schedule updates that are sent by your business partner.

self-billed invoice lines

The specific data part of an incoming, electronically received, self-billed invoice. This data includes sales order, shipment, delivered quantity, and price.

self-billing

The periodic creation, matching, and approval of invoices based on receipts or consumption of goods by an agreement between business partners. The sold-to business partner pays for the goods without having to wait for an invoice from the buy-from business partner.

sequence shipping schedule

A shipping schedule with precise information about the production or deliveries of the requirements. This schedule can include the production or delivery sequence, and the order, the place, and the time of unloading after shipment.

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 reference

Identifies a group of items that are called off at the same time.

subcontracting

Hiring certain services from another party, for example the execution of a part of a project or an operation of a production order.

Subcontracting is considered as purchasing a subcontracting service.

subcontracting purchase order

In LN, subcontracting is considered as purchasing a service from a subcontractor. Therefore, when subcontracting, a subcontracting purchase order is generated to record the subcontracted operation(s) and the associated costs.

system date

The current date that is generated by the system.

terms and conditions agreement

An agreement between business partners about the sale, purchase, or transfer of goods, in which you can define detailed terms and conditions about orders, schedules, planning, logistics, invoicing, and demand pegging, and define the search mechanism to retrieve the correct terms and conditions.

The agreement includes the following:

- A header with the type of agreement and the business partner(s).
- Search levels with a search priority and a selection of search attributes (fields) and linked terms and conditions groups.
- One or more lines with the values for the search levels' search attributes.
- Terms and conditions groups with detailed terms and conditions about orders, schedules, planning, logistics, invoicing, and demand pegging for the lines.

vendor managed inventory (VMI)

An inventory management method according to which the supplier usually manages the inventory of his customer or subcontractor. Sometimes, the supplier manages the supply planning as well. Alternatively, the customer manages the inventory but the supplier is responsible for supply planning. Inventory management or inventory planning can also be subcontracted to a logistics service provider (LSP).

The supplier or the customer may own the inventory delivered by the supplier. Often, the ownership of the inventory changes from the supplier to the customer when the customer consumes the inventory, but other ownership transfer moments occur, which are laid down by contract.

Vendor-managed inventory reduces internal costs associated with planning and procuring materials and enables the vendor to better manage his inventory through higher visibility to the supply chain.

VMI warehouse

A warehouse for which the supplier of the stored goods performs one or both of the following tasks: manage the warehouse, including activities surrounding inbound and outbound processes, or plan the supply of the goods in the warehouse. The supplier may also be the owner of the inventory in the warehouse. The warehouse is usually located at the customer's premises.

warehouse order

See: *warehousing order (p. 146)*

warehousing order

An order for handling goods in the warehouse.

A warehouse order can be of the following inventory-transaction types:

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

Each order has an origin and contains all the information required for warehouse handling. Depending on the item (lot or non-lot) and warehouse (with or without locations), lots and/or locations can be assigned. The order follows a predefined warehousing procedure.

> **Note**
> In Manufacturing a warehousing order is often called a warehouse order.

Synonym: warehouse order

warehousing order type

A code that identifies the type of a warehousing order. The default warehousing procedure that you link to a warehousing order type determines how the warehousing orders to which the order type is allocated are processed in the warehouse, although you can modify the default procedure for individual warehousing orders or order lines.

Index