Infor LN User Guide for Serialized Items

Important Notices

Trademark Acknowledgements

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About this document

This document describes the setup and use of serialized item in Warehousing, Manufacturing, and Service.

Objectives

This document describes how you can set up and use serialized items in Warehousing, Manufacturing, and Service.

Intended audience

This document is intended for persons in charge of the setup and maintenance of a serialized items system in a company. Consequently, the intended audience can include key users, implementation consultants, product architects, support specialists, and so on.

Assumed knowledge

Understanding this document is easier if you have some basic knowledge of the functionality of the various logistic LN packages.

Document summary

This document contains the following chapters:

- **Serialization**
  Provides an introduction to serialized items and the way how serialized items are used in Warehousing, Manufacturing, and Service.
- **Master Data**
  Provides general instructions on how to set up serialized items.
- **Warehousing**
  Provides instructions on how to set up and use serialized items in Warehousing.
- **Manufacturing**
  Provides instructions on how to set up and use serialized items in Manufacturing.
- **Service**
  Provides instructions on how to set up and use serialized items in Service.
- **Glossary**
  Provides definitions of the terms and concepts used in this document, in alphabetical order.

How to read this document

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

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

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

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Chapter 1
Serialization

1

Overview of serialized items

A serialized item is a physical occurrence of a standard item that is given a unique lifetime serial number. This enables you to track the individual item throughout its lifetime, for example, through the design, production, testing, distribution, and maintenance phases. A serialized item can consist of other serialized components.

Some business examples of the use of serialized items are:

- The vehicle identification number (VIN) that is used in the car industry
- The tail numbers that are used in the Aerospace and Defense industry
- The serial numbers that are used in the electronics industry

A serialized item is identified by the item code in combination with the serial number.

In LN, you can define every type of item as a serialized item.

Note that a serialized item is not the same as a unit effective item. A serialized item has a serial number that is used to identify and track individual items, whereas a unit effectivity item has an effectivity unit that provides some information about the item's configuration. However, an item can be both serialized and unit effective.

You can allocate serial numbers to serialized items during specific stages of an item's life cycle in the following LN packages:

- Manufacturing
- Warehousing
- Service

Manufacturing

In Manufacturing, shop floor operators can enter serial numbers for new manufactured items during various stages of the production process. They can enter a serial number manually, or they can generate a serial number based on a specific mask.

Serial numbers are entered in as-built structures. An as-built structure reflects the configuration of a product. The product has a serialized number; the component items in the as-built structure can be serialized or non-serialized. If the component items are serialized, serial numbers are either allocated to the components when they are issued from the warehouse, or the shop floor operators allocate the serial numbers when they add the components to the as-built structure.

You can use the serial numbers assigned to manufactured items for tracking through warehousing, sales, and service processes.

Warehousing

The need to track items by means of serial numbers arises from the items' cost. The more expensive the item, the more closely you want to monitor the item during its life cycle. In general, expensive items are produced and handled in relatively small quantities, whereas the goods flow of less expensive items involves larger quantities. In LN, this concept is modeled in the following scenarios:

- **Low volume**
  This scenario is used for expensive items produced and handled in relatively small quantities that require intensive tracking throughout the warehouse flow. When received in the warehouse or issued from the warehouse, a serial number is allocated, either manually or automatically, to each serialized item. Upon receipt, each item/serial number combination is individually registered in inventory. For each inventory transaction, such as a receipt, transfer, or an issue, the inventory records of the serialized items are updated.
- **High volume**
  The high volume scenario is used for relatively less expensive items produced and handled in large quantities that require less intensive tracking. In this scenario, serialized items are not registered in inventory. Consequently, no inventory records exist that show updates on inventory transactions. However, for each item-by-warehouse you can specify whether serial numbers must be registered for receipts, transfers, and/or issues. This helps you obtain an overview of the whereabouts of particular serialized items through warehousing but also enables you to skip scrutinizing serials where you do not need it.

Warehousing also enables you to track the orders that initiated the receipt, transfer, or issue of serialized items, such as production orders, purchase orders, or sales orders. This option is available for both the high volume and the low volume scenario.

Service

To obtain product information and to register item replacements for service and maintenance purposes, you can copy as-built structures created in Manufacturing to product structures called physical breakdowns in Service.

You can define an item as serialized to be able to track the item in all transactions that take place within Service. To interact with other areas such as production or warehousing, you must define the item as serialized in Common as well.

The Maintenance Sales Control and Work Control System modules deal with service and maintenance activities performed at your own company. The Service Order Control module deals with service and

maintenance activities performed at customer sites. Both scenarios involve the sale and delivery of (spare part) items, the sale of repair and maintenance activities, the receipt of returned items, and replacement of items.

- **Maintenance Sales Control**
  All sales activities involved in service and maintenance and all repair and maintenance jobs on customer-owned items performed at your own company are handled by means of maintenance sales orders. For each type of activity, you must add the appropriate type of order line to the **Maintenance Sales** order header. Selecting a particular order line triggers the procedure that performs the activity, such as creating receipt lines and/or outbound order lines, and so on. For more information, refer to Line Procedure
- **Work Control System**
  All repair and maintenance activities performed at your own site are handled by means of work orders. These activities can include maintenance or repair jobs on both customer-owned items and items owned by your own company. Work orders for customer-owned items can be triggered by a **Maintenance Sales** order, which is described in the previous list item.
- **Service Order Control**
  After you release a service order, LN issues the serialized component items required to carry out the activities described on the service order by means of outbound order lines of the **Service** origin.

When the item and the components are issued for work orders or service orders, the serial numbers are, either automatically or manually, registered for the issued items.

Chapter 2
Master data

2

To set up serialized items

To make the serialized item functionality work in the preferred way, proceed as follows:

Step 1: Define serialized item

To enable the allocation of serial numbers to items, you must define an item as a serialized item. You can define every type of item defined in LN as a serialized item.

Note, however, that to define an item as a serialized item, the inventory unit defined for the item multiplied by the item's rounding factor must be a full integer, such as 1.0. This is because serial numbers are only allocated to individual items, not fractions thereof. You can define units and rounding factors in the Units (tcmcs0101m000) session.

The following options are available to define items as serialized:

- **Serialized in Service**
  To define an item as serialized in Service, in the **Configuration Controlled** field of the Items - Service (tsmdm2100m000) session, select **Serialized**. If you define an item as serialized in Service, the item is serialized for all transactions in the service and maintenance goods flow. However, LN enters serial numbers for items that are only defined as serialized in Service both in the Serialized Items (tcibd4501m000) session in Common and in the Serialized Items (tscfg2100m000) session.
- **Serialized in Warehousing**
  To use serialized items in Warehousing, in the Warehouse Master Data Parameters (whwmd0500m000) details session, select the **Serialized Items in Use** check box.
- **Serialized in the other LN areas**
  To define an item as a serialized item for all other LN areas, you must select the **Serialized** check box in the Item - General (tcibd0101s000) session.

Step 2: Define mask

LN generates serial numbers according to a mask. See *To define a mask (p. 20)* for information on how you can define masks for serial numbers and link the masks to:

- Item groups
- Items
- Tools
- Lots

If no specific mask can be found, LN uses the company's default mask.

If the mask includes a **SSA ERP LN Field** segment that reflects the contents of an LN field, the mask is only generated correctly if the following conditions are both true:

- The field belongs to the package in which the serial number is generated.
- The field has a value.

Step 3: Select scenario for serialized item

To select the low volume scenario, in the Item - Warehousing (whwmd4100s000) session, select the **Serials in Inventory** check box. Clear this check box if the high volume scenario is required. For further information on low volume and high volume scenarios, see *Serialized items in Warehousing (p. 31)*.

Note that if the **Serials in Inventory** check box is unavailable, make sure the **Direct Process Warehouse Order line** check box in the Items - Production (tiipd0101m000) session is cleared.

Step 4: Select additional tracking

To track the orders by means of which serialized items were received or issued, in the Item - Warehousing (whwmd4100s000) session, select the **Serial Tracking** check box. This setting applies to both the high volume and the low volume scenario. However, for the high volume scenario, to view orders for which serialized items are received, you must also select the **Serial Number Entry During Receipt** check box.

Step 5: Select high volume serial number registration options

For the high volume scenario, in the Item - Warehousing (whwmd4100s000) session, the following parameters are available to enable registration of serial numbers:

- **Serial Number Entry During Receipt**
- **Serial Number Entry During Transfer**
- **Register Serial Issue During As Built**
- **Register Serial Issue in Service & Maintenance**
- **Lot and Serial Registration Template**

You must always register serial numbers for warehouse issues that are not controlled by:

- Lot and serial registration templates
- The **Register Serial Issue During As Built** parameter

- The **Register Serial Issue in Service & Maintenance** parameter

For example, you issue goods from the warehouse for sales orders. You must register serial numbers for such warehouse issues, because there is no serial registration template that specifies that no serial registration must take place for warehouse issues based on sales orders. For more information, refer to *Lot and serial registration templates (p. 28)* and *How to define lot and serial registration templates (p. 28)*.

If you selected **Yes** for the **Register Serial Issue During As Built** and/or the **Register Serial Issue in Service & Maintenance** fields, you must register serial numbers for warehouse issues of origins other than **SFC Production**. For an overview of what these settings accomplish, see *Overview of the high volume serial registration settings (p. 25)*.

Step 6: Specify settings in Manufacturing

For details on the available settings in Manufacturing, see *Serialized items in Manufacturing (p. 39)*.

Converting items

You can convert non-serialized items and low volume serialized items that fulfil particular criteria to high volume serialized items. Converting an item can impact the lots and serials sessions linked to the inbound order lines, receipt lines, ASN lines, outbound order lines, and shipment lines on which these items occur. For further information, see *To convert items to high volume serialized items (p. 15)* and *The impact of serialized item conversion (p. 16)*.

Performance aspects

Using serialized items and lot controlled items results in data growth, which may affect system performance. For more information, refer to Using lots and serials.

To convert items to high volume serialized items

You can convert non-serialized items and low volume serialized items to high volume serialized items.

The following conditions apply to items that you want to convert:

Low volume serialized items

- Unprocessed adjustment order lines or cycle counting order lines cannot exist for the item.
- The **Serial Price** check box in the Warehouse - Item (whwmd2110s000) session must be cleared.

Non-serialized items

- You cannot convert non-serialized items present as end items in open production orders or assembly orders, or non-serialized items present as used material related to production orders. The reason is, because Assembly Control and Shop Floor Control cannot handle non-serialized items being converted to high volume serialized items while in process.
  For further information, see:
  - Planning production orders in SFC
  - Processing production orders
  - Assembly Control (ASC)

Low volume serialized items and non-serialized items

- For at least one warehouse, the item - warehouse status must be **Active**. This status is set in the Warehouse - Item (whwmd2110s000) session.
- The **Serial Price** check box in the Warehouse - Item (whwmd2110s000) session must be cleared.
- effectivity unit must not exist on orders that list the item.

Note

Converting non-serialized items and low volume serialized items to high volume serialized items can impact the lots and serials sessions linked to the inbound order lines, receipt lines, ASN lines, outbound order lines, and shipment lines that list the items to be converted.

The impact of serialized item conversion

Converting non-serialized items and low volume serialized items to high volume serialized items can impact the lots and serials sessions linked to the following types of lines that list the items to be converted:

- Inbound order lines
- Receipt lines
- Receipt lines BOM
- ASN lines
- Outbound advice lines
- Shipment lines

Non-serialized items

If non-serialized items are converted to high volume serialized items, LN generates serial numbers in the lots and serials sessions linked to the types of lines on which the item to be converted is present. The quantity of serial numbers depends on the quantity listed for the entity.

For example, if the staged quantity for a shipment line is 20, LN generates 20 serial numbers for the shipment line in the Shipment Line Lots and Serials (whinh4133m000) session . The staged quantity for a shipment line is inserted in the **Picked** field.

If a lot code is present in a lots and serials session, the lot-related line is split into separate lines with quantity one for the required serial numbers. If after splitting of a lot related line any serials are left, the remaining lines have no lot code.

Outbound advice lines

In the Outbound Advice Lots and Serials (whinh4126m000) session, LN generates the number of serial numbers that corresponds with the quantity listed in the **Advised in Inventory Unit** field of the outbound advice. However, If the items listed on the outbound advice are picked and shipment lines are present, the serials are not generated in the Outbound Advice Lots and Serials (whinh4126m000) session, but in the Shipment Line Lots and Serials (whinh4133m000) session.

Shipment lines

In the Shipment Line Lots and Serials (whinh4133m000) session, LN generates serial numbers. The number of serials corresponds with the quantity listed in the **Picked** field of the Shipment Lines (whinh4131m000) session.

ASN lines

In the ASN Line Lots and Serials (whinh3105m000) session, LN generates serial numbers. The number of serial numbers that LN generates corresponds with the quantity listed in the **Quantity Shipped in Inventory Unit** field of the Shipment Notice - Lines (whinh3101m000) session. However, if the ASN line is linked to a receipt, the serials are not generated in the ASN Line Lots and Serials (whinh3105m000) session, but in the Receipt Line Lots and Serials (whinh3123m000) session, provided that serials must be registered for receipts. To enforce serial registry for receipts, select the **Serial Number Entry During Receipt** check box in the Item - Warehousing (whwmd4100s000) session or the Convert (to) Serialized Item (whltc5201m000) session.

Receipt lines

If the **Serial Number Entry During Receipt** check box is selected in the Item - Warehousing (whwmd4100s000) session or the Convert (to) Serialized Item (whltc5201m000) session, serial numbers are generated in the Receipt Line Lots and Serials (whinh3123m000) session. The number of serial numbers that LN generates corresponds with the quantity inserted in the Receipt Lines (whinh3112s000) session.

In the Receipt Line Lots and Serials (whinh3123m000) session, the **Quantity Rejected** and **Quantity Destroyed** fields are filled if a quantity destroyed or a quantity rejected is present in the Warehouse Inspections (whinh3122m000) session. The **Quantity in Rejected Inventory** field and the **Quantity Allocated in Inventory Unit** field are filled from the Rejected Inventory (whwmd2170s000) session, if rejected and/or allocated quantity is present.

BOM receipt lines

If the **Serial Number Entry During Receipt** check box is selected in the Item - Warehousing (whwmd4100s000) session or the Convert (to) Serialized Item (whltc5201m000) session, serial numbers are generated in the Receipt Line BOM Lots and Serials (whinh3119m000) session. The number of serial numbers that LN generates corresponds with the quantity inserted in the Receipt Line BOM (whinh3118m000) session.

Quality

If Quality is implemented, the serial numbers are copied to the Product Testing and Control module from the Warehouse Inspections (whinh3122m000) session.

Low volume serialized items

If low volume serialized items are converted to high volume serialized items, LN:

- generates serial numbers in the lots and serials sessions linked to the lines on which the item to be converted is present. Because the quantity for a low volume serialized item is always one on each type of line, the quantity of serial numbers generated for a lots and serials session is one.

  For example, if you convert low volume serialized item A and item A is present on a shipment line, in the Shipment Line Lots and Serials (whinh4133m000) session, LN generates one serial number for this shipment line.

- Removes the serial numbers from the lines on which the item that you want to convert is present.

  For example, if you convert low volume serialized item A and item A is present on a shipment line, LN removes the serial number from the **Serial Number** field.

  LN removes the serial numbers from the following types of lines:
  - Sales order lines
  - Inbound order lines
  - Receipt lines
  - Receipt lines BOM
  - ASN lines
  - Outbound advice lines
  - Shipment lines

Inbound order lines

For each inbound order line that lists a low volume item that you convert, one serial number is generated in the Inbound Order Line Lots and Serials (whinh2116m000) session, unless the inbound order line is linked to a receipt line. In that case, the serial number is generated in the Receipt Line Lots and Serials (whinh3123m000) session. In addition, LN removes the serial numbers from the inbound order line.

Outbound advice lines

For each outbound advice line that lists a low volume item that you convert, one serial number is generated in the Outbound Advice Lots and Serials (whinh4126m000) session, unless the item on the outbound advice line is picked. In that case, the serial number is generated in the Shipment Line Lots and Serials (whinh4133m000) session. In addition, LN removes the serial numbers from the outbound advice line.

Shipment lines

For each shipment line that lists a low volume item that you convert, one serial number is generated in the Shipment Line Lots and Serials (whinh4133m000) session. In addition, LN removes the serial numbers from the shipment line.

Receipt lines

For each receipt line that lists a low volume item that you convert, one serial number is generated in the Receipt Line Lots and Serials (whinh3123m000) session.

In the Receipt Line Lots and Serials (whinh3123m000) session, the **Quantity Rejected** and **Quantity Destroyed** fields are filled if a quantity destroyed or a quantity rejected is present in the Warehouse Inspections (whinh3122m000) session. The **Quantity in Rejected Inventory** field and the **Quantity Allocated in Inventory Unit** field are filled from the Rejected Inventory (whwmd2170s000) session, if rejected and/or allocated quantity is present.

In addition, LN removes the serial numbers from the receipt line.

BOM receipt lines

For each BOM receipt line that lists a low volume item that you convert, one serial number is generated in the Receipt Line BOM Lots and Serials (whinh3119m000) session.

In addition, LN removes the serial numbers from the BOM receipt line.

Quality

If Quality is implemented, the serial numbers are copied to the Product Testing and Control module from the Warehouse Inspections (whinh3122m000) session.

Handling units

For each handling unit that lists a low volume item that you convert, one serial number is generated in the Handling Unit Lots and Serials (whwmd5136m000) session.

In addition, LN removes the serial numbers from the handling unit.

Item - Serials and Warehouses (whltc5100m000)

For the converted item, LN removes the serial numbers in the Item - Serials and Warehouses (whltc5100m000) session.

Warehouse - Item - Stock Point Transaction (whinr1500s000)

For the converted item, LN removes the serial numbers in the Warehouse - Item - Stock Point Transaction (whinr1500s000) session.

To define a mask

A mask is a template that specifies the structure of identification codes such as serial numbers, lot codes, handling units, and Kanban IDs. A mask defines the total length of the identification code and the way the code is divided up. For a mask example, refer to *Example of defining a mask (p. 22)*.

To define and use masks

1. In the Masks (tcibd4102m000) session, define the mask code and description, and the separator between the mask segments.
2. Select the defined mask code in the Masks (tcibd4102m000) session, and start the Mask Segment (tcibd4503m000) session from the appropriate menu to define mask segments. For details, refer to *Defining mask segments (p. 21)*.

   If the segment type is **Translation Table**, which means that the segment consists of a converted value, you must define a translation table. For more information, see below.
3. A mask is a general concept in LN to generate identification codes. In places where identification codes are required, you must link a mask:
   - For serial numbers, define a mask in the Mask by Item/Item Group (tcibd4505m000) session. If no mask is found, LN uses the mask defined in the COM Parameters (tccom5000m000) session. For more information, refer to Masks for serialized items.
   - For lot codes, define masks in the Lot Control Parameters (whltc0500m000) session. If no masks are found , LN uses the mask defined in the COM Parameters (tccom5000m000) session.
   - For handling units, define a mask in the **Internal Handling Unit Mask** field and the **Outbound Handling Unit Mask** field in the Warehouses (whwmd2500m000) session, or in the Warehouse Master Data Parameters (whwmd0500m000) session.
   - For Kanban IDs, define a mask in the **Kanban ID Mask** field in the Warehouses (whwmd2500m000) details session, or in the Warehouse Master Data Parameters (whwmd0500m000) session.

To define a translation table

If the segment type of a mask segment is **Translation Table**, the segment's value is translated to another value. The translation table contains the original values and the translated values. To define a translation table, take the following steps:

1. Define a translation table in the Translation Tables (tcibd4504m000) session. Note that the use of a translation table is not restricted to one mask. You can use a translation table in multiple masks.
2. Select a translation table In the Translation Tables (tcibd4504m000) session. From the appropriate menu, start the Translation Tables (tcibd4504m000) session to enter the translation table values.

Defining mask segments

A mask consists of mask segments, defined in the Mask Segment (tcibd4503m000) session. The mask segments determine how a identification code looks like.

Segment type

Each segment can add a specific type of information to the identification code that is generated by the mask . The following mask-segment types are available:

- **Option**
  Adds a product feature. Product features are only used in an assembly-controlled environment.
- **Infor ERP LN Field**
  Adds the contents of a specific LN field. Note that this segment is only generated correctly if the field has a value and belongs to the package in which the identification code is generated.
- **Sequence**
  Adds an item's sequence number.
- **Translation Table**
  Adds converted information to the identification code. For example, instead of the year 2006, the letter D is added; instead of 2005, the identification code contains C. Translation tables can convert the information types **Option**, **ERP LN Field**, and **Date**. Define a translation table in the Translation Tables (tcibd4504m000) session; define the translations table's values in the Values by Translation Table (tcibd4106m000) session.
- **Date**
  Adds a month number, year, date, weekday, or time.
- **Alphanumeric**
  Adds a fixed string of numbers or characters.

Segment order

The segments appear in the mask in the order of their segment number. LN generates the segment numbers 10, 20, 30, and so on. If you wish, you can change the default number. For example, you can enter the segment number 25 to define a new segment that must appear between the existing segments 20 and 30.

Mask length

If you define mask segments, LN displays a default segment length in the Mask Segments (tcibd4103s000) session. For some segment types you can change the default length.

LN calculates the total mask length, which is displayed in the Masks (tcibd4102m000) session in the **Length** field.

The maximum length depends on the mask's usage:

Usage	Maximum mask length
Serial numbers	30
Lot numbers	20
Warehousing labels	18

Reset frequency

If the mask contains a **Sequence** segment, you can specify the **Reset Frequency**. If the reset period expires, LN resets the sequence number to 1.

The reset period must be the same as the period that you selected for the date segment. For example, if the date type is Month, you can select a reset frequency of one month. If the mask contains more than one date segment, you can select any of the used date-segment periods as the reset frequency.

Example of defining a mask

This example shows how to define and use a mask to generate the following identification code:

DAF NL*D*Manu*RD*00437

The code consists of the following segments:

Segment	Description
DAF NL	Fixed alphanumeric string
D	Code that represents the year 1993
Manu	Feature code that represents a manually operated gearbox (as opposed to a variomatic gearbox)
RD	Color code that stands for red
00437	Item sequence number

To define a mask to generate this type of identification code, complete the following steps:

Step 1: Define a mask code

In the Masks (tcibd4102m000) session, define a mask code and description. Enter an asterisk (*) as separator.

Step 2: Define the mask segments

In the Mask Segments (tcibd4503m000) session, select the defined mask and add the following segments:

Segment Number	Segment Type	Segment Value
10	**Alphanumeric**	DAF NL
20	**Translation Table**	Year
30	**Option**	Gearbox type
40	**Translation Table**	Color
50	**Sequence**	1

Note that if you select the **Translation Table** segment type, you must define a translation table. Define translation tables as described in step 3 and step 4 before you continue in the Mask Segments (tcibd4503m000) session.

Step 3: Define the translation tables

Define the following translation tables in the Translation Tables (tcibd4504m000) session:

Translation Table	Segment Type	Value Type
YEAR	**Date**	**Year (4-digit)**
COLOR	**Option**	Color

Step 4: Define the converted values

In the Translation Tables (tcibd4504m000) session, from the appropriate menu, start the Values by Translation Table (tcibd4106m000) session to define the converted values of each translation table.

The first table you must define is the YEAR translation table:

Value Type	Segment Value	Translated Value
Year (4-digit)	1990	A
-	1991	B
-	1992	C
-	1993	D

YEAR translation table

The second table is the COLOR translation table:

Value Type	Segment Value	Translated Value
Color	Black	BK
-	Blue	BU
-	Red	RD
-	Green	GN
-	Yellow	YW

COLOR translation table

Overview of the high volume serial registration settings

The table shows the results of each combination of values that you can select in the following fields of the Item - Warehousing (whwmd4100s000) session:

- **Serial Number Entry During Receipt**
- **Serial Number Entry During Transfer**
- **Register Serial Issue During As Built**
- **Register Serial Issue in Service & Maintenance**

Value combination	Receipt	Transfer	Service	As - Built	Result
A	Yes	Selected	No	No	1, 2, 3, 4, 5
B	Yes	Cleared	No	No	1, 3, 4, 5
C	Yes	Selected	Yes	No	1, 2, 4, 5
D	Yes	Cleared	Yes	No	1, 4, 5
E	Yes	Selected	No	Yes	1, 2, 3, 5
F	Yes	Cleared	No	Yes	1, 3, 5
G	Yes	Selected	Yes	Yes	1, 2, 5
H	Yes	Cleared	Yes	Yes	1, 5
I	No	Selected	No	No	2, 3, 4, 5
J	No	Cleared	No	No	3, 4, 5
K	No	Selected	Yes	No	2, 4, 5
L	No	Cleared	Yes	No	4, 5
M	No	Selected	No	Yes	2, 3, 5
N	No	Cleared	No	Yes	3, 5
O	No	Selected	Yes	Yes	2, 5
P	No	Cleared	Yes	Yes	5

Result	Description

1	Serial numbers present in the Receipt Line Serials (whinh3123m000) session.
2	Serial numbers present in the Shipment Line Serials (whinh4133m000) session and the Outbound Advice Serials (whinh4126m000) session for issues of f the **Transfer** origin.
3	Serial numbers present in the Shipment Line Serials (whinh4133m000) session and the Outbound Advice Serials (whinh4126m000) session for issues of f the following origins: ■ **Service** ■ **Service (Manual)** ■ **Maintenance Work** ■ **Maintenance Work (Manual)**
4	Serial numbers present in the Shipment Line Serials (whinh4133m000) session and the Outbound Advice Serials (whinh4126m000) session for issues of f the following origins: ■ **SFC Production** ■ **SFC Production (Manual)**
5	Serial numbers present in the Shipment Line Serials (whinh4133m000) session and the Outbound Advice Serials (whinh4126m000) session for issues of all (other) origins.

Default values for serialized items

For serialized items, the lot code that is linked to the item with the current serial number is taken as the default value in the **Lot** field of the current session.

For serials that are not stored in inventory, lot codes are linked to item/serial number combinations in the Serial Numbers (tcibd4101s000) session. For serials that are stored in inventory, lot codes are linked to item/serial number combinations in the Item - Serials and Warehouses (whltc5100m000) session.

If an E-item revision exists for the lot, this revision is defaulted in the **E-Item Revision** field of the current session. If an effectivity unit exists for the lot, this unit is defaulted in the **Effectivity Unit** field of the current session.

Lot and serial registration templates

Lot and serial registration templates are used to specify the order origins and transaction types for which serial and/or lot registration must take place. This applies to lot and serial numbers not stored in inventory.

For example, you can specify that for a particular item, serial registration must be performed for **Maintenance Sales** orders when the item is received for repair, but that serial registration is not required when the same item is received on a **Purchase** order.

While performing an inventory transaction for an item on a particular order, LN checks whether a lot and serial registration template exists for the order origin and the transaction type. If yes, lot and/or serial registration must be carried out according to the template. If not, lot and/or serial registration must be carried out according to the applicable parameter from the following list:

- **Serial Number Entry During Receipt**
- **Serial Number Entry During Transfer**
- **Lot Entry During Receipt**
- **Lot Entry During Transfer**

If the following parameters are set, however, they overrule the lot and serial registration template:

- **Register Serial Issue During As Built**
- **Register Serial Issue in Service & Maintenance**
- **Register Lot Issue During As Built**

The parameters from the lists are available in the Item - Warehousing (whwmd4100s000) session.

How to define lot and serial registration templates

Lot and serial registration templates are used to specify the order origins and transaction types for which serial and/or lot registration must take place.

To define lot and serial registration templates, proceed as follows:

1. In the Lot and Serial Registration Templates (whwmd4102m000) session, enter an identification code and a description for the lot and serial registration template.
2. Highlight the identification code and description you entered in the previous step and on the appropriate menu, select **Lot and Serial Registration by Order Origin**. As a result, the Lot and Serial Registration by Order Origin (whwmd4103m000) starts. The highlighted registration template identification code and description is displayed in the header section.
3. In the Lot and Serial Registration by Order Origin (whwmd4103m000), click □.
4. In the **Order Origin** field, select the origin of the orders for which lot and/or serial registration must take place.
5. In the **Transaction Type** field, select the inventory transaction type for which lot and/or serial registration must take place.

6. Select the **Lot Registration** check box if lot registration must take place for the selected order origin and transaction type.
7. Select the **Serial Registration** check box if serial registration must take place for the selected order origin and transaction type.
8. Save the settings made in the previous steps.
9. If required, repeat the previous steps to specify other order origin and transaction type combinations for which lot and/or serial registration must take place.

Important!

You can also use lot and serial registration templates to exclude order origins and transaction types from lot and/or serial registration. If a general lot and/or serial registration parameter is set in the Item - Warehousing (whwmd4100s000) session and you do not want lot or serial registration to take place for a particular order origin and transaction type, select the order origin and the transaction type as described in steps 4 and 5, and clear the **Lot Registration** and/or **Serial Registration** check boxes.

Chapter 3
Warehousing

3

Serialized items in Warehousing

In Warehousing, you can use serial numbers to track serialized items through receipts, transfers, storage, or issues, the latter of which is mandatory. You can also track serialized items back to their source. The source of a serialized item is, for example, the purchase order or the production order that caused the receipt of the serialized item, or the sales order or the work order that caused the issue of the serialized item.

The need to track items by means of serial numbers arises from the items' cost. The more expensive the item, the more closely you want to monitor the item during its life cycle.

In general, expensive items are produced and handled in relatively low quantities, whereas the goods flow of less expensive items involves higher quantities. In LN, this concept is modeled in the low volume and the high volume scenarios that provide various options to register and track serialized items.

Low volume scenario

This scenario is used for expensive items produced and handled in relatively small quantities that require intensive tracking throughout the warehouse flow.

During receipt in the warehouse, for each serialized item an individual receipt line is created and, either manually or automatically, a serial number is allocated. For more information, refer to *To register serial numbers in the low volume scenario (p. 34)*.

Upon receipt, each item/serial number combination is individually stored in inventory and, consequently, financial transactions are initiated for each individual serialized item. For each inventory transaction, such as a receipt, transfer, or an issue, the inventory records of the serialized items are updated.

When issued from the warehouse, for each serialized item LN creates an individual outbound advice line and, if applicable, a shipment line, and allocates a serial number.

As a result of receiving a serialized item and registering the serial number, you can track the serialized items in the sessions involved in warehouse transactions and storage, such as:

- Receipt Lines (whinh3112s000)
- Outbound Advice (whinh4525m000)

- Item - Serials and Warehouses (whltc5100m000)
- Shipment Lines (whinh4131m000)
- Picking List (whinh4525m100)

Serialized item status

For easier handling of serialized items that are individually stored in inventory, serial statuses are added. The serial item status is displayed in various sessions, such as the following:

- Item - Serials and Warehouses (whltc5100m000)
- Outbound Order Lines (whinh2120m000)
- Item - Serials - Receipts (whltc5511m000)
- Order - Serials (whltc5512m000)
- Serial Tracking - Overview (whltc5515m000)
- Cycle Counting Order Line Lots and Serials (whinh5106m000)
- Adjustment Order Line Lots and Serials (whinh5126m000)

Note

The **Serial Status** field in the Outbound Order Lines (whinh2120m000) session enables users to issue serialized items with a new status.

High volume scenario

The high volume scenario is used for relatively less expensive items produced and handled in large quantities that require less intensive tracking. In this scenario, serialized items are not individually stored in inventory. Consequently, no inventory records exist that show updates on inventory transactions. Unlike the low volume scenario, in the high volume scenario LN does not create receipt lines, inbound or outbound advice lines, inspection lines, and/or shipment lines for individual items.

For each item-by-warehouse you can specify whether serial numbers must be registered for receipts, transfers, and/or issues. This helps you obtain an overview of the whereabouts of particular serialized items through warehousing but also enables you to skip scrutinizing serials where you do not need it.

You can track the serialized items in the sessions in which you register the serial numbers. In the Item - Warehousing (whwmd4100s000) session, you can specify that serialized items are registered for any of the following stages of the warehousing flow:

- **Receipts into the warehouse**
  For example, to track the receipt of purchased serialized items that can be used as components for the production of end items, or the receipt of manufactured serialized items that are received into the finished goods warehouse, users must register serial numbers in the Receipt Line Serials (whinh3123m000) session for the items they are receiving. For further details, see *To register serial numbers in the high volume scenario (p. 35)*.

  If you receive serialized items, receipt lines are created in the same way as they would be for non-serialized items. For each receipt line, you must register serial numbers for the items.

- **Approvals**
  If warehouse inspections are included in your warehouse flow, the serialized items that you entered in the Receipt Line Serials (whinh3123m000) session are also displayed in the Warehouse Inspections (whinh3122m000) session. In addition, you can indicate the serialized items that must be rejected or destroyed in the Receipt Line Serials (whinh3123m000) session.
- **Issues from the warehouse**
  In LN, warehouse issues are initiated from various sources. For issues originating from service orders, work orders, or production orders, see the descriptions under the Production and Service and Maintenance headings of this list.
- For warehouse issues of all other types, you must register serial numbers in the Shipment Line Serials (whinh4133m000) or the Outbound Advice Serials (whinh4126m000) session for the items that you issue, for example, to track the shipment of serialized items to a customer.

  If you use cross-docking to send a purchased component directly to a work center, the item does not pass through the warehouse's inbound procedure and outbound procedure. To make sure that you can still register serial numbers, set the **Create Shipment** field in the Default Order Types by Origin (whinh0120m000) session to **Cross-docking Lot/Serial** for the relevant combination of warehouse and work center. For more information, refer to **Create Shipment**.
- **Cycle counting/Inventory adjustment**
  If cycle counts result in inventory variances of serialized items, in the Cycle Counting Order Line Serials (whinh5106m000) session, you can register serial numbers to adjust the variances.
- **Production**
  For serialized manufactured end items, you must register serial numbers in the Serial End Item - As-Built Headers (timfc0110m000) session. In this session, you can register serial numbers during various moments of the production process. These moments are determined parameter settings in the Shop Floor Control Parameters (tisfc0100s000) session in Manufacturing.
- For component items, you must register serial numbers in the Outbound Advice Serials (whinh4126m000) session during the issue of the components from the warehouse to the shop floor, or in the Serial End Item - As-Built Components (timfc0111m000) session before or after the release of the production order for the end item. This depends on settings in the Item - Warehousing (whwmd4100s000) session. For further information, see *To set up serialized items (p. 13)*.
- **Service and maintenance**
  After you release a service order, LN issues the serialized component items required to carry out the repair or maintenance activities described on the service order by means of outbound order lines of the **Service** origin.

  Settings in the Item - Warehousing (whwmd4100s000) session determine whether you must register the serial numbers for the serialized component items in the Outbound Advice Serials (whinh4126m000) session or in the Service Order Actual Material Costs (tssoc2121m000) session. For further information, see *To set up serialized items (p. 13)*.
- After you plan a work order, LN issues the serialized item that you want to repair or maintain to the repair shop by means of outbound order lines of the **Maintenance Work** origin.

Settings in the Item - Warehousing (whwmd4100s000) session determine whether you must register the serial numbers in the Outbound Advice Serials (whinh4126m000) session or the Work Orders (tswcs2100m000) session.

- Next, after you release the work order, LN issues the serialized component items required to carry out the repair or maintenance activities described on the work order by means of outbound order lines of the **Maintenance Work** origin.

  Settings in the Item - Warehousing (whwmd4100s000) session determine whether you must register serial numbers for components in the Outbound Advice Serials (whinh4126m000) session or the Work Order Material Resources (tswcs4110m000) session. For further information, see *To set up serialized items (p. 13)*.

Tracking originating orders for serialized items

Warehousing also provides the option to track the orders that initiated the receipt, transfer, or issue of serialized items, such as production orders, purchase orders, or sales orders. This option is available for both the low volume scenario and the high volume scenario. For further information on serial tracking options, see **Serial Tracking**.

Performance aspects

Using serialized items and lot controlled items results in data growth, which may affect system performance. For more information, refer to Using lots and serials.

To register serial numbers in the low volume scenario

In the low volume scenario, registering serial numbers means that you allocate a serial number to the serialized item listed on a particular warehouse receipt.

To register serial numbers for purchased serialized items that you receive in the warehouse, you can take one of the following steps in the Receipt Lines (whinh3112s000) session:

- Manually enter a serial number in the **Serial Number** field.
- In the **Serial Number** field, zoom to the Item - Serials and Warehouses (whltc5100m000) session to select a serial number.
- Click **Generate Serials** on the toolbar of the Receipt Lines (whinh3112s000) session to generate a serial number.

As a result, the serial number is entered in the Serialized Items (tcibd4501m000) session and the Item - Serials and Warehouses (whltc5100m000) session. After you confirm the receipt, the serial number is linked to the item of the receipt line and stored in inventory. You can then view the item/serial number combination in the Item - Serials and Warehouses (whltc5100m000) session and the Serialized Items (tcibd4501m000) session.

For manufactured serialized items that you receive in the warehouse, the serial number entered in Manufacturing is automatically filled on the receipt line. If you confirm and put away the receipt line, the item and the serial number is stored in inventory. To register serial numbers in Manufacturing for serialized items that you produce, see *Serialized items in Manufacturing (p. 39)*.

For customer items received for repair or overhaul, the serial number is entered by the customer on the **Maintenance Sales** order.

For issues from the warehouse, you are not required to register serial numbers, because LN allocates serial numbers from inventory based on the first in, first out or last in, first out outbound methods and updates the inventory accordingly.

However, on the picking list and/or the outbound advice, you can change the serial number that LN allocated. To change the serial number on the outbound advice or the picking list is useful if, for example, the serial number generated by LN refers to an item located at the bottom of the stack. In such cases, you can replace this number by a serial number that refers to an item at the top of the stack that is easier to pick.

To register serial numbers in the high volume scenario

Registering serial numbers means that you allocate serial numbers to serialized items for a particular warehouse transaction such as a receipt or an issue, or during production or maintenance of the item. To allocate serial numbers, you must enter new serial numbers or link existing serial numbers to the items.

Serial number entry in LN

You must enter serial numbers if no serial numbers exist in LN, for example, for items purchased from a supplier, or for new items that you manufacture. If you register serial numbers by entering new numbers, the new serial numbers are stored in the Serialized Items (tcibd4501m000) session and in the session that you used to enter the warehouse transaction or item production.

To enter new serial numbers, you can generate serial numbers or manually enter serial numbers. If you generate serial numbers, the required number of serial numbers is generated according to a user-defined mask. For further information, see *To set up serialized items (p. 13)*. If you manually enter a serial number, the serial number is not entered according to the mask format.

You can generate serial numbers in the following sessions:

Warehousing

- Receipt Lines (whinh3112s000)
- **Receipt Line Serials (whinh3123m000)**
  To access this session, select the relevant receipt line in the Warehouse Receipts (whinh3512m000) session and on the appropriate menu, click **Receipt Line** and select **Serials**.

- **Receipt Line BOM (whinh3118m000)**
  To access this session, select the relevant receipt line in the Receipt Lines (whinh3512m400) session and on the appropriate menu, click **Receipt Line** and select **BOM Lines**.
- **Cycle Counting Order Line Serials (whinh5106m000)**
  To access this session, select the relevant order line in the Cycle Counting Order Lines (whinh5101m000) session and on the appropriate menu, click **Lots and Serials**.
- **Shipment Line Lots and Serials (whinh4133m000)**
  To access this session, select the relevant shipment line in the Shipment Lines (whinh4131m000) session and on the appropriate menu, click Shipment Lines and select **Lots and Serials**.
- **Outbound Advice Serials (whinh4126m000)**
  To access this session, select the relevant advice line in the Outbound Advice (whinh4525m000) session and on the appropriate menu, click **Lots and Serials**.

To generate serial numbers, from the appropriate menu of the previous sessions, select Generate Serials.

- **Manufacturing**
  Serial End Item - As-Built Headers (timfc0110m000)
- Serial End Item - As-Built Components (timfc0111m000)
- **Service**
  Work Orders (tswcs2100m000)
- Work Order Material Resources (tswcs4110m000)
- Service Order Actual Material Costs (tssoc2121m000)

Examples

During the production of a new item, you must enter or generate the serial number of the item, provided that the item is defined as a serialized item. The serial numbers of the new item are entered in LN in the Serialized Items (tcibd4501m000) session and linked to the production order in the Serial End Item - As-Built Headers (timfc0110m000) session. The stage at which serial number entry is required, is determined by parameter settings in the Shop Floor Control Parameters (tisfc0100s000) session. For further information, see *Serialized items in Manufacturing (p. 39)*.

In some environments, which you can model in the Item - Warehousing (whwmd4100s000) session, you must generate serial numbers for purchased items during their receipt in the warehouse. As a result, the serial numbers are entered in LN in the Serialized Items (tcibd4501m000) session and linked to the receipt in the Receipt Line Serials (whinh3123m000) session.

In some situations, you must generate serial numbers for purchased items during issue from the warehouse if the supplier did not provide these items with serial numbers, or you did not generate serial numbers during receipt. This can occur, for example, if you issue the purchased items to the shop floor, where you use the items as components for particular end items.

Often serial number entry into LN is performed automatically by means of a scanning device. For example, purchased items provided with a serial number by the supplier are scanned during receipt into the warehouse. The scanned serial numbers are automatically entered in the Serialized Items

(tcibd4501m000) session and linked to the receipt in the Receipt Line Serials (whinh3123m000) session. Usually, in such cases the supplier's serial number format is used.

To link serial numbers

You must link existing serial numbers, for example, if you issue serialized items for which serial numbers were generated in an earlier stage of the goods flow, or if you receive serialized manufactured end items from the shop floor. If you register serial numbers by linking existing serial numbers, you select the serial numbers from the Serialized Items (tcibd4501m000) session and allocate them to the receipt line, shipment line, production order line, or work order line.

Example of linking serial numbers to issued serialized items

Serial numbers are generated for 500 purchased items during various receipts. At a later stage, 20 of these items are issued to the shop floor to be used as a component for the production of a particular end item. When you issue these items for a particular outbound order of the **Issue** transaction type and **SFC Production** origin, to register serial numbers, you must link 20 serial numbers from the existing 500 serial numbers.

Example of linking serial numbers to received serialized items

Serial numbers are generated for 500 manufactured end items during production. For these items, LN generates a warehousing order of the **Receipt** transaction type and **SFC Production** origin. To register the receipt of the serial numbers of the end items, you must link the serial numbers to the receipt lines of the receipt order.

You can link serial numbers to receipt lines or outbound lines in the following sessions:

Warehousing

- Receipt Line Serials (whinh3123m000)
- Receipt Line BOM (whinh3118m000)
- Cycle Counting Order Line Serials (whinh5106m000)
- Adjustment Order Line Serials (whinh5126m000)
- Shipment Line Serials (whinh4133m000)
- Outbound Advice Serials (whinh4126m000)
- Shipment Lines (whinh4131m000)
- Outbound Advice (whinh4525m000)

To link serial numbers, from the appropriate menu of the previous sessions, select Link Serial(s). As a result, the Serialized Items (tcibd4501m000) session appears from which you can select the serial numbers that you want to link to the receipt line, order line, or shipment line.

If the serial number that you select in the Serialized Items (tcibd4501m000) session is linked to an item listed in the shipment line, a message to that effect appears when you close the Serialized Items (tcibd4501m000) session. In that case, you must select a different serial number or generate new serial numbers.

- **Manufacturing**
  Serial End Item - As-Built Headers (timfc0110m000)
- Serial End Item - As-Built Components (timfc0111m000)
- **Service**
  Work Orders (tswcs2100m000)
- Work Order Material Resources (tswcs4110m000)
- Service Order Actual Material Costs (tssoc2121m000)

In the previous sessions, you can zoom to the Serialized Items (tcibd4501m000) session from which you can select the serial numbers that you want to link.

Chapter 4
Manufacturing

4

Serialized items in Manufacturing

You can use serial numbers to track and trace the items in inventory, production orders, purchase orders, sales orders, service, and so on. You can determine, for example, to which production order a specific end item belongs, which components are used and where the components originate. This topic describes the aspects of using serialization in Manufacturing.

As-built structure

The as-built structure is an important concept for serialized (end) items in Manufacturing. The as-built structure reflects the configuration of a product. Two additional concepts are important:

- **As-built header**
  The as-built header contains the individual serialized end items for a specific production order or assembly order.
- **As-built component**
  From a specific serialized item in the as-built header, you can zoom to the as-built components, that is, the components that are used in the configuration. The components can be serialized or non-serialized. Dependent on the setting of the **Only Serialized and Lot Controlled Items in As-Built Components** field in the Shop Floor Control Parameters (tisfc0100s000) session, all components can be viewed, or only the serialized and lot controlled components.

You can use the as-built structure and the serial numbers in the structure for several purposes:

- For information purposes, for example, how the product is assembled, and which components are used. If you want to use the serial numbers for configuration-information purposes only, you can choose to clear the **Serial Tracking** check box in the Items - Warehousing (whwmd4500m000) details session. In this way, the data is not stored for tracking and tracing.
- As a basis for a product structure (physical breakdown), which you can use in Service for service and maintenance purposes. For more information, refer to *To create a physical breakdown from an as-built structure (p. 52)* and To maintain physical breakdowns. If service engineers use the as-built structure, having anonymous items displayed in the as-built structure can be useful. In that case, you must clear the **Only Serialized and Lot Controlled Items in**

As-Built Components check box in the Shop Floor Control Parameters (tisfc0100s000) session.

- To update tracking sessions in Warehousing so that you can track and trace the serialized items that you used in production to purchase orders, sales orders, and so on. You must select the **Serial Tracking** check box in the Items - Warehousing (whwmd4500m000) details session to use serial numbers for tracking purposes.

Serial numbers

Operators on the shop floor usually enter the serial numbers in the as-built structure. To enter the numbers, you can, for example, type or scan bar codes. You can also choose to generate the serial numbers for end items in the as-built header. In that case, you must define a mask. The moment that serial numbers in the header are generated depends on the setting of the **Moment of Generating Serial Numbers** field in the Shop Floor Control Parameters (tisfc0100s000) session. This parameter is important because this enables you to determine yourself on which moment in the production process you can assign serial numbers to the items in a production order.

You can view and maintain the as-built header in the Serial End Item - As-Built Headers (timfc0110m000) session, and the as-built components in the Serial End Item - As-Built Components (timfc0111m000) session. For more information, refer to *To maintain as-built headers and as-built components (p. 41)*

Masks for serialized items

If you want be able to generate serial numbers, you must use masks. You can define masks on three levels:

- **Item level**
  You can define a mask for a specific item in the Mask by Item/Item Group (tcibd4505m000) session.
- **Item group level**
  You can define a mask for a specific item group in the Mask by Item/Item Group (tcibd4505m000) session.
- **Company level**
  You can define a mask for a specific company in the COM Parameters (tccom5000m000) session.

If you want to generate serial numbers, LN searches for a mask, successively on the item level, the item group level, and the company level. If no mask is defined, no as-built structure is generated, and you must manually enter serial numbers, for example, by typing or scanning. Without a mask, the **Moment of Generating Serial Numbers** parameter in the Shop Floor Control Parameters (tisfc0100s000) session is no longer applicable.

Refer also to *To define a mask (p. 20)*.

To use serial numbers during the production order process

Serial number handling in Manufacturing is embedded in the production order process. The **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session determines how serialized items in Manufacturing are handled:

- **Automatic**
  If the **As-Built Status Handling** field is set to **Automatic**, the actions a user performs on the production order result in status changes of the serialized end item. For example, if a number of items on a production order is reported as completed or rejected, the status of the same number of items in the as-built header automatically changes to **Assigned** or **Rejected**.
- **Manual**
  If the **As-Built Status Handling** field is set to **Manual**, you must first update the status of the items in the as-built header before you can complete or reject the items on the last operation of a production order, or on the production order itself. For example, if you have completed two serialized items, and you have rejected one, you must first change the status of two items in the as-built header to **Assigned**, and the status of the other item to **Rejected**. Only then can you report these quantities as completed and rejected on the production order.

For more information, refer to *Working with serialized items in Manufacturing (p. 42)*.

If you want to handle serialized items in the most detailed way, you must use the Production Warehouse Orders (timfc0101m000) session. This session is especially useful to issue, return, and cancel serialized components for a specific end item.

To set up serialized items

If you want to use serial numbers in LN, you must set up data first. For information, refer to *To set up serialized items (p. 13)*.

For serialization in Manufacturing, you must also set a number of parameters in the Shop Floor Control Parameters (tisfc0100s000) session:

- **Moment of Generating Serial Numbers**
- **Only Serialized and Lot Controlled Items in As-Built Components**
- **As-Built Status Handling**.

To maintain as-built headers and as-built components

This topic describes how to actually assign serial numbers to (end) items in Manufacturing.

The sessions that you use to assign serial numbers are in the Manufacturing Control module. Carry out the following steps:

1. When you are working on a production order, use the Serial End Item - As-Built Headers (timfc0110m000) session to view the generated serial numbers of end items, or to assign

serial numbers to end items yourself. If the order quantity of a production order is five products, a line for every product (five lines in total) is generated in the Serial End Item - As-Built Headers (timfc0110m000) session. The **Moment of Generating Serial Numbers** parameter determines the exact moment that serial numbers are generated for the end products.

2. If you select an item in the Serial End Item - As-Built Headers (timfc0110m000) session, and click **As-Built Components** from the appropriate menu, the Serial End Item - As-Built Components (timfc0111m000) session is started. In this session, the (serialized) components of the serialized end item are displayed, and you can link serial numbers to serialized component items. If a specific end item requires three pieces of a specific serialized component, and one piece of another serialized component, four component lines are created for the end item in which you must enter a serial number. You are creating a so-called as-built structure to establish which specific components (identified by serial numbers) are used in specific end items (also identified by serial numbers).
3. After you have assigned serial numbers to components in the Serial End Item - As-Built Components (timfc0111m000) session, you can check whether the as-built structure is complete. All serialized components must be provided with a serial number otherwise you cannot copy the as-built structure to an as-maintained structure in Service. To check the as-built structure for missing serial numbers, select the end item in the Serial End Item - As-Built Headers (timfc0110m000) session and click **Validate** from the appropriate menu.

Working with serialized items in Manufacturing

During production, operators on the shop floor can link, manually or automatically, serial numbers to end items in a production order and to specific components. This handling of serial numbers in Manufacturing is embedded in the production order process. When handling serialized items, the status of the serialized items is changed. For example, when serial numbers are assigned to items, the status changes to **Assigned**. In addition, the status of the serialized item also expresses other handling of the serialized items, such as rejection, sending to the warehouse, and receiving in the warehouse.

This topic describes the statuses of serialized items, and how status handling is carried out.

You can view and maintain the status of the serialized items in the **Serial Status** field in the Serial End Item - As-Built Headers (timfc0110m000) session. The possible statuses are:

- **Created**
  The initial status of the serialized end item. The status is **Created** after serialized numbers are generated. This is a moment based on the value of the **Moment of Generating Serial Numbers** field in the Shop Floor Control Parameters (tisfc0100s000) session: **On Printing Documents**, **On Release**, or **On Completion**. If the the value is **Manually**, the status becomes **Created** when the user generates serialized numbers at a moment in the production process determined by the user.
- **Assigned**
  The product is finished. A serial number is linked to the serialized item, and the serialized item is ready to be transferred to Warehousing.

- **Rejected**
  The serialized item is rejected in the production order. The serialized item cannot be transferred to as-maintained in Service, and cannot be used in another production order.
- **Sent to Warehouse**
  The serialized item is reported as complete and sent but not yet received in the warehouse. The inbound procedure must still be carried out.
- **Received in Warehouse**
  The serialized item is received in the warehouse. The inbound procedure is carried out.
- **Recalled from Warehouse**
  The serialized item is in the warehouse but must be returned to the shop floor.
- **Returned from Warehouse**
  The serialized item was in a warehouse in Warehousing but is now returned to Shop Floor Control. The outbound procedure must still be carried out.
- **Transferred to As-Maintained**
  The serialized item is transferred to Service.

Assigning serial numbers

You can handle serialized items in Manufacturing manually or automatically, which is determined in the Shop Floor Control Parameters (tisfc0100s000) session by the **As-Built Status Handling** field.

Automatic

If the **As-Built Status Handling** field is set to **Automatic**, the actions a user carries out on the production order automatically result in status changes of the serialized end items. For example, if a number of serialized items on a production order is reported as completed or rejected, the status of those items in the as-built header changes automatically to **Assigned** or **Rejected**, respectively. To report one specific serialized item as completed or rejected, you can insert the item's serial number.

Advantages if the **As-Built Status Handling** field is **Automatic**:

- You can handle the serialized items for Manufacturing directly in the session in which you report your operation or production order as completed (the Report Operations Completed (tisfc0130m000) session, or the Report Orders Completed (tisfc0520m000) session). Consequently, you do not need to start an extra session (the Serial End Item - As-Built Headers (timfc0110m000) session) to handle serialized items.
- You can easily use a scanning device. The scanned numbers are directly entered in the session in which you report the operations or the production order as completed.

Disadvantage if the **As-Built Status Handling** field is set to **Automatic**:

- If you want to report as completed a number of serialized items with specific serial numbers, you must report these items as completed one by one in the Report Operations Completed (tisfc0130m000) session, or the Report Orders Completed (tisfc0520m000) session.

Example

Suppose that a production order has an order quantity of five serialized end items. One of the five items is finished. As usual, you report the item as completed in the Report Operations Completed (tisfc0130m000) details session (on the last operation), or in the Report Orders Completed (tisfc0520m000) details session. You must enter the serial number of the item in the **Serial Number** field. The serial status of that item in the Serial End Item - As-Built Headers (timfc0110m000) session changes from **Created** to **Assigned**.

For detailed information about handling of serialized items with status handling, refer to *Serialized items on the shop floor - automatic status handling (p. 47)*.

Manual

If the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, you must first update the status of the items in the as-built header (Serial End Item - As-Built Headers (timfc0110m000) session) before you can complete or reject the items on the last operation of a production order.

The advantage if the **As-Built Status Handling** field is set to **Manual**:

- You can maintain and handle several *specific* serial items simultaneously in the Serial End Item - As-Built Headers (timfc0110m000) session. For example, you can reject a number of specific serialized items, or you can set the status to **Assigned** for a number of specific serialized items.

The disadvantage if the **As-Built Status Handling** field is set to **Manual**:

- You always need two sessions to handle serialized items: First you must change the status of serialized items in the Serial End Item - As-Built Headers (timfc0110m000) session. After that, you must report the items completed or rejected in the Report Operations Completed (tisfc0130m000) session, or the Report Orders Completed (tisfc0520m000) session.

Example

Suppose that you have finished two items (serial numbers 10400003 and 10400004) out of a production order quantity of three. Usually, you must directly report those two items as completed in the Report Operations Completed (tisfc0130m000) details session (on the last operation), or in the Report Orders Completed (tisfc0520m000) details session. However, if the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, you must first change the serial status of items 10400003 and 10400004 in the Serial End Item - As-Built Headers (timfc0110m000) session from **Created** to **Assigned**. Only then can you report the two items as completed.

For detailed information about handling of serialized items with status handling, refer to *Serialized items on the the shop floor - manual status handling (p. 45)*.

Serialized items on the the shop floor - manual status handling

If the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is **Manual**, the as-built structure is leading when you deal with serialized items. In other words, you must first change the status of a serialized end item in the Serial End Item - As-Built Headers (timfc0110m000) session before you can handle the serialized items in a production order procedure.

Handling of serialized items includes reporting as completed or rejected, and recalling serialized items from the warehouse. To handle or recall serialized items, you can use the following two sessions:

- Report Operations Completed (tisfc0130m000)
- Report Orders Completed (tisfc0520m000)

Using the Report Operations Completed (tisfc0130m000) session

Report items as completed

If you want to report one or more items as completed for a specific production order on the last operation of the production order, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, take the following steps:

1. Start the Report Operations Completed (tisfc0130m000) details session.
2. Start the Serial End Item - As-Built Headers (timfc0110m000) session by clicking **Serial Numbers** in the Report Operations Completed (tisfc0130m000) details session.
3. Change the status of the serialized items that you want to report as completed from **Created** to **Assigned**.
4. Return to the Report Operations Completed (tisfc0130m000) details session.
5. Click **Default Qty Completed** next to the **Completed** field. The item quantity for which you changed the status to **Assigned** in the Serial End Item - As-Built Headers (timfc0110m000) session appears in the **Completed** field. You cannot change that value because it correlates with the number of items you put to **Assigned**. To make changes, you must first go back to the Serial End Item - As-Built Headers (timfc0110m000) session.
6. Click **Save**, or click **Complete Operation** on the toolbar or on the appropriate menu. If you click **Complete Operation**, you can no longer change quantities on the operation, unless you reset the operation status.

Reject items

If you want to reject one or more items for a specific production order, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, take the following steps:

1. Start the Report Operations Completed (tisfc0130m000) details session.

2. Start the Serial End Item - As-Built Headers (timfc0110m000) session by clicking **Serial Numbers** in the Report Operations Completed (tisfc0130m000) details session.
3. Change the status to **Rejected** for the items that you want to reject.
4. Return to the Report Operations Completed (tisfc0130m000) details session.
5. Click **Default Qty Rejected** next to the **Rejected** field. The item quantity for which you changed the status to **Rejected** in the Serial End Item - As-Built Headers (timfc0110m000) session appears in the **Rejected** field. You can still change the quantity in the **Rejected** field, but the quantity cannot be greater than the cumulative quanities of rejected items for all operations so far.
6. Click **Save**, or click **Complete Operation** on the toolbar or on the appropriate menu. If you click **Complete Operation** you can no longer change quantities on the operation, unless you reset the operation status.

Note

You can only reject serialized items in the Report Operations Completed (tisfc0130m000) details session. You cannot reject serialized items on the production order level, that is, in the Report Orders Completed (tisfc0520m000) details session. Only if a production order has no operations, you can use the Report Orders Completed (tisfc0520m000) details session to reject items.

Using the Report Orders Completed (tisfc0520m000) session

Report items as completed

If you want to report one or more items as completed for a specific production order in the Report Orders Completed (tisfc0520m000) session, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, take the following steps:

1. Start the Report Orders Completed (tisfc0520m000) details session for a specific order.
2. Start the Serial End Item - As-Built Headers (timfc0110m000) session. To start this session, click **Serial Numbers** in the Report Orders Completed (tisfc0520m000) details session.
3. Change the order status for the items that you want to report as completed from **Created** to **Assigned**.
4. Go back to the Report Orders Completed (tisfc0520m000) details session.
5. Click **Retrieve As-Built Default Quantities** on the toolbar or on the appropriate menu. The item quantity for which you changed the status to **Assigned** appears in the **Qty to Deliver** field.
6. Click **Save**. If you select **To be Completed** in the **Order Status** field and then click **Save**, the production order is completed. In that case, you can no longer handle (serialized) items for the production order.

Recall items from the warehouse

If you want to recall one or more items from the warehouse for a specific production order, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Manual**, take the following steps:

1. Start the Report Orders Completed (tisfc0520m000) details session for a specific order.
2. Start the Serial End Item - As-Built Headers (timfc0110m000) session. To start this session, click **Serial Numbers** in the Report Orders Completed (tisfc0520m000) details session.
3. Change the order status of items that must be recalled from **Received in Warehouse** to **Recalled from Warehouse**. Note that you cannot recall serialized items if one of the other items still has the **Assigned** status.
4. Go back to the Report Orders Completed (tisfc0520m000) details session.
5. Click **Retrieve As-Built Default Quantities** on the toolbar or on the appropriate menu. The item quantity for which you changed the status to **Recalled from Warehouse** appears in the **Qty to Deliver** field as a negative quantity.
6. Click **Save**. If you select **To be Completed** in the **Order Status** field and then click **Save**, the production order is completed. In that case, you can no longer handle (serialized) items for the production order.

Order distribution of unit-effective items

Generally, if an item is unit effective, you need the Order Distribution (tisfc0105m000) session to handle the order quantities. However, for a *serialized* unit-effective item, you can skip the Order Distribution (tisfc0105m000) session. To maintain effectivity units for serialized items, you can use the Serial End Item - As-Built Headers (timfc0110m000) session.

Note that you can use the Order Distribution (tisfc0105m000) session to *view* unit effective items.

Serialized items on the shop floor - automatic status handling

If the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Automatic**, work on a production order automatically results in status changes of the involved serialized end items. In other words, if you deal with serialized items in the production order process, the status of the serialized items automatically changes if you perform actions on the items, for example, completing, rejecting, or recalling the items. You can view the status of the serialized items in the Serial End Item - As-Built Headers (timfc0110m000) session.

If you work in the following sessions on production orders, the status of serialized items can be affected:

- Report Operations Completed (tisfc0130m000)
- Report Orders Completed (tisfc0520m000)

Using the Report Operations Completed (tisfc0130m000) session

Report items as completed

If you want to report one or more items as completed for a specific production order on the last operation of the production order, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Automatic**, take the following steps:

1. Start the Report Operations Completed (tisfc0130m000) details session.
2. Enter the quantity that you want to report as completed on the operation in the **Completed** field:
   - If you want to report only one serialized item as completed, you can also enter the serial number in the **Serial Number** field.
   - If you want to report more than one end item as completed, you must enter that quantity in the **Completed** field, but you cannot indicate specific serial numbers.
   - If you want to report a quantity of serialized items as completed for a specific lot or a specific effectivity unit, you can enter the lot number or the effectivity unit in respectively the **Lot Code** field and the **Effectivity Unit** field.
3. Click **Save**.
4. If you start the Serial End Item - As-Built Headers (timfc0110m000) session, you can see that the status of the completed items has changed from **Created** to **Assigned**.
   - If you completed one item, and you indicated the serial number, that specific item has the **Assigned** status.
   - If you completed more than one item, a number of serialized items equal to the completed quantity has got the **Assigned** status. The sequence of the serialized items in the Serial End Item - As-Built Headers (timfc0110m000) session determines which serialized items became **Assigned**. Only items with the **Created** status can be changed to **Assigned**. Serialized items with statuses other than **Created** were skipped, and did not become **Assigned**.
   - If you completed serialized items for a specific lot or a specific effectivity unit, only the items with this lot number or effectivity unit have the **Assigned** status.

Reject items

You can reject serialized items on all operations, not only on the last operation.

If the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Automatic**, to reject one or more items for a specific production order, take the following steps.

1. Start the Report Operations Completed (tisfc0130m000) details session.
2. Specify the rejected item or rejected items in one of the following ways:
   - Enter the quantity that you want to reject on the operation in the **Rejected** field,
   - To reject a item, type the serial number in the **Serial Number** field.
3. Click **Save**.

4. If you start the Serial End Item - As-Built Headers (timfc0110m000) session, you can see that the status of the rejected items is **Rejected**.

Note

You can only reject serialized items in the Report Operations Completed (tisfc0130m000) details session. You cannot reject serialized items on the production order level, that is, in the Report Orders Completed (tisfc0520m000) details session. Only if a production order has no operations can you use the Report Orders Completed (tisfc0520m000) details session to reject items.

Note

You can enter a serial number in the **Serial Number** field, but you can also determine the item's lot and effectivity unit in respectively the **Lot Code** and the **Effectivity Unit** field.

Using the Report Orders Completed (tisfc0520m000) session

Report items as completed

If you want to report one or more items as completed in the Report Orders Completed (tisfc0520m000) details session, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Automatic**, take the following steps:

1. Start the Report Orders Completed (tisfc0520m000) details session.
2. If you report only one item as completed with a specific serial number, you can enter the serial number in the **Serial Number** field. If you want to report more than one serial number as completed, you must enter that quantity in the **Additional Qty to Deliver** field. You cannot specify the serial numbers.
3. If you are not finished yet, and you want to report other quantities as completed later on, click **Save**.

   If you do *not* want to complete a quantity in a later stage, select **Completed** in the **Order Status** field, and then click **Save**, the production order status changes to **Completed**, and you can no longer report other quantities as completed.
4. If you start the Serial End Item - As-Built Headers (timfc0110m000) session, you can check the statuses of the serialized items.

Recall items from the warehouse

If you want to recall one or more items from the warehouse for a specific production order, and the **As-Built Status Handling** field in the Shop Floor Control Parameters (tisfc0100s000) session is set to **Automatic**, take the following steps:

1. Start the Report Orders Completed (tisfc0520m000) details session.
2. Enter the item quantity that you want to recall as a negative quantity in the **Additional Qty to Deliver** field. Note that you cannot recall serialized items if one of the other items still has the **Assigned** status.
3. Click **Save**.

4. Check in the Serial End Item - As-Built Headers (timfc0110m000) session that the order status of items that were recalled changed from **Received in Warehouse** to **Assigned**.

Order distribution of unit-effective items

Generally, if an item is unit effective, you need the Order Distribution (tisfc0105m000) session to handle the order quantities. However, for a *serialized* unit-effective item, you can skip the Order Distribution (tisfc0105m000) session. To maintain effectivity units for serialized items, you can use the Serial End Item - As-Built Headers (timfc0110m000) session.

Note that you can use the Order Distribution (tisfc0105m000) session to *view* the quantities for unit effective items.

Chapter 5
Service

5

To define serialized items

To define a serialized item and its relationships, perform the following steps:

1. Define the item in the Serialized Items (tscfg2100m000) session. See the Help of the Physical Breakdowns (tscfg2110m000) session.
2. Use the Installations (tsbsc1110m000) session to assign the serialized item to an Installation group. (Installation groups are defined in the Installation Groups (tsbsc1100m000) session).
3. Define the serialized item's relationships in the Physical Breakdowns (tscfg2110m000) session.

To use serialized item groups

A serialized item group is a group of serialized items with similar features. Use the Serialized Item Groups (tscfg0110m000) session to define serialized item group.

You can use serialized item groups when you plan a service order.

Example

You can use serialized item groups to select a service engineer on the basis of skill that the service engineer has for a specific serialized item group. The creation of the serialized item group is user defined, but generally relates to a group of similar objects.

You can use serialized-item groups when you generate service order planning. The skills and serialized item group of a service employee can be used as planning constraints when LN selects a service engineer to carry out a service order.

To create a physical breakdown from an as-built structure

You can use the Create Physical Breakdown Structure (tscfg2210m000) session to create the physical breakdown from an as-built structure.

If you create a physical breakdown from an as-built structure, this results in a direct copy of serialized items present in the Serial End Item - As-Built Headers (timfc0110m000) session of Manufacturing to the Serialized Items (tscfg2100m000) session of Service. The physical breakdown is created with the same structure as the as-built structure.

Note

- Manufacturing must be implemented to create a physical breakdown from an as-built structure. Refer to the Manufacturing (ti) check box in the Implemented Software Components (tccom0500m000) session.
- Anonymous items cannot have serialized items as child items.

To create a physical breakdown from an as-built structure

1. Start the Create Physical Breakdown Structure (tscfg2210m000) session.
2. In the Source field, select As-built Structure.
3. Under As-built Structure, enter or select the as-built (top) item and serial number to copy from. The as-built (top) item cannot be lot controlled. Make sure that as-built component data is present in the Serial End Item - As-Built Components (timfc0111m000) session for the as-built (top) item. The non-serialized items in the as-built component data must be present in the Items - General (tcibd0501m000) session. Otherwise, no physical breakdown is created.
4. In the Link To section, in the Target field, select one of the following:
   - **Installation Group**
     The top item in the item breakdown is set as the top-serialized item in the physical breakdown. The components in all levels in the item breakdown are exactly copied to the serialized items. The serial number of the serialized item is created according to a mask.
   - **Breakdown**
     The top item of the item breakdown must exist as a child item in the physical breakdown you enter. The components in all levels in the item breakdown are exactly copied to serialized items. The serial number of the serialized item is created according to a mask.
   - **New Breakdown**
     LN creates a new physical breakdown.
5. Under Defaults, enter or select the following:
   - The serialized item group to which the newly created serialized items belongs.
   - Service department (optional).
   - Delivery time (optional).

6. Select the **Generate Process Report** check box and the **Generate Error Report** check box as required.
7. Click Create.

As-built structure copied to an Installation group

- A new Installation group configuration is created.
- The top item in the as-built structure is set as the top-serialized item in the physical breakdown.
- The child items (as-built component data) on all levels in the as-built structure are copied exactly to the physical breakdown.
- The serialized as-built components are copied to the Serialized Items (tscfg2100m000) session. The non-serialized as-built components are copied to the Items - Service (tsmdm2100m000) session.

As-built structure copied to a breakdown

- The top item of the as-built structure must exist as a child item in the physical breakdown you enter.
- The child items (as-built component data) on all levels in the as-built structure are copied exactly to the physical breakdown.
- The serialized as-built components are copied to the Serialized Items (tscfg2100m000) session. The non-serialized as-built components are copied to the Items - Service (tsmdm2100m000) session.

As-built structure copied to a new breakdown

- The child items (as-built component data) on all levels in the as-built structure are copied exactly to the physical breakdown.
- The serialized as-built components are copied to the Serialized Items (tscfg2100m000) session. The non-serialized as-built components are copied to the Items - Service (tsmdm2100m000) session.

Appendix A
Glossary

A

anonymous item

An item with an **Anonymous** order policy. This means that the item is produced or purchased before a customer order is received. If an anonymous item is a manufactured item, it is produced in a make-to-stock production environment.

A generic item is typical for a to-order environment. The order policy can be **To Order** but also **Anonymous**. In case a generic item is anonymous, a product variant is configured without using a PCS project.

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.

as-built structure

The actually built structure of a product including the serial numbers.

cross-docking

The process by which inbound goods are immediately taken from the receipt location to the staging location for issue. For example, this process is used to fulfill an existing sales order for which no inventory is available.

LN distinguishes the following three types of cross-docking:

- **Static**
  To initiate this type of cross-docking, you must generate a purchase order from a sales order in Sales.
- **Dynamic**
  This type of cross-docking, available in Warehousing, can be:
  - Based on inventory shortages.
  - Defined explicitly during receipt of goods.
  - Created on an ad hoc basis.
- **Direct Material Supply**
  You can use this type of cross-docking, available in Warehousing, to meet demand in a cluster of warehouses, and is based on:
  - Receipts
  - Inventory on hand

Note

You can maintain cross-dock orders that originate from Sales in the same way as cross-dock orders created in Warehousing, with the exception of the sales order/purchase order link, which you cannot change.

See: direct material supply

effectivity unit

A reference number, for example a sales order line or a project deliverable line, that is used to model deviations for a unit effective item.

FIFO

See: *first in, first out (FIFO) (p. 57)*

first in, first out (FIFO)

An inventory valuation method for accounting purposes. The assumption is that the oldest inventory value (first in) is the first to be used or sold (first out). However, this method assumes no necessary relationship with the actual physical movement of specific items.

FIFO can also be an outbound method that determines the physical outbound priority of a specific item. The oldest inventory is the first to be issued, taking into account the ordered packaging level, that is leading over the inventory date.

Example

A box containing 10 pieces is ordered and you have the following inventory:

- 5 pieces, receipt date 01-01
- 1 box containing 10 pieces, receipt date 05-01
- 1 box containing 10 pieces, receipt date 10-01
- 7 pieces, receipt date 15-01

If the outbound priority of the item is FIFO, the box with receipt date 05-01 is issued.

Abbreviation: FIFO

handling unit

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

A handling unit includes the following attributes:

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

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

See: handling unit structure

inventory transaction

Any change in the inventory records.

inventory transaction type

A classification that is used to indicate the type of inventory movement.

The following inventory transaction types are available:

- **Issue**
  From warehouse to other entity than warehouse.
- **Receipt**
  From other entity than warehouse to warehouse.
- **Transfer**
  From one warehouse to another.
- **WIP Transfer**
  From one costing work center to another.

inventory unit

The unit of measure in which the inventory of an item is recorded, such as piece, kilogram, box of 12, or meter.

The inventory unit is also used as the base unit in measure conversions, especially for conversions that concern the order unit and the price unit on a purchase order or a sales order. These conversions always use the inventory unit as the base unit. An inventory unit therefore applies to all item types, also to item types that cannot be kept in stock.

Kanban

A demand-pull system of just-in-time production that regulates the supply of items to shop floor warehouses.

Kanban uses standard containers or lot sizes (also called bins) to deliver items to shop floor warehouses. In the shop floor warehouse, two or more bins are available with the same items. Items are only taken from one bin. If a bin is empty, a new bin is ordered and the items are taken from the (second) full bin. To each bin a label is attached. The line stations use the label to order a full bin with the required items. As a result, no inventory administration is done in the shop floor warehouse for the floor stock items that are used.

last in, first out (LIFO)

An inventory valuation method for accounting purposes. The assumption is that the most recently received value item (last in) is the first to be used or sold (first out). However, this method assumes no necessary relationship with the actual physical movement of specific items.

LIFO can also be an outbound method that determines the physical outbound priority of a specific item. The newest inventory is the first to be issued, taking into account the ordered packaging level, that is leading over the inventory date.

Example

A box containing 10 pieces is ordered and you have the following inventory:

- 5 pieces, receipt date 01-01
- 1 box containing 10 pieces, receipt date 05-01
- 1 box containing 10 pieces, receipt date 10-01
- 7 pieces, receipt date 15-01

If the outbound priority of the item is LIFO, the box with receipt date 10-01 is issued.

Abbreviation: LIFO

LIFO

See: *last in, first out (LIFO) (p. 59)*

lot

A number of items produced and stored together that are identified by a (lot) code. Lots identify goods.

maintenance sales order

Orders that are used to plan, carry out, and control the maintenance on customer-owned components, products and the logistic handling of spare parts.

mask

A template that specifies the structure of an identification code. The mask defines the total length of the identification code and the way the code is divided into mask segments.

See: mask segment

mask segment

A part of a mask that represents specific data. For example, a mask segment can be a date, a LN field, or a sequence number.

See: mask, translation table

outbound advice

A list generated by LN that advises you the location and lot from which goods must be picked and possibly issued, taking into account factors such as blocked locations and the outbound method.

physical breakdown

A serialized item's composition and structure, defined by the parent-child relationships of its constituent items. The physical breakdown can be displayed in a multilevel structure or a single-level structure.

picking list

A document that lists the material to be picked for manufacturing or shipping orders. This document is used by operating personnel to pick manufacturing or shipping orders.

See: picking

rounding factor

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

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

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

serialized item

A physical occurrence of a standard item that is given a unique lifetime serial number. This enables tracking of the individual item throughout its lifetime, for example, through the design, production, testing, installation, and maintenance phases. A serialized item can consist of other serialized components.

Examples of serialized items are cars (Vehicle Identification Number), airplanes (tail numbers), PCs, and other electronic equipment (serial numbers).

serialized item

An item that is uniquely identified by the item code (manufacturer part number) in combination with the serial number.

serialized item group

A group of serialized items with similar features.

serialized item relations

The indication of a serialized item's position in a physical breakdown, by means of parent-child relations. A serialized item in a physical breakdown is above its child item(s) and below its parent item.

In a structure, a child item can only have one parent item, whereas a parent item can have multiple child items.

service employee

Person(s) working for the service department.

service engineer

A trained technician who carries out the service activities within his/her own organization or on the customer's site.

service order

Orders that are used to plan, carry out, and control all repair and maintenance on configurations as present on customer sites or as present with the company.

translation table

A table to translate the actual data into the code required to form the serial number. For example, to translate the production date into the date code.

unit effective item

An item for which an effectivity unit can be defined on the sales order line or the sales quotation line. The effectivity unit is used to model deviations for the unit effective item, and to peg purchase orders and production orders to a specific sales order line for the unit effective item.

unit effectivity

A means to control the validity of variations by effectivity units.

Unit effectivity enables you to model changes for the following entities:

- Engineering bill of material
- Production bill of material
- Routing
- Routing operations
- Supplier selection
- Sourcing strategies

work order

Orders that are used to plan, carry out, and control all maintenance on items in a maintenance shop or in a repair shop. A work order consists of at least one work order header, and can have a number of activities that must be carried out on a repairable service item.

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