Infor LN Manufacturing User Guide for Use-up and Alternative Materials

Important Notices

Trademark Acknowledgements

Publication Information

Document code	tialternatmatug (U9883)
Release	10.4 (10.4)
Publication date	June 20, 2022

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About this document

This document explains material management during production. When materials are unavailable in necessary quantities, they are substituted with alternative materials. If materials are still in stock, but will no longer be replenished, you can define options for use-up of the remaining stock.

How to read this document

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Chapter 1
Introduction Use-up and Alternative Materials

1

Overview of use-up materials and alternative materials

Note

To enable this functionality select the **Use Up and Alternative Materials** check box in the Implemented Software Components (tccom0100s000) session.

You can use this functionality to ensure that material, used in pervious revisions of the end item, is used up completely before new material is utilized. This prevents a buildup of inventory that may become obsolete.

You can use alternative materials to handle shortage problems during production, and to reduce cost. BOM materials are often small parts that are ordered in large quantities, for which several alternatives are available. In case of shortage, the material specified as preferred in the bill of material (BOM) as is ordered. If the material cannot be ordered in time to fulfill the requirement an alternative material is chosen.

Alternative materials in BOMs

Some items are interchangeable even when these are purchased from various vendors. You can use any of these items as material in a bill of material (BOM). If a shortage of a standard material is expected to delay a production order, LN can automatically select one of the alternative materials. You can define up to nine alternative materials for any material in a BOM.

The use of alternative materials has the following advantages:

- LN can handle material shortages for some items without user intervention.
- The use of alternative items can reduce the average inventory level.

Note

- Alternative materials apply for production orders only, not for subcontracted purchase order.
- You must distinguish the alternative materials, described in this topic, from the alternative items that you define in the Alternative Items (tcibd0505m000) session.
- The cost-price calculation does not take alternative materials and use up into consideration. Calculations are done based on the cost of the material specified in the BOM.

Restrictions

- Use-up materials and alternative materials have the same net quantity as the standard material.
- Use-up materials and alternative materials have exactly the same values of characteristics such as the scrap and yield as the standard material.
- Use-up materials and alternative materials have the same material-routing relationships as the standard item.
- If a component on a BOM line is a standard item, that is, an item with an empty project segment, the associated use-up and alternative materials must also be standard components.
- If a component on a BOM line is a project item, that is, an item with a filled project segment, the associated use-up and alternative materials' project segments must be either:
  - Filled with the same project as the main item's project segment.
  - Empty (the alternative is a standard item)
- If a component on a BOM line is a phantom, you cannot define a use-up material or alternative material for that component.

Priority of an alternative material

You can specify the priority of each alternative material. If the standard material is out of stock, LN first tries the highest-priority alternative. If that material is also unavailable, LN tries the alternative that has the next priority.

To distribute a material requirement over multiple items

If, on a BOM line in the Bill of Material (tibom1110m000) session, the **Allow Multiple Items** check box is selected, LN can split a material requirement over multiple alternative materials or partly fulfilled by the materials.

Example

If ten pieces are needed and only six pieces of the requested material are available, first the six pieces of the original are used then four pieces of the alternative to fill the full quota.

Checks for alternative materials

At one or more of the following points in a production order's life cycle, depending on parameter settings, LN can check whether an alternative material must be used:

- When you generate planned production orders in Enterprise Planning.
- When a production order is created in Shop Floor Control (SFC).
- When you run the Generate Alternatives for Estimated Materials (ticst0216m000) session for existing production orders.
- When you generate an outbound advice in Warehousing.

For more details, refer to the *Searching for alternative and use-up materials. (p. 17)* topic.

To use up remaining stock of outdated items

This topic introduces the concept of use-up materials.

Often, new items are introduced that, in turn, make other items obsolete. The obsolete items are no longer deliverable or the items are no longer manufactured. If this type of item was used as material in a bill of material (BOM), you must replace the material by a replacement item with the same specifications. However, if you still have a quantity of the outdated material on stock, you want to use that first.

The value of the **Last allowed Order Date** field in the Items - Ordering (tcibd2500m000) session determines when LN stops reordering the use-up material.

To set the system up to use up the remaining quantity of the outdated item, you define that item as a use-up material in the BOM.

Important!

This functionality is available only if the **Use Up and Alternative Materials** check box in the Implemented Software Components (tccom0100s000) session is selected.

Restrictions

- Use-up materials and alternative materials have the same net quantity as the standard material.
- Use-up materials and alternative materials have exactly the same values of characteristics such as the scrap and yield as the standard material.
- Use-up materials, alternative materials and the corresponding standard material can have different warehouses, but these warehouses must belong to the same cluster.
- Use-up materials and alternative materials have the same material-routing relationships as the standard item.
- If a component on a BOM line is a standard item, that is, an item with an empty project segment, the associated use-up and alternative materials must also be standard components.

- If a component on a BOM line is a project item, that is, an item with a filled project segment, the associated use-up and alternative materials' project segments must be either:
  - Filled with the same project as the main item's project segment
  - Empty (the alternative is a standard item)
- If a component on a BOM line is a phantom, you cannot define a use-up material or alternative material for that component.

Checks for use-up materials

At any of the following moments, depending on parameter settings, LN can check whether you must use any use-up material:

- When you generate planned production orders in the Enterprise Planning package.
- When the system generates a production order in the Shop Floor Control (SFC) module.
- When you release a production order.
- When you run the Generate Alternatives for Estimated Materials (ticst0216m000) session for existing production orders.
- When you generate an outbound advice in the Warehousing package.

For more information, refer to *Searching for alternative and use-up materials. (p. 17)*.

To use revisions and lot control instead of use-up materials

If you use the Engineering Data Management (EDM) module to control changes in a bill of material (BOM) and you link subsequent revisions to the same item code on a BOM line, you cannot apply the use-up functionality.

For that situation, you can apply lot control and use the **FIFO** outbound method. That outbound method ensures that you use up the outdated revision before you take the new revision.

Chapter 2
Setup for Use-up and Alternative Materials

2

To define alternative materials

This topic describes several sessions you can use to define alternative materials for materials in bills of material (BOMs).

Note

This functionality is available only if the **Use Up and Alternative Materials** check box is selected in the Implemented Software Components (tccom0100s000) session.

Alternative materials in BOMs

To define alternative materials in BOMs, you can use the following procedure:

1. Start the Bill of Material (tibom1110m000) session, go to the relevant BOM, and double-click the BOM line to start the details session.
2. If you want to permit more than one item to be used for one material requirement, on the **Validity** tab, select the **Allow Multiple Items** check box.
3. Click **Use Up and Alternative Materials**.
4. Insert the alternative materials in the Use Up and Alternative Materials (tibom0150m000) session.

Batch-wise definition of alternative materials

To define alternative materials for multiple BOMs at once, use the Copy Item to Alternative Materials (tibom0250m000) session.

Alternative materials in Engineering BOMs (EBOM)

To define alternative materials in EBOMs, take the following steps:

1. Start the Engineering BOM (tiedm1110m000) session, go to the relevant EBOM and double-click the BOM line to start the details session.
2. If you want to permit more than one item to be used for one material requirement, select the **Allow Multiple Items** check box.
3. Click **Use Up and Alternative Materials by Engineering BOM**.
4. Insert the alternative materials in the Use Up and Alternative Materials by Engineering BOM (tiedm2115m000) session.

You can copy the EBOM with the EBOM's alternative materials to a production BOM. For more information, refer to the Engineering BOMs topic.

Removing Used Up Materials from Alternative Materials

The Use Up and Alternative Materials (tibom0150m000) session looks for alternative materials of which the **Alternative Priority** field in the is **Use up**. If the material's supply is zero and no supply orders are present, the material is removed from the Use Up and Alternative Materials (tibom0150m000) session.

This action is limited to materials for which the **Shop Floor Planner** field in the Items - Ordering (tcibd2500m000) session names a planner that is part of the range of shop floor planners that you entered.

Minimum quantity

You cannot always reduce the inventory exactly to zero. Sometimes, you want to keep a small quantity of the use-up material, for research, documentation, or use as spare parts. You can use the **Minimum Quantity** for that purpose.

If the use-up material's remaining inventory is less than the value you specified in the **Minimum Quantity** field, LN ignores the remaining inventory and also removes the item from the Use Up and Alternative Materials (tibom0150m000) session.

If you want to ensure that the last remaining quantity of an outdated item is kept as spare part, you must change the item's warehouse to a warehouse that is not included in **Enterprise Planning**.

The **Warehouse** field in the Items - Ordering (tcibd2500m000) session displays an item's warehouse.

The **Include in Enterprise Planning** check box in the Warehouses (tcmcs0503m000) session determines whether the warehouse is included in **Enterprise Planning**.

To replace an outdated item used as material in BOMs

This topic describes how to replace an outdated item with a replacement item in a bill of material (BOM) and specify the outdated material as a use-up material.

For an introduction into the concept of use-up materials, refer to *To use up remaining stock of outdated items (p. 9)*.

Note

This functionality is available only if the **Use Up and Alternative Materials** check box is selected in the Implemented Software Components (tccom0100s000) session.

Engineering items

If you use the Engineering Data Management (EDM) module to control changes in a BOM, you must not use this procedure. For more information, refer to the *To define alternative materials (p. 11)* topic.

To replace an outdated item in a single BOM

To replace an outdated component, proceed as follows:

1. Start the Bill of Material (tibom1110m000) session.
2. Insert a BOM line with the same BOM position number as the outdated component.
3. Enter the date when the switch must occur in the **Expiry Date** field for the outdated component.
4. Enter the same date in the **Effective Date** field for the new component.

If the outdated component is not used anymore in any BOM, you must set the item's last allowed order date in the Items - Ordering (tcibd2500m000) session. If the last allowed order date is specified by warehouse, you must use the Warehouse - Item (whwmd2510m000) session.

If you enter a new component with the same BOM position number as an existing component, LN automatically inserts the outdated material as use-up material in the Use Up and Alternative Materials (tibom0150m000) session.

To replace outdated items in BOMs

Use this procedure only if the replaced item is no longer used in *any* BOM. If you replace a material in one BOM and continue to use that material in another BOM, you must not change the material into a use-up material.

Step 1: Print Where-used BOM Components (tibom1412m000)

Optionally print an overview of BOMs that use the item as material.

Step 2: Items - Ordering (tcibd2500m000)

In the Items - Ordering (tcibd2500m000) session, set the **Last allowed Order Date** to the last date on which you can still order the outdated item. Enter a date that is in the near future.

Step 3: Check Use-up Material Definitions (tibom0251m000)

Use the Check Use-up Material Definitions (tibom0251m000) session to print a report of BOMs that use the outdated item as material without any alternatives specified.

Step 4: Replace Item in Bill of Material (tibom1212m000)

In this step, you add the replacement material to the relevant BOMs.

In the Replace Item in Bill of Material (tibom1212m000) session, take the following steps:

1. Enter the item to be replaced and the replacement item.
2. Enter a date in the **Effective Date** field that is no later than the outdated item's last allowed order date.
3. Under **Selection Range**, enter the range of main items of which the BOMs must be adjusted.
4. Select the **Retain Original Item** check box to retain information about the history of the BOM. This setting is recommended, but not mandatory.
5. Clear the **Retain Effective Date** check box.
6. Set the remaining fields, according to your requirements.
7. Click **Replace**.

Step 5: Copy Item to Alternative Materials (tibom0250m000)

In this step, you indicate that the system must continue to use the outdated material until that material runs out of stock.

In the Copy Item to Alternative Materials (tibom0250m000) session, take the following steps:

1. In the **Alternative Material** field, enter the outdated item.
2. In the **Is Alternative for Item** field, enter the replacement material that you just introduced in the BOMs.
3. In general, the range of main items of which the BOMs must be adjusted includes all main items.
4. Set the **Priority** field to **Add as Highest**. The maximum priority is **Use up**.
5. Click **Generate**.

Step 6: Bill of Material (tibom1110m000)

You can use the Bill of Material (tibom1110m000) session to see the effects of the replacements.

To see the use-up material, take the following steps:

1. Select the BOM line of the newly introduced material.
2. On the appropriate menu, click **Use Up and Alternative Materials**.

To remove completely used up items

From time to time, you can run the Remove Used Up Materials from Alternative Materials (tibom0252m000) session to clean up the BOMs after the outdated material is completely used up.

If you want to ensure that the last remaining quantity of an outdated item is kept as spare part, you must change the item's warehouse to a warehouse that is not included in **Enterprise Planning**.

The **Warehouse** field in the Items - Ordering (tcibd2500m000) session displays an item's warehouse.

The **Include in Enterprise Planning** check box in the Warehouses (tcmcs0503m000) session determines whether the warehouse is included in **Enterprise Planning**.

Chapter 3
Use-up and Alternative Materials

3

Searching for alternative and use-up materials.

This topic describes how and when LN automatically takes an alternative material for a production order instead of a standard material.

How does LN perform the checks

LN performs the checks for alternative materials according to the following principles:

- Each alternative material has a priority.
- If LN finds any appropriate use-up material, that material is used first, even if a sufficient quantity of the standard material is available.
- If the standard material is out of stock, LN first tries the highest-priority alternative. If that material is also unavailable, LN tries the alternative that has the next priority, and so on.

Material availability

LN uses the following methods to determine whether a use-up material or an alternative material is available on the required date:

- **In the Enterprise Planning package**
  LN checks the material's quantity available-to-promise.
- **In the Shop Floor Control (SFC) module**
  LN checks the material's time-phased economic stock.
- **In the Warehousing package**
  LN checks the material's inventory on hand.

To distribute a material requirement over multiple materials

If, on a BOM line in the Bill of Material (tibom1110m000) session, the **Allow Multiple Items** check box is selected, LN can split a material over multiple alternative materials and the original material.

Multiple sessions have a check box named **Allow Multiple Items**:

- The **Allow Multiple Items** check box in the Bill of Material (tibom1110m000) session is relevant for the generation of planned orders and production orders.
- The **Allow Multiple Items** check box in the Estimated Materials (ticst0101m000) session is relevant for the Generate Alternatives for Estimated Materials (ticst0216m000) session and the generation of the outbound advices.

Example 1: Use-up materials

Material X-CURRENT has replaced the older item X-OLD. The following table shows the inventory situation.

Item	Inventory	Priority
X-OLD	15	Use up
X-CURRENT	250	(standard)

For a particular production order, you need a quantity of 100 pieces of X-CURRENT.

If multiple items are permitted, LN takes the last 15 pieces of the use-up material (X-OLD) and 85 pieces of the current material (X-CURRENT).

If multiple items are *not* allowed, LN does not use up the old material X-OLD. Another material requirement of 15 or less can occur later, in which case, LN takes the use-up material.

Example 2: Alternative materials

Material X has two alternatives: X1 and X2. The following table shows the inventory situation.

Item	Inventory	Priority
X	20	(standard)
X1	30	1
X2	1200	2

For a particular production order, you need a quantity of 100 pieces of X.

If multiple items are permitted, LN takes the following materials:

- 20 pieces of the standard material (X)
- 30 pieces of the first alternative material (X1), and
- 50 pieces of the second alternative material (X2)

If multiple items are *not* permitted, LN plans 100 pieces of alternative material X2, because none of the higher-priority materials are available in sufficient quantities.

When does LN perform the checks

At one or more of the following points during a production order's life cycle, LN can check the timely availability of standard materials and alternative materials:

- LN performs these checks when the order-planning procedure in Enterprise Planning generates planned production orders.
- If the **Automatic Select Alternatives** field in the Shop Floor Control Parameters (tisfc0500m000) session is set to **At Generation**, LN performs these checks when you create a production order or transfer a planned production order to the Shop Floor Control (SFC) module.
- If the **Automatic Select Alternatives** field in the Shop Floor Control Parameters (tisfc0500m000) session is set to **At Release**, LN performs these checks when you release a production order.
- You can perform these checks manually by using the Generate Alternatives for Estimated Materials (ticst0216m000) session.

  You can use this session until the estimated materials are frozen. The estimated costs are frozen if the **Estimated Costs Are Frozen** check box in the Estimated Materials (ticst0101m000) session is selected.
- You can check again for material shortages and select alternative materials at the moment when you generate an outbound advice in the Warehousing package. To do so, you must select the **Handle Alternative Items** check box in the Process Outbound Advice (whinh4200m000) session, or select the **Handle Alternative Items** check box in the Generate Outbound Advice (whinh4201m000) session.

Repeated material checks

In general, if LN repeats the material availability check and a sufficient quantity of the currently selected material is available, LN does not change the material allocation, even if a higher-priority alternative material or the standard material has meanwhile become available. This policy avoids a nervous planning process that repeatedly changes the material allocations.

However, if you want to make sure that the standard material or the highest-priority alternative material is used in a production order, you can use the Generate Alternatives for Estimated Materials (ticst0216m000) session to recheck all possible materials at any time. In that case, you must select the **Always Reconsider Alternatives** check box.

Example

Suppose that the following events occur:

- During the creation of a production order, LN takes an alternative item because of an anticipated shortage for the standard material at the material allocation date.
- Before the allocation date for the material, you unexpectedly receive an inbound shipment of the standard material that is sufficient to fulfill the material requirement.
- Next, you generate the outbound advice in the Warehousing package.

If the currently selected alternative material is available, LN does not change the material allocation and issues the alternative material from the warehouse to the shop floor, regardless of the availability of the standard material.

To force LN to check again for the availability of the standard material, start the Generate Alternatives for Estimated Materials (ticst0216m000) session and select the **Always Reconsider Alternatives** check box.

Use up and alternative materials and customized items

Important!

This functionality is available only if the **Use Up and Alternative Materials** check box in the Implemented Software Components (tccom0100s000) session is selected.

Manual definition

If you define a customized BOM for a customized item, you can add both project items and standard items as use-up material or as alternative material for a BOM component.

In other words, in the Use Up and Alternative Materials (tibom0150m000) session, you can leave the project segment empty, or enter a project code. The alternative material's project segment must be empty or equal to the main item's project segment.

Automatic creation of customized BOM

In the following sessions, LN can create a customized project structure:

- Generate (Project PCS) Structure for Sales Orders (tdsls4244m000)
- Bill of Material (tibom1110m000)- if the **Customize BOM Line automatically** in the Project Control Parameters (tipcs0100m000) is selected and you insert a component with (order policy = **To Order**)
- Generate (Project) Structure for Product Variant (tipcs2220m000)
- Copy Standard Product Structure to Customized Structure (tipcs2230m000)
- Copy Customized Product Structure to Customized Structure (tipcs2231m000)

If LN creates a customized project structure, LN can also copy any use-up material and alternative material to the customized BOM's use-up and alternative materials, depending on the setting of the **Use Up Material** check box and the **Alternative Material** check box.

The copied use-up materials and alternative materials always have an empty project segment, except in the following situation. If you copy a customized product structure to another customized product structure with the same project code (and a different item code), LN also copies the project segments of the use-up materials and alternative materials.

Chapter 4
Planning

4

Use-up materials and alternative materials in Enterprise Planning

This topic describes how Enterprise Planning handles use-up materials and alternative materials.

Note

This functionality is available only if the **Use Up and Alternative Materials** check box in the Implemented Software Components (tccom0100s000) session is selected.

Planning with alternative materials

The order-based planning process checks whether the projected inventory stays above the safety stock if you use the standard material to fulfill the material requirement.

If the projected inventory drops below the safety stock, LN searches for a firm-planned order that can be rescheduled to an earlier date to fill the requirement.

If LN finds no such order, LN checks the available-to-promise (ATP) quantity of the component's alternative materials (in priority order). If ATP finds an alternative material, the material requirement is shifted to that alternative material.

If the ATP is insufficient, LN will generate a new planned order for the standard material.

If the material requirement cannot be fulfilled in time, LN generates a signal to notify the planner.

Note

- In the Items - Ordering (tcibd2500m000) session, you can view or maintain the last allowed order date and the safety stock.
- LN also checks for a use-up material that must be used up first.

Alternative material horizon

For material requirements in a relatively far future, LN does not check for alternative materials.

To determine how far into the future LN checks for alternative materials, use the **Alternative Materials Horizon** field in the Scenarios (cprpd4100m000) session.

Note

The value of the ATP/CTP horizon of alternative materials must be greater than the alternative material horizon. Beyond the ATP/CTP horizon, LN assumes that the material is unlimited available.

Allow multiple materials

If the **Allow Multiple Items** check box in the Bill of Material (tibom1110m000) session is selected, LN can distribute the estimated quantity of the material over multiple items.

For example, the estimated quantity can be divided over the use-up material and the standard material or over the standard material and one or more alternative materials.

If you do not permit multiple items, LN makes a choice for each material line: LN issues either the standard material or the alternative material, but not a combination of two or more materials.

For examples, refer to To distribute a material requirement over multiple materials.

Restrictions

The following restrictions apply:

- The selection of use-up materials and alternative materials is only available in order-based planning and not in master-based planning
- The capable-to-promise checks do not take alternative materials into account.

Phase numbers

From all items that have the same phase number, LN first plans the items that can be used as an alternative material, to determine the ATP of these items.

The phase number of a BOM component must equal the phase number of the component's alternative materials. If these phase numbers happen to be different, LN first tries to adjust the phase numbers to solve that problem. If the BOMs and alternative-material definition contains a cycle, a change of phase number cannot solve the problem and LN will display an error message.

If LN shows the **Alternatives Cycle detected.** error message, use the Use Up and Alternative Materials (tibom0150m000) session to remove the alternative material that causes the problem.

Example

The following situation is an example of an alternative cycle:

- Item A has phase number 0.

- B is a material in the BOM of A (B has phase number 1)
- C is a material in the BOM of B (C has phase number 2)
- A is an alternative for material C. (A must have the same phase number as C, but A has phase number 0)

Many other combinations can result in an alternative cycle.

Checks on the execution level

You can repeat the check later, after you transferred the orders to the execution level. In that case, LN will recheck the inventory levels and change the selection of materials if necessary.

Appendix A
Glossary

A

alternative items

Items that can serve as a substitute for the standard item if the standard item cannot be delivered or is being replaced.

alternative material

A substitute for a BOM material that the system can select in case the standard material is out of stock.

An alternative material is supposed to meet the same specifications, but only in the context of a BOM for a specific main item.

appropriate menu

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

ATP

See: *available-to-promise (p. 28)*

ATP/CTP horizon

The date until which LN performs ATP and CTP checks.

The ATP horizon is expressed as a number of working days during which LN can carry out ATP and CTP checks. Beyond the ATP/CTP horizon, LN does not check ATP or CTP: all customer orders are accepted.

available-to-promise

The item quantity that is still available to be promised to a customer.

In LN, available-to-promise (ATP) is part of a more extended framework of order promising techniques called capable-to-promise (CTP). If an item's ATP is insufficient, CTP goes beyond ATP in that it also considers the possibility of producing more than was initially planned.

In addition to the standard ATP functionality, LN also uses channel ATP. This term refers to the availability of an item for a certain sales channel, taking into account the sales limits for that channel.

For all other types of order promising functionality used in LN, the term CTP is used.

Acronym:

Abbreviation: ATP

bill of material (BOM)

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

BOM line

The line number within the bill of material.

BOM position number

A reference number identifying a specific combination of manufactured and component items in a bill of material. The position number is subdivided by sequence numbers that are used to refer to usage of a component between particular dates.

capable-to-promise

The combination of techniques used to determine the quantity of an item that you can promise to a customer on a specific date.

Capable-to-promise (CTP) involves an extension of the standard available-to-promise (ATP) functionality. CTP goes beyond ATP in that it also considers the possibility of producing more than was initially planned, when an item's ATP is insufficient.

In addition to the standard ATP functionality, CTP comprises the following techniques:

- Channel ATP: restricted availability for a certain sales channel.
- Product family CTP: order promising on the basis of availability on product family level rather than on item level.
- Component CTP: check if there are enough components available to produce an extra quantity of an item.
- Capacity CTP: check if there is enough capacity available to produce an extra quantity of an item.

Abbreviation: CTP

cluster

In Enterprise Planning, a grouping of warehouses connected to each other by supplying relationships.

A cluster represents a geographical location that consists of one or more warehouses. Enterprise Planning considers these warehouses as one unit for planning purposes.

CTP

See: *capable-to-promise (p. 29)*

customized item

An item produced on a customer specification for a specific project. A customized item can have a customized BOM and/or a customized routing and is normally not available as a standard item. A customized item can, however, be derived from a standard item or a generic item.

end item

An item that is ready to be delivered to a warehouse. An end item is produced at the end of a dangle routing (co-products and by-products) or a main routing.

estimated quantity

The quantity of an item that is planned for use in a particular production order.

The estimated quantity is made up of the net quantity plus any additional quantities used to compensate for anticipated material losses.

exception message

A short standardized message that LN generates to advise the user to change or correct a specific planning parameter, value, or constraint to avoid undesired results or conflicts in planning.

execution level

Within Enterprise Planning, the designation of the LN packages that control the execution of orders and the actual goods flow, such as:

- Manufacturing
- Order Management
- Warehousing

Enterprise Planning uses planning algorithms to carry out simulations and optimizations. The other packages control the execution of orders, and the goods flow.

firm-planned order

A planned order that can no longer be modified by Enterprise Planning in an order-planning run. However, you can manually change a firm-planned order's start date and finish date, or the order quantity.

inventory on hand

The physical quantity of goods in one or more warehouses (including the inventory on hold).

Synonym: on-hand inventory

item

In LN, the raw materials, subassemblies, finished products, and tools that can be purchased, stored, manufactured, sold, and so on.

An item can also represent a set of items handled as one kit, or exist in multiple product variants.

You can also define nonphysical items, which are not held in inventory but can be used to post costs or to invoice services to customers. The following are examples of nonphysical items:

- Cost items (for example, electricity)
- Service items
- Subcontracting services
- List items (menus/options)

lot

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

master-based planning

A planning concept in which all planning data is accumulated into time buckets with predefined lengths.

In master planning, all demand, supply, and inventory data is handled in terms of these time buckets, and is stored in master plans.

In master planning, supply is planned in the form of a supply plan. This supply plan is calculated on the basis of demand forecasts, actual orders, and other information. For production planning, this planning method only considers critical requirements, as recorded in an item's bill of critical materials and bill of critical capacities.

Note

In Enterprise Planning, you can maintain a master plan for an item, even if you plan all supply with order planning.

net quantity

The quantity of a component or material that is theoretically required to make a certain quantity of a product.

This quantity is referred to as the net quantity because in practice you may need more than this quantity to make up for certain losses of the material or the product.

on-hand inventory

See: *inventory on hand (p. 30)*

order-based planning

A planning concept in which planning data is handled in the form of orders.

In order planning, supply is planned in the form of planned orders. LN takes into account the start and finish dates of individual planned orders. For production planning, this method considers all material and capacity requirements, as recorded in an item's BOM and routing.

Note

In Enterprise Planning, you can maintain a master plan for an item, even if you plan all supply with order planning.

order policy

The order parameter that controls the way an item is produced or ordered.

This can be:

- Anonymous, the item is produced or purchased independent of customer orders.
- To order, the item is produced or purchased only if customer orders exist for the item.

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.

phantom

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

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

Example

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

phase number

A number that determines the order in which plan units and plan items are planned.

As a rule, plan units and plan items are planned in order of increasing phase number: first phase number 0, then phase number 1, and so on.

An item has separate phase numbers for master planning and order planning. For items that belong to a plan unit, the master phase-number equals the plan unit's master phase-number.

planned order

A supply order in Enterprise Planning that is created for planning purposes, but which is not an actual order yet.

Enterprise Planning works with planned orders of the following types:

- planned production order
- planned purchase order
- planned distribution order

Planned orders are generated in the context of a particular scenario. The planned orders of the actual scenario can be transferred to the execution level, where they become actual supply orders.

planned production order

A planned order in Enterprise Planning to produce a certain quantity of an item.

production order

An order to produce a specified quantity of an item on a specified delivery date.

projected inventory

The expected inventory level at the end of a plan period.

Note that the projected inventory of plan periods that are entirely in the past equals the inventory on hand.

project item

An item that is produced or purchased for a particular sales order. The item's project provides a link with the sales order.

A project item can be recognized by its item code. If a code has been entered in the project segment, the item is a project item.

Project items are created when you enter a sales order for an item with an **To Order** order policy.

A project item can be customized to the specifications of a customer, but it can also be a standard-to-order item.

purchase order

An agreement that indicates which items are delivered by a buy-from business partner according to certain terms and conditions.

A purchase order contains:

- A header with general order data, buy-from business partner data, payment terms, and delivery terms
- One or more order lines with more detailed information about the actual items to be delivered

revision

A version or revised version of an engineering item (E-item) or a revision-controlled item, that is, an item linked to an E-item. Several revisions of an E-item can exist.

Example

E-item: Mountain bike E-MB01

Revision	Description	Status
A1	Draft drawing of bike	Not released
A2	Drawing of bike	Not released
A3	Parent E-item of bike MB01	Released
A4	Obsolete bike	Canceled

safety stock

The buffer inventory necessary to meet fluctuations in demand and delivery lead time. In general, safety stock is a quantity of inventory planned to be in inventory to protect against fluctuations in demand or supply. In the context of master production scheduling, safety stock is the additional inventory and capacity planned as protection against forecast errors and short-term changes in the backlog.

scrap

Unusable material or rejects of intermediate products, for example, because of faulty components, or products lost in cutting or sawing operations. The gross material requirements and/or an operation's input quantity must be increased to account for anticipated scrap.

In the BOM, you can define scrap as a percentage of the net material requirements, which is the scrap factor, and as a fixed quantity, which is the scrap quantity. A scrap quantity is mostly used to define the amount of material that is lost every time when you start producing, for example, to test the equipment.

For an operation, you can only define the scrap as a fixed quantity.

segmentation

A subdivision of the item code in different logical parts, called segments.

These segments are visible in the sessions as separate fields. Examples of segments are:

- Project segment
- Cluster segment
- Item identification

shop floor planner

The person responsible for printing, (re)scheduling and releasing production orders and managing workloads.

use-up material

A material that has been replaced by another item in all BOMs.

After the use-up material's last allowed order date elapses, any remaining stock is used up; then, the replacement material will be used.

yield

The usable output from a operation expressed as a percentage of its input.

Example 1: An operation in the production process for light bulbs has a yield of 98%. So, out of every 100 light bulbs produced, 98 are good on average. The remaining light bulbs are faulty, and will therefore be rejected.

Example 2: Steel wires are twisted together to produce a steel cable. Due to the twisting, the cable is 10% shorter than the wires from which it is produced. So, the yield is set to 90%.

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