User's Guide for Order Planning

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Table of Contents

About this Guide

This document addresses the general concepts and basic principles of order planning in Infor ERP LN Enterprise Planning. Technical details are left out. The document is intended for users of the Infor software and for Infor Global internal use.

Enterprise Planning supports two types of planning process: order planning and master planning. The concepts of master planning are explained in a separate document. Some master planning concepts, for example, the plan-bucket definition, Bills of Critical Materials, and so on, that impact the order planning concept. This overlap will be addressed in this document.

Many of the discussed concepts are addressed in more detail in a separate topic document (see also document references).

Chapter 1, "Order planning concept," explains the main concepts and describes how you can determine how each item is planned.

Send us your comments

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Abbreviations

Abbreviation	Definition
ATP	Available to Promise
BCC	Bill of Critical Capacities
BCM	Bill of Critical Materials
BOM	Bill of Material
BP	Business Partner
COLT	Cumulative Order Lead Time
CTP	Capable To Promise
DRP	Distribution Requirements Planning
EP	Enterprise Planning
EOQ	Economic Order Quantity
ETO	Engineer to Order
FOQ	Fixed Order Quantity
L4L	Lot for Lot
MPS	Master Production Planning
MRP	Materials Requirements Planning
OQ	Order Quantity
PRP	Project Requirements Planning
ROU	Routing (module)
SFC	Shop Floor Control (module)
SIC	Statistical Inventory Control
SR	Supplying Relation
STO	Standard to Order

Terms and definitions

Term	Definition
EP-offset	Time between the requirement date and the planned order finish date. This consists of outbound lead time, extra lead time, safety time. For purchase orders also inbound and item supplier safety time

Simulation run	The simulation run (or generate-order-planning run) is the process in which planned orders are generated. This concept can be compared with the MRP, PRP, DRP run in Infor Baan IV
Order planning	All actions that are done for order generation. These are the planning processes and actions that take place within the order horizon. Depending on the context the term order planning can also include order generation.
Order generation run	See simulation run
Master planning	All actions that are done for master plan generation (production plan, purchase plan and planned distribution orders). These are the planning processes and actions that take place within the master-planning order horizon
Master-planned items	Items that have a master plan. Items that have a master plan can be planned order based or master-plan based.
Order-planned items	These are the items that are planned only by order planning and that do not have a master plan.
Plan level	Level of item definition with respect to definition of real items and families
Execution level	Business control level where the real execution of the production, purchase or distribution process take place. In the Infor ERP LN application this is represented by SFC, Warehousing, Purchase, and so on.
To order items	Items with order policy "To Order". To order is the opposite of anonymous
Anonymous items	Items with order policy "Anonymous".
Standard item	Item without a project code. Opposite of project item
Customized item	Project item (item with a project code)
Clustered item	Plan item with the cluster code filled
Non-clustered item	Plan item with the cluster code empty. This item is also called the empty-cluster item.
Planned finish date	The finish date of the planned order when the planned order has been generated

Interim finish date	The interim finish date represents the planned finish date in advance of the order generation. This is used in several cases to determine how the order must be generated, for instance to determine the effectivity of item supplier information or to determine the applicability of fixed lead time planning. The real order finish date can deviate from the internal date. For more information, see the topic document on lead times.

Chapter 1
Order Planning Concepts

General overview and basic concepts

The planning logic within Infor ERP LN provides a mechanism where supply and demand are balanced considering existing receipts, supply and inventory levels. The planning takes care of fulfilling unfulfilled demand by generating various sorts of supply orders. These supply orders can be:

- Planned production orders (an order to make the item)

- Planned distribution orders (an order to get the item from another site)

- Planned purchase orders (an order to buy the item)

This section not only describes the order planning concepts, but also describes how you can set up the planning system:

- The Scenarios section describes how you define multiple scenarios, in order to compare various planning strategies.

- The General item data section describes how you set each item up.

- The Clusters and plan items section describes how you further differentiate the item planning characteristics for different warehouses, production sites, and suppliers.

Item data structure

You can further differentiate between items at various suppliers:

- Locations (warehouses),
- Purpose (planning, purchase)
- Origin (supplier, warehouse)

For example, an item is supplied by two different suppliers. Supplier A ships in lots of 100 pieces because the packing of the item determines so. Supplier B ships the goods in units of 60 pieces.

You can define specific parameters for each supplier.

You can use the following sessions to define these characteristics:

- Item – Planning (cprpd1100m000)
- Item Data by Warehouse ()
- Item Supplier Data ()

These sessions define entities that have an n-to-1 relationship with the general item data.
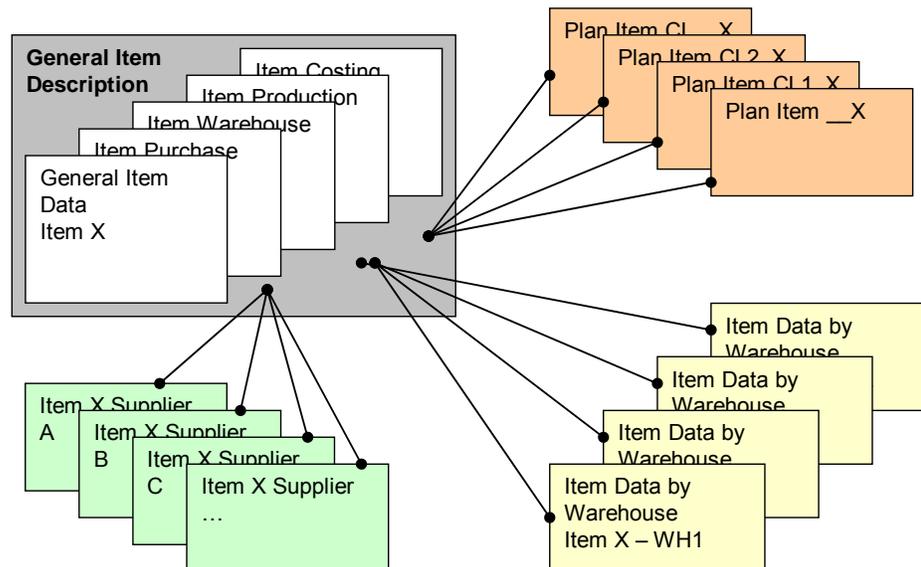
Figure 1: Item data structure

Scenarios

You can define several scenarios, each which its own set of planning parameters. A scenario is an umbrella for a specific set of planned orders that were planned according to scenario-dependent parameter settings. In this way you can simulate several situations.

You can also change the planning data manually after order generation. In this way, you can see the impact of his planning action compared to the generated plan.

The following settings are scenario dependent:

- Plan period definition for master planning
- Aggregation relationships
- Supply chain strategies and sourcing strategies

The scenario-dependent supply-chain strategies and sourcing strategies allow the planner to evaluate whether for instance he should buy more and make less or choose another way of fulfilling demand.

The planner can balance the sources of supply and investigate the consequences of his choices for the capacity utilization, material requirements and so on.

Actual scenario

You must specify which of the scenarios is defined as the Actual Scenario. The actual scenario is the scenario of which the plans and orders are to be actually executed.

You can transfer only orders from the actual scenario to the execution level. The ATP checks that you can perform in the Sales Order Control (SLS) module, are also based on the actual scenario.

To determine which scenario is the actual scenario, use the **Actual Scenario** field in the EP Parameters (cprpd0100m000) session.

Scenarios (cprpd4100m000)

To define scenarios, use the Scenarios (cprpd4100m000) session.

On the **Forecast** tab you can specify the settings for the demand forecast.

You must define the values of the following fields.

Scenario properties

Field	Description
Scenario Start Date	The start date of the time frame in which Enterprise Planning is capable of planning.
	The goods flow transactions *before* the scenario start date are also taken into account, but Enterprise Planning moves these transactions to the start date of the scenario.
	It is strongly recommended to define a start date in the past – preferably so far in the past that all open transactions (such as unfinished sales orders) are between the scenario start date and the scenario finish date.
Scenario Finish Date	The end of the range where EP is capable of planning.
	Enterprise Planning disregards all goods flow after the scenario finish date.
Rolling	If this check box is selected, the scenario is rolled. This

Scenario	means that Enterprise Planning moves the plan periods forward from time to time.
	To roll the scenario, use the Roll, Initialize, Update Scenario session.

General item data

Enterprise Planning plans by plan item. Each plan item derives its general properties from the related general item definition.

General Item Data (tcibd0501m000)

Item type

In the Item Data session, you can define an item's item type. The item type is **Manufactured** or **Purchased**.

Enterprise Planning uses the item type together with the default source in plan item data to determine the type of order to be generated during the order generation. You can make the item type date-dependent by using the Date-Effective Item Data (tcibd0510m000) session. In this way, you can specify that the item is purchased in one period, but manufactured in another period.

To start the Date-Effective Item Data (tcibd0510m000) session, click the button next to the **Item Type** field.
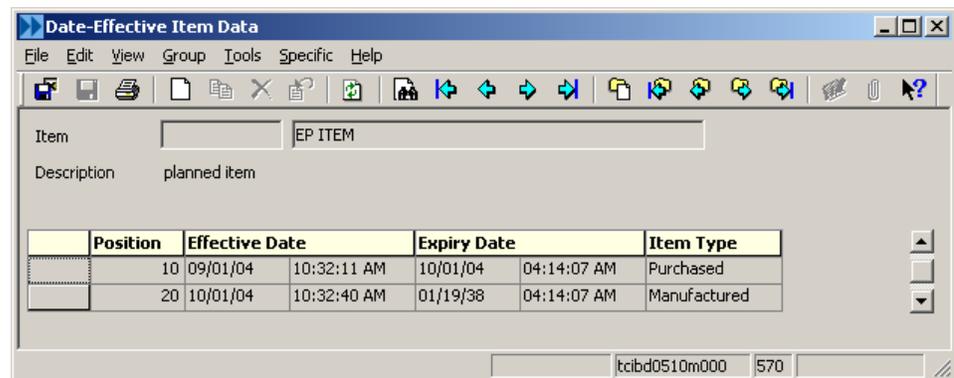
The other fields in the General Item Data (tcibd0501m000) session are explained in the following table.

General item properties

Field	Description
Actual Item Type (display-only field)	If date-effective item data has been defined, this fields shows the currently effective item type.
Item Group	Infor ERP LN uses this field to retrieve the item defaults if you generate an item
Derived from Item (display-only field, Engineering tab)	Links a customized item to the related standard item or generic item.
Unit Effective End Item (Unit Effectivity tab)	If this check box is selected, sales orders for this item can specify an effectivity unit. An effectivity unit denotes a small configuration of the item. For more information, refer to the section on effectivity units.
Unit Effective Supply	If this check box is selected, Infor ERP LN takes effectivity units into account for the supply order.
Effectivity Units are interchangeable	If this check box is selected, demand for unit 5 can be supplied by unit 6.
	All units of an item can be interchanged, even if they have different configurations.
	If this check box is cleared, interchangeability can be specified on a more detailed level (between ranges of units) as well as at a global level (units are always interchangeable).

Item – Purchase (tdipu0101m000)

The following fields are important for the Enterprise Planning package.

Item purchase data

Field	Description
Buy-From Business Partner	This field serves as a default for creating the item supplier data. The field is not used for planning.
Supply Time	Enterprise Planning uses this field to determine the lead time. For more information, refer to the document on lead times.

Item – Production (tiipd0101m000)

For BOMs and routings, refer to the section on item structures.

The following field is important for the Enterprise Planning package.

Item purchase data

Field	Description
Critical for Order Acceptance (Item Methods tab)	This field was intended for Assembly Control but never implemented. There is no functionality behind this field.

Item Ordering Data (tcibd2100m000)

Order System

The Enterprise Planning package only plans items of which the order system is **Planned.**

To define the order system:

1 Start the Item Ordering Data (tcibd2100m000) session.

2 Click the **Settings** tab.

3 Set the **Order System** field to **Planned**.

Lot sizing

A planned order's *order quantity* is the quantity that is manufactured, bought, or otherwise supplied by that planned order.

The value of the **Order Method** field determines which rules Enterprise Planning applies in the order quantity calculation.

General lot-sizing parameters:

- Order Quantity Increment
- Minimum Order Quantity
- Maximum Order Quantity

Parameters for specific order methods:

- Fixed Order Quantity
- Economic Order Quantity
- Maximum Inventory

To avoid orders for unusual quantities (for example, 32,142 iron bolts), set the **Order Quantity Increment** field to round numbers, such as 10, 50, or 100. Enterprise plans the order quantity to a multiple of the **Order Quantity Increment** field.

To avoid orders for extremely small quantities (for example, 20 inch of metal wire), set the **Minimum Order Quantity** field to a reasonable value.

Very large orders reduce the planning flexibility for your production and handling facilities. For example, a production order that keeps a work center occupied for three weeks, prevents the system from scheduling small rush orders in between. To prevent these situations, use the **Maximum Order Quantity** field.

The **Order Method** field can have the following values:

- Lot for Lot
- Fixed Order Quantity
- Economic Order Quantity
- Replenish to Maximum Inventory

Lot for Lot

The most simple order method is **Lot for Lot**. If the order method is **Lot for Lot**, Enterprise Planning calculates the order quantity follows:

1 First, set the order quantity to the required quantity.

2 Round the order quantity up to the next multiple of the **Order Quantity Increment** field.

3 If the order quantity is less than the minimum order quantity, adjust the order quantity accordingly.

4 If the order quantity is greater than the maximum order quantity, generate multiple orders.

Note: If the maximum order quantity constraints the order quantity, the system optimizes the generated orders.

Example:

- Minimum order quantity = 30
- Maximum order quantity = 50
- Demand = 70

Then, two orders are created of 35 pieces. The system does not generate an order of 50 and another order of 30, because this would result in 10 pieces too much.

Fixed order quantity

If the order method is **Fixed Order Quantity**, Enterprise Planning always makes the order quantity equal to the fixed order quantity, as follows:

- If the demand is less than or equal to the fixed order quantity, Enterprise Planning generates an order and sets the order quantity equal to the fixed order quantity.

- If the demand is greater than the fixed order quantity, Enterprise Planning generates multiple orders.

Economic order quantity

The economic order quantity is the lot size that will give you the lowest total cost, considering order costs and inventory holding costs.

To calculate the economic order quantity, click **Calculate EOQ**.

If the order method is **EOQ** (Economic Order Quantity), Enterprise Planning sets the order quantities to at least the economic order quantity.

Replenish to maximum inventory

If the order method is **Replenish to Maximum Inventory**, Enterprise Planning generates orders if and when the projected inventory drops below the inventory plan or the safety stock. If this happens, the order quantity is made large enough to bring the inventory back to the maximum inventory level. You can set the maximum inventory level in the **Maximum Inventory** field.

The **Replenish to maximum inventory** order method is particularly suitable if:

- The item has a relatively low cost price and low storage cost; in other words, you can keep a reserve quantity in storage without much cost.

- Demand for the item is difficult to predict or lead times are long.

Example:

- Order Method = Replenish to Maximum Inventory.

- Maximum Inventory = 50 pieces.

- Safety Stock = 0.
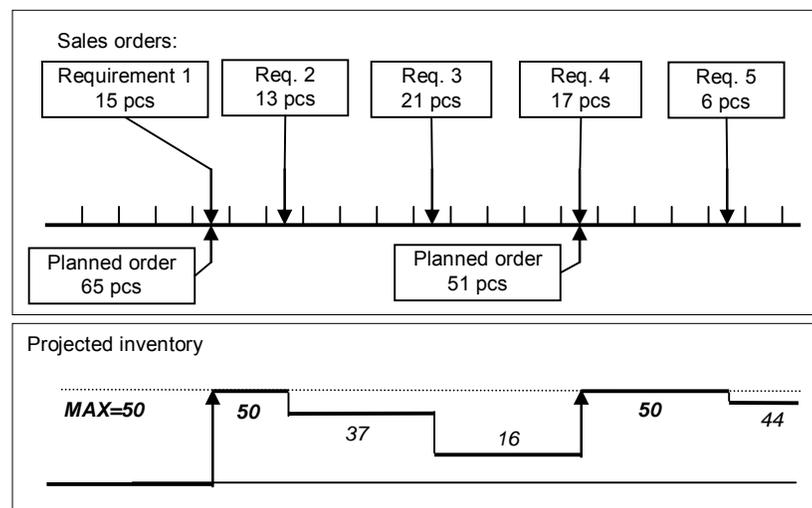
Figure 2 Replenish to maximum inventory

1 Stock at starting point is 0.

2 At "Requirement 1" you receive the first sales order (15 pcs). The projected inventory drops to a negative value (-15).

3 Enterprise Planning generates an order for 65 pcs to bring the inventory back to 50.

4 At "Req. 4", the time-phased inventory value drops below the safety stock or below 0, to -1.

5 Enterprise Planning raises the next order for 51 pcs, and brings the projected inventory back to 50.

In previous Infor ERP LN versions, this order method was implemented for SIC items (SIC=Statistical Inventory Control). In the current version, the functionality is available for planned items as well. Now, you can apply the SIC logic during the order generation run.

Order interval

Order interval is the minimum time interval (in days or hours) between two successive planned orders.

The time interval is measured starting at the last generated order.

For example, if the order interval is a week and the first requirement falls on a Monday, the first order generation moment lies on that Monday. The system will not generate the second planned order before the next Monday. However, if there is no need to generate an order on that next Monday, then the next generated order determines the start of the new order interval.
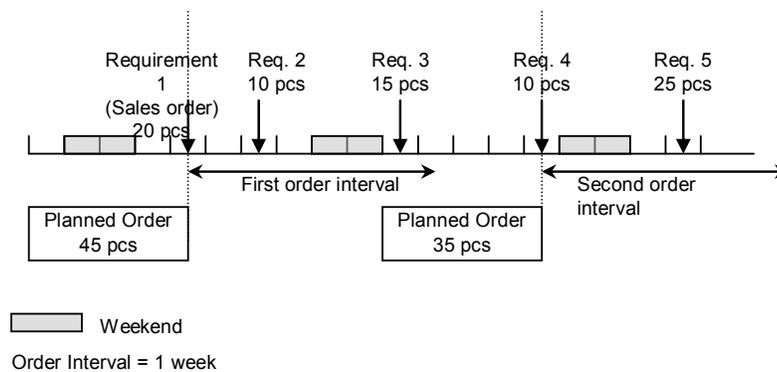
Figure 3 Order interval

Some other fields in the Item Ordering Data (tcibd2100m000) session are explained in the following table.

Item ordering data

Field	Description
Order Policy	If this field is Anonymous, the item is made to stock (not ordered for a specific customer or project). If this field is **To Order**, the item is a project item (ordered for a specific customer or project).
	For more information, refer to the documents on Engineer-to-order, Assemble-to-order, and Make-to-order order policies.
Critical in Planning	If this check box is selected, the item is critical in the production process. The item is by default part of the Bill of Critical Materials (BCM).
Warehouse	The default value for the warehouse for the plan items based on this item.

Reordering point	This field is not used in Enterprise Planning.
Service Level	This field is not used in Enterprise Planning.
Safety Stock	The safety stock if the quantity that is planned to remain available in inventory at times when the stock is low. The purpose of the safety stock is to avoid that the item becomes out-of-stock if the demand is higher than expected.
	In the master-planning process, Enterprise Planning uses the safety stock to generate the inventory plan. The inventory plan is subsequently used to generate the orders.
	In the order-planning process, Enterprise Planning uses the safety stock directly for the generation of orders.
Safety Time	A time period (expressed in hours or days) that is added to the lead time as part of the lead-time offset in Enterprise Planning. For more information, refer to the topic document on lead times.
First allowed order date	This field is not used in Enterprise Planning.
Order costs	This field is not used in Enterprise Planning.
Planner	This field is not used in Enterprise Planning. You can define a plan item's planner in Enterprise Planning.
Shop Floor Planner	This field is not used in Enterprise Planning.
Seasonal Patterns for Safety Stock	This field affects a plan item's inventory plan.
Seasonal Patterns for Forecast	The seasonal pattern for forecast influences the demand forecast calculation.
Number of Periods for Forecast	This field is not used in Enterprise Planning.
Net change date (display-only field)	The last time on which production orders, demand data, BOMs, routings, bills of critical materials, or bills of critical capacities have changed.
	Enterprise Planning uses the value of this field if you execute a net-change planning run.
Net change flag (display-only field)	If this check box is selected, something has been changed in the static data or in the goods flow. In the next planning run, Enterprise Planning must

	take these changes into account.
	The net change date tells you from where the planning should be run. Before the net change date, the system does not have to re-execute the planning calculations, because no changes occurred there. If you execute a planning run, Enterprise Planning clears the check box.
Update Inventory/Order Data	This field is not used in Enterprise Planning.
PCS Project (Recommended OQ, OQ)	This field is not used in Enterprise Planning.

Clusters and plan items

The cluster concept allows you to perform integrated planning over multiple sites. A cluster represents one or more warehouses located near each other – typically, the warehouses at a particular site or in a particular country.

You can define a plan item for each combination of cluster and item code. The plan item code consists of two segments: the cluster segment prefixes the item code segment. The plan item represents thus the combination of item definition and location at the same time.

Clustered items and non-clustered items

You can also define a plan item with an empty cluster segment. The empty cluster is used to model the production environment; the other clusters are used for modeling the supply chain structure for Distribution Requirements Planning (DRP).

For plan items, we use the following terms:

- *Clustered item*: plan item with the cluster filled
- *Non-clustered plan item*: plan items with empty cluster segment

When the cluster being filled yes or no is not relevant, we will speak just of plan items

The clustered item groups all inventory and planned inventory transactions of all warehouses that are assigned to the cluster.

The non-clustered plan item groups all inventory and transactions of all warehouses not linked to any cluster.

To view the planned inventory transactions, use the Planned Inventory Transactions by Item (whinp1500m000) session.

Note: The planning system ignores inventory and planned inventory transactions of warehouses that are explicitly excluded from the planning process, for example, a warehouse for rejected items or spare parts. To exclude a warehouse for the planning process, clear the **Include in Enterprise Planning** check box in the Warehouses (whwmd2500m000) session.

Example of clusters

Suppose you defined item S-3501.

You also defined the following clusters:

- EUR (Europe)
- NA (North-America)
- JAP (Japan)

Now, you can define four plan items all representing the same physical item:

- EUR S-3501
- NA S-3501
- JAP S-3501
- *<empty>* S-3501

The planning engine treats these four plan items as four different items. For each plan item, the system maintains the anticipated receipts and issues, expected inventory levels, and forecast demand separately.

The plan item concept supports the following functionality:

- MRP (Material Requirements Planning)
- MPS (Master Planning Schedule)
- PRP (Project Requirements Planning)
- DRP (Distribution Requirements Planning)

Similarly, you can specify plan items for project items. In that case, the plan item code has three segments: cluster, project, and item code.

Items – Planning (cprpd1100m000)

To define plan items, use the Items – Planning (cprpd1100m000) session.

The following fields in the Item – Planning (cprpd1100m000) session are relevant for the order planning.

Item planning data

Field	Description
Plan Item	The plan item code consists of first, the cluster code, then the project code, then the item code
Description	The description of the plan item is defined in the general item data.
Plan Item Type	The plan item type can be item or family. This type indicates the role the item plays in planning. For more information, refer to the next field.
Plan Level	The plan level is intended for the planning of product families. **Example:** a manufacturer of bicycles has a family 'bicycles' on level 1, on level 2 he models the sub-families Woman's bikes, Men's bikes and Children's bikes. On level 3 the real items are defined.

Enterprise Planning cannot handle BOM explosion for items that are defined on different levels. You are adviced to model the plan items of plan item type **Item** on the lowest plan level. |

Default Supply Source	The Default Supply Source field extends the item type as defined in the General Item Data (tcibd0501m000) session. The item type just distinguishes manufactured and purchased parts, while this source adds distribution to the scope of sources.
Actual Source (display-only field)	This field determines the kind of supply order to be generated – planned purchase, planned production or planned distribution orders. If the default supply source is 'Production/Purchase', the item type from the General Item Data or the date-effective item type determines whether the source is Production or Purchase. The sourcing strategy can overrule the value of this field.
Default Warehouse	The default warehouse is the warehouse where the planned orders are generated for. The default value for this field is retrieved from the general item data. You can enter here one of the warehouses that belong to the same cluster as the item. You can find a warehouse's cluster under **Cluster Details** in the Warehouses (tcemm1112m000) session.
Calendar of Default Enterprise Unit (display-only field)	If no specific work center calendar is found, Infor ERP uses the calendar of the warehouse's enterprise unit to determine the correct calendar for the lead time calculations and determination of start and finish date of the order. This is only needed when no calendar can be found.
Planner	In many sessions, you can use the planner ID to make selections of items, orders, and signals. In many business cases, the planners are responsible for specific items or groups of items. The **Planner** field makes this responsibility visible to all the users. A particular planner can run the planning run (order generation) for his own items, view his own signals (exception messages and warnings) and set the tolerances. The **Planner** field is not used for authorization, it is just a selection mechanism.
Fixed Delivery Type	The fixed delivery type refers to a pattern of delivery moments. The pattern limits the moments

	at which supply can be delivered , and for example tells supply orders can deliver only at Monday, Wednesday and Friday at 10:00. You can define patterns of fixed deliveries in the Fixed Deliveries (cprpd2120m000) session.
Maintain Master Plan	If this check box is selected, you can maintain a master plan for the item. An item's master plan is central to the master-based planning method. However, a master plan is also useful for the the order-based planning method, although not required.
	The following functionality is available if you select the **Maintain Master Plan** check box:
	■ Aggregation and disaggregation of data
	■ Inventory plan – to differentiate the required inventory level by plan period.
	■ Forecast generation based on historic demand.
	■ Record extra demand by plan period.
Safety Stock (display-only field)	This field displays the sum of the item's safety stock for all warehouses in the cluster. You define the safety stock for each warehouse in the Warehouse-Item (whwmd2510m000) session.
	If the **Use Item Ordering Data** check box in the Warehouse-Item (whwmd2510m000) session is selected, Infor ERP LN retrieves the safety stock value from ordering data defined in the Items – Ordering (tcibd2500m000) session. If multiple warehouses refer to ordering data, Infor ERP LN adds this central safety stock only once to the safety stock of the cluster.
Time fence (on the Horizons tab)	The time fence defines the horizon where Enterprise Planning is not allowed to generate new supply orders. The concept of time fence is meant to freeze the planning on the short term to prevent from creating nervousness in the planning schedule and the production schedule on the shop floor. It is recommended to make the time fence equal to the lead time of the item. Usually, orders that are due in the near future – *before* the time fence – have already been released to the execution level, because the start date for processing has been reached.

	The released orders are probably also scheduled already on the shop floor so stability of the plan within this time fence is important. You can express the time fence in working days or working hours. The time fence is calculated from the current date. Note that a Time Fence value of 0 also has effect. That time fence will prevent Enterprise Planning to plan orders in the past.
Use Time Fence	If this check box is cleared, Enterprise Planning ignores the time fence.
Forecast Time Fence	This field determines the date from where forecast is considered as demand. Before the forecast time fence, Enterprise Planning generates orders based only on real demand (sales and dependent demand) and ignores the forecast demand.
Order Horizon	The order horizon determines the time frame in which planned orders are generated. The order horizon is expressed in working days and calculated from the current date.
Planning Horizon	The planning horizon determines how far Enterprise Planning looks forward in time when planning supply and demand. The planning horizon applies to both order planning and master planning. Master planning can only be executed after the order planning horizon. Consequentially when the planning horizon is equal to the order planning, no plan but only orders can be generated. After the planning horizon nothing exists from a planning perspective. No transactions are considered and no plans or orders are generated.
Safety Time (display-only field)	The safety time is a buffer between finish date of the planned order and the requirement date (for example, date of sales order). Either the plan item's default warehouse in combination with the plan item or the plan item itself determines the safety time.
Order Lead Time (display-only field)	The order lead time is the time between the order's start time and finish time.
	Infor BAAN LN uses the order lead time for order

	generation in order to determine the planned order start date outside the fixed lead time horizon.
	If the order's source is purchase, Enterprise Planning retrieves the lead time for purchase orders. The purchase order lead time is the supply time defined in item purchase data.
	If the order's source is production, Enterprise Planning retrieves the lead time for production orders. The order lead time of orders for distribution plan items is zero.
	The production order lead time is retrieved from the item production data.
Extra Lead Time	The extra lead models a processing step outside the normal processing time (thus on purpose not between the start and finish date of the planned order). Time unit is working days.
Start of Fixed Lead Time Horizon	The fixed lead time determines from where the planned production orders are generated on the basis of the (fixed) order lead time in stead of the routing.
	Time unit is working days.
	Note that for planned production orders, when no routing can be found within the fixed lead time horizon, the (calculated) "order lead time" is used instead.
Cumulative Order Lead Time (display-only field)	The sum of item lead time plus all of the item's child items lead times, (from BOM as well as supplying relations (distribution)). You can use this information to set the order and planning horizons properly. The Check Horizons (cprpd1200m000) session calculates cumulative order lead time (COLT) values and can adjust the horizons.
Non-Critical COLT (display-only field)	The non-critical COLT is part of the COLT calculation and especially deals with the adjustment of the planned orders and the master plan. The non-critical COLT is cumulative lead time skipping the critical in master planning components.

Online ATP Update (CTP tab): Together with the global "Online ATP Update" flag in EP Parameters (session cprpd0100m000), this determines whether changes in goods flow (inventory, planned transactions) directly update the item master plan.

Items – Purchase Business Partner (tdipu0110m000)

Item-supplier information becomes relevant to Enterprise Planning, if you generate planned purchase orders. Enterprise Planning always looks for the existence of item-supplier information. If the item-supplier information is not available, Enterprise Planning generates the order without business partner.
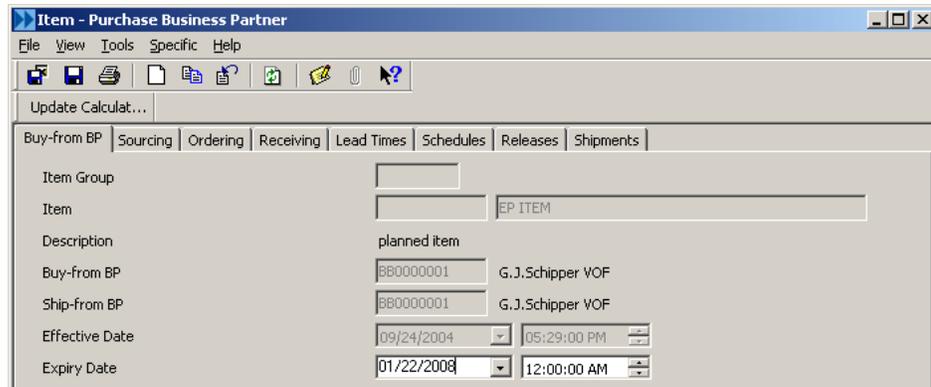
The following table explains some of the parameter settings in this session.

Item – Purchase Business Partner

Field	Description
Item	The item segment of the plan items to which this record applies. All plan items that have the same item code as the item code in the item supplier information can use of this record. In this way there can be a one-to-many relation between plan item and item supplier information.
Item Group	You can leave the item code empty and fill the Item Group field. In this way, you can define the item-supplier information on two levels: Item and Item group. Enterprise Planning always searches for the item level first and then for the item-group level.
Ship-from Business Partner	The business partner from where the ordered item is shipped. Note: if the warehouse on the Ship-from Business Partner Role field in the Business Partners (tccom4500m000) session is not equal to the

	warehouse on plan item data, Infor ERP ignores this supplier. An empty warehouse for the Ship-from BP role means the BP can deliver to any warehouse.
Effective and expiry date	The dates between which the record is effective. When the supplier is not effective, Infor ERP does not consider the supplier during simulation.
Preferred	The preferred supplier among a group of alternative suppliers. At any single time, only one item supplier can be the preferred supplier.
Status	This field indicates whether the supplier is blocked.
Priority (Sourcing tab)	Infor ERP uses the priority of the item supplier record for the supplier choice during the order generation process. Zero is the highest priority, 999 is lowest priority.
Sourcing Percentage (Sourcing tab)	Infor ERP uses the sourcing percentage of the item-supplier record for the supplier choice during the order generation process. The sourcing percentage is always used as a relative percentage compared to the other item supplier records with the same priority
Order Quantities (Ordering tab)	Each item-supplier record has its own order-quantity settings. Enterprise Planning applies the rules of the most detailed level. The order-quantity settings fulfil the same role as the order-quantity settings do on Item Ordering level.
Carrier (Receiving tab)	The carrier field determines the transportation time that is used for the lead time calculation of the planned order.
Lead Time Horizon	The lead time horizon determines the date from where the planning of the order lead time is done only on the calculated lead time and not the individual lead-time components. The use of a lead-time horizon saves system performance of the order generation process. This horizon fulfills the same role as the fixed-lead-time horizon does in Enterprise Planning for planned production orders.
Calculated Lead Time (display only)	The calculated lead time that represents the lead time components. The calculated lead time is a combination of internal processing time, safety time, supply time, transportation time and warehouse inbound time.

	The calculated lead time fulfills the same role for planned purchase orders as the order lead time on plan item data does for planned production orders
Supplier Capacity (Shipments tab)	The supplier capacity reflects what the supplier can ship during a predefined span of time. The supplier capacity is a constraint for order generation. When the total supply of all the orders that were generated for this item-supplier combination within the capacity time unit exceeds the capacity, Enterprise Planning generates no more orders. The constraint is not only determined by the supplier capacity itself but also by the maximum capacity tolerance.
Maximum Capacity Tolerance	Tolerance that indicates how far the supplier capacity can be exceeded for order generation. The constraint for order generation is thus determined by the following formula: $$[\sum (\text{order quantities of all supply orders}) \text{ per capacity time unit}] \leq [\text{Supplier capacity} * (1 + \text{Maximum Capacity Tolerance}/100)]$$
Capacity Time Unit	The capacity time unit defines the bucket length for supplier capacity. Infor ERP calculates the bucket start dates starting from the scenario start date

Warehouse – Item (whwmd2510m000)

In many cases, the items are stored in several warehouses. For each warehouse, Enterprise Planning can use different characteristics for order generation, order processing, valuation method and so on. You can achieve this by defining the item data by warehouse. Most of these parameters are also defined in the Item – Ordering (tcibd2500m000) session. If Enterprise Planning finds no parameters for the specific item-warehouse combination, the parameters in the Item – Ordering (tcibd2500m000) session are used.

The following table explains some of the parameter settings in this session.

Warehouse – Item

Field	Description
Use Item Ordering Data	If this check box is selected, Enterprise Planning uses the ordering data from the Items – Ordering Data (tcibd2500m000) session. If this check box is cleared, Enterprise Planning uses the ordering data that you defined in the Warehouse – Item (whwmd2510m000) session, based on the default warehouse of the plan item.

Item structures

Bill of Material (tibom1110m000)

For production planning, Enterprise Planning and the Shop Floor Control (SFC) module make use of the item structure and the routing for these items. The item structure, also called the Bill of Materials (BOM), describes the relationships between items in a production environment. Items that are related to each other have a parent-child relation:

*A is parent of B and C
B and C are Child of A*

*C is parent of D
D is Child of C*
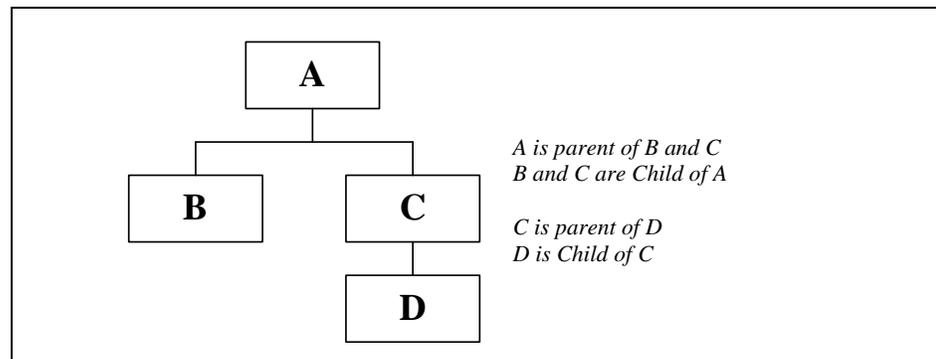
Each parent-child relation has specific characteristics that are defined on the BOM line, such as, scrap percentage, scrap quantity and net quantity.

Enterprise Planning uses the bill of material for several purposes:

- Material explosion for order planning

- BOM generation for customized items (customized item derived from a standard item) (Make to Order (MTO)).

- The BOM is the basis for the Bill of Critical Materials (BCM) generation. Enterprise Planning uses the BCM for material explosion for master planning and for available to promise (ATP) checks across the whole planning horizon.

Item – Routings (tirou1101m000)

An item can have a routing and a routing can have one or more routing operations. Each operation describes a process step on a specific work center.
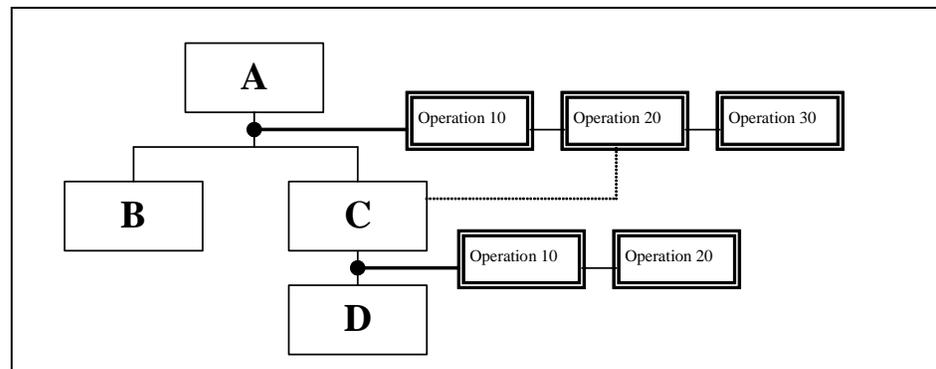
The operation defines the processing and waiting times and things such as scrap and yield. Enterprise Planning uses the routing:

- To generate the operations of the planned production orders. All operations together determine the planned start and finish date of the order.

- To generate of the project routing.

- As the basis for the Bill of Critical Capacities (BCC). The BCC is used for master planning and Capable to Promise (CTP) checks of the resources (BCC is also used for CTP checking in the order planning horizon).

Example:

In the example above item A has a routing with 3 operations. Operation 10 is the first operation and 30 the last operation. Item C has two operations. Note that the materials are always planned at the beginning of the routing except when on the BOM line is defined that the material should be available at a specific routing operation like C that is linked to operation 20. This link is defined on the operation field of the BOM line. When the operation field is empty the material is planned at the start of the routing which is at the start of operation 10.

BOM Line – Material-Routing Relationships (tibom0140m000)

The material-routing relationship is an extension of the Operation-on-BOM-line concept. The link between material and operation is dependent on the selection of the (quantity dependent) routing.

The screen dump below shows the material-routing relationship for a BOM line. The header defines the item and position of the BOM line in the BOM. Each line (record) defines a relation of this BOM-line item (component) to an operation for each specific routing.

With this relationship, you can link BOM lines to an operation of a specified routing.
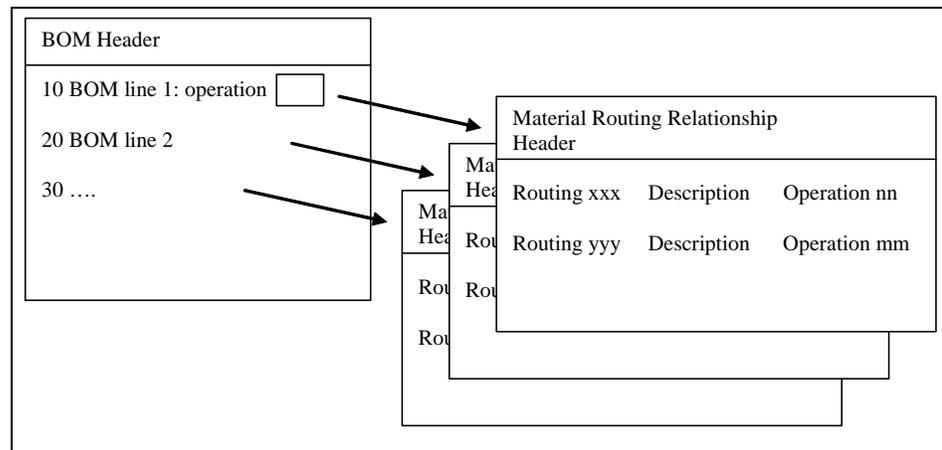
Example:

With this relationship you can say: this BOM line is required at the beginning of operation 20 when an order is planned with routing "001" and at the beginning of operation 40 when the order is planned via routing "002".

This concept is supported by the Shop Floor Control (SFC) module, but not by Enterprise Planning. As a consequence, the functionality is not working for planned orders. Consequence is that the functionality is only available for manually entered production orders.

This will not lead to problems when:

- The material-routing relationships are not defined.

- The material-routing relationships are defined but an operation has been filled out on the BOM-line (in this case the material-routing relationship is overruled).

- The material-routing relationships are defined but you accept that your materials might arrive earlier then necessary. The materials will never be too late, they only can be too early.

Supply chain modeling

Supplying Relationships (cprpd7130m000)

The supplying relationships model the distribution structure for Distribution Requirements Planning (DRP). Supplying relationships model a plan item to plan item relation and not a location-to-location relation. The plan item itself defines the location by the cluster code and the default warehouse of the plan item.

You can define supplying relationships on three levels:

- On plan item level

- On cluster level

- On the level of item group

Enterprise Planning searches for supplying relationships on each level (first on plan item level, then on cluster level, and so on) until an applicable supplying relationship is found.

Capable-to-Promise (CTP) checks are also performed by using supplying relations but never more than only one level deep.

The following table explains some of the parameter settings in this session.

Supplying relationships

Field	Description
Supplying Site	This field defines the site were the supplying item is defined. You can define a supplying relationship over multiple sites.
Effective Date and Expiry Date	These fields determine if the supplying relation can be selected at all for order generation.
Supply Costs	Enterprise Planning uses the supply costs for the supplier choice when a supply strategy is defined for an item. The supply source can be determined at least costs.

|	
Percentage	This field is used as a relative percentage in the supply allocation
Priority	This field is used to order the supplying sources based on the priority rules as defined in the supply strategies.
Supply Resource, Supply Lead Time and Carrier	These fields are used for lead-time calculations.
Supply Lead Time	The transportation time from supplying warehouse to the receiving warehouse.
Carrier	The carrier responsible for moving the goods between the supplying and the receiving item.
Minimum Volume	This field is used in the process of assigning planned supply to this supply source.
Maximum Volume	The maximum is a hard constraint. When the total amount of supply that is generated for this supplying relation meets the maximum volume, no supply is generated. Note that this constraint is not bound to a time unit but is valid for the whole time between effective and expiry date (total amount of supply = planned orders, interplant planned distribution orders, adjustment orders (cycle counting), transfer orders, assembly orders)
Maximum Days Overdue	The number of days that a supplying relation can be selected before or after the planned finish date.

Supply chain strategies

The supply chain strategies consists of two layers:

- Sourcing Strategies: The sourcing strategy is the definition of how Enterprise Planning must choose between the sources of supply, which are manufacture, purchase or distribution. The sourcing strategy determines how demand is fulfilled by what kind of supply.

- Supply Strategies: The supply strategy defines per source the supplier choice within that source. For example: when Enterprise Planning decides on the basis of the sourcing strategy that a planned purchase order should be generated, the supply strategy determines which of the suppliers will be selected.

This process of sourcing and supplier choice is thus a two-step approach.
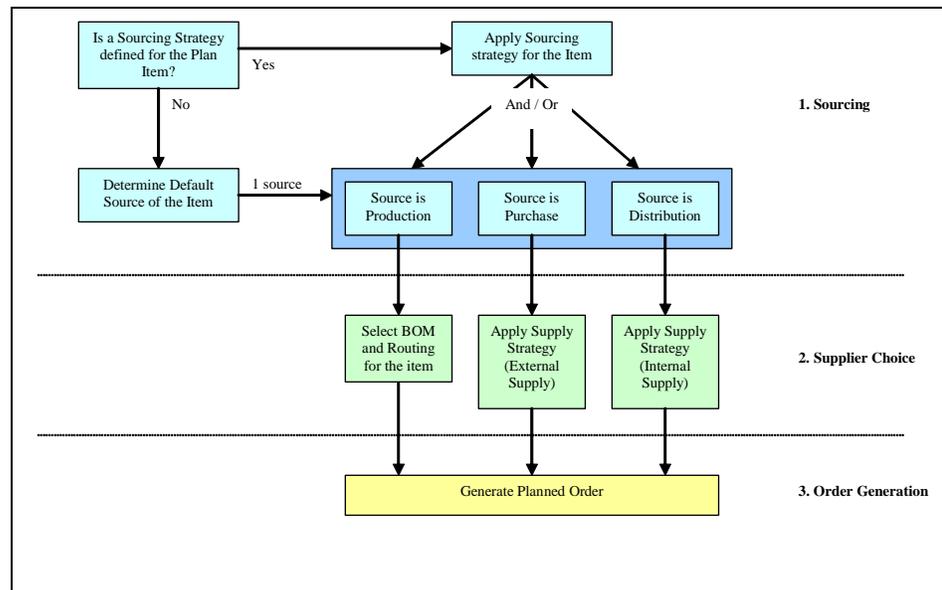
Sourcing Strategy (cprpd7110m000)

Enterprise Planning can generate orders for different types (production, purchase, and distribution) for the same plan item. The a plan item's sourcing strategy determines how the supply is distributed over these sources.

You can define sourcing strategies on three levels:

- Cluster.

- Item Group (within a cluster).

- Plan Item.

Supply Strategy (cprpd7120m000)

In the order generation process, Enterprise Planning first determines the source (production, purchase, or distribution) and then the supplier. For the

source **Production**, the supplier choice is not applicable. This is because there is only one source of supply and only one routing applies.

The supply strategy defines how Enterprise Planning selects the supplier.

You can define two kinds of supply strategies. The supply type can be either Purchase (external) or Distribution (internal).