Infor LN Enterprise Planning
User Guide for ATP and CTP

Publication Information

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About this document

This document is an overview of <u>available-to-promise</u> and <u>capable-to-promise</u> possibilities in Enterprise Planning. The options for, and conditions under which these resource checks are available for use are described.

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Chapter 1
Introduction

1

Available to promise and capable to promise

Introduction

LN provides extensive functionality to support order promising. The following concepts are central to order promising:

- An item's ATP is the quantity that is available for customers either immediately, or on a specific time in the future.
- An item's Capable to Promise (CTP) quantity, is the quantity that is available in addition to the ATP, based on the spare production capacity of your production facility.

Available-to-promise and capable-to-promise support is important functionality for a reliable order acceptance procedure. To prevent over-promising of products to customers, LN may need to check on available inventory of finished goods, available sub-assemblies and components, and available production capacity.

You can use ATP checks as follows:

- **Online**
  The sales employee performs an ATP check for one sales order during the sales order entry procedure or the sales quotation entry procedure.
- **Offline**
  The customer does not immediately receive a delivery date from the sales employee. Instead, you prioritize multiple orders and promise dates later.

To support both situations, you can use the ATP Handling (cprrp4800m000) session during sales order entry, and also offline as a separate session.

Parameters

The following parameters, which you can specify in the EP Parameters (cprpd0100m000) session, determine how LN performs ATP and CTP checks.

- **Online ATP Update in EP**
  If this check box is selected, every time you save a sales order line, LN immediately updates the sales order reservations and CTP reservations in Enterprise Planning and recalculates the ATP quantities. As a result, the next sales order line is checked against updated ATP quantities. This prevents the sales clerk from promising the same product ATP quantities to different customers.

- **CTP Check for Sales (for EP and OPS)**
  If this check box is selected, and you insert the ordered quantity on a sales order line, LN performs an automatic ATP check. If the sales order line quantity exceeds the cumulative ATP quantity, a screen appears that includes an ATP Handling (cprrp4800m000) option. If you save a sales order line, and the ordered quantity exceeds the cumulative ATP, LN blocks the sales order line. You cannot save the sales order line if the ordered quantity is too high

Chapter 2
ATP and CTP checks

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

Types of ATP and CTP checks

These types of ATP checks and CTP checks are available:

- *Standard ATP check (p. 9)*
- *Component CTP check (p. 11)*
- *Capacity CTP check (p. 12)*
- <u>Family CTP check</u>
- <u>Channel ATP check</u>

The Items - Planning session contains the relevant parameters for ATP checking on the CTP tab.

Standard ATP check

The most straightforward way to check ATP for an ordered item is a check on the expected free inventory of the item on the sales order line itself.

LN calculates a <u>cumulative ATP</u> quantity for the finished good that takes all future actual demand and (planned) supply transactions into account. The ATP check on date (t) is performed against the cumulative ATP on (t). The cumulative ATP is the expected free stock.

LN calculates the cumulative ATP as follows:

```
Projected inventory (t) = inventory + actual and planned supply
  until (t) – actual and planned demand (t)
```

Example

Cumulative ATP (t) = the lowest value of:

- Projected Inventory (t), and
- Cumulative ATP (t + 1)

Note

(t + 1) indicates the day after day t

Example

Cumulative ATP constantly increases: if the cumulative ATP on t is 10 pieces, the ATP will be 10 or more on t+1.

Nonconsumed forecast demand is not part of cumulative ATP. Therefore, ATP is built up by (planned) supply for nonconsumed forecast demand.

The cumulative ATP quantity is displayed in these sessions:

- **Item Master Plan (cprmp2101m000)**
  Only for items that have a master plan
- **Item Order Plan (cprrp0520m000)**
  For items without a master plan

Enabling standard ATP checking

To enable standard ATP checking, perform the following in the Items - Planning (cprpd1100m000) session:

- Select the **Online ATP Update in EP** check box to enable online updates after sales order entry.
- Set the **CTP Horizon** field to a value greater than zero. LN assumes that an infinite supply is available after the CTP horizon. As a result, only orders with a delivery date before the CTP horizon will be checked.

Note

The CTP horizon is defined in working days.

Component and capacity CTP checks

If the *Standard ATP check (p. 9)* shows that you cannot deliver the quantity that a customer requested, you can check whether you can increase your production beyond the previously established production plan. This production increase can be performed only when you have sufficient (spare) production capacity and materials.

You can use CTP (<u>capable-to-promise</u>) to check for capacity and materials.

These checks are available:

- **_Component CTP checks (p. 11)_**
  Checks the availability of critical subassemblies or components.
- **_Capacity CTP (p. 12)_**
  Checks the available production capacity.

Component CTP checks

The component CTP represents what you have left in addition to the end item's ATP that is already included in the master plan of the component.

In other words, what you can build on top of the end item's ATP. Component CTP and capacity CTP can be seen as Build to Promise.

Enabling component CTP checking

To enable component CTP checking, in the Items - Planning (cprpd1100m000) session, specify the following for the end item:

- Select the **Component CTP** check box.
- Specify the **CTP Time Fence**. Be sure to specify a value that is not too large.
- Specify the **CTP Horizon**. Be sure to specify sufficient time.

Note

Enterprise Planning performs the CTP check in the period between the CTP time fence and the CTP horizon. Beyond the CTP horizon, the CTP is considered to be infinite.

For component items, select the **Critical in CTP** check box in the Items - Planning (cprpd1100m000) session.

You cannot define the CTP time fence for the component, because the component has no unique CTP check. In addition, LN dynamically replaces the **CTP Horizon** field by the **ATP Horizon** for the same reason: for this component, only the ATP is used in the CTP check of the ATP's parent item.

Example

- ATP of A = 10.
- ATP of B = 6.
- Two pieces of B are required to produce a single piece of A.

If you perform an ATP check and a component-CTP check for item A, the result is 13 (ATP of A + 0.5*[ATP of B]).

Capacity CTP check

The capacity CTP represents what you can produce in addition to the standard ATP, taking the free capacity of critical work centers into account. Component CTP and capacity CTP can be seen as Build to Promise.

LN calculates the CTP quantity from the free capacity of a work center and based on the number of hours required to manufacture one additional end item.

Example

- ATP of A =10.
- CTP of work center WC-1 = Three hours.
- 0.5 hours of WC-1 is required to produce one piece of A.

If LN performs an ATP check and a capacity-CTP check for item A, the result is 16 (ATP of A + additional CTP of WC-1).

Enabling capacity CTP checking

To enable capacity CTP checking for the end item:

- Select the **Capacity CTP** check box in the Items - Planning (cprpd1100m000) session.
- Select the **Critical in CTP** and **Maintain Resource Master Plan** check boxes for the resource (work center) in the Resource (cprpd2100m000) session.

LN uses the resource master plan to calculate the capacity CTP of a resource. Therefore, you must always select the **Maintain Resource Master Plan** check box when you define a resource as critical in CTP. Otherwise, LN will not calculate the capacity CTP during CTP checks.

Combined component CTP and capacity CTP - single level

If you use both component CTP and capacity CTP, the most restrictive one, available components or available capacity, is leading.

Example

- End item A is manufactured in work center WC-1 using component B.
- ATP of A = 10.
- ATP of component B = Six pieces.
- CTP of work center WC-1 = Seven hours.
- One piece of component B and one hour of WC-1 is required to produce one piece of A.

If LN performs a component CTP check and a capacity CTP check for item A, the result is 16 (CTP of component B limits WC-1).

Combined component CTP and capacity CTP - multiple periods

If you combine component CTP and capacity CTP, LN checks the components and capacity independently from each other, based on cumulative quantities. This implies that the critical capacity is not necessarily available at the same time as the critical component.

Example

The following example illustrates this limitation.

- t is the time for which LN performs a CTP check for end item A.
- The offset for the required component B and capacity WC-1 is three periods. Therefore, the component and capacity are required no later than time (t-3).
- The cumulative capacity CTP of work center WC-1 on t-3 is seven.
- The free capacity of seven hours that creates the cumulative CTP is not on t-3, but earlier on t-4.
- Component B has cumulative ATP of six pieces on t-3 and zero pieces on t-4.
- Component B is required to perform the operation on work center WC-1.

In this situation, the CTP check shows that you can produce six pieces to be delivered on t, although the exact work center (t-4) and component (t-3) availability do not fall in the same period. In fact, LN calculated the CTP with the cumulative CTP figures only (the cumulative capacity CTP and the cumulative ATP of the component).

LN does not take the relationship between the component and the capacity into account. In this case, LN indicates that you can promise the sales order on time t.

After you run the order planning, the work center WC-1 is overloaded on t-3, but the total capacity load over all periods matches the available capacity. This situation is the result of working with cumulated quantities over multiple periods.

This calculation method is considered correct, because Enterprise Planning is an infinite capacity planning tool. To perform order promising against finite capacity and consider all relationships between work centers and materials, you must use Order Promising Server.

Combined component CTP and capacity CTP - multilevel

If you defined multiple critical components and capacities on various levels of a bill of material in the same branch, each level adds a particular quantity to the total quantity you can promise to the customer.

Example

End item A is manufactured in work center WC-1, using component B. Component B, in turn, is manufactured in work center WC-2 using component C.

Item B is a component. Therefore, on the CTP tab of the Items - Planning (cprpd1100m000) session, you must select the **Critical in CTP** check box. At the same time, item B is also a product. Therefore, you must also select the **Component CTP** and the **Capacity CTP** check boxes.

- ATP of A = 10.
- ATP of component B = Six pieces.
- CTP of work center WC-1 = Seven hours.
- ATP of component C = Four pieces.
- CTP of work center WC-2 = Three hours.
- On both levels, you need one piece of a component and one hour of work in a work center to produce a product.

If LN performs a component CTP check and a capacity CTP check for item A, the result is as follows:

Multilevel CTP calculation

Level	ATP
Level 0	10 (ATP of A)
Level 1	6 (CTP of component B limits WC-1)
Level 2	3 (CTP of WC-2 limits component C)
Total	19

Combined component CTP and capacity CTP - multiple branches in the BOM

If you check various branches in the bill of material, the most restrictive branch determines the available quantity.

Example

- You have a second component D on level 1, in addition to component B.
- ATP of D is zero

The branch of D restricts the complete branch of B. Therefore, the total available quantity is 10 (ATP of A).

Family CTP check

A product family usually includes similar end items that use the same critical components and capacities. Often, you do not know yet which of these end items you will produce in the future, because you only have master plans or order plans on product family level. In that case, you can check the requested quantities against the ATP on family level. The ATP on family level represents the total ATP of the end items that belong to that family.

Enabling family CTP check

To enable family CTP checking, for each end item that belongs to the product family, specify the following in the Items - Planning (cprpd1100m000) session:

- On the CTP tab, select the **Family CTP** check box.
- In the **Family Site** field, specify the company number of the product family to which the item belongs. You can specify a logistical company that differs from your current company.
- In the **Family Item** field, specify the product family on which the CTP check is performed.
- In the **Start of Family CTP Horizon** field, specify the number of days after which LN must check the ATP of the product family instead of the end item's ATP. This field is expressed in working days.

Note

For the item that represents the product family, on the CTP tab of the Items - Planning (cprpd1100m000) session, specify an appropriate value in the **ATP Horizon** field.

Channel ATP check

You can use the channel concept to assign part of the total production volume and purchase volume to a group of customers.

For example, you can designate all customers from a particular country to a channel code. In that case you can apply **Channel ATP**.

If you enter a sales order line item for a customer (business partner) that belongs to a specific channel, LN checks the channel ATP. To check the channel ATP, instead of the ATP quantity for the item, LN uses the channel ATP quantity for the item in the Channel Master Plan (cpdsp5130m000) session.

However, the quantity that you can promise to a customer in a channel is restricted to a maximum value, which is the item's CTP. In other words, in addition to the general CTP restriction, the channel ATP functionality imposes an additional restriction to the quantity that you can promise to a customer.

Enabling channel CTP check

LN stores the channel ATP in a channel master plan. If an item has no master plan, LN cannot perform a channel ATP check for the item.

To enable channel CTP checking, specify the following in the Items - Planning (cprpd1100m000) session:

- On the Horizons tab, select the **Maintain Master Plan** check box.
- On the Horizon tab, select the **Channel ATP** check box.

Chapter 3
Algorithms

3

ATP Time-phased calculation

If you only want to check ATP for a plan item without performing component CTP, capacity CTP, and channel ATP, the calculation is based on the order plan of the item.

The detailed transactions of the plan item are used to see exactly when ATP is created. Therefore, this calculation is not a bucket-based calculation, but a time-phased calculation.

Whether the plan item has a master plan or not is irrelevant. In both situations, the previous detailed time-phased calculation is used, in the order horizon as well as in the planning horizon. Therefore, in this case, no difference exists between order-based and master-based checks.

To achieve this type of calculation, specify the following in the Items - Planning (cprpd1100m000) session:

1. Select the **Online ATP Update** check box
2. Clear the **Capacity CTP** check box
3. Clear the **Component CTP** check box
4. Clear the **Channel ATP** check box

INCLUDE: baanerp_cp_onlinemanual_at000290 Component CTP and capacity CTP bucket calculation

Component CTP and capacity CTP order-based CTP check

Standard items

To calculate the date on which items are required, LN retrieves the lead-time offsets, as follows:

- The bill of material defines the lead-time offset for the components. In addition to this lead-time offset value, the component is also offset with the inbound and outbound lead-time, the safety time, and the extra lead time.
- LN multiplies the routing operation times and the required quantity to calculate the lead-time offset for the capacity.

When the required date is determined, the component CTP is calculated online for every bucket as specified in the **Component CTP bucket** field of the Planning Parameters (cprpd0100m000) session.

However, the capacity CTP is derived from the resource master plan that is based on the plan period buckets as defined in the Scenario - Periods (cprpd4120m000) session. As a result, the lead-time offset for capacity results in a required date that will fall in a resource master plan bucket, after which the available capacity of that bucket is taken.

Note

You can specify the critical materials by selecting the **Critical in CTP** check box in the Items - Planning (cprpd1100m000) session.

In a multilevel bill of material, you can indicate that only the lowest level components are critical in CTP. The subassemblies need not be selected as critical.

If only the **Component CTP** check box is selected for the subassemblies in the Items - Planning (cprpd1100m000) session, the CTP check will not calculate their availability. Instead, the CTP checks only perform a lead-time offset for such items based on the information in the bill of material. Next, the CTP check explodes the critical components and checks the availability of components. This enables you to check only the critical materials in the entire product structure.

For capacities, the same concept can be applied. If the **Critical in CTP** check box is selected in the Resource (cprpd2100m000) session and the **Capacity CTP** check box is selected in the Items - Planning (cprpd1100m000) session, the resource's availability will be checked during CTP. This enables you to check only the critical resources in the entire product structure.

Generic items

In case of generic items, the correct materials and capacities must be checked based on the chosen options in the product variant. First, the user configures the product variant in, for example, the sales order. When the user enters the ordered quantity, the CTP for that specific configuration is checked.

The generic bill of material is therefore matched against the chosen options in order to find the appropriate materials and capacities. This action is performed online.

The generic bill of material is exploded, taking into account all constraints, which is precisely the same action as when the customized product structure is created for the generic item. However, this explosion is merely a simulation to find the correct CTP figures. The result of the explosion is not stored.

The lead-time offset is determined in the same way as for standard items. However, instead of the bill of material lead-time offset (LTO), the generic bill of material LTO is used to determine the required date for the components. In addition to this LTO value, the component is also offset with the inbound and outbound lead-time, the safety time, and the extra lead-time.

Customized items

In case of customized items, the ATP and Component CTP are performed first for the customized items, and then for the derived-from item, as illustrated in the following figure:
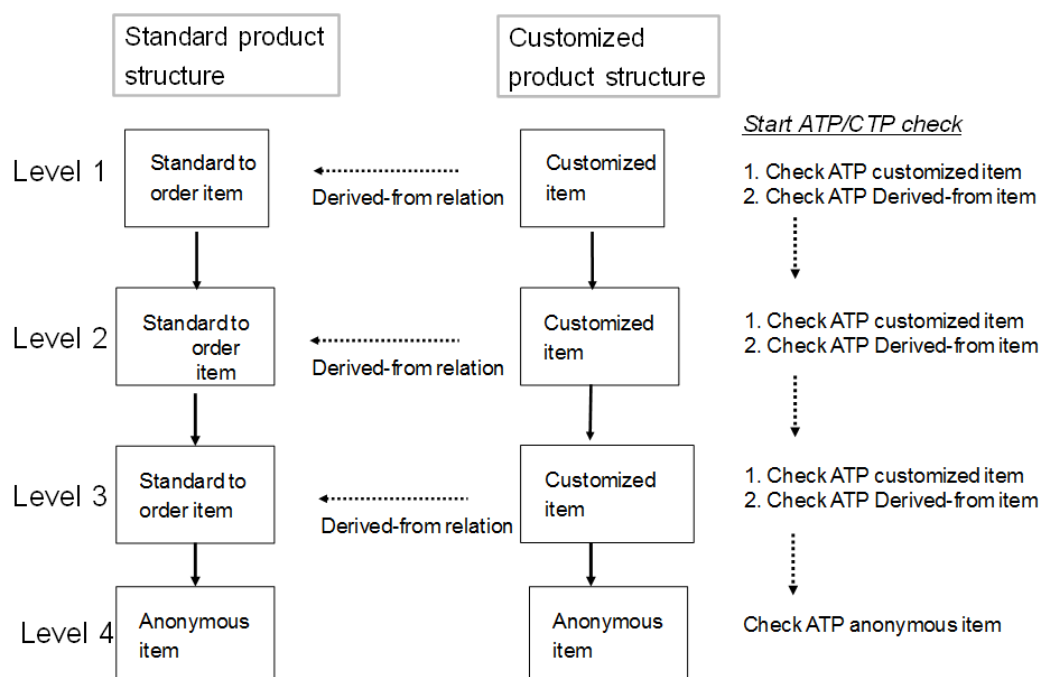
The ATP of the standard-to-order items does not include the ATP of the related customized items. As a result, if a standard to order item A has a relation to five different customized items, the ATP of all these customized items is deducted from the ATP of item A.

This outcome is logical, because when the ATP is checked for one of the customized items, the ATP cannot, of course, consume ATP of any of the other customized items. ATP can only consume its own ATP and the ATP of the derived-from item.

The ATP of the derived-from item (A) is based on the item's own transactions and on-hand stock. The item order plan for this type of item enables you to toggle between the item's transactions and the derived-from item's transactions, including all customized items.

Both options provide the ATP for the derived-from item that is checked for customized items.

> **Note**
>
> This concept of checking ATP/CTP for customized items and the derived-from item is also valid for customized items that are derived from a generic item.

Master-based CTP check

For the master-based CTP check, standard items and generic items do not differ from each other. The master-based components CTP check is performed between the order horizon and the planning horizon of the end item. The bill of critical materials is used to find components that are critical in CTP.

LN takes the quantity required and the lead-time offset defined in the bill of critical materials (BCM) line into account when adding the component ATP to the end item's ATP.

> **Note**
>
> Note that the LTO value already includes inbound, outbound lead-time, safety time and extra lead-time. Therefore, unlike for the order-based offset, these lead-times are not added separately when offsetting the component in the master-based horizon.

The component CTP quantity is derived from the item master plan, so it is checked based on the plan period buckets as defined in the Scenario - Periods (cprpd4120m000) session. As a result, the cumulative component CTP of every subsequent plan period is taken during the check.

Component CTP increases the ATP with the quantity you can produce on date t, based on component ATP:
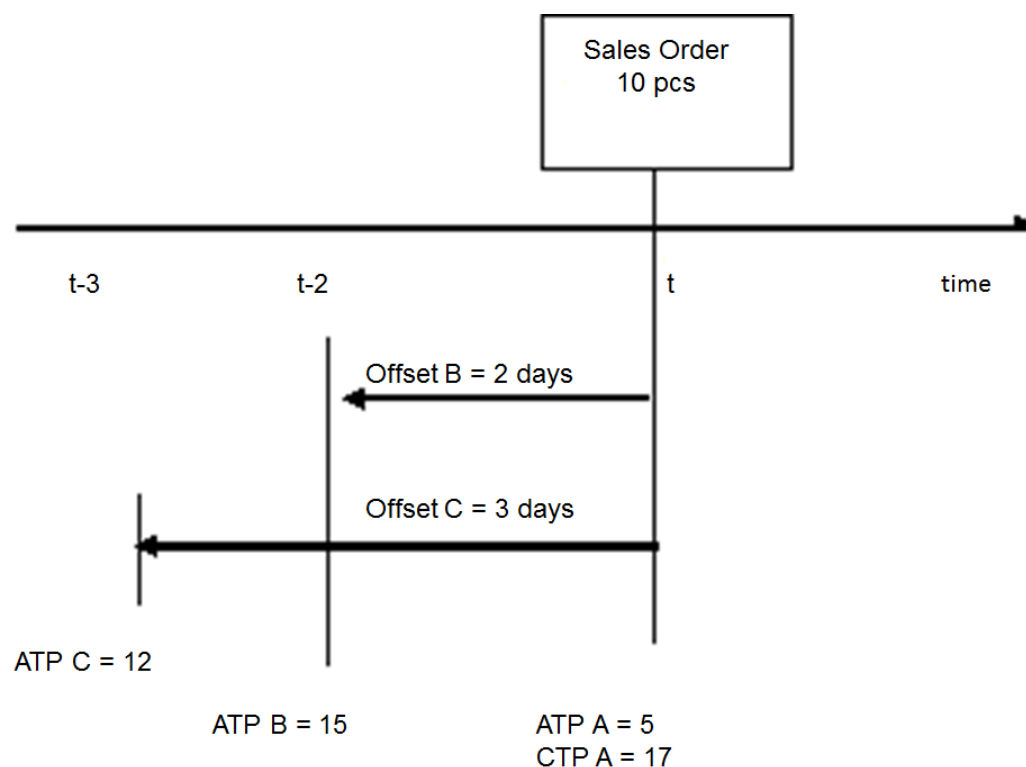
Example

Consider the acceptance of a sales order for item A on date t.

Item A has a critical material B and C. A production order takes three days and requires C at the start. Material B is required one day later, so the BCM has a two-day offset for material B, and three days for C.

The sales order is for 10 pieces, ATP of item A on date t is five. Because this amount is insufficient, component CTP is checked. ATP for C on t-3 is 12, and ATP for B on t-2 is 15. Therefore, you can produce 12 more. As a result, CTP is 5 + 12 = 17, and the order can be accepted.

The master-based capacity CTP is checking the work center availability between the order horizon and the planning horizon. The bill of critical capacities is used to find capacities that are critical in CTP.

The capacity CTP value is derived from the resource master plan, therefore, the capacity is checked based on the plan period buckets as defined in the Scenario - Periods (cprpd4120m000) session. As a result, LN takes the cumulative capacity CTP of every subsequent plan period during the check.

The cumulative capacity CTP for a resource appears in the Resource Master Plan (cprmp3501m000) session and is expressed in hours. Using the **Lead-Time Offset**, and **Capacity Required** fields in the Bill of Critical Capacities (cprpd3130m000) session, this capacity is translated into an additional cumulative ATP quantity for the finished good that can be promised.

Example

If the **Cumulative Capacity CTP** is four hours and the **Capacity Required** is 0.5 hours, the cumulative ATP quantity of the finished good increases by eight pieces. For the correct timing of these quantities, the lead-time offset is taken into account. This calculation is performed as follows:

Using the same sales order example, with critical work center WC.
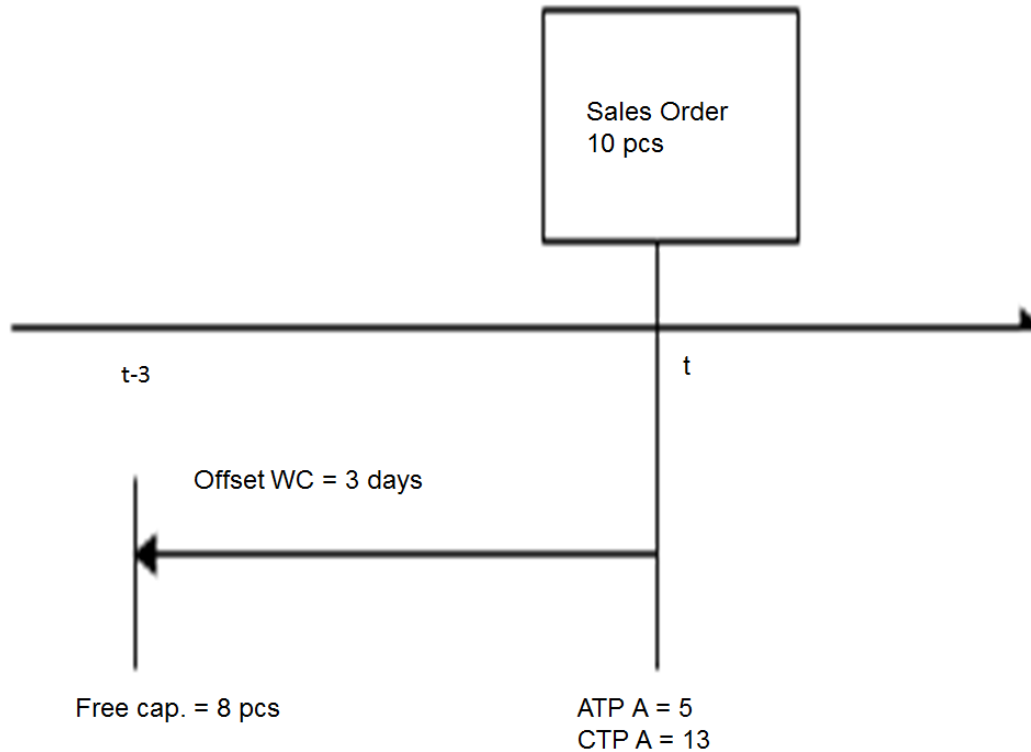
The bill of critical capacities (BCC) has three-day offset for WC, and one piece requires 0.5 hour capacity.

Free capacity for WC on *t-3* is four hours, thus eight pieces. Therefore, CTP is 5+8.

CTP reservations

To prevent the user from promising the same components or capacities multiple times, LN can make CTP reservations. This step is required because, when you save a sales order, only a planned issue exists for the end item, and not for the components and capacities. Therefore, at that moment, the ATP of the component and the capacity is not yet decreased, although a part has already been promised.

A planned issue for components is made only when you run the order-based planning engine. The sales order demand of the end item will be exploded through the bill of material, and the dependent demand on the components or required capacity is assigned to the selected work center.

To overcome the time gap between sales order entry and running the order planning, CTP reservations will decrease the ATP of the components/capacities immediately when the order is entered. The same is valid for master-based planning. Only when the master-based planning engine is run, planned issues are made on components and capacities by exploding the BCM/BCC.

Creating CTP reservations requires performance. For items with a master plan, the recalculation of ATP figures based on these reservations also requires performance. If you do not want to create CTP reservations, clear the **Online ATP Update** check box in the EP Parameters (cprpd0100m000) session.

Note

If the **Online ATP Update** check box is selected in the EP Parameters (cprpd0100m000) session, CTP reservations for components and capacities are made when you save the original demand to the planned inventory transactions, as shown in the Planned Inventory Transactions (whinp1500m000) session. The original demand can be a sales order, or a sales quotation that exceeds the success percentage. However, for manually entered JSC production orders, CTP reservations are also made for lower level materials. In that case, the JSC order creates the original demand.

CTP reservations are created for the actual scenario only, not for simulation scenarios.

Component CTP reservations

Assume the following multi-level bill of material for end item JOSUEF11:
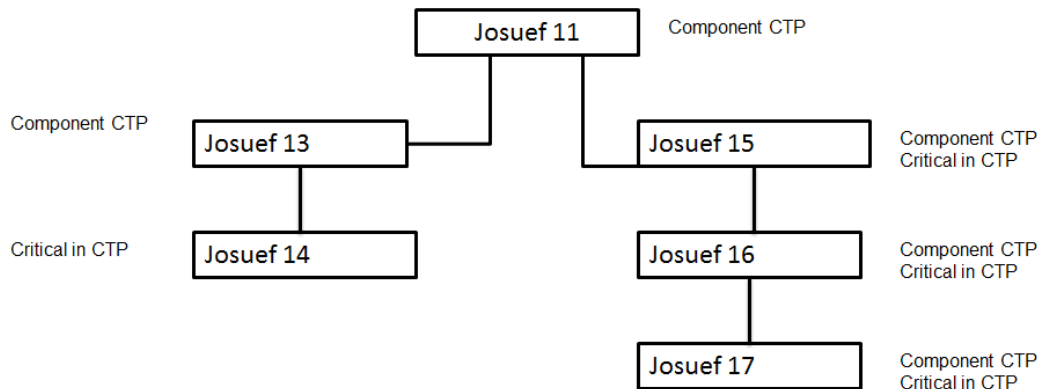
Component CTP reservations

If you enter and save an order for JOSUEF11, CTP reservations are placed on the components based on the same logic as used for the CTP check. The CTP reservation is stored in the CTP reservations session, and aggregated to the item master plan in case the component has one.

The timing of the component reservations is based on the lead-time offset logic that is also used during the CTP check. In other words, in the order horizon by means of the LTO on the BOM line, and the inbound and outbound lead-time, and the safety time and extra lead-time. The timing of the planned

issue that is created after running the order planning can differ slightly from the CTP reservation, because timing of the planned issue is determined on a more detailed backward planning logic.

The following quantities are used:

- **Allocated Quantity**
  ATP quantity of the component that is allocated by means of the CTP reservation to fulfill all or part of the demand.
- **Needed Quantity**
  Required quantity passed from the parent of this component.
- **CTP Quantity**
  Quantity passed to the child of this component.

```
CTP quantity = Needed quantity - Allocated quantity
```

Example

Sales order demand for JOSUEF11 = 100 pieces. The following CTP reservations are created for the right-side branch of the BOM. The ATP column states the ATP quantities that are available during the CTP check.

When you save the sales order line, the other columns are updated in the CTP reservations session.

CTP reservations

Item	ATP	Allocated	Needed	CTP
JO-SUEF11	40	0	60	60
JO-SUEF15	0	0	60	60
JO-SUEF16	20	20	60	40
JO-SUEF17	40	40	40	0

The calculation proceeds:

- No allocation of the ATP is made on this level, because the sales order for JOSUEF11 already created a planned issue for this item. A total of 60 pieces is required (100 – 40).

- JOSUEF15 has no availability. Therefore, the same quantities again pass to the next component level.
- JOSUEF16 has an ATP of 20, so this quantity is allocated to fulfill part of the needed quantity. Still to build are 40 pieces. Therefore, CTP quantity changes to 40.
- JOSUEF17 has an ATP of 40, so this quantity is allocated to fulfill the remaining needed quantity.
- To build is changed to zero, because the entire demand is fulfilled.

Note

Even if for the JOSUEF15 and JOSUEF16 items the **Critical in CTP** check box is cleared in the Items - Planning (cprpd1100m000) session, records are created in the CTP reservations sessions.

This step is required to pass the needed quantity and CTP quantity through the BOM. However, the allocated quantity will always be zero for noncritical items, even if ATP is present for this type of item.

Pegged order number field and originating plan item field

In the previous example, the CTP reservation of the component JOSUEF17 is made for the sales order for end item JOSUEF11.

The originating plan item is the direct parent, JOSUEF16, because the quantities that you see in the figure are passed by means of this item.

Capacity CTP reservations

Capacity CTP depends on the presence of a resource master plan. Therefore, capacity CTP is plan-period based.

The CTP reservation is stored in both the resource master plan and the capacity CTP reservations session.

CTP reservations are created only for resources that are critical in CTP and have a resource master plan.

CTP time fence

A CTP time fence for component and capacity CTP can be defined in the Items - Planning (cprpd1100m000) session.

In the CTP time fence, the availability of components and capacities will not be checked. This concept is introduced to prevent situations in which deliveries to customers are promised although this is not realistic because no time is available anymore to build extra quantities.

In fact, the CTP time fence usually equals the item's production time fence (frozen period for planning). The production time fence, also defined in the Items - Planning (cprpd1100m000) session, is used during order planning.

The planned production order will be placed outside this time fence, although the demand may originate from within the time fence. This will create lateness.

To assure that demand is not promised too early, only ATP can be promised inside the CTP time fence and not CTP. To give the user flexibility and to make it more explicit, a separate CTP time fence is available instead of using the production time fence.

Family ATP

The ATP algorithm makes no distinction between the plan item types.

As a result, the ATP for a plan item of type Family is calculated in the same way as a plan item of type Item. If, for the family item, the **Component CTP**, **Capacity CTP**, and **Channel ATP** are cleared in the Items - Planning (cprpd1100m000) session, the order plan calculation is used.

If one of these check boxes is selected, the bucket calculation is used for the family.

Channel ATP

A plan item that is associated with channels has a mandatory master plan. The channel ATP is therefore always checked according to the master plan buckets and is always stored in accordance with the scenario plan period definition. For these plan items, the **Component CTP bucket** field in the EP Parameters (cprpd0100m000) session is ignored.

Based on the settings in the Plan Item - Channels (cpdsp5100m000) session, channel ATP is calculated for each master plan bucket as follows:

1. The actual reference date is determined if the reference date of the Plan Item - Channels (cpdsp5100m000) session falls before the scenario start date. This can happen when the scenario has been rolled.
2. The ATP period length, for example, 14 days, is added to the reference date until the date passes the scenario start date. This date can still be in the past.
3. After you determine the new reference date in Step 1, the first channel date is determined. This date is the first calculated date in the present, based on the new reference date + the ATP channel period
4. The channel date can fall in the middle of a channel master plan period. In that case, the channel date is rounded to the start of that plan period. This procedure will continue for each subsequent ATP channel period.
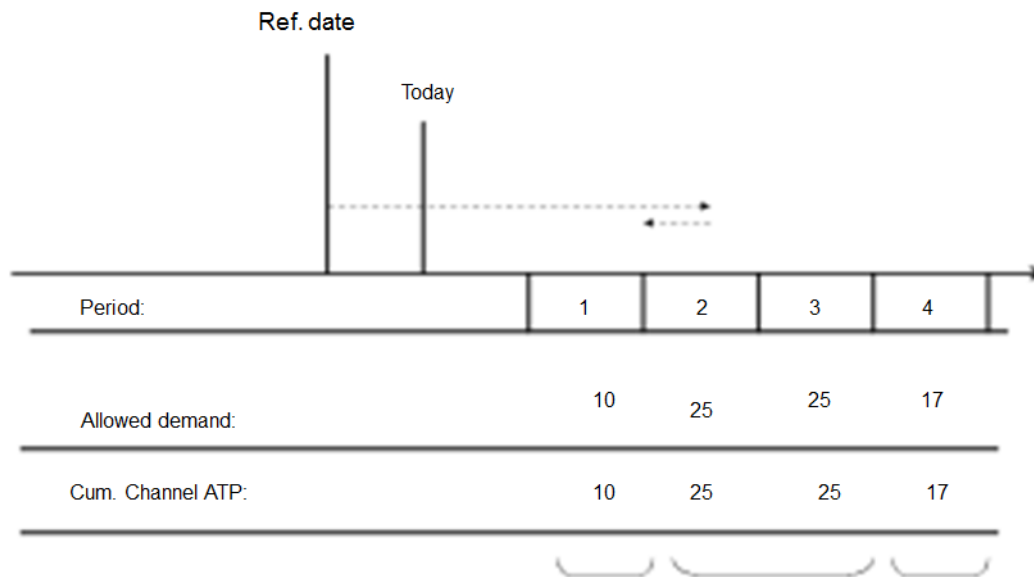
Cumulative channel ATP

The cumulative channel ATP only applies in each ATP period length, starting with zero. The calculation is as follows:

```
Channel ATP = Demand (sales orders) + Receipts (Allowed demand) - Deliveries
 (sales deliveries)
```

As a result, a sales order only consumes the cumulative channel ATP in the ATP period length in which the sales order falls. Other periods are not impacted.

This procedure is carried out because the cumulative channel ATP is reset to zero at the start of each ATP period. The cumulative channel ATP of previous periods is not included and can still be promised.

Note

The cumulative channel ATP is always limited by the plan item's central CTP. This additional check is performed because the channel ATP can be manually increased and the ATP period length extended.

If the channel ATP becomes greater than the item's central CTP, the user cannot promise more than this CTP quantity.

Chapter 4
ATP Handling

4

Introduction

You can use the ATP Handling (cprrp4800m000) session to check ATP and CTP for different dates and different warehouses. You can start the session either dependently from a sales order line or a quotation line, or independently.

The following buttons (checks) are available in this session:

- **Available**
- **When Available**
- **Where Available**
- **Accept Check**

Where Available

The **Where Available** button results in an ATP Overview report. The ATP check is performed on a specific date across multiple clusters. The algorithm looks at the ATP of the (clustered) plan item, which means that the check is performed on cluster level and not on individual warehouse level.

Each plan item has a default warehouse, which will be the warehouse printed on the ATP Overview report, but the availability will always be checked for all warehouses together within the cluster.

Note

CTP cannot be checked during a **Where Available**. Only an ATP check is permitted.

Which items/clusters are taken into account?

If the **Ignore Supplying Relations** check box is cleared in the ATP Handling (cprrp4800m000) session, the **Where Available** command checks the ATP of the item defined on the required date and for the ATP of all supplying items, multisite.

This ATP check includes all the warehouses of the cluster from which the demand originates, plus all warehouses of the clusters that are linked to that cluster by means of a supplying relation. The supply lead-time offset is also taken into account: planned delivery date versus planned receipt date.

Example

The following supplying relationships are set up for item X_ in the empty cluster (default warehouse WH1). The item also exists in a location (cluster 3) for which no supplying relationship is defined.
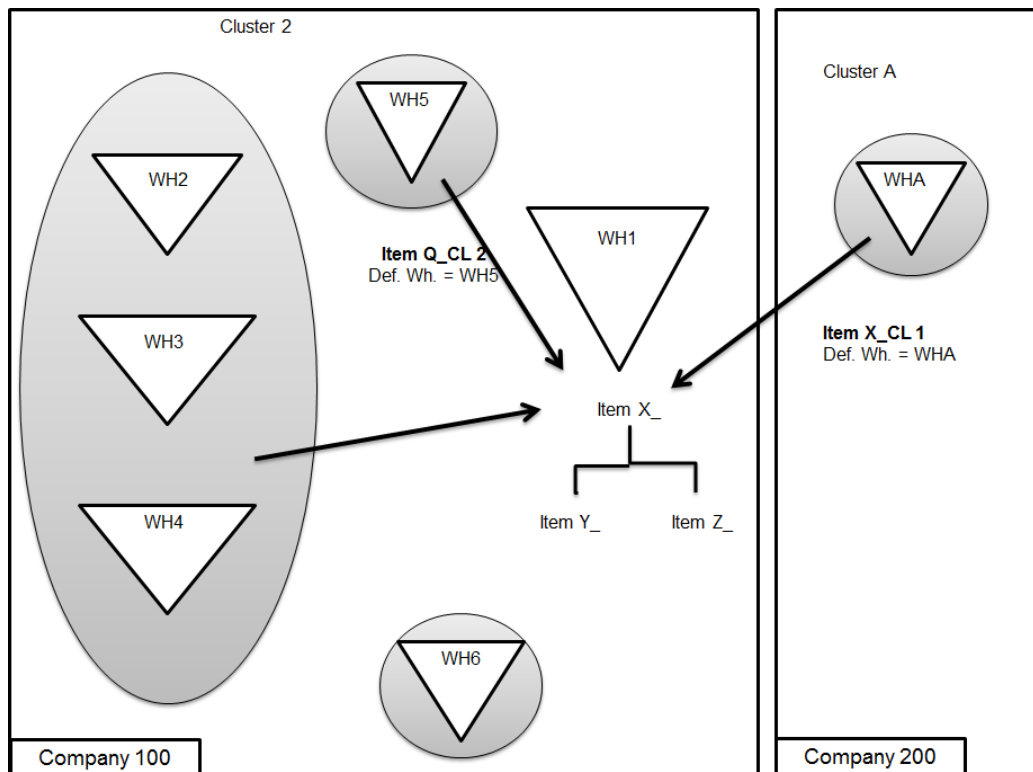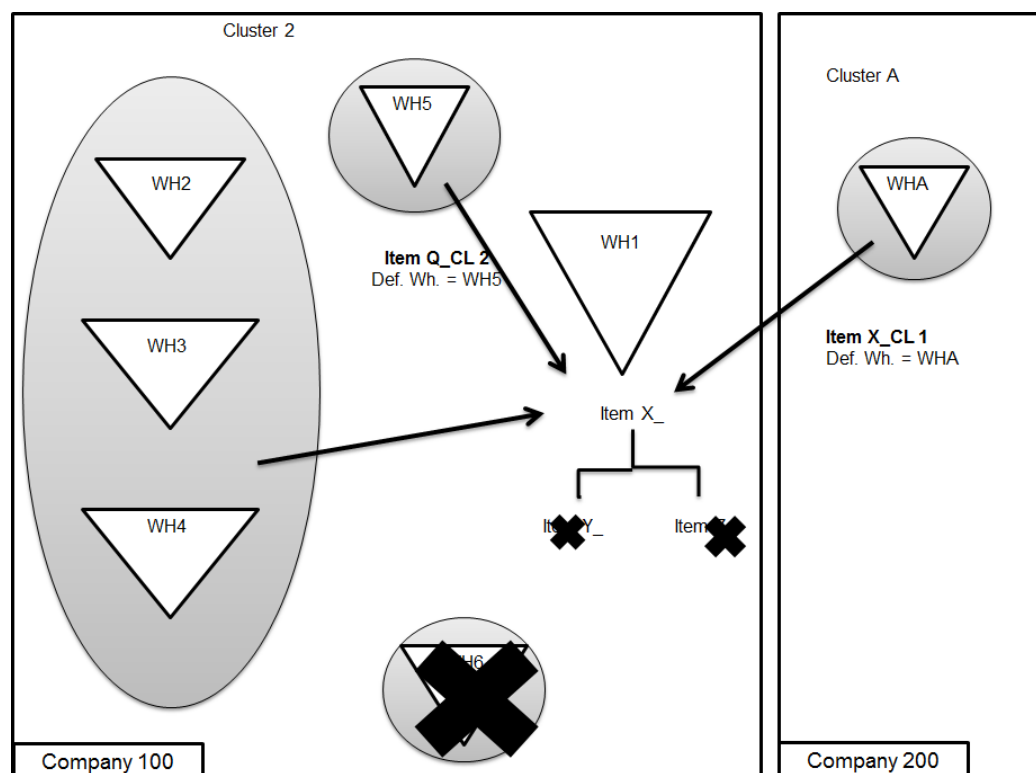

When you perform the where-available check for item X__ on 25/4, the result is as follows:

Availability

Company	Warehouse	Available	Date

100	WH1	20	25/4
100	WH3	15	25/4
100	WH5	10	25/4
200	WHA	40	25/4

The following clusters and items are checked:

Note that the ATP of item X_CL3 is not part of the where available because the ATP does not have a supplying relation to X__.

The ATP of item Q_CL2 is included in the where-available check, although the item code differs. If you do not ignore the supplying relationships, all of these items are checked, independent from the item code.

The two components of item X__ are not included because (component) CTP is not permitted.

The problem in each of these situations is that a supplying relationship must be defined to retrieve the goods from another cluster. In some cases, however, you might not want that because you only want to check the ATP and then deliver directly to the customer from the goods' location.

Therefore, if the **Ignore Supplying Relations** check box is selected, the **Where Available** command checks on the ATP of the item defined on the defined date and for the ATP of all items with the same (general) item code, but *not* multi-site. This check is carried out based on the item code. Therefore, all X_… items are included.

Example

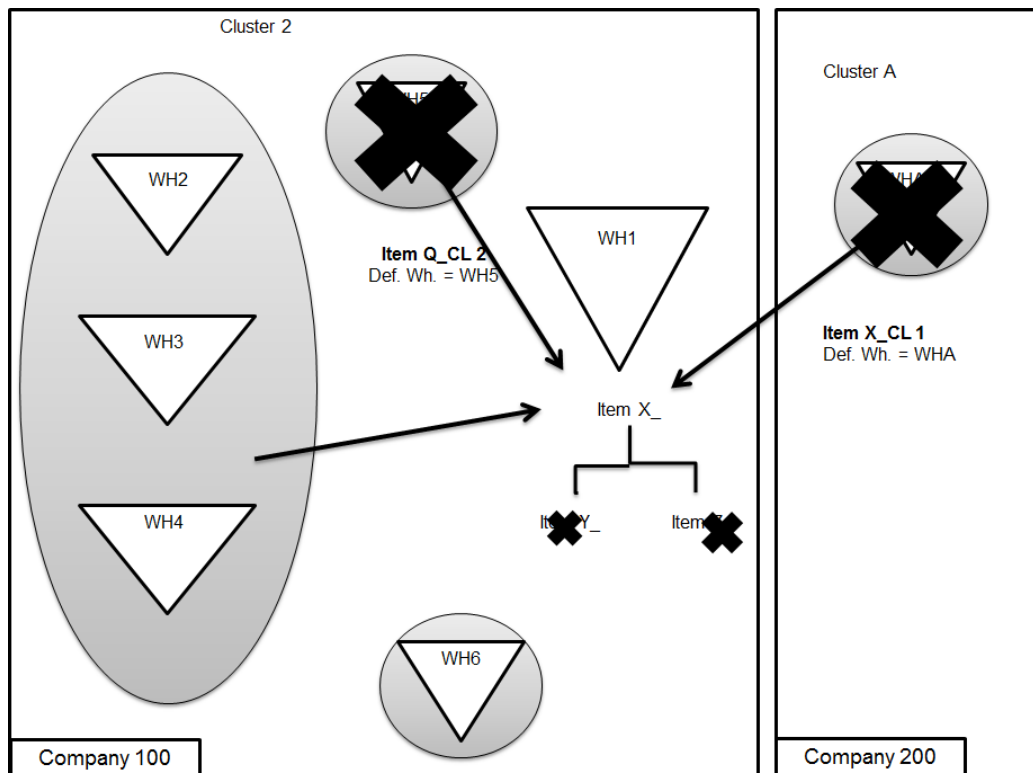Where available for item X__ on 25/4:

Availability

Company	Warehouse	Available	Date
100	WH1	20	25/4
100	WH3	15	25/4
100	WH6	**25**	25/4

The following clusters/items are checked:

Notice that the ATP of item Q_CL2 is not part of the where-available function because the system does not recognize that item Q_CL2 is a supplying item for X_. The check is carried out on the item code X_.

In addition, item X__CL1 is also not included because this item resides in another company, and this check is only performed on a single site.

Fixed date check

The Fixed Date Check command offers the same ATP overview report as the **Where Available** command. The Fixed Date Check command displays the availability on a specific date across multiple warehouses.

The fixed-date check is specially designed for sales order entry.

Where the where-available view shows the entire availability across multiple sites, the fixed date check provides a view of only those default warehouses required to deliver the complete sales order line quantity. The where-available view and the fixed date check differ in no other way. In addition, in this case, you cannot perform component CTP checks or capacity CTP checks.

If a sales order line entry is blocked by the ATP of the item, you can zoom to the ATP Handling (cprrp4800m000) session and request a fixed date check. This check can result in a transfer between warehouses or a direct delivery to the customer.

For a direct delivery from the warehouse where ATP is found, specify the **Default Warehouse** field.

For warehouse transfers from the warehouse where the ATP is found to the asking warehouse, LN takes the supply time into account.

For the fixed date check, three situations can apply in cases in which the required quantity is greater than the ATP for a plan item in a specific cluster:

- The demand is less than the sum of the ATP for all related (clustered) items
- The demand is equal to the sum of the ATP for all related (clustered) items
- The demand is greater than the sum of the ATP for all related (clustered) items

If the demand is less than the sum of the ATP for all related (clustered) items, the ATP does not have to be consumed entirely to meet with the demand.

A decision must be made which warehouse will handle the supply. The item and warehouse that will deliver the supply first is based on the supply priorities as defined in the supplying relationships.

If the demand is equal to the sum of the ATP for all related (clustered) items, the entire ATP will be consumed.

If the demand is greater than the sum of the ATP for all related (clustered) items, the same applies as in the previous situation. The demand which is not met simply disappears. The sales order line quantity, therefore, is smaller than the originally ordered quantity.

Accepting fixed date check

After the user performs a fixed-date check, the button to accept this check becomes available. This button is not available after a where-available check. However, this only occurs when you started the ATP Handling (cprrp4800m000) session from a sales order or sales quotation.

The **Accept Check** button automatically generates separate sales order deliveries for one sales order line. The deliveries are based on the lines displayed in the fixed date check.

If the fixed date check will not result in sales order deliveries, for example, if the entire quantity is located in a single warehouse, the **Accept Check** command is available, because only the existing sales order line will be changed (a warehouse change). This will not cause problems for the generation of the project structure.

Fixed warehouse check

The fixed-warehouse check is performed in a time-phased way on a specific cluster. In this case, the ATP Overview report represents a time-phased overview of delivery capability. The check is performed for the item defined in the ATP handling screen. The default warehouse of this plan item, as defined in the Items - Planning (cprpd1100m000) session, is displayed as the supplying warehouse.

A fixed-warehouse check takes the supplying relations into account, the available quantity on other clusters within the defined supply chain is considered during the check. The appropriate cluster is determined by means of the warehouse that requires the goods. In addition, the availability of capacities (capacity CTP check) and components (component CTP check) can be considered for this type of check.

Example: Fixed warehouse check for X__ with a component CTP check.

Availability

Company	Warehouse	Available	Date
100	WH1	40	25/4
100	WH1	10	31/5

The fixed warehouse check looks at the following clusters/items:
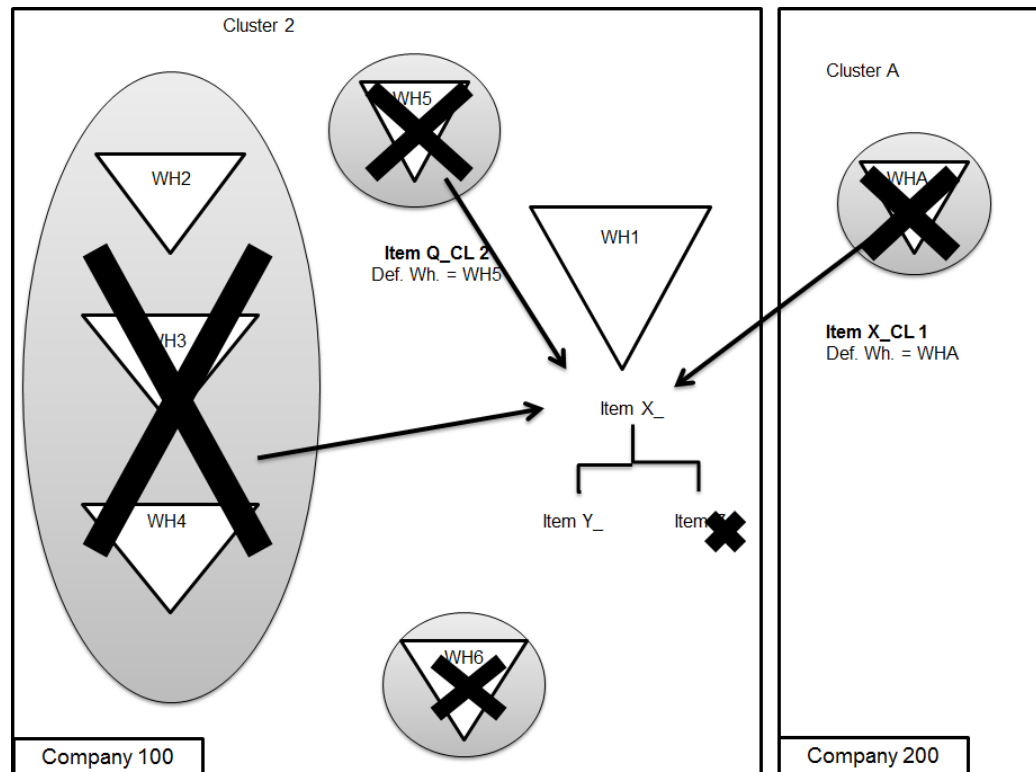
Accepting fixed warehouse check

After the user performs a fixed warehouse check, the **Accept Check** button becomes available. However, this only occurs if you started the ATP Handling (cprrp4800m000) session from a sales order or sales quotation.

The **Accept Check** button automatically generates separate sales order deliveries for one sales order line. The deliveries are based on the lines that appear in the fixed warehouse check. LN creates a delivery in sales for each line on the fixed warehouse check report. The only difference between the deliveries is the delivery date.

The warehouse is always the same.

Note

You cannot create separate sales order deliveries for sales order lines on which the Make Customized check box is selected, because you cannot customize sales delivery lines when generating the project structure. If you try to accept a fixed warehouse check that will result in sales deliveries, LN displays a blocking message.

If the fixed warehouse check will not result in sales deliveries, for example, if the entire quantity is located on one specific date, the **Accept Check** command becomes available, because only the existing sales order line will be changed (a planned delivery date change). This will not cause problems for the generation of the project structure.

Show CTP details

If you select the **Show CTP Details** check box in the ATP Handling (cprrp4800m000) session, a graphical browser called Capable to Promise Overview is generated, in addition to the ATP Overview report. The overview provides detailed information below each delivery line with information about the component and capacity constraints encountered during the CTP check.

This Capable to Promise overview, therefore, only provides additional information when component or capacity CTP is applied. Otherwise, both reports return the same result.

Example of capable to promise overview:

Suppose a quantity of 247 pieces of end item JOSUEF11 is required. This item has the following multilevel bill of material:
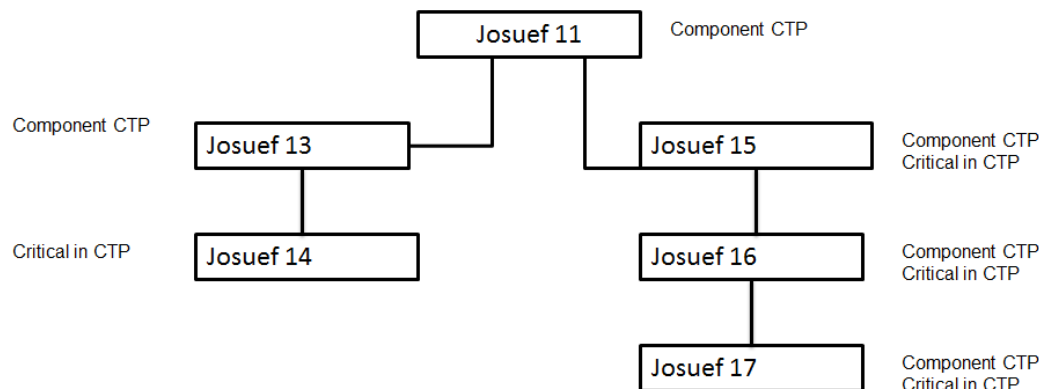
The components JOSUEF14 and JOSUEF17 are the only components in this product structure that are critical in CTP.

The other items in the bill of material all have the **Component CTP** check box selected in the Items - Planning (cprpd1100m000) session.

Capacity is excluded from this example.

> **Note**
>
> The **Component** check box is selected as the type of check. The **Show CTP Details** check box is also selected, which indicates that a separate capable to promise overview will be generated in addition to the ATP overview report.

The following is shown on the report for the fixed warehouse check :


```
Date   : 14.12.04 [13:83,Eur ]        ATP Overview        Page    :    1
ERP LN democompany 570                                    Company : 570

Ordering Data
Site          570
Warehouse     EU2-01
Item              JOSUEF11
Quantity          247.0000 [pcs]
Date          14.12.2004 08:49
```

| Supplying Data | | | | | |
Site	Warehouse	Available [pcs]	Trans Time [Days]	Delivery Date	Receipt Date
570	EU2-01	101.0000		17.12.04	17.12.04
570	EU2-01	83.0000		21.12.04	21.12.04
570	EU2-01	63.0000		30.12.04	30.12.04

Total Available	247.0000

The capable to promise overview for this fixed warehouse check is as follows:

Both reports show that the required quantity of 247 pieces can be delivered in these parts:
- 101 pieces on December 17
- 83 pieces on December 21
- 63 remaining pieces on December 30

As you see, the main lines of the report and the graphical browser are identical. However, where the ATP overview report stops at this point, the capable-to-promise overview shows which components or capacities were restrictive for delivering the entire quantity.

This overview reads as follows:

- The material for which sufficient availability was found in a branch of the product structure is marked black. The underlying branch of such a component (if present) is no longer depicted because the information is considered irrelevant for this overview. This overview concentrates on the restrictive components and capacities only.

- An example in the previous picture is item JOSUEF15, where 247 pieces can be built based on the availability of its critical component JOSUEF17. In addition, the last main line for JOSUEF11 is marked black because sufficient ATP for this item is found on December 30 to cover the remaining 63 pieces of the demand. Therefore, you will not encounter problems in terms of availability for the black lines. You can also see this by the fact that the available quantity is equal to the required quantity.

- The branch for which insufficient availability is found is marked red. The first main line is expanded for the entire branch in the example above. Because insufficient availability for JOSUEF14 was found and this is the lowest component in this branch, the entire branch is red. In addition, the second main line is marked red, but is not yet expanded.

You determine the dates as follows:

- The CTP of the end item JOSUEF11 is checked every period based on the EP parameter **Component CTP bucket**. If the value of this parameter is set, for example, to *1* hour, every subsequent hour, the CTP is calculated. When calculating this CTP, the lead-time offset is used to determine the required date for each component. This offset is visible in the previous picture in the branch of the first main line. JOSUEF14 is required earlier than JOSUEF13, and so on.

The available quantity is determined as follows:

- The main lines, which are end items for which the CTP is calculated, always depict the additional available quantity compared to the previous main line.
- However, the component lines always depict cumulative quantities.
- Therefore, each subsequent component line increases the available quantity compared to the previous component line.

Example

Example: If 300 pieces of JOSUEF11 are required:
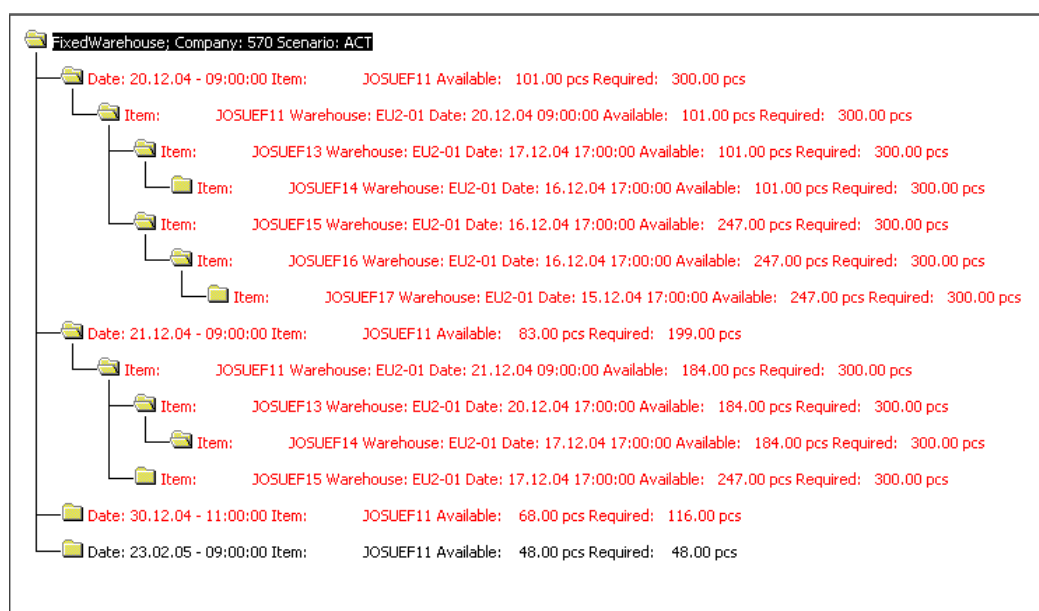
The main lines for JOSUEF11 show 101 pieces available on December 20, and an additional 83 pieces on December 21.

The component lines for JOSUEF14 show 101 pieces available on December 16 (lead-time offset applied) and 184 pieces on December 17. As a result, the available quantity of 184 is a cumulated quantity of 101 + 83 pieces.

Although this method of showing the available quantity might be less transparent, this method shows extensive additional quantities for the components, rather than the cumulated quantities. From the main line, you can always see the amount of the additional quantity.

ATP handling offline

If you access the ATP Handling (cprrp4800m000) session directly, and not from a sales order, you can access all fields, but the buttons to accept the fixed date check or fixed warehouse check are unavailable. You can only access these buttons during sales order/quotation entry.

Ordering Data

This group box includes the ordering data, such as **Quantity**, **Delivery Date**, and **Default Warehouse**, for which the ATP/CTP must be checked.

Supplying data

This group box includes the supplying data, such as **Receiving Site**, **Default Warehouse**, and **Minimum Available**, for which the ATP/CTP must be checked.

For the fixed date or fixed warehouse check, the site and warehouse in the supplying data are checked first, because these checks overrule the site and warehouse in the ordering data.

The fixed warehouse check must then check ATP only on the supplying site and warehouse. The ATP Overview report must also only give the ATP on this site and warehouse.

The fixed date check must first check ATP on the supplying site and warehouse. If the required quantity is not met, the check continues on the other warehouses available for the item. The report states the supplying site and warehouse first, and then the other site/warehouse combinations.

If the warehouse in the supplying data is empty, the site and warehouse from the ordering data are taken for the ATP check.

Type of check

The type of checks are enabled and defaulted from the Items - Planning (cprpd1100m000) session. You can overrule the default setting.

ATP handling from a sales order line

If you start the ATP Handling (cprrp4800m000) session from a sales order, several fields cannot be modified.

ATP handling from a sales quotation line

If you start the ATP Handling (cprrp4800m000) from a sales quotation, the **Accept Check** button is unavailable, because you cannot create deliveries or warehouse transfer orders for a sales quotation line.

Appendix A
Glossary

A

ATP

See: *available-to-promise (p. 41)*

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

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

channel ATP check

A check on the quantity that can be promised to a customer based on the allowed demand for the channel to which the customer belongs.

Note that the main purpose of channel ATP is to reserve a certain quantity of the product for other channels, for example, for strategic reasons.

Example

A customer belongs to the direct marketing sales channel. The allowed demand for this channel is 50,000 piece per period. A quantity can be promised to the customer, as long as the total sales volume for that channel in that period does not exceed 50,000.

CTP

See: *capable-to-promise (p. 42)*

cumulative ATP

The total item quantity that you can promise to deliver in a particular plan period.

You can use the cumulative ATP to check the availability of an item when you receive a sales order or an inquiry.

Note

If the item's cumulative ATP is insufficient, LN can carry out a capacity and/or component CTP check to see if the demand can be met by increasing the production of the item.

family CTP check

A CTP check that is carried out at a higher product-family level, instead of the level of the item itself.

Like the regular CTP check for an item, a family CTP check can involve several types of ATP and CTP checks.

In this case, you can configure LN so that, when the CTP of the mountain bike must be checked, LN will in fact check the CTP of the bicycle family.

Example

The mountain-bike item is part of the bicycle family.

item master plan

An item-specific, overall logistic plan that contains planning data and logistic targets for sales, internal and external supply, and inventory. All planning data in the item master plan is specified by plan period. Enterprise Planning uses this data to carry out master-planning simulations.

Within the item master plan, you can distinguish the following subplans:

- demand plan
- supply plan
- inventory plan

In addition, an item's master plan contains information about actual demand, actual supply, planned supply in the form of planned orders, and expected inventory.

If an item has a master plan and channels have been defined for this item, each channel usually has its own channel master plan. A channel master plan contains channel-specific information only, that is, demand data and information about sales restrictions.

Item master plans and channel master plans are defined within the context of a scenario. These scenarios can be used for what-if analyses. One of the scenarios is the actual plan.

nonconsumed demand forecast

The part of the forecast demand that has not yet been consumed by actual demand.

As a rule, the demand forecast, extra demand, and special demand are gradually filled by actual orders. This process is referred to as consumption of forecast demand by actual demand.

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