



Infor LN Enterprise Planning User Guide for Supply Planning by Supplier

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Publication Information

Release: Infor LN 2022.x

Publication Date: December 5, 2022

Document code: ln_2022.x_cpsupplyplanug__en-us

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About this Guide

This document describes the scenario in which supply planning for purchased items is outsourced to the supplier, and the applicable terms and conditions.

Intended audience

This document is intended for *planners* who use LN to plan the supply of items on behalf of customers, or planners that leave the supply planning of particular items to their suppliers.

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

Assumed knowledge

Understanding this document is easier if you have some basic knowledge of the functionality of the Enterprise Planning package, and in particular of the *order-based planning* procedure.

Document summary

This document contains the following chapters:

- Introduction
Provides an introduction to the functionality to let the supplier determine when and how to supply an item to the customer.
- Setup and procedure
Provides stepwise instructions on how to set up the system and run the planning. The chapter provides separate instructions for the supplier and the customer.
- Forecast
Provides details on the concept of *forecast* and instructions on how to create and use forecast information.
- Confirmed supply
Provides information on the concept of *confirmed supply* and instructions on how to create and use confirmed supply.
- Planning methods
Provides information on the methods the supplier can use make sure sufficient inventory is available at the supplier's.
- Replenishment methods
Provides information on the methods the supplier can use make sure sufficient inventory is available at the customer's.

- Minimum and maximum inventory
Provides information on the use of the agreed minimum and maximum inventory level.

How to read this document

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

For details, refer to Introduction. To locate the referred section, please refer to the Table of Contents or use the Index at the end of the document.

Terms that look like *these words* indicate a link to a glossary definition. If you view this document online, you can click these terms to go to the glossary definition at the end of the document.

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Chapter 1: Introduction

Supply planning by supplier

A company can outsource the supply planning for some purchased items. In this case, the company does not send the supplier orders to delivery-specific quantities on specific dates and times. Instead, the supply planning is delegated to the supplier who decides when to deliver what quantity. The customer and supplier have a *terms and conditions agreement* that specifies all relevant planning parameters. This terms and conditions agreement is linked to a valid *sales contract* or *purchase contract*.

Vendor managed inventory

Supply planning by the supplier is an aspect of *vendor managed inventory (VMI)*. To give the supplier control over the inventory, the supplier defines the warehouse at the customer's location as warehouse in the supplier's LN system.

The supply planning by supplier can be applied in three scenarios as shown in the following table:

Scenario	Owner of the supplied goods at the customer's site	Responsible for managing the warehouse at the customer's site	Responsible for the supply planning
Full VMI	Supplier	Supplier	Supplier
Planning by supplier	Customer	Customer	Supplier
Warehouse management by customer	Supplier	Customer	Supplier

For more information, refer to the Vendor managed inventory.

Order-based planning and VMI

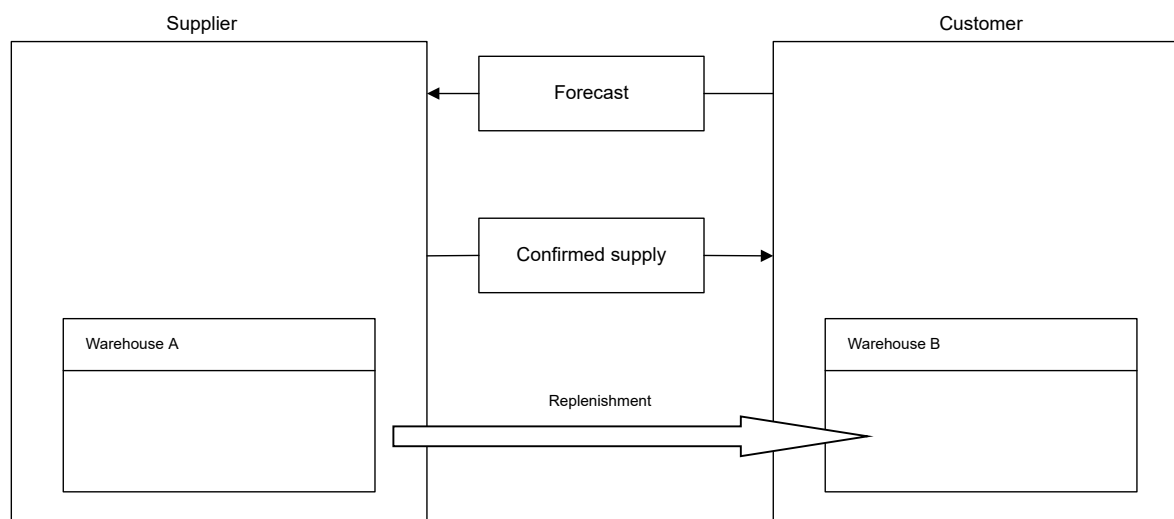
The main difference between regular *order-based planning* and supply planning by supplier is the following:

- Regular order-based planning
In general, if regular order-based planning is applied, Enterprise Planning generates *planned purchase orders* for the items that must be delivered by a supplier.
- Supply planning by supplier
If the supplier of an item is a valid *VMI supplier*, Enterprise Planning does not generate purchase orders for the item. Instead, Enterprise Planning can generate a *forecast* that is sent to the supplier. The supplier

performs the supply planning based on the forecast or the actual inventory levels at the customer. In general, the replenishment is accomplished by using *warehouse transfers*.

Overview

The following diagram shows the general information flow and the goods flow for the setup where the supplier takes care of the planning.



Forecast

In the general case, the customer sends the supplier a *forecast* of the demand for an item. The supplier can use that forecast as input for its order-based planning process.

If the customer does not send a forecast for an item, the supplier can base the supply planning on the actual inventory levels.

The customer aggregates the forecast to *forecast periods*. For example, the forecast can be defined by week.

Enterprise Planning can generate the forecast, but the customer can manually modify the forecast before sending it to the supplier.

For more information, refer to Forecast (VMI)

Confirmed supply

Depending on the setup, the supplier sends the customer a *confirmed-supply message*.

Enterprise Planning can generate the confirmed supply, but the supplier can also use other methods to determine the confirmed supply. If Enterprise Planning generates the confirmed supply, the supplier can manually modify the confirmed supply before sending it to the customer.

For more information, refer to Confirmed supply (VMI)

Revisions

Each forecast the customer sends to the supplier gets a *revision* number. The corresponding *confirmed supply* is identified with the same revision number.

You can store past revisions for future reference. You can define the number of revisions LN retains in the **Planning Parameters (cprpd0100m000)** session. For example, you can set up LN to store the 10 most recent revisions.

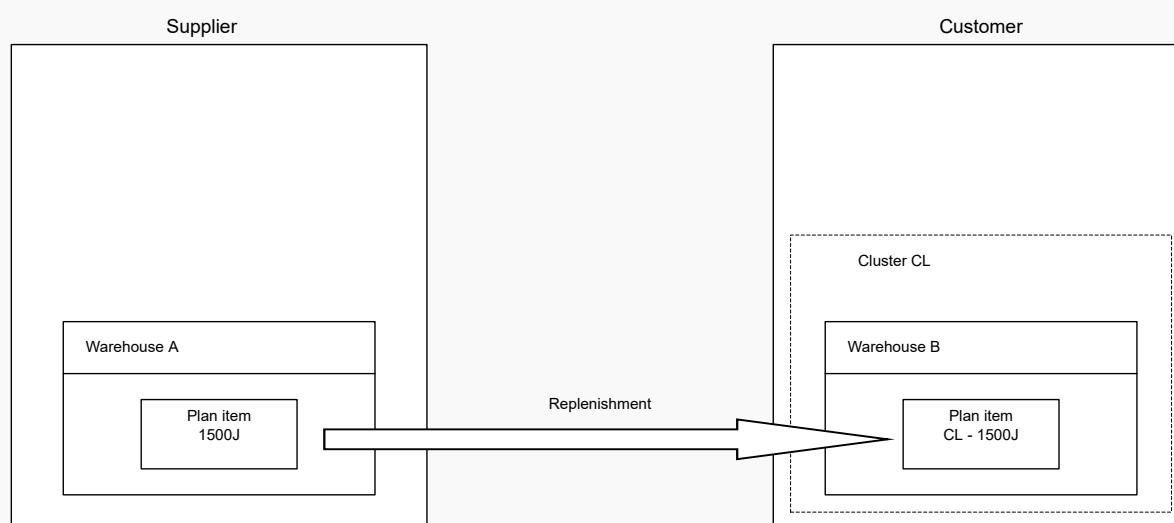
Restrictions

The forecast and confirmed supply do not include *effectivity units*. If an item is setup for *unit effective supply*, the item cannot be supplied by a *VMI supplier*.

For VMI planned items, an *item master plan* is not available.

Example

The following diagram shows how the situation is represented in the supplier's system.



In this example, the supplier defined the following entities:

- *Planning cluster* CL, that represents the customer's location.
- *Warehouse A*; this warehouse is at the supplier's own location.
- *Warehouse B*, an external warehouse linked to planning cluster CL.
- *Item 1500J*, an item manufactured by the supplier and sold to the customer.
- *Plan item 1500J*, with default warehouse A. Note: the planning cluster *segment* of the *item code* is empty, or else it differs from CL.
- *Plan item CL - 1500J*, with default warehouse B. Note: the planning cluster *segment* of the *item code* is CL.

The customer in this example regularly sends a forecast to the supplier. Based on this forecast, the supplier generates *planned distribution orders* to deliver plan item CL - 1500J to warehouse B (at the customer) and planned production orders for 1500J and its components.

The planned orders for plan item CL - 1500J can be translated to confirmed supply. The confirmed supply is the delivery quantity that the supplier commits to. Optionally, the supplier can change the confirmed supply, before sending the confirmed-supply data to the customer.

Finally, the supplier replans the supply, based on the confirmed supply sent to the customer. Because the confirmed supply can deviate from the received forecast, this planning run creates *planned orders* which can differ from the planned orders that were based on the forecast.

Procedures

For instructions on how to set the system up and how to run the planning and replenishment, refer to the following topics:

- Supplier's side
 - Performing the supply planning for your customer - Setup
 - Performing supply planning for your customer - Procedure
 - Supply planning by supplier sending the forecast
- Customer's side
 - To let your supplier perform the supply planning - Setup
 - Supply planning by supplier, sending the forecast

VMI business partner selection

This topic describes how LN selects a supplier in a *vendor managed inventory (VMI)* situation.

Some restrictions for the use of VMI functionality are also described.

Only a single *VMI supplier* can carry out your planning for an item at any single time. However, you can switch from one VMI supplier to another. LN searches for suppliers with terms and conditions agreements effective between the current date ('now') and the scenario finish date.

To select the effective VMI suppliers, the following rules apply:

- If LN finds multiple valid VMI suppliers, LN sorts the suppliers according to the *effective dates* and *expiry dates* of their respective *terms and conditions agreements*.
- If the *effectivity period* of one VMI supplier completely encloses the effectivity period of another VMI supplier, that other VMI supplier is ignored.
- As soon as a valid supplier becomes effective, LN selects that supplier as the VMI supplier.
- If, at a particular date, no supplier is effective as VMI supplier, no more VMI suppliers can be selected for later dates. For example, you cannot have a supplier carry out the planning in March, then use regular planning methods in April, and have the supplier carry out the planning again in May. If you try this, Enterprise Planning generates a *signal* and handles the second period (May in the example) by using the regular supply method.

However, of the total period between the current date and the scenario finish date, you can use regular planning in the first part of the period, later, a VMI supplier can carry out the supply planning for a particular time, and in the last part of the period you can use regular planning again.

Multiple sourcing

Multiple sourcing is permitted, as long as no more than one of the suppliers is a VMI supplier.

If you use multiple sourcing, the order planning procedure generates requirements and distributes the requirements over the available sources in the usual way. The demand that is allocated to the VMI supplier results in *forecast* that is sent to the VMI supplier. The other demand results in *planned purchase orders* or *planned distribution orders*.

You can assign a priority to the various suppliers, but the VMI supplier always has priority 0, which is the highest priority.

To view all active VMI suppliers and regular suppliers for a plan item, take the following steps:

- 1 Start the **Items - Planning (cprpd1100m000)** session.
- 2 Select the plan item.
- 3 Click *appropriate* menu > **Product Structure** > **Active Suppliers by Plan Item**.

Determining the VMI Relation

This topic describes how LN determines the value of the **VMI Relation** field in the Items - Planning (cprpd1100m000) session.

Whenever you run *order-based planning*, LN reevaluates the **VMI Relation** field. LN takes the entire period between current date and the *planning horizon* into account.

If at any time in that period an applicable *terms and conditions agreement* is found, the **VMI Relation** field is set to **Create Supplier Forecast Or Receive Customer Forecast**, even if this terms and conditions agreement is not effective at the current date.

With this, LN ensures the *order-based planning* run carries out the *vendor managed inventory (VMI)* functionality if it is needed and makes the VMI related sessions and features available.

Overall procedure

- The Master Plan check box in the **Items - Planning (cprpd1100m000)** session must be cleared.
- Order Planning checks if **Receive Customer Forecast** is set up, if this is not the case Order Planning checks if **Create Supplier Forecast** is set up.
- If neither applies, LN sets the **VMI Relation** field to **Not Applicable**.

Checking if VMI purchase contract is set up

To determine if the VMI relation is set to **Create Supplier Forecast**, LN performs the following actions:

- 1 LN searches for suppliers (*buy-from business partners*) with *terms and conditions agreements* effective between the current date ('now') and the planning horizon.

LN also retrieves the plan item's default warehouse.

This terms and conditions agreement must be valid for the combination of item, *buy-from business partners*, and warehouse.

A terms and conditions agreement defined for a group of items, such as an *item group* or *product type*, is valid for every item within that group of items. Similarly, a terms and conditions agreement in which no warehouse is specified is valid for all items.

A terms-and-conditions agreement without an active *purchase contract* is not a valid terms-and-conditions agreement.

- 2 LN finds the effective *terms and conditions lines* between the current date and the planning horizon, based on the *terms and conditions search attributes*.
- 3 From the applicable record in the **Planning Terms and Conditions (tctrm1135m000)** session, LN retrieves the values of the Supply Planning by Supplier check box.
- 4 If the Responsible for Supply Planning check box is selected, LN sets the **VMI Relation** field to **Create Supplier Forecast**.

To check if VMI sales contract is set up

To determine if the VMI relation is set to **Receive Customer Forecast**, LN performs the following actions:

- 1 LN retrieves the plan item's *planning cluster*, based on the first *segment* of the plan item code, and checks whether this planning cluster has a *sold-to business partner*.
A planning cluster's sold-to business partner is defined in the Sold-to Business Partner field in the **Planning Clusters (tcecm1135m000)** session, optionally you can define a planning cluster's *ship-to business partner* there as well.
- 2 LN searches for a valid *terms and conditions agreement* for the combination of item, *sold-to business partner*, and optionally *ship-to business partner*.
A terms and conditions agreement defined for a group of items, such as an *item group* or *product type*, is valid for every item within that group of items.
A terms-and-conditions agreement without an active *sales contract* is not a valid terms-and-conditions agreement.
- 3 LN finds the effective *terms and conditions lines* between the current date and the planning horizon, based on the *terms and conditions search attributes*.
- 4 From the applicable record in the Planning Terms and Conditions (tctrm1135m000) session, LN retrieves the value of the Responsible for Supply Planning check box.
- 5 If the Supply Planning by Supplier check box is selected, LN sets the **VMI Relation** field to **Receive Customer Forecast**.

Chapter 2: Setup and procedure

Supplier side

Performing the supply planning for your customer - Setup

This topic describes how to set the system up to perform the supply planning for your customer in a *vendor managed inventory (VMI)* situation.

1 Implemented software components

In the **Implemented Software Components (tccom0500m000)** details session, set the following fields:

- **Terms and Conditions**
Under **Modules**, select the **Terms and Conditions** check box.
- **Ownership External**
Under **Concepts (Logistics)**, select the **Ownership External** check box.
- **VMI (supplier side)**
Under **Concepts (Logistics)**, select the **VMI (supplier side)** check box. This will make the supplier side of the *vendor managed inventory (VMI)* functionality available.

2 Planning Cluster

In the Planning Clusters (tcemm1135m000) session, define a *cluster* that represents your customer's site. Set the following fields to the appropriate values:

- **External**
To associate this cluster with a *sold-to business partner*, select the **External** check box.
- **Sold-to Business Partner**
Enter the customer for which you perform the supply planning in the **Sold-to Business Partner** field.
- **Ship-to Business Partner**
If you deliver goods to multiple sites for the same customer, specify the *ship-to business partner* that represents the customer site where the items must be delivered.

3 Warehouse

In the Warehouses (whwmd2500m000) session, define the warehouse at the customer's site. Set the following fields to the appropriate values:

- **Include in Enterprise Planning**

To have the planning process take the inventory in this warehouse into account, under **General**, select the **Include in Enterprise Planning** check box.

- **External Site**

Under **Relationships > Site**, in the **External Site** field, select **yes**.

- **Planning Cluster**

Under **Relationships > Site**, in the **Planning Cluster** field, enter the cluster you defined in the previous step.

Note: If you will be managing the inbound and outbound operations in this warehouse, you must also select the Inventory Management check box.

4 Terms and conditions agreement (Planning)

In the **Terms and Conditions (tctrm1100m000)** session, define a *terms and conditions agreement* of type **Sales**. For further instructions, refer to Setting up terms and conditions.

To make the planning-related parameters in the *terms and conditions group* available, in the **Terms and Conditions Search Level (tctrm1610m000)** session, select the Planning check box.

After you set up a basic *terms and conditions line*, start the **Terms and Conditions Line (tctrm1620m000)** session, click the **Planning** tab, and enter a record. Set the fields to the appropriate values

- **Responsible for Supply Planning**

To specify that you perform the supply planning for your customer, select the Responsible for Supply Planning check box.

- **Forecast**

For instructions on the fields under **Forecast**, refer to Forecast (VMI).

- **Inventory Levels**

For instructions on the fields under **Inventory Levels**, refer to To work with minimum and maximum inventory.

- **Confirmed Forecast**

For instructions on the fields under **Confirmed Forecast**, refer to Confirmed forecast and unconfirmed forecast and How to set up confirmed forecast (supplier side).

- **Confirmed Supply**

For instructions on the fields under **Confirmed Supply**, refer to Confirmed supply (VMI).

- **Planning**

For instructions on the fields under **Planning**, refer to Replenishment methods (VMI) and Planning methods (VMI).

5 Terms and conditions agreement (Order)

In the **Terms and Conditions (tctrm1100m000)** session, select the terms and conditions agreement you defined in the previous step.

To make the order-related parameters in the *terms and conditions group* available, in the **Terms and Conditions Search Level (tctrm1610m000)** session, select the Order check box.

Start the **Terms and Conditions Line (tctrm1620m000)** session, click the **Order** tab, and enter a record. Set the fields to the appropriate values.

The value of the Transfer Type field determines if LN will use *warehouse transfers* or sales transfers to deliver the items to the customer's warehouse. In general, warehouse transfers are the most simple solution, but sales transfers offer some additional features.

If the Payment field has the value **Pay on Receipt**, the **Transfer Type** field cannot be set to **Warehouse Transfer**.

6 Sales contract

In the **Sales Contracts (tdsls3500m000)** session, define a *sales contract* between you and your customer. Set the following fields to the appropriate values:

- **Terms and Conditions ID**
Enter the *terms and conditions agreement* defined in the previous step in the **Terms and Conditions ID** field.

7 EP Parameters

In the **Planning Parameters (cprpd0100m000)** details session, set the following fields:

- **Number of Revisions**
To specify the number of *revisions* of the *forecast* and *confirmed supply* that LN stores, use the **Number of Revisions** field.
- **Automatic Accept Forecast**
To specify whether you accept all forecast messages without checking, use the **Automatic Accept Forecast** check box.

8 Plan items

In the **Items - Planning (cprpd1100m000)** session, define a *plan item* that represents the item inventory at your customer's site, for the item you deliver to your customer. In the plan item's cluster segment, enter the *planning cluster* you defined in step 2.

Set the following fields to the appropriate values:

- **Supply Source**
To supply the item by using *planned distribution orders*, set the Supply Source field to **Distribution**.
To supply the item by using *direct delivery* from your suppliers to your customer, set the Supply Source field to **Item Source**.
- **Ordering Warehouse**
Enter the warehouse you defined in step 3 in the **Ordering Warehouse** field.
- **VMI Relation**
If you run the planning process, LN automatically sets the VMI Relation field to **Create Supplier Forecast**.

To build up inventory at your own site, define a corresponding *plan item* that has a planning cluster that is associated with the site from where you deliver the item.

9 Supplying relationships

In the **Supplying Relationships (cprpd7130m000)** session, define the *supplying relationship* from your site to your customer's site.

Note: If you use *direct delivery* or manual replenishment, you do not require supplying relationships.

For more information on the use of *multicompany distribution orders* to supply your customer, refer to Transferring multicompany distribution orders.

10 configure LN for BOD publishing

If you use *Business Object Documents (BOD)* to exchange data between supplier and customer, you must set up the BODs. For more information, refer to Configuring LN for BOD publishing.

Performing supply planning for your customer - Procedure

This topic describes the supplier's side of the procedure for planning an item for a customer, starting with the receipt of a *forecast*, and up to the replenishment of the inventory at the customer's site.

For an overview of the plan during all steps of the procedure, use the Item Customer Plan (cpvmi0520m000) session.

This is a description of the most comprehensive variant of the procedure. Depending on the parameter settings, you can skip certain steps.

1 Forecast by Revision from Customer (cpvmi0506m100)

If in the **Terms and Conditions Line (tctrm1620m000)** session, on the **PLanning** tab, the Forecast received from Customer check box is selected in the relevant *terms and conditions agreement*, your customer sends you messages that contain the *forecast* by using the Planning Schedule BOD.

If your customer sends you another *revision* of the forecast, you can use the **Forecast by Revision from Customer (cpvmi0506m100)** session to inspect this revision.

To enter forecast data received by fax or mail, use the **Forecast from Customer (cpvmi0107m000)** session. (Usually, however, the forecast is received automatically in LN by electronic messaging).

2 Accept Forecast from Customer (cpvmi0206m000)

Until you accept a forecast revision, the planning process does not take the revision into account.

To accept the forecasts, use one of the following methods:

- To accept all received forecast automatically without checking, in the **Planning Parameters (cprpd0100m000)** session, select the **Automatic Accept Forecast** check box.
- To accept the forecast for a range of items, use the **Accept Forecast from Customer (cpvmi0206m000)** session. To exclude revisions that do not comply with the agreed *frozen zone-* or *frozen zone+*, clear the **Accept Forecast changes in Frozen Zone** check box.
- To accept a forecast for one particular item, start the **Forecast by Revision from Customer (cpvmi0506m100)** session, find the item and the revision, and click **Accept Forecast**. If the revision does not comply with the agreed *frozen zone-* or *frozen zone+*, LN asks you whether you accept the deviations.

If in the **Terms and Conditions Line (tctrm1620m000)** session, on the **PLanning** tab, the Confirm Supply check box is cleared in the relevant *terms and conditions agreement*, skip the following steps and proceed with step 7, **Generate Order Planning (cprrp1210m000)**.

3 Generate Planned Supply based on Forecast (cpvmi1211m000)

If in the **Terms and Conditions Line (tctrm1620m000)** session, the Confirm Supply check box is selected, generate *planned orders for plan items* for your customer by using the **Generate Planned Supply based on Forecast (cpvmi1211m000)** session.

Note: The planning cluster *segment* of the item code must be the *planning cluster* associated with the warehouse located at your customer's location. The VMI Relation field in the **Items - Planning (cprpd1100m000)** session must be **Create Supplier Forecast**.

4 Generate Confirmed Supply (cpvmi1210m000)

If in the **Terms and Conditions Line (tctrm1620m000)** session, on the **PLanning** tab, the Confirm Supply check box is selected in the relevant *terms and conditions agreement*, you must send the customer messages that contain the *confirmed supply*.

To generate the confirmed supply, use the **Generate Confirmed Supply (cpvmi1210m000)** session. LN bases the confirmed supply on the *planned orders* generated in the previous step.

5 Confirmed Supply to Customer (cpvmi0108m000)

To check and adjust the confirmed supply manually, use the **Confirmed Supply to Customer (cpvmi0108m000)** session.

The Confirm Supply Horizon field in the **Planning Terms and Conditions (tctrm1135m000)** session determines for how many days you must guarantee the deliveries specified in the confirmed-supply message.

6 Approve Confirmed Supply to Customer (cpvmi0208m000)

Before the LN sends the confirmed-supply message to the customer, you must approve it.

To approve the confirmed supply, use one of the following methods:

- To approve the confirmed supply for a range of items, use the Approve Confirmed Supply to Customer (cpvmi0208m000) session. Specify which checks the session must apply before approving the confirmed supply.
- To approve the confirmed supply for one particular item, start the **Confirmed Supply to Customer (cpvmi0108m000)** session, find the item and the revision, and click **Approve**.

7 Send Confirmed Supply to Customer (cpvmi0208m100)

To send the confirmed supply, use the **Send Confirmed Supply to Customer (cpvmi0208m100)** session.

To send the confirmed supply to the customer, use one of the following methods:

- Using *Business Object Documents (BOD)*
Under **Send Method**, select **Publish** or **Print and Publish**.
- Not controlled by LN
Under **Send Method**, select **Print**. LN does not send the information. You must take care of that by other means, for example fax.

8 Generate Order Planning (cprrp1210m000)

After you generated and approved the confirmed supply, you must plan the item supply. To plan the item supply, use the **Generate Order Planning (cprrp1210m000)** session. The planning process takes the relevant *terms and conditions agreement* into account. The Planning Based On field in the **Planning Terms and Conditions (tctrm1135m000)** session determines the method to plan the item.

9 Item Customer Plan (cpvmi0520m000)

To view the result of the planning, use the Item Customer Plan (cpvmi0520m000) session. The item customer plan displays demand and supply for a specific customer, whereas the item order plan displays demand and supply from all suppliers or customers.

10 Transfer Order Planning (cppat1210m000)

To turn planned orders into actual *production orders*, *purchase orders*, and *warehouse transfers*, use the **Transfer Order Planning (cppat1210m000)** session. Depending on the value of the Replenishment Based On field in the **Planning Terms and Conditions (tctrm1135m000)** session, some planned orders are marked as **Not to be released** and are blocked from transfer to the execution level.

LN turns *planned distribution orders* for shipments to the customer warehouse into either *warehouse transfers* or *sales transfers*. The Transfer Type field in the **Order Terms and Conditions (tctrm1130m000)** session in the applicable *terms and conditions agreement* determines the type of transfer used.

Reviewing historic data

To display an overview of all stored revisions of forecast and confirmed supply, use the **Forecast Revisions from Customer (cpvmi0506m000)** session and double-click a revision to display the details.

Customer side

To let your supplier perform the supply planning - Setup

This topic describes how to set the system up if your supplier performs the supply planning for you in a *vendor managed inventory (VMI)* situation.

1 Implemented software components

In the **Implemented Software Components (tccom0500m000)** details session, set the following field:

- **VMI (customer side)**

To make the customer side of the *vendor managed inventory (VMI)* functionality available, select the **VMI (customer side)** check box.

2 Warehouse

In the **Warehouses (whwmd2500m000)** session, define the warehouse where you receive the item.

Set the following field to the appropriate value:

- **Include in Enterprise Planning**

To have the planning process take the inventory in this warehouse into account, select the **Include in Enterprise Planning** check box.

Note: If your supplier also manages the inbound and outbound operations in this warehouse, you must clear the Inventory Management check box.

3 Business partner

In the **Business Partners (tccom4500m000)** session, define the supplier.

To specify the relevant data for *buy-from business partners*, click **Buy-from Business Partner** to start the **Buy-from Business Partner (tccom4120s000)** session.

4 Terms and conditions agreement

In the **Terms and Conditions (tctrm1100m000)** session, define a the *terms and conditions agreement* of type **Purchase**. For further instructions, refer to Setting up terms and conditions.

To make the planning-related parameters in the *terms and conditions group* available, in the **Terms and Conditions Search Level (tctrm1610m000)** session, select the Planning check box.

After you set up a basic *terms and conditions line*, start the **Terms and Conditions Line (tctrm1620m000)** session, click the **Planning** tab, and enter a record. Set the fields to the appropriate values

- **Forecast**

For instructions on the fields under **Forecast**, refer to Forecast (VMI).

- **Inventory Levels**

For instructions on the fields under **Inventory Levels**, refer to To work with minimum and maximum inventory.

- **Confirmed Forecast**

For instructions on the fields under **Confirmed Forecast**, refer to Confirmed forecast and unconfirmed forecast and How to set up confirmed forecast (customer side).

- **Confirmed Supply**

For instructions on the fields under **Confirmed Supply**, refer to Confirmed supply (VMI).

- **Planning**

For instructions on the fields under **Planning**, refer to Replenishment methods (VMI) and Planning methods (VMI).

5 Purchase contract

In the **Purchase Contracts (tdpur3100m000)** session, define a *purchase contract* between you and your supplier.

Set the following fields to the appropriate values:

- **Terms and Conditions ID**

Enter the *terms and conditions agreement* defined in the previous step in the **Terms and Conditions ID** field.

6 EP Parameters

In the **Planning Parameters (cprpd0100m000)** details session, set the following fields:

- **Number of Revisions**

To specify the number of *revisions* of the *forecast* and *confirmed supply* that LN stores, use the **Number of Revisions** field.

- **Automatic Accept Confirmed Supply**

To specify whether you accept all confirmed-supply messages without checking, use the **Automatic Accept Confirmed Supply** check box.

7 Plan items

In the **Items - Planning (cprpd1100m000)** session, define the *plan item*.

Set the following fields to the appropriate values:

- **Ordering Warehouse**

Enter the warehouse you defined in step 2 in the **Ordering Warehouse** field.

- **VMI Relation**

If you run the planning process, LN automatically sets the VMI Relation field to **Receive Customer Forecast**.

Supply planning by supplier, sending the forecast

For the customer, the following procedures are relevant:

- Procedure 1: Sending the forecast
- Procedure 2: Receiving the confirmed supply

After you send the forecast and before you receive the confirmed supply, the supplier performs the planning. For a description of the supplier actions, refer to *Performing supply planning for your customer - Procedure*.

To review previous *revisions* of the *forecast* and the corresponding *confirmed supply*, use the **Forecast by Revision to Supplier (cpvmi0503m100)** session.

For an overview of the plan during all steps of the procedure, use the Item Supplier Plan (cpvmi0530m000) session.

1 Generate Order Planning (cprrp1210m000)

Run the **Generate Order Planning (cprrp1210m000)** session. The planning process determines the value of the VMI Relation field in the **Items - Planning (cprpd1100m000)** session, based on the available *VMI suppliers*, valid *purchase contracts*, and *terms and conditions agreements*. If a plan item's VMI role is **Receive Customer Forecast**, the planning process does not generate *planned orders* for that item, because the supplier takes care of the supply planning.

If in the **Terms and Conditions Line (tctrm1620m000)** session, on the **Planning** tab, the Send Forecast to Supplier check box is selected in the relevant *terms and conditions agreement*, the planning process generates a *forecast* for the item.

2 Forecast to Supplier (cpvmi0102m000)

To check and adjust the forecast manually, use the **Forecast to Supplier (cpvmi0102m000)** session.

Make sure the forecast complies with the *frozen zone-* and *frozen zone+* specified in the relevant terms and conditions agreement.

3 Approve Forecast to Supplier (cpvmi0202m000)

You must approve the forecast, before you can send the forecast message to the supplier.

To approve the forecast, use one of the following methods:

- To approve the forecast for a range of items, use the **Approve Forecast to Supplier (cpvmi0202m000)** session. Specify which checks the session must apply before approving the forecast.
- To approve the forecast for one particular item, start the **Forecast to Supplier (cpvmi0102m000)** session, and click **Set Approved for Sending**.

4 Send Forecast to Supplier (cpvmi0202m100)

To send the forecast, use the **Send Forecast to Supplier (cpvmi0202m100)** session.

To send the forecast, use one of the following methods:

- Using *Business Object Documents (BOD)*
Under **Send Method**, select **Publish or Print and Publish**.
- Not controlled by LN
Under **Send Method**, select **Print**. LN does not send the information. You must take care of that by other means, for example fax.

You can send the forecast for a single item also by using the **Send** command in the **Forecast to Supplier (cpvmi0102m000)** session.

Reviewing historic data

To display an overview of all stored revisions of forecast and confirmed supply, use the **Forecast Revisions to Supplier (cpvmi0503m000)** session and double-click a revision to display the details.

Chapter 3: Forecast

Forecast (VMI)

A forecast in a *vendor managed inventory (VMI)* setup is the demand for parts, calculated by the customer that purchases that item, and aggregated to forecast periods according to the agreed terms and conditions. The customer sends the forecast to the supplier that plans the item supply.

Life-cycle of forecast data

During an *order-based planning* run, Enterprise Planning generates *planned production orders*, *planned purchase orders*, and *planned distribution orders* to fill the demand. However, if a plan item is purchased from a *VMI supplier*, Enterprise Planning does not generate *planned orders* for that item. Enterprise Planning generates a *forecast* instead of planned orders.

The customer sends the forecast to the supplier.

The supplier uses the forecast to plan the supply and optionally to calculate the *confirmed supply*.

Terms and conditions

To use *vendor managed inventory (VMI)*, the supplier and the customer must define a *terms and conditions agreement*, which is stored in the Terms and Conditions module in the Common package. A terms and conditions agreement is linked to a contract. The supplier stores this contract as a *sales contract* and the customer stores the contract as a *purchase contract*.

For more information, refer to Overview of terms and conditions.

Aggregation period

Generally, the customer aggregates the forecast to *forecast periods*, such as, one day, one week, or five weeks. The terms and conditions agreement defines the forecast periods' length. The customer can also send detailed demand data without aggregating over periods.

Example

If the forecast period is a week, the forecast message for item X can specify the following data:

Period	Forecast
Week 20	350 piece

Period	Forecast
Week 21	410 piece
Week 22	360 piece

Approval

After LN calculated the forecast, the customer can optionally change the forecast manually. Before LN sends the forecast to the supplier, the customer must approve the data.

If a forecast revision has been approved, you cannot change that forecast revision, unless you undo the approval. After a forecast revision was sent to the supplier, you can no longer undo the approval.

Revisions

The customer can send as many forecast messages as desired. Every revised forecast message gets a *revision number* that is incremented by one. You can specify whether and how many previous revisions must be stored for future reference.

If the supplier sends a *confirmed-supply* message to the customer, the relationship with the forecast revision on which the confirmed supply was based is retained.

Forecast frozen zone

Supplier and customer can agree that the forecast for the immediate future cannot be increased or decreased. This restriction ensures that the supplier has sufficient time to adapt the supply plan if required.

For more information, refer to Forecast frozen zones.

Total forecast and confirmed part of the forecast

Optionally, you can split the *forecast* in *confirmed forecast* and *unconfirmed forecast*. The supplier can use this information in several ways. For example, the supplier can base its internal production plans on the total forecast, and replenish the customer based on the confirmed forecast.

When more sales information becomes available and the customer sends new forecast revisions, the unconfirmed forecast can be gradually replaced by confirmed forecast.

For more information, refer to Confirmed forecast and unconfirmed forecast.

Supplier actions

Before the supplier uses the received forecast in the planning process, the supplier must accept the forecast. Optionally, you set the system up to automatically accept all forecasts.

The supplier uses the forecast for the following purposes:

- To calculate the *confirmed supply*, which is subsequently sent to the customer.
- To generate the *planned distribution orders* to replenish the customer's warehouse.

For more information, refer to Planning methods (VMI).

Confirmed forecast

Confirmed forecast and unconfirmed forecast

This topic discusses the concept of confirmed and unconfirmed forecast, and presents an overview of the functionality.

For instructions on setting up the various options, refer to the following topics:

- How to set up confirmed forecast (customer side)
- How to set up confirmed forecast (supplier side)

For a description of the algorithm to determine which part of the total forecast is confirmed forecast, refer to How to determine the confirmed forecast

Reliability of the forecast to supplier

If you use *vendor managed inventory (VMI)* and the supplier plans the supply on behalf of the customer, the supplier can plan based on *forecast* received from the customer.

The customer can differentiate between confirmed and unconfirmed forecast:

- confirmed forecast
The part of the total forecast for which the customer confirms that this part will be consumed.
Typically, confirmed forecast is derived from actual sales orders, sales schedules, and so on.
- unconfirmed forecast
The part of the total forecast for which the customer is unsure whether this quantity will be needed.

The sum of the confirmed forecast and the unconfirmed forecast is called total forecast. Usually, the total forecast includes the demand based on actual sales orders for the customer's end products and forecast demand based on estimated future sales.

To use unconfirmed forecast

If you differentiate between confirmed forecast and unconfirmed forecast, you can choose whether the supply planning is based on the confirmed forecast or on the total forecast.

With confirmed supply

If the *VMI supplier* sends the customer messages with the *confirmed supply* that the customer can expect to receive, the supplier can calculate the confirmed supply based on **Total Forecast** or **Confirmed Forecast**.

In both cases, the supplier bases the supply planning on the confirmed supply.

Without confirmed supply

If the supplier does not send the customer messages with the *confirmed supply* that the customer can expect to receive, the supplier can base the supply planning on **Total Forecast** or **Confirmed Forecast**.

If the planning is based on **Total Forecast**, the supplier can base the replenishment on **Total Forecast**, **Confirmed Forecast**. If the planning is based on **Confirmed Forecast**, the replenishment can be based on **Confirmed Forecast**. In both cases, you can handle the replenishment also completely manually.

Item supplier plan and item customer plan

In the *item supplier plan* and the *item customer plan*, LN displays the **Total Demand** field and the **Confirmed Demand** field in adjacent columns. LN also displays the **Planned Avail. (Total)** and the **Planned Available (Confirmed)** fields, which show whether the supplier can prevent inventory shortages. A negative planned available quantity indicates a projected inventory shortage.

If the *VMI supplier* cannot fill the total forecast, the item plans shows whether the supplier can at least cover the confirmed forecast.

How to determine the confirmed forecast

This topic describes how to set up the algorithm to determine which part of the total *forecast* is *confirmed forecast* and which part is *unconfirmed forecast*.

The general concept is explained in the *Confirmed forecast and unconfirmed forecast* topic.

Two available methods

If you are the customer that sends forecasts to a *VMI supplier*, you can choose between two approaches to distinguish confirmed forecast from unconfirmed forecast:

- **Based on Order Type**
You can define a collection of sources of demand, such as, **Sales Order**, **Maintenance Sales Order**, and so on, you consider to be confirmed demand. All other sources of demand are automatically considered unconfirmed demand. The part of the component forecast pegged to confirmed end-item demand is confirmed forecast.
- **Based on First Periods**
You can define the first few *forecast periods* as confirmed forecast. For example, you can define that all demand forecast for the first 4 weeks is considered confirmed forecast, and all demand forecast for the longer-term future is considered unconfirmed forecast.

These approaches are further explained in the following sections.

Confirmed forecast based on order type

If the distinction between confirmed and unconfirmed forecast is based on order type, the customer must determine which part of the *forecast* is considered confirmed forecast. The customer can specify which types of orders are confirmed forecast in the **Propagate as Confirmed Demand (cpvmi0101m000)** session. The

independent demand and *dependent demand* originating from these order types are considered confirmed forecast. For an example calculation, refer to the Help of the Base Confirmed Forecast on field.

Then, the customer can pass this information on to the supplier as additional information in the messages that communicate the forecast from customer to supplier.

Note:

- The customer can ignore the order types and proceed as if all of the forecast is confirmed forecast, or proceed as if none of the forecast is confirmed forecast.
- The customer can manually modify the values of the confirmed forecast and the unconfirmed forecast before the customer sends the forecast to the supplier.

Confirmed forecast based on first periods

If you base the definition of confirmed forecast on the distinction between the demand for the near future and demand for the far future, use one of the following methods:

- In the forecast message the customer sends to the supplier, the customer indicates which forecast is confirmed forecast and which forecast is unconfirmed forecast.
- The number of periods in which the forecast quantities are considered to be confirmed forecast is defined in the *terms and conditions agreement*. The customer does not send any additional information to the supplier.

Note: The *terms and conditions agreement* can also specify that all forecast is considered confirmed forecast.

How to set up confirmed forecast (customer side)

This topic contains instructions to set up functionality for *confirmed forecast* and *unconfirmed forecast* for the customer in a *vendor managed inventory (VMI)* situation.

For an overview of the various options, refer to Confirmed forecast and unconfirmed forecast.

Basic setup

To enable the use of confirmed and unconfirmed forecast, first set up the relevant *terms and conditions agreement*; for instructions on how to do this, refer to Setting up terms and conditions.

All the fields and check boxes mentioned in this topic are located in the **Planning Terms and Conditions (tctrm1135m000)** session, unless otherwise specified.

To specify that your supplier plans the supply, select the **Supply Planning by Supplier** check box.

To make a distinction between confirmed forecast and unconfirmed forecast, select the **Use Confirmed Forecast** check box.

You can use two methods to set up confirmed forecast:

- Based on **Order Type**.
- Based on **First Periods**.

To set up confirmed forecast based on order type

To set up confirmed forecast based on order type, use the following settings:

Field	Value
Use Confirmed Forecast	Yes (check box selected)
Specify Confirmed Forecast by	Message
Base Confirmed Forecast on	Confirmed End Item Demand

In the **Propagate as Confirmed Demand (cpvmi0101m000)** session, specify which types of orders are considered to result in confirmed forecast.

Note: To ignore the order types and proceed as if all of the forecast is confirmed forecast, set the **Base Confirmed Forecast on** field to **All Forecast**. To proceed as if none of the forecast is confirmed forecast, set the **Base Confirmed Forecast on** field to **None**.

To set up confirmed forecast based on first periods

You can communicate for each period whether the forecast in that period is confirmed forecast within the message. In this situation, the supplier does not need to know the terms and conditions agreement. To achieve this, use the following settings:

Field	Value
Use Confirmed Forecast	Yes (check box selected)
Specify Confirmed Forecast by	Message
Base Confirmed Forecast on	First Periods
Number of Periods	The number of periods in a demand forecast message that must be marked as confirmed forecast.

To define the number of periods in which the forecast quantities are considered to be confirmed demand in the *terms and conditions agreement*, which has been negotiated with the supplier, use the following settings:

Field	Value
Use Confirmed Forecast	Yes (check box selected)
Specify Confirmed Forecast by	Terms and Conditions
Interpret Confirmed Forecast	First Periods
Number of Periods	The number of periods in a demand forecast message interpreted as confirmed forecast.

Note: To specify that all forecast is considered confirmed forecast, set the **Interpret Confirmed Forecast** field to **All Forecast**.

How to set up confirmed forecast (supplier side)

This topic contains instructions to set up functionality for *confirmed forecast* and *unconfirmed forecast* for the supplier in a *vendor managed inventory (VMI)* situation.

For an overview of the various options, refer to *Confirmed forecast and unconfirmed forecast*.

Basic setup

To enable the use of confirmed and unconfirmed forecast, first set up the relevant *terms and conditions agreement*. For instructions on how to do this, refer to *Setting up terms and conditions*.

All the fields and check boxes mentioned in this topic are located in the **Planning Terms and Conditions (tctrm1135m000)** session, unless otherwise specified.

To specify that you plan the supply for your customer, select the **Responsible for Supply Planning** check box.

If the customer makes a distinction between confirmed forecast and unconfirmed forecast, select the **Use Confirmed Forecast** check box.

Your customer can use two methods to communicate the confirmed forecast:

- In the forecast messages, by using an indicator for confirmed forecast or specifying a quantity of confirmed forecast.
- In the terms and conditions agreement, by specifying a fixed number of periods in which the forecast is interpreted as confirmed forecast.

Confirmed forecast sent in forecast message

If your customer sends the confirmed forecast in the forecast message, use the following settings:

Field	Value
Use Confirmed Forecast	Yes (check box selected)
Specify Confirmed Forecast by	Message

Confirmed forecast based on terms and conditions

To define the number of periods in which the forecast quantities are considered to be confirmed demand in the *terms and conditions agreement*, use the following settings:

Field	Value
Use Confirmed Forecast	Yes (check box selected)
Specify Confirmed Forecast by	Terms and Conditions
Interpret Confirmed Forecast	First Periods
Number of Periods	The number of periods in a demand forecast message interpreted as confirmed forecast.

Note: To specify that all forecast is considered confirmed forecast, set the **Interpret Confirmed Forecast** field to **All Forecast**.

The use of the confirmed forecast

The confirmed forecast messages can serve two purposes:

- Purely informational
- As basis for the planning performed by the supplier.

You can use the confirmed forecast to calculate the *confirmed supply* that you communicate with your customer. If you do not calculate a confirmed supply, you can use the confirmed forecast to plan the supply and to optionally determine the *replenishment plan* as well.

To base the confirmed supply on confirmed forecast

To base the confirmed supply on confirmed forecast, use the following settings:

- Select the **Confirm Supply** check box.
- Set the **Confirmed Supply Based On** field to **Confirmed Forecast**.

To plan or replenish based on confirmed forecast

The following fields determine how you plan and replenish the supply:

- The **Planning Based On** field.
- The **Replenishment Based On** field.

The allowed values of these fields depend on the settings of many other fields. For more information on these fields, refer to the Help of the Planning Based On field and the Replenishment Based On field.

To plan the supply based on confirmed forecast, set the **Planning Based On** field to **Confirmed Forecast**.

To replenish the item based on confirmed forecast, set the **Planning Based On** field and **Replenishment Based On** field to **Confirmed Forecast**.

Frozen zones

Forecast frozen zones

This topic describes how to prevent undesirable changes in the forecast for the short-term future.

Prevention of short-term changes in the forecast

In a *vendor managed inventory (VMI)* situation, if a supplier plans the supply for the customer, the supplier relies on the forecast received from the customer. If the customer changes the forecast for the near future, the supplier can become unable to adjust the plan in time.

The following types of problem can occur:

- If the customer sends a new *revision* of the forecast, in which the forecast is suddenly increased, it is possible that the supplier cannot adapt the production level in time, because the supplier's lead times are too long.
- If the customer suddenly decreases the forecast, it is possible that the supplier is left with a high inventory of unused components and subassemblies.

To prevent these problems, customer and supplier can agree on a time period in which the customer is not permitted to increase or decrease the forecast; you define this time period in a *terms and conditions agreement*.

Note: LN does not strictly enforce these limits. You can manually override the restrictions.

To set up frozen zones

The frozen zone is defined in the **Frozen Zone -** field and the **Frozen Zone +** field in the **Planning Terms and Conditions (tctrm1135m000)** session. The supplier and customer must both define these fields.

The **Frozen Zone -** field restricts the customer's freedom to decrease a forecast.

The **Frozen Zone +** field restricts the customer's freedom to increase a forecast.

Both parameters are defined as a number of calendar days from the current date.

Example

The supplier wants to be informed about decreasing demand at least 14 days in advance. The supplier wants to be informed about increasing demand at least 21 calendar days in advance.

To achieve this restriction, the supplier and the customer must set the **Frozen Zone -** field to 14, and the **Frozen Zone +** field to 21.

For detailed calculation examples, refer to Forecast frozen zone calculation.

To use the frozen zone restrictions

Customer side

When you approve the forecast, LN checks the frozen zone by comparing the forecast to the previously sent *revision*. If the forecast has been increased in the *frozen zone+*, or decreased in the *frozen zone-*, the system asks whether you want to approve the revision.

To determine what LN must do if a forecast was changed in the frozen zone, use the **Approve Forecast changes in Frozen Zone** check box in the **Approve Forecast to Supplier (cpvmi0202m000)** session.

If you approve a forecast that violates the frozen-zone restrictions, the supplier might refuse to approve your forecast.

Supplier side

When you accept the forecast received from your customer, LN checks the frozen zone by comparing the received forecast to the previously received *revision*. If the forecast has been increased in the *frozen zone+*, or decreased in the *frozen zone-*, the system asks whether you want to approve the revision.

Note: To determine the last day of the frozen zone, LN uses the date on which you received the forecast as a reference.

To determine what LN must do if a forecast was changed in the frozen zone, use the **Accept Forecast changes in Frozen Zone** check box in the **Accept Forecast from Customer (cpvmi0206m000)** session.

Forecast frozen zone calculation

This topic describes how LN checks whether changes to the *forecast* occur inside the *frozen zone-* or the *frozen zone+*, compared to the previously sent *revision*.

For a general overview of the frozen-zones functionality, refer to Forecast frozen zones.

Calculation details

The details of the calculation of the frozen zones are as follows:

- LN retrieves the frozen zones from the **Frozen Zone +** field and the **Frozen Zone -** field in the **Planning Terms and Conditions (tctrm1135m000)** session.
To select the relevant version of the *terms and conditions agreement*, LN takes the start date of the first period after the current date as the effective date.
- On the customer side, to obtain the end of the frozen zone plus, LN adds the number of days from the **Frozen Zone +** field to the current date. In the same way, LN calculates the frozen zone minus by using the value of the **Frozen Zone -** field. On the supplier side, LN performs a similar calculation, but LN uses the receipt date of the forecast instead of the current date.
LN does not calculate this date against any specific calendar; all calendar days are counted.
- LN checks the forecast against the forecast in the previously sent revision. If no earlier revision is present, LN presumes the previous forecast zero (0).
- LN adds the forecast before the current date to the first period after the current date.
Similarly, for the previously sent revision, LN adds the forecast before the date that revision was sent to the first period after the date sent.
- If the current forecast and preceding revision of the forecast have the same number of periods, and the start dates of these periods are the same, LN performs the frozen-zone check separately for each period. Otherwise, LN uses the sum of the forecasts of all periods within the horizon and only checks the totals.
- If the forecast increases in the *frozen zone+*, compared to the previous revision, or if these values decrease in the *frozen zone-*, the system concludes that the frozen-zone restrictions have been violated.

These checks are always initiated from the sessions where you approve or accept a forecast. LN can respond in various ways to a failed frozen-zone check. For more information, refer to [To use the frozen zone restrictions](#) on page 29.

Example

In the following example, the *frozen zone+* and the *frozen zone-* are 20 days.

Period	Period Start Date	Forecast Revision 1	Current Forecast
1	April 2	15	15
2	April 9	20	20
3	April 16	20	25
4	April 23	20	15
5	April 30	20	20
6	May 7	25	25
7	May 14	25	50
8	May 21	25	20

Forecast revision 1 sent	April 10	Period 2
Current date	April 13	Period 2
Horizon	May 3	Period 5

The current date falls in period 2 and the horizon falls in period 5; therefore, LN checks periods 3, 4, and 5.

LN adds the forecast of periods 1 and 2 to period 3, because the date sent of revision 1 and the current date are in period 2.

For forecast revision 1, the forecast for period 3 becomes 55 (15+20+20). For the current forecast, the forecast for period 3 becomes 60. That increase is not permitted in the frozen zone plus.

Suppose the customer adjusts the current forecast of period 3 from 60 to 55, and tries again. Now, period 3 passes the test, but period 4 shows a decrease from 20 to 15, and the frozen-zone-minus check fails.

Period 5 is accepted.

Period 6 is not checked, because that period is beyond the frozen-zone horizon.

Example

In following example, the *frozen zone+* and the *frozen zone-* are 20 days.

Period	Period Start Date	Forecast Revision 1	Current Forecast
1	April 2	15	
2	April 9	20	

Period	Period Start Date	Forecast Revision 1	Current Forecast
3	April 16	20	5
4	April 23	20	15
5	April 30	20	20
6	May 7	25	25
7	May 14	25	60
8	May 21	25	30

Forecast revision 1 sent	April 10	Period 2
Current date	April 19	Period 3
Horizon	May 9	Period 6

The current date falls in period 3; therefore, LN checks periods 4, 5, and 6.

For forecast revision 1, LN adds the forecast of periods 1 and 2 to period 3, because the date sent of revision 1 is in period 2. However, period 3 does not need to be checked.

For the current forecast, LN adds the forecast of period 3 to period 4, because the current date is in period 3.

For the current forecast, the forecast for period 4 becomes 20 (5+15). This value equals the forecast of period 4 in forecast revision 1. Therefore, period 3 does not need to be checked.

Period 5 and 6 are also accepted.

Chapter 4: Confirmed supply

Confirmed supply (VMI)

A *VMI supplier* can send confirmed-supply messages to the customer. The confirmed supply is the quantity of the item the supplier has confirmed will be delivered to the customer on the planned delivery date. The confirmed supply can be less than the quantity requested by the customer.

Use of confirmed-supply data

LN uses the confirmed-supply data in two ways:

- If the **Confirm Supply** check box in the **Planning Terms and Conditions (tctrm1135m000)** session is selected, you communicate the confirmed supply to the customer.
- If the **Planning Based On** field is **Confirmed Supply**, LN uses the confirmed supply to generate *planned orders* to supply the customer.

Life cycle of confirmed-supply data

In the most extended form, the life-cycle of confirmed supply consists of the following stages:

- 1 The supplier generates planned supply orders for an item based on the received *forecast*.
- 2 The *VMI supplier* converts the planned supply orders and actual supply orders to confirmed supply.
- 3 Optionally, the supplier adjusts the confirmed supply, for example if a limited production capacity or shortage of components makes it impossible to execute all planned orders.
Alternatively, the supplier enters the confirmed supply manually.
- 4 The supplier approves the confirmed supply and sends the confirmed supply to the customer.

Alternatively, the confirmed supply can be used as follows:

- 1 The supplier receives the *forecast* from the customer.
- 2 The supplier manually enters the confirmed supply.
- 3 The supplier approves the confirmed supply and sends the confirmed supply to the customer.

When the confirmed supply is marked as approved, you cannot change the confirmed supply for that *revision number*. You can undo the approval, until the confirmed supply is sent to the customer.

The procedure is controlled in detail by the *terms and conditions agreement* defined by the supplier and the customer. For more information, refer to Overview of terms and conditions.

Aggregation period

The dates of the supply are independent from the *forecast periods*.

The dates of the supply can be based on the delivery moments specified in the terms and conditions agreement. You can specify these delivery moments in the **Delivery Moments** field in the **Planning Terms and Conditions (tctrm1135m000)** session.

Confirm Supply Horizon

The supplier must send confirmed-supply information for the number of days specified in the Confirm Supply Horizon field in the **Planning Terms and Conditions (tctrm1135m000)** session.

Customer actions

The customer can view the confirmed supply in the *item supplier plan*. This data can also be used to calculate the *available-to-promise* (ATP) quantity and to perform *component CTP checks*.

Confirmed supply type

This topic contains the following information:

- How must the confirmed supply type of a *confirmed-supply* record be interpreted?
- How does LN determine the confirmed supply type?

If you are the supplier in a *vendor-managed-inventory* (VMI) setup, LN can use the *confirmed supply* to plan the supply for a customer.

You can view and modify the a confirmed-supply record's type in the **Confirmed Supply Type** field in the **Confirmed Supply to Customer (cpvmi0108m000)** session.

Allowed values

A confirmed-supply record's type determines how that confirmed supply is handled:

- **Stock**
Supply of type **Stock** is already present at the customer; so, you do not need to generate *planned distribution orders* to deliver the supply.
- **Immediate**
Supply of type **Immediate** is used to increase the inventory level to at least the agreed minimum inventory level.
Planned distribution orders that result from this confirmed supply can be immediately transferred to the *execution level*.
- **To Release**
If planned distribution orders are based on confirmed supply of type **To Release**, these orders get the **Order Release** field set to **To be released**. These planned orders can be immediately transferred to the execution level.

- **Planned**

If planned distribution orders are based on confirmed supply of type **Planned**, these orders get the **Order Release** field set to **Not to be released**. These planned orders cannot be transferred to the execution level until the **Order Release** field is changed to **To be released** in a later planning run or manually.

- **Released**

If a confirmed-supply record has confirmed supply type **Released**, the confirmed supply has already been covered by an actual order. This actual order corresponds with a scheduled receipt for the customer's warehouse.

Note: If you transfer a *planned distribution order* to the execution level, the planned order results in a *warehousing order* with *inventory transaction type Transfer*. Theoretically, a planned distribution order can also be transferred to a *sales order*, but that is not useful in a vendor-managed-inventory (VMI) setup.

How the confirmed supply type is determined

The confirmed supply type depends on the **Replenishment Based On** field in the **Planning Terms and Conditions (tctrm1135m000)** and the Order Release field in the **Planned Orders (cprrp1100m000)** session.

Chapter 5: Planning methods

Planning methods (VMI)

This topic describes the options for a *VMI supplier* to plan the supply for a customer.

This topic is especially useful for the supplier in a *vendor managed inventory (VMI)* situation; some of the information also applies to the customer.

Available methods

To specify the planning method, use the Planning Based On field on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

The following table describes the available settings.

Planning Based On	Description	Further information
Total Forecast	The Order Planning module plans the supply based on the total <i>forecast</i> , received in messages from the customer.	VMI planning based on forecast
Confirmed Forecast	Similar to Total Forecast , but the Order Planning modul only takes the <i>confirmed part of the forecast</i> into account.	VMI planning based on forecast
Confirmed Supply	You determine a <i>confirmed supply</i> that you communicate to your customer. You can base the confirmed supply on the total forecast or the confirmed forecast, and optionally adjust the confirmed supply manually. LN plans the supply based on the confirmed-supply data.	VMI planning based on confirmed supply
Inventory Level	LN plans the supply based on the agreed <i>minimum inventory levels</i> .	VMI planning based on inventory levels
Manual	No planning takes place.	

Note: The value of the Replenishment Based On field determines which values of the **Planning Based On** field are available. For details on the possible combinations of the **Planning Based On** field and **Replenishment Based On** field, refer to Replenishment methods (VMI).

VMI planning based on forecast

This topic describes how a *VMI supplier* can plan the supply for a customer based on the *forecast* received from the customer.

For an introduction to the various planning methods, refer to Planning methods (VMI).

General planning procedure

If the VMI planning is based on forecast, the general planning procedure is as follows:

- Your customer sends you a *forecast*.
- LN uses the values of the forecast to generate *planned orders* to fill the customer warehouse. Most of these planned orders are *planned distribution orders*. In case of *direct delivery*, LN generates *planned purchase orders*.

The planned orders are based on either the total forecast or on the *confirmed part of the forecast*.

Note:

In this procedure, you do not determine a *confirmed supply*.

For more information, refer to Confirmed forecast and unconfirmed forecast.

Parameter setting

To specify this planning method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Forecast received from Customer	= Yes
Confirm Supply	= No
Replenishment Based On	= Total Forecast, Confirmed Forecast, Inventory Level, Or Manual
Planning Based On	= Total Forecast Or Confirmed Forecast

Note: The replenishment quantity can never exceed the planned quantity; therefore, if the **Replenishment Based On** field is **Total Forecast**, you cannot set the **Planning Based On** field to **Confirmed Forecast**.

For more information, refer to Replenishment methods (VMI)

VMI planning based on confirmed supply

This topic describes how a *VMI supplier* can plan the supply for a customer based on confirmed supply.

For an introduction to the various planning methods, refer to Planning methods (VMI).

General planning procedure

If the VMI planning is based on confirmed supply, the general planning procedure is as follows:

- 1 The customer sends the supplier a *forecast* for the items for which the supplier handles the supply planning.
- 2 Based on the forecast, the supplier generates the planned supply for these items in the form of *planned orders*.
These planned orders are based on either the total forecast or on the *confirmed part of the forecast*.
- 3 If necessary, the supplier can move or adjust the planned orders to create a feasible plan.
- 4 The supplier converts this planned supply and any existing supply orders to *confirmed supply*.
- 5 After optional modification, the supplier communicates the confirmed supply to the customer.
- 6 The supplier uses the values of the confirmed supply to generate *planned orders*.

Note:

You can skip the steps 1 through 4 and manually define the confirmed supply.

In step 3 and step 5, the planner can adjust the planned supply.

Parameter setting

To specify this planning method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Responsible for Supply Planning	= Yes
Forecast received from Customer	= Yes
Confirm Supply	= Yes
Confirmed Supply Based On	= Total Forecast OR Confirmed Forecast
Replenishment Based On	= Confirmed Supply, Inventory Level, OR Manual
Planning Based On	= Confirmed Supply

Note: If you select the **Confirm Supply** check box, the Planning Based On field is set to the value **Confirmed Supply** and cannot be modified.

VMI planning based on inventory levels

This topic describes how a *VMI supplier* can plan the supply for a customer based on the agreed *minimum inventory level*.

For an introduction to the various planning methods, refer to Planning methods (VMI).

General planning procedure

If the VMI planning is based on the agreed *minimum inventory level*, you do not send your customer *confirmed-supply messages*. The planning and the replenishment process are entirely based on the *inventory levels* at the customer's warehouse. If the inventory level drops below the effective minimum inventory level, the supplier supplies the customer. Optionally, you can also take a maximum inventory level into account.

Specification of the inventory level

You can use the following methods to determine the inventory level:

- A fixed level specified in the item data.
- A fixed level agreed between the supplier and customer.
- A time-phased level, agreed between the supplier and customer.
- A time-phased level, based on a forecast that the customer sends to the supplier.

For further details, refer to To specify the minimum and maximum inventory.

Parameter setting

To specify this planning method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Responsible for Supply Planning	= Yes
Forecast received from Customer	= Yes Or No
Use Min-Max Inventory Levels	= Minimum Levels, Maximum Levels, Or Minimum and Maximum Levels
Confirm Supply	= No
Replenishment Based On	= Inventory Level
Planning Based On	= Inventory Level

Note: If you set the **Replenishment Based On** field to **Inventory Level**, LN also sets the **Planning Based On** field to the fixed value of **Inventory Level**.

Chapter 6: Replenishment methods

Replenishment methods (VMI)

This topic describes how a *VMI supplier* can replenish inventory at a customer. The replenishment plan is usually agreed between the supplier and the customer.

Planning methods and replenishment methods

For the purpose of this description, the terms planning and replenishment are defined as follows:

- **Planning**
Planning is the process of generating *planned orders* based on the requirements of the customer, intended to replenish the warehouse at the customer. This process drives the generation of *planned production orders*, *planned purchase orders*, and *planned distribution orders* used to build up inventory in the supplying warehouse from which the supplier supplies the customer.
- **Replenishment**
Replenishment is the process of transferring *planned distribution orders* to the *execution level* to start the actual delivery of items to the warehouse at the customer's. In case of *direct delivery*, you do not use a planned distribution order but a *planned purchase order*.

If you select the same method for the planning and the replenishment, the replenishment closely follows the planning; all planned orders are transferred to the *execution level* and executed without further delay.

Important: If you use different methods for the planning and the replenishment, some *planned orders* are not immediately transferred and executed. You can use that setting to build stock at your location as determined by the planning method, but ship the items later, as determined by the replenishment method.

Available methods

To specify the replenishment method, use the Replenishment Based On field on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

The following table describes the available settings.

Replenishment Based On	Description	Further information
Total Forecast	LN bases the replenishment on the total <i>forecast</i> , received in messages from the customer.	
Confirmed Forecast	Similar to Total Forecast , but LN only takes the <i>confirmed part of the forecast</i> into account.	

Replenishment Based On	Description	Further information
Confirmed Supply	You determine a <i>confirmed supply</i> that you communicate to your customer. You can base the confirmed supply on the total forecast or the confirmed forecast, and optionally adjust the confirmed supply manually. LN bases replenishment on the confirmed-supply data.	VMI planning based on confirmed supply
Inventory Level	LN bases the replenishment on the agreed <i>minimum inventory levels</i> .	Replenishment based on minimum inventory
Manual	LN does not transfer any planned order. You make deliveries manually, independently from any planned order. When a subsequent planning run takes the actual deliveries into account, the existing planned orders are not generated again.	To specify the minimum and maximum inventory

Possible combinations of planning method and replenishment method

To specify this planning method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Note: You must enter the **Replenishment Based On** field before you enter the **Planning Based On** field.

The following table displays all permitted combinations of planning method and replenishment method:

		Replenishment Based On				
		Total Forecast	Confirmed Forecast	Confirmed Supply	Inventory Level	Manual
Planning Based On	Total Forecast	A	B	-	D	E
	Confirmed Forecast	-	A	-	D	E
	Confirmed Supply	-	-	A / C	D	E
	Inventory Level	-	-	-	A / D	-
	Manual	-	-	-	-	F

Legend:

A = The **Planning Based On** field has the same value as the **Replenishment Based On** field. The replenishment closely follows the planning. All planned orders are transferred to the *execution level* and executed without further delay.

B = Planning on total forecast, replenishment on confirmed forecast

C = VMI planning and replenishment based on confirmed supply. For more information, refer to VMI planning based on confirmed supply.

D = The execution of the planned orders is delayed until the last moment. For more information, refer to Replenishment based on minimum inventory.

E = Manual replenishment

F = No planning at all

- = Combination not permitted

Replenishment method different from planning method

If you use different methods for the planning and the replenishment, the *planned orders* are divided in two groups:

- Order Release = **To be released**
LN permits you to immediately transfer these planned orders to the *execution level*.
- Order Release = **Not to be released**
Planned orders not immediately required for replenishment. LN prevents you from transferring these planned orders to the execution level. If the situation changes, a later planning run can replace these planned orders by planned orders set to **To be released**.

In urgent cases, you can manually change the **Order Release** field from **Not to be released** to **To be released**.

To view the value of the **Order Release** field for a planned item, use the **Planned Orders (cprp1100m000)** session.

Planning on total forecast, replenishment on confirmed forecast

This topic describes how a *VMI supplier* can plan the supply for a customer based on the total forecast received from the customer, and replenish the customer based on *confirmed forecast*.

To build up sufficient inventory for an uninterrupted service and at the same time supply no more than necessary, the supplier can base its planning process on the total *forecast* and base the replenishment on *confirmed forecast*

If the supplier uses this strategy, the *planned orders* that fill the *unconfirmed* part of the forecast are not immediately transferred and executed.

For a detailed description of the difference between total forecast and confirmed forecast, refer to Confirmed forecast and unconfirmed forecast.

Parameter setting

To specify this planning method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Responsible for Supply Planning	=	Yes
Forecast received from Customer	=	Yes
Confirm Supply	=	No
Replenishment Based On	=	Confirmed Forecast
Planning Based On	=	Total Forecast

The *planned orders* that fill the *unconfirmed* part of the forecast are not immediately transferred and executed. For more information, refer to [Replenishment method different from planning method](#) on page 42.

Replenishment based on minimum inventory

To make sure the inventory level at the customer is sufficient at any time, a *VMI supplier* can replenish the customer based on the *minimum inventory level* at the customer's location. You can use this replenishment method in combination with various planning methods.

Parameter setting

To specify this replenishment method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Responsible for Supply Planning	= Yes
Forecast received from Customer	= Yes Or No
Use Min-Max Inventory Levels	= Minimum Levels Or Minimum and Maximum Levels
Replenishment Based On	= Inventory Level
Planning Based On	= Total Forecast, Confirmed Forecast, Confirmed Supply, Or Inventory Level

For further details, refer to To specify the minimum and maximum inventory.

If the **Planning Based On** field and the **Replenishment Based On** field both have the value **Inventory Level**, the replenishment closely follows the planning. All planned orders are transferred to the *execution level* and executed without further delay. For more information, refer to VMI planning based on inventory levels.

If the **Planning Based On** field and the **Replenishment Based On** field have different values, some of the planned orders are not transferred to the *execution level*. For more information, refer to [Replenishment method different from planning method](#) on page 42.

Manual replenishment

If you handle the replenishment manually, you enter the supply orders when the inventory at the customer location is physically replenished. LN does not need to generate these orders. This topic describes how to set up LN for this situation.

If the supplier's representative determines which items will be replenished when and in which quantity, you must select the manual replenishment method.

Parameter setting

To specify this replenishment method, define an appropriate *terms and conditions agreement* on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab.

Use the following settings:

Responsible for Supply Planning	=	Yes
Replenishment Based On	=	Manual
Planning Based On	=	(Any value is permitted)

If the **Replenishment Based On** field is **Manual**, LN can still generate *planned orders*, but these planned orders are not transferred to the *execution level*. These planned orders only serve to generate the *dependent demand* and create inventory of the item at the supplier's location. For more information, refer to [Replenishment method different from planning method](#) on page 42.

To turn off all planning functionality for an item during the effective period of a *terms and conditions line*, set the **Planning Based On** field and the **Replenishment Based On** field both to **Manual**.

Chapter 7: Maximum and minimum inventory

To work with minimum and maximum inventory

This topic describes how a supplier in a *vendor managed inventory (VMI)* setup can perform supply planning and replenishment based on the minimum and maximum inventory level that the customer should have in inventory.

Relevant parameters

The following fields on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab, determine how this method is applied.

- Use Min-Max Inventory Levels
- Min-Max Specification
- Time-phased Inventory Levels
- Inventory Unit
- Minimum Inventory Level
- Maximum Inventory Level

Minimum levels, maximum levels, or both

To use this method to plan the supply to the customer, set the **Use Min-Max Inventory Levels** field to **Minimum Levels, Maximum Levels, or Minimum and Maximum Levels**.

If you set the **Use Min-Max Inventory Levels** field to **Maximum Levels**, you must use another method to plan the supply.

If the *terms and conditions agreement* specify a maximum level, the customer limits the *forecast* for each *forecast period* to this maximum level. If the inventory at the customer exceeds the maximum inventory level, LN generates a *signal* for the customer and the *VMI supplier*.

Methods to specify inventory levels

You can define the required inventory levels in the following ways:

- Fixed inventory levels
- Time-phased inventory levels
- Inventory levels based on the number of days of supply

For more information, refer to *To specify the minimum and maximum inventory*.

Planning based on number of days supply

This topic describes how a supplier in a *vendor managed inventory (VMI)* setup can perform supply planning based on the number of days of supply that the customer should have in inventory.

Goal of the planning method

This planning method is a variant of the To work with minimum and maximum inventory planning method.

The goal of this planning method is to keep the customer's inventory at a sufficient level to safeguard the customer's continuing operation in case of temporary supply problems. The inventory level must be such, that, if all supply would suddenly stop, the customer would have sufficient inventory to continue operations for a particular number of days before the customer runs out of stock.

Meanwhile, this method reduces the risk that inventory becomes obsolete, because the delivered quantity will no more than needed.

Relevant parameters

The following fields on the **Terms and Conditions Line (tctrm1620m000)** session's **Planning** tab determine how this method is applied.

- Use Min-Max Inventory Levels
- Min-Max Specification
- Min-Max Number of Days
- Minimum Factor
- Maximum Factor

To use the planning method described in this topic, set the **Min-Max Specification** field to **Number of Days**.

Note: If you set the **Min-Max Specification** field to **Number of Days**, you cannot select the Confirm Supply check box or the Use Confirmed Supply check box anymore and the Replenishment Based On field is automatically set to the fixed value of **Inventory Level**.

Minimum levels, maximum levels, or both

To use this method to plan the supply to the customer, set the **Use Min-Max Inventory Levels** field to **Minimum Levels, Maximum Levels, or Minimum and Maximum Levels**.

Minimum factor and maximum factor

In this planning method, you can determine the lower and upper bounds between which the inventory can fluctuate.

Example

Suppose, you have set the following parameters:

- **Min-Max Number of Days** = 10 days
- **Use Min-Max Inventory Levels** = **Minimum and Maximum Levels**
- **Minimum Factor** = 0.9

- **Maximum Factor** = 1.5

Then, this planning method aims to keep the customer's inventory sufficient for at least 9 days ($0.9 * 10$) and at most 15 days ($1.5 * 10$)

Calculation

When the customer approves a forecast *revision*, the maximum and minimum levels are frozen for that revision.

For each *forecast period*, LN performs the following steps:

- 1 LN adds the value of the **Min-Max Number of Days** field to the start of the concerned forecast period. This addition produces the horizon date.
- 2 LN calculates the sum of the *forecast* for every forecast period between the start of the designated forecast period and the horizon date.
If the horizon date falls in the middle of a forecast period, LN uses a proportional part of the forecast of that forecast period.
Only the forecast periods' start dates are recorded. A forecast period's finish date is derived from the next forecast period's start date. Therefore, the length of the ultimate forecast period is unspecified. For the purpose of this calculation, LN assumes that the length of the ultimate forecast period equals the preceding forecast period.
- 3 The effective minimum inventory for the relevant forecast period is the calculated sum of the forecast values multiplied by the value of the **Minimum Factor**.
- 4 The effective maximum inventory for the relevant forecast period is the sum of the forecast values multiplied by the value of the **Maximum Factor**.

Note: The number of days is expressed in calendar days, not in working days. The calculation does not take a working calendar into account. Therefore, the procedure also calculates minimum and maximum inventory levels for not workable days.

Example

In this example, the following values apply.

Parameter	Value
Min-Max Number of Days	10 days
Use Min-Max Inventory Levels	Minimum and Maximum Levels
Minimum Factor	0.9
Maximum Factor	1.5

The following table shows the *forecast* in each forecast period.

Forecast period	Period start date	Forecast demand
22	April 2	150
23	April 9	49
24	April 16	84

Forecast period		Period start date	Forecast demand
25		April 23	35

The following table shows how the calculation of the minimum and maximum inventory proceeds.

Period	10-day period		Sum of forecast	Inventory levels	
	First day	Last day		Minimum Inventory	Maximum Inventory
22	April 2	April 11	$150 + (3/7) * 49 = 171$	153.9 (=171 * 0.9)	256.5 (=171 * 1.5)
23	April 9	April 18	$49 + (3/7) * 84 = 85$	76.5	127.5
24	April 16	April 25	$84 + (3/7) * 35 = 99$	89.1	148.5

To specify the minimum and maximum inventory

This topic describes how a supplier in a *vendor managed inventory (VMI)* setup can perform supply planning based on the minimum and maximum inventory level that the customer should have in inventory.

Safety stock and maximum inventory level of an item

If a valid *terms and conditions agreement* prescribes a minimum inventory, LN ignores the item's *safety stock* set up for the customer's warehouse.

If a valid terms and conditions agreement prescribes a maximum inventory, LN ignores the item's *maximum inventory level* set up for the customer's warehouse.

If the terms and definitions do not prescribe a minimum inventory on a particular date, LN applies the item's safety stock. Similarly, if the terms and definitions do not prescribe a maximum inventory on a particular date, LN applies the item's maximum inventory level.

You can define an item's safety stock and maximum inventory level in the **Items - Ordering (tcibd2100m000)** session or the **Item Data by Warehouse (whwmd2510m000)** session.

Methods to specify inventory levels

You can define the required inventory levels in the following ways:

- Fixed inventory levels
- Time-phased inventory levels
- Inventory levels based on the number of days of supply

You can find the fields mentioned in the following sections in the **Terms and Conditions Line (tctrm1620m000)** session, on the **Planning** tab.

To define fixed inventory levels

To define fixed levels for the minimum inventory or the maximum inventory, complete the following steps:

- 1 Set the **Min-Max Specification** field to **By Quantity**.
- 2 Enter the required inventory levels in the **Minimum Inventory Level** field and the **Maximum Inventory Level** field.

To define time-phased inventory levels

To define time-phased levels for the minimum inventory or the maximum inventory, complete the following steps:

- 1 Set the **Min-Max Specification** field to **By Quantity**.
- 2 Enter the required inventory levels in the **Planning Inventory Levels (tctrm1136m000)** session.
To start the **Planning Inventory Levels (tctrm1136m000)** session, in the **Terms and Conditions Line (tctrm1620m000)** session, open the **Planning** tab, and then, on the *appropriate* menu, click **Inventory Levels**.

To define number of days supply

For instructions how to specify the minimum and maximum inventory levels by defining the number of days supply, refer to Planning based on number of days supply.

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