Infor LN User Guide for Calendars

Important Notices

Trademark Acknowledgements

Publication Information

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About this document

This guide describes the process to set up and use calendars, periods, recurrences, and patterns in the application.

Intended audience

This document is intended for persons working with master data in the Common, People, Project, Enterprise Planning, Sales, Procurement, Manufacturing, Warehousing, and Service packages. Financials uses its own entities to define the financial periods.

The intended audience can include implementation consultants, product architects, support specialists, etc.

Document summary

This table shows the chapters of this guide:

Chapter	Content
Introduction	Provides an introduction to the role of the Calendars and Periods module, the central module where you can store calendar and timing data for use in other modules.
Recurrences	Describes how to define and use recurrences. A recurrence is a repetitive pattern of dates, such as “Biweekly on Mondays and Fridays”, “The 27th of each month”, or “January 1st of each year”.
Patterns	Describes how to define and use patterns. A pattern is a scheme defining the day of the month, the day of the week, and the time of the day you want an activity to be carried out.
Calendars and Shifts	Describes how to define and use calendars. Calendars define the working times or opening times over a large range of dates. Calendars are used to define the working times of employees, work centers, and warehouses and to provide information on the working dates and times of business partners, required to plan deliveries. Define shifts for a calendar in order to specify the working time of a team of employees.

Calendar integrations	Provides information on how to set up an integration between the Calendars and Periods module and external packages.
Periods	Describes how to define and use periods. Periods divide a year into regular intervals, such as weeks, months, or quarters.

How to read this document

This document is assembled from online Help topics.

Text in italics followed by a page number represents a hyperlink to another section in this document.

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

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Chapter 1
Introduction

1

Overview of calendars and periods

This topic presents an overview of the Calendars and Periods module.

In the Calendars and Periods module, you can define calendars and time patterns to use throughout the LN packages.

Concepts

In the Calendars and Periods module, you can define the following types of data, for use in other parts of LN:

Concept	Description
Recurrences	A recurrence is a repetitive pattern of dates, such as “Biweekly on Mondays and Fridays”, “The 27th of each month”, or “January 1st of each year”. Recurrences are used to build patterns and calendars. In the People package, you can use recurrences in assignments.
Patterns	A scheme defining the day of the month, the day of the week, and the time of the day you want an activity to be carried out. Patterns are defined by using a combination of recurrences, exceptions, and times of day. The Order Management and Enterprise Planning packages use patterns to define delivery moments, shipping moments, and fixed delivery patterns.

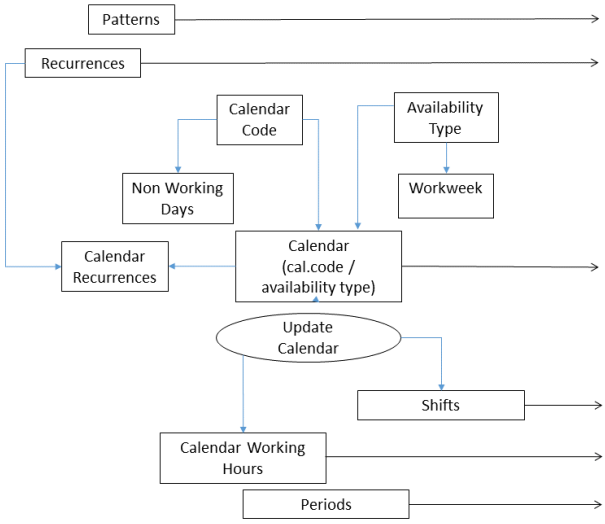
Calendars	Calendars define the working times or opening times over a large range of dates. Calendars can also store efficiency-related and capacity-related data. You use calendars to define the working times of employees, work centers, and warehouses and information on the working dates and times of business partners, required to plan deliveries.
Shifts	Define shifts for a calendar in order to specify the working times of a team of employees.
Periods	Periods divide a year into regular intervals, such as weeks, months, or quarters. You use periods for statistical, financial, hours accounting, planning, and cost controlling purposes, especially in the Sales, Procurement and Project packages.

Dependencies

To help you understand the structure of this module, some of the dependencies between the concepts are described below:

- A pattern is based on one or more recurrences.
- Calendars are based on calendar codes and availability types. Together with calendar recurrences, and non working days they define the working hours for each specific day.
- These calendar definitions are used to generate calendar working hours, a list of working times for each week day. These hours are used by other packages for, among other things, planning purposes.
- Shifts are based on a calendar's working hours and define the working hours for a team of employees.

In the following simplified diagram, the outward pointing arrows represent information that is made available outside Calendars and Periods.



Simplified diagram of relationships within Calendars and Periods

Relationships between CCP and other modules

The data defined in the Calendars and Periods module is used in the following LN packages and modules:

- **Recurrences**
  People uses recurrences for employees'assignments in the Assignments (bpmdm0130m000) session.
- **Patterns**
  Procurement uses patterns for the schedule issue dates for material release and shipping schedule. For more information, refer to Overview of purchase schedule handling.

  Procurement also uses patterns as delivery patterns linked to warehouses, buy-from business partners, ship-from business partners, and items. For more information, refer to Using planned delivery moments.

  Enterprise Planning uses patterns as fixed delivery patterns. In a vendor managed inventory (VMI) situation, you can specify the applicable pattern in the Terms and Conditions module. For more information, refer to Fixed deliveries in Enterprise Planning
- **Calendars and calendar working hours**
  A calendar is identified by a combination of a calendar code and availability type.

In Common, you can link calendars to the company, enterprise units, business partners and addresses; Procurement and Sales use this information when planning goods transfers.

In the People module, you can link calendars to teams of employees. The Hours and Expenses module in the People package uses this information to get the default number of hours from the calendar lines.

In Manufacturing, you can link calendars to work centers and production departments. The calendar working hours of the calendar that is linked to the work center determine the available production capacity.

In Warehousing, you can link calendars to warehouses.

In Service, you use calendars to specify when a cluster is available for servicing and to define when a service department is available to perform service activities.

- **Shifts**
  In Manufacturing you can use shifts for repetitive manufacturing.
- **Periods**
  The Commissions and Rebates module in Sales uses periods to calculate the commissions for sales representatives and agents, and the rebates for customers.

  The Statistics module in Procurement and Sales uses periods for statistical analyses.

  The Repetitive Manufacturing module in Manufacturing uses periods to organize repetitive production processes.

  The Project Progress module in Project uses periods to define cost-control periods.

  People uses periods for budgeting and hours accounting.

Note

Financials does not use Calendars and Periods. Financials uses its own entities to define the financial periods.

Chapter 2
Recurrences

2

Defining recurrences

You can use recurrence for two purposes:

- As building blocks to create calendar exceptions, which you use to define calendars. For more information, refer to *Defining a calendar (p. 27)*.
- To define employees'assignments in the Assignments (bpmdm0130m000) session in People.

Procedure

To define a calendar exceptions, complete the following steps:

1. Start the Recurrences (tcccp0143m000) session.
2. Insert a new recurrence.

   In the **Recurrence Type** field, select the base period on which the recurrence frequency is defined. This field can be **Yearly**, **Monthly**, **Weekly**, or **Daily**.

   In the **Recurrence Start Date** and **Recurrence End Date** fields, define the range of dates in which the recurrence is valid. For information on how to extend the validity of a recurrence, refer to *Rolling recurrence (p. 14)*.
3. To open the Recurrence Details (tcccp0143s000) session, double-click the recurrence.
4. Enter the recurrence details. For more information, refer to the online Help for the session.

You can define the following types of recurrences:

- **Yearly**
  If the **Recurrence Type** field is **Yearly**, the recurrence repeats itself after one or more years.

  You can select dates with the following methods:
  - Specify the set of months and the date of the month. For example, the 5th of the month of November, December, January, and February.
  - Specify the set of months and the day of the week, such as Friday, and specify whether the first, second, third, fourth, or last of the month is selected. For example, the last Wednesday of February and August.

- **Monthly**
  If the **Recurrence Type** field is **Monthly**, the recurrence repeats itself after one or more months.

  You can select dates with the following methods:
  - Specify the day of the week, such as Friday, and specify whether the first, second, third, fourth, or last of the month is selected. For example, the last Wednesday of the month.
  - Specify the set of dates of the month. For example, the 10th, 20th, and 30th of the month.
- **Weekly**
  If the **Recurrence Type** field is **Weekly**, the recurrence repeats itself after one or more weeks.

  Specify the relevant days of the week. For example, every Sunday and Saturday.
- **Daily**
  If the **Recurrence Type** field is **Daily**, the recurrence repeats itself after one or more days. For example, every 40 days.

Note

- If you specified day 31, and a month has less than 31 days, LN selects the last day of that month.
- If you specified day 29 or 30, and February is included, LN selects the last day of February.

Rolling recurrence

This topic describes how to extend the life of a recurrence by making it a rolling recurrence.

A recurrence has a defined start date and end date, between which the recurrence functions. If the recurrence is a rolling recurrence, you can always reuse the same recurrence definition. Whenever you roll the recurrence, the recurrence's start date and end date are moved forward a specified length of time.

Example

Suppose the recurrence start date is January 1, 2009 and the end date is January 1, 2011.

If you roll the recurrence 51 weeks forward, the result is as follows:

	Recurrence Start Date	Recurrence End Date
Before rolling	2009-01-01	2011-01-01
After rolling	2009-12-24	2011-12-24

Later in this topic, this example is explained in detail.

Amount of time to shift

If a recurrence is rolled, LN shifts the recurrence's start date, end date, and reference date forward by a specific amount of time.

The amount of time by which LN shifts these dates forward is calculated according to the following formula:

```
A = B * F * I
```

The codes in the formula are defined as follows:

- A- Amount of time shifted.
- B- Length of time specified by the **Recurrence Type**, such as **Weekly**.
- F- **Frequency**, which is the number of days, weeks, months, or years after which the pattern repeats itself.
- I- The value of the **Roll after** field, also called the **Interval(s)** field.

Note

If the recurrence type is **Monthly**, LN ensures the recurrence *start date* shifts to the same date of the month.

For example, if the old start date is March *30*, and the recurrence shifts 3 months, the start date becomes June *30*. This shift amounts to 92 days.

If the old end date is September 1, the end date is also shifted 92 days, and becomes December *2*.

Moment of rolling

The rolling process can only start if the **Reference Date** field in the Recurrence Details (tcccp0143s000) session is so far back in the past that the reference date does not shift to a future date. Therefore, if the recurrence is rolled at the earliest possible opportunity, the rolling process shifts the reference date to the current date.

To initiate the rolling process, choose one of the following methods:

- Update a calendar that is based on the rolling recurrence. To update a calendar, use the Update Calendar Working Hours (tcccp0226m000) session.
- Roll the recurrence during the generation of pattern moments:
  a. Start the Generate Pattern Moments (tcccp0295m000) session.
  b. Select pattern or a range of patterns.
  c. Select the **Roll Recurrence** check box.
  d. To start generating pattern moments, click **Generate**.
- Manually roll the recurrence:
  a. Start the Recurrences (tcccp0143m000) session.
  b. To start the Recurrence Details (tcccp0143s000) session, double-click a recurrence.
  c. Click **Roll Recurrence**.

Note

- If People retrieves dates from a recurrence to create assignments, LN does not automatically roll the recurrence.
- The rolling process shifts the reference date to the recent past or current date. If the reference date is far in the past, the rolling process is automatically repeated as often as possible without shifting the reference date to a future date.

Example

This example is the same as the previous example, but now more details are included.

Suppose a recurrence is defined as follows:

- **Recurrence Start Date** = 2009-01-01
- **Recurrence End Date** = 2011-01-01
- **Reference Date** = 2009-04-01

The recurrence type is **Weekly**, with a frequency of 1.

The **Roll after** field, also called the **Interval(s)** field, is 51. Therefore, the recurrence must shift 51 weeks.

The earliest opportunity to roll the occurrence is 51 weeks after the reference date, on March 24, 2010.

Suppose you roll the recurrence on March 24, 2010. The following table shows the effects.

	Recurrence Start Date	Reference Date	Recurrence End Date
Before rolling	2009-01-01	2009-04-01	2011-01-01
After rolling	2009-12-24	2010-03-24	2011-12-24

Chapter 3
Patterns

3

Defining patterns

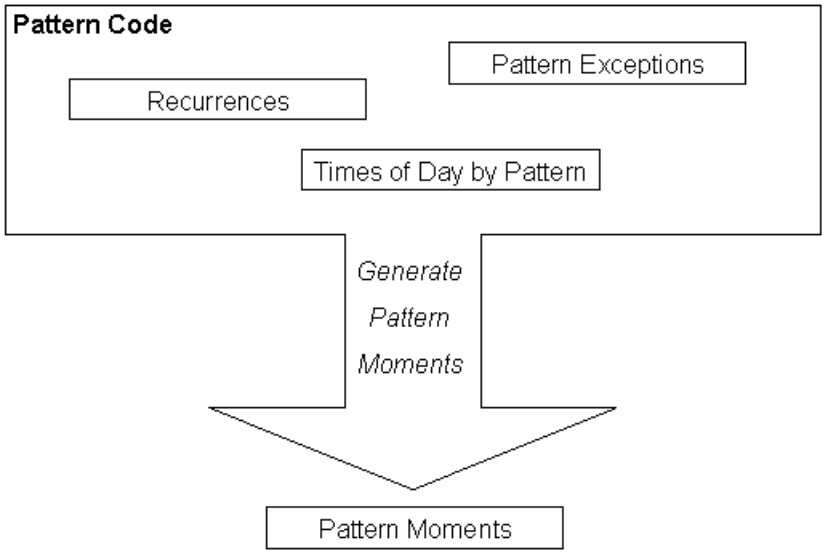
Defining patterns

Prerequisites

Before you define a pattern, you must define the recurrences on which the pattern is based. For more information, refer to *Defining recurrences (p. 13)*.

To create patterns

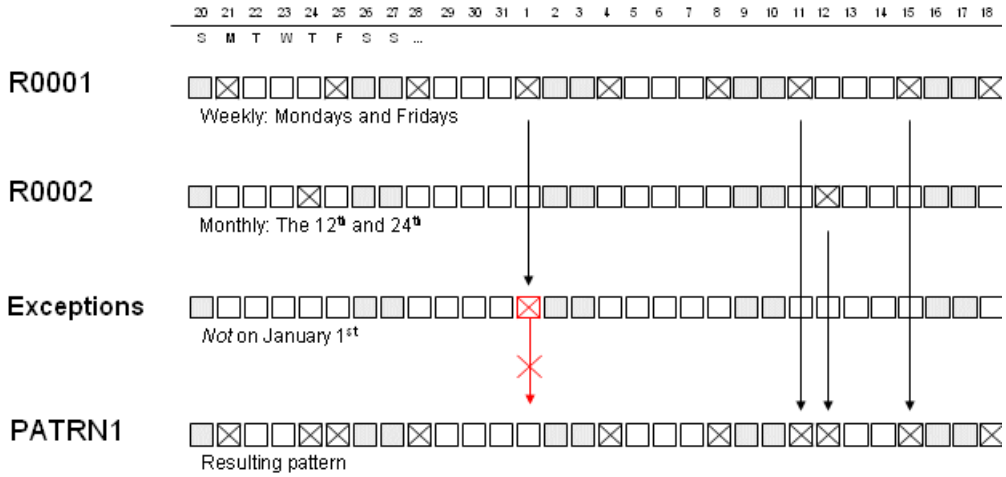
A pattern consists of pattern moments based on one or more recurrences, pattern exceptions, and times of day, as shown in the following diagram:



Generating a pattern's pattern moments.

To combine recurrences

You can combine multiple recurrences, as shown in the following diagram:



Combining recurrences and exceptions into a pattern.

In this diagram, pattern PATRN1 is based on two recurrences: R0001 and R0002.

- Recurrence R0001 selects every Monday and Friday.

- Recurrence R0002 selects the 12th and 24th of every month.

PATRN 1 has one exception, which excludes January 1st of every year.

Procedure

To define a pattern, complete the following steps:

1. Define recurrences. For more information, refer to *Defining recurrences (p. 13)*.
2. Use the Patterns (tcccp0190m000) session to define a pattern code.
3. Use the Patterns (tcccp0190m000) session to add the recurrences to the pattern.
4. Use the Times of Day by Pattern (tcccp0193m000) session to specify the times of day. Times are defined as local times; the time zone is unspecified.
5. Use the Pattern Exceptions (tcccp0192m000) session to specify any exceptions you require.
6. Use the Generate Pattern Moments (tcccp0295m000) session to generate the pattern moments.

To view the generated pattern moments, use the Pattern Moments (tcccp0195m000) session.

Using patterns

To organize regular shipments of a purchased item from a fixed supplier, you can use purchase schedules.

Order Management uses patterns for the schedule issue dates for material release and shipping schedule.

Patterns for fixed delivery patterns

To specify that all deliveries to your company must be made at specific times on specific dates, such as every Monday at 11:00 am, you can create fixed delivery patterns. Fixed delivery patterns are based on the patterns you define in the Calendars and Periods module.

In Order Management, you can link patterns to warehouses, buy-from business partners and ship-from business partners, and items. For more information, refer to Using planned delivery moments.

Enterprise Planning uses these patterns in the planning of planned orders.

In a vendor managed inventory (VMI) situation, you can specify the applicable pattern in the Terms and Conditions module.

Chapter 4
Calendars

4

Overview of calendar and shifts functionality

In the Calendars and Periods module, you can define and organize calendars for all parts of LN.

A calendar in LN establishes the times that resources are available.

Example

- Production orders can be planned on work center AA from 6 A.M. until 5 P.M.
- Sales orders can be picked and dispatched from warehouse XY from 7 A.M. until 6 P.M.

A calendar is a combination of the following:

- **Calendar code**
  Identifies the list of workable days.

  The calendar code defines the start and end dates of a period. All days within the range are potential working days, with the exception of days mentioned in the Non-working Days (tcccp0119m000) session.

  Calendar codes have a hierarchal structure. A parent calendar code provide the default date for the child. For more information, refer to *Calendar code hierarchy (p. 22)*.

- **Availability Type**
  The availability type defines the general workweek: for each of the seven days, the start and end times of the working hours are specified per weekday.

Note

Calendar codes and availability types can be combined multiple times, as long as they result in unique ID's.

Calendar usage structure

Calendars in LN can be used in a flexible way. You can either base the planning for a whole company on one calendar, or define separate calendars for a variety of resources (work centers, sales offices, employees) to plan their times individually.

You can link calendars to various levels of your organization. The company calendar is the most generic calendar at the upper level of the hierarchy. Calendars for enterprise units, departments, work centers, warehouses, and employees are more specific.

The company calendar contains working days, holidays, and working times for your entire organization. For delivery planning, link calendars to business partners and addresses. For more information, refer to *Using calendars (p. 29)*.

For each working time interval within a date that you include in a calendar, you can specify:

- Start and end time
- Working hours type (optional)
- Efficiency factor
- Capacity percentage
- Overtime

Calendar hierarchy

Calendar code hierarchy

This topic describes how calendar codes are structured.

Every calendar code can have a parent calendar code that provides default data. Therefore, you only need to specify the exceptions to the parent calendar. Additionally, if a planning process queries a calendar for a date that is outside that calendar's date range, LN uses information from the parent calendar.

Start defining the calendar code with the most generic calendar code. As you define more specific calendar codes, in the Calendar Code (tcccp0110m000) session, in the **Parent Calendar** field, enter the code of the calendar's parent calendar. You can then use that child calendar code as the parent for another calendar, and so on. When you update the calendar, LN displays the full calendar details in the Calendar Working Hours (tcccp0120m000) session, including the details derived from higher-level calendars.

In a child calendar, you can add additional working times and mark particular dates as unavailable.

Note

Although it is convenient to put the company calendar code at the top of the derivation path, you can also select another calendar.

Availability types

The availability type defines a workweek. For each of the seven workday, it specifies the start and end times of the working hours for each day.

Example

A company has the following standard working times:

- Production runs from 8.00 to 18.00.
- Warehouses are open from 8.00 to 16.00.
- The service department is active from 9.00 to 18.00.

You can model this situation with a single calendar code (COMP) for which you define three availability types: PRD (Production), WHS (Warehouse), and SRV (Service).

The resulting calendars are:

- COMP/PRD
- COMP/WHS
- COMP/SRV

Example

A company has 3 departments: Production, Warehouses, and Service.

All three have the same working hours (08:00 - 17:00), but the holidays vary per department.

You can model this situation with a single availability type (STDHRS) and three different calendar codes (PRD, WRH and SRV)

The resulting calendars are:

- PRD/STDHRS
- WRH/STDHRS
- SRV/STDHRS

A variation to this would be defining a calendar code for the company (COMP), containing all the working days and holidays that are common to the departments. The PRD, WRH and SRV calendars would have the COMP calendar as the parent calendar, but contain only the department specific holidays.

Note

- For more information on the use of availability types in other packages, refer to *Using calendars (p. 29)*.
- External scheduling packages cannot use multiple availability types. If you integrate with an external scheduling package, you must define a separate calendar for each activity. For more information, refer to *Calendar integration with external scheduling packages (p. 35)*

Defining unavailability

Unavailability means that for whatever reason, no production can be planned at certain dates in a calendar. When defining a calender, you need to consider several types of unavailability and how they are going to influence the planning.

To define unavailability for a calendar use these sessions:

- **Recurring unavailability**
  For recurring unavailability, such as national holidays, define the recurrence in the Recurrences (tcccp0143m000) session. Add that recurrence to the applicable calendar code and availability type in the Calendar Exceptions (tcccp0144m000) session, and clear the **Available** check box for the unavailable days.

  With calendar recurrences you define recurring exceptions in a calendar, and set a time schedule for daily, weekly, monthly, or yearly unavailable time in one action.
- **Unavailable days for all calendars using a specific calendar code**
  To define occasional unavailability, such as a department trip, use the Non-working Days (tcccp0119m000) session. What you define here applies to all calendars that are using this calendar code.
- **Unavailable days for a specific calendar**
  To define unavailability for a single day, complete the following steps:
  a. Start the Calendar Working Hours (tcccp0120m000) session.
  b. Find the applicable calendar, and clear the **Available** check box for a intervals on the relevant date.

If you defined unavailable dates in the Non-working Days (tcccp0119m000) or the Calendar Exceptions (tcccp0144m000) session, in the Calendar Working Hours (tcccp0120m000) session, click **Update Calendar**.

Note

A calendar recurrence that makes a day unavailable has no effect on the availability of that day in the parent calendar.

Shifts

Shifts

Manufacturing companies can use shifts to organize the production work force. The most common ways to do this ae one, two or three shift models, but more comprehensive models are possible that include for example only a single shift on the weekend or more shifts due to seasonal demands.

Note

- Using shifts is mandatory for repetitive manufacturing.
- Implementing shifts is optional, because not all departments are, or can be organized according to this model. The use of shifts is defined per availability type.

Shifts are optional entities in a calendar code/ availability type combination. A shift is used to define the availability of a work center, for example a work cell in repetitive manufacturing. Each shift has a unique number key and is generated based on the shift pattern.

It is possible to generate shifts in the past starting from the first of January of the current year. Once shifts are implemented they can no longer be replanned until the current shift.

Shift reporting in repetitive manufacturing

The Report Shift (tirpt4636m200) session is used to manage and report the final results at the end of each shift.

In this session you have the option to amend preliminary bookings from the Work List (tirpt4602m000) session and up. If all data is correct, you can complete the shift, and update the related cost document.

You report a shift completed by specifying a work cell and selecting the applicable shift. Once the shift is selected, an overview of estimated work cell hours, labor hours and quantities is displayed based on the production schedule lines planned for the shift along with the quantities and hours already booked.

Set-up, run and down times can be reported through commands available in the Work List session, or calculated based on the quantities reported. The time booked may be less than the time available for the shift. This may occur due to booking discrepancies and can be corrected by the shift supervisor before the shift is reported complete after booking the set-up time and down time for the work cell.

If the hours are still less than the shift time after correction, the remainder of available hours is booked as wait time. Labor hours are booked the same way, the exception being that wait time for labor hours must be entered manually by the shift supervisor.

Note

- A shift may contain multiple bookings, for example if backflushing occurs per transport quantity the quantity completed is booked every time transport quantity is reached.
- Hours are books as generic labor for the work cell, not per employee.
- If additional material quantities are used, you mast manually book the quantities to the point of usage that is linked to the material in the work cell cost document.

Calendar structure and set up

You can use multiple calendars in a company, from basic time management with the workweek and company calendars to detailed calendars for specific tasks. Depending on the amount of detail the

company needs, a structure can be set up consisting of multiple calendar codes, availability types and workweeks.

- **Workweeks**
  You can define workweeks in the Workweeks (tcccp0105m000) and their workdays in the Workdays (tcccp0130m000) sessions. Workweeks specify the available hours and can be defined in multiple ways: regular hours, two shifts week, and holidays can be defined.

  You can define workweeks for a specific period of time in the Date Effective Workweeks (tcccp0106m000) session.

- **Calendar Codes**
  All calendar codes have a set time frame in which they are active. Child calendar codes are dependant on the time frames of their parent calendars. A child calendar cannot extend outside the time frame of its parent. Therefore, you cannot set a child calendar's start date *earlier* than the parent calendar's start date and the child calendar's end date *later* than the parent calendar's end date.

- **Availability types**
  You can link calendar codes to availability types in the Calendar Availability Types (tcccp0150m000) session. For more information, refer to *Availability types (p. 23)*

- **Calendar working hours**
  In the Calendar Working Hours (tcccp0120m000) session, you can view the effective calendar details for each date. If the details for a specific date have been derived from a parent or the workweek calendar or an calendar exception, the **Derived From** field reads **Parent**, **Workweek** or **Exception**.

  A calendar can have multiple working times on one date, for example 8:00-12:00 and 13:00-17:00. However, all the working times must be derived from one source.

  Per specific date in a calendar the working times are:
  - Derived from the workweek.
  - Derived from the parent calendar.
  - Derived from a calendar exceptions.
  - Derived from the Non-working Days (tcccp0119m000) session, if the date is unavailable for planning.
  - Specified manually.
  - **Calendar search path**
    If a planning process cannot find the calendar for a particular employee or other resource, LN searches for a calendar defined for the department, enterprise units, and finally the company calendar. Every planning process uses a fixed search path for calendars defined by the LN application. That search path always ends at the company calendar and is independent from the parent calendars you defined.

Note

If you use the DEM Content Pack with Infor LN, consider using the DCO0030 (Calendar Setup) wizard to set up calendars. You can execute this predefined wizard from the Wizards by Project Model (tgwzr4502m000) session after you specified the business function model for your company. See **Business function model**.

Defining a calendar

To set up a structure of calendars, completes the following steps:

If you use the DEM Content Pack with Infor LN, consider using the DCO0030 (Calendar Setup) wizard to set up calendars. You can execute this predefined wizard from the Wizards by Project Model (tgwzr4502m000) session after you specified the business function model for your company.

Else, complete these steps:

Step 1: Defining the calendar code

Before you define a particular calendar, you must first define that calendar's parent calendar code when applicable. It is recommended to define the calendar code for the company first.

Step 2: Defining availability types

Use the Availability Types (tcccp0101m000) session to define availability types. The **Default Available** check box determines the default setting for the **Available** field in the Calendar Exceptions (tcccp0144m000) and the Workweeks (tcccp0105m000) sessions.

Specify if the availability type is using shifts. When using shifts, a mask must be defined in the Masks (tcibd4102m000) session to generate shifts.

Step 3: Specify calendar availability types

You can link availability types to calendar codes in the Calendar Availability Types (tcccp0150m000) session.

Step 4: Defining working hours types (optional)

Use the Working Hours Types (tcccp0103m000) session to define a working hours type. You use working hours types to store default values of working times, capacity percentages, efficiency factors, and an indication of whether the time is overtime.

If you want to use a working hours type, you must select the **Use Working Hours Types** check box in the Calendar Parameters (tcccp0100m000) session.

Step 5: Enter unavailable days

You can specify incidental unavailable days in the Non-working Days (tcccp0119m000) session. Non-working days are defined per calendar code.

Step 6: Defining the workweek calendar

Use the Workweeks (tcccp0105m000) session to define the working times for each day of the week for the availability type.

Specify the mask you want to use to create the shift identifier when generating shifts. To review your shift definition a report can be printed specifying shift details for the next two weeks that contains: start and end times for each shift, the net hours per shift, the shift identifiers (defined by mask) and how shifts are defined on and around the weekends.

Step 7: Specify calendar exceptions

These types of calendar exceptions can be defined:

- Changes in working times, efficiency factors, capacity percentages, and overtime indicators for specific, recurring dates. For example longer working times on each last Friday of the month.
- Adding additional available dates, for example opening a specific work center during the night.
- Designate dates, such as recurring holidays, as unavailable.

Once these days are defined for a calendar, these are used to define the calendar working hours.

Step 8: Update the calendar working hours and shifts

Using the Update Calendar Working Hours (tcccp0226m000) session or the **Update Calendar** command in the Calendar Working Hours (tcccp0120m000) session, you can combine all the calendar definitions into a list of calendar working hours and shifts.

You can view the generated results in the Calendar Working Hours (tcccp0120m000) and Shifts (tcccp0102m000) sessions.

Use **Update Calendar** after each change in the definitions, any changes made are not available for use until the update takes place.

Step 9: Make manual changes

The following changes can be made to a calendar manually:

- **Changes in the definitions**
  Changes made to the workweek result in changes in the calendar working hours. These changes only go into effect after the calendar is updated.
- **Changes in the calendar working hours**
  If the needed changes should impact only a few days, the calendar working hours can be adjusted directly in the Calendar Working Hours (tcccp0120m000) session. The calendar does not need to be updated for the changes to go into effect.

Step 10: Assigning the calendars to resources

You can use the following sessions to link the calendars to various resources:

- Companies (tcemm1170m000)
- Departments (tcmcs0565m000)
- Work Centers (tirou0101m000)

- Warehouses (whwmd2500m000)
- Business Partners (tccom4500m000)
- Addresses (tccom4530m000)
- Employees - General (tccom0101m000)
- Teams (tcppl0140m000)

Using calendars

To use a calendar (calendar code/ availability type), you must link it to a resource. To view the available combinations of calendar codes and availability types, start the Calendar Availability Types (tcccp0150m000) session. You can sort the records by calendar code or by availability type.

Search path

If a package in LN requires calendar data for some resource, LN searches for an applicable calendar code for that specific resource. If no calendar is linked to that resource, LN searches for calendars at higher resource levels, up to the company calendar.

For example, in Manufacturing, LN checks whether a calendar code is linked to a work center. If no calendar code is linked to the work center, LN checks the production department. If LN does not find a calendar code, no planning takes place.

Note

The search path does not include the workweek. LN only uses the workweek if a calendar code was found that does not cover all relevant dates.

Calendar data in LN

This table shows how to link calendars to the most general resources:

To do this...	Use this session...
To define the company calendar	Companies (tcemm1170m000)
To define an enterprise unit's calendar	Enterprise Units (tcemm0130m000)
To define a department's calendar	Departments (tcmcs0565m000)
To define an employee's calendar	Employees - General (tccom0101m000)

The following sections show how to use calendars in various parts of LN.

People

In the People module, you can link calendars to teams of employees.

For more information, refer to Calendars in People.

Warehousing

In Warehousing, you can use calendars to indicate the opening hours of warehouses.

For information on how LN calculates the planned delivery date and the planned receipt date of a warehousing order, refer to Determination of calendar correction

For information on how LN calculates the planned delivery date and the planned receipt date for replenishment of warehouses by using time-phased order point (TPOP) or statistical inventory control (SIC), refer to the following topics:

- To generate orders (TPOP)
- To generate order advice (SIC)

Freight

In Freight, you can use calendars to specify the opening hours of a ship-from address or ship-to address.

For more information, refer to Calendar time-windows.

Manufacturing

Each work center can have a calendar. If a work center has no calendar, planning functions for this work center default to the mandatory calendar of its production department.

For more information, refer to Calendars in Manufacturing.

Project

Project uses external scheduling packages for employee planning and equipment planning. The external scheduling package retrieves the calendar data from Calendars and Periods in LN.

For more information, refer to *Calendar integration with external scheduling packages (p. 35)*.

Service

In Service, you use calendars to specify when a cluster is available for servicing, and to define when a service department is available to perform service activities.

For more information, refer to To use calendars in service.

Enterprise Planning

In the planning processes, Enterprise Planning uses the calendars that you linked to work centers, warehouses, and so on.

To simulate a reduced or increased production capacity, you can overrule the default calendars with alternatives for a specific scenarios. This allows for a different version of the working hours for each scenario. With these scenarios, you can analyze the consequences of adding an extra machine or taking a machine out of service for maintenance.

For more information, refer to Calendars in Enterprise Planning.

Financials

In Financials, you can use payment calendars to determine the due dates for sales invoices and purchase invoices.

For more information, refer to:

- To use payment calendars
- Payment calendars setup

Updating calendars

Updating calendars

Use the Update Calendar Working Hours (tcccp0226m000) session to reflect changes in the working hours types, efficiency factors, or any other settings in the Calendar Working Hours (tcccp0120m000) session for all derived calendars.

You can use the Update Efficiency Factor and Capacity (tcccp0225m000) session to change the value of the efficiency factor or the capacity percentage for a range of calendars for a specific time period,

and update the time and capacity details for the selected calendars according to the new values. The Calendar Working Hours (tcccp0120m000) session reflects the results of the update.

Example

If the working hours type for the morning shift is defined from 08:00 hrs to 12:00 hrs, and you change it to 09:00 - 13:00 hrs, you must update the calendar.

Efficiency factors

LN uses efficiency factors to take into account variable daily capacity for lead-time calculation.

Various reasons can exist for variability in daily capacity: reduction of work force in the holiday season, or hiring extra work force in busy periods means that there is more or less plan time available on a specific day.

Note

The default value of the efficiency factor is 1.0.

Defining efficiency factors

You can define efficiency factors when you set up a calendar in the Calendars and Periods module of Common.

To	Use
Define a default efficiency factor for a working hours type.	Working Hours Types (tcccp0103m000)
Define the default efficiency factor for a particular day of the week.	Workweeks (tcccp0105m000)
Define an efficiency factor at recurring dates.	Calendar Exceptions (tcccp0144m000)
Overwrite a default efficiency factor on a particular date.	Calendar Working Hours (tcccp0120m000)
Change the efficiency factors for multiple calendars and availability types.	Update Efficiency Factor and Capacity (tcccp0225m000)

After you change the efficiency factor, you must update the calendar by:

- Running the Update Calendar Working Hours (tcccp0226m000) session.
- Clicking **Update Calendar** in the Calendar Working Hours (tcccp0120m000) session.

After you changed the efficiency factor, update the calendar by using the Update Calendar Working Hours (tcccp0226m000) session, or by clicking **Update Calendar** in the Calendar Working Hours (tcccp0120m000) session.

To view the effective availability factor on particular dates, use the Calendar Working Hours (tcccp0120m000) session. Remember to update the calendar.

Using efficiency factors

LN uses efficiency factors for the following purposes:

- To take into account that resources can sometimes work more efficient than the average. For example, if a particular employee works harder in the morning than in the afternoon, you can enter an efficiency factor of 1.1 for the calendar line with time interval 09:00 - 12:00.
- To take into account that, if you hire additional resources to perform the work, the lead time of operations shortens.

Note

Do not confuse efficiency factors with capacity percentages:

- Efficiency factors affect the lead-time calculation for which the corresponding calendar is used: these factors influence the speed at which the work is carried out.
- Capacity percentages provide information about the utilization rate of a resource.

Capacity percentage

You can use the capacity percentage to vary the available capacity of work centers by day or by shift. For example, if the night shift works with less people than the day shift in a work center, you can reduce the capacity percentage for the night shift. LN applies the capacity percentage in the calculation of work center utilization views and reports.

Note

The value of the capacity percentage does not affect lead-time calculations.

Calculations

In the Calendar Working Hours (tcccp0120m000) session, the **Capacity Details** tab contains the following fields:

- **Hours**
  Is based on the **Start Time** and **End Time** fields.
- **Capacity Percentage**
  The percentage is based on the working times of the work center along with the effectivity factor.
- **Capacity [Hrs]**
  Is based on the **Hours** field and the capacity percentage. The **Capacity [Hrs]** field is input for the available hours in the work center utilization views and reports.

To define the capacity percentage

In the Working Hours Types (tcccp0103m000) session, you define a working hours type's capacity percentage.

The working hours type's capacity percentage serves as default in the Workweeks (tcccp0105m000) session and the Calendar Exceptions (tcccp0144m000) session.

In the Calendar Working Hours (tcccp0120m000) session you can view and manually specify the effective capacity percentage that LN uses to calculate capacity utilizations.

Chapter 5
Calendar integrations

5

Calendar integration with external scheduling packages

The Calendars and Periods module contains the functionality to make calendars available to external scheduling packages.

Project

Project uses external scheduling packages for employee planning and equipment planning. The external scheduling package retrieves the calendar data from Calendars and Periods in LN.

To list calendars that you want to make available to external packages, use the Calendars for External Packages (tcccp0181m000) session.

External scheduling packages do not support multiple availability types. For the external scheduling package, LN creates a calendar ID that consists of the following parts:

- The parent calendars (multilevel).
- The calendar code.
- The applicable availability type.

In the Calendar Parameters (tcccp0100m000) session, in the **Default Availability Type for ESP** field, enter the default value for the availability type for external scheduling packages.

To make more availability types available to external scheduling packages, use the Calendars for External Packages (tcccp0181m000) session.

Chapter 6
Periods

6

Setting up periods

Setting up periods for use by LN applications involves these steps:

- Defining period tables.
- Generating periods for use.
- Defining periods.

Defining period tables

Use the Period Tables (tcccp0160m000) session to create and maintain period tables.

Period tables are used to group periods with common attributes, including the following:

- Whether or not LN checks that dates defined for a period belong to the defined calendar year.
- Whether or not modifications are allowed to periods of which the period table is currently in use.
- Whether or not periods can be deleted while their period table is currently in use.
- Whether or not gaps are allowed between years.

LN applications use the period information you define by referring to the period tables.

Generating periods for use

Use the Generate Periods (tcccp0270m000) session to generate default periods based on the period tables you have created in the Period Tables (tcccp0160m000) session.

Periods generated are then available to the Periods (tcccp0170m000) session, in which you can define further details.

Defining periods

Use the Periods (tcccp0170m000) session to maintain periods. Each period is linked to a period table of which it shares the attributes. For each period, you define the following:

- The year that the period applies to.
- The start and end dates of the period.

Using periods

This topic describes where and how periods are used.

Periods for Commissions and Rebates

The Commissions and Rebates module in Sales uses periods to calculate the commissions for sales representatives and agents, and rebates for customers.

Periods for Statistics

The Statistics module in Procurement and Sales uses periods for statistical analyses. In the **Period Table** field of the Statistics Parameters (tdsta0100m000) session, you can specify a period table.

Periods in Repetitive Manufacturing

The Repetitive Manufacturing module in Manufacturing uses periods to organize repetitive production processes. In the Repetitive Manufacturing Parameters (tirpt0100m000) session, you can specify a production schedule period table.

Periods in Project

The Project Progress module in Project uses periods to define cost-control periods.

Periods in People

People uses periods for budgeting and hours accounting.

Note

Financials does not use Calendars and Periods. To define the financial periods, Financials uses its own entities.

Appendix A Glossary

A

address

A full set of address-related details, which include the postal address, access to telephone, fax, telex numbers, and email, Internet address, identification for taxation purposes, and routing information.

assignment

A task for which hours lines are defined. For example, a weekly recurrent meeting.

availability type

An indication of the type of activity for which a resource is available. With availability types, you can define multiple sets of working times for a single calendar.

For example, if a work center is available for production on Monday through Friday and available for service activities on Saturdays, you can define two availability types, one for production and one for service activities and link these availability types to the calendar for that work center.

business-function model

A part of a business model that is built from a selection of business functions that are initially created in the repository.

business partner

A party with whom you carry out business transactions, for example, a customer or a supplier. You can also define departments within your organization that act as customers or suppliers to your own department as business partners.

The business partner definition includes:

- The organization's name and main address.
- The language and currency used.
- Taxation and legal identification data.

You address the business partner in the person of the business partner's contact. The business partner's status determines if you can carry out transactions. The transactions type (sales orders, invoices, payments, shipments) is defined by the business partner's role.

buy-from business partner

The business partner from whom you order goods or services; this usually represents a supplier's sales department. The definition includes the default price and discount agreements, purchase-order defaults, delivery terms, and the related ship-from and invoice-from business partner.

Synonym: supplier

calendar

A set of definitions, that are used to build a list of calendar working hours. A calendar is identified by a calendar code and availability type combination.

calendar code

A list of workable days, that is used to build a calendar.

calendar working hours

The horizontal lines in a calendar table, which group planning data by date.

capacity percentage

The percentage of the available production capacity that is the basis for work center utilization views and reports. For example, if a work center's working times are 06:00 - 16:00 (10 hours), the effectivity factor is 1.0 and the capacity percentage is 80%. 8 hours of production order execution corresponds with a capacity utilization of 100%.

The default capacity percentage is 100%.

capacity utilization

The number of hours that a resource is used for production.

Alternatively, a percentage indicating the capacity use as a proportion of the total available capacity.

commission

The amount of money to be paid to an employee (sales representative) or buy-from business partner (agent) for closing a sales order.

company

A working environment in which you can carry out logistic or financial transactions. All the transaction data is stored in the company's database.

Depending on the type of data that the company controls, the company is:

- A logistic company.
- A financial company.
- A logistic and a financial company.

In a multicompany structure, some of the database tables can be unique for the company and the company can share other database tables with other companies.

cost-control periods

In this period project-related costs and revenues are booked.

department

A company's organizational unit that carries out a specific set of tasks, for example, a sales office or a purchase office. Departments are assigned number groups for the orders they issue. The department's enterprise unit determines the financial company to which the financial transactions that the department generates are posted.

due date

In LN, the date that a payment or receipt is required.

efficiency factor

A variable that LN uses to take into account differences in the daily availability of a resource, such as when working overtime, hiring extra staff, or working in different shifts. For example, if an employee works six hours out of a possible eight hours on a project, the efficiency factor is 0.75.

Efficiency factors influence the lead-time calculation in Enterprise Planning.

employee

A person who works at your company who has a specific function such as sales representative, production planner, buyer, or credit analyst.

enterprise unit

A financially independent part of your organization that includes entities such as departments, work centers, warehouses, and projects. The enterprise unit's entities must all belong to the same logistic company, but a logistic company can contain multiple enterprise units. An enterprise unit is linked to a single financial company.

When you carry out logistic transactions between enterprise units, the resulting financial transactions are posted to the financial companies to which each enterprise unit is linked.

fixed delivery pattern

A schedule of recurring fixed delivery moments.

Enterprise Planning uses calendar recurrences to create fixed delivery patterns.

installation group

A set of serialized items that have the same location and are owned by the same business partner. Grouping serialized items into an installation group enables you to maintain them collectively.

lead time

The time between the production start date and the delivery date. The lead time can include order preparation time, transportation time, and inspection time.

mask

A template that specifies the structure of an identification code. A mask is used to generate the identifier for a shift when it is generated through either the Update Calendar Working Hours (tcccp0226m000) session.

See: mask segment

material release

A schedule on which forecasted information is provided about shipping times, delivery times, and quantities.

In general, a material release can be considered as a planning release. However, the material release can also contain the actual order.

overtime

Time worked beyond the regular working hours.

You can use overtime for the following purposes:

- For maintenance activities on objects not available for maintenance during regular working hours.
- To increase production capacity.

parent calendar

A calendar linked to a child calendar, one level higher in the derivation hierarchy, and from which the child calendar inherits the properties.

pattern

A scheme on which you can define the day of the week, day of the month, or day of the year, and the time of the day you want an activity, such as a release or a delivery, to be carried out.

pattern code

The code used to identify the pattern for your activities. The pattern defines the date and time, such as the month or the day of the month, on which you want to carry out the activity.

pattern moment

A particular time on a particular date, defined by using patterns, times of day, and exceptions.

period

Periods divide a year into regular intervals, such as weeks, months, or quarters, that can be used for statistical, hours accounting, planning, and cost controlling purposes.

period table

A table that consists of any number of time units, for example, months or weeks.

A period is used to define the time horizon during which, for example, a schedule is valid.

planned delivery date

The date for which delivery of a shipment is planned.

planned order

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

Enterprise Planning works with planned orders of the following types:

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

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

planned receipt date

The date on which the goods are expected to arrive in the destination warehouse.

point of usage

The physical location in the work cell where materials are stored before use. The point of usage is defined as a shop floor warehouse.

production schedule

A period of time in which product is manufactured in the Repetitive Manufacturing module for a specific reason and linked to a cost document. The period length can be defined by the user.

purchase invoice

Purchased goods that are received, inspected (if required), and posted to inventory are placed on a purchase invoice. You must pay the buy-from business partner for the quantity on the invoice.

The buy-from business partner, order, item data, prices, and discounts are printed on the invoice. You can compare the data on the invoice to the invoice you receive from the buy-from business partner.

purchase schedule

A timetable of planned supply of materials. Purchase schedules support long-term purchasing with frequent deliveries and are usually backed by a purchase contract. All requirements for the same item, buy-from business partner, ship-from business partner, purchase office, and warehouse are stored in one schedule.

rebate

The amount of money to be paid to a sold-to business partner as a kind of discount for closing a sales order.

recurrence

A set of recurring dates for which exceptions are defined per calendar code/ availability type combination.

Example

Every last Friday of the month is a non-working day. This exception is used in the Update Calendar Working Hours (tcccp0226m000) session to generate calendar working hours.

recurrence

A repetition of dates, such as “Biweekly on Mondays and Fridays”, “The 27th of each month”, or “The first Monday in June of every 5th year”.

repetitive manufacturing

An item with the default source **Repetitive** that are created based on a predefined configuration.

Items best suited for repetitive manufacture are:

- Standard items
- Low costing
- Have minimal variants
- Are complex
- The bill of material (BOM) is flat.

Both end items as sub-assemblies can be manufactured using repetitive manufacturing.

Note
Demand pegging and project pegging is disabled for repetitive manufacturing.

sales invoice

A bill that relates to the sale of goods or services. A sales invoice is a document, sent by the seller to the buyer, for each sale containing details on the goods sold.

scenario

The identification of an overall planning solution.

Each scenario represents one overall planning solution, and involves particular settings for the planning of items and resources. You can use scenarios to analyze and compare various planning options and to find the best planning solution. For example, you can vary demand forecasts or sourcing strategies.

One of the scenarios is the actual scenario, which corresponds with the actual planning situation. You can only transfer planned orders and production plans from the actual scenario to the execution level of LN.

schedule issue date

The date and time, calculated by the issue pattern, which, for non-referenced schedules, is used to define the moment at which:

- Schedule lines are clustered.
- A purchase release is sent.

service department

A department that consists of one or more persons and/or machines with identical capabilities, that can be considered as one unit for the purposes of service and maintenance planning.

shift

The production work force can be organized in shifts. The most common models are one, two or three shifts models, but more complicated models are possible with different shift divisions planned for various days of the week.

A shift has the following properties:

- An unique key that identifies it.
- The key is generated based on a mask.
- The start and end dates and times are specified.
- The shift net time is specified.

Note
A shift with a start date and time in the past cannot be deleted.

ship-from business partner

The business partner who ships the ordered goods to your organization. This usually represents a supplier's distribution center or warehouse. The definition includes the default warehouse at which you want to receive the goods and if you want to inspect the goods, the carrier that takes care of the transport, and the related buy-from business partner.

Synonym: ship-from supplier

ship-from supplier

See: *ship-from business partner (p. 46)*

shipping schedule

A schedule on which detailed information is given about shipping times or delivery times and quantities. A shipping schedule facilitates just-in-time (JIT) management.

SIC

See: *statistical inventory control (p. 46)*

statistical inventory control

An order system in LN that generates planned purchase or production orders to replenish stock.

The reorder point is usually calculated by adding the safety stock and the forecasted requirements during the replenishment lead time.

SIC items are planned by Warehousing.

Abbreviation: SIC

supplier

See: *buy-from business partner (p. 40)*

team

A way to group employees for planning and authorization purposes. If you assign roles to a team, all the employees assigned to the team have the authorizations that correspond to the roles.

time-phased order point (TPOP)

A push system that regulates the time-phased supply of items to warehouses.

The quantity of items that is supplied to the warehouse depends on:

- The available inventory in the warehouse.
- The inventory that is planned to be delivered to the warehouse within the specified order horizon.
- The specified safety stock, optionally adjusted to the seasonal factor for the current period, for the item and warehouse.

If the available inventory plus the planned inventory are below the reorder point, the inventory in the warehouse is replenished.

Abbreviation: TPOP

See: safety stock

TPOP

See: *time-phased order point (TPOP) (p. 47)*

vendor managed inventory (VMI)

An inventory management method according to which the supplier usually manages the inventory of his customer or subcontractor. Sometimes, the supplier manages the supply planning as well. Alternatively, the customer manages the inventory but the supplier is responsible for supply planning. Inventory management or inventory planning can also be subcontracted to a logistics service provider (LSP).

The supplier or the customer may own the inventory delivered by the supplier. Often, the ownership of the inventory changes from the supplier to the customer when the customer consumes the inventory, but other ownership transfer moments occur, which are laid down by contract.

Vendor-managed inventory reduces internal costs associated with planning and procuring materials and enables the vendor to better manage his inventory through higher visibility to the supply chain.

warehouse

A place for storing goods. For each warehouse, you can enter address data and data relating to its type.

warehouse order

See: *warehousing order (p. 48)*

warehousing order

An order for handling goods in the warehouse.

A warehouse order can be of the following inventory-transaction types:

- **Receipt**
- **Issue**
- **Transfer**
- **WIP Transfer**

Each order has an origin and contains all the information required for warehouse handling. Depending on the item (lot or non-lot) and warehouse (with or without locations), lots and/or locations can be assigned. The order follows a predefined warehousing procedure.

Note
In Manufacturing a warehousing order is often called a warehouse order.

Synonym: warehouse order

wizard

A special form of user assistance that automates a task by setting the parameter values within a business model and which directs the software to meet the specific requirements of an organization.

work center

A specific production area consisting of one or more people and/or machines with identical capabilities, that can be considered as one unit for purposes of the capacity requirement planning and detailed scheduling.

working hours type

A type of time interval such as Monday morning, Wednesday afternoon, or service weekend. For a working hours type, you can define defaults for start time and end time.

workweek

The seven days of the week, for which the available and non-available hours are defined.

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