



# Infor LN User Guide for Calendars

Release 2022.x

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## About this Guide

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 <i>recurrences</i> . 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 <i>patterns</i> . 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 <i>calendars</i> . Calendars define the working times or opening times over a large range of dates. Calendars are used to define the working times of <i>employees</i> , <i>work centers</i> , and <i>warehouses</i> 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 <i>periods</i> . 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

## Calendars and Periods

Use the Calendars and Periods module to maintain *calendars* and related data, such as *recurrences*, *patterns*, and *periods*.

### Calendars

Calendars record information on the availability of resources, and make this information available to other LN applications.

You can link calendars to these *entities*:

- Companies
- Employees
- Departments
- Addresses.
- The various business partner roles

LN uses the most specific calendar. For example, if you link a calendar to a ship-to business partner, this calendar is used instead of the calendar that you linked to the ship-to business partner's address.

The company's calendar defined in the **Companies (tcemm1170m000)** session is the default calendar for all the entities that use calendars.

To share the calendar tables between the companies of a multicompany structure, the first day of the week must be the same for all the companies. For example, you cannot share the calendars if one company defines the first day of the week as Sunday and another company as Monday.

### 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 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. 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*.

## 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 Order Management and Project packages.

## Features of the CCP module

The Calendars and Periods module provides you with the following range of functions to maintain calendars:

- You can maintain unique *calendar codes* with descriptions, for which you can define *availability types* and *calendar working hours*.
- You can derive a calendar from an existing calendar. Therefore, instead of defining calendar working hours for all dates in a range, you only need to specify the exceptions. For example, company-wide normal working hours can be specified in a company calendar, while employee-specific information (such as vacations and meetings) can be stored in the employee calendar.
- You can create the calendars LN applications use for planning and scheduling.
- You can define the *standard calendar* for a company. Note that, if companies are maintained on the same system, one company can use another company's standard calendar.
- A range of maintenance functions with which you can copy and delete calendars.

# 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
<i>Recur- rences</i>	<p>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”.</p> <p>Recurrences are used to build patterns and calendars.</p> <p>In the People package, you can use recurrences in <i>assignments</i>.</p>



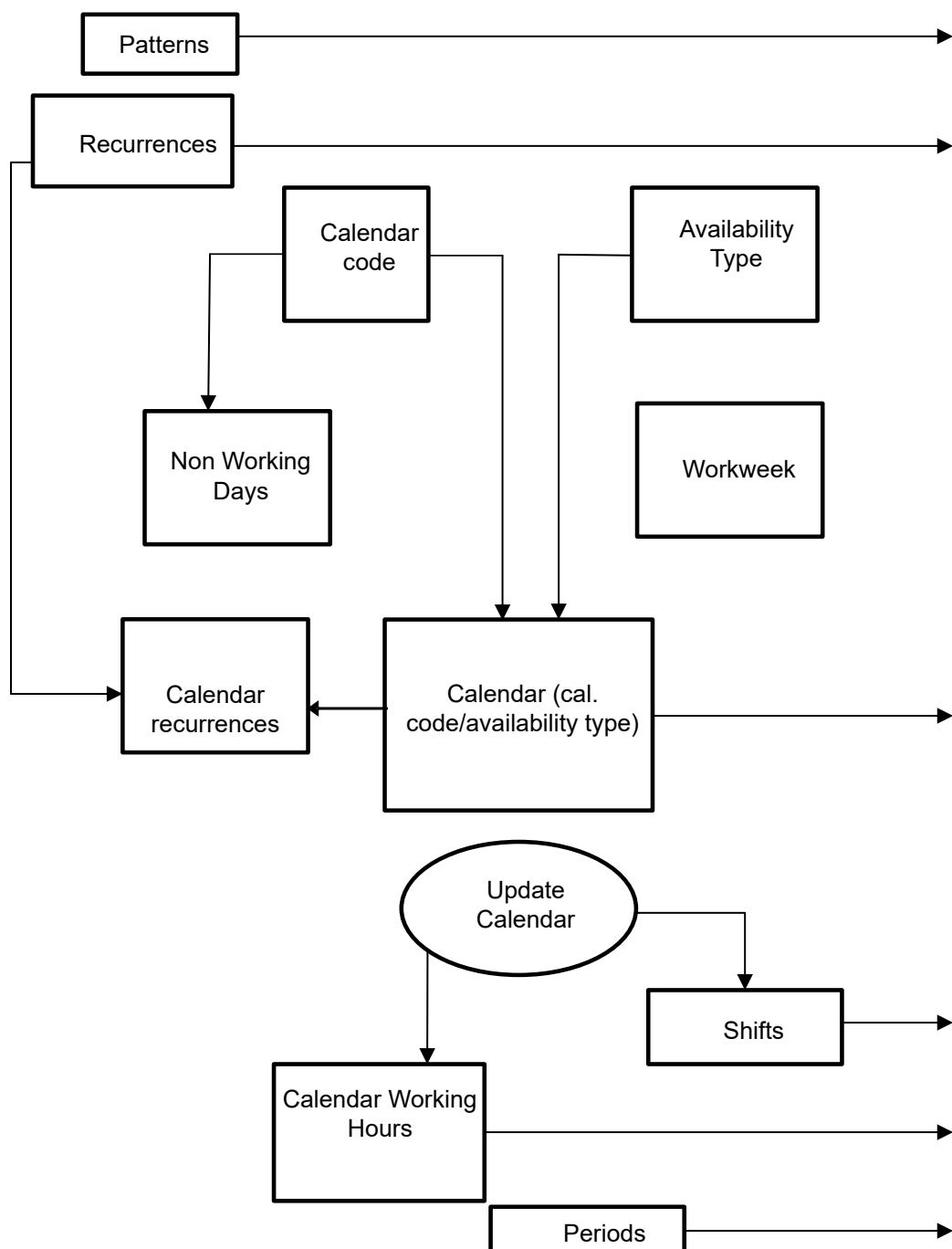
Concept	Description
<i>Patterns</i>	<p>A scheme defining the day of the month, the day of the week, and the time of the day you want an activity to be carried out. Patterns are defined by using a combination of recurrences, exceptions, and times of day.</p> <p>The Order Management and Enterprise Planning packages use patterns to define delivery moments, shipping moments, and <i>fixed delivery patterns</i>.</p>
<i>Calendars</i>	<p>Calendars define the working times or opening times over a large range of dates. Calendars can also store efficiency-related and capacity-related data.</p> <p>You use calendars to define the working times of <i>employees</i>, <i>work centers</i>, and <i>warehouses</i> and information on the working dates and times of business partners, required to plan deliveries.</p>
<i>Shifts</i>	Define shifts for a calendar in order to specify the working times of a team of employees.
<i>Periods</i>	<p>Periods divide a year into regular intervals, such as weeks, months, or quarters.</p> <p>You use periods for statistical, financial, hours accounting, planning, and cost controlling purposes, especially in the Sales, Procurement and Project packages.</p>

### 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.



## 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

### 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.
- 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.

- 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:
  - 1 Start the Generate Pattern Moments (tcccp0295m000) session.
  - 2 Select pattern or a range of patterns.
  - 3 Select the **Roll Recurrence** check box.
  - 4 To start generating *pattern moments*, click **Generate**.
- Manually roll the recurrence:
  - 1 Start the **Recurrences (tcccp0143m000)** session.
  - 2 To start the **Recurrence Details (tcccp0143s000)** session, double-click a recurrence.
  - 3 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

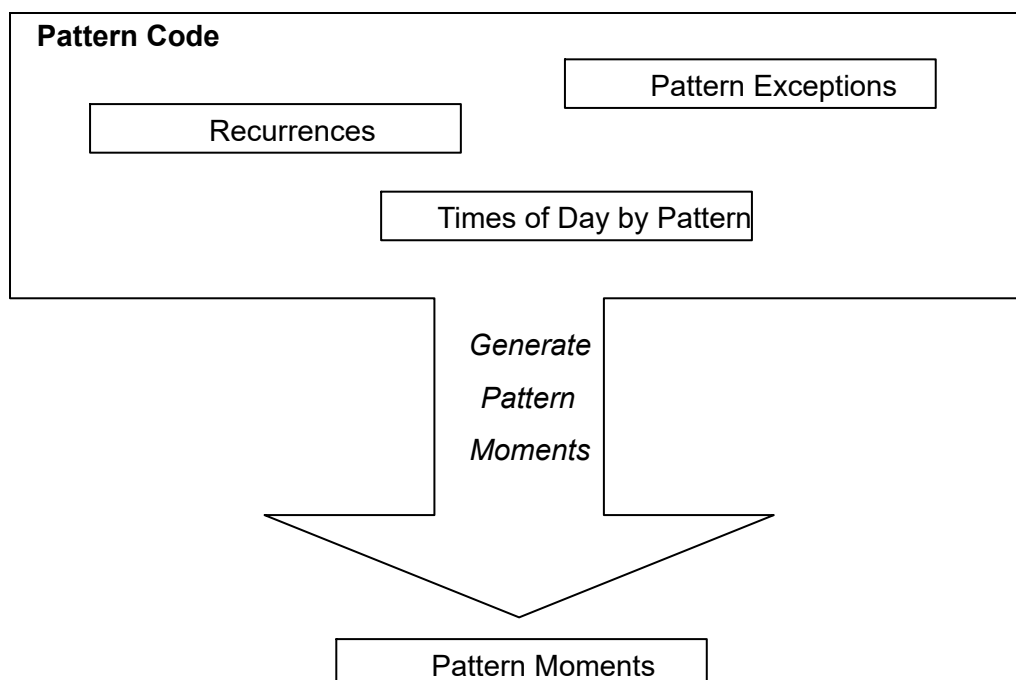
### Defining patterns

#### Prerequisites

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

#### To create patterns

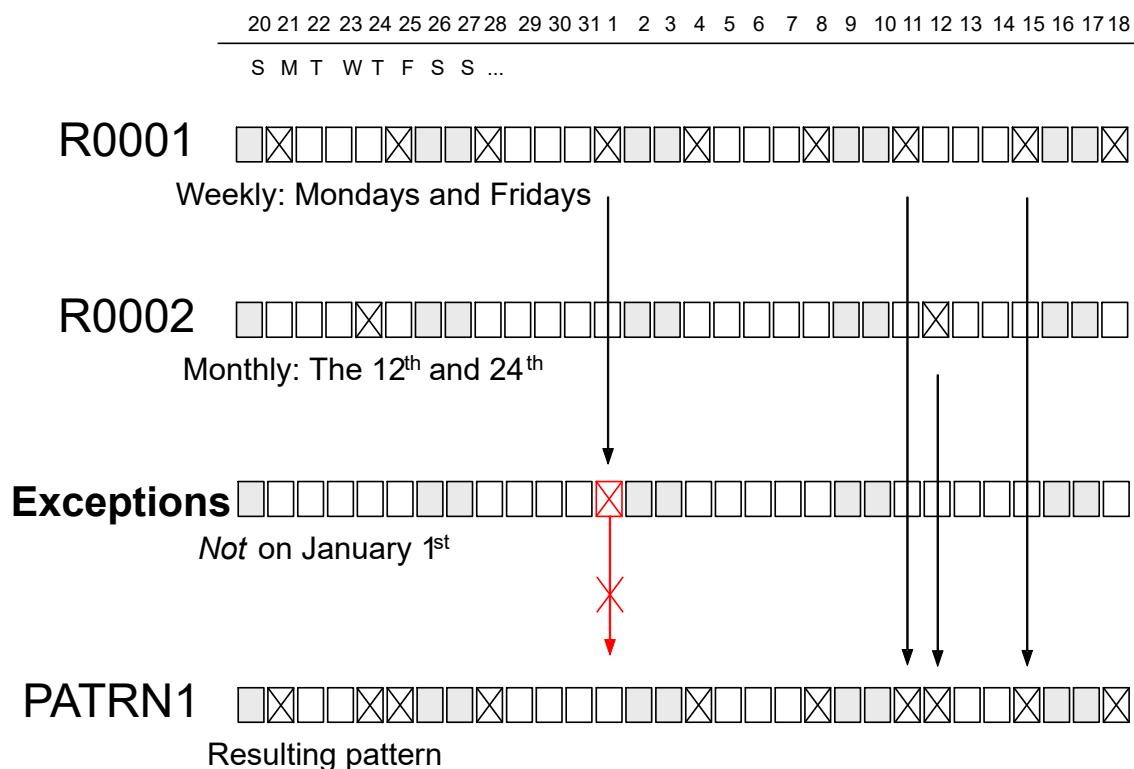
A *pattern* consists of *pattern moments* based on one or more *recurrences*, pattern exceptions, and times of day, as shown in the following diagram:





### To combine recurrences

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



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

- Recurrence R0001 selects every Monday and Friday.
- Recurrence R0002 selects the 12<sup>th</sup> and 24<sup>th</sup> 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.
- 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

### Overview of calendars 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.

- 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.

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*

## Defining the workweek

In the *workweek*, you can define the working times for each day of the week.

A workweek is part of the definition of an calendar: each can have an *availability type* with one or more workweeks linked to it. For example a base workweek and optional date effective workweeks.

To view and maintain this calendar, use the Workweeks (tcccp0105m000) and Workdays (tcccp0130m000) sessions.

### Procedure

#### 1 Base data

- Working time (start time and end time)
- *Capacity percentage*
- *Efficiency factor*
- *Overtime* indicator

## 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.
- 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

## Defining unavailability

Unavailability means that for whatever reason, no production can be planned at certain dates in a calendar. When defining a calendar, 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:
  - 1 Start the **Calendar Working Hours (tcccp0120m000)** session.
  - 2 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*.

## Overview of shifts functionality

Manufacturing companies can use *shifts* to organize the production work force. The most common ways to do this are 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 booked as generic labor for the work cell, not per employee.
- If additional material quantities are used, you must 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*

- 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 Enterprise Modeler Content Pack with 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 Enterprise Modeler Content Pack with 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:

- 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.

- 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.



### 3 Specify calendar availability types

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

### 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.

### 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.

### 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.

### 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*.

### 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.

### 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.

## 10 Assigning the calendars to resources

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

- Companies (tcomm1170m000)
- 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 <i>company</i> calendar	Companies (tcomm1170m000)
To define an <i>enterprise unit's</i> calendar	Enterprise Units (tcomm0130m000)
To define a <i>department's</i> calendar	Departments (tcmcs0565m000)
To define an <i>employee's</i> 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.

### 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

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 <i>working hours type</i> .	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 <i>availability types</i> .	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 efficiency 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

### 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

### 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:** Financial does not use Calendars and Periods. To define the financial periods, Financial uses its own entities.

## Purchase schedule release types

Purchase schedule *release types* determine the type of *purchase release* and the *requirement types* that can be sent.

Release types

A release can be of the following types:

- **Material Release**  
A *material release* can contain push schedules or pull-forecast schedules.
- **Shipping Schedule**  
A *shipping schedule* can contain push schedules or pull call-off schedules.
- **Sequence Shipping Schedule**  
A *sequence shipping schedule* can only contain pull call-off schedules.

## Requirement types

The following requirement types can be communicated:

- **Immediate**  
These schedule requirements have a start date in the past at the time of creation. These requirements must be shipped as soon as possible.
- **Firm**  
These schedule requirements are handled as actual orders that can be shipped.
- **Planned**  
These schedule requirement are sent to you for planning purposes only.

## Release types and requirement types

The schedule's business partner determines from which session LN retrieves the logistic data to determine the type of purchase release and the requirements that can be sent.

- Internal business partner  
Data is retrieved from the **Items - Purchase Business Partner (tdipu0110m000)** session.
- External business partner  
Data is retrieved from the **Purchase Contract Line Logistic Data (tdpur3102m000)** session.

## Items - Purchase Business Partner (tdipu0110m000)

Based on the **Release Type** in the **Items - Purchase Business Partner (tdipu0110m000)** session, a purchase release can be of the following **Release Type** and can contain purchase release line details with the following **Requirement Type**:

<b>Release Type in Items - Purchase Business Partner (tdipu0110m000)</b>	<b>Release Type</b>	<b>Requirement Type</b>	Linked EDI messages (BEMIS)
<b>Shipping Schedule Only</b>	<b>Shipping Schedule</b>	<b>Firm Or Immediate</b>	BEM SHP001
<b>Sequence Shipping Schedule Only</b>	<b>Sequence Shipping Schedule</b>	<b>Firm Or Immediate</b>	BEM SEQ001
<b>Shipping Schedule Or Sequence Shipping Schedule</b>	<b>Material Release</b>	<b>Planned</b>	BEM MRL001
<b>Shipping Schedule Or Sequence Shipping Schedule</b>	<b>Shipping Schedule Or Sequence Shipping Schedule</b>	<b>Firm Or Immediate</b>	BEM SHP001 or BEM SEQ001
<b>Material Release</b>	<b>Material Release</b>	<b>Planned, Firm, Or Immediate</b>	BEM MRL001

### Purchase Contract Line Logistic Data (tdpur3102m000)

Based on the **Schedule Message Types** in the **Purchase Contract Line Logistic Data (tdpur3102m000)** session, a purchase release can be of the following **Release Type** and can contain purchase release line details with the following **Requirement Type**:

Schedule Message Types				Release Type	Requirement Type	Linked EDI messages (BEMIS)
Use Material Release	Use Material Release for Firm Requirements	Use Shipping Schedule	Use Sequence Shipping Schedule			
yes	no	yes	yes	Shipping Schedule OR Sequence Shipping Schedule	Firm OR Immediate	BEM SHP001 or BEM SEQ001
yes	no	yes	yes	Material Release	Planned	BEM MRL001
yes	yes	not applicable	not applicable	Material Release	Planned, Firm, OR Immediate	BEM MRL001
no	no	yes	not applicable	Shipping Schedule	Firm OR Immediate	BEM SHP001
no	no	not applicable	yes	Sequence Shipping Schedule	Firm OR Immediate	BEM SEQ001

#### Note:

- For push schedules, shipping can be performed based on the EDI message BEM MRL001, but only for those schedule lines whose requirement type is **Firm** or **Immediate**.
- EDI messages are only generated if the value of the **Communication Channel** field in the **Purchase Contract Line Logistic Data (tdpur3102m000)** session and/or the **Items - Purchase Business Partner (tdipu0110m000)** session is set to **EDI**.
- Segment sets*, which consist of several *segments*, are linked to requirement types. Which segment set(s) can be specified in the **Items - Purchase Business Partner (tdipu0110m000)** or **Purchase Contract Line Logistic Data (tdpur3102m000)** session, depends on the chosen release/message type(s). Depending on the release/message type(s) and the applicable requirement type, specific EDI messages can be generated in time when sending the purchase release to the supplier.
- Because pull call-off schedule lines are not *clustered* and are automatically converted to purchase release line details with the status **Scheduled**, no *segment set(s)* are used. As a result, the requirement type is always **Firm**.
- For push schedules lines, requirement types in the **Purchase Schedule Lines (tdpur3111m000)** session are calculated during the *regeneration* process, which you can perform in the **Regenerate Schedules (tdpur3211m000)** session. The requirement types in the **Purchase Release Line - Details (tdpur3522m000)** session are directly calculated from the schedule's applicable segment set and issue *pattern*. If you do not regenerate the schedule line, the value of the **Requirement Type** field in the **Purchase Schedule Lines (tdpur3111m000)** session is retrieved from the **Requirement Type** field in the **Purchase Release Line - Details (tdpur3522m000)** session. Which schedule lines are included when

you generate release lines in the **Generate Release Lines (tdpur3222m000)** session, depends on the push schedule's release/message type(s). For example, if the release type is defined as **Shipping Schedule only**, no material release is created, so the purchase release does not contain **Planned** release lines.

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