

Demonstration exercise

Introduction

This demonstration exercise, based on a simple example, aims to show the user some of the basic functions of **e-Prelude** software, without considering the multiple details and parameters of the rest of the functions at this level.

Use of e-Prélude

After logging in to the **login** page, you will access the **Administration** page of the demo folder.

Many pages can be opened successively during the various manipulations of the software. To return to the previous page, click on the **Back** button in the upper left corner of all the pages.

Access to functions is done in three ways:

For the menus.

By the icons in the upper bar (the function in question is remembered when you place the mouse over the icon).

For the chart on the **Information Flow** tab of the **Administration** page.

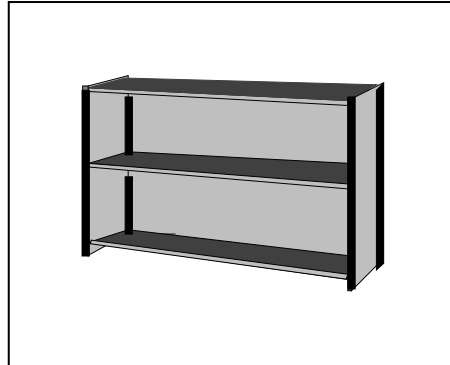
On most pages, you can quickly access a form by clicking on a line in the list of documents in the left pane.

Online help

The online help (icon "?" In the upper right part of the icon bar) shows the chapter corresponding to the menu in which it is located; contains a complete description of the **e-Prelude** pages. You will find the answer to most questions that may arise during use.

The consideration of the problem in production management

The **BookCase** company manufactured wooden bookcases, like the one shown in the picture.



BookCase offers two different models in its catalog: a bookcase with a width of one meter and another with a width of two meters.

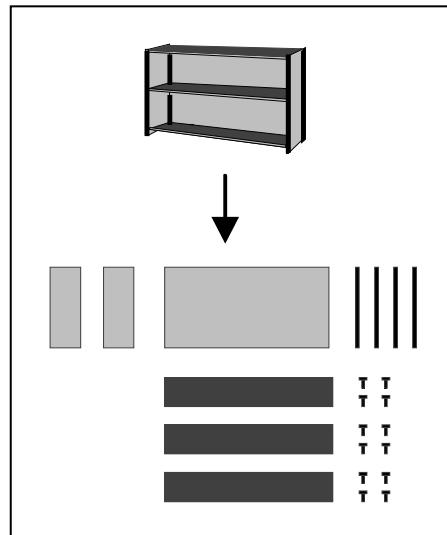
The current date

The date of the (fictitious) day of the file is January 3, 2022.

The problem is to plan and organize the production of these booksellers for the first months of the year 2022.

The products

A bookcase consists of 3 external support panels (two smalls on the sides and one large on the back), 4 profiles to assemble the elements, 3 shelves and 12 metal pins (4 per shelf).



Factory

The plant consists mainly of joinery machines for the production of profiles and reinforcements, saws for cutting panels and assembly workshops.

Session 1: The articles

In this session, we will see the information that describes the set of objects that will be necessary to manage or generate: **items**. The articles correspond on the one hand to the different components (and compounds) represented at the beginning of the exercise and, on the other hand, to the materials used to manufacture these components.

Open the article management page through the **Engineering** menu, **item Management** option. The list of items is presented in the left panel. Click on an item in this list to display the item information

There are two types of items: purchased items and manufactured items.

Click on the **Rules** button on the button bar to display the **Materials Management Rules** page. It contains the parameters that will automatically propose the new manufacturing and purchasing orders.

Click on the **Back** button to return to the **item** page.

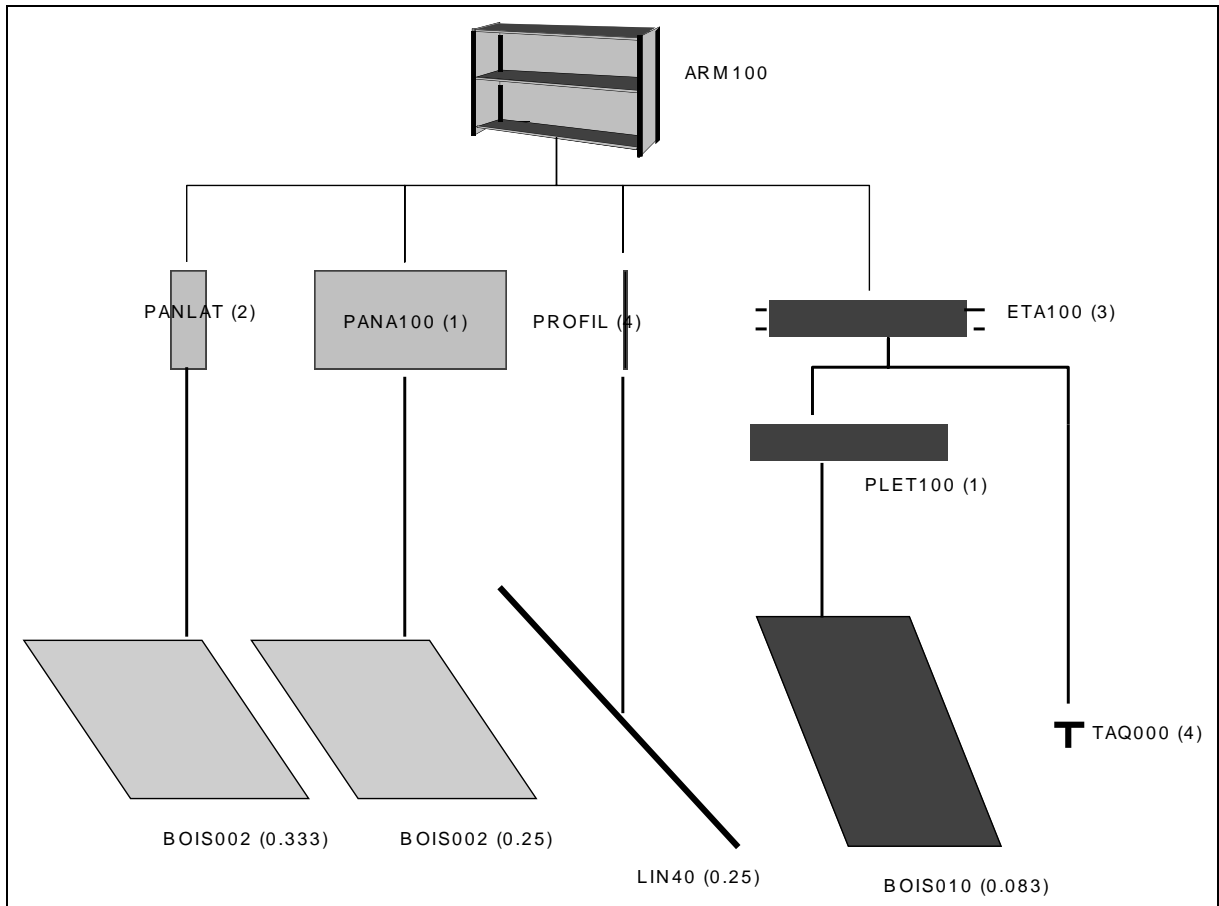
Purchase management

The items purchased are obtained from suppliers that must be specified. A single provider has been considered here and can be seen on the **Supplier Management** page (**Purchasing** menu).

For each provider, it is necessary to describe the items that are delivered and under what conditions. The delivery characteristics, which are described in the following table, must be entered in the **Catalog of items provided by** clicking on the **Catalog** button.

Session 2: Bill of materials management

The articles presented in the previous session are really interconnected: BC100 and BC200 are manufactured by assembling the other elements. In this session, the information describing the links between the articles (component, compound, subset, ...) is illustrated in the form of manufacturing nomenclatures. Below is the breakdown of the finished product into its components and raw materials:



Open the BOM administration page through the Engineering menu, **BOM management** option. Select the first item in the list on the left. The list of its components is shown.

Click on a row in the table. The BOM Link Management page is presented. Click on **Back**

Click on the **Graphics** button. The nomenclature of the tree is shown.

Session 3: Loading stations and production lines

In this session, information is presented describing the means of production (saws, woodworking machines, ...), described at this level in the form of **loading stations** and manufacturing procedures, entered as **manufacturing ranges**. To create the production lines, it is necessary to have previously created the loading stations in which the operations take place.

The work centers

The loading stations define and characterize the means of production that we want to manage in terms of load. Examine the information describing the charging stations on the **Work Center Management** page (**Engineering** menu) by clicking on the list on the left.

The routing

It is now possible to define production procedures on the Manufacturing **Routing Management** page (**Engineering** menu). Click on the list on the left. The **characteristics of the range** are shown, as well as the table of the phases that compose it. Click on a row in the table. The **Routing Operation Maintenance** page is presented.

For each phase, you will find the following information:

- Your wording.
- The code of the charging station.
- Adjustment times.
- The time of the machine.
- The transfer times.

Union Items-routing

After having created all the ranges, it is necessary to specify for each article which rank is used to carry out its production. For each manufactured article, select the corresponding **Item Maintenance** page (**Engineering** menu). Select the type of **item manufactured** in the drop-down list. This will successively open each article.

The table at the bottom of the page shows the route that should be used to make the article.

Session 4: Storage and movement of goods

Before starting factory manufacturing, this session presents the basic mechanisms to capture the movement of items between different warehouses.

The warehouses

The items can be in different stores. These are defined in the **Warehouse table Maintenance (Logistics menu)**. Here we will only use the **MAG** warehouse.

The initial inventories

The company's initial inventory was seized as a result of the end-of-year inventory.

Open the **Inventory Inquiry per Item (Logistics menu)** and enter the **BC100** code. We get a page that describes the stock status of **BC100**. Click on the **History** button: you get the list of movements that explain the inventory of **BC100** (at the moment, only the movement of the inventory is found).

Open the **Inventory Inquiry per Warehouse (Logistics menu)** and select each store in succession.

Session 5: Material requirements plan

This session presents the fundamental mechanisms of production planning.

Sales forecasts

The sales forecasts have been entered. You can see them on the **Sales Forecast Maintenance page (Sales menu)**.

Activities Calendar

The calendar defines the work periods of the company. The knowledge of the available time is fundamental for planning.

Open the **Calendar Maintenance page (Planning menu)**.

This page presents for the current week the days for which it is possible to specify time ranges defined by work start times and work hours.

MRP

The procedure of the **Material Requirements Planning (Planning menu)** allows calculating the suggested production orders and suggested purchase orders until 03/31/2022.

Item Master Schedules

Examine the **Item Master Schedules (Planning menu)**. A master plan collects the forecasted results (sales forecasts, sales orders, and manufacturing requirements) and forecast contributions (orders from suppliers, production orders and purchase orders) and allows you to see the evolution of the forecast of the inventories. Select the first item and click on the **Transactions** button.

Planned Work Order Maintenance

Review the **Planned Work Order Maintenance (Planning menu)**. See the requirements for the components in the tab at the bottom of the page.

Analysis of planned dates and workloads

Infinite Capacity Scheduling (Planning menu). Enter the calculation deadline: 03/31/2022.

See a suggested production order (the first one, for example) (**Planning Menu**) and display the Dates tab. How were the dates calculated?

Visualize the positioning of the order in time through the **Gantt** button.

Session 6: Programming

Schedule planned production orders

Now we need to **confirm** the production orders suggested by the needs calculation procedure. Open the conversion function of planned production orders (**Planning menu, Planned to Firm Purchase Requisition Conversion option**); Enter the deadline for confirmation on 01/28/2022 and confirm with **OK**.

Programming a manufacturing order

First, perform the equipment availability planning grid until 01/28/2022 (**Scheduling menu, Finite Capacity Scheduling option, Scheduling Rule option: Prepare Schedule**).

Next, visualize the planning of the machinery that shows the working hours of the different machines. It is possible to modify the time scales, which allows to have more precision in the programming with the buttons **Hours, Days, Weeks**.

Question 8-5 Open in the list on the left the firm order on the PROFILE article.

Select the **Forward scheduling** option, then click on **Schedule** and **Close**. Examine the location of the OF in the schedule.

Scheduling of all OF

Forward scheduling

Then, start the scheduling of all OF (**Scheduling** menu, **Finite Capacity Scheduling** option, **Scheduling Rule: Forward scheduling**, Work Order Sorting Criteria: Due date).

See the machine's schedule (**Graph** button). Select the option OF in the Planning button to see the position of the order.

Some OFs are ahead of the requirement dates (positive margin). See delays (button **Delays** and **Advances**). What is the impact of an advance of an OF on the date of need in the organization of the production? Click on **Return**

Click on the **Charges** button. Select **Periods of days**. Visualize the loads and balances of the different positions. Examine the effects of the different options under the **Type** button.

Backward Scheduling

Then, restart the Scheduling of all OF (**Scheduling** menu, **Finite Capacity Scheduling** option, **Scheduling Rule: Backward Scheduling**, Work Order Sorting Criteria: Due date).

See the machine's schedule (**Graph** button). Examine the delays and progress. What do you conclude? Visualize the loads and balances of the different machines. Examine the effects of the different options.

Priority Scheduling

Then, restart the scheduling of all OF (**Scheduling** menu, **Finite Capacity Scheduling** option, **Scheduling Rule: Priority Scheduling**, priority rule: **Minimum slack**).

See the machine's schedule (**Graph** button).

We have completed the planning and operations control cycle in this study case.

Thanks for your attention.
