

Production and manufacturing

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Introduction to the Advanced Manufacturing Module

Advanced Manufacturing helps you model your production processes, transforming components and raw materials into finished goods. Advanced Manufacturing also includes the [Manufacturing Execution System \(MES\)](#) application, letting your users carry out production tasks on the go.

Advanced Manufacturing is for when you need to account for more complex production processes, such as when production capacity is limited by resources, part of the process is carried out by a third party, or multiple items are produced from the same process. If this sounds more complicated than your requirements, you should check out our [Standard Manufacturing](#) features, which are included with all accounts.

This article will give you an introduction to what is included in the Advanced Manufacturing module and the order of the steps you should take first.

Advanced Manufacturing is an add-on and must be added to your base subscription.

Add the Advanced Manufacturing module to your subscription

Some features of the production module (assembly, disassembly, and inventory write-offs) are included in the Cin7 Core base subscription. Advanced manufacturing consists of extra features and requires an extra subscription, please see [Cin7 Core Plans and Pricing](#) for more information.

You can try the Advanced manufacturing module for 30 days free of charge, either when you begin a free trial with Cin7 Core or at any time after signing up to the base plan.

When trying to access any advanced manufacturing features, such as production orders or production settings, you will be informed you do not have access to the Advanced manufacturing module. Click **Start trial** to start your 30-day trial of the module. If you have completed the trial period already, you will be given the option to **Update subscription** instead.

The advanced manufacturing module can also be added to your subscription from the **My subscription** page.

Production module permissions (Advanced manufacturing)

Cin7 Core offers fine-grained control over user permissions. Grant users full or read-only permission to the different features of the production module, and create roles with pre-defined permissions to assign to users.

See [user permissions explained](#) for more.
[My Subscription](#)

Configure Factory Calendar

The [Factory Calendar](#) defines your default working days and hours, letting you plan capacity and schedule orders accurately. This is the first step you should take when starting to use the Advanced Manufacturing module.

Set shop floors and logistics paths

Shop floor locations are where you manufacture finished goods. Logistics paths define how your production location is connected to where your products are sold and where your components are stored. These can be multiple different locations or everything can happen in the same place. This allows Cin7 Core to take lead times into account, automatically generate purchase and transfer orders, and log stock movements.

See [Shop floors and logistics paths](#) for more information.

Create work centers and bins

Work centers define the area where a production operation takes place within the business (for example, a specific workshop, room or section of the shop floor).

Bins are used to specify where the stock is stored within a location. For a production work center, bins define where the components should be brought in order to start a production operation, and where the production output should be stored when production is finished.

See [Work centers and bins](#) for more information.

Set up production resources and costs

Manufacturing finished products requires resources like tools, machines, labor, or even water and electricity. Each resource has a capacity; the amount of finished product it can produce at a time. Cin7 Core uses resource capacity to calculate how much time is required to complete a production operation, production run, and production order. As well as capacity, resources incur a cost when they are used, with more use equal to higher costs.

See [Production resources and capacity](#) and [resource costs](#) for more information.

Settings → Reference books → Locations and Bins

Create a production BOM

The Production BOM defines each step of a production operation, its duration, and the components and resources required to complete each step. A Production BOM is an essential feature for resource capacity planning and correctly scheduling production operations. Once you have set up your factory calendar, work centers, and resources, you can begin creating production BOMs.

See [Production BOM](#) for detailed instructions and examples of this feature in action.

Customize production process settings

These settings include a range of parameters to customize your production process to meet your business needs. This includes turning on product tracing, ordering components automatically, changing default co-manufacturing procurement type, and more.

See [Production process customization settings](#) for detailed information on each setting.

Map a work in progress account

Production orders specify a **Work in progress** and **Finished goods** account so the accounting transactions of a production operation are correctly recorded.

By default, the finished goods account will be set to your **Inventory control** account, but this can be manually edited from the production order.

You can specify which work in progress account to use by default from the [Account mapping](#) screen.

Create production orders

A production order defines the finished good to be produced, the location where the production will take place, the date and time of the production, and the number of components and resources required. The production order also defines the sequence of operations to be performed and the costs of finished goods.

See [Production orders](#) for detailed step-by-step instructions for how to carry out production orders.

Main Menu → Production → Settings → Work Centre

Draft

PRODUCTION ORDER #MO-00001

View

General Info

SBU *

49270096

Shop floor *

Canberra Workshop and Showroom

Finished Goods Account *

715; Inventory

Product Name *

DINE Dining Chair Brown Leather

Work In Progress Account *

121; Work In Progress

Order Details

Quantity *

10

Capacity Calculation *

From Planned Date Forward

Release Date

Maximum Quantity

33.3333

Required By Date

Completion Date

Planned Date *

30/01/2020

Ignore Components Cumulative Lead Time

Quantities

In Production

0

To Produce

10

Put Away

0

Ready To Put Away

0

Comments

Type your comment here...

Capacity Planner

The Capacity Planner is a resource allocation reporting and re-planning tool. The Capacity Planner shows the capacity for a selected planning period, which resources are overallocated, and allows re-planning of capacity to ensure smooth delivery of production orders.

See [Capacity Planner](#) for more information.

CAPACITY PLANNER					
☐ Show overallocated From 01/02/2020 To 31/03/2020 Resource choose... Shop Floor Canberra Workshop Shop Refresh					
RESOURCE	SHOP FLOOR	TOTAL	AVAILABLE	ALLOCATED	CONSUMED
LAB-002: Labour: Woodwork (ACT)	Canberra Workshop and Showroom	198	138	60	0
LAB-002: Labour: Fabric Work	Canberra Workshop and Showroom	198	-69	267	0
LAB-003: Labour: General	Canberra Workshop and Showroom	198	167.5	30.5	0
MECH-001: Coping Machine	Canberra Workshop and Showroom	99	76.5	22.5	0
MECH-002: Sewing Machine	Canberra Workshop and Showroom	198	153	45	0
MECH-003: Overlock Machine	Canberra Workshop and Showroom	99	76.5	22.5	0
MECH-004: Pneumatic Stapler	Canberra Workshop and Showroom	99	54	45	0

Scheduler

The Cin7 Core Production Scheduler visualizes production order information. You can view production order information, sales orders (containing goods to be produced), and resource capacity in Gantt chart format.

The Scheduler shows which orders depend on one another, how long orders will take, and what needs to be completed in what order. Production orders, production runs, and operations can all be rescheduled from the Scheduler intuitively using the drag and drop editing features.

See [Scheduler](#) for more information.

The screenshot displays the 'Production' tab of the Cin7 Core Production Scheduler. It features a Gantt chart for the period from Feb 2020 to Mar 2020. The chart shows production orders (MO-00007, MO-00011, MO-00012, MO-00015, MO-00013) and their dependencies. The left sidebar lists the production order details, including the item name, progress, and a list of operations (Fabric Cutting, Selecting Lumber, Processing Lumber, Sewing, Upholstering, Assembly and Adjustment, Quality Inspection) with 'Start' and 'Stop' buttons. The Gantt chart shows the timeline for each order, with bars indicating the duration of the production runs. The chart is color-coded by order type: green for production orders and blue for sales orders. The chart also shows the dependencies between orders, with arrows indicating the flow of production from one order to another.

Production Reports (Advanced Manufacturing)

Production reports let you analyze production costs, view when orders are overdue, identify component shortages, and more.

Users can have read-only or full access to these reports with the **Production Reports** permission.

Users with a subscription to the [Cin7 Core automation module](#) can set up Report Scheduling, Reminders and Notifications for these reports.

See [Production Reports](#) for more information.

Manufacturing Execution System (MES) application

MES is Core Cin7's mobile application to allow your shop floor workers to input production tasks on-the-go.

Each production order consists of a list of operations for your shop floor workers to carry out. Each day, MES tells shop floor workers what tasks they have for the day, which orders should be carried out first, and which components are required. Cin7 Core's MES mobile application makes this information transparent and allows each shop floor worker to mark production actions as started and completed from their device.

Actions executed in the MES application are passed to Cin7 Core to initiate stock movements and accounting transactions for production orders, production run, capacity planner, and scheduler.

Learn more about [MES application](#).

What's next? Advanced production features

Once you have mastered production basics, here are some more advanced production features that can help you best define your manufacturing processes using Cin7 Core.

- Setting up complex operation sequences with parallel and non-parallel operations. See [Implement parallel operations](#) in a Production BOM for

help setting up more complicated operation sequences.

- Manufacturing with several products resulting from one production process. See [Finished products - Primary products, coproducts, byproducts, joint production products](#) for detailed information on how to implement this kind of manufacturing process.
- Defining virtual intermediate products of production operations for use in later operations. Such intermediate products can be reflected in the Production BOM to increase accuracy in production reporting and transparency for the production process. See [Using Inputs and Outputs - Intermediate or semi-finished products](#). It is recommended to understand how finished products are used before moving on to intermediate products.
- Full or partial co-manufacturing, the outsourcing of part or all of the manufacturing process of a product to a third-party. See [Co-manufacturing](#) for more information. It is recommended to understand how finished products are used before moving on to intermediate products.
- [Customizable products, or make-to-order](#), allows your customers to select different configuration options that will ultimately select the final product. For example, a ring could be customised with different metals, ring size, different gemstones, or a custom engraving.
- [Production Component Tracking and Traceability](#), Traceability is the ability to track every part and product throughout the manufacturing process, from the moment when raw materials enter the factory to the moment when final products are shipped. Knowing which exact components make up a finished product is essential to quality assurance, inspection and control
- [Phantom BOM](#) is used to explode components with assembly BOMs within a production order, without creating a separate assembly order - the BOM is 'phantom'. Phantom BOMs can easily add instructions to multiple production BOMs for nested components that are physically built, but not stocked, before being used in the next step or level of manufacturing.