Apparel & Footwear

Production Planning & Scheduling

Contents

Introduction

The following information will help to understand how to make production planning & execution a faster and more accurate activity.

Basic Concepts

In order to understand the planning module we present some of the basic information

SAM: Standard Allowance Minute. Time required to manufacture a garment. This time could be segmented by operations (cutting, sewing, packing, QA, etc). In our example the SAM will be for an entire send out process.

Resources: machines / employees (internal or external) performing manufacturing operations. We will setup these resources as finite capacity sewing lines.

Manufacturing Operations: taks to be performed in order to complete a semi or finished product

Operation Templates: order an operation quantities based on product complexity

Cost Sheets / Neutral BOMs: this object controls the production routing as well as materials needed for the manufacturing process. At least a default cost sheet needs to be created for the style.

SKUs – BOMs: individual color – size combinations generated from the style attributes. In order to run a manufacturing order at least one SKU and BOM are needed

Example

Lest take an example of a simple Polo Shirt with its basic information:

1. SAM of the Polo Shirt (i.e. 16 minutes) – CMT operation
2. How many machines will be used to make the order (i.e. 20 machines)
3. Daily working hours (i.e. 8 hours)
4. Line efficiency (i.e. 100%)

To make 5000 polo shirts-

Capacity required = 5000 X 16 minutes = 80,000 minutes = 1333 Hours

Available Capacity/Day = 20 X 8 hours = 160 Hours

Assumes that line works at 100% efficiency.

So, the days required (theoretical) to produce 5000 polo shirts = 1333 / 160 = 8.3 days (usually rounding up to 9 days)

Op	Resource	Efficiency	Pieces	SAM	Total Min	Total hrs	Capacity	Days
MAN	SEWING	100	5000	16	80000	**1333**	**160**	9

For planning add one more day as in practical, one day will be lost for loading and line setting. If you production is calculated at 50% efficiency then you need 19 days to complete the above order.

The process

This is how we can implement this in AFS for SAP Business one.

Resource Master

Add the sewing line. In our example the line or cell is composed by 20 employees working 8 hrs.

When it's Outsource production mark it as External and complete Supplier code and How many items per Week this supplier will manufacture according the contract.

Manufacturing Operation (send out)

Create a manufacturing routing linked to the style with just one operation called send out. SAM is set to 16 minutes.

Style Master

Add the style with the required data. The process will create bill of materials (BOMS) based on the costing sheet selected.

Customer Order

The planning is based on a Make To Order process (MTO). Usually the planning is based on delivery date and customer priority. This information is set during order entry and validated by the manufacturing department. This is not mandatory as the user can allocate manufacturing orders based on MTS – make to stock

Cut Ticket / manufacturing order

The order information is then transferred to a cutting ticket.

Planning

Based on SAM and manufacturing capacity in the sewing line, the resources are allocated accordingly to the planning board. Users can allocate to a different resource (resource leveling) based on the capacity of the sewing line.

1. Go to Production → Production Schedule → New Planning
2. Select the order/s to include in the planning.

3. Run planning calculation, review the results. Enter a code and name for the planning (as the user can run different planning scenarios) and click ADD
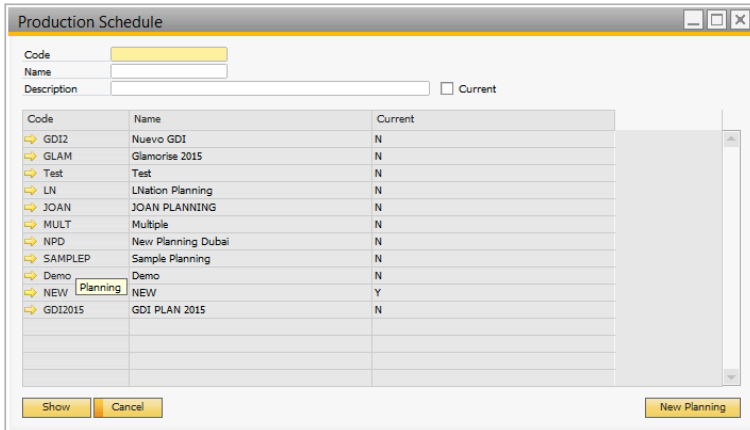

4. For the example above the polo shirts will be set for the sewing line for 8 days
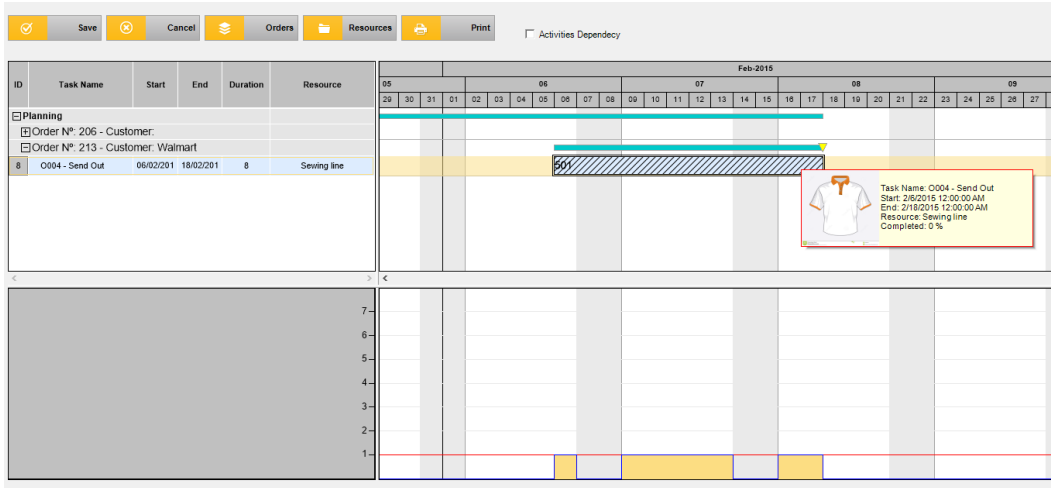
Accessing Planning scenarios

In order to access the planning scenarios, Go to Production Schedule → Click Show to view all the planning scenarios.

Click in the arrow to view the planning

Replacing resources

In order to replace resources select the resource and in the upper panel. In the lower panel all the same resource types available for the date planned will bi displayed. Click on the replace Rec. button to replace the rerource.

Replacing using the gannt chart control

Select the task assigned to the resource and drop it to a different resource in the gannt chart. Only resources with tasks are displayed. Otherwise use the form replacement method explained before.
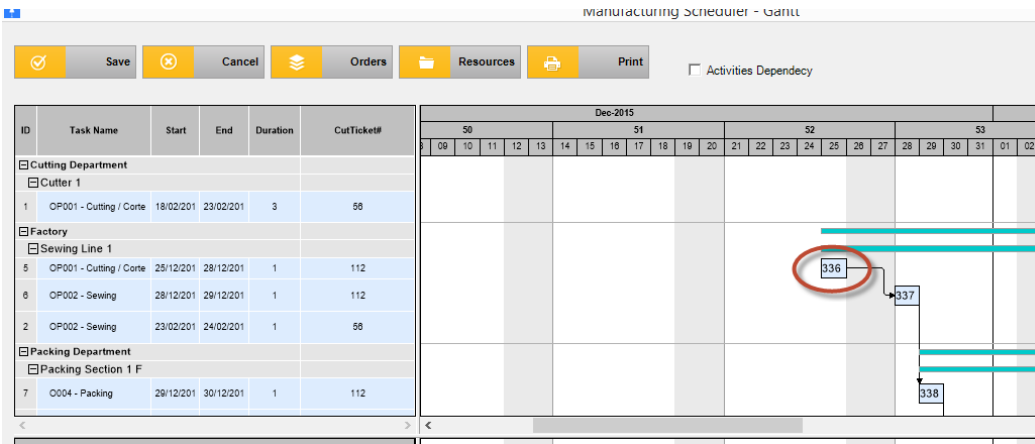
If the Operations have dependency, in the Top is available the option Activities Dependency.

Once this option is selected when changing any date in the Planning the Operations with dependency are updated accordingly.
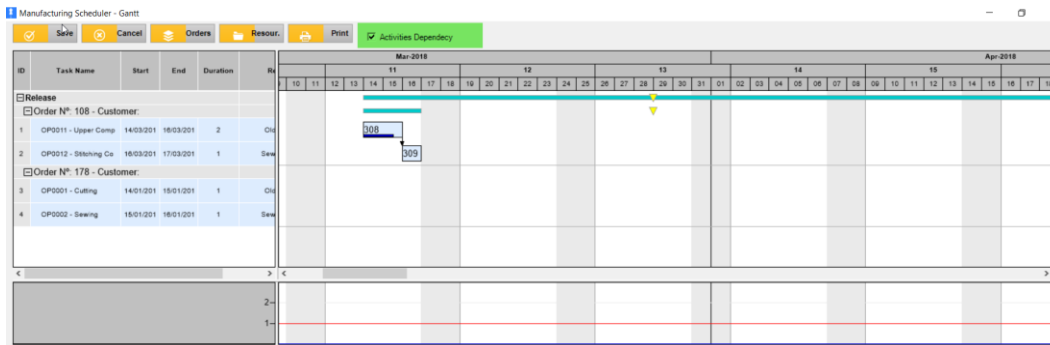
Printing the planning
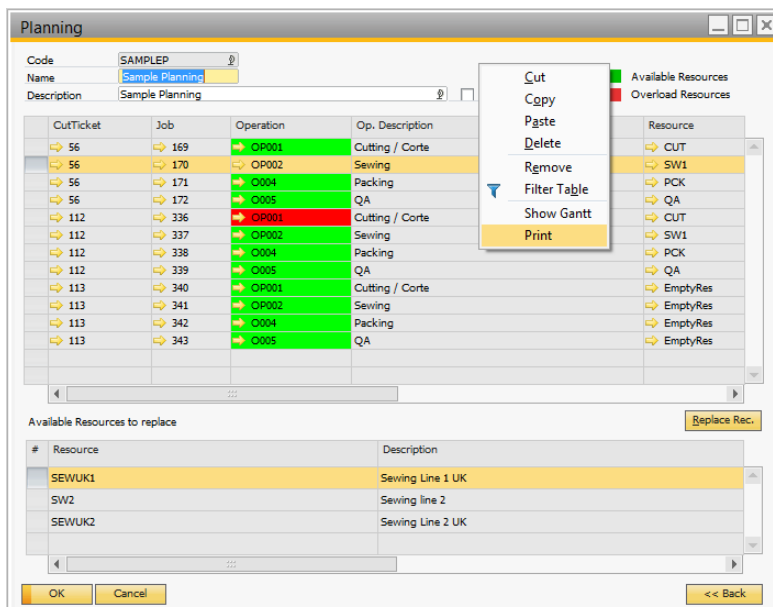
If you have the reports installed you can print the planning to share with all users

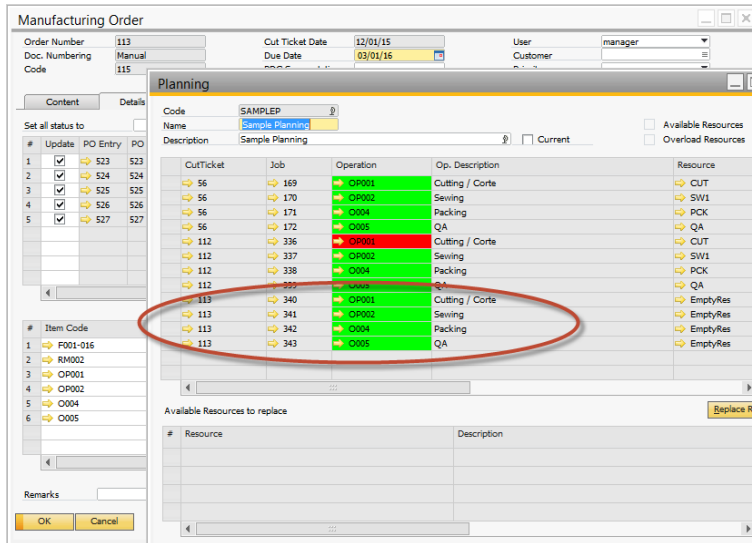## Adding a new order to a planning

Usually when a new production order is created in planned mode, it needs to be added to a planning version. in order to do this right click in the order and select ADD TO PLANNING

Select the planning scenario

The cut ticket operations are added to the planning. Adjust the resource if necessary and save the form

How the planning allocates resources to manufacturing operations

User may be aware of default data for the planning process coming from the cost sheet. The planner follows this criteria:

1. Take the order and SAM of each operation from the cost sheet.
2. Select the default resource from the operation in the cost sheet. If no value is specified the solution cannot calculate availability
3. Take the delivery date and start planning backward
4. If the default resource is not available for the selected dates the planner looks for another resource available, same resource type in the same resource center. Make sure the resources are active and the "include in planning" check box is active.
5. If not available it looks for the same resource type in a different work center
6. If not available it looks for an external resource, same type
7. If no resource is found it will set to NO RESOURCE in the planning.

Closing remarks

The current version is a planning module or scheduler due to the concept that fashion is a dynamic scenario to create and advanced module or APS. This is based in the following concept:

1. A production order can be splitted up into a set of jobs which are then assigned to multiple parallel machines. The user can setup a cutting process and then run in parallel the sewing process to control both task in detail.
2. All customer orders are accepted and the available capacity is adapted accordingly, basically due to the ease of subcontracting. If no resource is available outsource to external shops is always a good practice. This is why the planner set NO RESOURCE in the initial planning. The user is then able to assign a resource manually.

SAP Business One