



Production Order Planning

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scheduling

Production Order Planning

Although Scheduling's focus as an operational planning tool is in sequencing and scheduling the Materials already in production, the release of planned Production Orders in the short-term may also have impacts on the shop-floor which must be considered in the short-term.

Scheduling tries to capture this reality by using a look ahead mode, called planning schedule, which simulates the release of these planned Production Orders by creating virtual Materials which will then be planned alongside the real Materials. Since this is a Simulation with virtual Materials which do not physically exist yet, and the production orders haven't been released yet, this kind of a plan cannot be Released/be put into effect.

Info

Although the planning schedule's primary purpose is to simulate the Production Order Start, since it is a plan that will not be put into effect (cannot be released), it can be used with all the Resources still working with dispatching to generate a plan. For more info, check the [Scheduling Setup page](#).

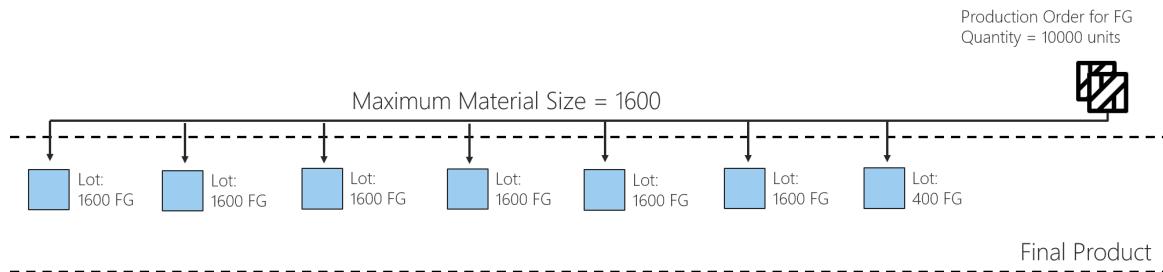
Functioning

Production Order planning will take into consideration every Production Order that has the property Include in Planning activated. For these Production Orders, it will consider the production of in-house components for those which have the property Include In BOM Explosion activated.

Finished Good Product

For a Production Order to be considered:

- Its System State must be Created
- It must have Include in Planning set to true
- Its Product must have Include in Scheduling set to true, and it must have a Default Material Form, Default Material Type and Maximum Material Size. Optionally, the Minimum Material Size must also be specified.
- Either the Production Order or its Product must have a Default Flow Path defined. If the Step specified in either Default Flow Path is present in multiple Areas, the Production Order's Facility must be specified. In these conditions, the system will split its quantity according to the Product's Maximum Material Size and Minimum Material Size properties, creating a set of virtual Materials that will be considered by scheduling. This can be seen in the following picture, where a Production Order of 10 000 units is broken down according to a Maximum Material Size of 1600.



Component

For a Production Order to be considered for BOM Explosion, in addition to the conditions already specified, it must:

- Have the property Include in BOM Explosion activated
- Have a BOM of Scope Materials associated with the Product's Flow.
- The BOM's Units must match the Step's Primary Units
- At least one of the BOM Products has Include in Scheduling activated. In these conditions, the system will calculate what is the material necessity of the BOM Product to fulfill the Production Order. Having determined the total necessity for each component Product, the system will attempt to fulfil it in the following order:

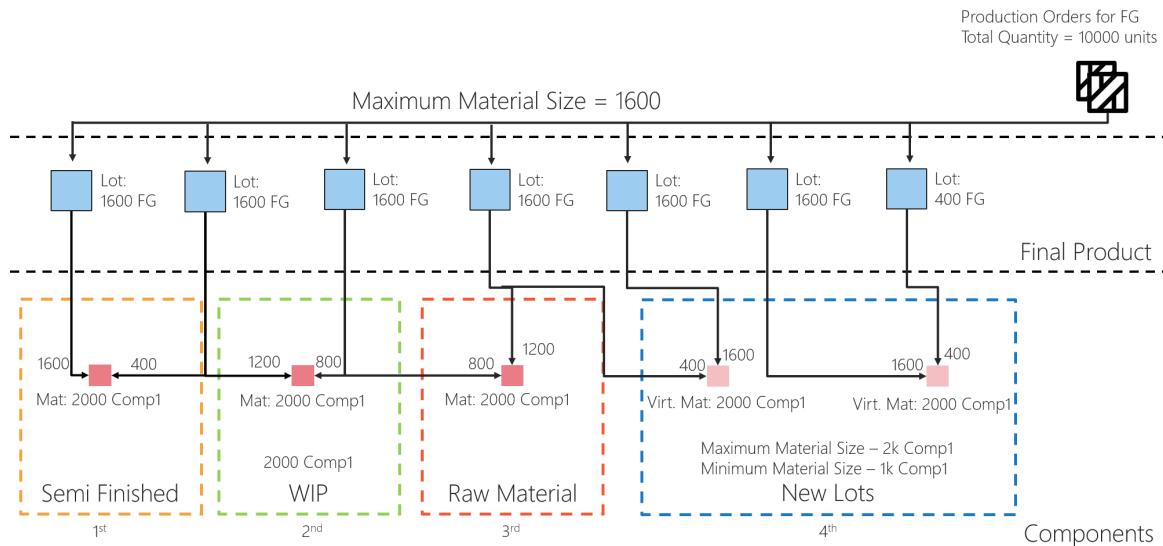
Having determined the total necessity for each component Product, the system will attempt to fulfil it in the following order:

1. Semi-Finished Products - the system will try to firstly use components which have already finished production and are ready to be consumed. For this to happen:
2. The Product should have the property Use Stock in Scheduling activated.
3. The Step where the Semi-Finished Products are being stored should have Include in Scheduling set to true, if these Steps are to be scheduled for planning and operational scenarios, or Include in Planning, if these Steps are to be scheduled just for planning scenarios.
4. The Step's property Scheduling Inventory Type should be set to Semi Finished Products.
5. WIP - If the Semi-Finished quantity is insufficient, the system will try to use WIP. For this to happen:
6. The Product should have the property Use Stock in Scheduling activated.
7. The Steps where the processing is occurring should have Include in Scheduling set to true, if these Steps are to be scheduled for planning and operational scenarios, or Include in Planning, if these Steps are to be scheduled just for planning scenarios.
8. The Step's property Scheduling Inventory Type should be set to In Progress.
9. Raw Material - If both the Product's Quantity in Semi-Finished and In Progress states is insufficient, the system will look for Materials stored as Raw Materials, at the start of the process. For this to happen:
10. The Product should have the property Use Stock in Scheduling activated
11. The Steps where the Raw Material is being stored should have Include in Scheduling set to true, if these Steps are to be scheduled for planning and operational scenarios, or Include in Planning, if these Steps are to be scheduled just for planning scenarios.
12. The Step's property Scheduling Inventory Type should be set to Raw Material.
13. New virtual Materials - If all the quantity present in the system is insufficient to cover the necessities, the system will create new virtual Materials, taking into consideration the Product's Maximum and Minimum Material Size in the same way as for the finished good Product.

As the system determines materials (real or virtual) which can be used to fulfill these necessities, it also creates virtual dependencies between the materials of the finished good Product and of the component

Product. This is used during planning to ensure that the job associated with the assembly Step of the finished good Product is not started until the component has finished all the necessary operations.

Below is an example of the planning of a component with a total necessity of 10000.



 **Info**

As the total necessity for a certain component Product may come from multiple Production Orders, the system will prioritize the fulfillment of the Production Orders with highest Priority and, as a second criterion, with the earliest Due Date.

 **Info**

The Production Order planning will look for components recursively: if one of the Steps of the component product has a context with a BOM of Scope Materials, and if at least one of the BOM Products has the property Include in Scheduling activated, Scheduling will create virtual Materials for that Product and look for BOM Contexts in the Steps of its Flow.



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