



DOCUMENTATION

Visual Production Scheduler (VPS)

Version: **1.6** | as of 3 April 2020

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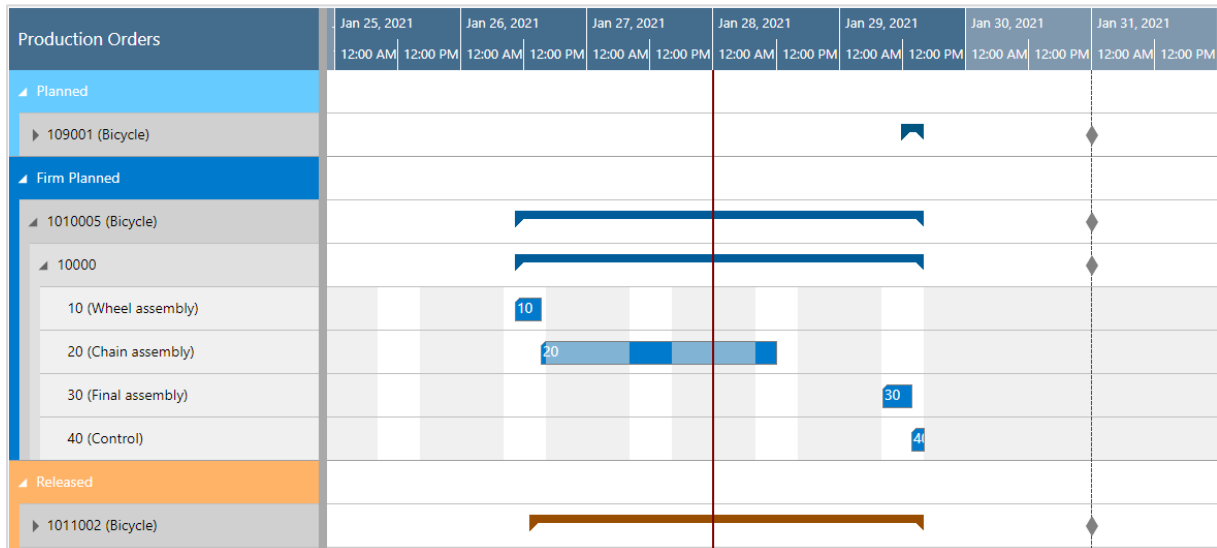
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Technical requirements

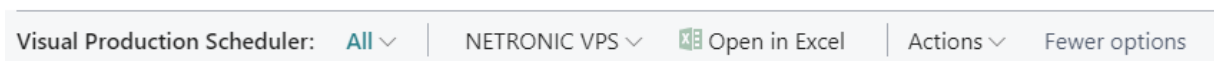
Microsoft Dynamics 365 Business Central

1. Understanding the VPS

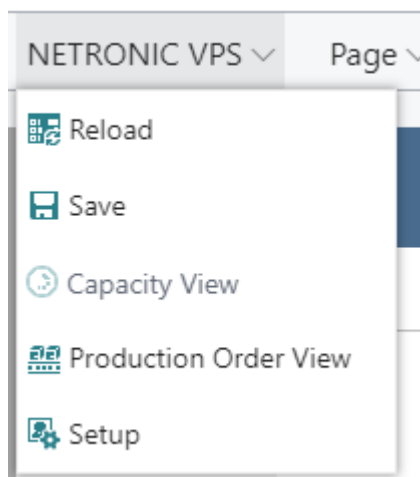
Since the VPS is a Gantt chart, it naturally has all its characteristics:



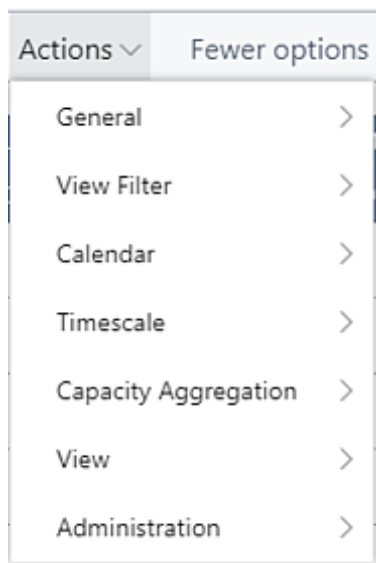
- A **timescale** at the top.
- A **table** at the left, production orders (in the Production Order View) or work and machine centers in the Resource View
- On the right below the time scale, a **chart** displaying the job schedule with a **calendar** in the background indicating work free periods in grey while working times appear in white.
- A menu ribbon allowing to make basic settings that will be explained in detail in the following.



The item "NETRONIC VPS" summarizes the options that we think are the most frequently used ones:

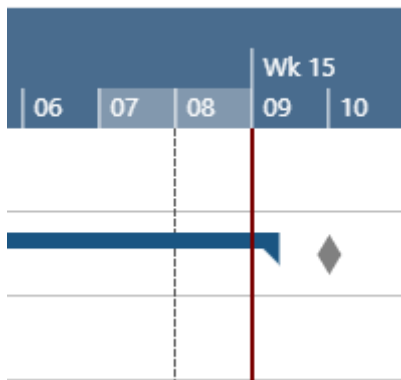


All options of the VPS can be found under “Actions”:



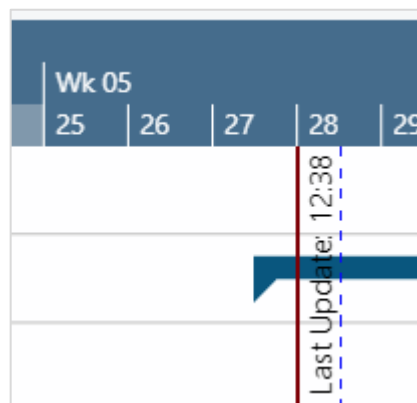
In case the “Actions” item is not visible in the menu ribbon, click “More options”. To hide it again, click “Fewer options”.

- A vertical line in the chart indicates the **work date** as having been set in Dynamics 365 Business Central.



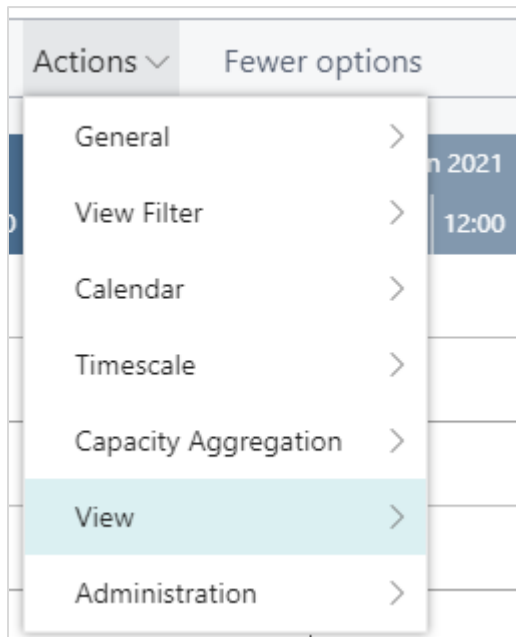
was last updated.

- A blue dashed line indicates the time when your plan

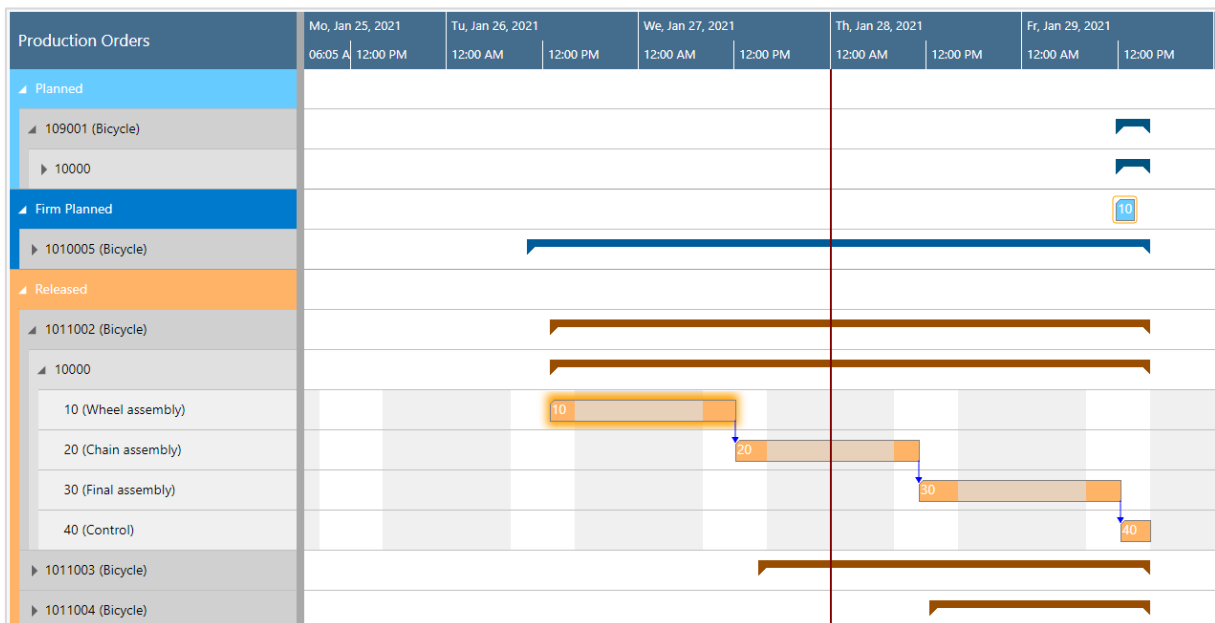


2. Two different views

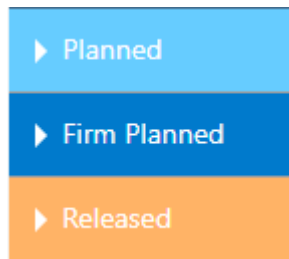
There are two different views in the VPS: the Production Order View, and the Capacity View. You can switch between them by using the corresponding menu items:



2.1. The Production Order View



The Production Order View shows production orders categorized by status, the categories being indicated by different colors:



2.1.1. Sorting

Production orders, their production order lines and production order routing lines are sorted in ascending numerical order.

Within each production order, the relating production order lines with their production order routing lines are listed.

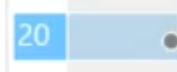
2.1.2. Information shown on bars

The following information can be gathered from optical indicators:

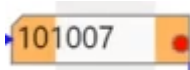
- Currently marked operation:



- Operation changed but not saved yet



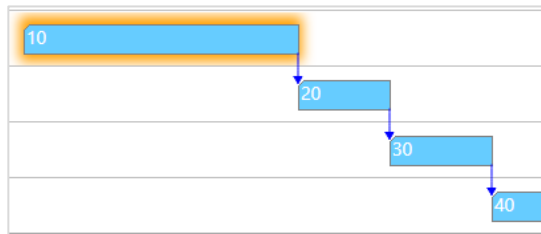
- Violated due date



2.1.3. Links

Links are shown after having clicked the desired production order or production order line as described below:

- between operations of one production order line



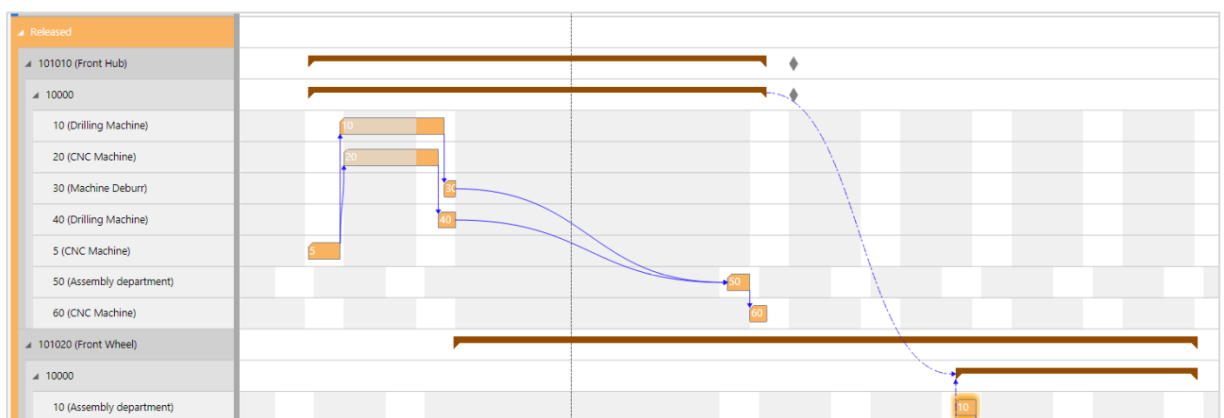
- between production order lines (make-to order)



You can decide whether to show these links or not by ticking/unticking the according option in the “General” section of the “Setup” dialog.

General	
Progress Calculation	Based on Time
Show Partial Prod. Order Lines	<input type="checkbox"/>
Show Links between Prod. Order Lines <input checked="" type="checkbox"/>	

- between production orders



2.1.4. Due date

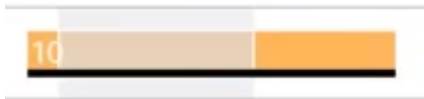
The **due date** of a production order is represented by a diamond-shaped symbol, turning red in case of an exceeded due date.



2.1.5. Progress

Based on the settings you have specified in the "Setup" dialog, you can display a progress bar for production order routing lines of **released** production orders, the color of the progress bar depending on the **routing status** and the **percentage of completion**:

- Status “finished”: black

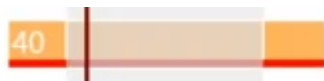


- Status “none”, “planned”, “in progress”:

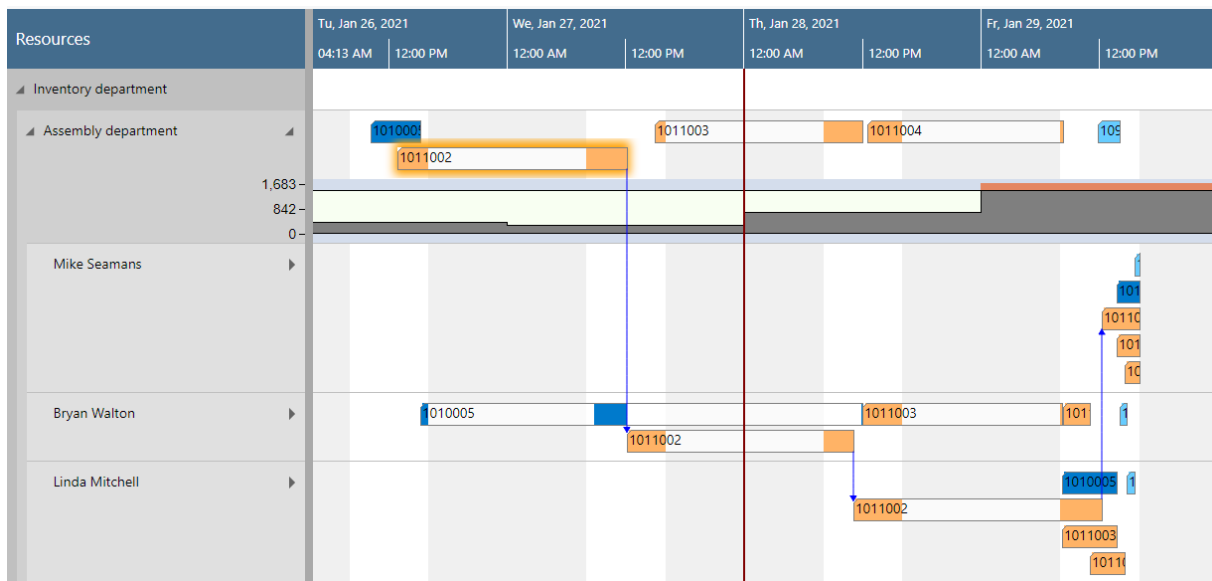
- Progress by quantity / by time < 100% : **grey**



- Progress by quantity / by time (i.e. you have posted more than initially planned) > 100%: **red**



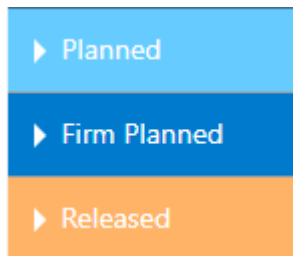
2.2. The Capacity View



- Shows capacity loads of work centers and machine centers, grouped by work center groups.
- Capacity bottlenecks and conflicts concerning delivery dates can be visualized.
- The bars of the operations are colored during working times and white during non-working times.

1011004

- The bars get different colors according to the different categories of the Production Order View.



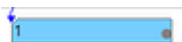
2.2.1. Information shown on bars

The following information can be gathered from optical indicators:

- Currently marked operation:



- Operation changed but not saved yet

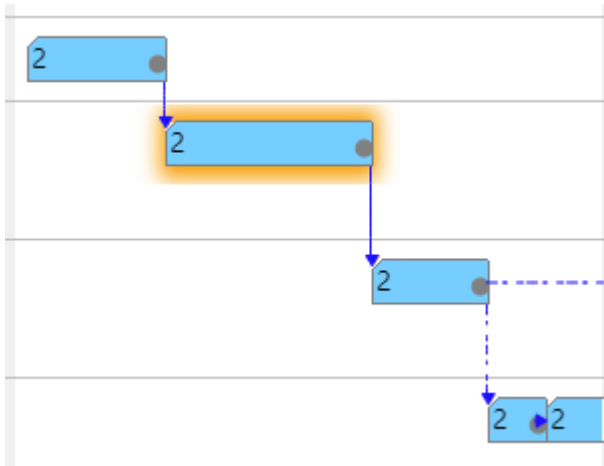


- Violated due date



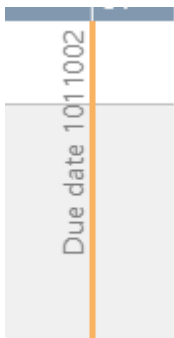
2.2.2. Links

Links between operations are shown after having clicked one operation of the according production order.



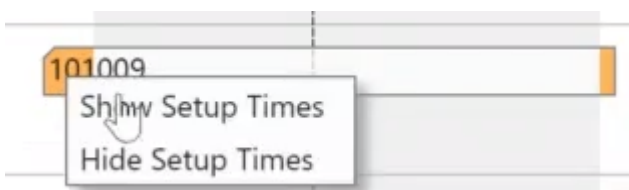
2.2.3. Due date

If you click an operation, a vertical line in the color of the operation's status appears, indicating the due date.

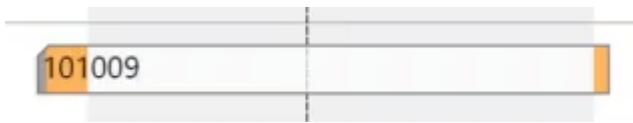


2.2.4. Setup times

A context menu enables to show or hide the setup times



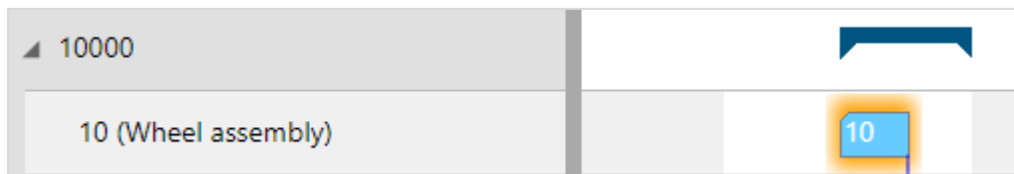
If “Show Setup Times” is selected, they are visualized as grey section at the beginning of the bar



3. Open Microsoft Dynamics 365 Business Central dialogs

The VPS fully integrates with Microsoft Dynamics 365 Business Central. This means that by double-clicking the according element (production order, production order line, production order routing line, work center etc.) either in the table area or in the Gantt area, you'll directly switch to the according Dynamics 365 Business Central dialogs where you can navigate and make changes as usual:

Double-clicking a production order routing line...



...will call the according dialog:

Manage Process Order Show Attached Page More options

EDIT - FIRM PLANNED PROD. ORDER - 1010005 - BICYCLE


General

No.	1010005 ...	Search Description	BICYCLE
Description	Bicycle	Quantity	16
Description 2		Due Date	30.01.2021
Source Type	Item	Assigned User ID	
Source No.	1000	Last Date Modified	

Lines Manage More options

ITEM NO.	DUE DATE	DESCRIPTION	STARTING DATE-TIME	ENDING DATE-TIME	QUANTITY	UNIT OF MEASURE CODE
1000	30.01.2021	Bicycle	26.01.2021 10:04	29.01.2021 16:00	16	PCS

4. Collapsing and expanding

The VPS allows to view your data from different angles easily and quickly. The symbols  in the table allow to collapse and expand production orders, work center groups, work and machine centers, thus hiding details or rendering them visible.

All order categories **collapsed**:

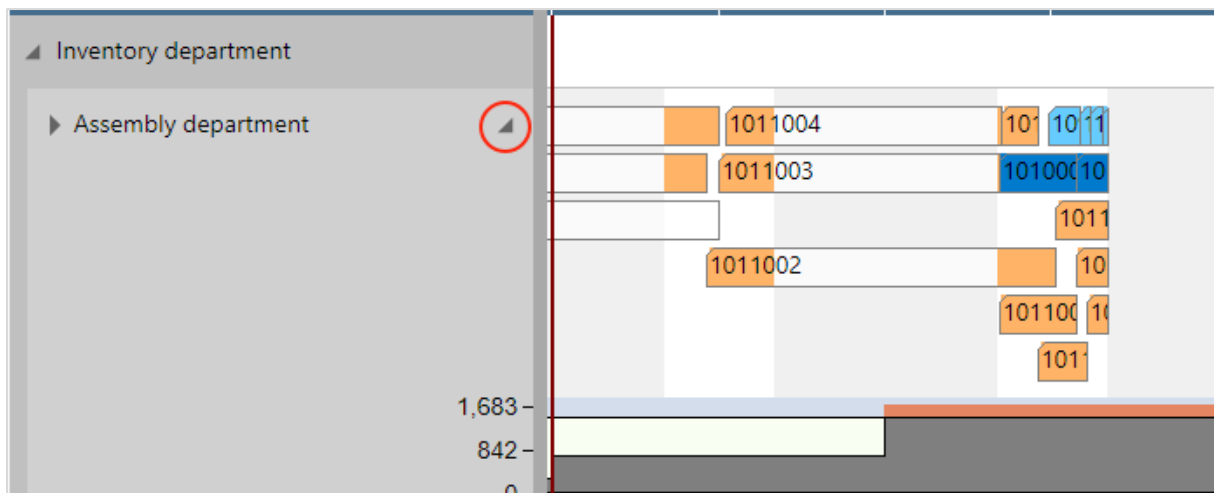
Activities	January 2021					February 2021	
	Wk 53	Wk 02	Wk 03	Wk 04	Wk 05	Wk 06	Wk 07
▶ Planned							
▶ Firm Planned							
▶ Released							

After having expanded the “Planned” category with order 109001 and all its sub-operations:

Activities	Th, Jan 28, 2021	Fr, Jan 29, 2021		Sa, Jan 30, 2021		Su, Jan 31, 2021	
	08:00	12:00 AM	12:00 PM	12:00 AM	12:00 PM	12:00 AM	12:00 PM
▲ Planned							
▲ 109001 (Bicycle)							
▲ 10000							
10 (Wheel assembly)							
20 (Chain assembly)							
30 (Final assembly)							
40 (Control)							
▶ Firm Planned							
▶ Released							

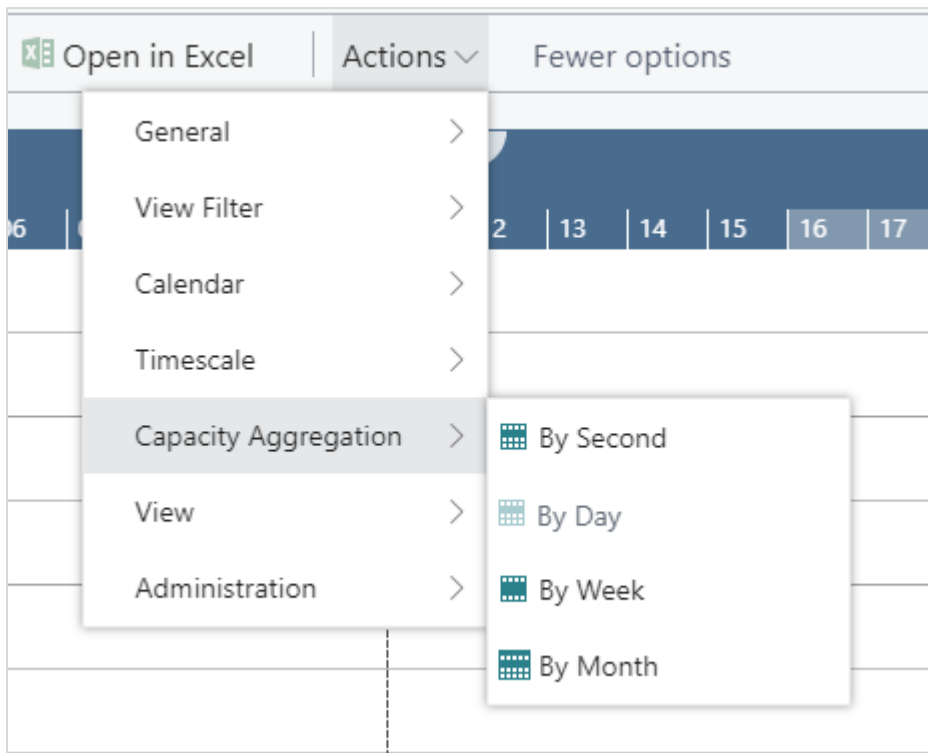
5. Capacity information

In the VPS, you can show a capacity curve in the Capacity View, to see free and exceeded capacities, a red box indicating an overload:



The capacity curve combines information on a resource's allocation and its availability. If, for instance, a task's duration is 10 hours, the capacity curve of a resource with an availability of 8 hours/day shows an overload - if it is calculated per day.

In many cases, the planner regards a resource's availability by week or even by month. That is why the VPS lets you select whether you do the capacity calculation either by second, day, week, or month. The curve will aggregate the occupancy on the selected period.



6. Navigation in the VPS

Navigating in the VRV largely comprises setting the time range for which parts of your plan are shown, modifying the timescale solution and quickly scrolling to certain parts of your plan.

6.1. Setting the timeframe

The timeframe specifies the time range covered by the timescale, either fixed by absolute values or relative to the workday. This is done in the “Setup” dialog, to be reached by clicking the “General” item in the “Actions” ribbon.

EDIT - VISUAL PRODUCTION SCHEDULER SETUP - ADMIN

Timeframe Type

Starting/Ending Date Input Type Relative date

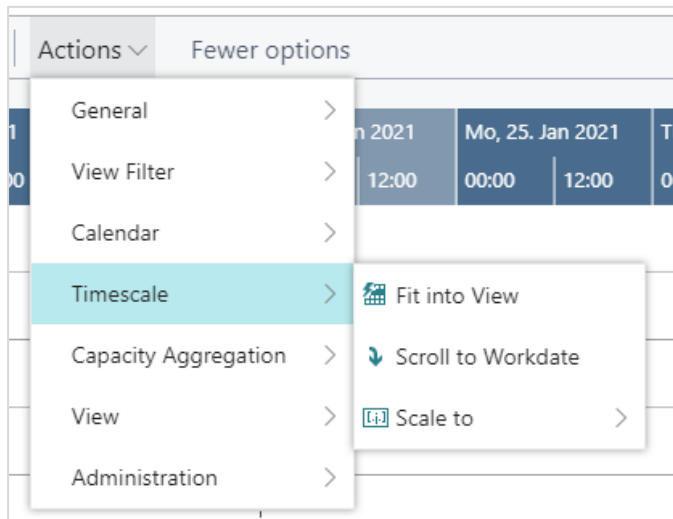
Timeframe

ABSOLUTE VALUES		RELATIVE VALUES	
Starting Date	12/31/2020	Starting Date	-4W
Ending Date	4/28/2021	Ending Date	+3M

6.2. Change the timescale resolution

For zooming in a certain area of your plan or to zoom out for a better overview, you can change the timescale resolution either by

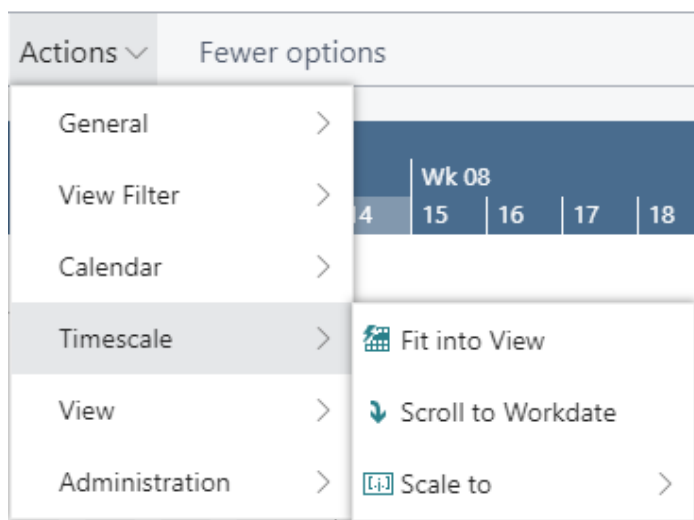
- scrolling the mouse wheel in the timescale area
- or, more specifically, by the corresponding items of the “Actions” menu, based on the work date as having been specified in the settings of Dynamics 365 Business Central.



6.3. Scrolling

The VPS offers the following options for quickly navigating to certain positions in the diagram:

- the common scrolling options by vertical and/or horizontal scrollbar
- dragging the timescale either right or left
- scroll directly to the Dynamics 365 Business Central work date by selecting the corresponding item from the “Actions” menu.



6.4. Fit into view

Select this item from the “Timescale” item in the “Actions” menu to switch directly to the timescale as defined in the “Setup” dialog.

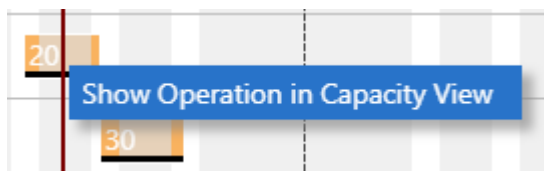
6.5. Adjust the width ratio between table and diagram

For adjusting the width ration between table and diagram, put the mouse cursor on the sash between the two parts and drag the double arrow appearing then.

Production Orders	Th, Jan 28, 2021		Fr, Jan 29, 2021	
	01:14 AM	12:00 PM	12:00 AM	12:00 PM
Planned				
109001 (Bicycle)				
10000				

6.6. Show operation in other view

Show the currently marked operation in the respective other view while it gets highlighted by a blinking frame.

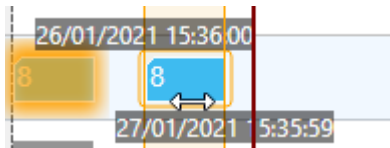


7. Move operations

You can move operations by mouse either horizontally or vertically, each way having a different impact.

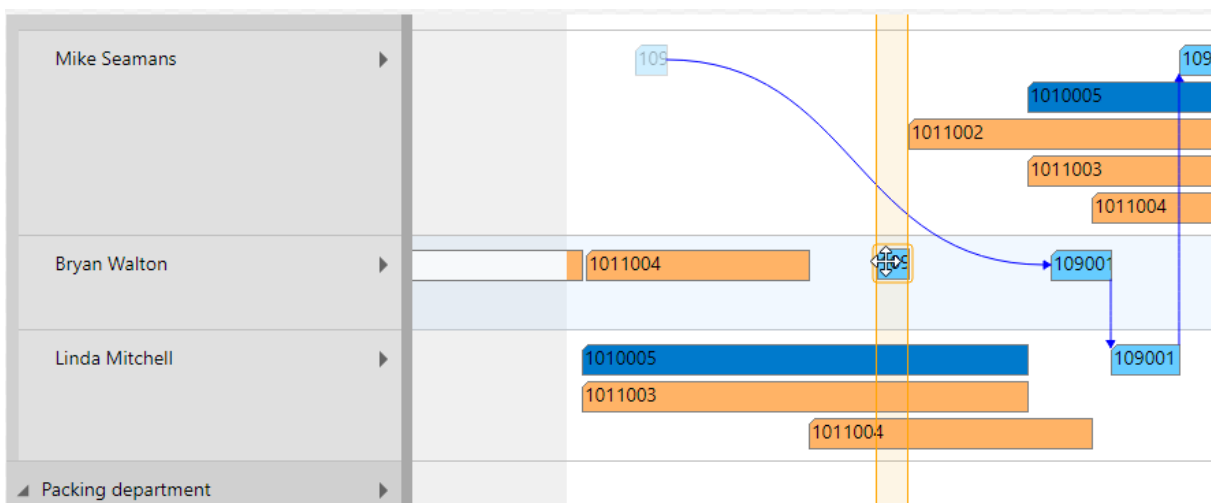
7.1. Move operations horizontally by drag & drop

To schedule an operation, you can move it horizontally along the time scale both in the Production Order View as in the Resource View: As a consequence, the operation will be worked off at a different time.



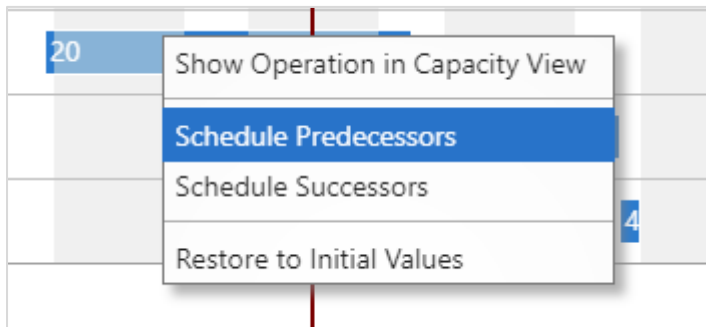
7.2. Assign an Operation to another resource

In the Capacities View, an operation can also be moved vertically when scheduled – to a different work or machine center. As a consequence, the operation will be worked off by the work or machine center it was moved to. While moving the operation, a “phantom” bar will remain at the original place until the mouse will be released.

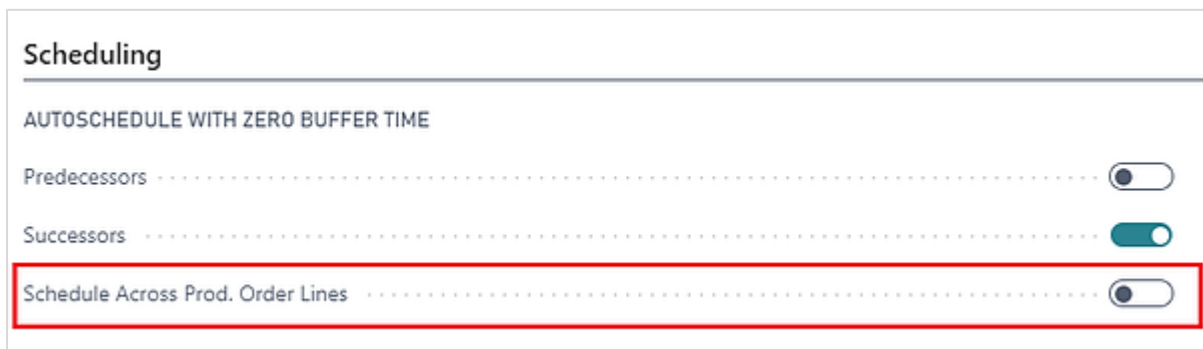


7.3. Schedule predecessors/successors

If moving an operation shall also affect its linked preceding and/or succeeding operations to the effect that they are moved accordingly you can make the according setting in the context menu.

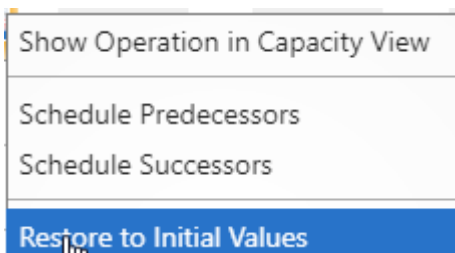


Please note that if you want these links to be taken into account for scheduling, you have to tick the "Schedule across Production Order Lines" option in the "Scheduling" section of the "Setup" dialog.



8. Restore to initial values

In case you have made changes to an operation, not yet saved your plan, and want to restore the original values again, click the according context menu item.



9. The “Setup” dialog



The “Setup” dialog allows to customize basic settings of the Visual Production Scheduler. You reach it via “Actions” -> “Administration”.

Here you can make or see the basic settings for:

- **Timeframe:**
 - Specify the timeframe that sets the time range covered by the timescale, either fixed by absolute values or relative to the workday (see also 7.1., “Setting the timeframe”).
- **General**
 - Choose whether to display a progress bar for production order routing lines of **released** production orders, based on quantity or time.
 - When, by setting filters, a single operation of a PO line gets filtered out, the standard procedure in the VPS is to only visualize the complete PO line. By unticking the option you can switch to visualizing also a partial PO line.
- **Scheduling**
 - Determine whether or not predecessor operations should automatically be re-scheduled when an operation is modified.
 - Determine whether or not successor operations should automatically be re-scheduled when an operation is modified.
 - Determine whether dependencies between several production order lines of a manufacturing order are to be taken into account for the automatic planning.
- **Filter**
 - You can determine whether the "Data filter" dialog comes up on starting the VPS or not. Please note that if you decide to not have it shown, the last selected data filter will be activated.
 - The last selected view filter can be applied when the VPS is started.
- **Data Filter**
 - See which data filters are currently active.

[New](#) | [Actions](#) | [Fewer options](#)

[Edit Data Filter...](#) [Clear Data Filter](#)

Timeframe Type

Starting/Ending Date Input Type Relative date

Timeframe

ABSOLUTE VALUES

Starting Date 12/31/2020

Ending Date 4/28/2021

RELATIVE VALUES

Starting Date -4W

Ending Date +3M

GeneralProgress Calcu... Based on Time Show Partial Pr... ☐**Scheduling****AUTOSCHEDULE WITH ZERO BUFFER TIME**Predecessors ☐Successors ☒Schedule Across Prod. Order Lines ☐**Data Filter**Current Data Fi... Show All Machine Cente... Work Center G... Production Or...

Close

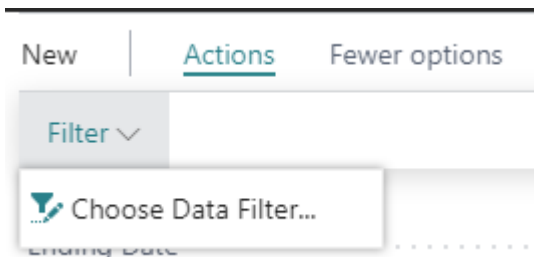
10. Use filters

10.1. Data filters

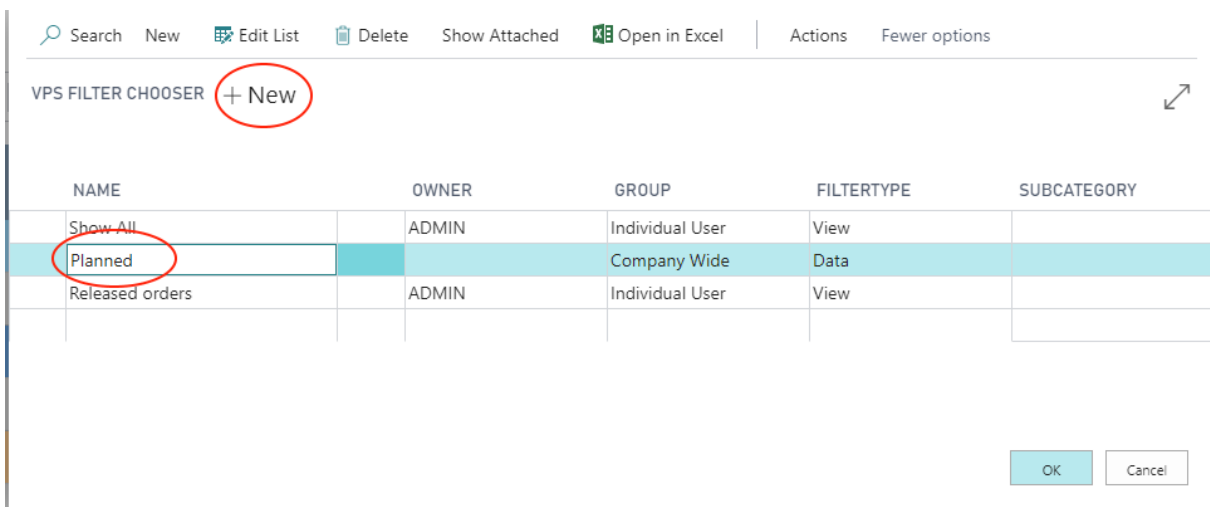
Data filters work as Dynamics 365 BC filter on reading the data (either when the VPS is started or on reloading) so that they are already effective at the data interface to make sure that only filtered data are handed over from Dynamics 365 BC to the VPS.

10.1.1. Create and edit data filters

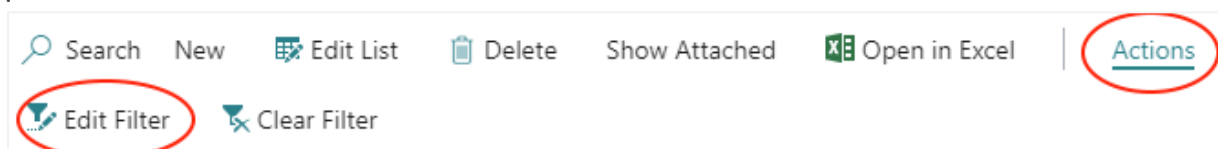
First, you have to open the according dialog by clicking "Choose Data Filter" in the "Setup" dialog:



In the dialog, you can edit, create and apply not only one but multiple data filters.



To create a data filter, click "+New" and then enter the name of the new filter. To specify the filter settings, click "Actions" "Edit Data Filter".



You can filter by work center groups, work centers, machine centers and production orders:

EDIT - VPS FILTER

Work Center Group

Show results:

Where: Code is:

And: Name is:

Work Center

Show results:

Where: No. is:

And: Name is:

Machine Center

Show results:

Where: No. is:

And: Name is:

Production Order

Show results:

Where: Status is: Released

And: No. is:

And: Description is:

OK

Cancel

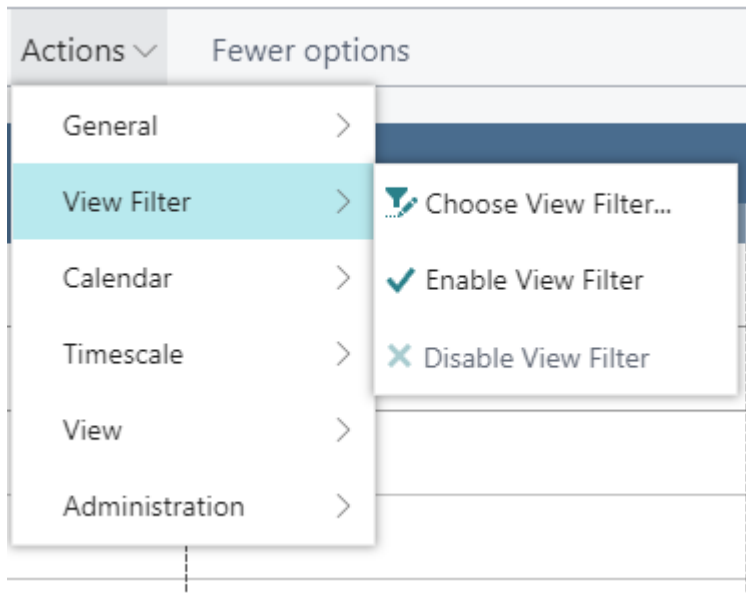
If you want to make sure that the "Edit Data Filter" dialog pops up when you start the VPS, tick the according option in the "Setup" dialog:

Filter

Show Data Filter on Start

10.2. View filters

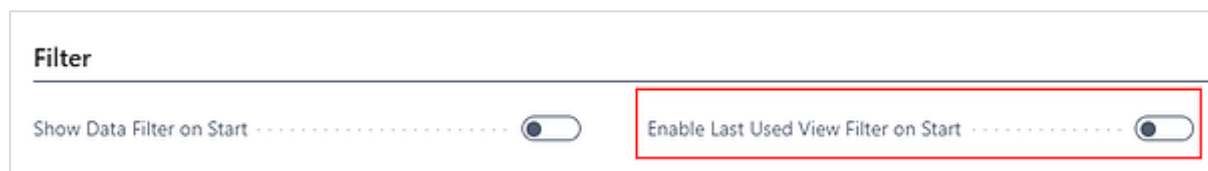
View filters are applied to data already having been loaded into the VPS. Accordingly, only the capacity utilization by the visible activities are shown in the histograms. To work with the filters, the "Actions" menu offers three according options:



10.2.1. Create and edit view filters

Click "Choose View Filter" to open the list of existing filters where you can create, delete and edit filters as described in the "Data filters" section.

If you want to make sure that the last used view filter will be applied when you start the VPS, tick the according option in the "Setup" dialog:



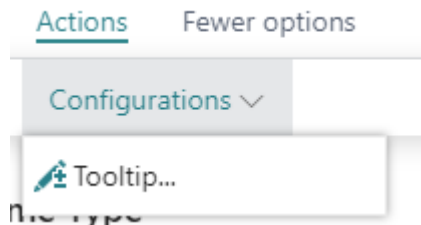
10.3. Configure tooltips

The tooltips of the VPS provide further information on the following items of your production schedule:

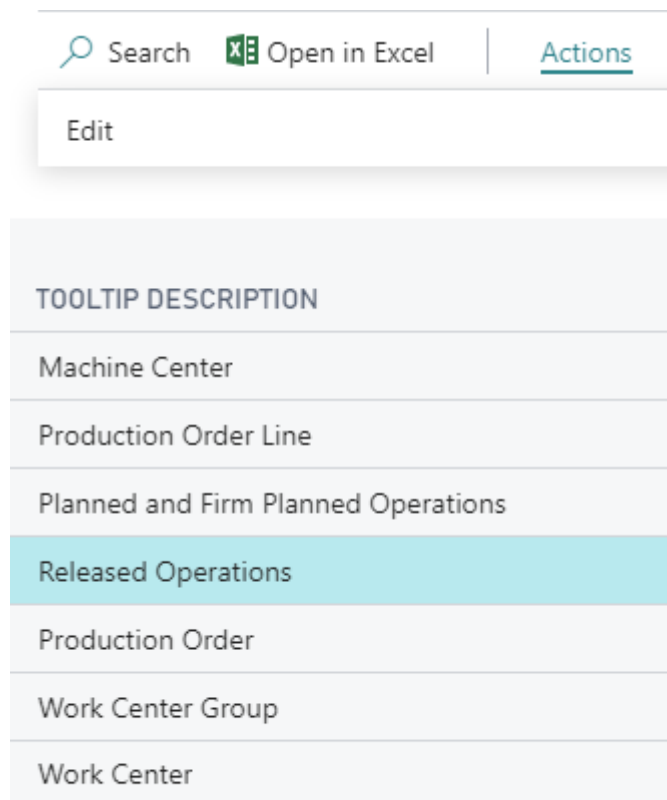
- production orders
- production order lines
- operations
- work center groups
- work centers

- machine centers
- planned and firm planned operations
- released operations

You can specify which information is to be shown in the tooltip of the respective item in the "Tooltip" dialog - to be reached by clicking "Configurations" in the "Actions" menu of the "Setup" dialog:



In the dialog popping up, you select the item for which you want to customize the tooltip and then either delete, edit or add fields and then click the "Edit" item from the "Actions" menu:




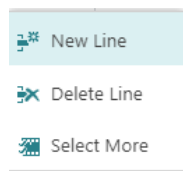
The dialog "Edit – Define tooltip" pops up. Here you can:

- Add a new field:
either click +NEW or just click in the last row. You can select the desired Dynamics 365 BC

data by clicking “...” either for table and field name.

NETVPS FIELDS + New		
CODE ↑		DESCRIPTION ↑
5528761	⋮	Machine Center
5528764	⋮	Operation
5528762		Production Order
5528763		Production Order Line
5528760		Work Center

- Insert a new field:
Select the field above which you want to insert a new one and proceed as described above.
- Delete a field:
Click  and select “Delete line”

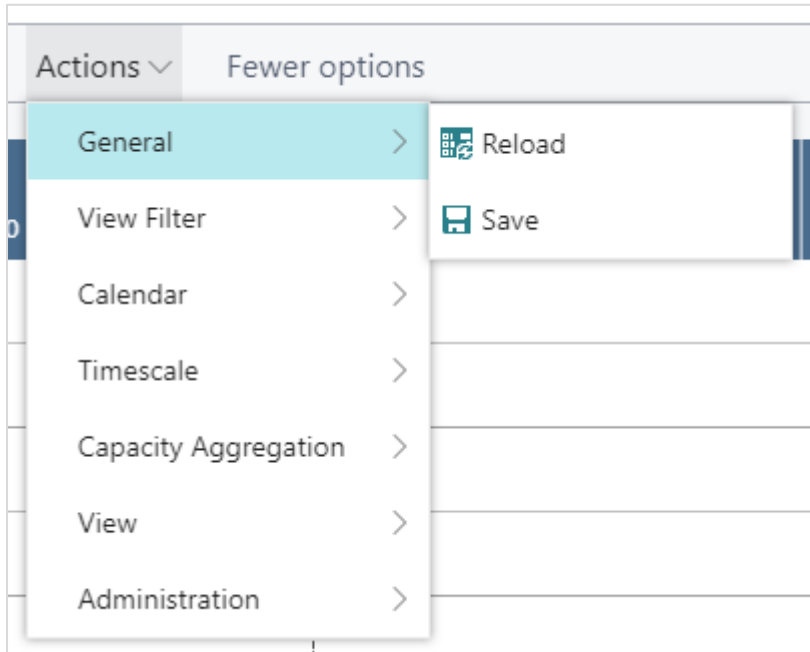


Search New Edit List Delete Show Attached Open in Excel	
EDIT - DEFINE TOOL TIP + New	
Released Operations	
TABLE NAME	FIELD NAME
Operation	Next Operation No.
Production Order Line	Line No.
Production Order Line	Item No.
Production Order Line	Description
Operation	Input Quantity
Operation	Routing Status
Operation	ProgressByTime
Operation	ProgressByQuantity
Operation	Sequence No. (Actual)
...	⋮

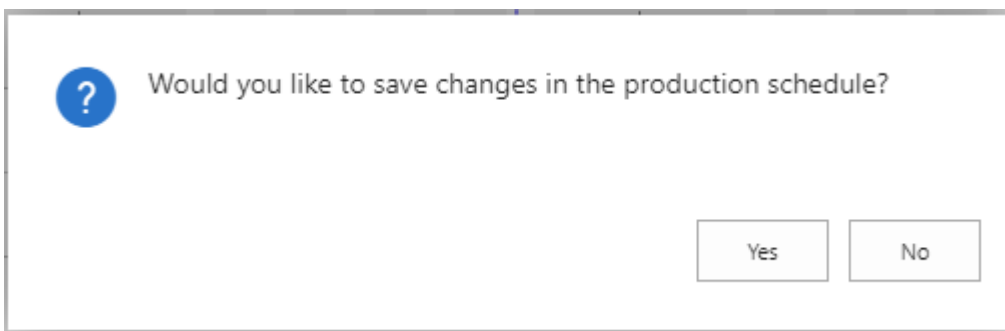
Close

11. Reload and save data

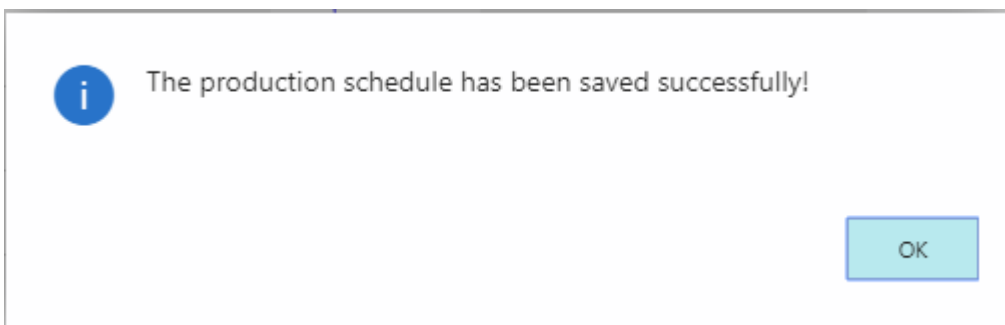
In case you wish to discard your changes after modifying the diagram (provided you didn't save them) you can simply reload the data of the diagram. The "General" items allow to reload the former values or, alternatively, to store your modifications.



If there are unsaved changes in your plan when you click "Reload", a dialog pops up where you can decide whether to save these changes or discard them.



After having saved your changes, a confirmation message pops up:



The successful reload will be stated by another message box:

