NETRONIC

DOCUMENTATION

Visual Production Scheduler (VPS)

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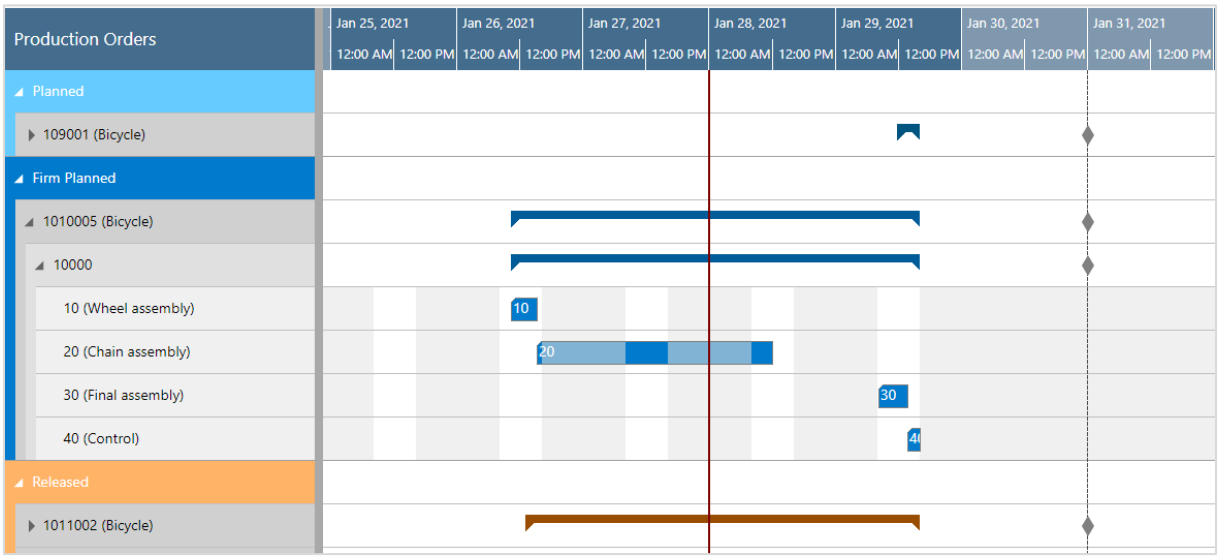
Technical requirements

Microsoft Dynamics 365 Business Central

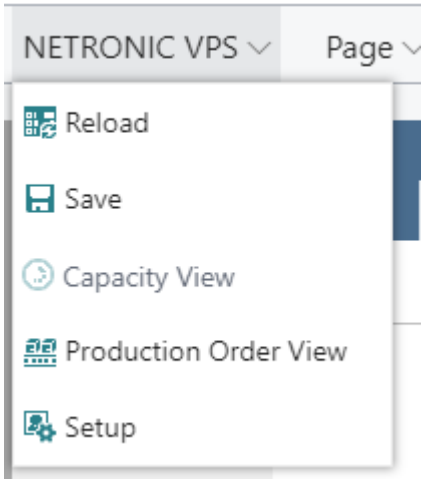
1. Understanding the VPS

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

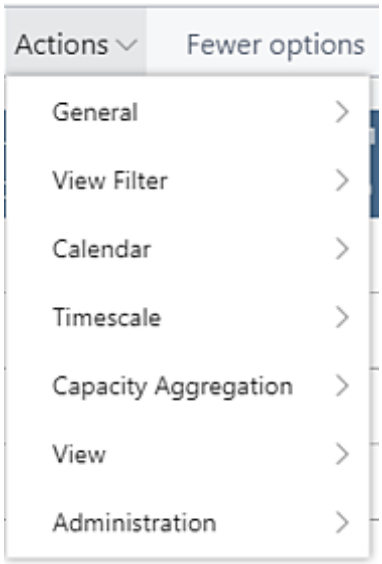


- A **timescale** at the top.
- A **table** at the left, production orders (in the Production Order View) or work and machine centers in the Resource View
- On the right below the time scale, a **chart** displaying the job schedule with a **calendar** in the background indicating work free periods in 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:

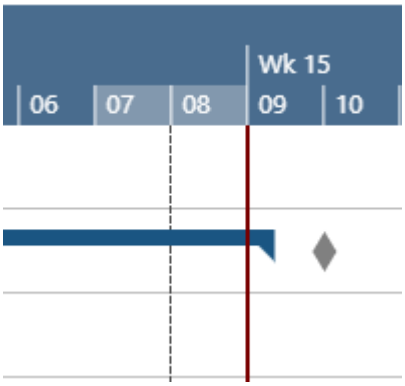


All options of the VPS can be found under “Actions”:

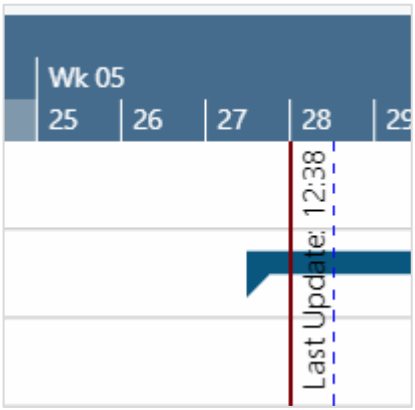


In case the “Actions” item is not visible in the menu ribbon, click “More options”. To hide it again, click “Fewer options”.

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

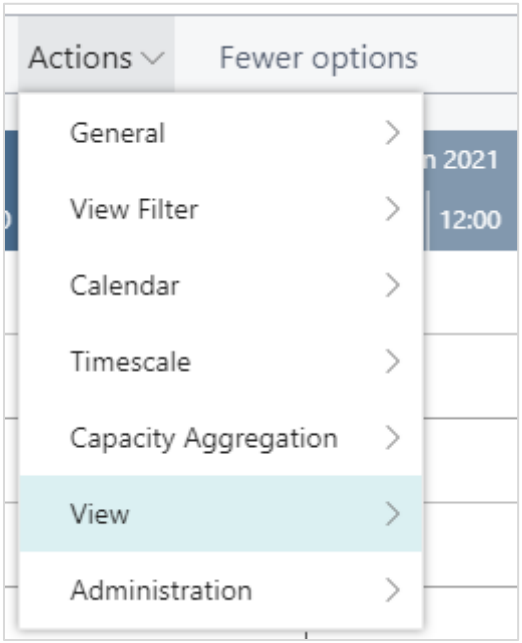


- A blue dashed line indicates the time when your plan was last updated.

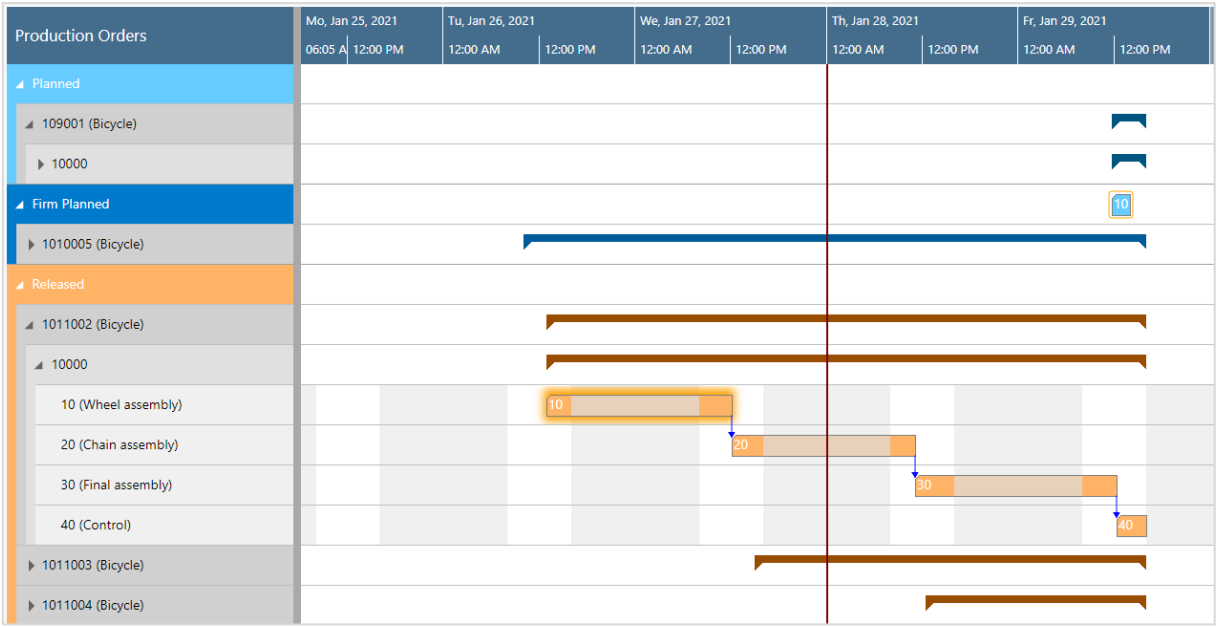


2. Two different views

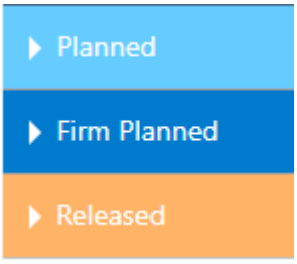
There are two different views in the VPS: the Production Order View, and the Capacity View. You can switch between them by using the corresponding menu items:



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

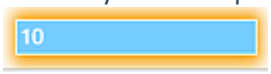
Production orders, their production order lines and production order routing lines are sorted in ascending numerical order.

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

2.1.2. Information shown on bars

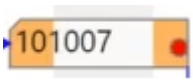
The following information can be gathered from optical indicators:

- Currently marked operation:



- Operation changed but not saved yet

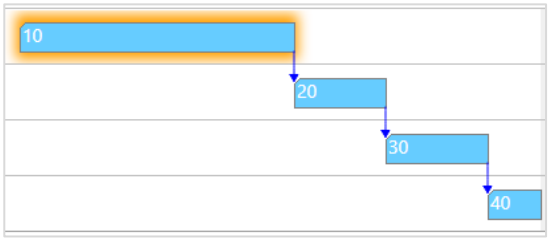
- Violated due date



2.1.3. Links

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

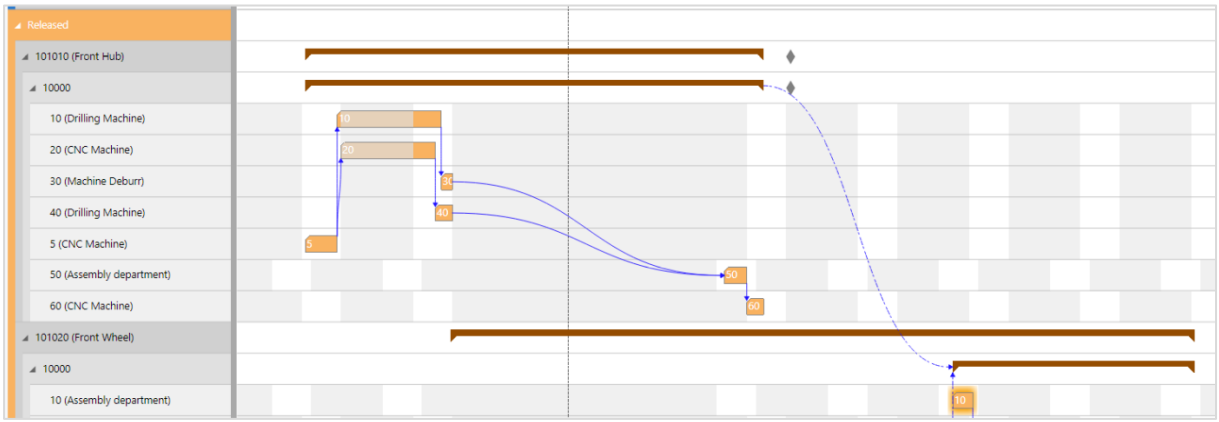
- between operations of one production order line



- 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.

- 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

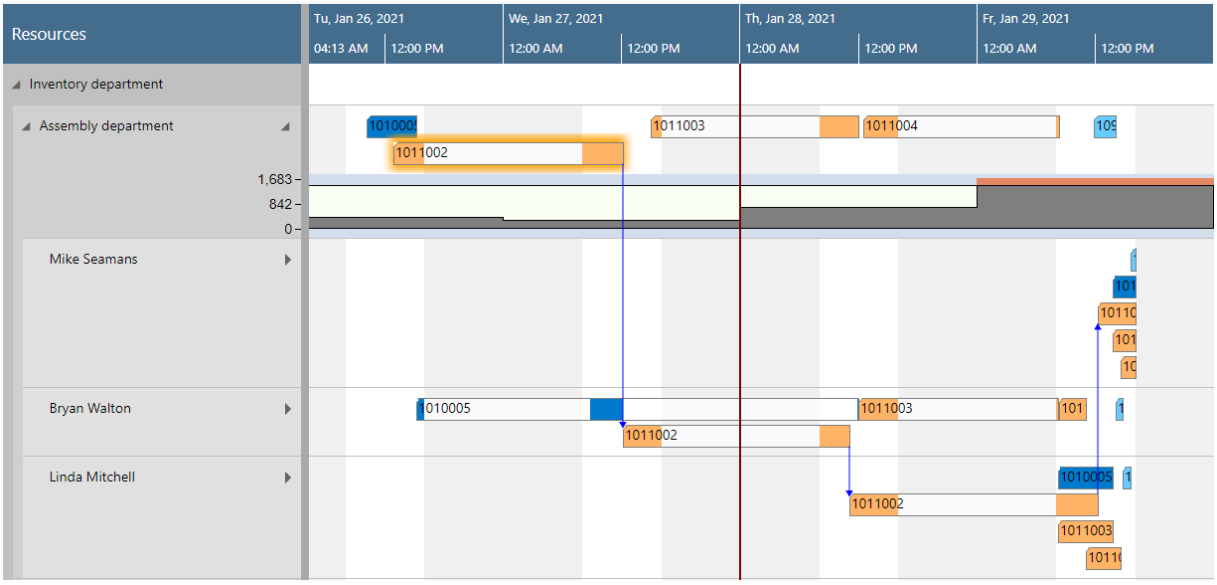
Based on the settings you have specified in the "Setup" dialog, you can display a progress bar for production order routing lines of **released** production orders, the color of the progress bar depending on the **routing status** and the **percentage of completion**:

- Status “finished”: black

- Status “none”, “planned”, “in progress”:
    - Progress by quantity / by time < 100% : **grey**

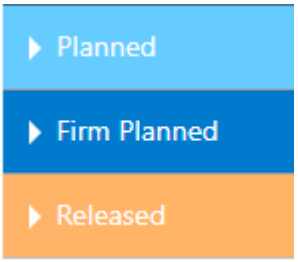
    - Progress by quantity / by time (i.e. you have posted more than initially planned) > 100%: **red**

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.

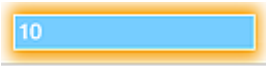
- The bars get different colors according to the different categories of the Production Order View.



2.2.1. Information shown on bars

The following information can be gathered from optical indicators:

- Currently marked operation:

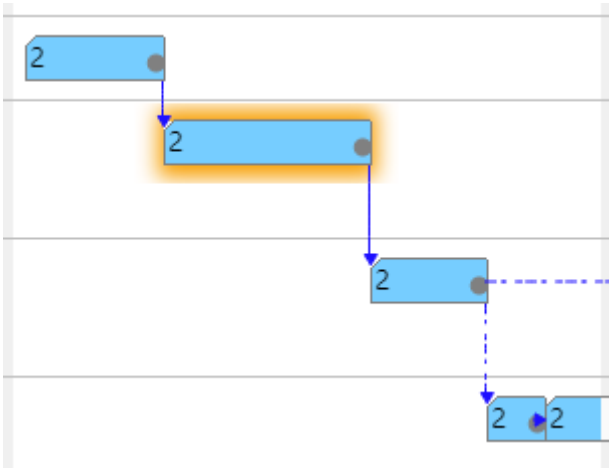


- Operation changed but not saved yet

- Violated due date

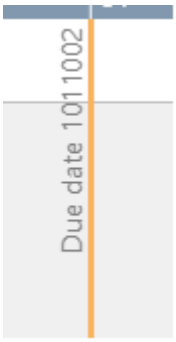
2.2.2. Links

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



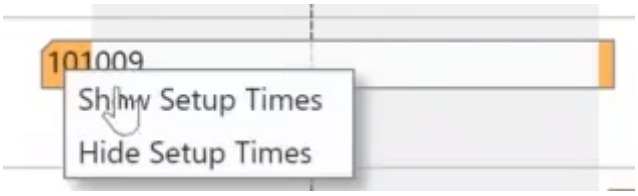
2.2.3. Due date

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

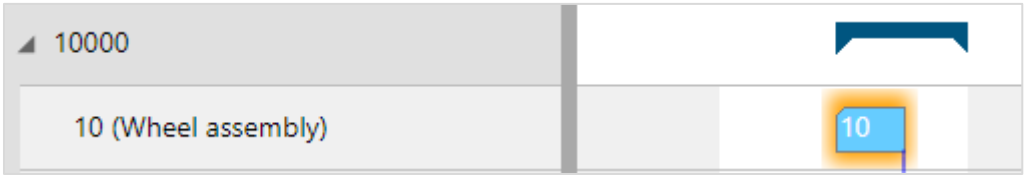


If “Show Setup Times” is selected, they are visualized as grey section at the beginning of the bar

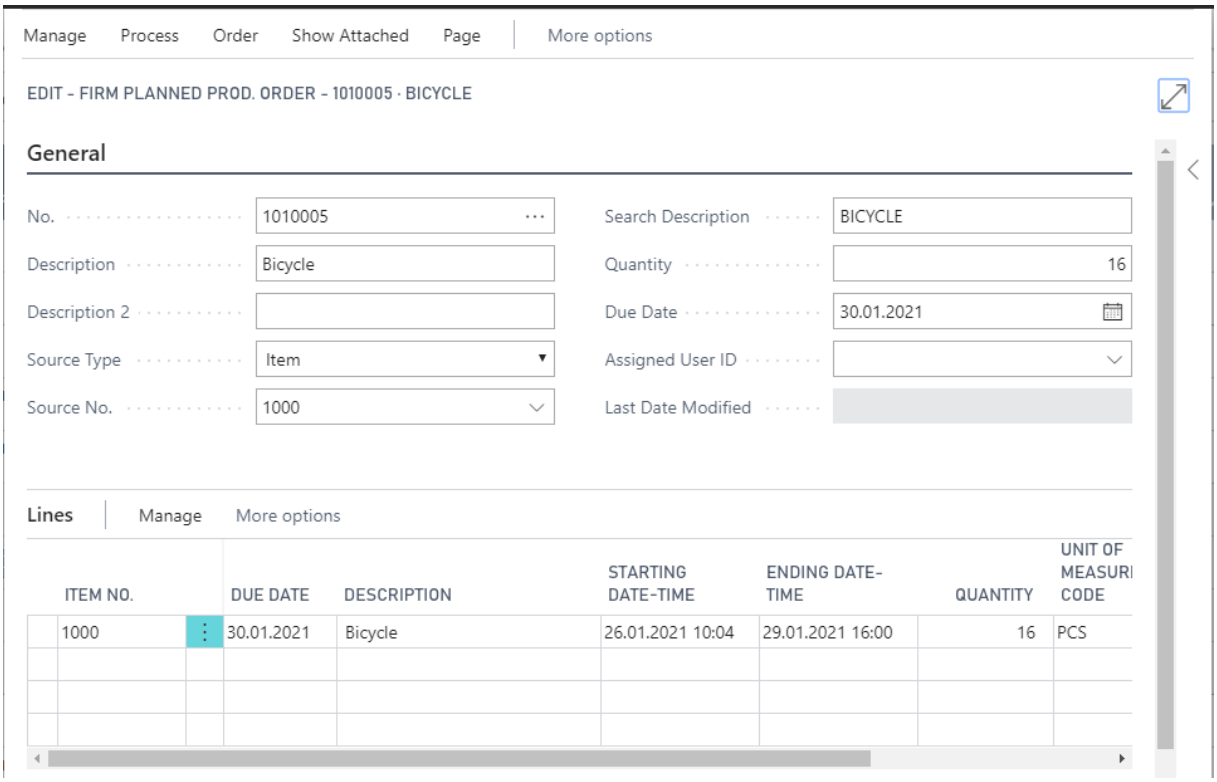
3. Open Microsoft Dynamics 365 Business Central dialogs

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…



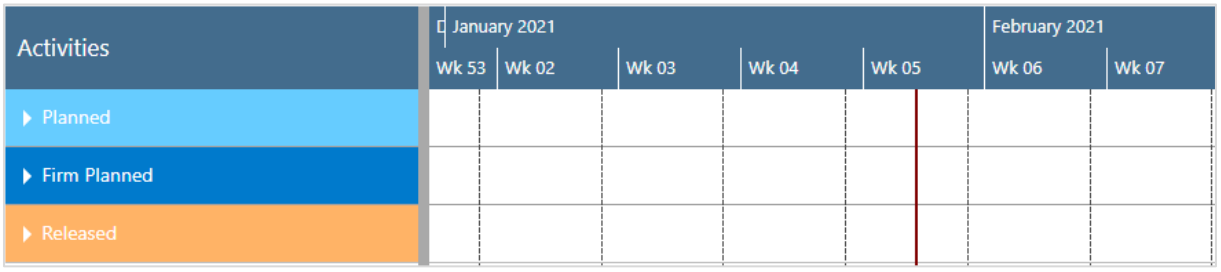
…will call the according dialog:



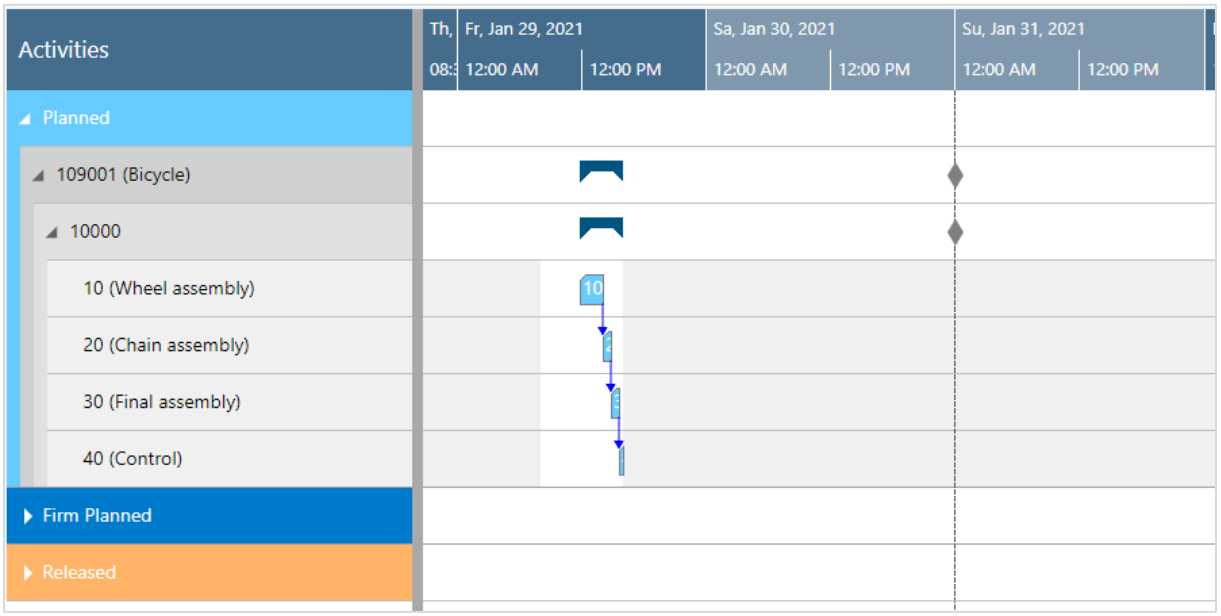
4. Collapsing and expanding

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**:

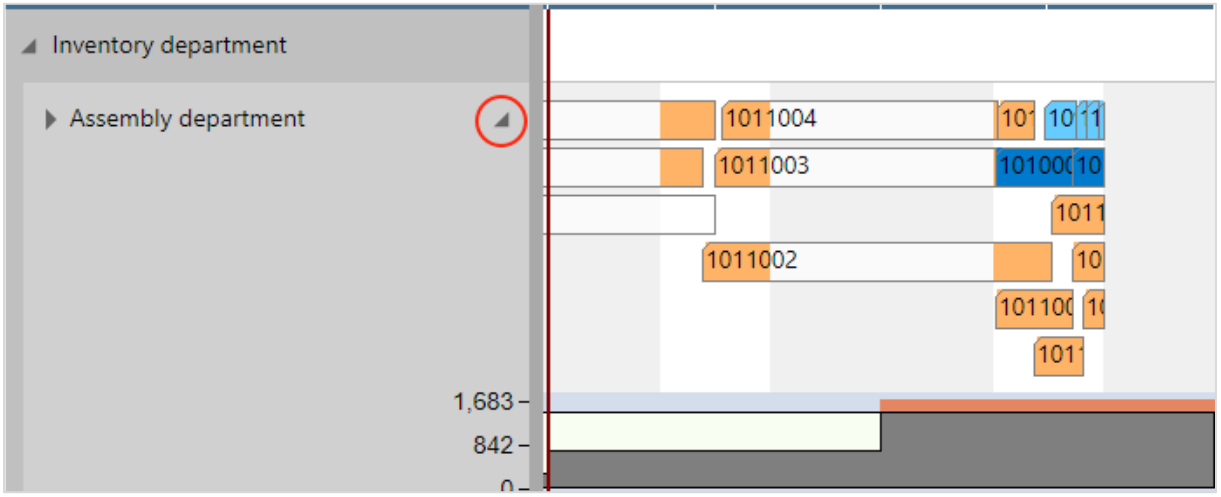


After having expanded the “Planned” category with order 109001 and all its sub-operations:



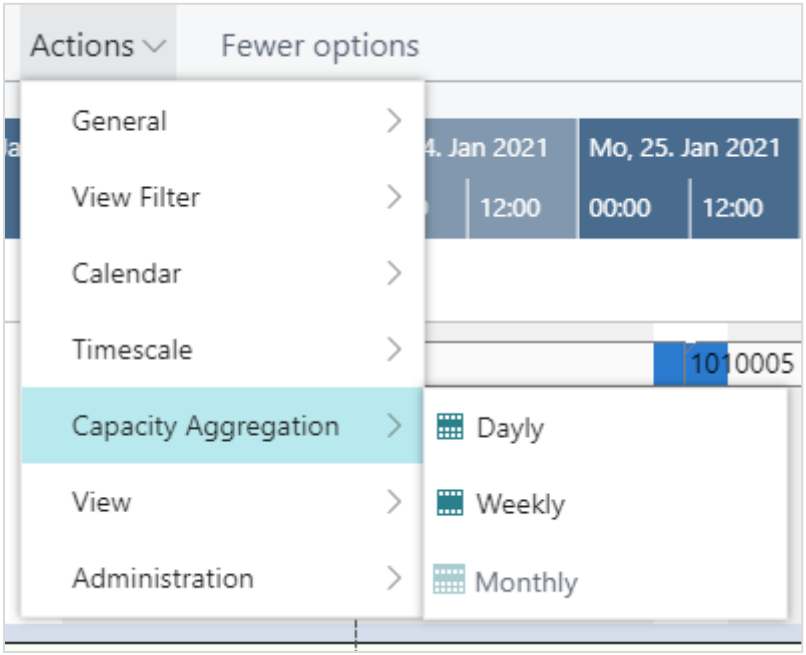
5. Capacity information

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 day, week or month. The curve will aggregate the occupancy on the selected period.

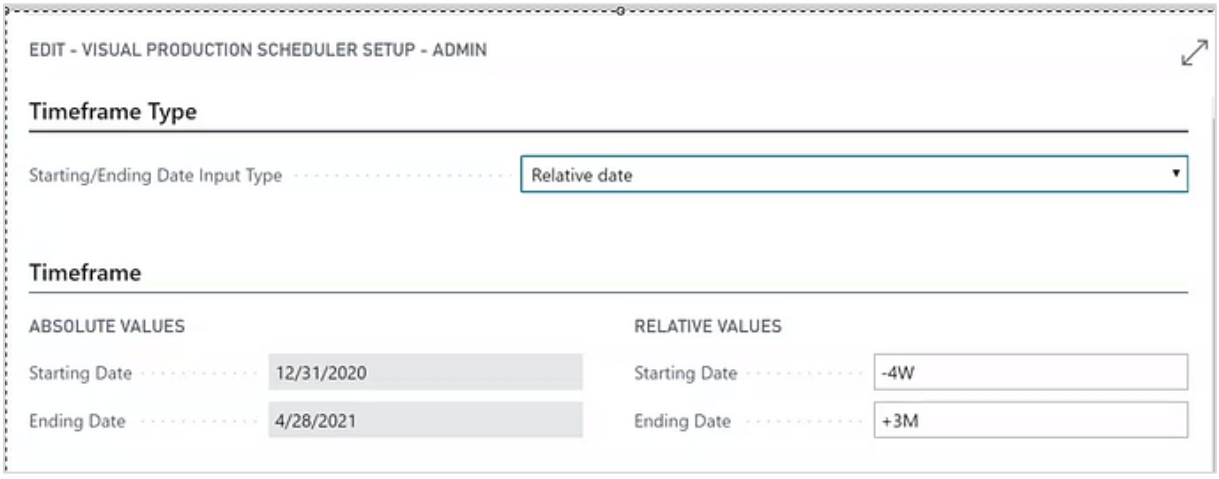


6. Navigation in the VPS

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

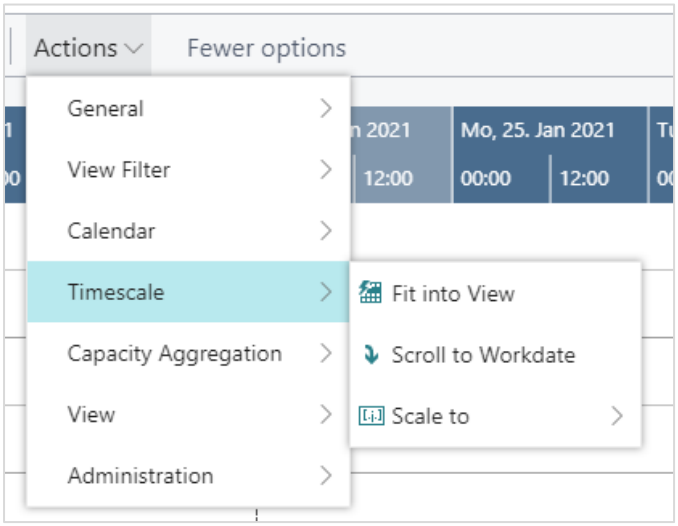
The timeframe specifies the time range covered by the timescale, either fixed by absolute values or relative to the workday. This is done in the “Setup” dialog, to be reached by clicking the “General” item in the “Actions“ ribbon.



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

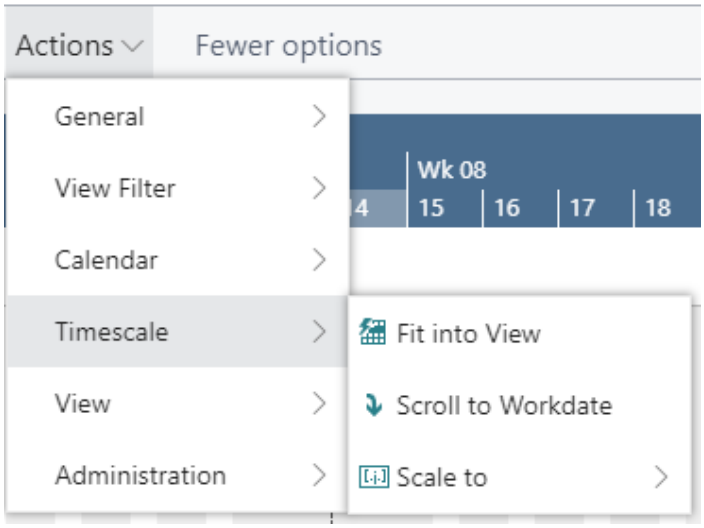
- scrolling the mouse wheel in the timescale area
- or, more specifically, by the corresponding items of the “Actions” menu, based on the work date as having been specified in the settings of Dynamics 365 Business Central.



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.

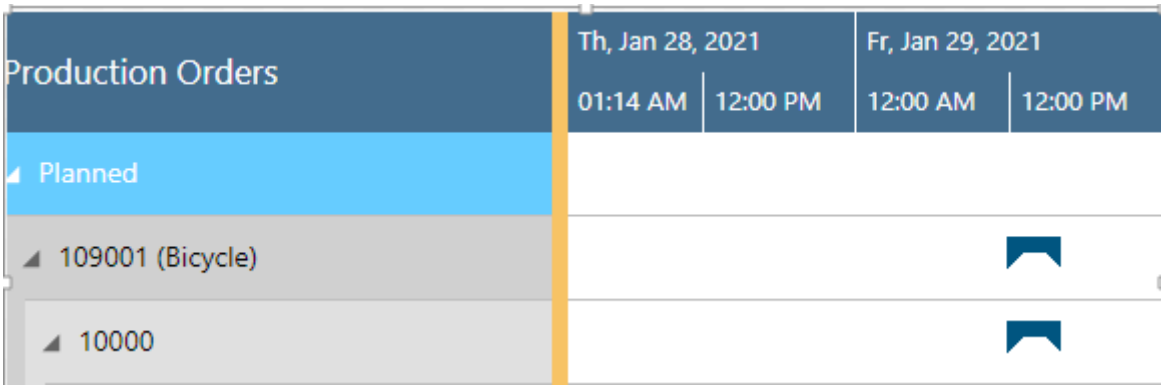


6.4. Fit into view

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.



6.6. Show operation in other view

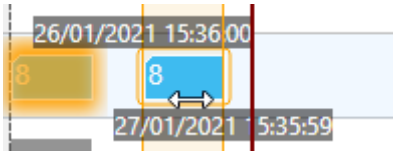
Show the currently marked operation in the respective other view while it gets highlighted by a blinking frame.

7. Move operations

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

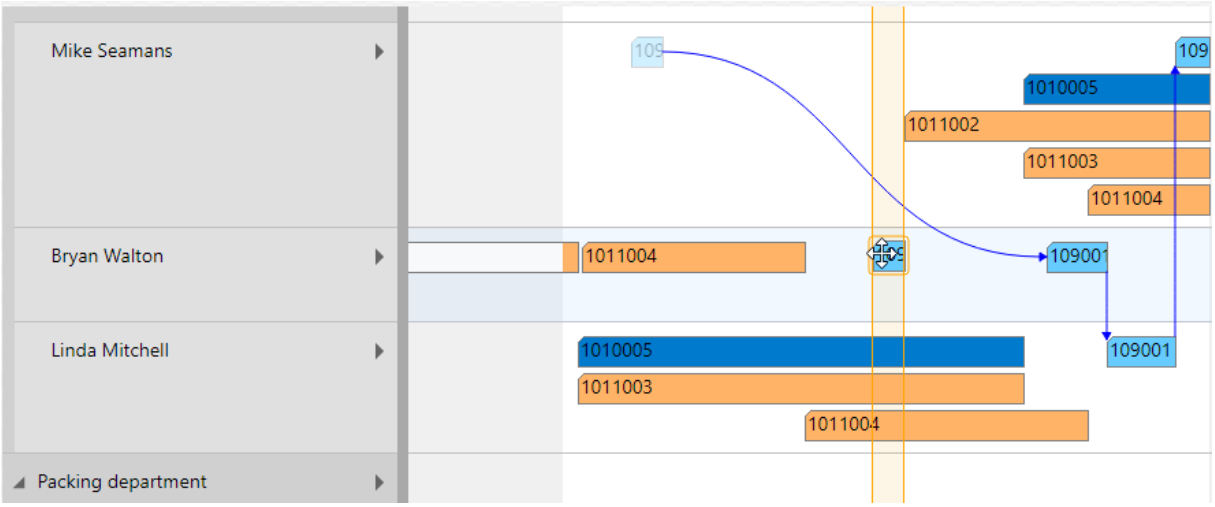
7.1. Move operations horizontally by drag & drop

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.



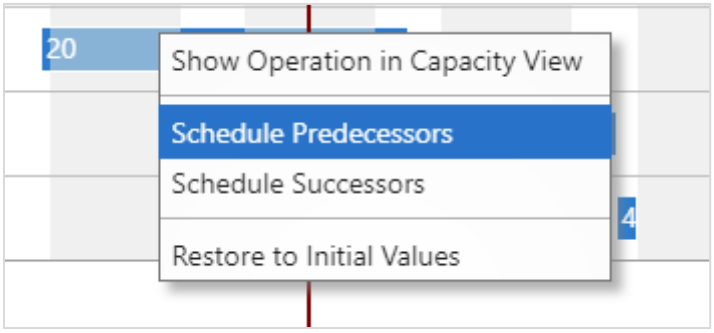
7.2. Assign an Operation to another resource

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

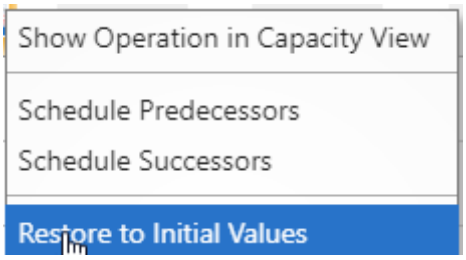
If moving an operation shall also affect its linked preceding and/or succeeding operations to the effect that they are moved accordingly you can make the according setting in the context menu.



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.

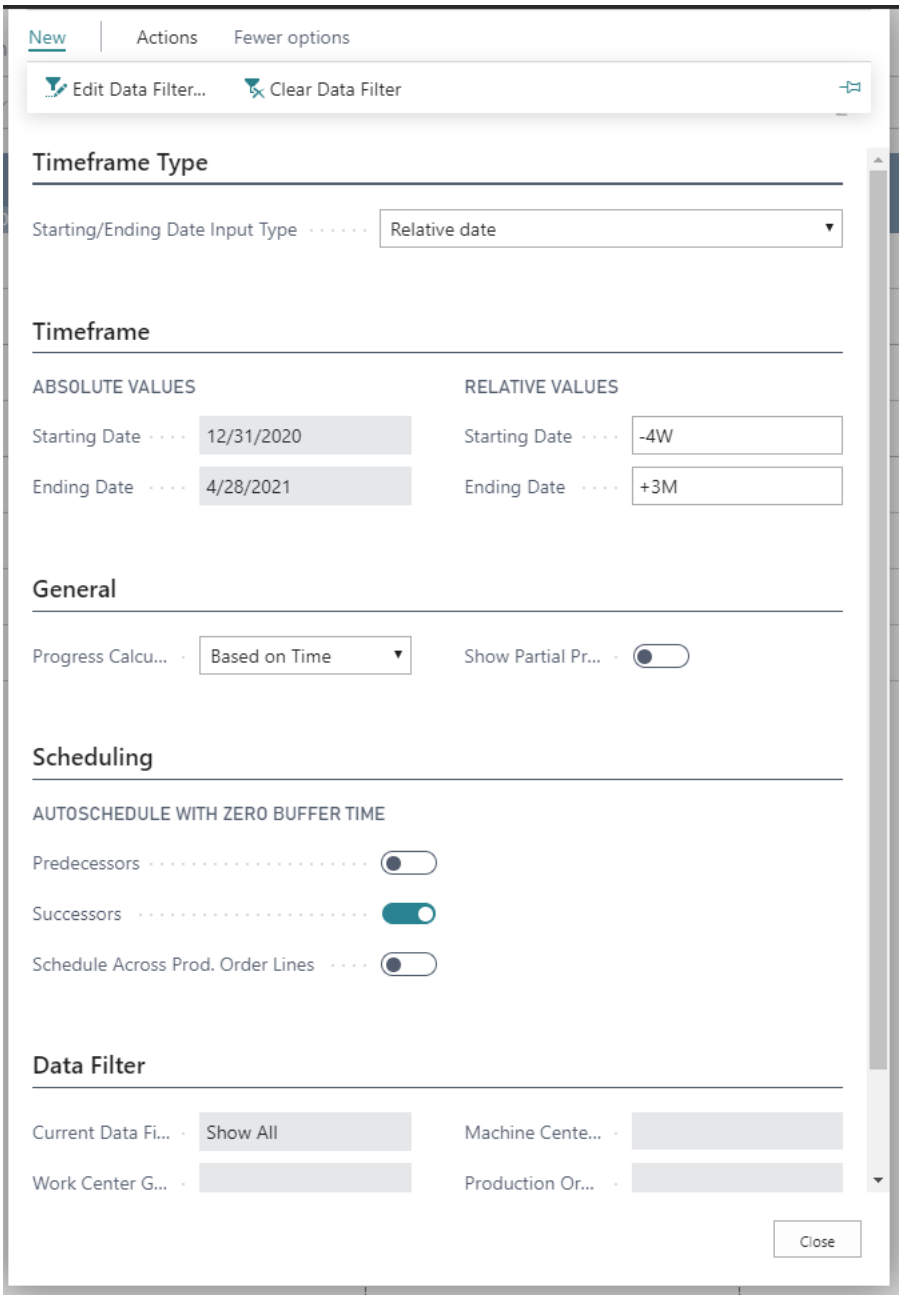


9. The “Setup” dialog

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

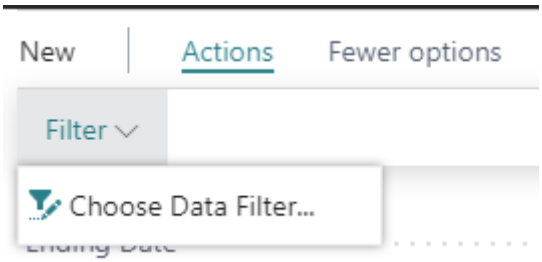
10. Use filters

10.1. Data filters

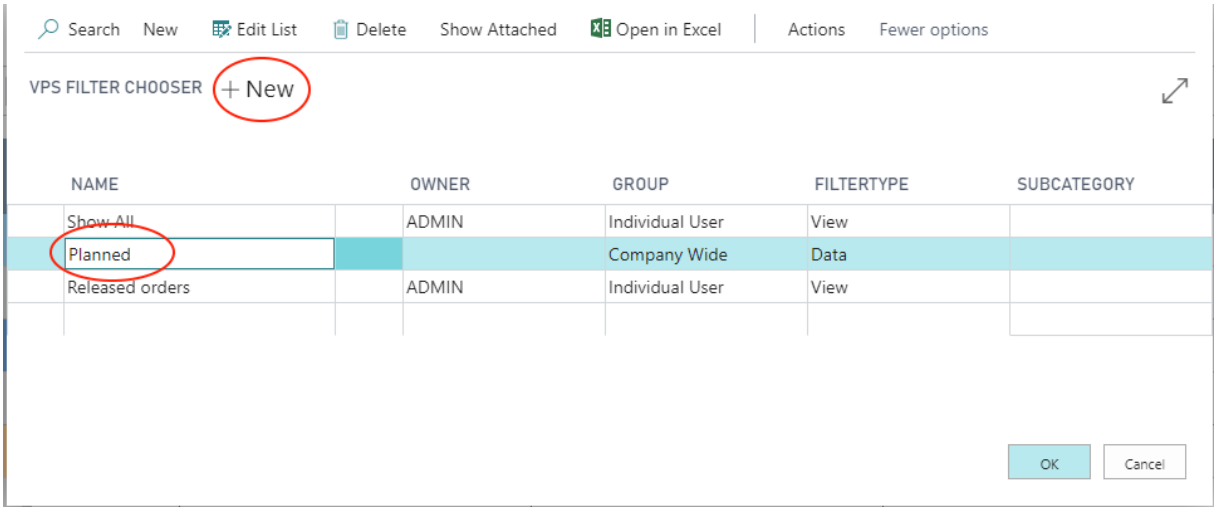
Data filters work as Dynamics 365 BC filter on reading the data (either when the VPS is started or on reloading) so that they are already effective at the data interface to make sure that only filtered data are handed over from Dynamics 365 BC to the VPS.

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”.

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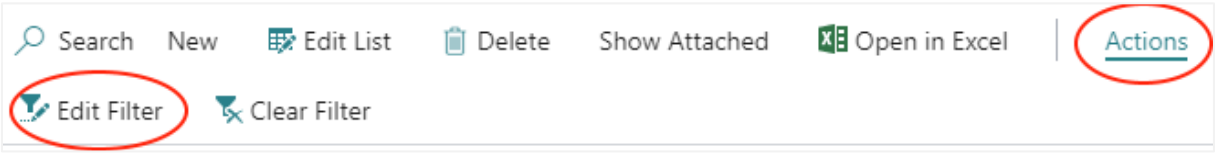
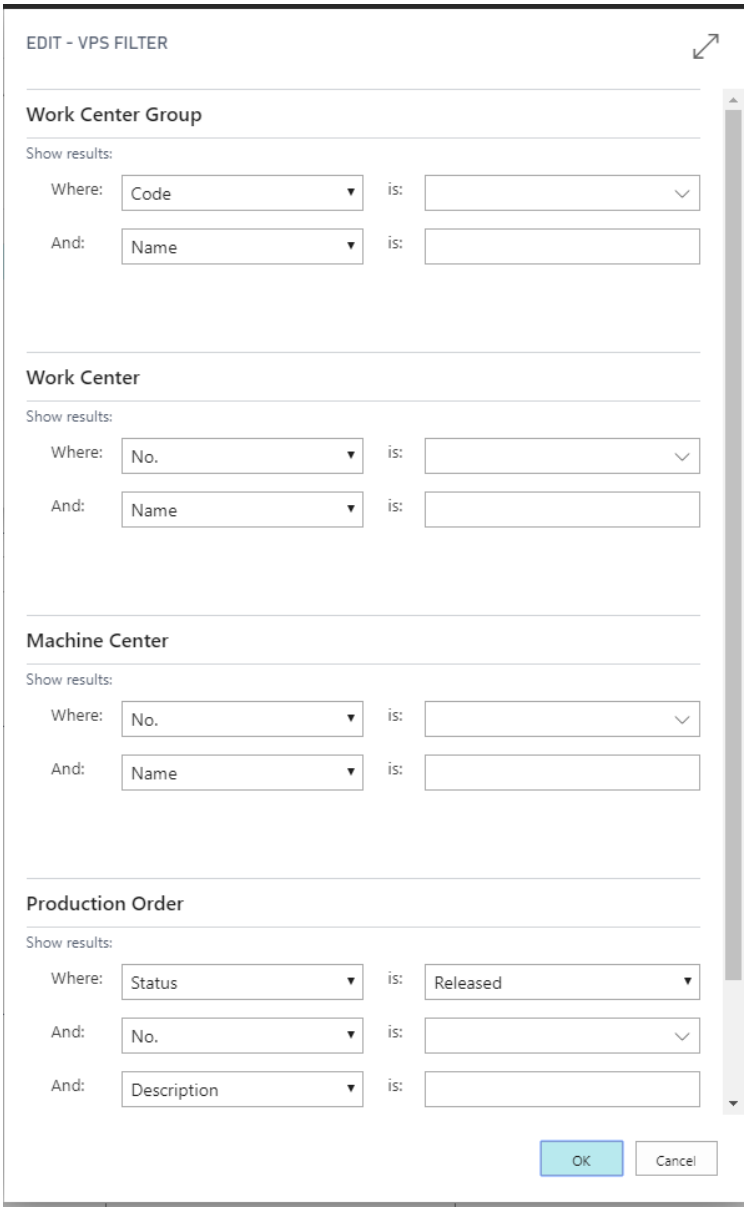
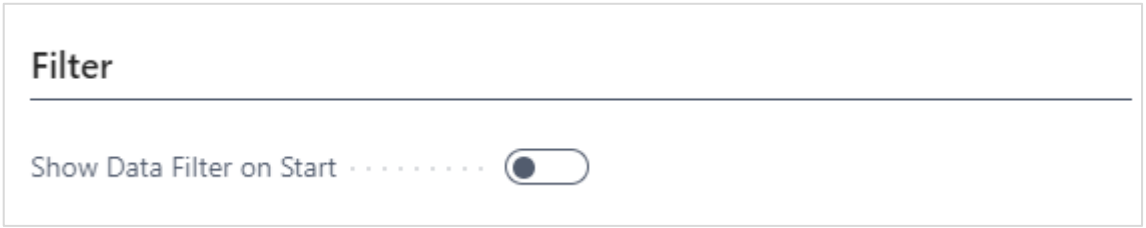


You can filter by work center groups, work centers, machine centers and production orders:

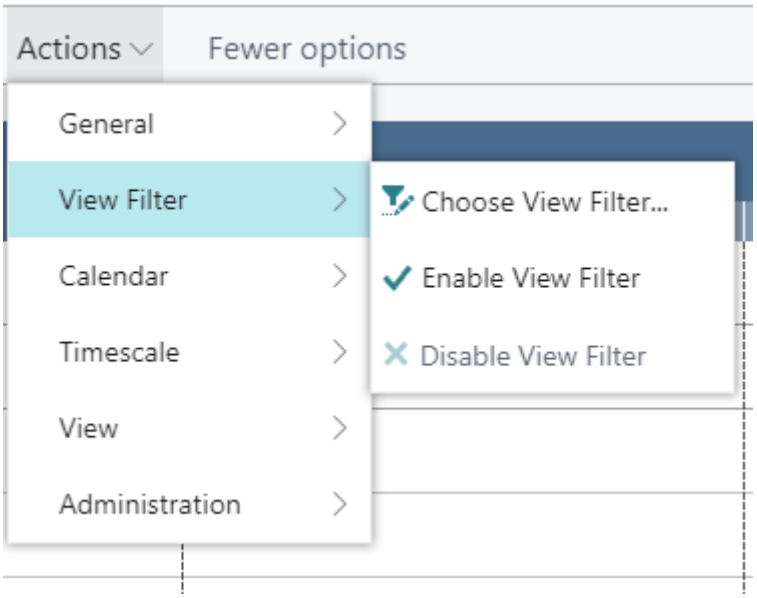


If you want to make sure that the "Edit Data Filter“ dialog pops up when you start the VPS, tick the according option in the "Setup" dialog:



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:



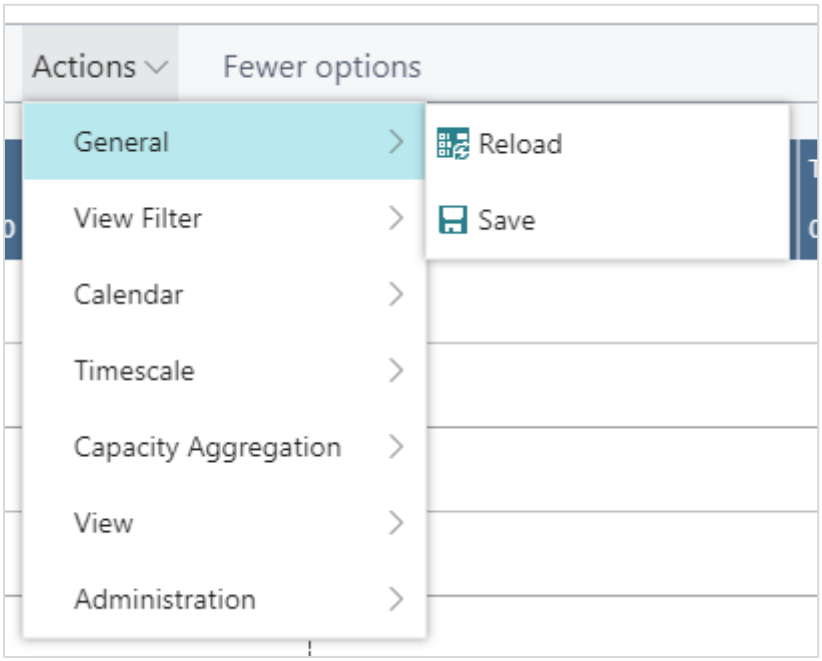
10.2.1. Create and edit view filters

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.

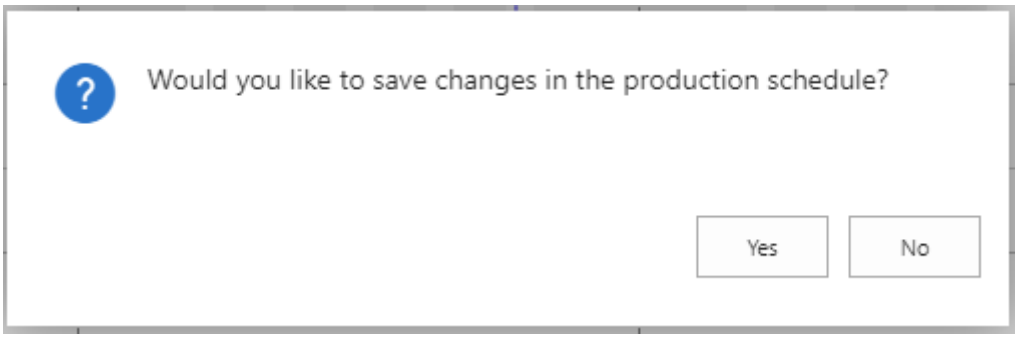
If you want to make sure that the last used view filter will be applied when you start the VPS, tick the according option in the "Setup" dialog:

11. Reload and save data

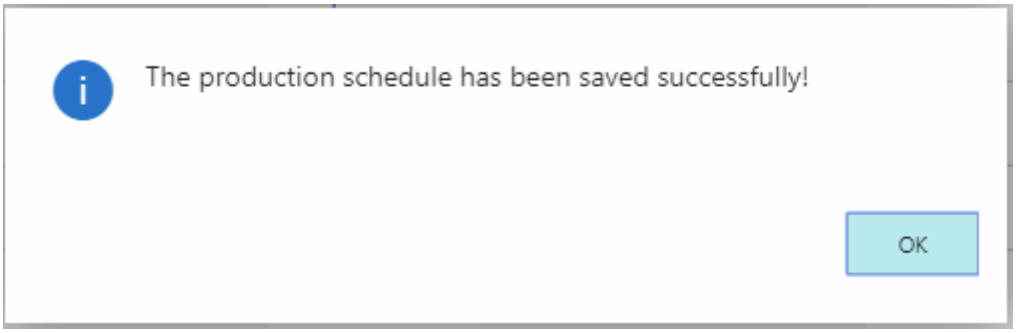
In case you wish to discard your changes after modifying the diagram (provided you didn't save them) you can simply reload the data of the diagram. The "General" items allow to reload the former values or, alternatively, to store your modifications.



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: