

Release Notes: Visual Advanced Production Scheduler

Product	Visual Advanced Production Scheduler
Version	1.6
Build	1.6.0.0
Date	June 30, 2021

List of enhancements

- Show/hide **links between production order lines** via the VPS setup dialog.
- **Consider queue time:** the VAPS now enables considering the queue time in the scheduling algorithm in the same way as is done in Business central. The queue time is stored in the machine/work center and operates on the calendar of the relevant machine/work center. The feature can be enabled in the VAPS setup.
- **Consider send ahead quantity:** in Business Central, the user can specify a send ahead quantity for an operation when defining a routing. This send ahead quantity that can be considered to start a dependent operation before the current operation is fully completed, can now also be used in the VAPS. The algorithm used is slightly different from that of Business Central. The VAPS algorithm tries to keep the working times on the following operation together without any gaps of nonproductive periods. By that the following operation may start later than expected, but therefore has a continuous workload.
- Enhancements of **search dialogs:** The search dialogs can be personalized the same way as is known from Business Central by adding columns in the fields list. This makes it easier to search for special attributes of orders, order lines or routing lines.
- Automatically generated translations were removed and exchanged by **manually created proper translations in English and German**. For partners wanting to create an own translation in their language, we provide the English xlf files as basis.
- **API**
 - A new set of **OnBeforeTransfer** events was added. These events can be used to modify Business Central data before transferring them into our simulation data. This way, the customer can use flow fields, for example.
The values of a field class Flowfield of standard BC are dynamically calculated and can be used in fields added by partners, but currently they are not triggered to get calculated during data transmission from Business Central to the SIM tables. By using the new events, these fields can nevertheless be processed in a meaningful way and can be provided for tooltip, bar, and label texts. The partner enhances the BC as well as the SIM tables by new fields accordingly. The events occur on loading and are structured as follows:

OnBeforeTransferBCTableName(pClientGuid: Guid; var pBCTableNameRecord: Record "BCTableName" var pHandled: Boolean)

BCTableName has to be replaced with the concrete table name. The following tables can be used:

- Production Order
- Production Order Line
- Production Order Routing Line
- Work Center Group

- Work Center
- Machine Center
- Sales Header
- Sales Line

The event delivers the BC record to be transferred. Then an own or an already existing FlowFilter can be set and FlowField values can be calculated – the new value will be stored in the record. After this, the VAPS will process the record and transfer it to the SIM tables. The calculated value is then used as well but it is also possible to describe “nonFlowFields” so that the BC data for the simulation can be modified. These data can be displayed in tooltip, bar, or table.

List of fixed bugs

- Warning symbols showing a link constraint violation are refreshed correctly after complex operations.
- Scheduling family orders could generate an internal error because the parent production order line was not found.
- Pinned state of operations was not saved correctly when updating a simulation.
- No “focus view” functionality if there are no links connected to the current production order routing line.

If there was a routing with just one element and no reservations and this production order routing line was selected with the focus mode enabled, the focus on the capacities was not evaluated (no links). The capacities for the focus are in this case now evaluated via the selected production order routing line itself, not by linked production order routing lines.

- Braces disappeared after the tooltip setup was reopened: some formatting elements were removed accidentally by the validation check for non-existing fields.
- Progress calculation by quantity was not based on the “Quantity (Base)” field of the production order line.

Product	Visual Advanced Production Scheduler
Version	1.5
Build	1.5.0.0
Date	March 31, 2021

List of enhancements

- Production Order View available.
- Allow moving of pinned operations by context menu.
- The “Fill Gaps” function can now be triggered on a single machine center using the context menu.
- Move and wait times are now considered when calculating the ending date-time of operations and production orders.
- API with which the customer can change the behavior of the app via extensions, for the time being consisting of one event: *OnPostPublishSimulation()*, which is triggered on publishing a simulation.

List of fixed bugs

- The VAPS crashed when IDs like order number, operation number or routing number contained an underline character.
- The “pinned” state of an operation was not set correctly after updating an outdated simulation.
- The warning sign showing a link violation between successor/predecessor was not restored after closing/reopening a simulation.
- In some cases, the VAPS could not handle family orders correctly (fixed in 1.4.1.0 for an on prem version, now available for all).
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Product	Visual Advanced Production Scheduler
Version	1.4
Build	1.4.0.0
Date	December 17, 2020

List of enhancements

- **Change operations that have already been started:** Up to now, operations that had already been started, i.e., operations with postings, could not get changed in the visual planning board. Now, the **new context menu item** “Change Started Operation” allows for the following changes:
 - Moving the operation to another point in time or assigning it to another machine center including the decision how to scheduler the remaining quantity.
 - Changing the operation’s duration
- **Custom fields:** In addition to the default fields available in tooltip, label, and table text it is possible now to equip custom fields with data to use them in tooltip, bar label and table text.
- The **notifications window** can now be **switched off** by a new option in the VAPS Setup dialog.
- New section “Appearance” in the “Settings” dialog where you can specify
 - the **zoom factor** in %
 - the **layout:** In the "Compact" layout, the display is reduced as much as possible to provide a better overview, especially with large plans.
- Enhancements of the **Search functionality:** You can now also search for **production order lines** in the Capacity View and for **sales item lines** in the Sales Order View.
- Due to a smarter calculation of the capacity curve, we gained considerable loading and interaction **performance improvements**.
- Support of **alternative connection to Microsoft’s Base App**. Requires Microsoft Dynamics 365 **BC v16.4 and higher**.

List of fixed bugs

- Operations were shown in the wrong work center when setup time + run time was zero.
- Error when creating a production order with a multi level structure through the planning worksheet.
- The run time of a production order routing line was set to 0 during "Update Simulation".
- Setting the production order status to "finished" from the planning board did not remove the order.
- “Fill Idle Times” in combination with alternate routing sets resulted in overlapping operations.
- "Apply Standard Routing" with parallel routings could result in backward links depending on the processing order of the parallel operations.

Product	Visual Advanced Production Scheduler
Version	1.3
Build	1.3.0.0
Date	October 2, 2020

Changed technical detail

- Requires Microsoft Dynamics 365 Business Central version 14.4.

List of enhancements

- **Better integration with MRP/planning worksheet:**

The VAPS is responsible for the shorter-term finite capacity scheduling, whereas MRP and the planning worksheet are responsible for the mid-term demand planning. The VAPS/MRP integration establishes clear rules as to which production orders belong into the VAPS area of responsibility and hence must be untouched by the planning worksheet.

- Functional details:

- Define a **frozen period** (as that period in which the planning flexibility of firm planned production orders is set to “none” if they are scheduled by the VAPS).
- Enhancement of context menu to **allow deviations from standard rules** concerning the VAPS/MRP integration.
- **Enhancement to the planning worksheet** to show which production orders are scheduled by VAPS.
- When action messages are carried out, a **warning message** is given that this might change production orders that are scheduled by VAPS.
- **New color scheme** to quickly differentiate production orders that belong to the VAPS area of responsibility from those that belong to the MRP area of responsibility.

- **New read-only Sales Order View**

Users can see those sales orders that have production orders against it and when those production orders are scheduled. A visual alert is given if the production order finish date is past the sales order’s requested delivery date.

- **KPIs**

Users can compare different simulations by opening a new page that shows the following KPIs per simulation:

- Number of production orders
- Number of operations on standby
- Number of late production orders
- Total delay (hours)
- Total setup time
- Total buffer time (time between end of production order and required due date)
- Number of production orders without required due date

- **Change production order status via context menu.**

- **Search functionality**

In both views, a search functionality can be used now. In the Capacity View, users can search for production orders using data from the production order routing line table. In the Sales Order View, users can search for sales orders using data from the sales order header table. The respective view then automatically scrolls to the first search result which gets highlighted as well.

- **Automatic initial population of required due date field**

The VAPS custom field “required due date” (on production order header level) is automatically populated with the production order’s initial due date.
- **Enhancements of the alternate routing set page**

The alternate routing set page got enhanced by the “where used” functionality so that users can see in which routing the respective alternate routing set is used. We have added a new page to list all existing alternate routing sets.
- **Customizable tooltip and bar label**

For both items there are now identical dialogs where you can adjust the contents to your individual needs. The new "format strings" allow, among other things, the multi-line display of the bar label or the separation of the individual fields by special characters.
- **Changes and improvements made to the Earliest Material Availability Date (EMAD) calculations**
 - The item record has been extended to show reservations regardless of the date (this is a new FlowField). This field is used in the EMAD Demand table.
 - Demand allocations have been adjusted to always consider what is in demand regardless of reservation.
 - Demand priority is considered correctly when inserting EMAD Demand records.
 - Track Source Type and Source Sub Type on Demand entries.
 - Improved methods of data aggregation with queries with significant improvement in terms of performance of these calculations
 - Reorganize allocations page removing the word 'Allocation' since the user is already in that area, making navigation more concise.
 - Assembly order quantities correctly considered, previously missing (Qty. on Assembly Order).
 - Item allocation creation process adjusted to consider production order component due date when fully reserved.
 - Removed unnecessary calls to CalcFields (where not being used)
 - Create Item Allocation now considers correct reservation qty.

List of fixed bugs

- In certain configurations the extensions could not get published into the system when a previous version was already installed.
- Issue with a work or machine center no. which comes close to its maximum character length.
- Wrong calculation of curve values if the unit of measure code of the involved operations is varying.

Product	Visual Advanced Production Scheduler
Version	1.2
Build	1.2.0.1
Date	June 26, 2020

List of enhancements

- No enhancements in this release.

List of fixed bugs

- Issue when processing Prod. Order Numbers which differ significantly in length.

Product	Visual Advanced Production Scheduler
Version	1.2
Build	1.2.0.0
Date	June 24, 2020

List of enhancements

- Show/hide setup time by new menu item.
- Improved handling of reservation entries & linked production orders (incl. safety lead time).
- “Add all” function to bulk schedule production orders with a clear prioritization rule from standby resource to respective machine centers with options to
 - define the schedule start date
 - decide whether you want to take into account alternate machine centers or not
 - decide whether you want to take into account the EMAD (earliest material availability date) or not.
- “Fill idle time” function to bulk reschedule already planned operations with a clear prioritization rule to reduce idle times on machine centers with options to
 - define the schedule start date
 - decide whether you want to take into account alternate machine centers or not
 - decide whether you want to take into account the EMAD or not
 - set number of iterations.
- Capability to update simulation from planning board directly (incl. notification that the simulation got outdated).
- Various enhancements of the filter options when creating a new simulation.
- Provision of more information related with a simulation on the simulation overview page (incl. capability to add notes to a simulation).

List of fixed bugs

- Adapted JSON handling to reduce misleading last known error message
- It was ensured that UTF8 text coding is used internally.
- The color picker for “Subcontractor Color” did not show up.
- Issue with work centers containing underscores.
- Issue with machine center names longer than 18 characters.
- Issue when using the progress view and no required due date was set.
- Too many calendar entries were loaded due to a wrong filter setting.
- Update Simulation could falsely overwrite certain changes in a simulation.

Product	Visual Advanced Production Scheduler
Version	1.1
Build	1.1.0.1
Date	11 May 2020

List of enhancements

- Support of subcontracting work centers
Scheduling the work given to subcontractors is improved by the following enhancements:
 - Subcontracting work centers are visualized differently than the other work centers.
 - They are treated as work centers with infinite capacities
 - They can be made part of alternate routing sets.

- Improved production order status change
 - Changing the status of a production order no longer makes a simulation outdated. Instead, the bar's color immediately reacts to the status change of the production order if the Production Order Status View is applied.
 - Changing the production order status no longer leads to moving the production order to the standby resource.

List of fixed bugs

- Issues in case of work and machine centers with identical numbers.
- Tooltip not correct in languages other than English.
- Setup/runtime handling in combination with alternate routing sets.
- Type conversion error in EMAD calculation in case of quantities with decimals.

Product	Visual Advanced Production Scheduler
Version	1.0
Build	1.0.0.0
Date	17 January 2020

Key features

- Visual production scheduling with (semi-)automatic scheduling tools.
- Finite capacity scheduling.
- Calculation and visibility of material availability when scheduling.
- Alternative machine centers with production coefficients for setup time and production time.
- Build and manage multiple production schedule simulations.
- Different color schemes to highlight
 - Material availability.
 - Late production orders.
 - Bottlenecks.
 - Production order status.
 - Important production orders.
 - Production orders for certain items.
- Pin production orders.

Technical Details

- Available for Microsoft Dynamics 365 Business Central.
- Requires Microsoft Dynamics 365 Business Central version 14.
- Optimized for the Web Client.
- Fully designed and implemented as future proven AL Extension.
- Full integration into Microsoft Dynamics 365 Business Central.
- Currently available as on-prem version.