SchedulePro New Features

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1. Version 13 Improvements

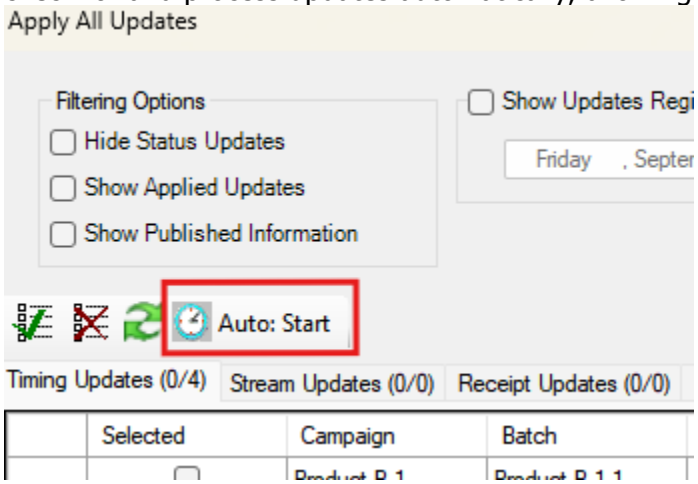
Version 13 New Features

SchedulePro Version 13 has the new features listed here. While the SQL Server database will need to be upgraded, there are no updates required for the Web Tracker. You may use this version with Web Tracker 12.3.

1.1. Automatic Timing Updates

Automatic Timing Updates

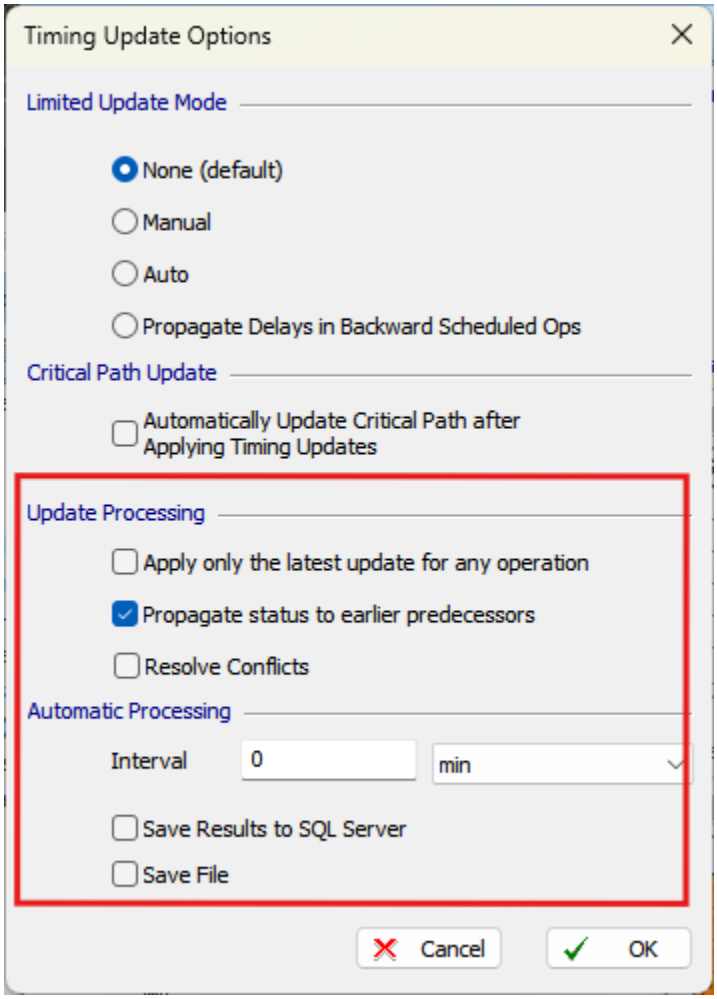
This applies to sites where the Web Tracker is used for updating operation data. SchedulePro can be set to check for and process updates automatically, allowing the user to step away.



SchedulePro provides options for update processing including propagation of status changes, conflict resolution and whether to save the SchedulePro file after each set of updates.

1.2. More Timing Update Options

Timing Update Options

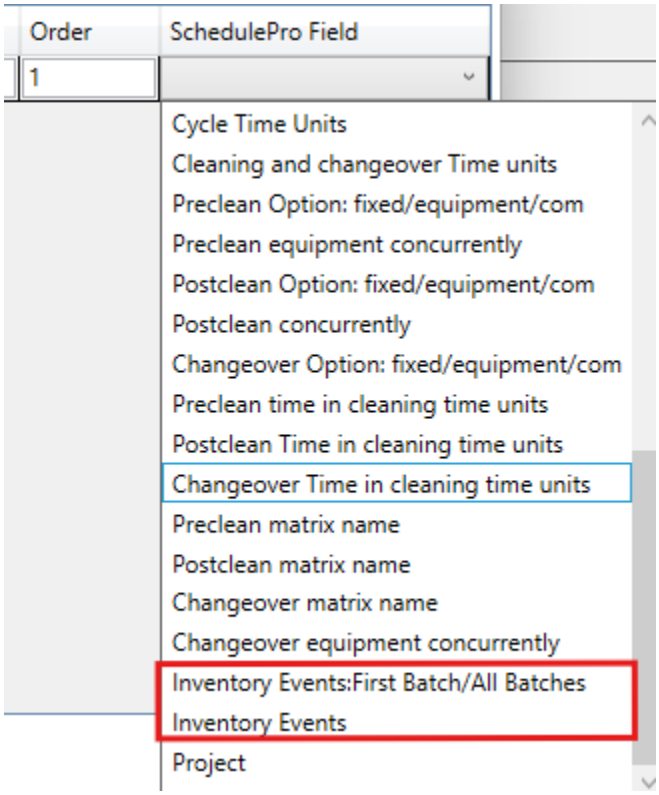


New timing update options allow the user to specify how to process updates from the Web Tracker. The automatic processing options set the update check interval and post-processing options for automatic timing updates.

1.3. Campaign Import Includes Event-Based Options

Campaign Import Now Includes Inventory Scheduling

Event-based campaigns can now be imported through the Campaign Import Data feature.



The new import fields are:

- Inventory Events: First Batch/All Batches - If the value is "FIRST BATCH ONLY" the event(s) will be used to determine the start of the campaign. Otherwise the events will apply to all batches.
- Inventory Events: This field expects values in the form <storage unit><comparison><value><units> events are separated with a "|" character. <comparison> is one of ">", ">=","<" or "<=," value is a numerical value and <units> is either "%" or a SchedulePro unit appropriate for the storage unit.

1.4. Custom Excel Reporting and Case Study Automation

Custom Reporting and Case Studies with Excel

The custom Excel reports can open an Excel file and fill out the report based on keywords found in the file. The keywords include commands for the following actions

- Open and reschedule an SCP file and report basic statistics.
- Reset and schedule all.
- Set basic recipe options such as equipment and durations.
- Schedule campaigns
- Report values for scheduled campaigns, batches, procedures and operations.

1.5. Negative Offset for Conditional Operations

Negative Offset for Count Based Conditional Operations

When a conditional operation is based on equipment usage count or on batch count, the operation is only executed when the count plus the offset is a multiple of the count frequency specified. For example if the specified frequency is 3, the operation should execute when the count is 3, 6 ,9...
An offset of +1 gives 2, 5, 8 ...
An offset -f -1 gives 4, 7, 10...

1.6. Cross Document Copy/Paste Improvement

Cross-Document Copy/Paste Improvement

Recipes and resources may now be copied and pasted from one document to another without loss of linkages.

If a recipe is pasted from another open document all the necessary materials and facilities are copied as well.

If other objects are pasted, any referenced items should exist in the destination document.

1.7. Storage Unit Text Import has Equipment Association

Storage Unit Text Import Includes Equipment Association

The new import headers include:

- EQUIPMENT - Expects values in the form <eq1>|<eq2>|<eq3>... Each <eq> entry may be the equipment name or <facility>:<equipment>
- If the fields EXP TIME and EXP UNITS are included, they will be applied to the equipment holding.
- DROP TIME and DROP TIME units are required if EXP TIME is specfied.
- USE DEPOSIT EQ FOR HOLD (true/false)
- USE EQ COMPATIBLE WITH 1ST DEPOSIT (true/false)
- KEEP BATCH ITEGRITY (true/false)

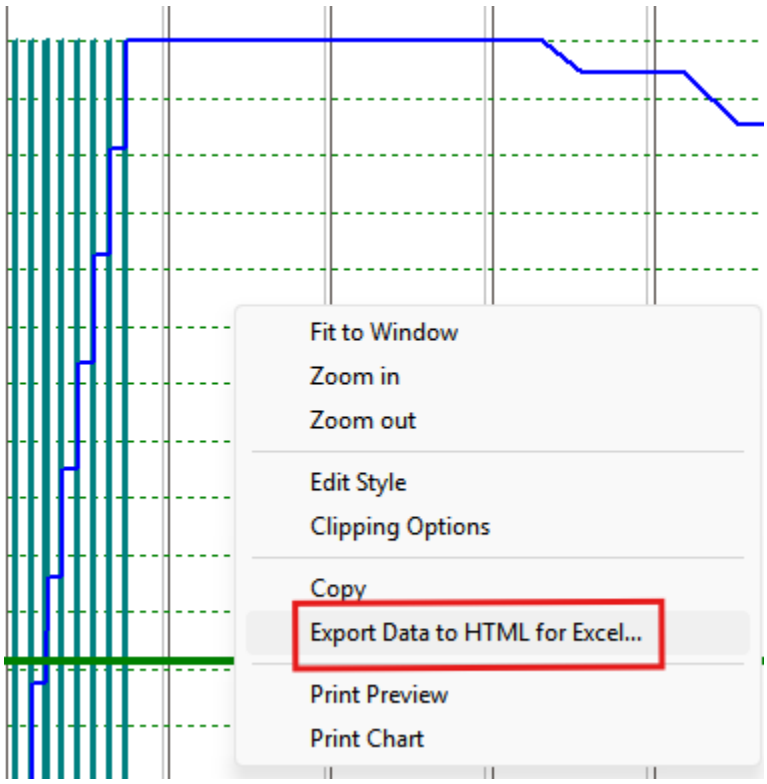
...

See the help/documentation for additional new fields.

1.8. Inventory Chart Data Export Improved

Inventory Chart Data Export Improved

Sampled data from inventory charts is now interpolated to reflect the value actually displayed on the chart.



1.9. Improved Support for SCP Cloud

Improved Support for SchedulePro Cloud Export

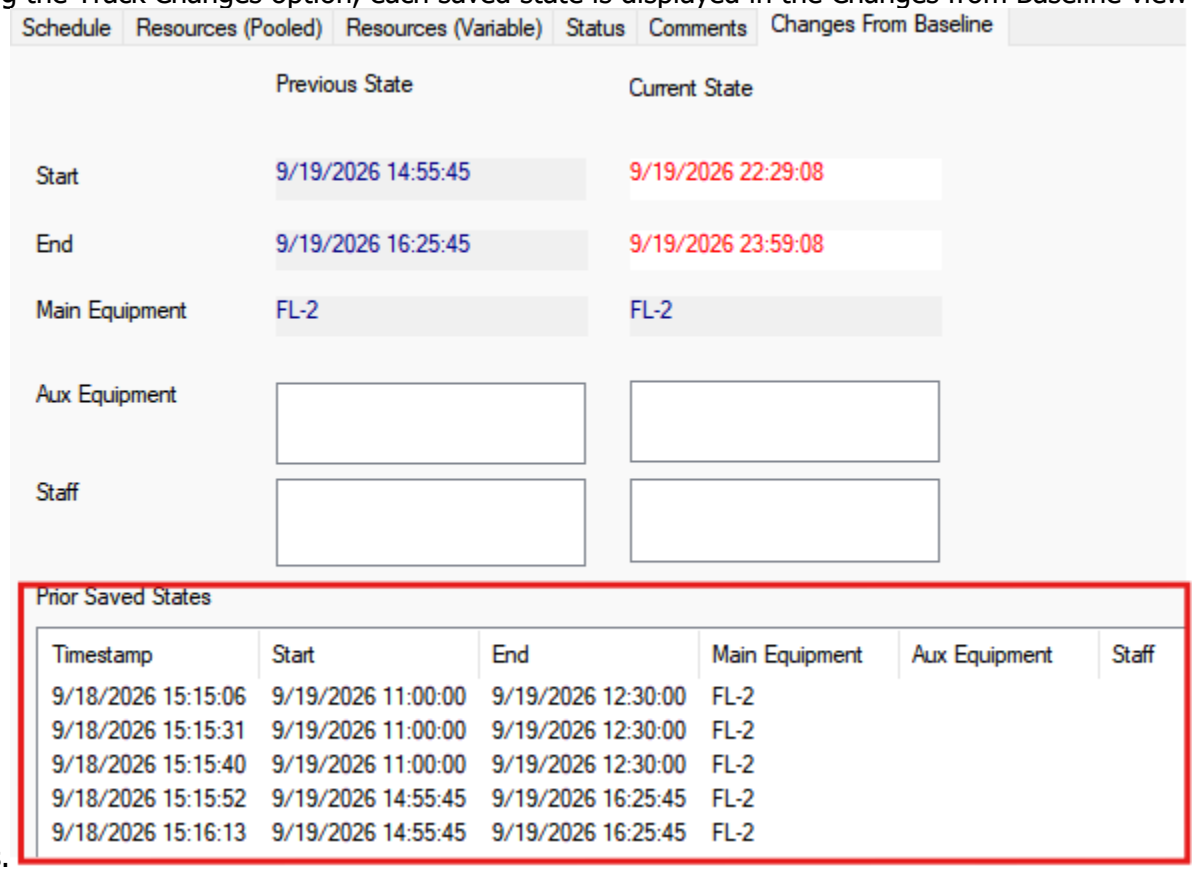
Recipes exported for SchedulePro cloud now support

- Storage unit replenishment strategies
- Changeover matrices
- SKUs

1.10. Display Saved History for Scheduled Operations

Display Saved History for Scheduled Operations

When using the Track Changes option, each saved state is displayed in the Changes from Baseline view of operations.



1.11. New Recipe Import Commands

New Recipe Import Commands

When importing recipes through the text file interface, the new heading, COMMAND, provides control for updating existing recipes.

The possible values are:
DELETE RECIPE - Deletes the entire recipe. All fields for sections, procedures and operations are ignored. Note: If subsequent rows reference the recipe, it will be recreated.

OVERWRITE RECIPE - Deletes the recipe and recreates it beginning with the operation in the current row.

DELETE SECTION - Deletes the section and its procedures. All fields for procedures and operations are ignored. If subsequent rows reference the section, it will be recreated.

OVERWRITE SECTION - Deletes the section and all its procedures and then recreates the section starting with the current row.

DELETE PROCEDURE - Deletes the procedure and all operations.

OVERWRITE PROCEDURE - Deletes the procedure and then recreates it starting at the current row.

DELETE OPERATION - Deletes the operation.

OVERWRITE OPERATION - Deletes the operation and recreates it with data in the current row.

DELETE MAIN EQ - Deletes all the main equipment for the procedure. If the row has a MAIN EQUIPMENT entry, it will be added.

DELETE AUX EQ - Deletes all the auxiliary equipment for the operation. If the row has auxiliary equipment, it will be added.

2. Version 12.3 and Web Tracker Improvements

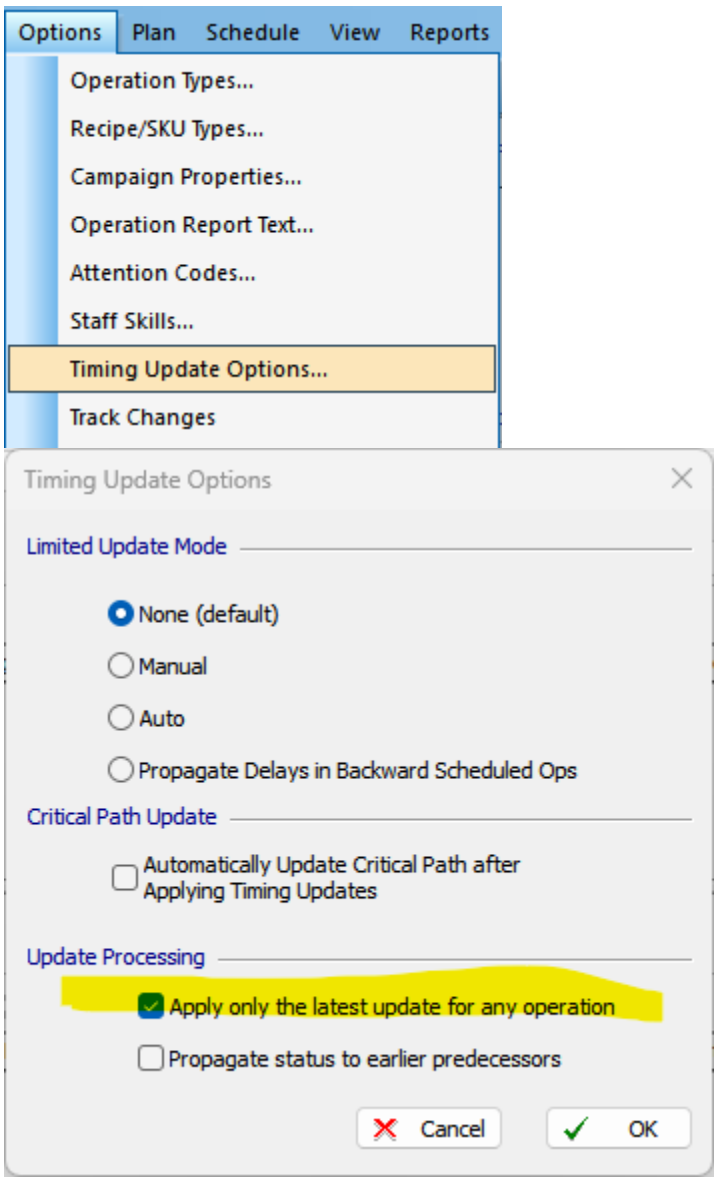
2.1. SchedulePro New Features

2.1.1. Timing Update Improvements

2.1.1.1. New Timing Updates Options

New Timing Updates Options

Apply Latest Timing Update for an Operation
If there are several timing updates for the same operation. There is no value in applying the earlier updates. When this Option is selected, if the selected timing updates include multiple updates for the same operation, only the last registered update is applied. Earlier updates are treated as though they had already been processed.

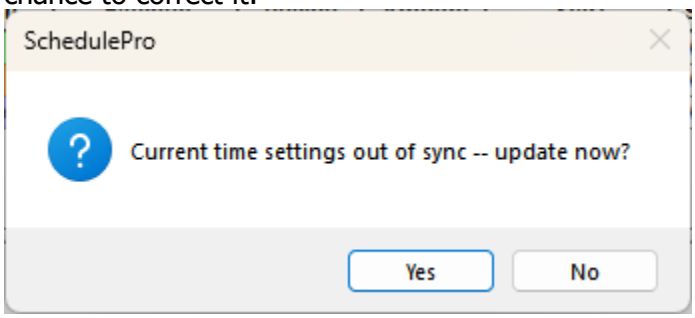


Propagate Status to Earlier Predecessors
This is similar to the automatic updates feature in the Web Tracker. When a timing update is processed, the status of any earlier linked operations is automatically updated.

2.1.1.2. Current Time Synchonization Check Added

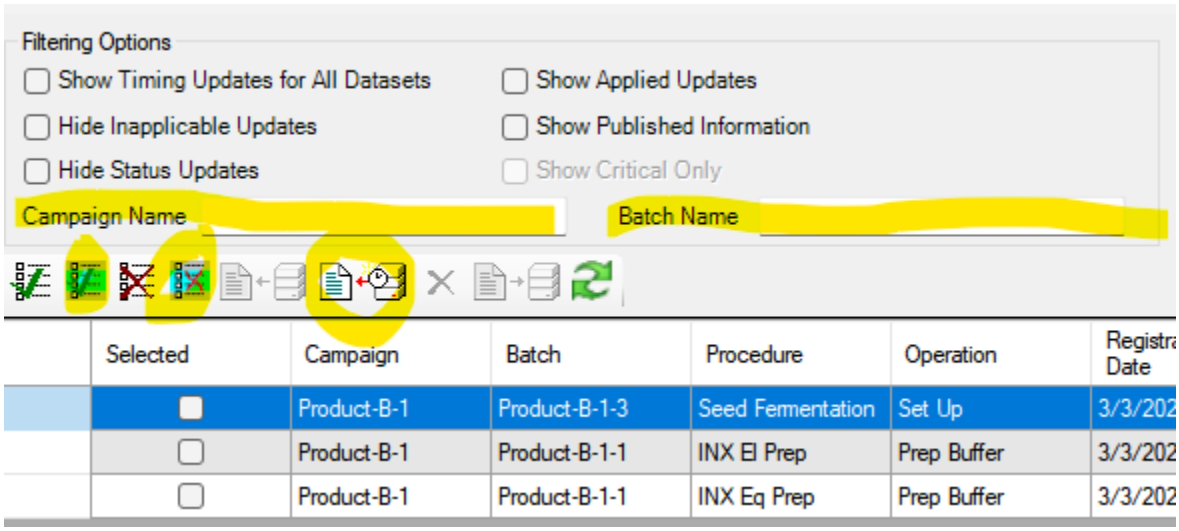
Current Time Synchronization

When processing timing updates, incorrect status information may result when the SchedulePro current time is not set correctly. If the SchedulePro current time is off by more than a minute, the user will be offered the chance to correct it.



2.1.1.3. New Timing Update Processing Functions

New Timing Update Processing Functions



Filter by Campaign or Batch
The updates list will be filtered by campaign or batch name or partial name. Type the first few characters in the name in the appropriate field and press <enter> to update the list.

Block Select/De-select
Use the control and/or shift keys along with the mouse to high-lite rows in the updates list. Use the the toolbar buttons above to select or deselect the corresponding updates.

Process Latest Update Only for a Given Operation
This is similar to apply only latest updates option except that the option is applied only for the selected updates. If an operating has multiple updates selected, only the last registered update is applied. This function works whether or not the apply-latest-updates option is selected.

2.1.1.4. Report Improvements

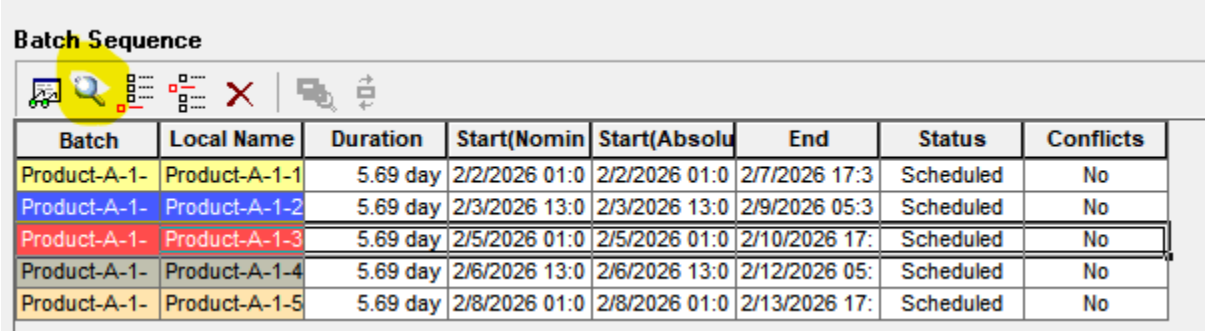
Schedule Report:

The following values are now included in campaign or batch level reporting:
Order Amount
Nominal Start

Equipment Utilization Report
Idle time added to utilization overview table.

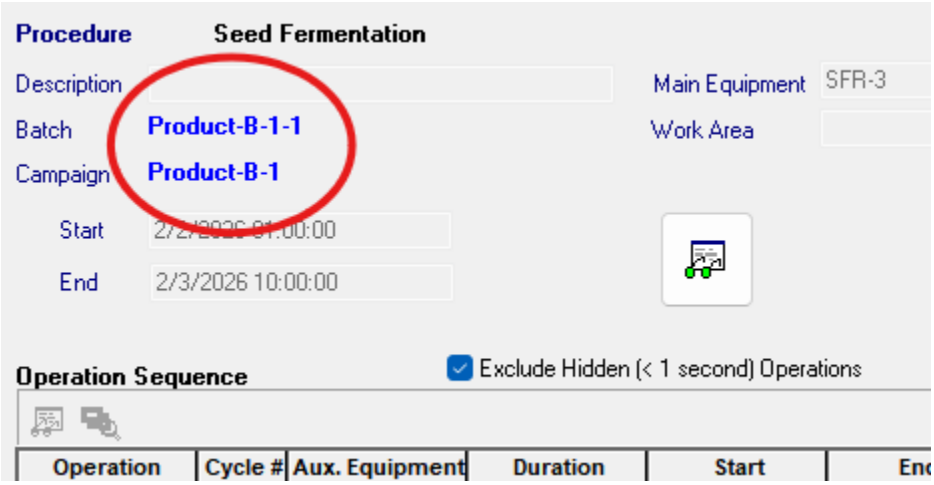
2.1.2. Navigation Improvements

Scheduled Batches and Procedures Have a Go To Button on their Toolbars



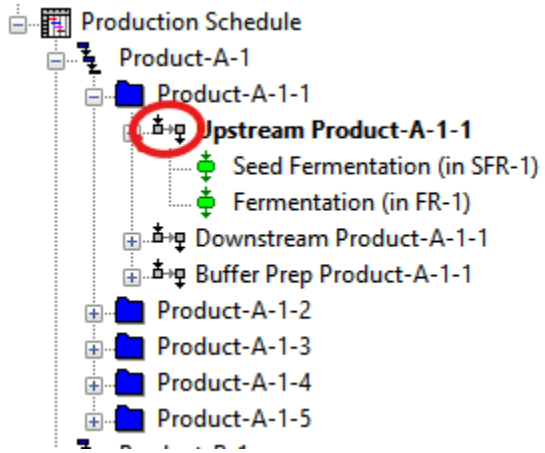
Clicking this button will navigate to the batch or procedure in the selected row.

Scheduled Batches and Procedures Links



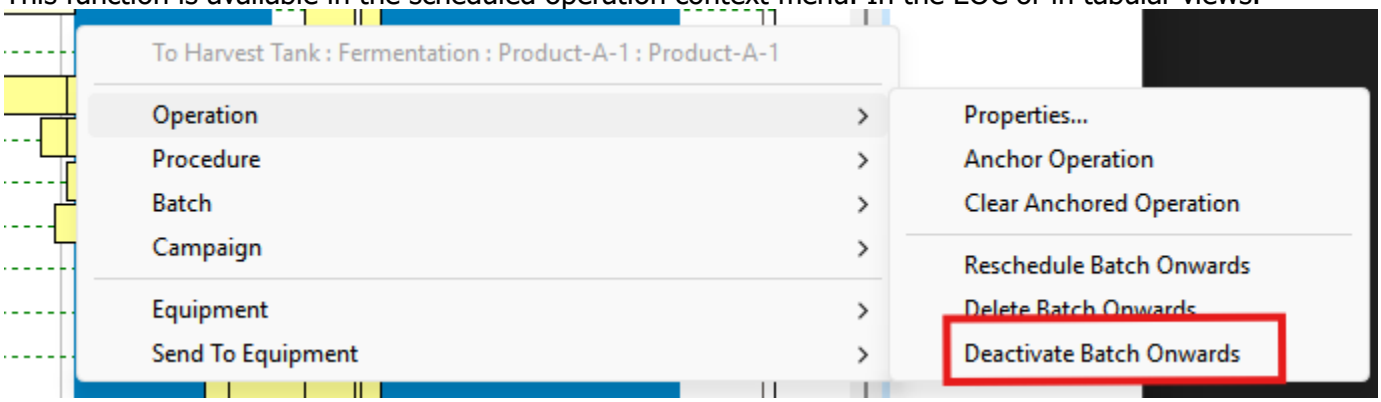
The scheduled batch or procedure display now has a link to corresponding campaign and/or batch.

Sections are Now Displayed in the Navigation Tree for Scheduled Batches
This provides another level of visual organization. The scheduled sections do not have any editable properties. As with recipes, sections are displayed if the option Show Recipe Sections in Tree is selected in Edit/Preferences...



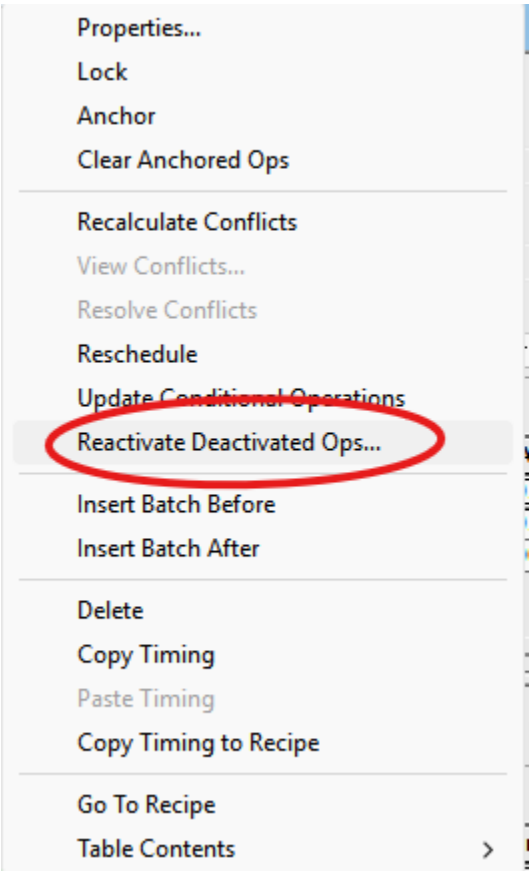
2.1.3. Partial Batch Deactivation

The Deactivate Batch Onwards function provides a reversible way to delete part of a batch.
This function is available in the scheduled operation context menu. In the EOC or in tabular views.



The selected operation and all its dependent subsequent operations are zeroed but not deleted. They do not consume resources or take time. Locked or confirmed started or completed operations are not affected. User changes to deactivated operations will be lost.

The deactivated operations may be restored by selecting Reactivate Deactivated Ops... from the batch context menu.

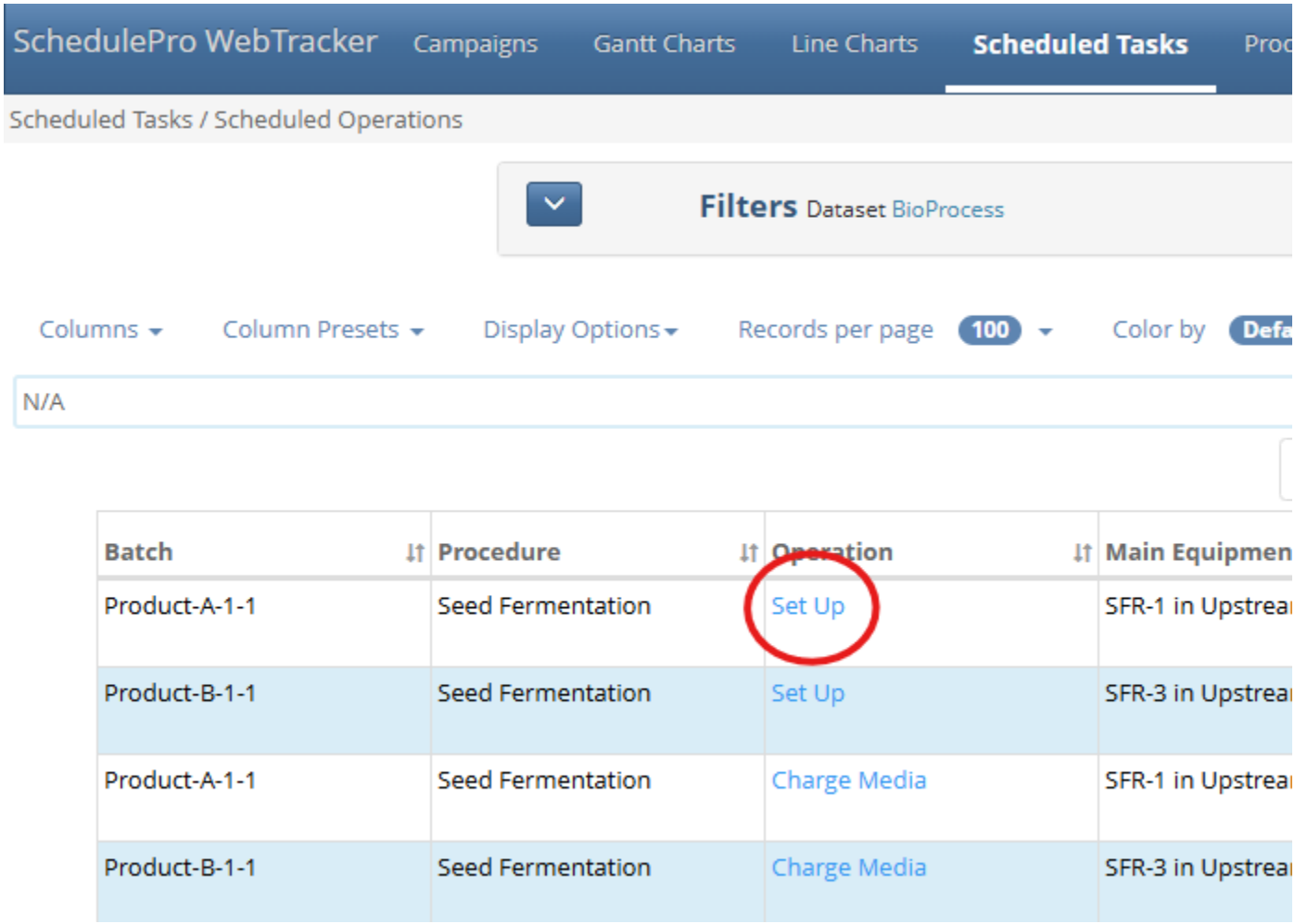


Note. Be careful not to confuse this feature with user inactivated conditional operations.

2.2. Web Tracker New Features

2.2.1. Timing Updates Available from Scheduled Operations View

Timing updates may be entered from the Scheduled Tasks page in the Web Tracker.
Click on the **Operation** to bring up the the timing update view.



Hint: To view which operations have pending updates, always add an attention code or comment when updating and view the column Tracked Attention Code or Tracked Comments.

3. Version 12.2 New Features

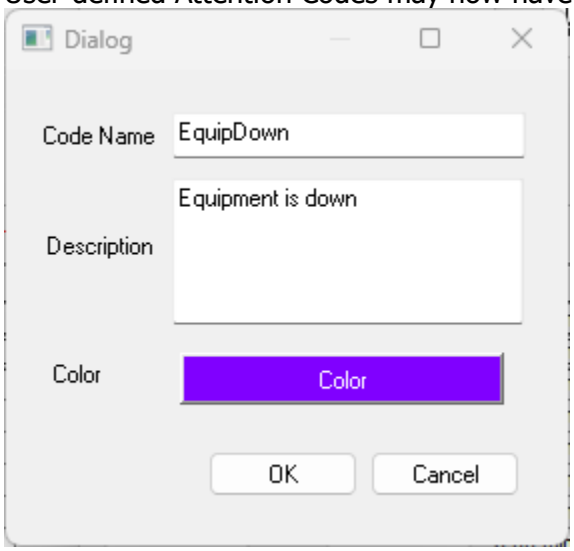
3.1. Automatic Attention Codes

Attention codes are user defined codes that indicate some condition in an operation. SchedulePro can automatically assign an attention code to scheduled operations that are delayed from their originally scheduled time.

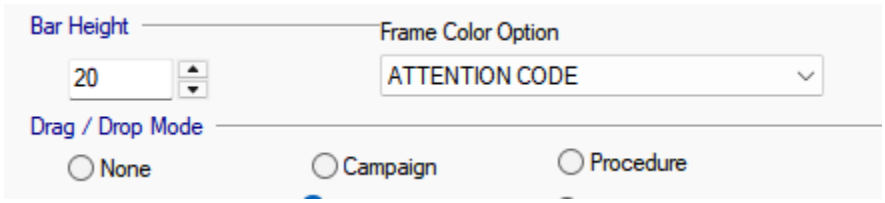
Use the new **Automatic Attention Code** setting in an operation to apply this feature.

3.2. Attention Codes Visible in EOC

User-defined Attention Codes may now have a color in addition to a name and description.



For operations with an attention code, the color will appear as the operation frame color in the EOC when the operation has the attention code and when the frame color option in the chart style settings is set to ATTENTION CODE.



3.3. Export to SCP Cloud Planning (experimental) Application

Users testing the new SchedulePro Cloud Planning application may export a SchedulePro file to a text format (json) suitable for upload to SCP Cloud planning.

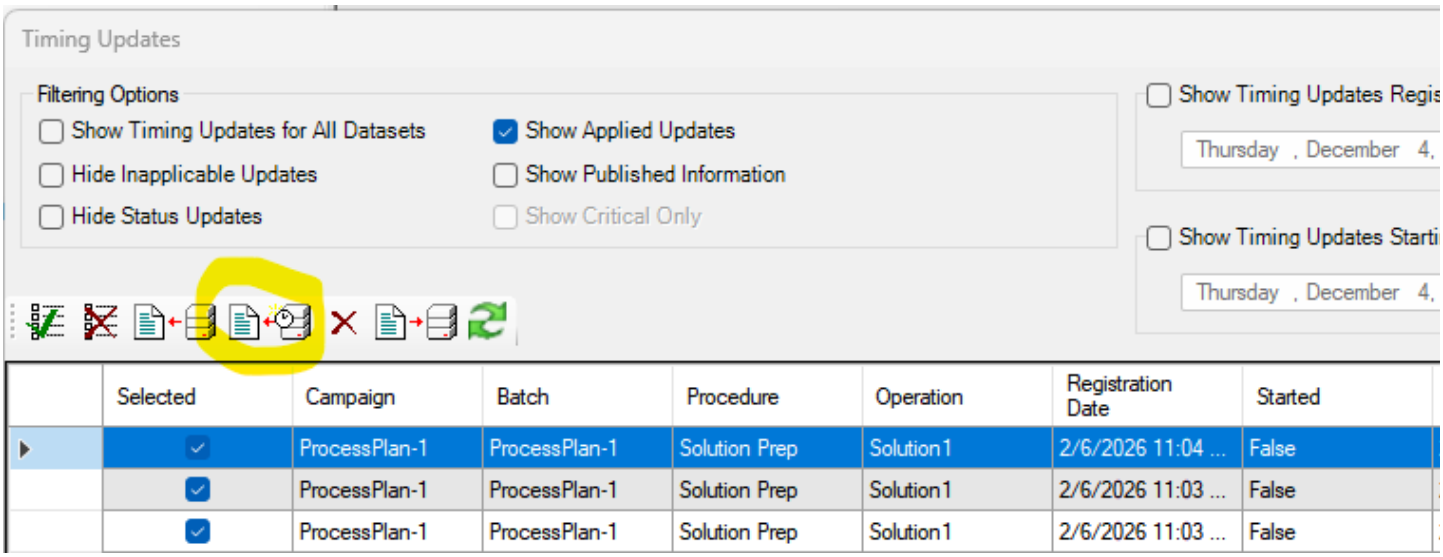
Contact Intelligen for more information.

3.4. Gantt Chart Descriptions Improved

The description field in the Gantt chart reflects the recipe description fields in the recipe Gantt chart and the operation comments for schedule Gantt chart.

3.5. Apply Latest Update Only

When applying timing updates from the Web Tracker, a new option processes all the selected updates but only applies the last registered update for any given operation.
This option is faster and can avoid some errors when applying updates.
(Added in revision 97).



3.6. Version12.2 Bug Fixes

Revision 65:
Improve application of Web Tracker Updates. Apply in chronological order.

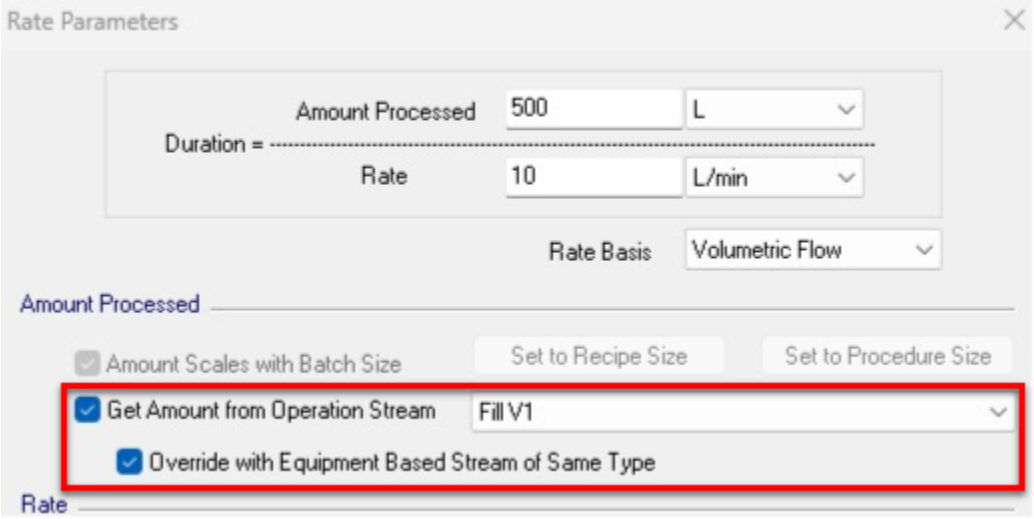
Revision 86:
Improvements to Gantt chart comment display.
Fix bug in batch list display (status and conflicts displayed incorrectly).

Revision 97: Fix but related to reading Phase Entry IDs with 3-field format (batch id field)

4. Version12.1 New Features

4.1. Duration Amount from Equipment-Dependent Stream

A rate-based duration may take the amount from an equipment-dependent stream:



4.2. MS Access Database Report Includes Working Duration

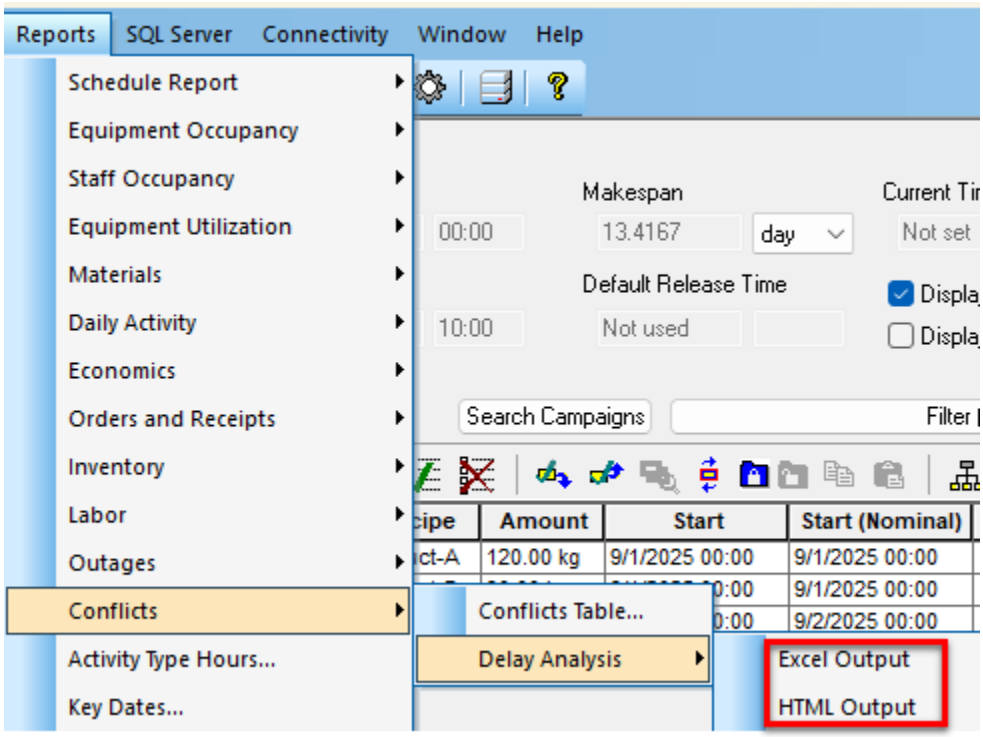
The MDB Report (Connectivity/MDB Report), now includes both the total duration (including breaks) and the working duration for operations.

4.3. Delete Batch Onwards

The "Delete Batch Onwards" command from an operation will now delete all linked operations even if they are earlier.

4.4. Batch Delay Reporting

The batch delay analysis report in standard HTML format or in Excel displays the equipment resources that are linked to batch delays beyond the requested cycle time. This can help identify bottlenecks where there are multiple products or when equipment is reused among several procedures.

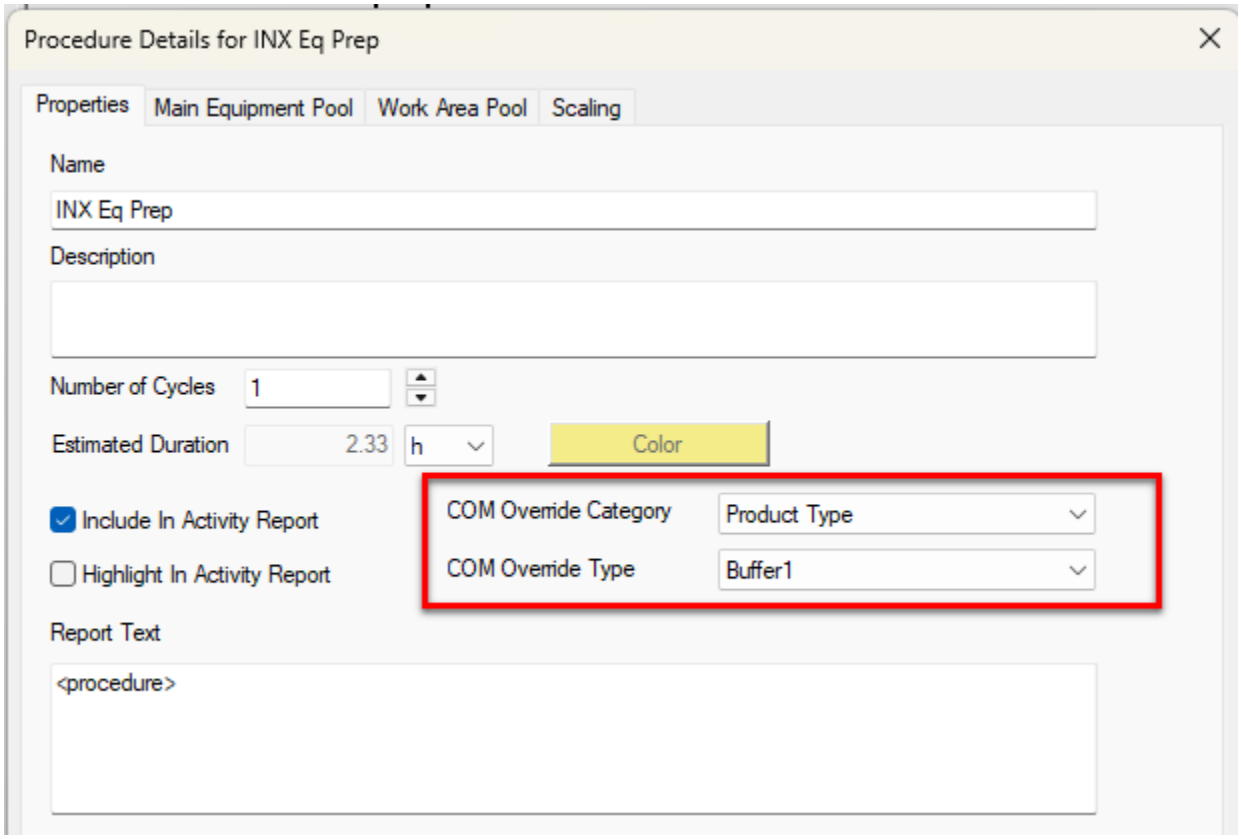


4.5. Editing Resources for Scheduled Campaigns

Pooled resources (equipment, staff and work areas) may be modified at the campaign level for scheduled campaigns. All batches in the campaign will get the selected resources.

4.6. COM Type Classification may be overridden at the Procedure Level

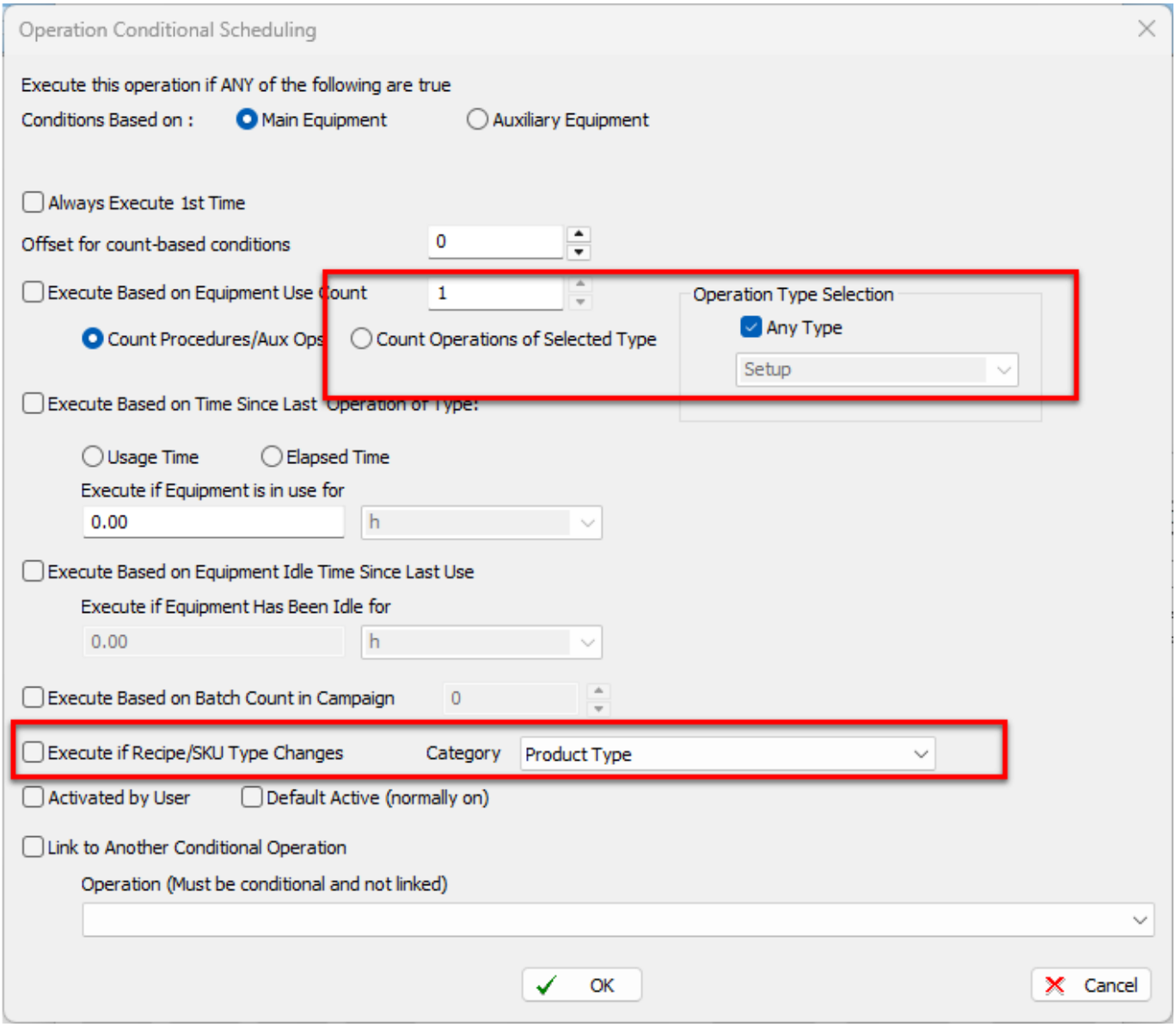
The COM classification for one category may be overridden at the procedure level. This may be useful in recipes that include the making of intermediate products.



4.7. Conditional Operations - New Options

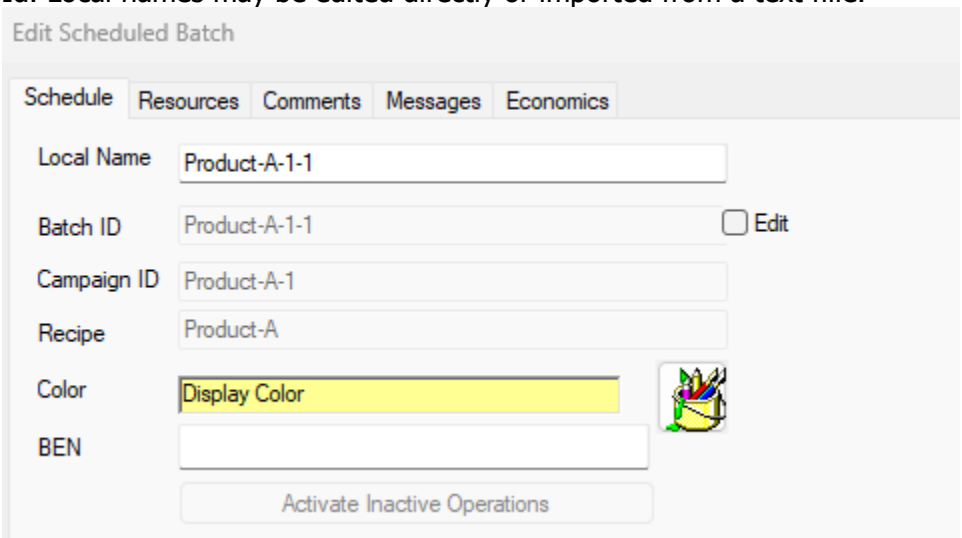
Conditional Operations now have the following new options:

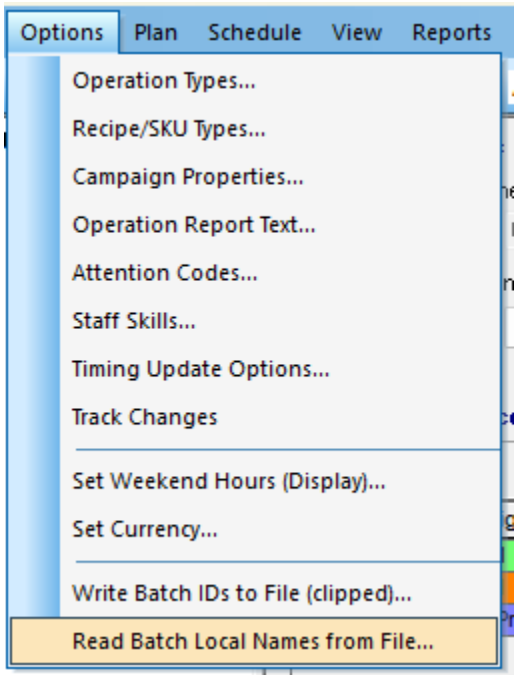
- Usage count based on operation type -- the count will include only usages of the specified type.
- Execution based on change in Recipe/SKU COM type for a selected category.



4.8. Batches Have Ediable Local Names

Batches have an editable local name for display purposes. Internal an extra-reference links still use the Batch Id. Local names may be edited directly or imported from a text fille.

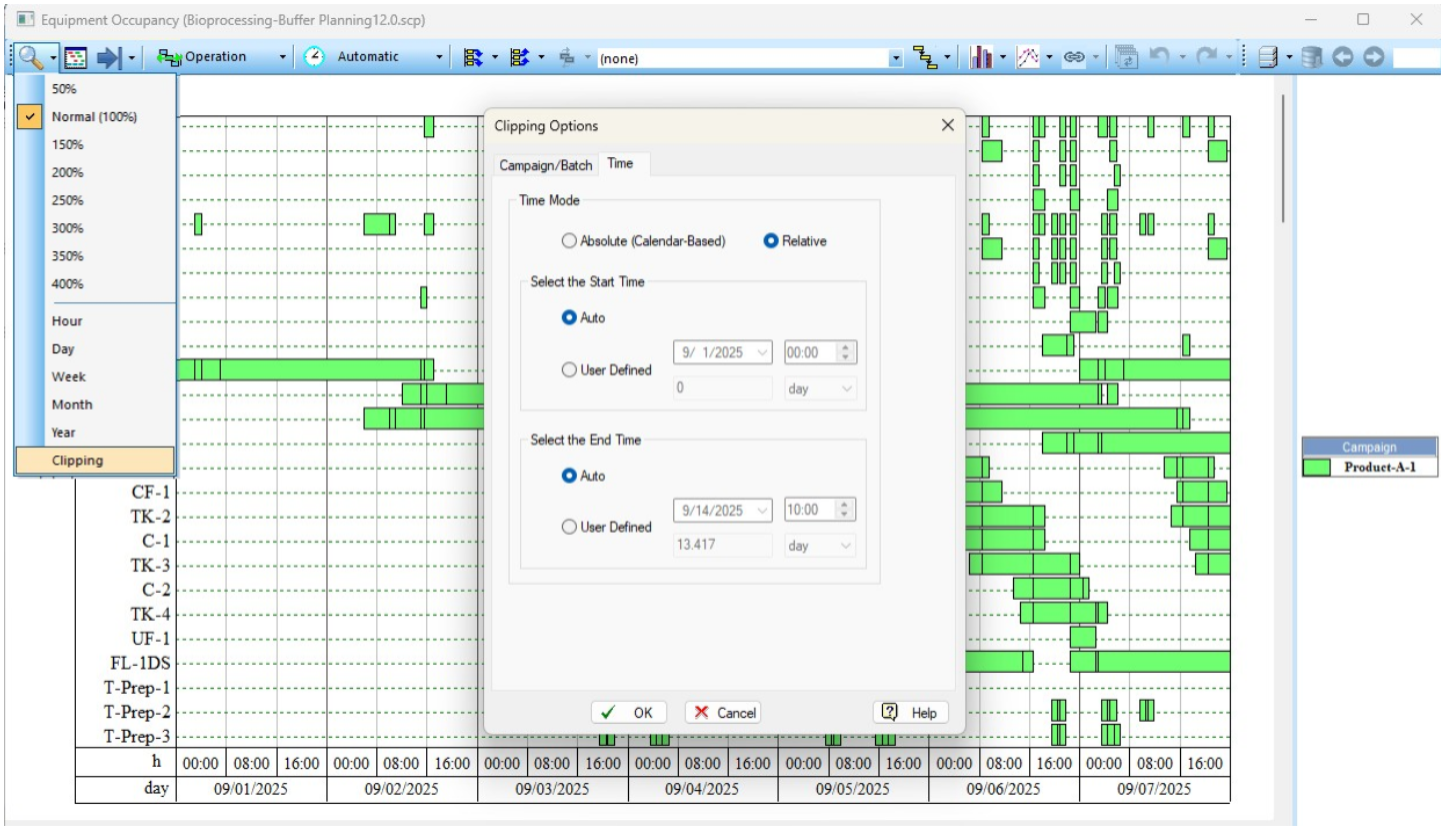




SchedulePro will keep the local names after rescheduling a campaign.

4.9. The Equipment Occupancy Chart Now Respects Time-Clipping

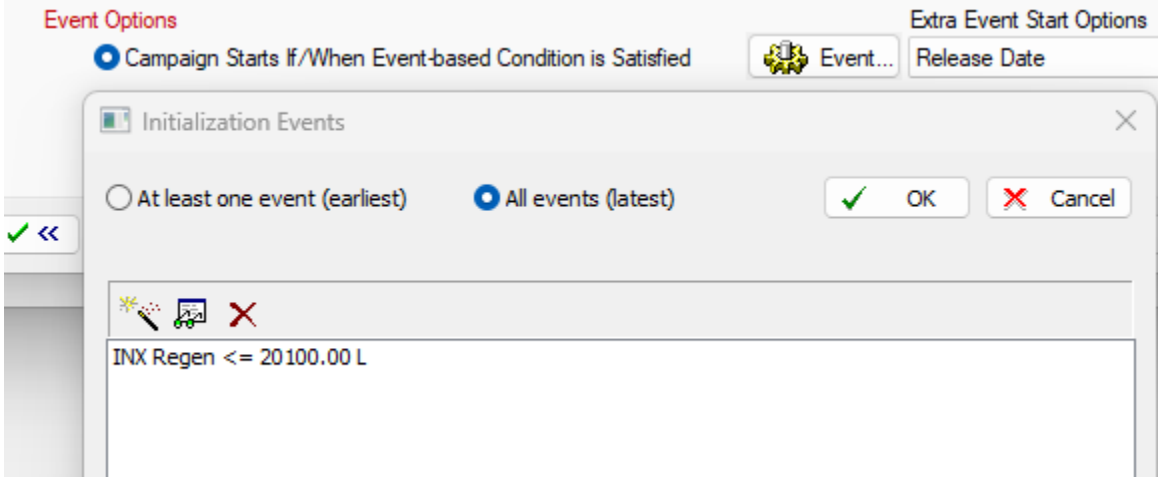
The Equipment Occupancy Chart can now use time clipping to focus on a particular time range.



5. Version 12.0 New Features

5.1. Multi-Even Campaign Scheduling

Event based campaigns can be based on the earliest or latest of multiple inventory events.



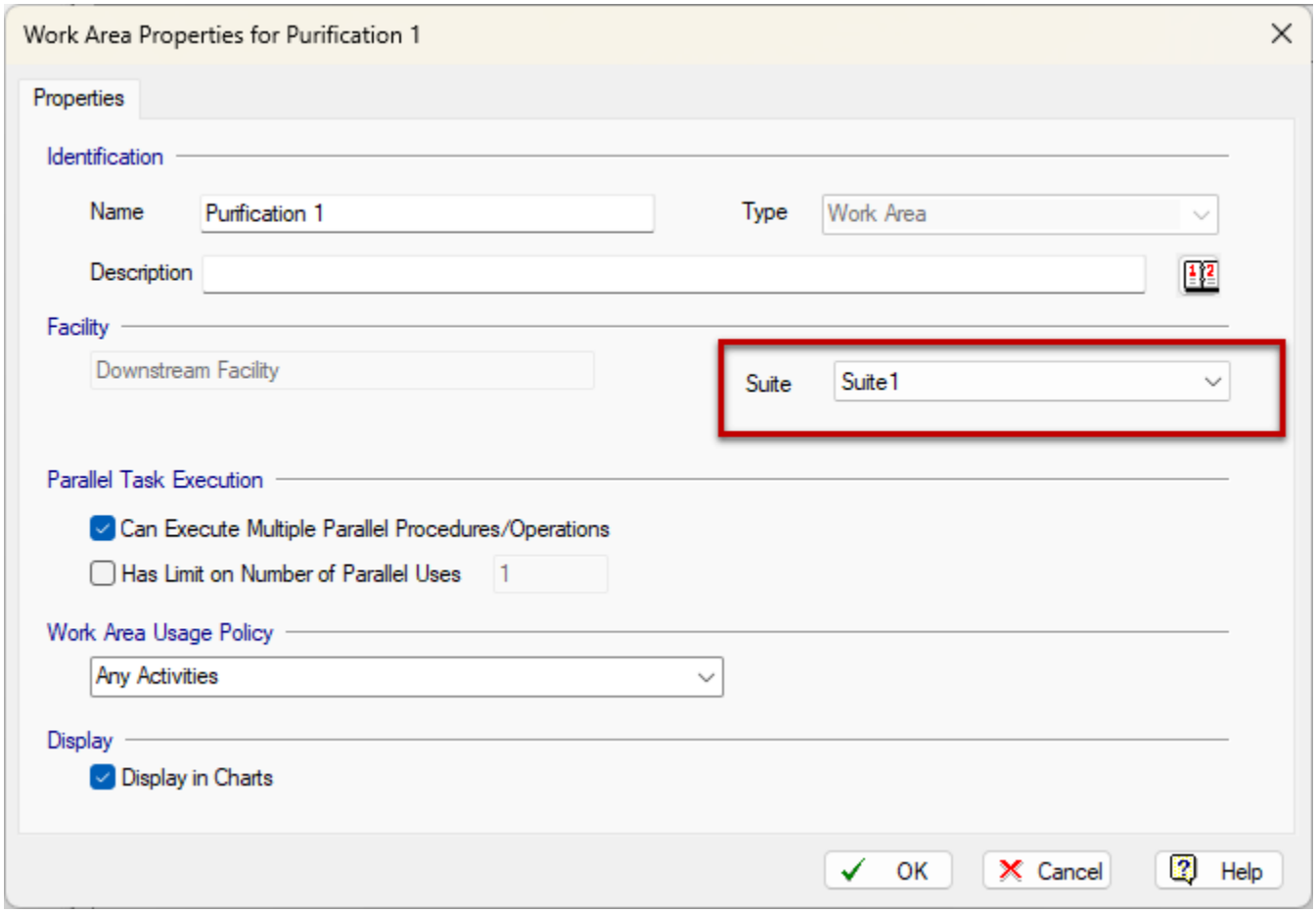
Users may choose whether to use the latest or earliest of all the inventory events to trigger a campaign.

5.2. Menus Reorganized

The main menus have been reorganized and non-functional or obsolete options have been removed.

5.3. Workareas May Now Have Suites

Suites now apply to work area resources. They are restricted by suites in the same way that equipment are. This feature may be used to ensure that incompatible batches do not concurrently share suites.



5.4. Improved Cycle Time Estimat

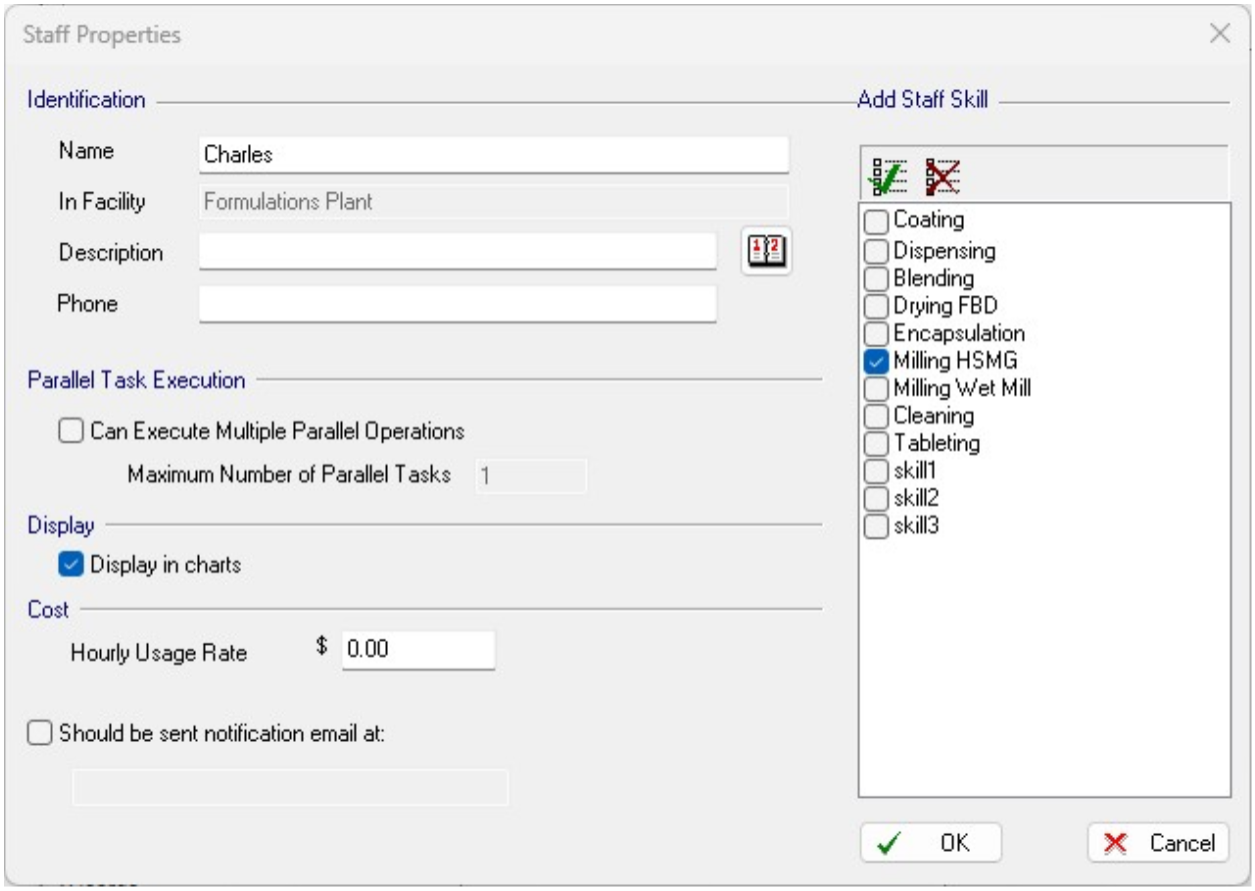
The cycle-time for a recipe or campaign may be calculated by one of the following methods:

- The original gross estimate which simply estimates the procedure with the longest effective duration (duration divided by the number of available equipment units).
- Algorithmic which accounts for repeated equipment usage and (optionally) staff and auxiliary equipment.
- The Optimization method which is similar to the algorithmic method. The user may select the built-in (SCIP) optimization solver or if GAMS is available, one of the several solvers supported by GAMS.

When estimating the cycle time for a campaign, there is an option to "Take Results and Exit," which will apply the cycle time and any equipment assignments to the campaign.

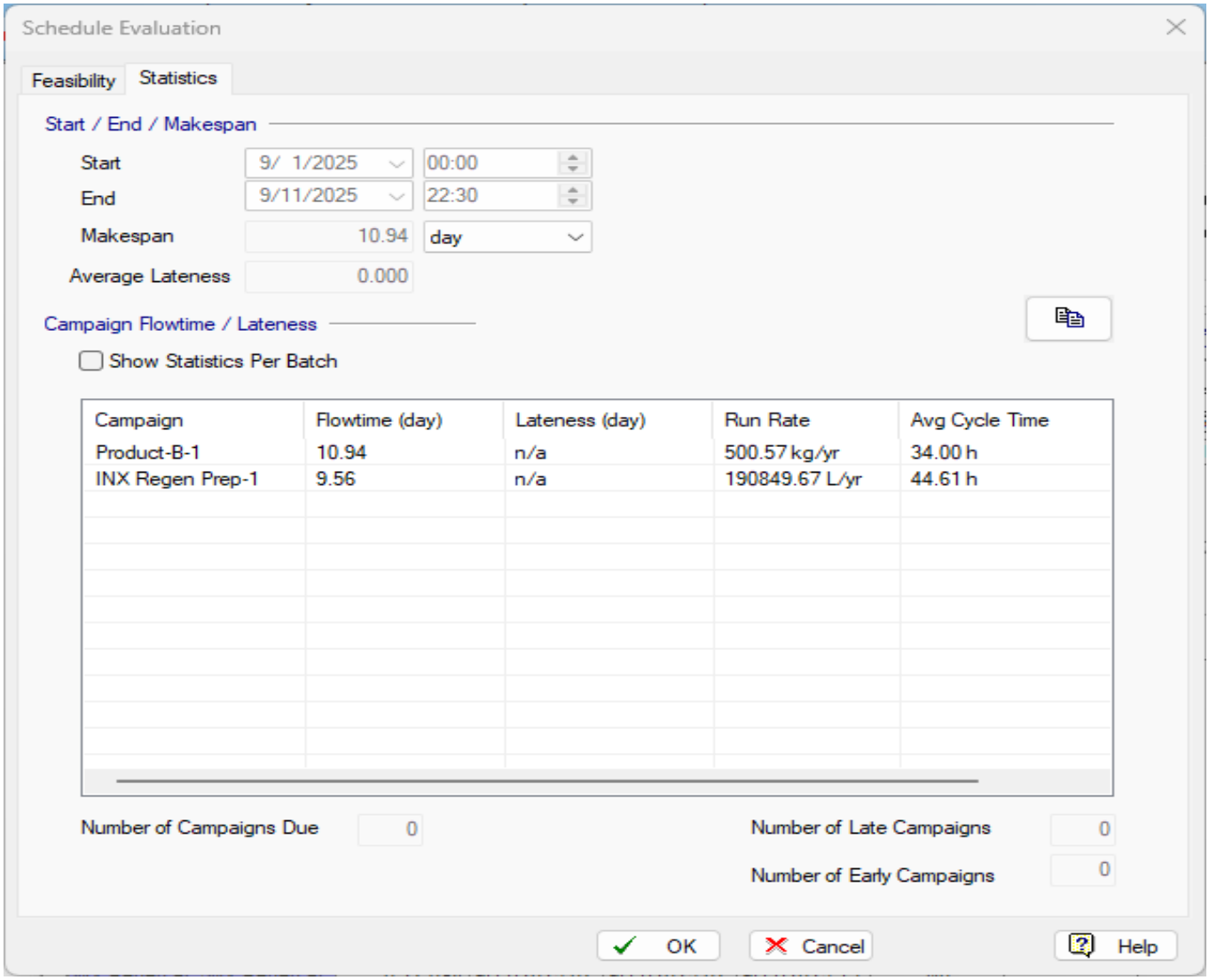
5.5. Improved Staff Skill Assignment

A simple check-box interface replaces the former tool for assigning skills to staff.



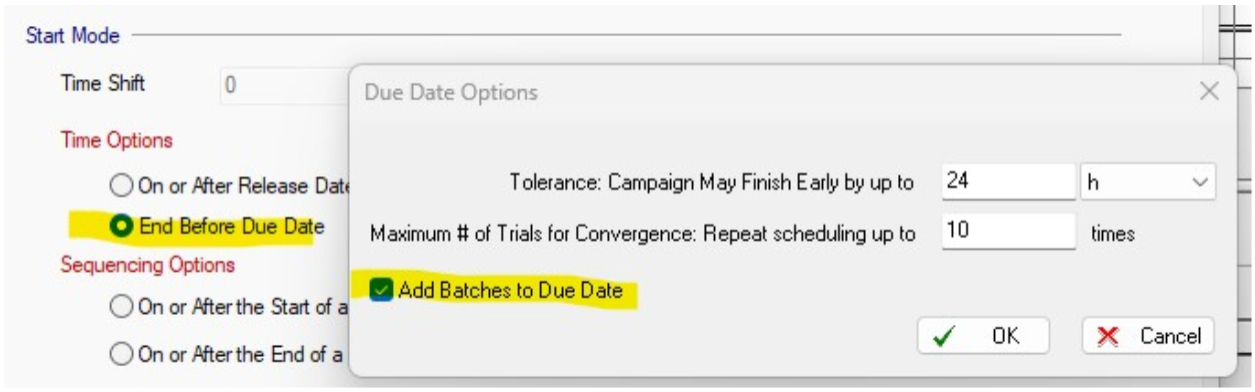
5.6. Schedule Evaluation Includes Run Rate and Cycle Time

For SKU campaigns and recipes with a batch size, the run rate in units of product per year is now included.



5.7. Schedule to Due Date by Adding Batches

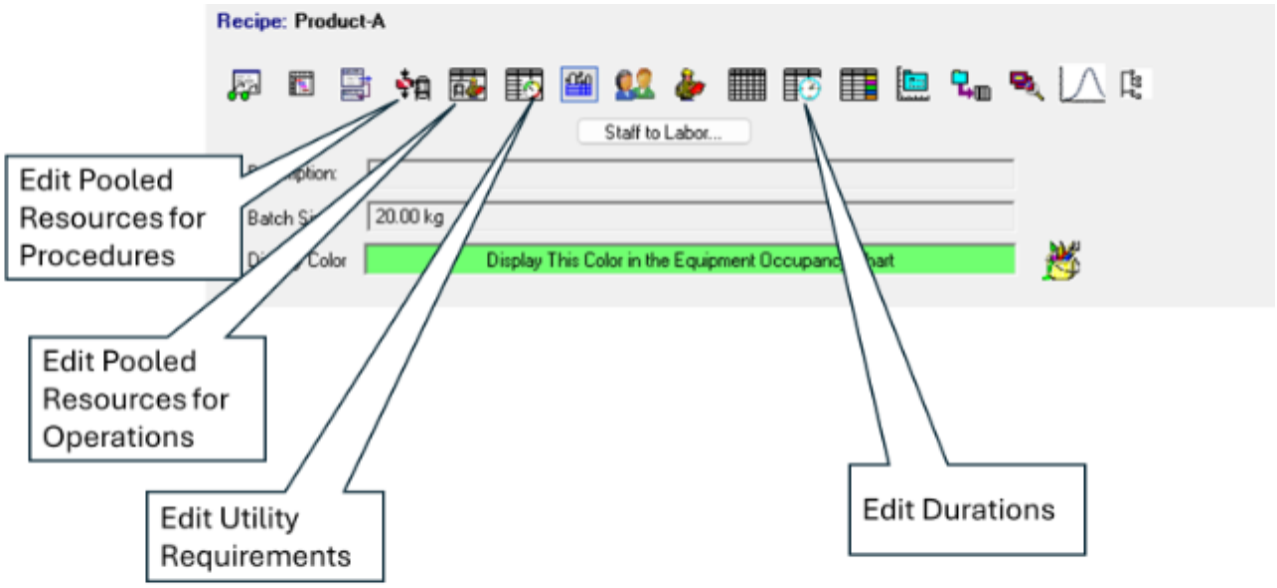
SchedulePro campaigns now have an option to add batches until the due date.



5.8. Recipe-Wide Editing Options

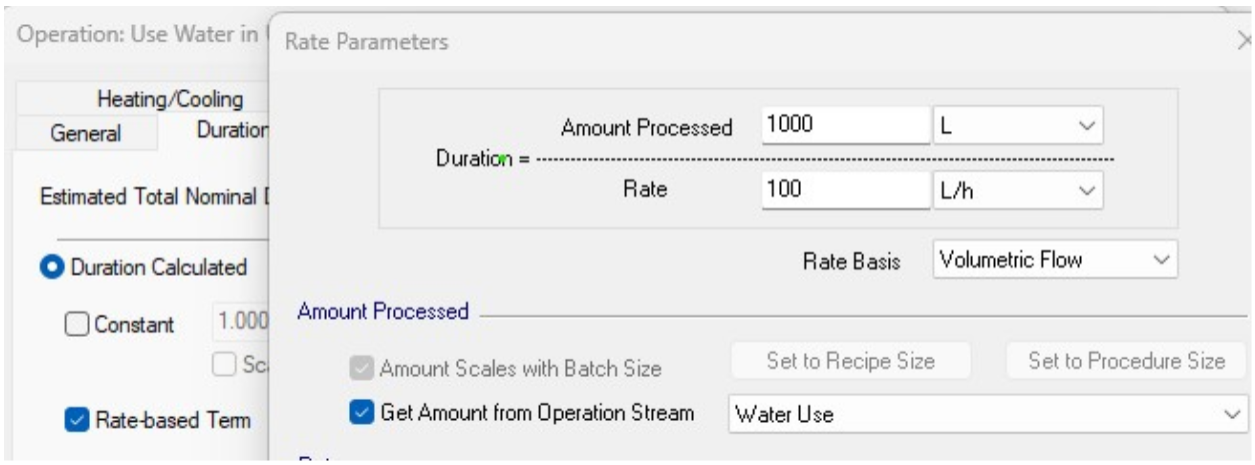
The recipe page includes new options for editing the following:

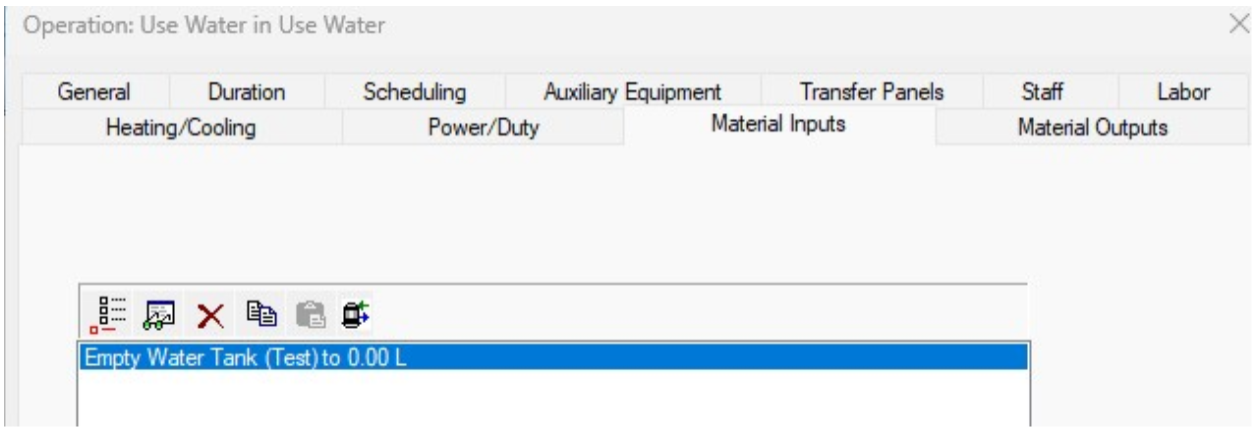
- Procedure equipment and work areas
- Operation auxiliary equipment
- Operation utilities
- Operation durations



5.9. Operation Durations Based on Fill/Empty Inventory Streams

The durations for rate-based operations may be calculated based on the amount in a stream that sets a final inventory. The amount will be calculated when the operation is scheduled. The duration is not automatically updated for later (lower priority) batches that might affect the inventory.

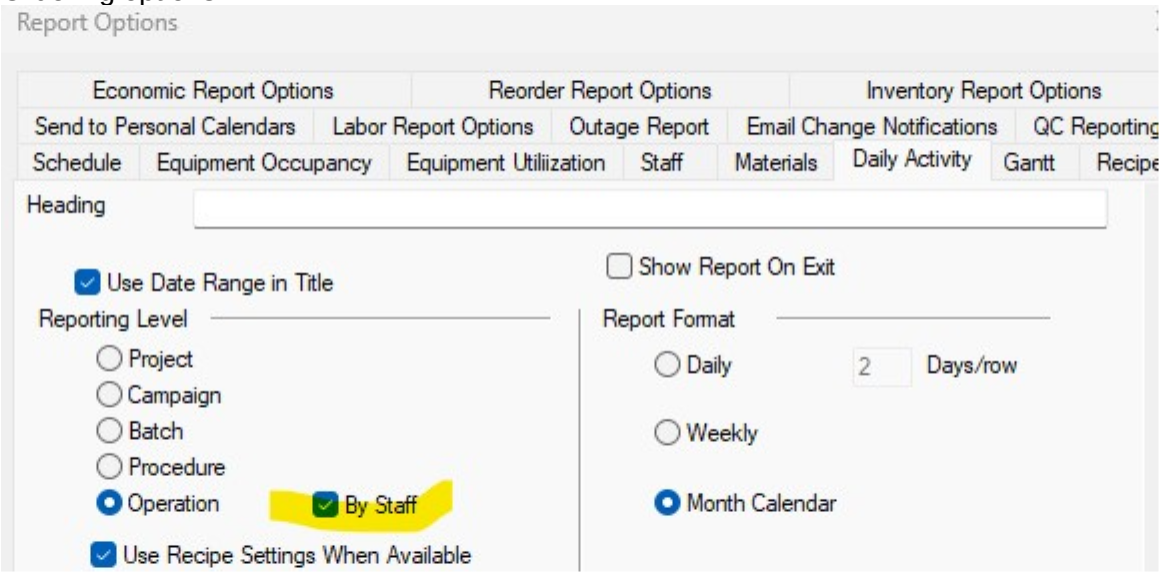




5.10. Report by Staff Option in Daily Activity Report

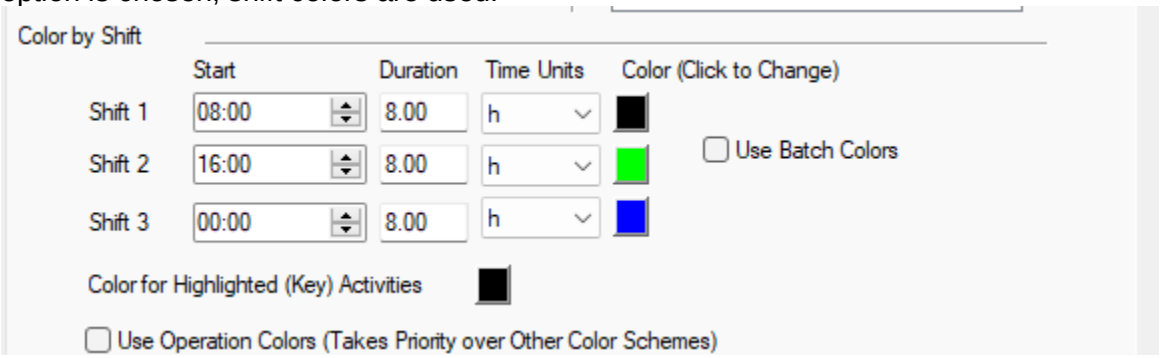
The daily activity report can now be displayed for selected staff. Staff may be filtered with Contents and

Ordering options.



5.11. Batch Color Option in Daily Activity Report

The Daily Activity Report now has a Use Batch Color option. Entries will be shown in the same batch color that is displayed in the Equipment Occupancy Chart. This option is exclusive with the Operation Colors option. If no option is chosen, shift colors are used.



5.12. Change from Baseline Reporting in Schedule Report

If the Track Changes option is activated, changes from the baseline may be reflected in the Schedule report. The new (current) values are shown in color while the prior values remain in black.

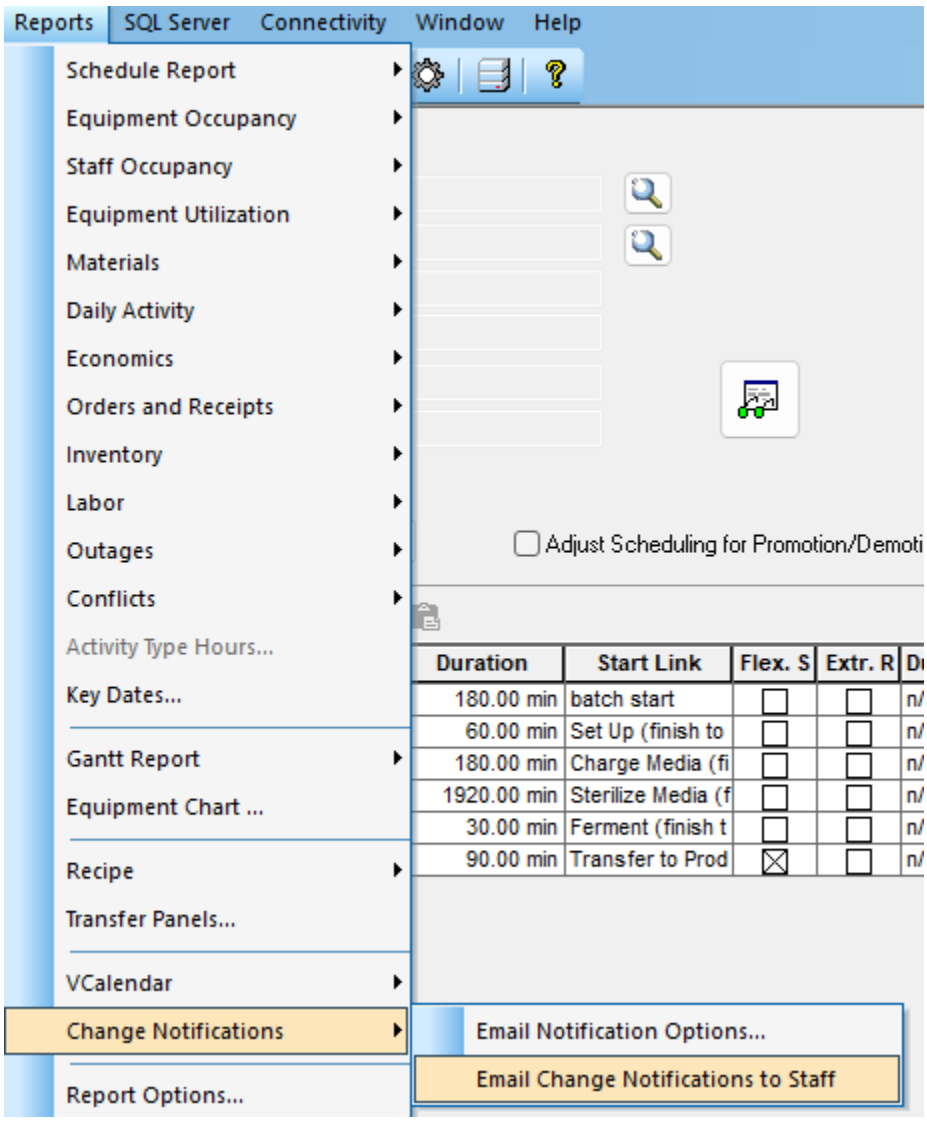
Campaign: Product-A-1, Recipe: Product-A, Duration: 13.188 day

Batch	Procedure	Operation	Phase ID	Phase Entry ID	Start			End			Prev Start			Prev End	
Product-A-1-3	Seed Fermentation	Set Up			Thursday	9/19/2024	02:40	Thursday	9/19/2024	05:40	Thursday	9/19/2024	00:00	Thursday	9/19/2024
Product-A-1-3	Seed Fermentation	Charge Media			Thursday	9/19/2024	05:40	Thursday	9/19/2024	06:40	Thursday	9/19/2024	03:00	Thursday	9/19/2024
Product-A-1-3	Seed Fermentation	Sterilize Media			Thursday	9/19/2024	06:40	Thursday	9/19/2024	09:40	Thursday	9/19/2024	04:00	Thursday	9/19/2024

5.13. Staff May be Emailed Change Notifications Based on Changes from Baseline

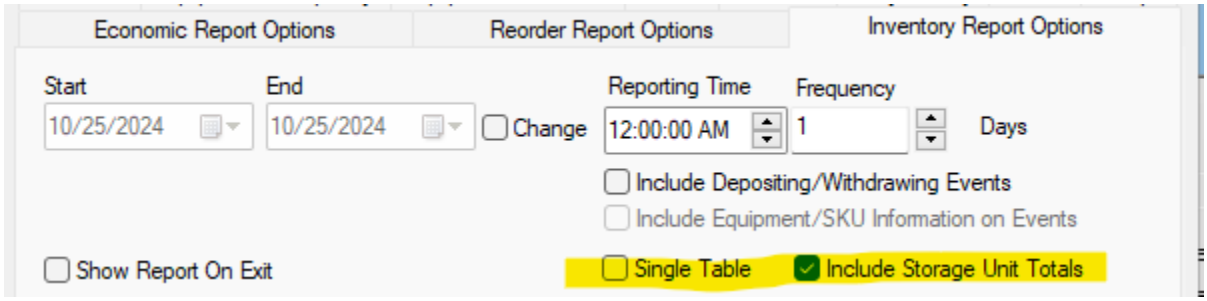
There is a new option to email change notifications. This feature works with the staff email address property and with the change tracking features. Staff who are assigned to or de-assigned from an operation that has changed from its last baseline will be sent notifications. These emails are sent on-demand. The VCalendar

email feature now uses the SMTP email settings which are found under SQL Server Settings or Reports/Change Notifications/Email Notification Options.



5.14. Inventory Report Single Table Option

The inventory report now has options to display as a single table as well as an option to exclude the storage unit totals.



5.15. New Fields Included in the Excel Report

The Excel Report contains the operation data specified in the Schedule Report options. The fields now include:

- Campaign

- Recipe
- Batch
- Procedure
- Operation
- Start/End
- Main Equipment
- Comments
- Auxiliary Equipment
- Staff
- Labor