

# SARTORIUS

## Simplifying Progress

Umetrics® Ecosystem  
SIMCA®-online News  
2025-05-21



# SIMCA®-online 18.1

# SIMCA®-online 18.1

## Extend data analytics in Umetrics® Studio

- Explore data outside SIMCA-online for new insights

## Batch Identification

- Batch ID and metadata displayed in Unit Overview
- Reference batches in project configuration

## Configuration Verification and Troubleshooting

- Export project configuration to pdf report
- Troubleshoot and validate configuration settings

## Writeback Extension

- X-variables and Y-variables available for writeback, including generated and preprocessing variables

## Web Client Updates

- Workset batches
- Additional reference batches
- Confidence limits displayed
- Coloring in charts by vector or batch
- Plot resizing

## User Experience Improvements

- Quickly open desktop with 'Open session workspace' checkbox option in login dialog
- Updated built-in Web Client help, expanding all sections with Ctrl+F for easier search of help sections

# On Demand Process Data Visualization

## Benefits

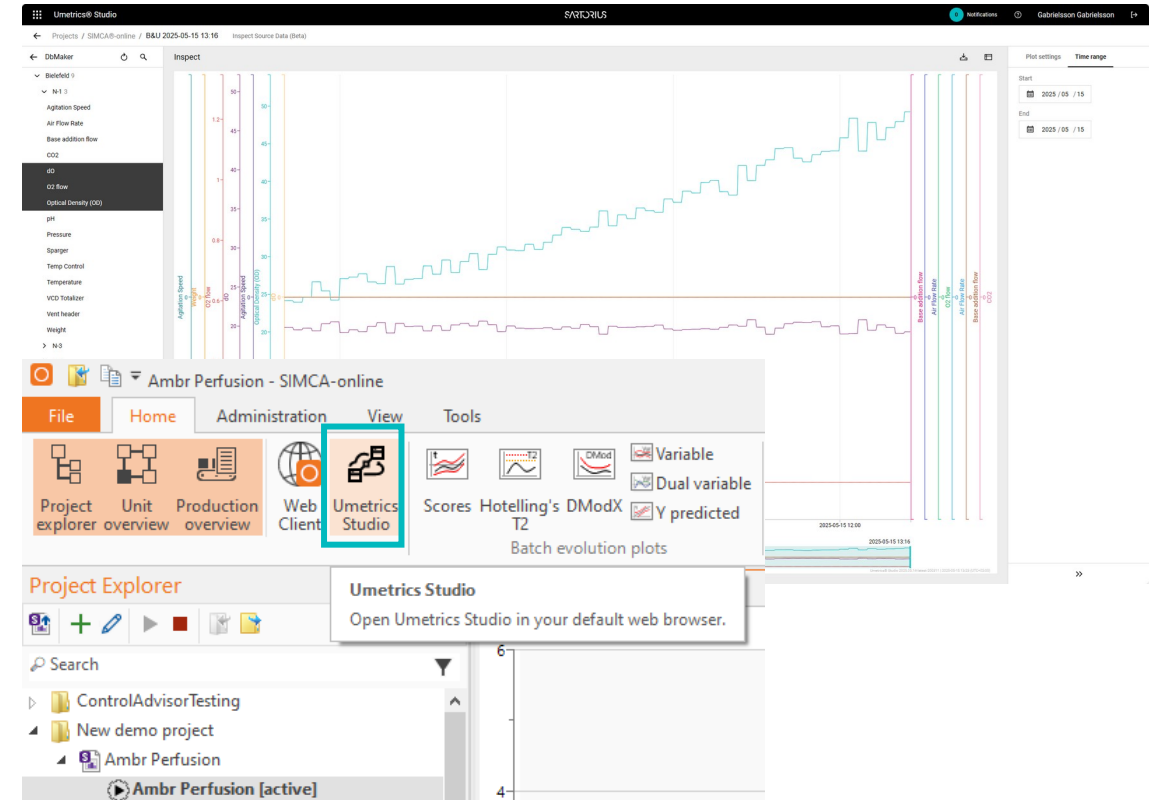
- Visualize and analyze data linked to SIMCA®-online project
- Rapidly add and explore data not included in model

## Applies to

- Server | desktop client

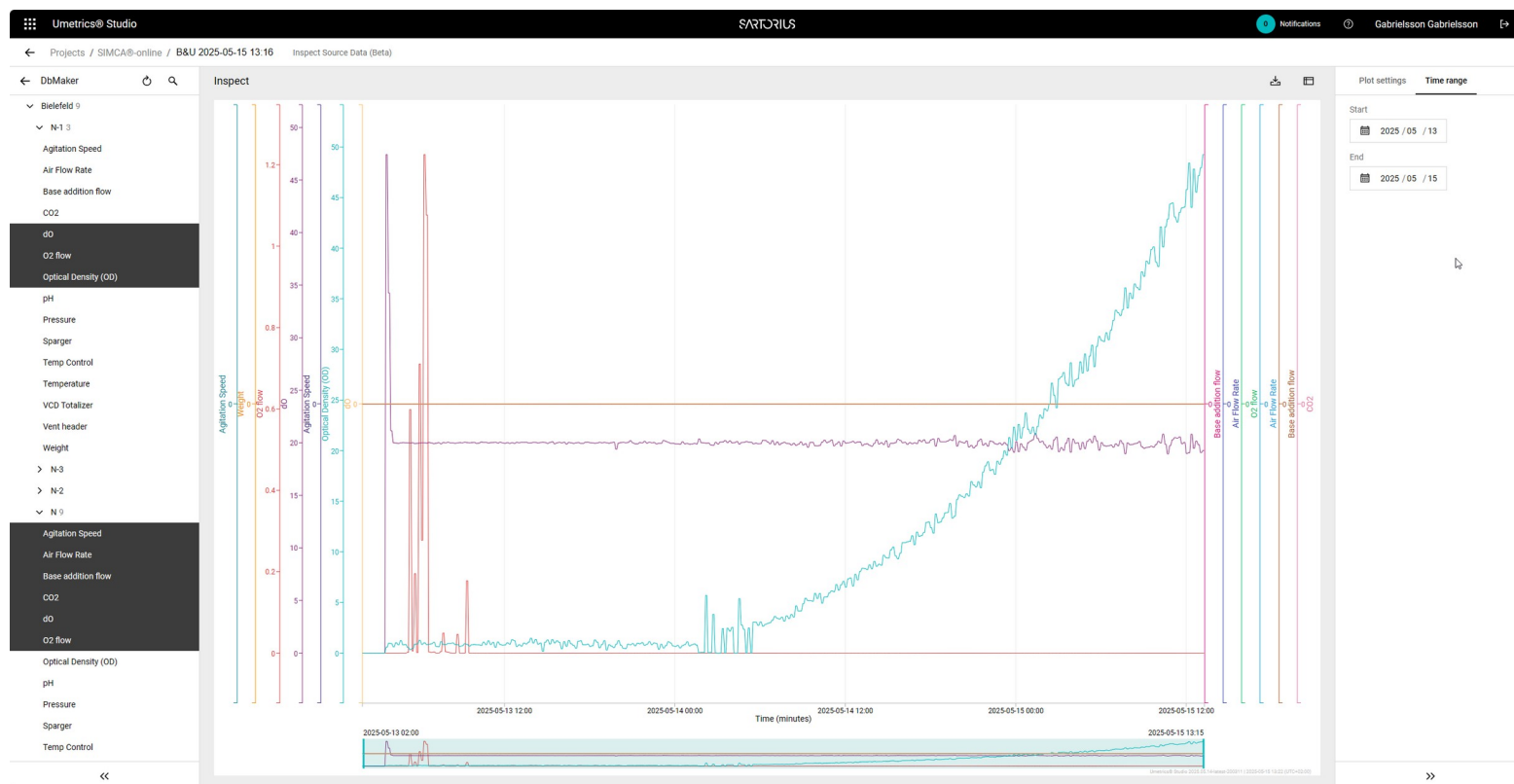
## Changes

- Data exploration tool opened from SIMCA®-online
- Included variables in configuration preset in data exploration tool



# On Demand Process Data Visualization

- View trends of variables in model and outside models
- Simple navigation



# Reference Batch Visualization

## Benefits

- Compare current and recent to additional batches in clients
- Display name of new reference batches customer specified\*
- Configuration settings enable same reference batches for all users

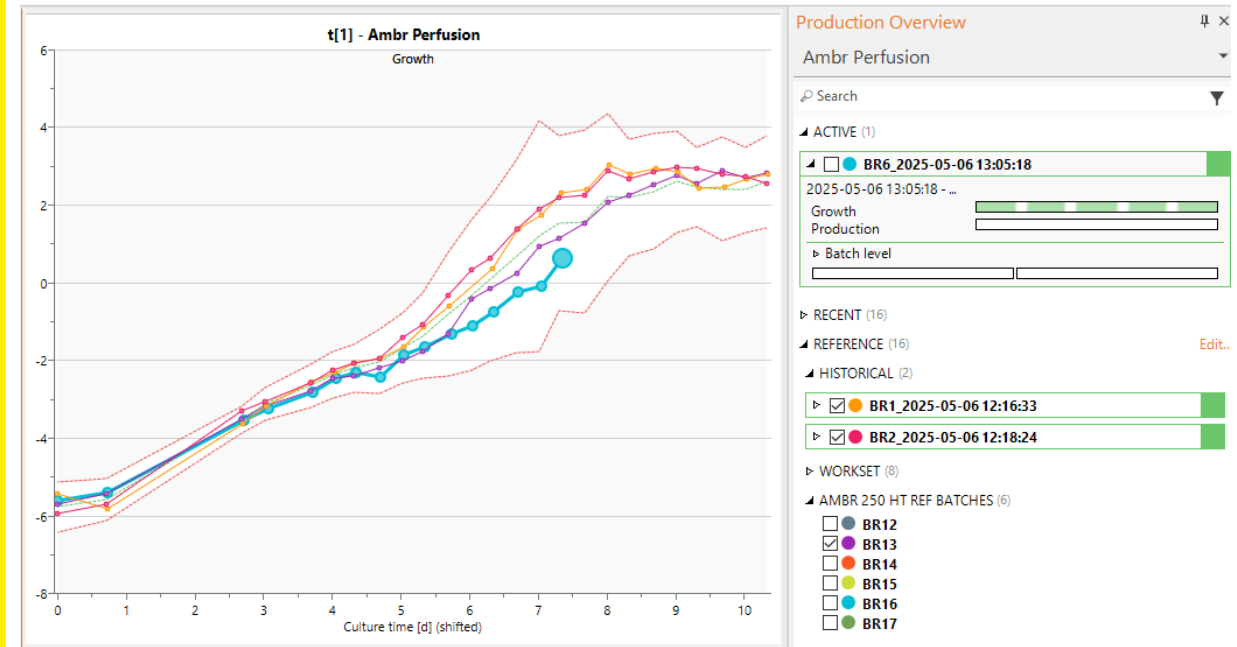
## Applies to

- Server | desktop client | web client

## Changes

- SIMCA® project predictionset batches exposed in configuration for optional selection
- Workset and predictionset batches added to WebAPI
- Single location "REFERENCE Edit..." for batches to compare to active or recent

\*Name of predictionset defined in SIMCA®



# Reference Batch Visualization in Web Client

## Benefits

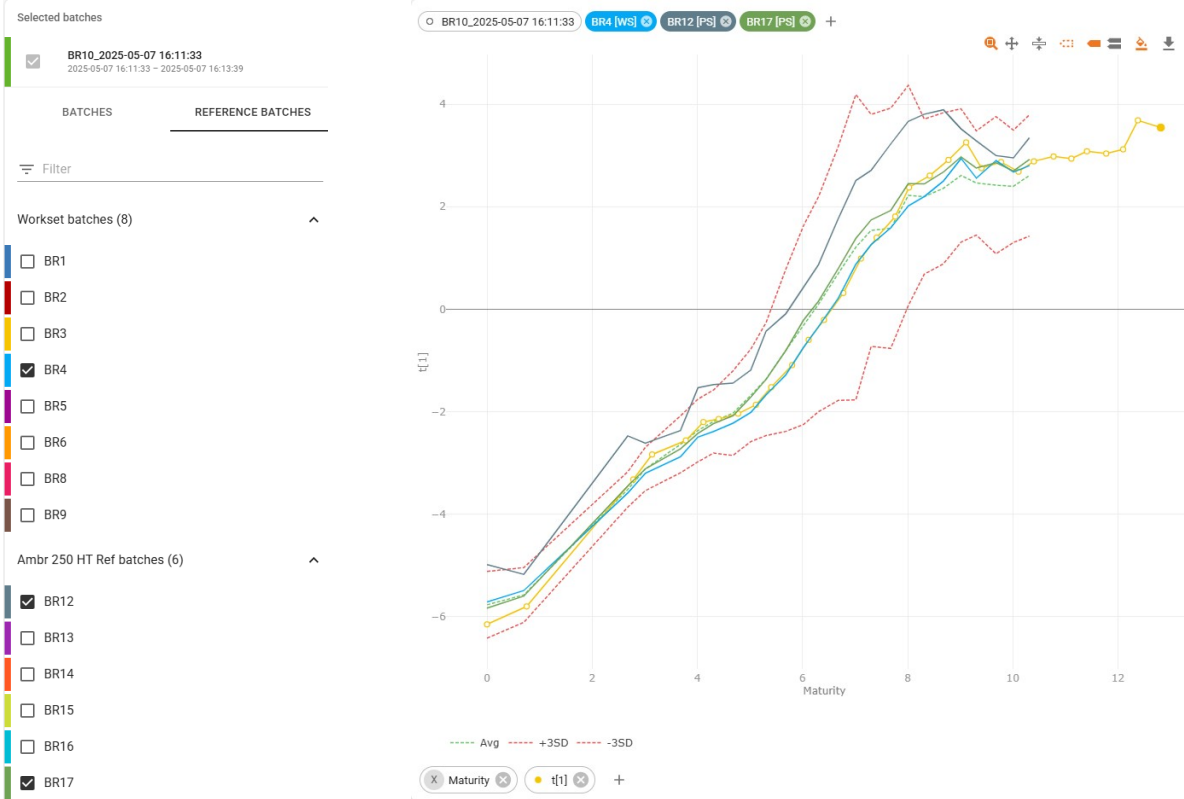
- Workset batches available to all users
- Predictionset batches available to all users
- Configuration specified reference batches can be added in charts

## Applies to

- Web client

## Changes

- Expose Workset and Predictionset batches of configuration in WebAPI



# Identification of Running Batches in Unit Overview

## Benefits

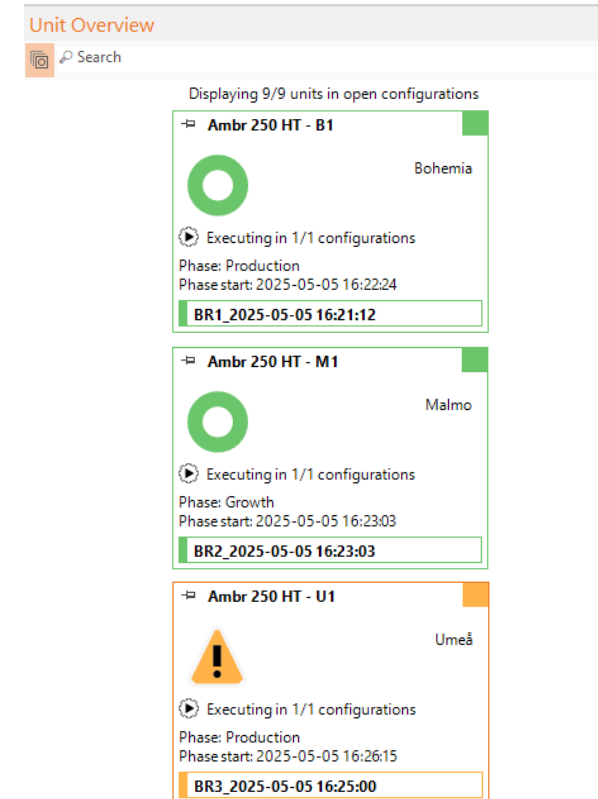
- Identify batches running in units
- Batch ID and metadata can be used as search criteria in Unit Overview

## Applies to

- Server | desktop client

## Changes

- Added Batch ID
- Added Phase start
- Added Configuration metadata





# Configuration Verification

## Benefits

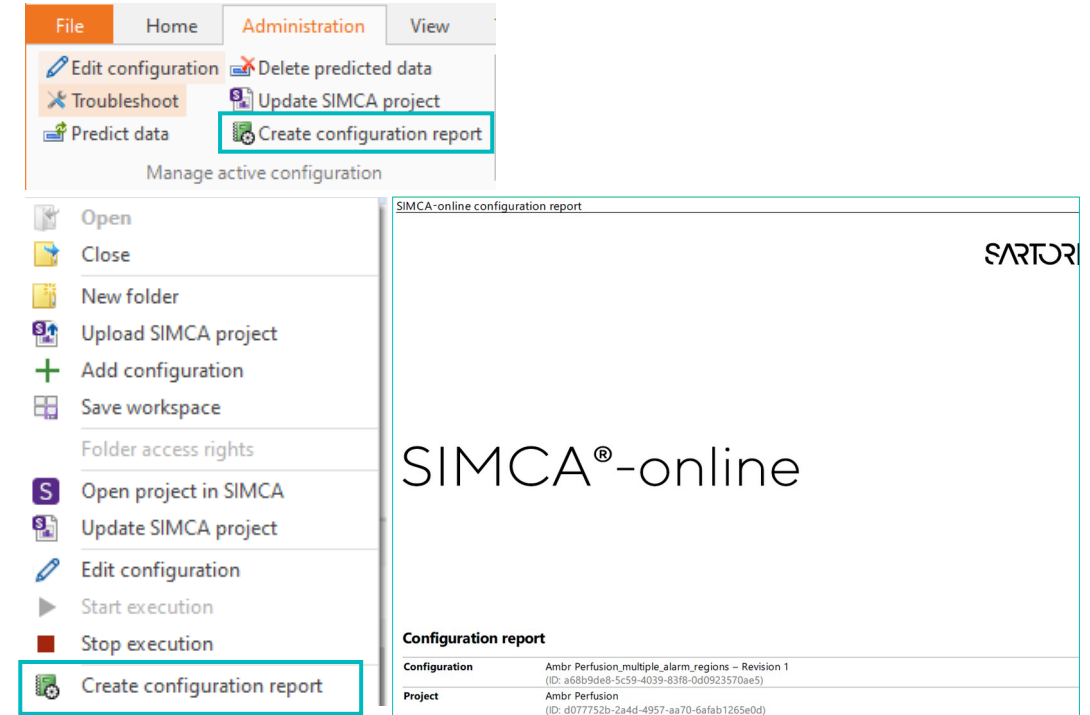
- System generated report of project configuration for compliance reporting
- Document system setup with support for future verification

## Applies to

- Server | desktop client

## Changes

- Customizable XSLT template added to server
- Create report (and select template) in Administration tab or configuration context menu
- Permission required: 'Manage Configurations' or 'Create Reports'



# Configuration Validation and Trouble Shooting

## Benefits

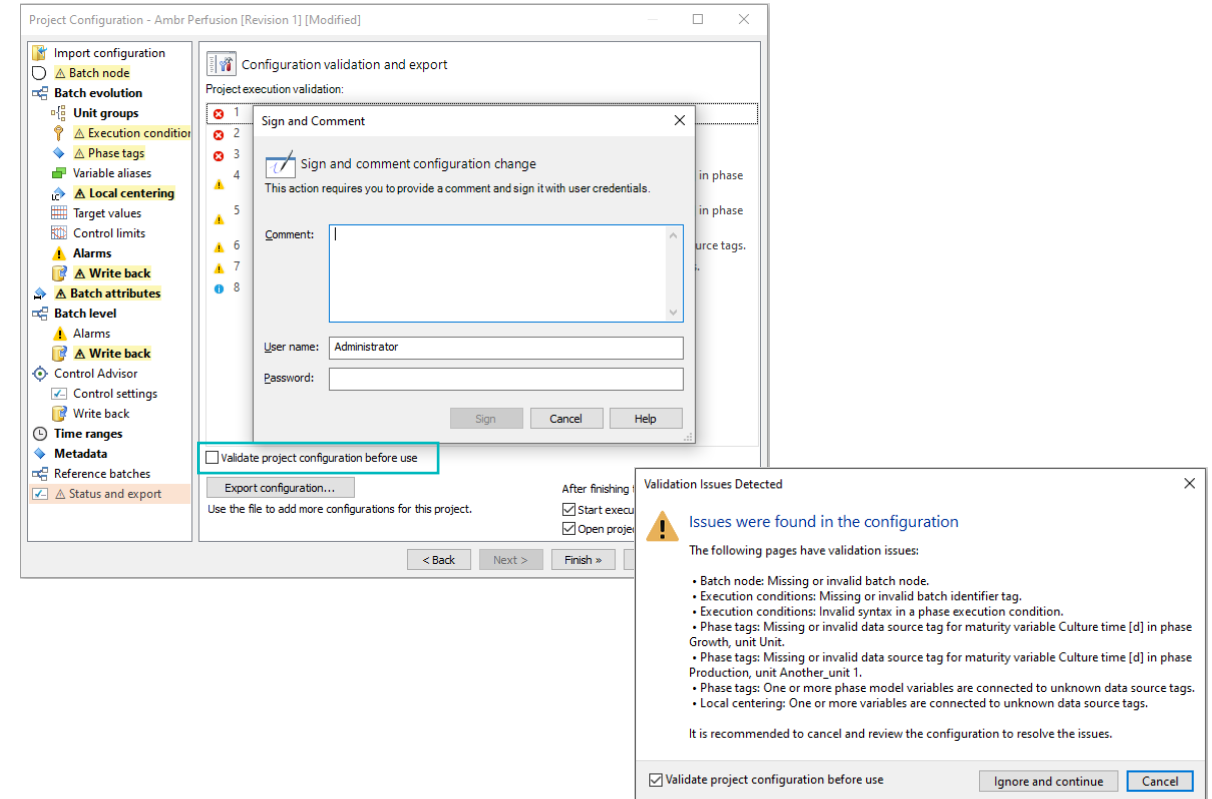
- List all potential issues of project configuration
- Pages with issues highlighted with icon and color in tree
- Updated pages highlighted in bold in tree
- Validation streamlined and can be suspended

## Applies to

- Server | desktop client

## Changes

- Execution settings validation results highlighted in configuration wizard
- Summary page of potential issues
- Checkbox to temporarily not perform validation



# Write Back Improvements

## Benefits

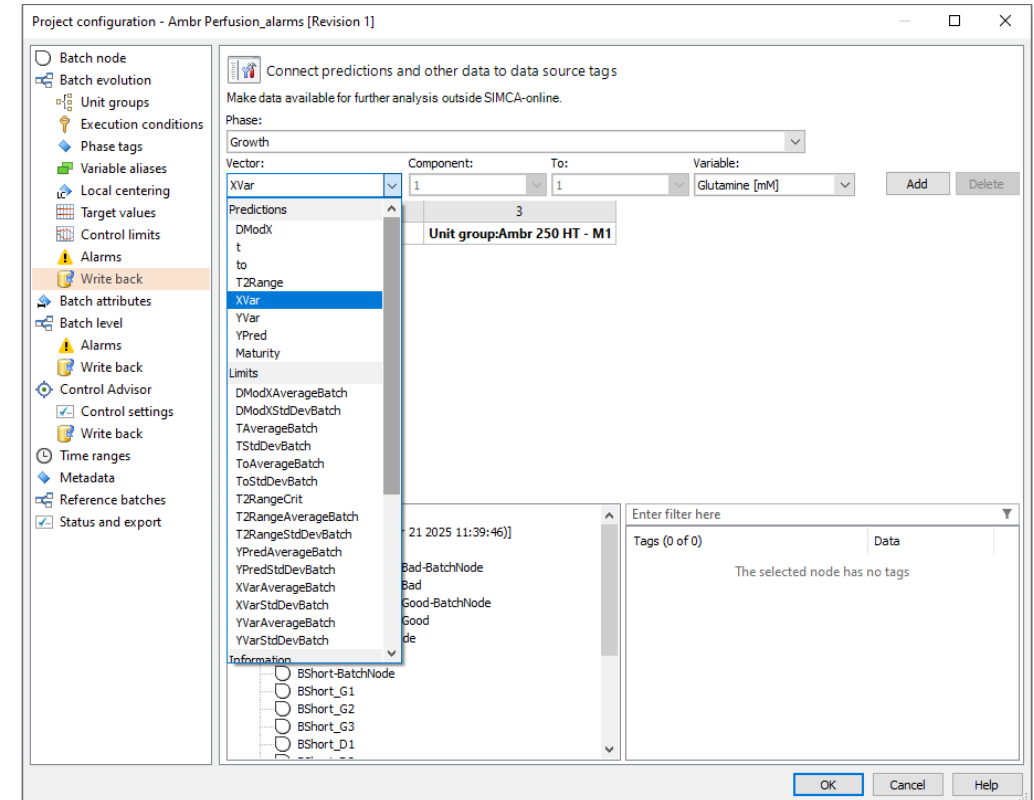
- Write back all data that is created in SIMCA-online

## Applies to

- Server | desktop client

## Changes

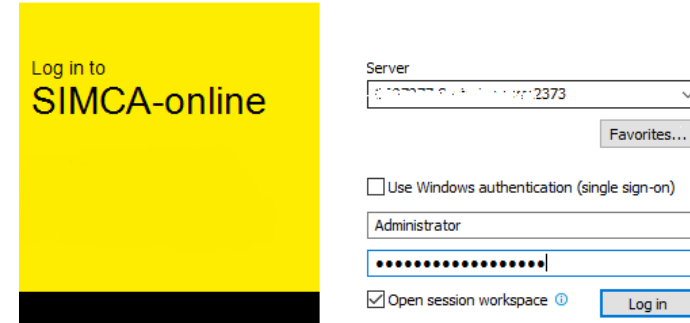
- XVar and YVar added to vectors available for write back
- Includes generated and Python preprocessed variables



# User Experience Improvement

## Open session workspace

- If unchecked, save time by not opening project configurations and plots
- Check again to open project configurations and plots that were open at last logout



The image shows the SIMCA-online login interface. On the left is a yellow panel with the text "Log in to SIMCA-online". On the right is a white panel with the following elements: a "Server" dropdown menu showing "Logon2373", a "Favorites..." button, an unchecked checkbox for "Use Windows authentication (single sign-on)", a text box containing "Administrator", a password field with masked characters, an unchecked checkbox for "Open session workspace" with a help icon, and a "Log in" button.

# User Experience Improvements in Web Client

## Plot Updates

- Confidence limits for more model types, extending desktop client for continuous (toggle on | off in settings)
- Color by batch or series in charts
- Added chart axis labels
- Maximize plot option

## Updated built-in help in Web Client

- Easier to search help sections by expanding all sections on Ctrl+F/Cmd+F
- Expand all/collapse all sections button
- Open help sidebar on login page when pressing the Help button



# Smaller Updates

## Compatibility with SIMCA® 18.1

- Support for updating alarms in SIMCA with roundtrip possible
- Python 3.13 for numerical preprocessing scripts with pandas 2.2.3, numpy 2.1.3, scipy 1.14.1 built in as SIMCA® 18.1. Packages can be updated and added as required

## Desktop Client

- Configuration Audit Trail, alarm traceability improved by adding reset\_alarm comment to alarm\_triggered event
- Configuration of projects with Control Advisor functionality, automatically suggested manipulated variables (Xmv), introduced in SIMCA®-online 18, can now be re-triggered for ease of use
- For clarity, View | Report only shows phase iteration number for evolution level alarms

## Web Client

- Separate the about and help page to two separate pages: About, and Help
- Date-time picker for continuous chart end time, making it simpler and faster to input an end time, especially on mobile

# Smaller Updates

## Server | System

- Fixed: Memory leak in Round and ISNAN generated variable functions
- Fixed: Preprocessing on the batch level data in combination with phase iterations results in no batch level predictions
- Fixed: Server does not catch up when falling behind for Control Advisor projects
- Fixed: Configuration running discrete data and out limits results in server crash and incorrect data
- Fixed: T2Range contribution performance, plots for projects with many workset batches could be very slow to open
- Fixed: -99 could be interpreted as missing

## Desktop Client

- Fixed: Control limits outside standard not saved in project configuration
- Fixed: Control limits outside standard colored asymmetrically
- Fixed: Zoom in active phase not working if phase changed when user not logged on

## Web Client

- Fixed: Configured limits for target values now show up in charts even if alarms have not been specified
- Fixed: Switching between different variables too quickly can make web client unresponsive
- Fixed: Numerical batch IDs would be formatted using scientific notation instead of text
- Fixed: Missing multiple y-axis button in plot toolbar
- Fixed: Missing excluded variables that are part of a generated variable

# SIMCA®-online 18



# SIMCA®-online 18

## News

- Adaptive Process Mode
  - Combine batch and continuous models in a single project
- Alerting extensions
  - Alarm regions and multiple alarms per data vector for batch evolution
  - Trigger-based alarms for all variables
- Visualization enhancements
  - Scale phases evolution chart by duration
  - Updated default settings for contribution
- Performance improvements
  - Improved server responsiveness and memory usage
- Server security improvements

## News Continued

- Web Client
  - Multiple alarm regions
  - Add note
  - Time-consuming data load awareness

## Other updates

- Notification improvements and new events
- Control Advisor improvements for batch projects
- Batch ID in writeback for Alarm URL
- User experience improvements and Web-based Help format

## SIMCA® 18 Compatibility

- Use projects with reordered phases
- Use variables generated from qualitative
- Calibration transfer
- Update of bundled Python versions

# Combine Batch and Continuous Models in a Single Project

## Benefits

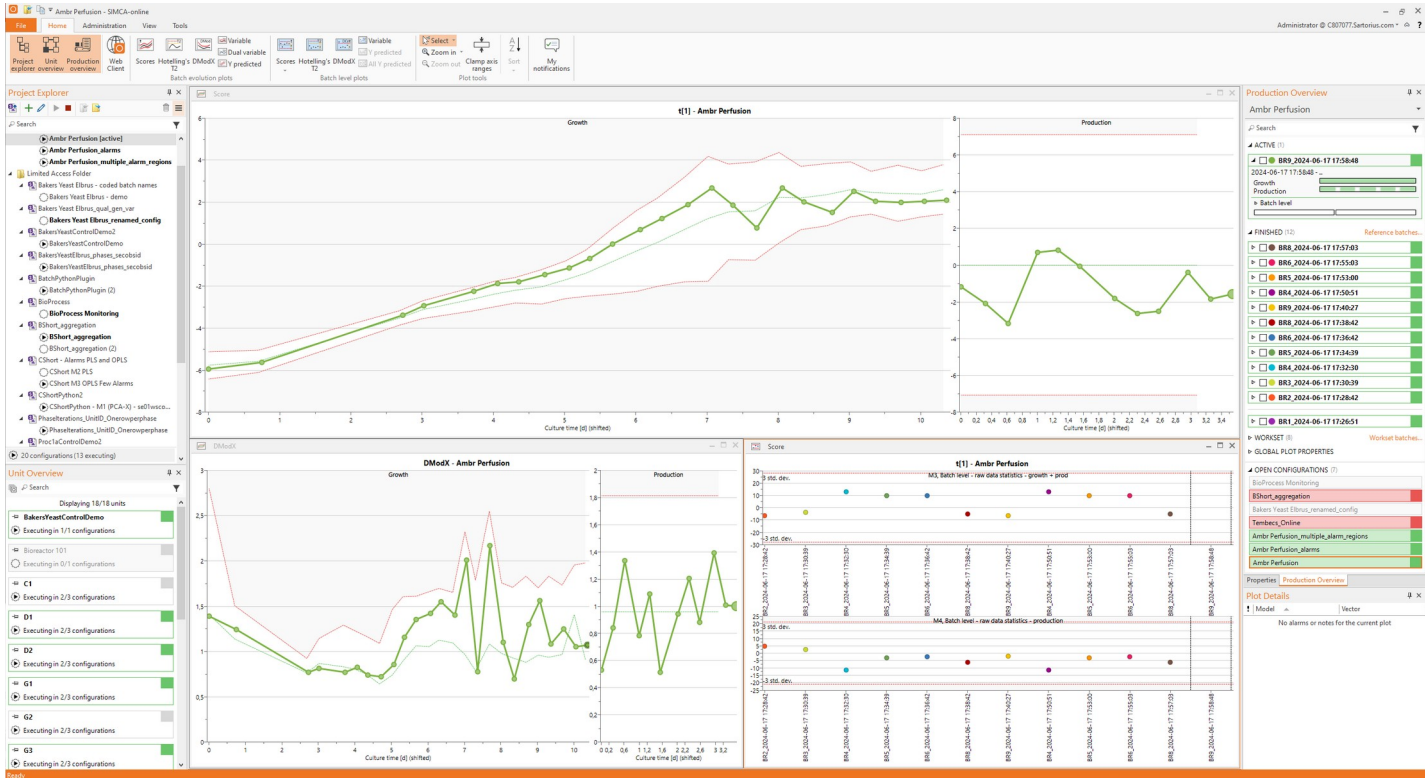
- Enhanced process control with Adaptive Process Mode
- Gain comprehensive process understanding by covering dynamic and steady-state phases
- Combine dynamic and steady state phases in single project or configuration
- Predictions of Critical Quality Attributes possible for all phases

## Applies to

- Server | desktop client | web client

## Changes

- Support for PCA in batch projects



# Alarm Regions and Multiple Alarms

## Per Data Vector for Batch Evolution

### Benefits

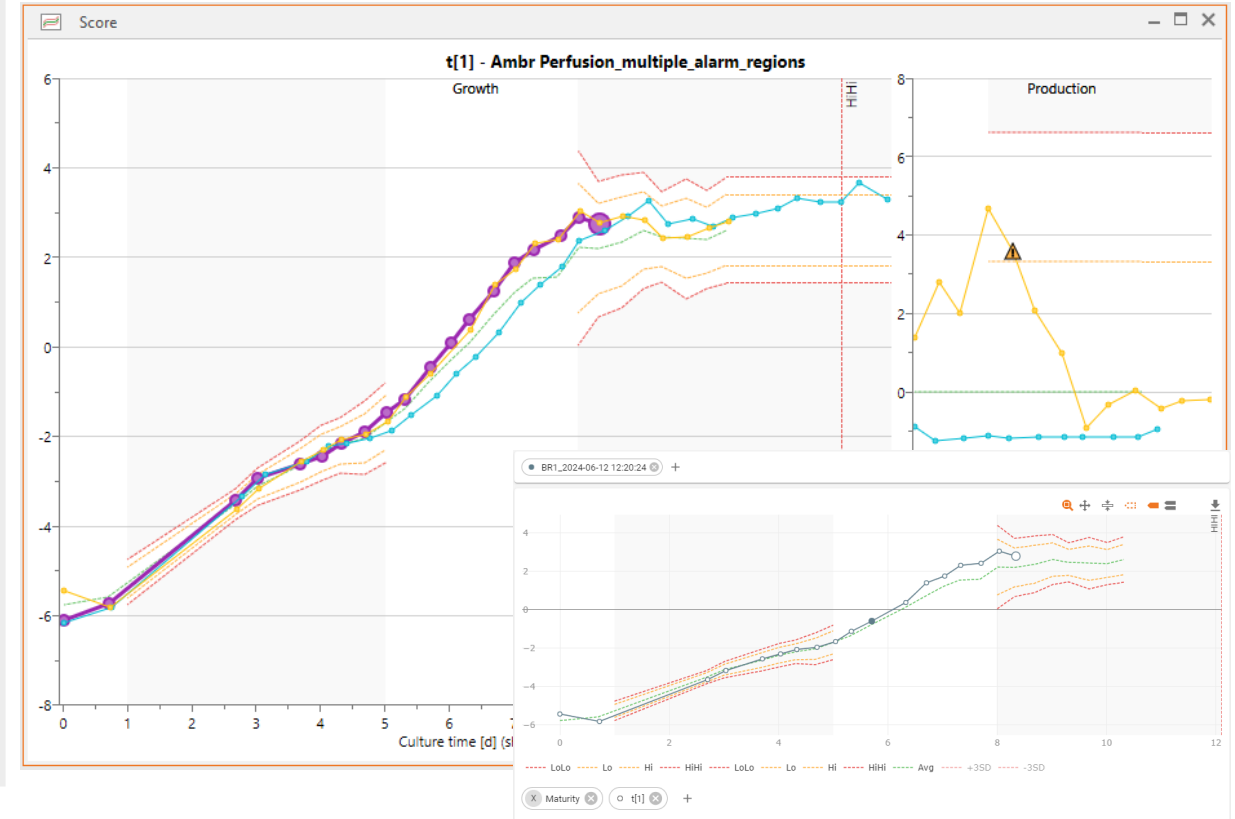
- Enable highly specific alarms with regions for batch evolution
- Allows for tighter alarms for critical parts of the process
- Allows for different rules for Warning and Critical alarms
- Avoid spurious alarms for parts of process known to be noisy

### Applies to

- Server | desktop client | web client

### Changes

- Added multiple alarm groups that each have triggers, region and vectors
- Option to add Start and/or Stop Maturity for Alarms triggers that defines region where alarms are evaluated
- Outside the region an alarm is not evaluated and cannot be triggered



# Trigger Based Alarms

## For All Variables

### Benefits

- Flexible alarm configuration for all variables in batch evolution
- Set alarm when process starts early | runs for too long

### Applies to

- Server | desktop client | web client

### Changes

- Added support for XVar, including generated and preprocessing variables
- Added support for YVar | Ypred | Maturity
- New limit type: Average  $\pm$  value

Project configuration - Ambr Perfusion\_multiple\_alarm\_regions [Revision 1]

Specify model-based alarms and limits

Alarms are triggered when values are outside given limits, following the alarm trigger rules.

Vector	Limit type	LoLo	Lo	Hi	HiHi
<b>Phase: Growth</b>					
<b>Alarm group 1</b> — Consecutive: 2, Total: 4, Start maturity: 1, Stop maturity: 5					
× t[1]	Avg. $\pm$ std. dev.	-3	-2	+2	+3
× YPred(Culture time [d])	Avg. $\pm$ std. dev.			+3	
× XVar(NH4+ [mM])	Constant value	1,8			
× XVar(Glutamine [mM])	Avg. $\pm$ value	-1	-0,5	+0,5	+1
× XVar(pH)	Avg. $\pm$ std. dev.	-2,5	-1,5	+1,5	+2,5
× T2Range[1-2]	Constant value			12,0009	25,4911
+ (New)					
<b>Alarm group 2</b> — Consecutive: 3, Total: 5, Start maturity: 8, Stop maturity: Not set					
× t[1]	Avg. $\pm$ std. dev.	-3	-2	+2	+3
× YPred(Culture time [d])	Avg. $\pm$ std. dev.		-2	+2	
× XVar(NH4+ [mM])	Constant value	2,4			
× XVar(Glutamine [mM])	Avg. $\pm$ value	-1	-0,5	+0,5	+1
× XVar(pH)	Avg. $\pm$ std. dev.	-3	-1,5	+1,5	+3
× Maturity(Culture time [d])	Constant value				12,1
× XVar(IF(Mode == 1, Aver. V...	Avg. $\pm$ std. dev.	-3	-2	+2	+3
× T2Range[1-2]	Constant value			12,0009	25,4911
+ (New)					
<b>Phase: Production</b>					
<b>Alarm group 1</b> — Consecutive: 2, Total: 6, Start maturity: 1, Stop maturity: Not set					
× XVar(IF(Mode == 1, Aver. V...	Avg. $\pm$ std. dev.	-3	-2	+2	+3
× XVar(pref_Glutamine [mM])	Avg. $\pm$ value	-1,1	-0,57	+0,57	+1,1
× t[1]	Avg. $\pm$ std. dev.	-2,8	-1,4	+1,4	+2,8
+ (New)					

OK Cancel Help

# Improved Notifications

## Benefits

- Easier to provide relevant information to stakeholders
- Admins can be notified of system performance
- Users can be informed of specific events

## Applies to

- Server

## Changes

- Template for editing subject of notification
  - Short human readable intro in notification emails and application event log entries
- serverExecutionFallingBehind is a new event, can be used by admins to get notifications when the server is too busy
- phaseStarted and phaseFinished events added
- alarmTriggered extended for easy differentiation between target value and multivariate alarms, also includes phase information

Sender email addressSIMCA-online@example.com

Sender nameSIMCA-online server myserver.example.comDefault

SubjectAlarm triggered, phase Production, batch BR2\_2024-06-12 08:59:42, configuration C003817.Sartorius.comDetails

Message Headers Body Sections Raw

Alarm triggered

An alarm was triggered.

Event time:2024-06-12 09:01:09 (local server time zone)

View this alarm in [SIMCA-online Web Client](#).

[Open Project Configuration in Desktop Client](#)

[Open Web Client](#) [Open Desktop Client](#).

This email was sent from SIMCA-online version 18.0.0.215 running on C003817.Sartorius.com.

Details

serverName	C003817.Sartorius.com
serverRpcPort	2372
serverVersion	18.0.0.215
server	http://C003817.Sartorius.com:9002
eventId	2544208
eventTime	2024-06-12 09:01:09
eventTimeUtc	2024-06-12T07:01:09Z
eventType	alarmTriggered
eventName	Alarm triggered
eventDescription	An alarm was triggered.
configurationId	18249d2b-889b-4e3c-9fa0-6b88ca62d759
configurationName	Ambr Perfusion_alarms
projectId	79c707f1-20b5-4b1c-be87-5d62c8952339
projectName	Ambr Perfusion
projectType	batch
productType	
productName	
geographicalLocation	
alarmId	391
configurationRevision	1
alarmGroupId	alarmGroup1
batchId	301
batchName	BR2_2024-06-12 08:59:42
dataTypes	[{"type":"XVar","term":"M1554"}]
dataTypeName	XVar[pref_Glutamine [mM]]
variableAlias	pref_Glutamine [mM]
alarmSeverity	warning
triggerTime	2024-06-12 09:01:09
triggerTimeUtc	2024-06-12T07:01:09Z
isReset	false
modelNumber	2
phaseIteration	1
phaseName	Production
phaseNumber	1
phaseStartTime	2024-06-12 09:00:57
phaseStartTimeUtc	2024-06-12T07:00:57Z
phaseLastDataTime	2024-06-12 09:01:09
phaseLastDataTimeUtc	2024-06-12T07:01:09Z
unitName	Unit
unitGroupName	Unit group
alarmSource	batchEvolution
alarmType	modelBased
subscriptionId	59

# Scale Phases by Duration

## Benefits

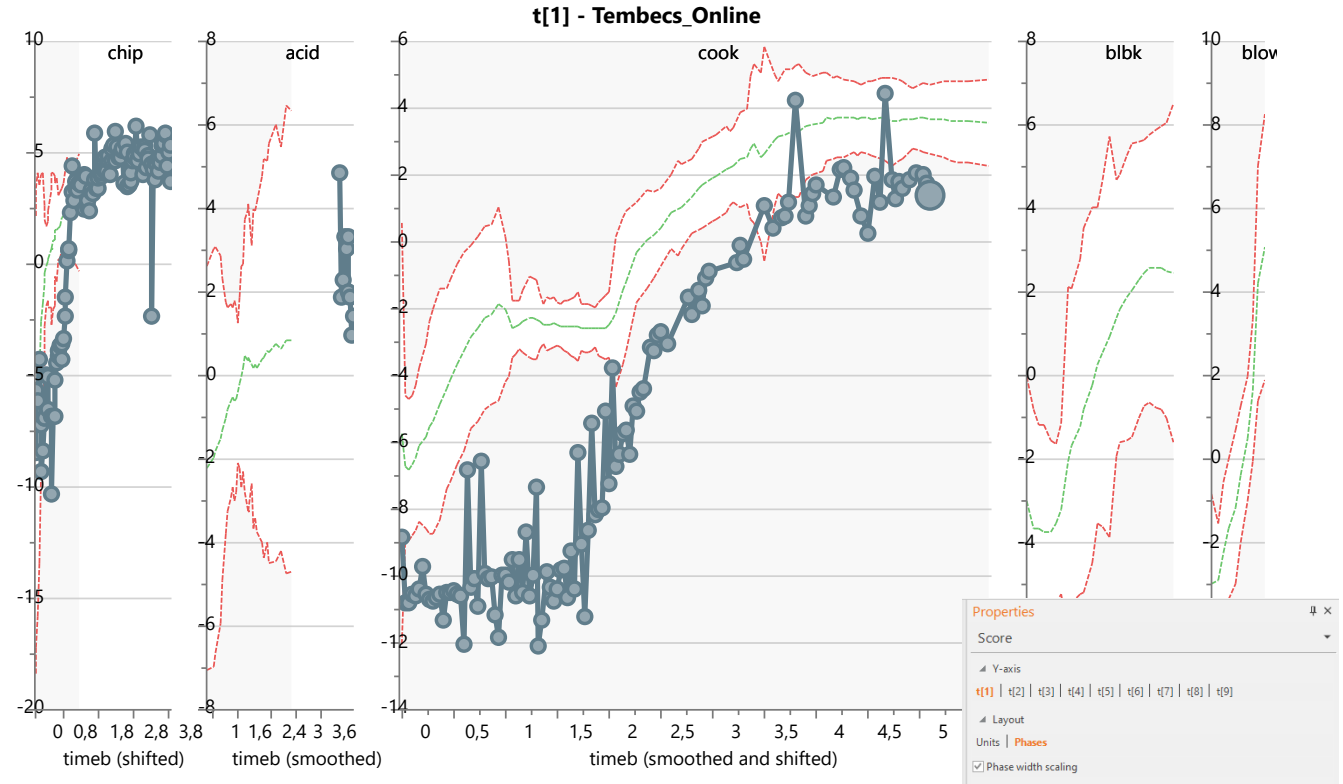
- Intuitive indication of phase length makes is easier to interpret
- Easier to identify single observations for further analysis

## Applies to

- Desktop client

## Changes

- Added option to use Phase width scaling in evolution plots



# Improved Drill Down

## New Default and Added Group Comparison Button

### Benefits

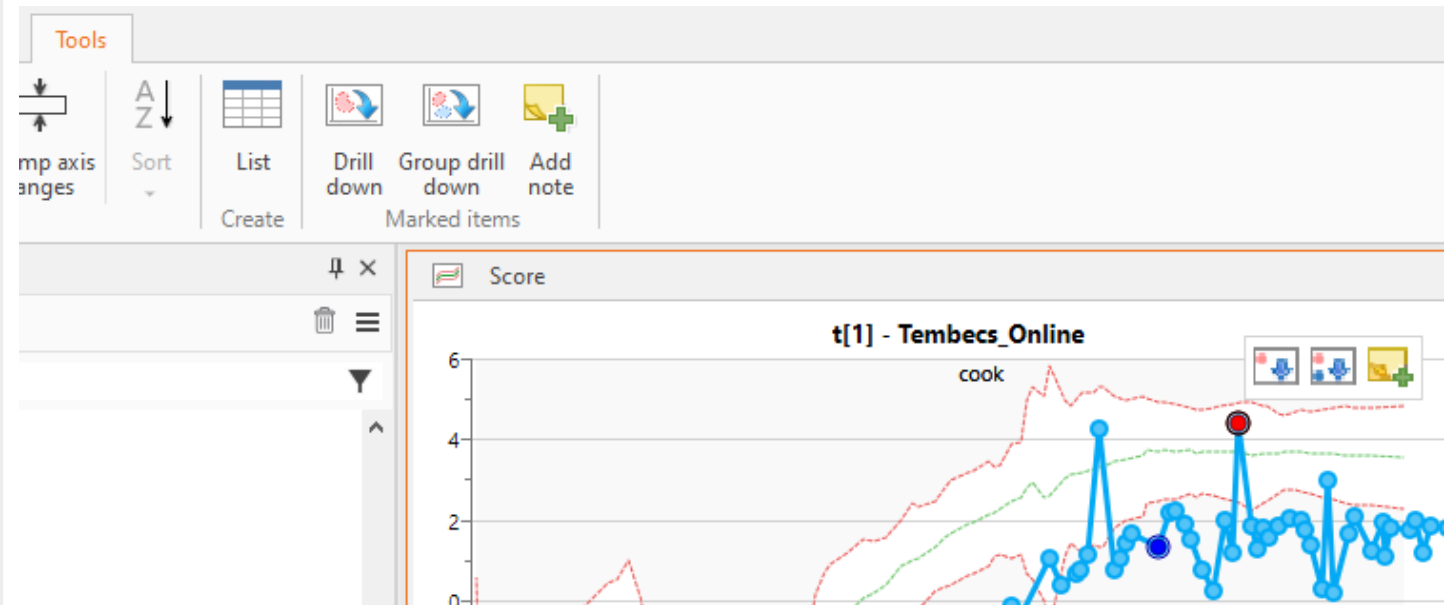
- Consistent behavior on double click makes it easier to create intended drill down plot

### Applies to

- Desktop client

### Changes

- Double click on observation always opens point to average contribution
- Added button for group-to-group drill down



# Improved Server Responsiveness and Memory Usage

## Benefits

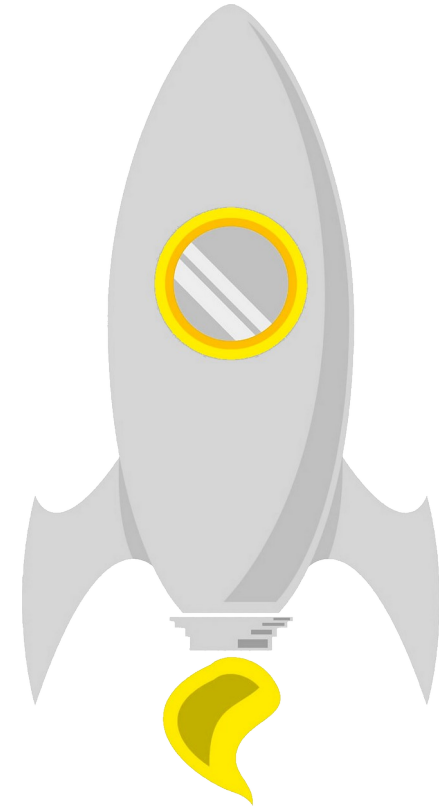
- Faster server startup and shutdown
- Improved performance for all data sources
- Sustainable memory consumption

## Applies to

- Server

## Changes

- Server startup loads SIMCA projects in parallel
- Server shutdown stops configurations in parallel
- Server flag for turning off grouped reading from data source
- Server can be configured for concurrent SimApi access to data sources
- Server logging improvements





# Improved Server Security

## Benefits

- Encrypted and authenticated SMTP for email notifications for wider support of email servers
- Prevent brute force attacks and high-jacking user session
- Password requirements increases minimum security

## Applies to

- Server

## Changes

- Enable use of STARTTLS, TLS/SSL in general, for communication between SIMCA-online server and email server
- SMTP user and password added for authentication – Test button to verify changes without server restart
- Stronger hash for password
- Added back-off algorithm to prevent brute force attacks
- Web Server cookie entropy has been increased to 256 bit
- Password Policy for users outside Active Directory

Notifications

SMTP server

mail-intern.example.com

Port number

587

SMTP user name

SMTP password

Sender email address

SIMCA-online@example.com

Sender name

SIMCA-online Server

Test

Default

User name:

Administrator

Old password:

Password:

Confirm password:

The password must be at least 12 characters long and consist of upper- and lower case letters, digits and special characters

OK

Cancel

# Updates in Web Client

## Benefits

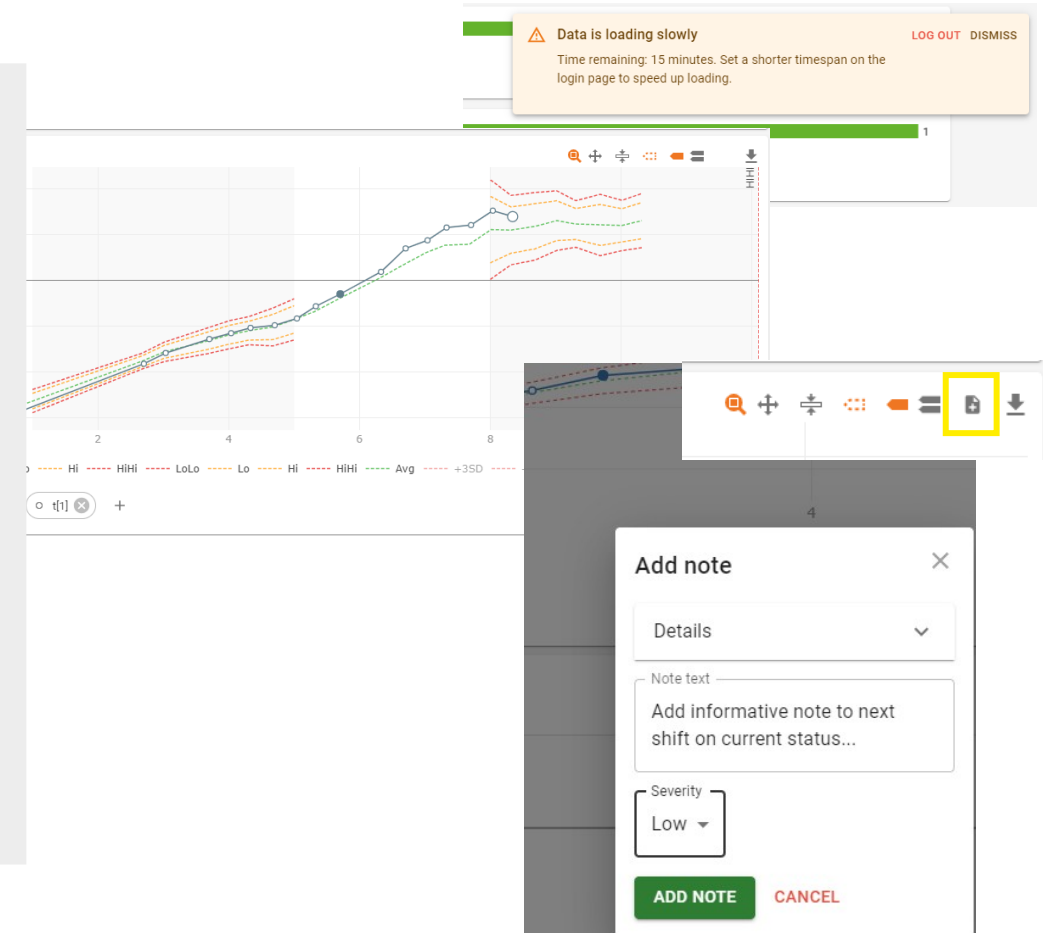
- Advanced alarms visualization available for all users
- Add note to improve traceability and communication across user groups and clients
- Avoid unnecessary waiting and server impact by cancelling Web Client loading of data

## Applies to

- Web client

## Changes

- Alarm regions are visualized in charts highlighted with other background and hidden limit lines outside regions
- Add note enabled
- Added warning when data is slow to load
- Tech stack updates
  - Third-party libraries with the latest updates
  - Future proofing use of modern development tooling and infrastructure



# Project Explorer, Plots, and Lists

## Improved Desktop User Experience

### Benefits

- Improved Project Explorer with filter information and summary of configurations on server
- Easily copy information to other software and editors
- Improved visibility of Zoom subplot icon

### Applies to

- Desktop client

### Changes

- Project Explorer
  - Shows total number of configurations and number of executing configurations
  - Filter result information displayed
- Improved Copy to Clipboard added to the Batches Found dialog, Audit trail, Report etc, including column headers
- Zoom sub plot mini toolbar could initially appear in wrong position|outside the plot

Project Explorer

Ambr

Showing 8/39 items

All Access Folder

Ambr Perfusion

Ambr Perfusion

Ambr Perfusion\_alarms

Ambr Perfusion\_multiple\_alarm\_regions [a...

Limited Access Folder

Amb

Batch name

Start time

Stop time

Duration

6.5415301

2024-04-09 14:10:00

2024-04-09 14:10:00

00:00:00

21.081301

2024-04-09 14:11:00

2024-04-09 14:11:00

00:00:00

39.4711

2024-04-09 14:14:00

2024-04-09 14:14:00

00:00:00

39.4692

2024-04-09 14:15:00

2024-04-09 14:15:00

00:00:00

6.7149601

2024-04-09 14:17:00

2024-04-09 14:17:00

00:00:00

26.212

2024-04-09 14:20:00

2024-04-09 14:20:00

00:00:00

6.5248799

2024-04-09 14:21:00

2024-04-09 14:21:00

00:00:00

39.4809

2024-04-09 14:22:00

2024-04-09 14:22:00

00:00:00

19.9841

2024-04-09 14:25:00

2024-04-09 14:25:00

00:00:00

6.6480799

2024-04-09 14:28:00

2024-04-09 14:28:00

00:00:00

7.6313996

2024-04-09 14:29:00

2024-04-09 14:29:00

00:00:00

6.3916297

2024-04-09 14:35:00

2024-04-09 14:35:00

00:00:00

20 configurations (14 executing)

Batches Found

There were 24 batches between 2024-04-08 09:28:00 and 2024-04-16 09:28:22.

Batch name

Start time

Stop time

Duration

6.5415301

2024-04-09 14:10:00

2024-04-09 14:10:00

00:00:00

21.081301

2024-04-09 14:11:00

2024-04-09 14:11:00

00:00:00

39.4711

2024-04-09 14:14:00

2024-04-09 14:14:00

00:00:00

39.4692

2024-04-09 14:15:00

2024-04-09 14:15:00

00:00:00

6.7149601

2024-04-09 14:17:00

2024-04-09 14:17:00

00:00:00

26.212

2024-04-09 14:20:00

2024-04-09 14:20:00

00:00:00

6.5248799

2024-04-09 14:21:00

2024-04-09 14:21:00

00:00:00

39.4809

2024-04-09 14:22:00

2024-04-09 14:22:00

00:00:00

19.9841

2024-04-09 14:25:00

2024-04-09 14:25:00

00:00:00

6.6480799

2024-04-09 14:28:00

2024-04-09 14:28:00

00:00:00

7.6313996

2024-04-09 14:29:00

2024-04-09 14:29:00

00:00:00

6.3916297

2024-04-09 14:35:00

2024-04-09 14:35:00

00:00:00

A

B

C

D

Header Row

First Column

Total Row

Last Column

Banded Rows

Banded Columns

Table Style Options

Batch name

Start time

Stop time

Duration

6.5415301

2024-04-09 14:10:00

2024-04-09 14:10:00

00:00:00

21.081301

2024-04-09 14:11:00

2024-04-09 14:11:00

00:00:00

39.4711

2024-04-09 14:14:00

2024-04-09 14:14:00

00:00:00

39.4692

2024-04-09 14:15:00

2024-04-09 14:15:00

00:00:00

6.7149601

2024-04-09 14:17:00

2024-04-09 14:17:00

00:00:00

26.212

2024-04-09 14:20:00

2024-04-09 14:20:00

00:00:00

# Predict and Extract, New Help File Format

## Improved Desktop User Experience

### Benefits

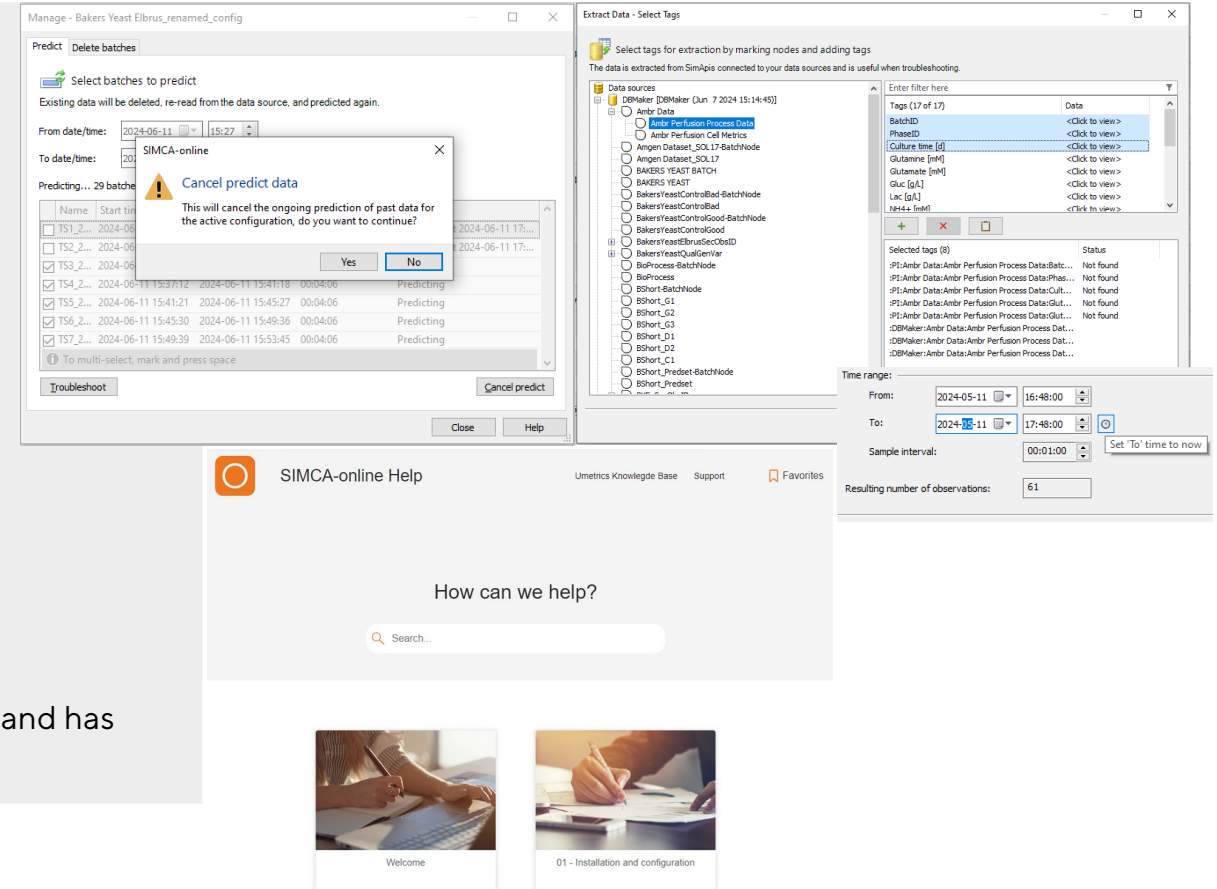
- Possibility to avoid server load and time-consuming prediction operations
- Easier to use File > Extract including paste list of tags, status message and select time | batches dialogs
- Easier to use Select Time and Select Batches dialogs
- Improved Help search result presentation and high-resolution screen visibility

### Applies to

- Desktop client

### Changes

- Cancelling predict of historical data
- Cancelling is more direct for File | Extract and View | Data List
- Changed dialog and added paste functionality
- Select time informs instead of changing values when From | To are not aligned and has 'Now' button
- Web based Help file format



# Improved SIMCA® 18 Compatibility and System Updates

## Compatibility with SIMCA® 18

- Support for projects with reordered phases
- Calibration transfer for continuous processes
- Generated variables of qualitative variables
- Python 3.10.2 for numerical preprocessing scripts with pandas, numpy, scipy built in as SIMCA 18. Packages can be updated and added

## Server | System

- Write-back of numeric batch number for alarm URL, for use in external systems to create links that open the SIMCA-online Web Client to show a specific batch.
- Control Advisor improvements for batch projects: support for phases with generated variables, Python preprocessing variables, qualitative variables, out-of-order and incomplete forecast models
- The data source node/tag hierarchy can handle child nodes with the same names as tags, common in OPC UA

# Bug Fixes with Details

## Server | System

- Fixed: Maturity generated with function IndexByPhase
  - In previous versions of SIMCA-online phase iterations failed to start at 0 when maturity generated with function IndexByPhase was used. With the fix the visualization of phase iteration projects with this maturity will be correct.

## Desktop Client

- Fixed: Contributions wrong for Control Advisor series ([KB article](#))
- Fixed: Workset batches dialog opened from Production Overview should remember previously selected batches
- Fixed: Cannot delete one's own notifications from the My Notifications Details page without holding the manage\_notification permission

## Other

- Fixed: Outlimits not applied after SimApi restart

# SIMCA®-online 17

# SIMCA<sup>®</sup>-online 17

## News

- Batch Aggregation nodes in Batch Context Generator
- User defined Python libraries for preprocessing
- Manage data source connections on the fly
- Performance optimizations
- Active directory improvements
- Model update automation

## Minor updates

- UX improvements in desktop client
- Baseline Filters to combine IPC and process data
- Suppress alarm notifications during predict of past batches

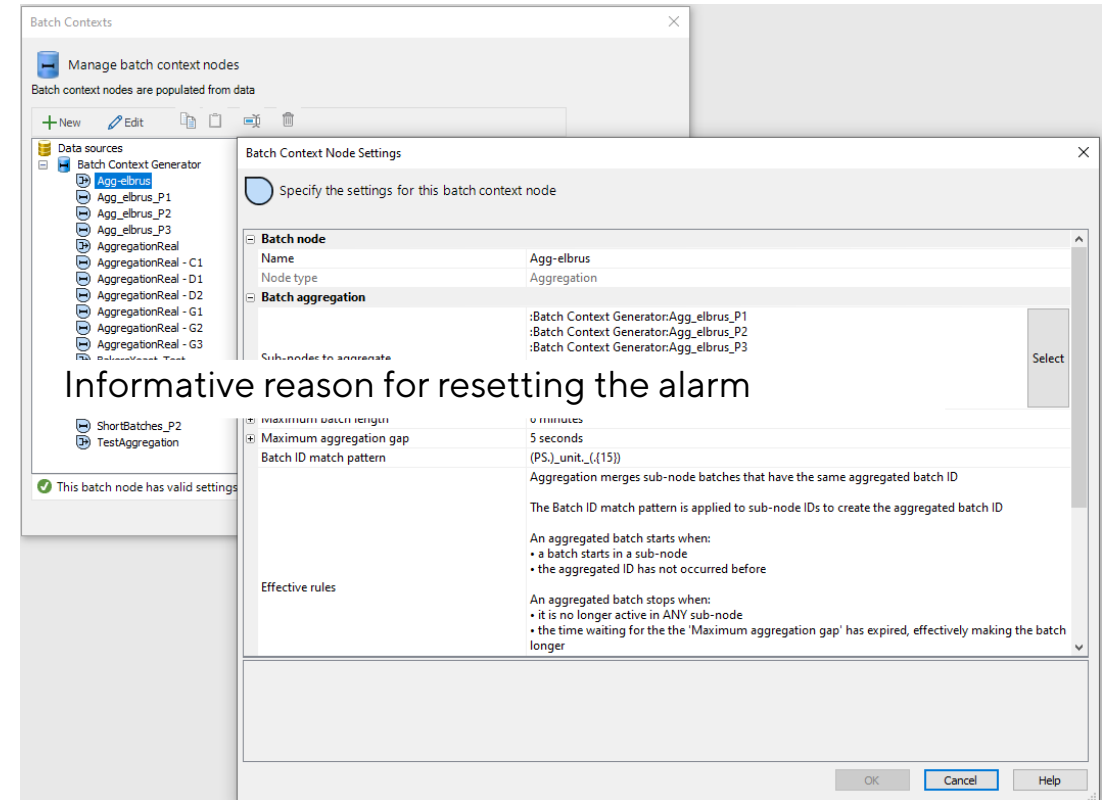
## Bug fixes

- Server crash when alarm notification is sent at the same time as the configuration it belongs to is deleted (system)
- Deleting multiple projects and configurations when the tree is collapsed does not always count the number of items correctly (desktop client)
- Reset button on login page only works once (web client)



# Batch Aggregation Nodes in Batch Context Generator

- Benefits
  - Detect and correct deviations in multi-unit processes with improved access to process data
- Apply to
  - Server | desktop client | web client
- Change
  - Added aggregation nodes, which is a new type of node in Batch Context Generator
  - Data can be combined and monitored at the batch level since all units are executed in the same project
  - Batch ID match pattern in batch context node settings, batches with similar, but not identical, IDs can also be aggregated
  - Improved Batch Context generator work-flow



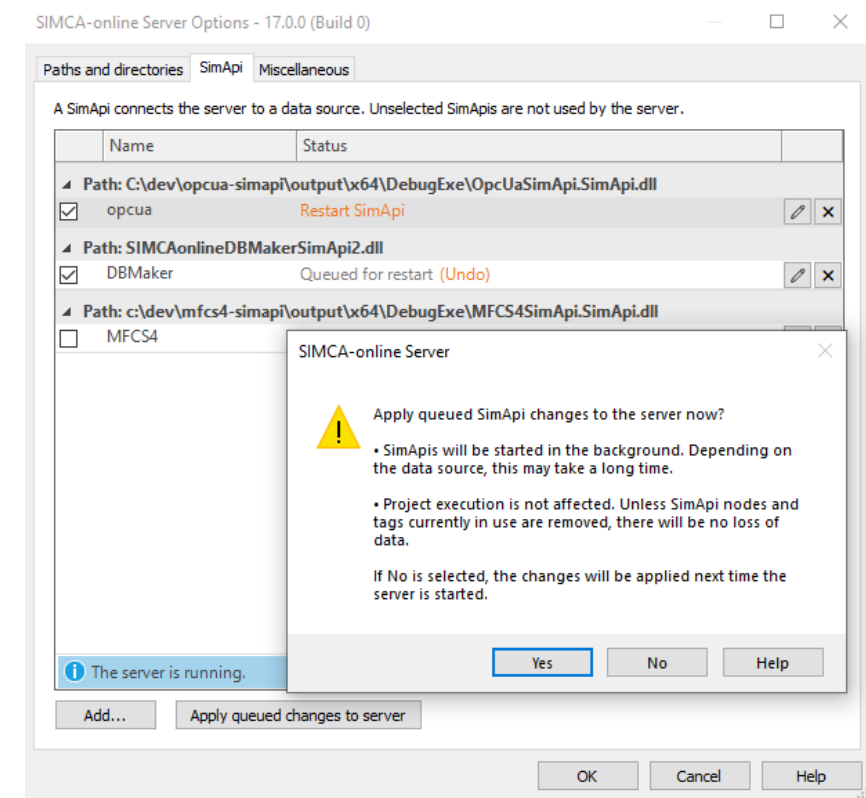
# User Defined Python Libraries for Preprocessing

- Benefits
  - Customer free to use any analytics within Python realm
  - Use flexible scripting to further enhance SIMCA®-online functionality
- Apply to
  - Server
- Change
  - Match python package versions with SIMCA® 17
    - Python version 3.7.9
    - **NumPy** (1.19.5), **SciPy** (1.6.0) and **Pandas** (1.2.0) bundled
  - Script added for installing Python packages that are compatible with main version and have no graphical UI
  - User free to add any python package



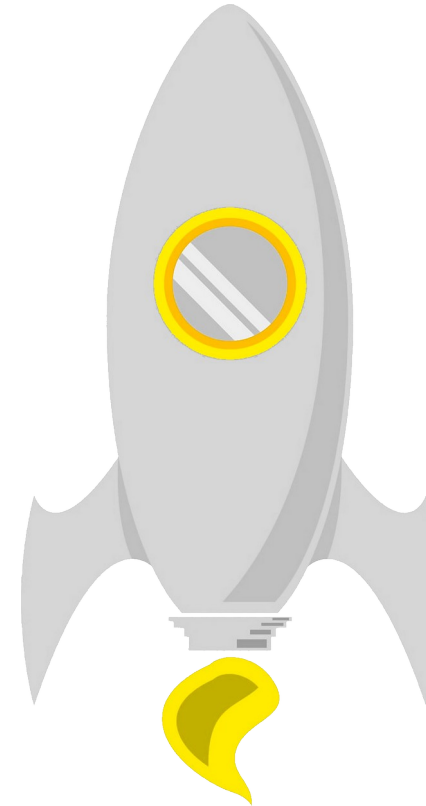
# Manage Data Source Connections on the Fly

- Benefits
  - Data source connections can be updated at any time without interrupting users or live monitoring of the process
  - Down-time reduced to zero
- Apply to
  - Server
- Change
  - Administrators can manage SimApis on a running server, without affecting project execution
    - add a new SimApi
    - restart individual SimApis or include new data source tags
    - disable or remove SimApis from the server
  - Solution for backup with e.g. windows volume shadow copy service



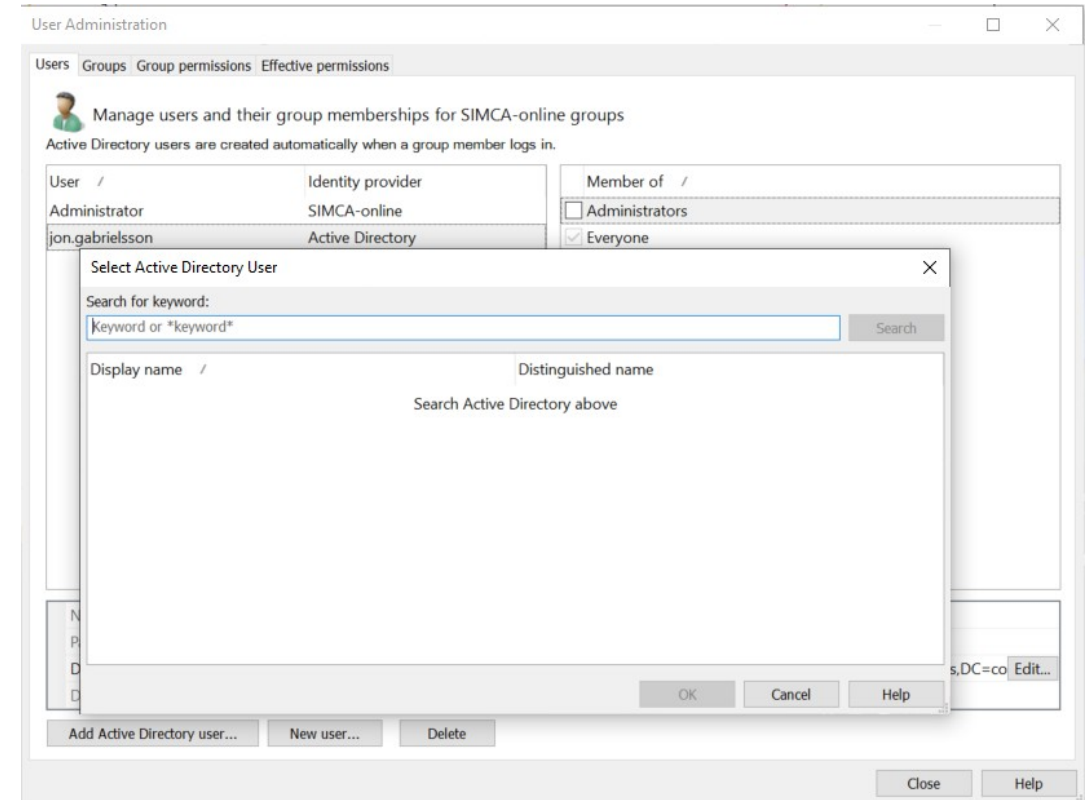
# Performance Optimizations

- Benefits
  - For a single project configuration reads are reduced by 50 to 67%. When many projects execute at the same time, the number of reads are reduced even more
  - Plot update time decreased
  - Add data for project update (up to 4 times faster)
- Applies to
  - SIMCA®-online system
- Change
  - Grouping many data reads into single reads from a data source
  - Can keep up with executions of more configurations
  - Less traffic between SIMCA-online and the data source, and thus less load on the data source itself and the network
  - The server is less sensitive to slow data sources and high latency in the network to the data source
  - Updated plot library
  - Improved method adding data on server for project update



# Active Directory Improvements

- Benefits
  - Reduced need for manual user management, while keeping full control of which users are allowed to log in.
- Applies to
  - SIMCA®-online system
- Changes
  - Search for AD groups and users by name or email (wildcard and substring search supported).
  - Names of users and groups from AD are used in SIMCA®-online which makes it easy to identify groups and users.
  - Display name for Active Directory users is used to annotate user actions in alarms, notes and other places.
  - Changed how Active Directory is set up and tested in SIMCA®-online Server Options. The entire domain can be searched for groups and users (also when migrating from an earlier version).



# Model Update Automation

- **Benefits**
  - Save time by automating the model update procedure
  - Minimize likelihood of false positive | negative results in process deviations are identified
- **Applies to**
  - Desktop client and server
- **Changes**
  - Batch download of SIMCA® projects, download in the background
  - Update project considerably faster compared to previous versions thanks to improved write speed when adding data
  - Customer can script the model update for a fully automatic model update (only need to sign when uploading updated project to SIMCA®-online)
  - Script example available upon request for triggering update of SIMCA® project

Update SIMCA Project

**S** Specify the location and name of the SIMCA project to be downloaded  
A copy of the project is downloaded from the server to this computer when you click Finish.

Location: C:\Users\... \OneDrive - Sartorius Corporate Administration GmbH\Documents

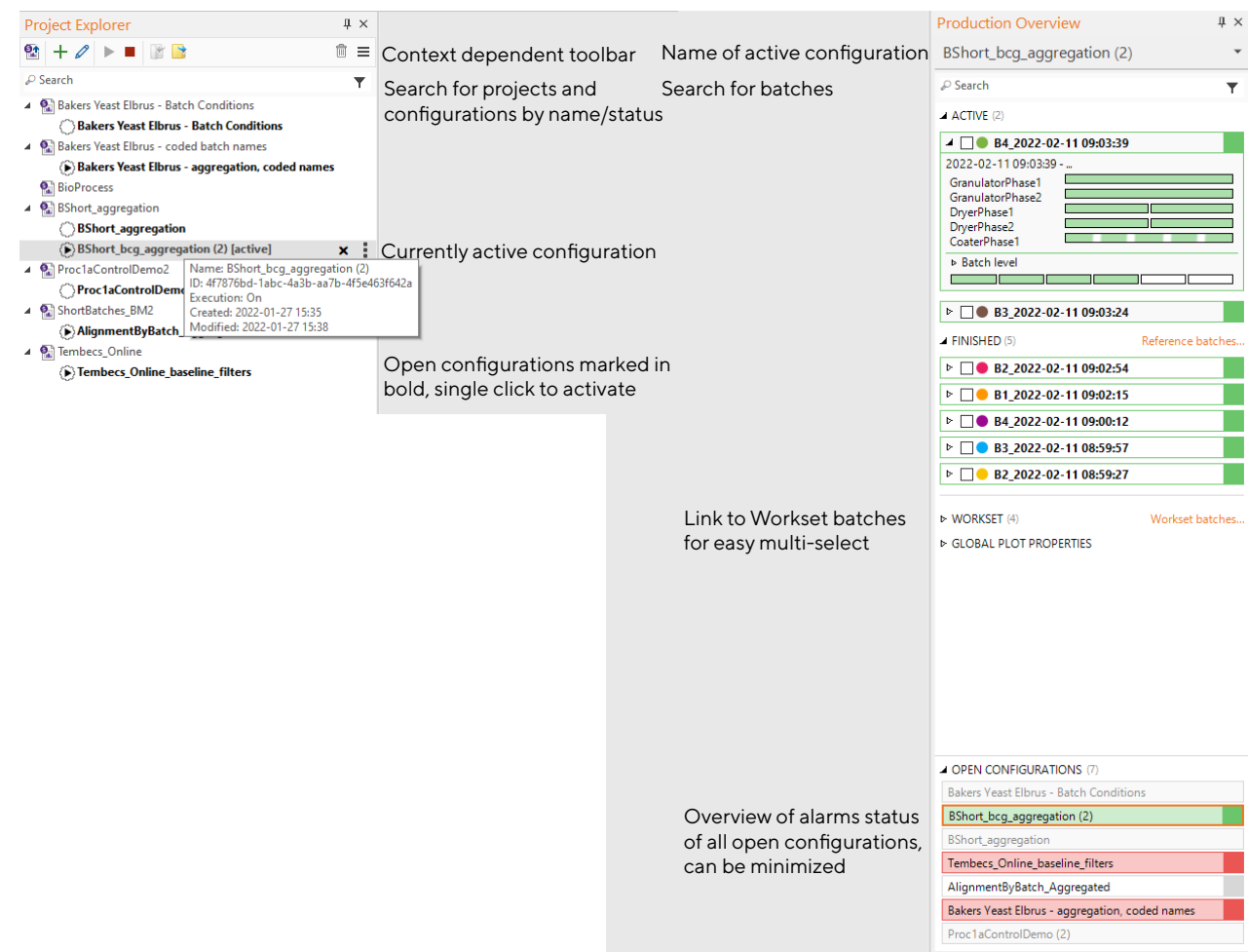
Project name: BShort\_aggregation\_g2 Save as...

☐ After downloading, start SIMCA and open the project  
☒ Download in the background and continue working

< Back   Next >   **Finish**   Cancel   Help

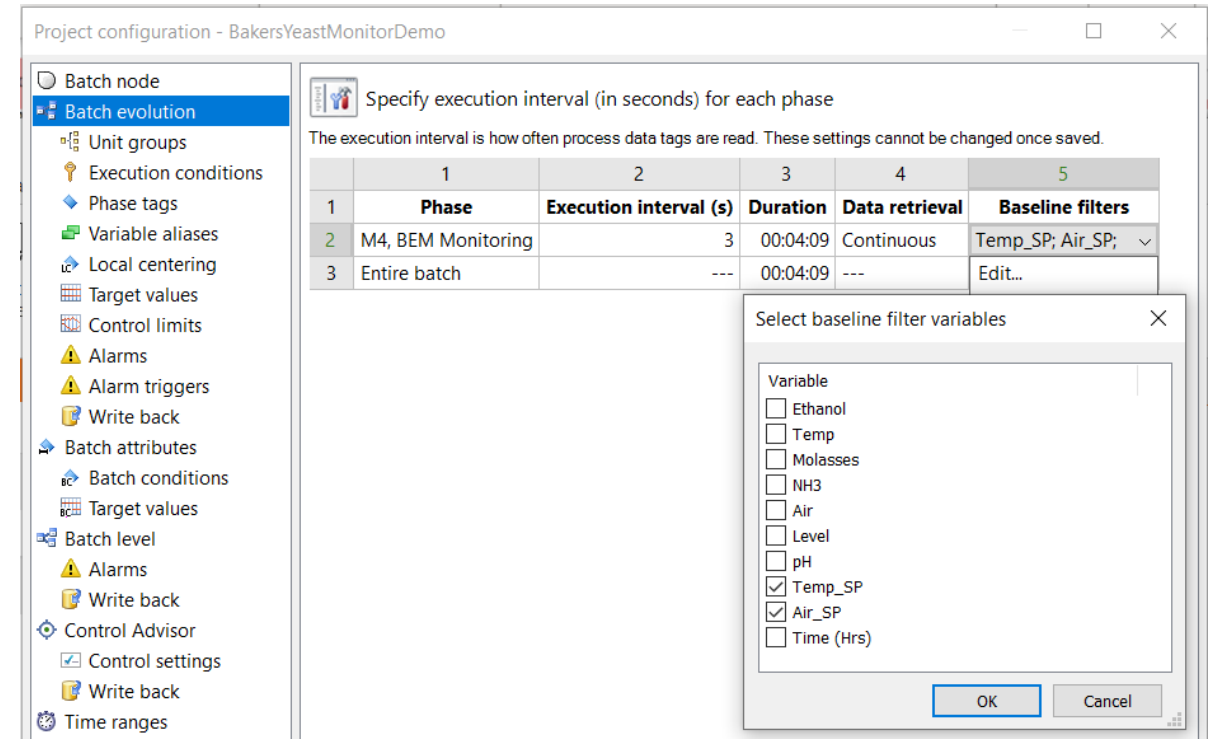
# UX Improvements in Desktop Client

- Benefits
  - Improved Production Overview with overall alarm status and separate desktop contents
  - Simplified Project explorer focused on admin management of projects
- Apply to
  - Desktop client
- Change
  - Production Overview
    - Configuration status
  - Project Explorer
    - Removed configuration tabs
  - Tabs
    - Removed, navigate configurations in panes



# Baseline Filters to Combine IPC and Process Data

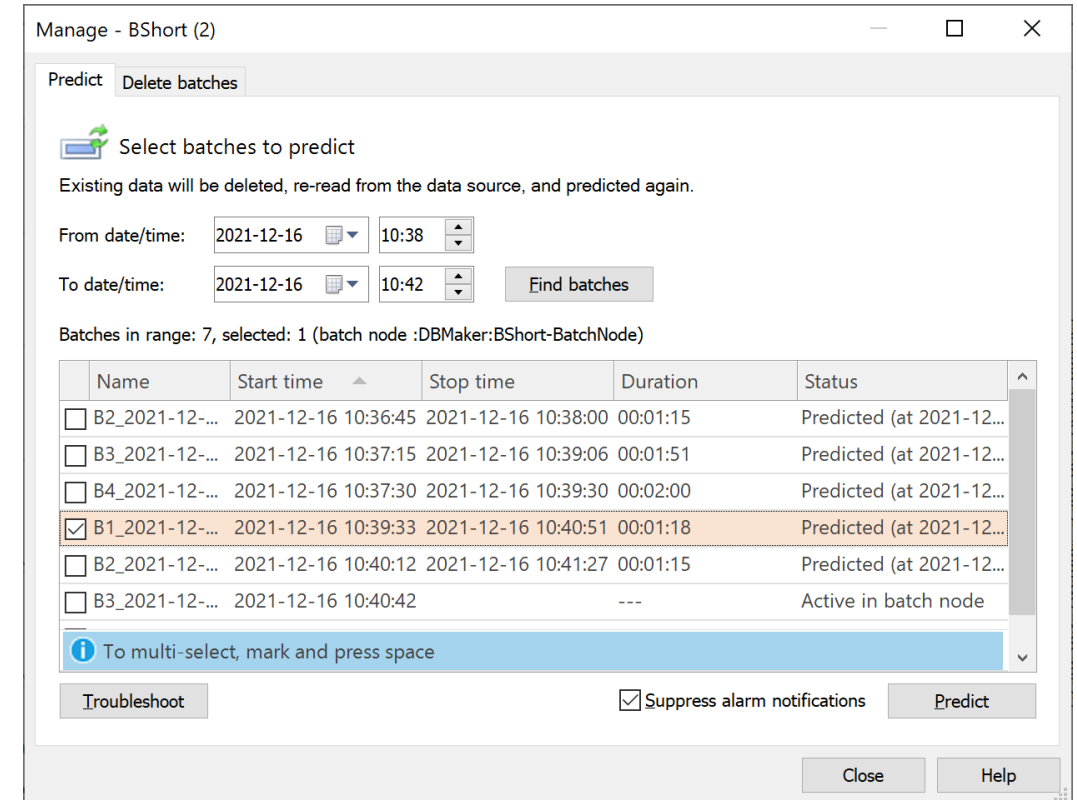
- Benefits
  - It is possible to combine less frequently sampled IPC\* data with process data with baseline filters.
- Applies to
  - SIMCA®-online system
- Change
  - IPC data can be treated as continuous data using baseline filters.
  - Values for variables in the beginning of the phase are sampled but are now set to missing by SIMCA®-online.
  - The assumption is that when the values change, they belong to the phase.





# Suppress Alarm Notifications During Predict of Past Batches

- Benefits
  - Situation based notifications
- Applies to
  - SIMCA®-online system
- Change
  - Default in SIMCA®-online 17 is to not send notifications during re-predict, with an option to turn them on.
  - In previous versions of SIMCA®-online, notifications were always sent for triggered alarms when predicting past batches.
  - Alarm notifications are not sent out during re-predict, when they are determined to be of limited value.



# SIMCA®-online 16.1

# SIMCA®-online 16.1

## News

- Reset alarms in the Web Client
- Troubleshooting for continuous project configurations
- External libraries for Python pre-processing
- Permissions granted to groups (replaces previous use of roles)
  - Adds more flexibility to permissions
  - More granular permissions of what users can do
- Faster load time of client workspaces
- Regular expression matching in phase execution conditions

## Smaller fixes

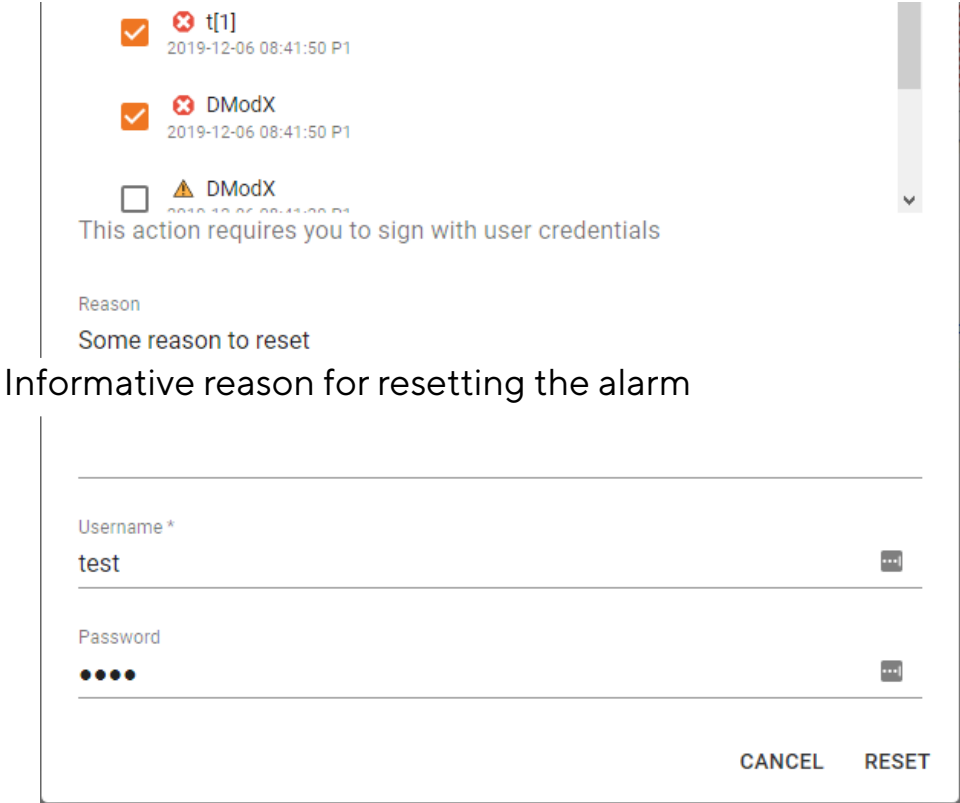
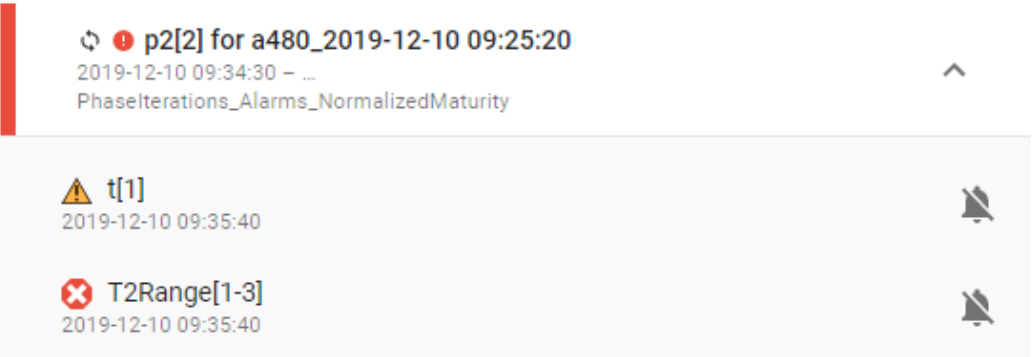
- Maximize button in all client panes
- All active directory users can now be listed and imported where previously a subset was used

## Bug fixes

- Batch plots that use color by is now colored correctly when opened from a workspace
- File | Share Workspace by email attachment works even if the option for session workspaces is turned off

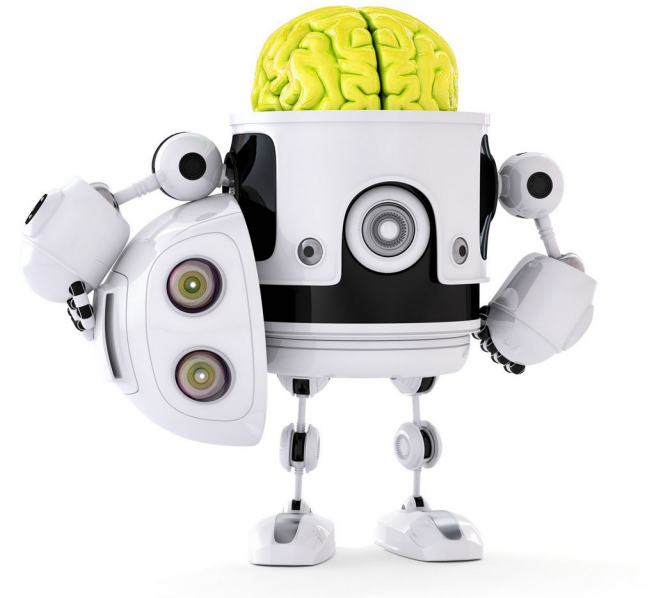
# Reset alarms in Web Client

- Benefits
  - Web client can be used as a daily work tool to be compliant with 21 CFR part 11 (Electronic Signatures)
- Applies to
  - Web Client
- Change
  - Reset alarms with electronic signatures from several different locations in the web client



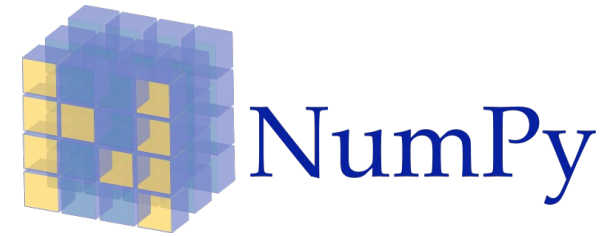
# Troubleshooting improvement for continuous project configurations

- Benefit
  - Troubleshooting is easier to do and lets users find answers themselves instead of the need to contact the online support
- Applies to
  - Continuous projects/processes
  - (Same functionality for batch projects was released with SIMCA-online 16.0)
- New functionality
  - Administrators can use the built-in troubleshooter on the Administration tab
  - Verifies configuration and tag validity



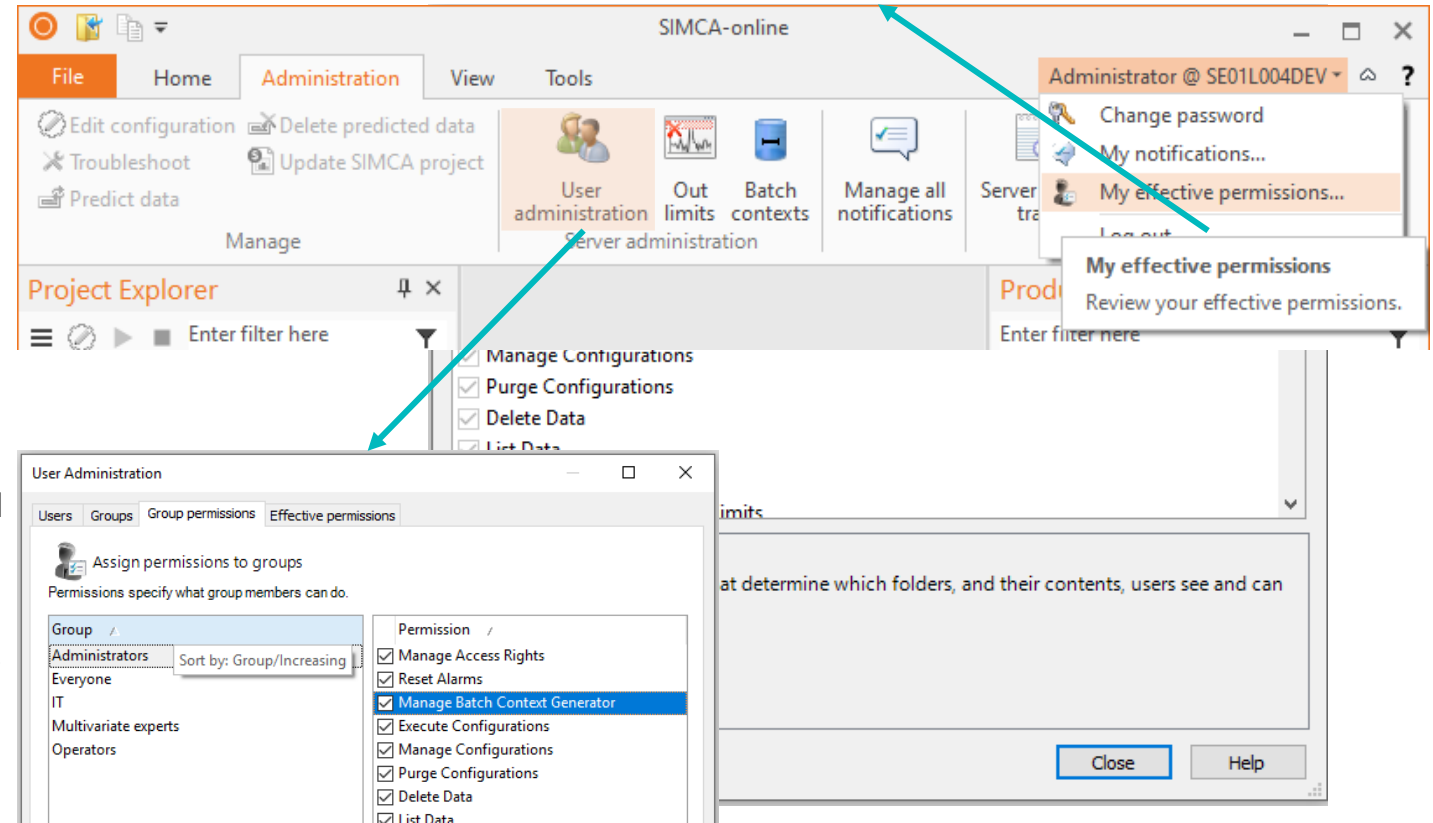
# External libraries for Python pre-processing

- Benefit
  - Scripts running math calculations run faster than without the SciPy or NumPy libraries
- Applies to
  - USP files with Python pre-processing
- Change
  - Preprocessing scripts now support code dependent on the Python libraries **NumPy** (1.15.4) and **SciPy** (1.1.0)
  - These are standard packages for doing math on multidimensional data



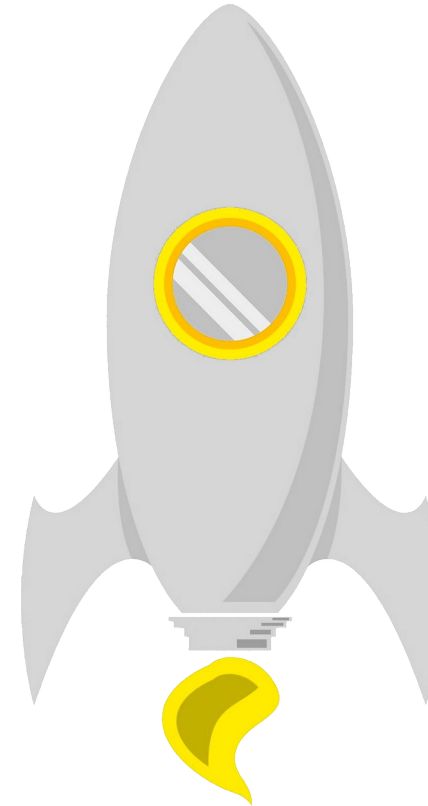
# Permissions granted to groups (replaces previous use of roles)

- Benefits
  - Easy management of users and permissions
- Applies to
  - Server user authorization
- Change
  - Permissions are granted to groups
  - Roles have been removed, and will migrate to groups when upgrading the system
  - Final permissions is the union of all the permissions for all groups that the user is a member of
  - Each user can see their own effective permissions
  - Administrators can see effective permissions for any user
  - The “Everyone” group will affect all users
  - Permissions are more granular



# Faster load time of client workspaces

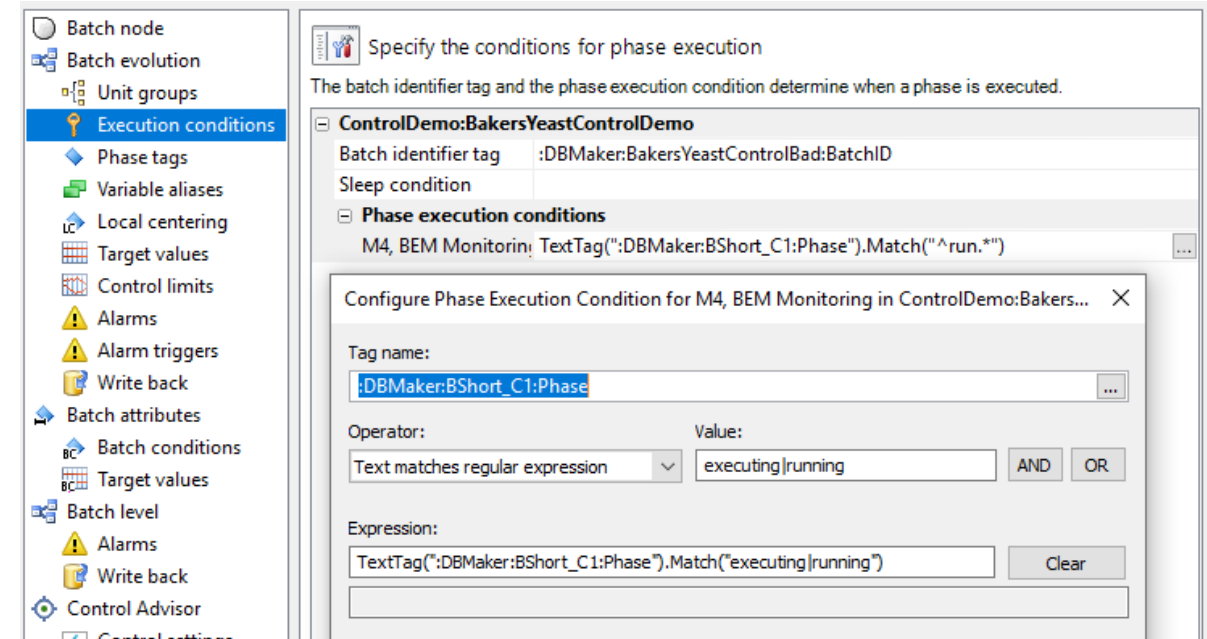
- Benefits
  - Start-up of clients is about 30% faster
  - Loading a server workspace is about 30% faster
- Applies to
  - Desktop client workspace
- Change
  - Performance of workspaces have improved





# Regular expression matching in phase execution conditions

- Benefits
  - Allows execution of phases with a regular expression instead of plain text comparisons
- Applies to
  - Batch configurations
- Change
  - Phase execution conditions has now support for regular expression matching using the Match function
- Tip: if you want to test regular expressions a great tool is <https://regex101.com/>



# SIMCA®-online 16

# SIMCA®-online 16

## Server

- SIMCA® 16
- Late entry data
- Monitor excluded variables
- Python script pretreatment
- Administrable notifications
- Bug fix: Server unresponsive when batch contexts were used in combination with notifications and other subsystems
- Bug fix: Server shutdown was not correctly performed

## Desktop client

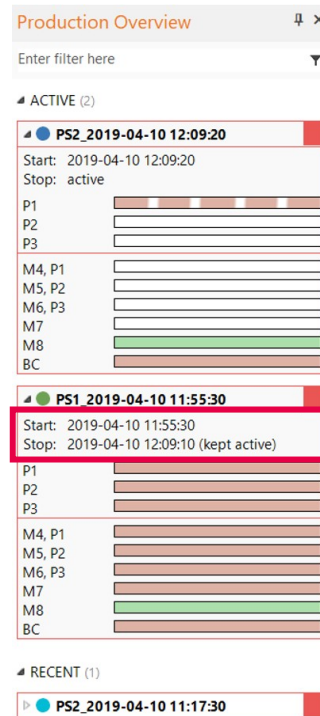
- Panes and Filters
  - Project explorer pane
    - Improved usability
    - Smart filters
    - Multiselect
  - Unit overview pane
    - View and open projects that are currently executing
    - Smart filters
    - Performance improvement
  - Production overview pane
    - Global batch selection
    - Batch colors
    - Find and retain historical batches
    - Include workset batches
    - Smart filters
  - Properties pane
    - Plot properties for active plot
- Peek value of tags in configuration
- Clamping

## Web client

- Comparison between production
  - Search server for historical batches
  - Multiple data vectors
  - Easy add/remove vectors and batches
  - Multiple Y-axes
- System overview and Batch timeline
- Batch level charts with alarms
- Alarm view
- Clamping

# Late entry data

- Applies to
  - At-line/IPC/discrete data
  - CQA/batch condition data
- New functionality
  - Wait for and read data that exists after batches have finished producing
  - Look for data at a configurable time interval
- Benefits
  - Enables SIMCA®-online to be used as CPV tool together with Active Dashboard
- Feedback by the system to the user
  - Information about an ended batch that is kept alive in the production overview



Configure - BakersYeastDemo

Specify time ranges for project execution and client recent batches

**Catch-up of missed batches**

Catch-up time range: 7 days  
Catch-up polling interval: Not configured

**Late entry data**

Keep batch active for late entry data: 1 days  
Batch condition update interval: 1 hours

**Client settings**

Recent batch time range: 30 days

**Keep batch active for late entry data**

This setting keeps a batch active after it has a stop time in the batch node, scanning for late entry data.

OK Cancel Help

# Monitor excluded variables

- Applies to
  - Continuous projects/processes
  - (Same behavior for batch projects exists as a work-around; see relevant KB article for more information)
- New functionality
  - Makes it possible to view variables that are imported to the SIMCA® project, but excluded from the model
- Benefits
  - Visualizing variables that are not and should not impact the model is now a lot easier

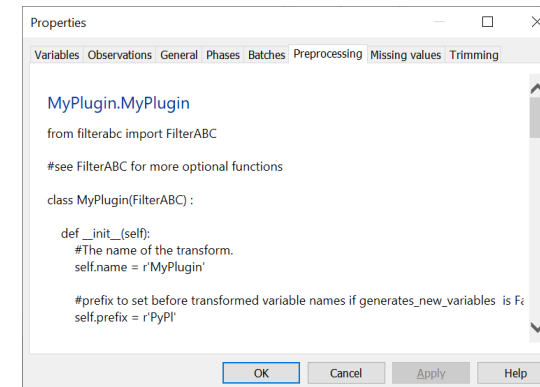
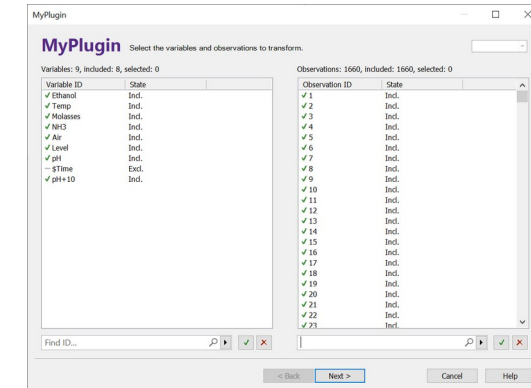
Model  
Time ranges  
**Tags**  
Variable aliases  
Target values  
Alarms  
Write back  
Control Advisor  
Control settings  
Write back  
Metadata  
Export configuration

Connect the SIMCA model variables with corresponding data source tags  
Unconnected variables will be treated as missing values.

	1	2
1	Primary ID	Tag
2	Ag ppm	:DBMaker:Process_Cuprum_Good:Ag ppm
3	Ni ppm	:DBMaker:Process_Cuprum_Good:Ni ppm
4	Pb ppm	:DBMaker:Process_Cuprum_Good:Pb ppm
5	Bi ppm	
6	Sb ppm	:DBMaker:Process_Cuprum_Good:Sb ppm
7	Se ppm	:DBMaker:Process_Cuprum_Good:Se ppm
8	(Time)	
9	(As ppm)	:DBMaker:Process_Cuprum_Good:As ppm
10	(Te ppm)	

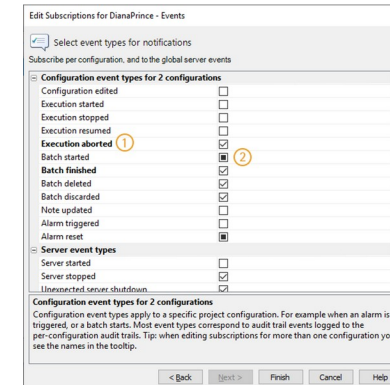
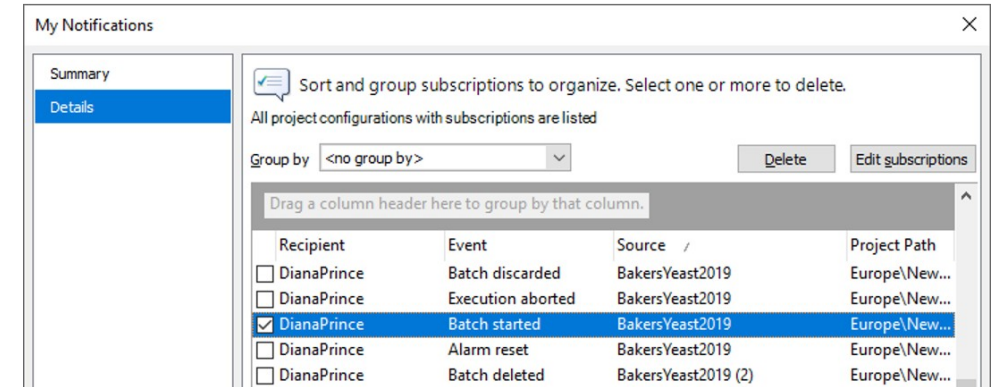
# Python pretreatment

- Applies to
  - All project files created in SIMCA®
- New functionality
  - Python scripts added to SIMCA® project files as pretreatment step will also be utilized by SIMCA®-online
- Benefits
  - Combine your own mathematics in Python with your multivariate models
- Disclaimer
  - First version is not thread safe
    - Recommended to run only one python script per server
    - First version does not support external libraries



# Administrable notifications

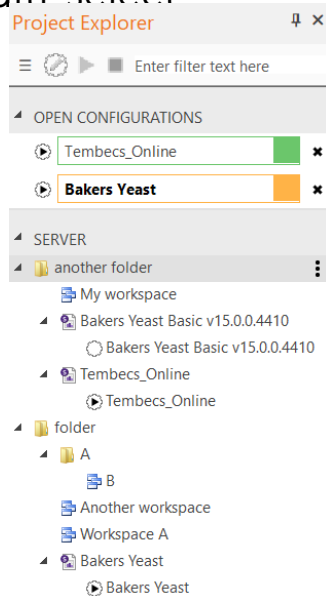
- Applies to
  - Desktop client
- New functionality
  - Active Directory not required
  - Email addresses can be edited
  - View logged in user's notification in My notifications
  - View all notifications in Manage all notifications
    - Admin tab
  - Updated and grouped subscription dialog
  - Requires users to reconfigure notifications for SIMCA®-online 16
- Benefits
  - Versatile usage of the notification system



# Panes and filters

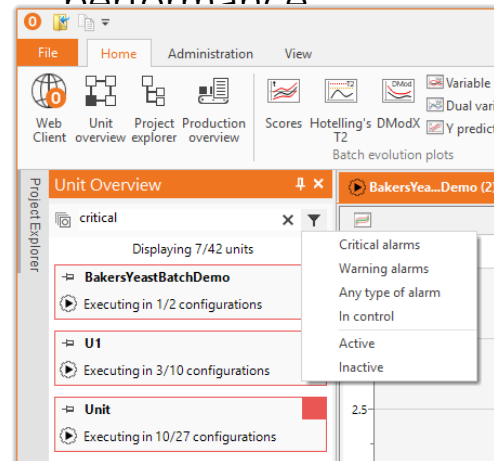
- **Project explorer pane**

- Improved usability
- Smart filters
- Multi-select



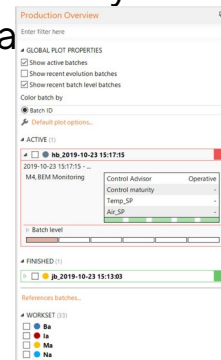
- **Unit overview pane**

- View and open projects that are currently executing
- Smart filters
- Unit overview performance



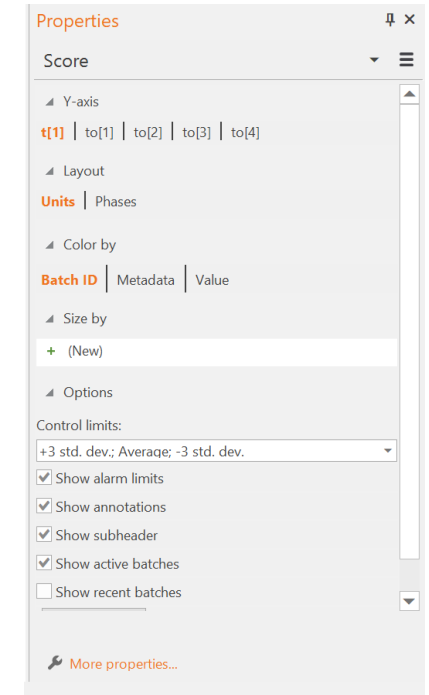
- **Production overview pane**

- Global chart interaction
- Batch colors
- Find batches, retained if selected
- Workset batches
- Color by batch attribute data visualization



- **Properties pane**

- Plot properties for active plot moved to pane

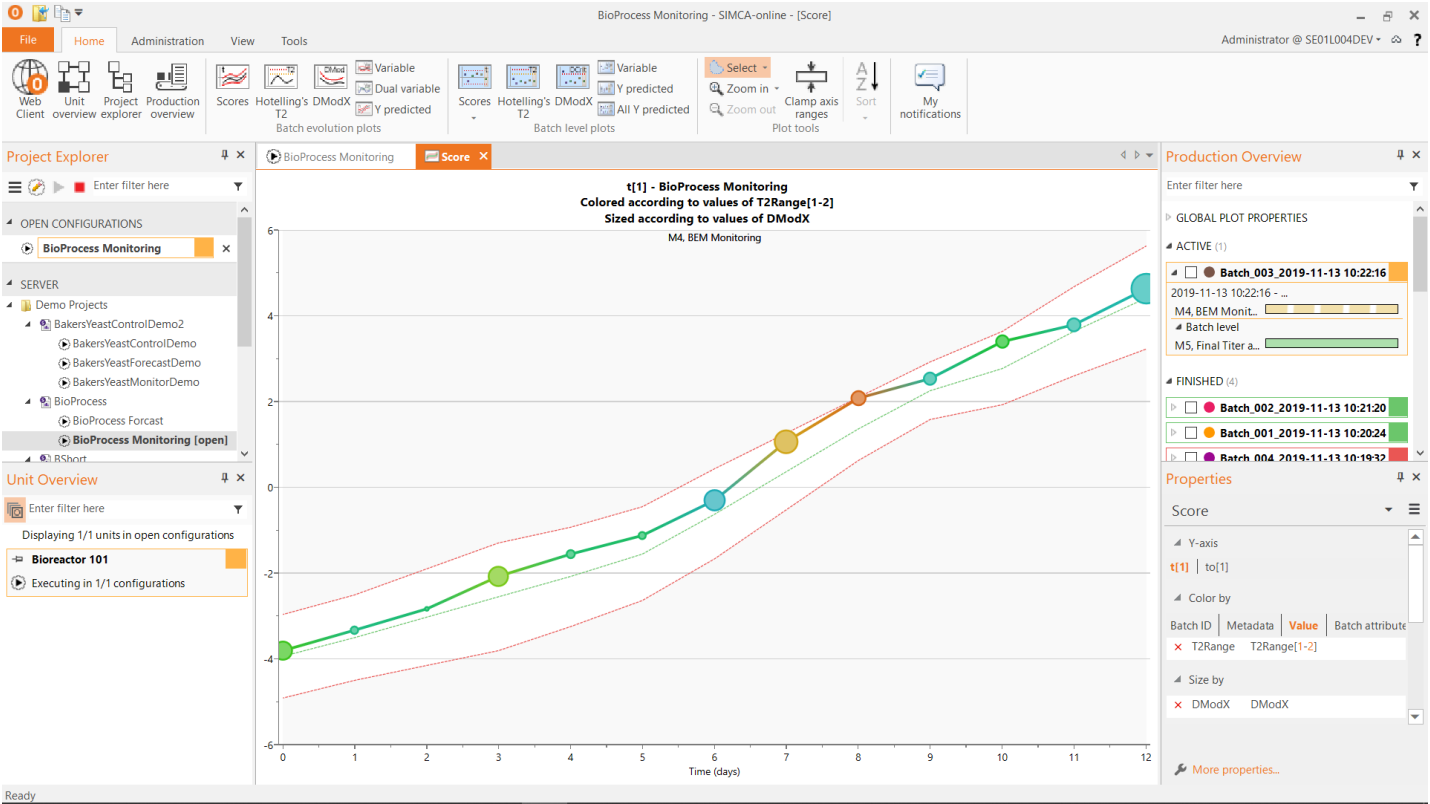




# Panes and filters

Project  
explorer

Unit  
overview



Production  
overview

Properties

# View most current data per variable

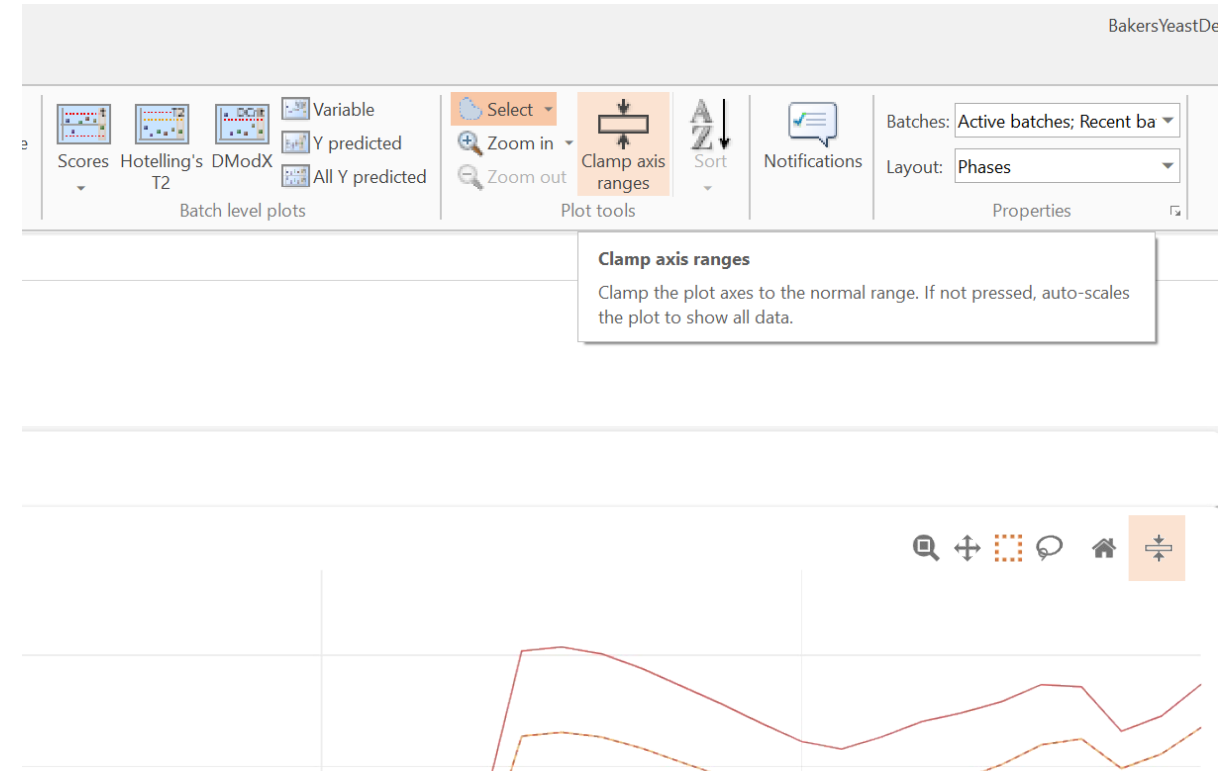
- Applies to
  - Project configuration
- New functionality
  - Peek data for any data source tag
- Benefits
  - When specifying execution conditions
  - When specifying batch identifier tags
  - When connecting the right tags to model variables

Enter filter here	
Tags (9 of 9)	Data
Batch ID	<Click to view>
Batch Age (h)	<Click to view>
Ethanol	<Click to view>
Temp	<Click to view>
Molasses	<Click to view>
NH3	<Click to view>
Air	<Click to view>
Level	<Click to view>
pH	<Click to view>

Enter filter here	
Tags (9 of 9)	Data
Batch ID	Ha (5cdd4e18) [text]
Batch Age (h)	10,8333
Ethanol	0,04458
Temp	32,2146
Molasses	2669,1
NH3	66,2627
Air	6310,62
Level	54,9422
pH	5,14757

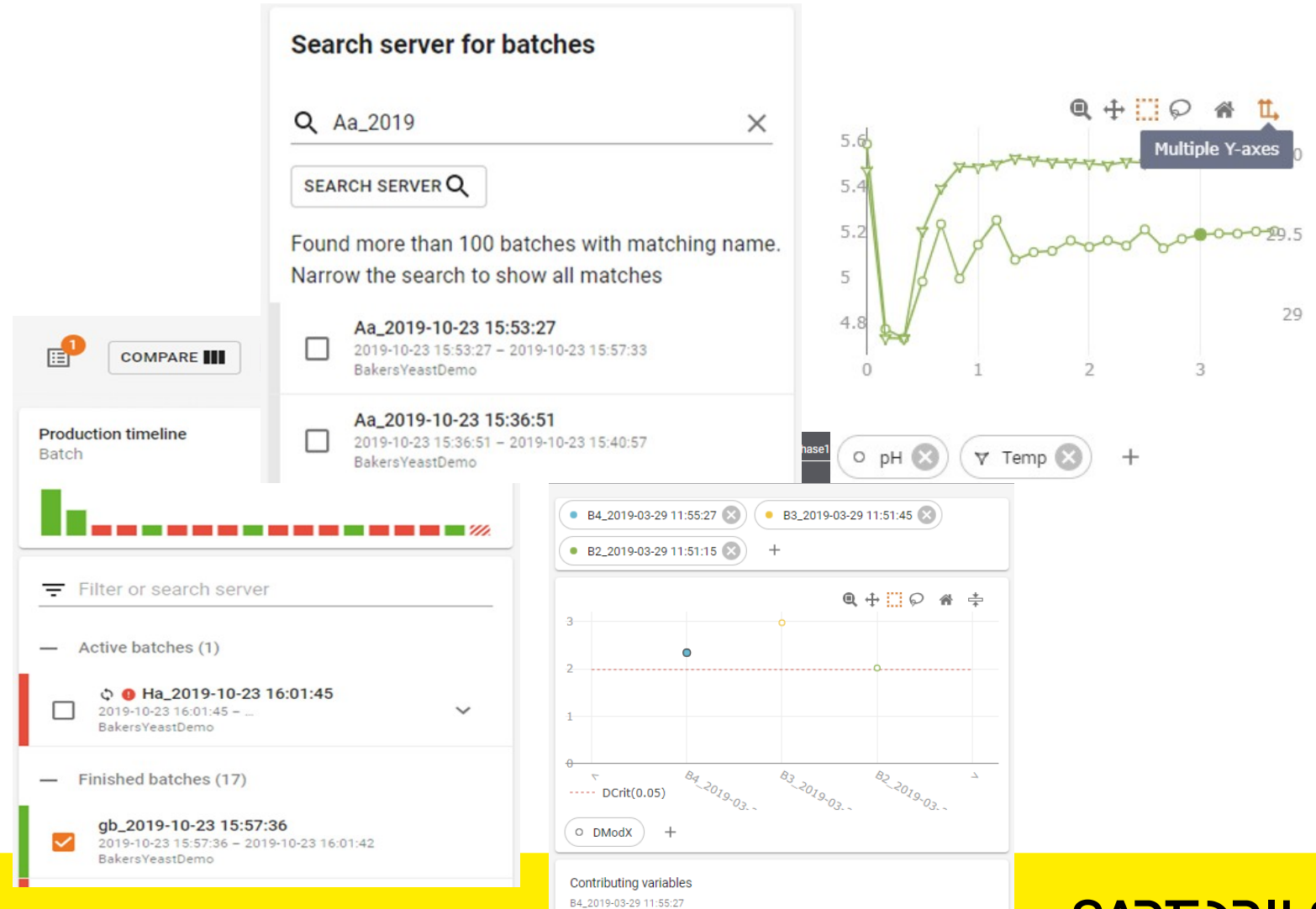
# Clamping

- Applies to
  - All charts
  - Both clients
- New functionality
  - Normalize the Y axis in the charts by forcing the range to be normal
- Benefits
  - Spikes in the data will no longer resize the y-axis thus hiding the normal varying data



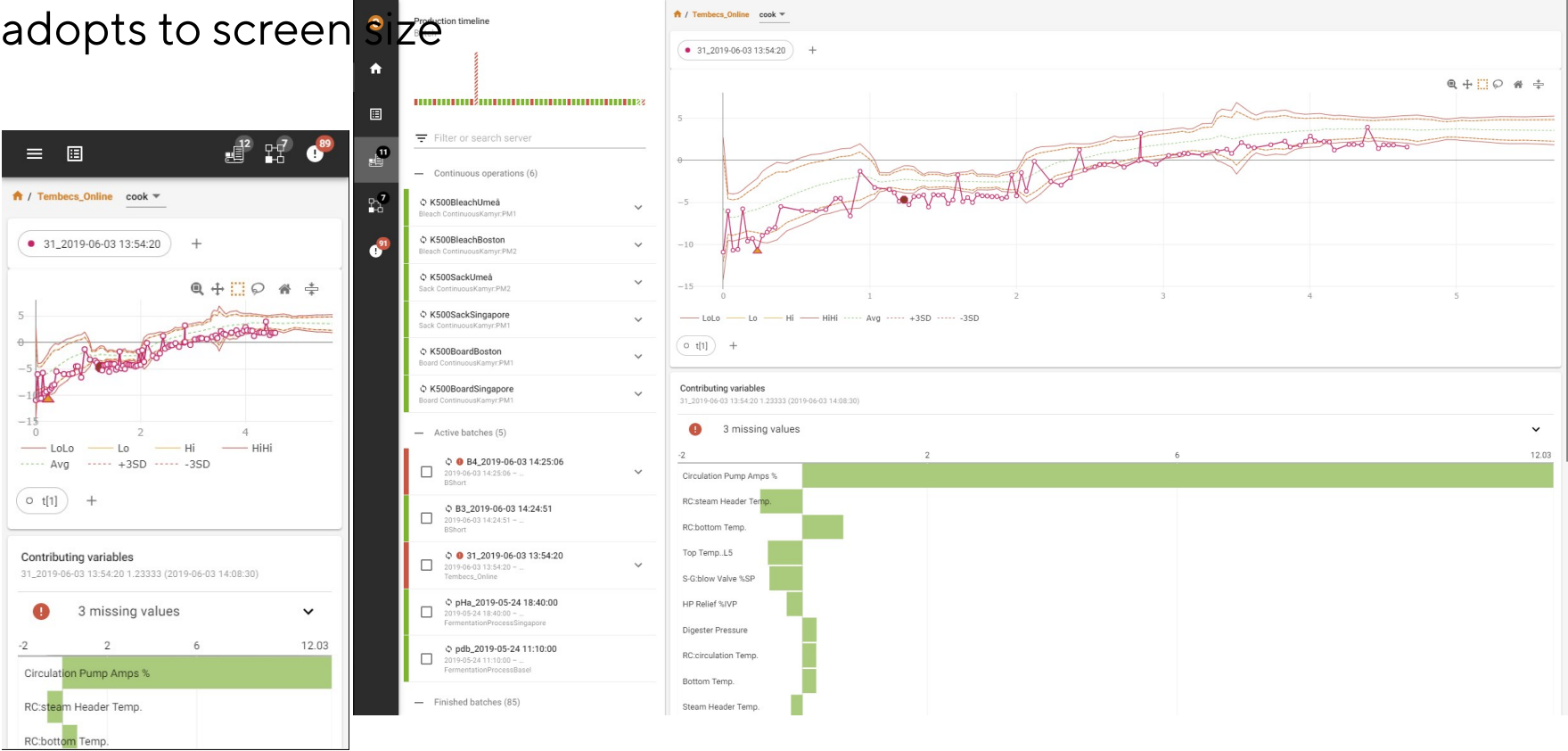
# Compare batches and production

- Helps engineers with daily tasks
  - Comparison between batches
    - Multiple Y-axes
    - Search server for historical batches
    - Multiple data vectors
    - Easy add/remove vectors and batches
  - Batch level charts



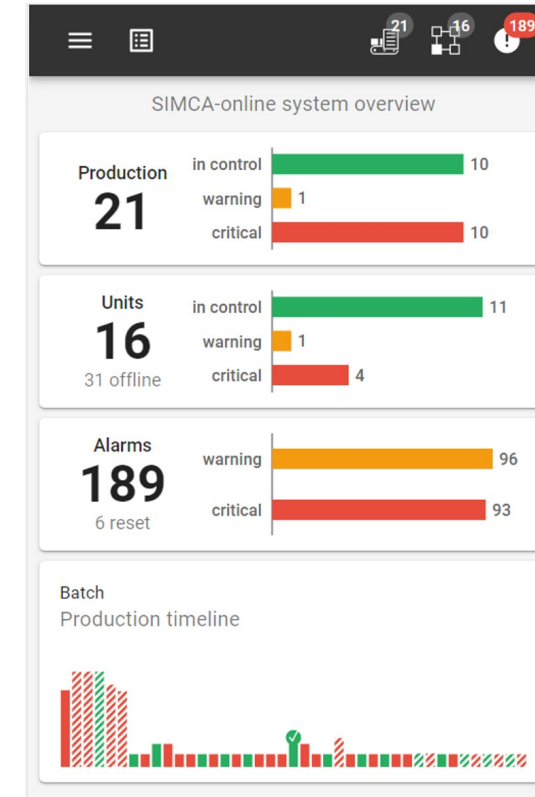
# Responsive layout

View adopts to screen size



# System overview and Batch timeline

- Applies to
  - Web client batch production
- New functionality
  - Overview summary for production, units and alarms
  - Batch timeline which shows alarms and production time
- Benefits
  - Starting point for engineers to know where to start investigate and optimize the process



# Summary of minor news

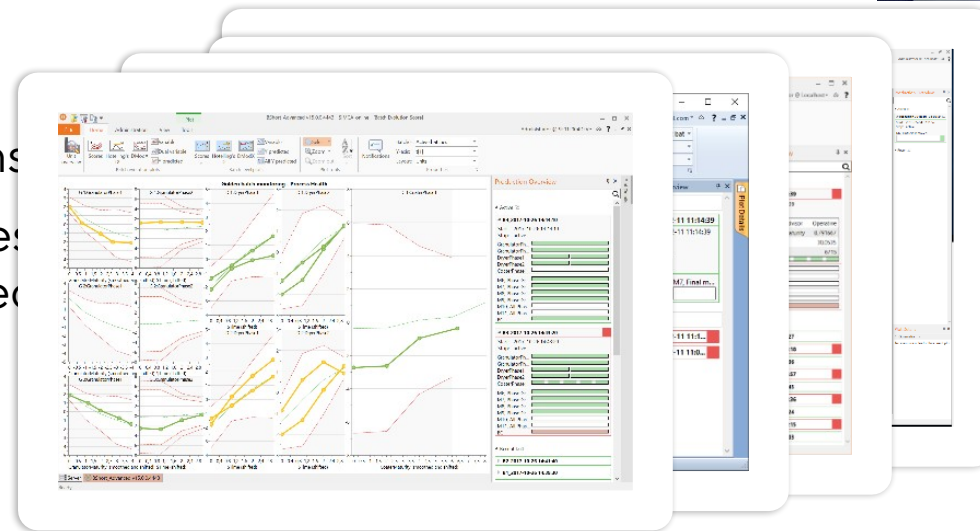
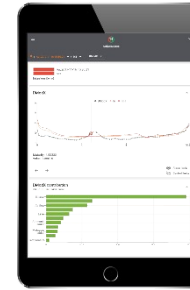
- Server
  - Audit trail audits workspace changes
  - New BioPharma demo project
  - Batch conditions are now optionally read more frequently
  - Performance improvement by reducing the data source communication, and retrieving larger pieces of data when possible
  - Project configuration is automatically checked for validity
  - Bug fix: Dynamic lags sometimes gave missing value
- Desktop client
  - Modern tab control
    - Additions; Icons, short text, single row, one tab/plot
    - Removals; server tab for extracted lists and audit trails, alarm state colors
  - Project explorer
    - Simplified toolbar
    - Open configurations/Server
      - Alphabetical order
      - Bold configuration means it is active
    - Double click opens the config
      - To update configuration – Right click
    - Right click to get context menu
      - Multiselect enabled
      - New properties item
  - Home tab
    - Shortcuts to panes
    - Removed properties from batch mode
  - Configuration
    - Time ranges moved and redesigned
  - Smaller default plot symbols
- Web client
  - Progress bar when loading data
  - New toolbar
  - System overview is the new home/start page after log-in
  - Plot improvements
    - Batch selection list to quickly find what to plot
    - Go from evolution to batch details in one click
    - Change trend vectors with chips
  - All batches are kept per session
  - Responsive layout
  - Bug fix: New data (“ticks”) reset zoom, and hidden limits

# SIMCA®-online Older



# SIMCA®-online 15.1

- Web client support of continuous process'
- Restarted monitoring resumes execution from where it left off
- Completed batch persists its information if shut down as default
- Warning and Critical alarms are now treated individually
- Rolling view loops over running configurations
- Temporary loss of connection for batch process sustains execution until connection is returned
- Dynamic lags supported



# SIMCA®-online 15.0

- Automatic model creation
  - Guide to create new batch models in SIMCA®-online
  - Guide to create new continuous models in SIMCA®-online
- Batch context generator
  - Automatically create data driven batch contexts
  - Inspect batch contexts in configuration
- Data exploration
  - Color/size by for all charts
  - Multiple Y axes
  - Guide to select tags to start monitor in SIMCA®-online
- Notification system
  - Email alarms subscription
  - Windows event log notification
- Operators web client
  - Connect to the server from a web client and visualize typical batch evolution data
- Phase iterations
  - Support phase iterations
- Soft reset of alarms
  - Batch condition target value alarms
  - Continuous process alarms now retriggers after system are back in control
- General
  - Batch attributes (secondary IDs) available for color/size by
  - Batch node advanced filters
  - High DPI compatible
  - Create workspace role permission added
  - Prediction of workset batches allowed
  - Production overview filter box

# SIMCA<sup>®</sup>-online 14.0

- Active Directory integration and Single Sign-on
- Control advisor for continuous and multi phase projects
- Update project workflow
- Web API connectivity
- OPLS models for Batch Evolution Plots
- Last views are stored in local workspace
- Unit overview
- Color by and size by for continuous processes
- Share screenshots or workspaces through mail

# SIMCA®-online 13.x

- SIMCA®-online 13.3 (2014-06-10)
  - Control Advisor for batch forecasting and optimizer driven process control
  - Performance and user experience improvements
- SIMCA®-online 13.2 (2013-12-10)
  - Discrete data retrieval for In-process control data
  - SPC filters for Continuous processes
  - Electronic signatures fully supported
  - Active directory user import improvements
  - Hierarchical model drill down for continuous processes
  - Performance and user experience improvements
- SIMCA®-online 13.1 (2013-05-31)
  - Server audit trail
  - Extended configuration audit trail
  - Catch-up and repredict for continuous projects
  - Control limits for variables in continuous projects
  - User access control to configurations

# Thank You.

Specifications subject to change without notice.

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Analytics AB, Östra Strandgatan 24  
903 33 Umeå, Sweden

The Sartorius logo is displayed in a bold, black, sans-serif font. The letters are closely spaced, and the 'S' and 'A' are particularly prominent. The logo is centered within a bright yellow rectangular area that occupies the bottom right portion of the slide.