

LABWORKS Enterprise LIMS User's Guide

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Sign In

Labworks Enterprise LIMS is a web application, so you need a web browser to access the system.

Supported desktop browsers:

- Google Chrome
- Safari

Supported mobile browsers:

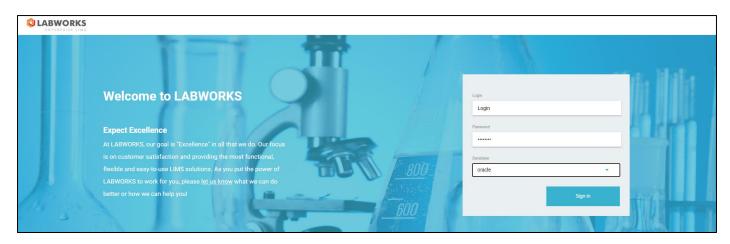
- Chrome
- Safari

Please make sure that your browser is updated to the latest version.

The following information is required to access Labworks Enterprise LIMS:

- 1. URL-address of Labworks Enterprise LIMS in your network.
- 2. Database name, when there is more than one database available.
- 3. Your login and password in the selected database.

The first screen you see when you access the Labworks Enterprise LIMS for the first time is the **Sign In** screen.



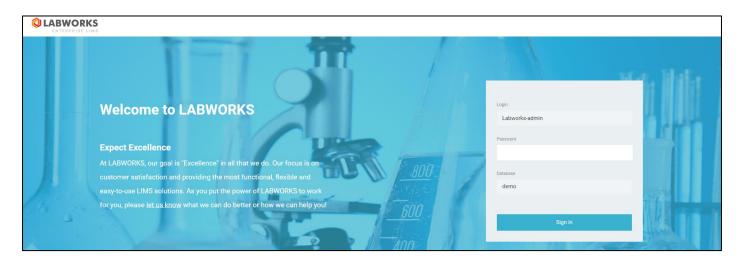
Once you fill up the form and click the "**Sign In**" button, the system will validate provided credentials and allow you to access the main interface of the application.

Labworks Enterprise LIMS supports single sign-on (SSO) authentication based on the OAuth2.0 standard. This allows you to log in through third-party services. If SSO is defined for the selected database, the "**Sign** in" button redirects you to the external OAuth page.



If a single database is available for the server, the system will automatically redirect you to the third-party service, bypassing Labworks Enterprise LIMS authorization screen.

Click the Admin login button to log in as Labworks-admin into the database.



Alternatively, you can use the direct link "https://<server address>/admin-login" to get the Labworks-admin login screen.

User Profile

In order to access various components of the Labworks Enterprise LIMS, a corresponding role must be assigned to your profile.

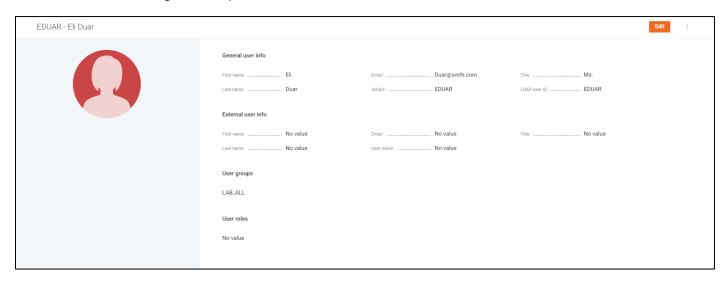
The system will display the following notification if there are no roles assigned to your profile:



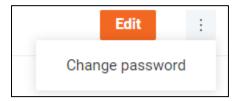
You can access your profile by clicking the **User profile** menu item under the avatar at the top.



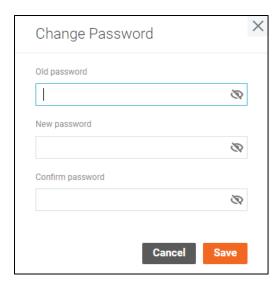
The User Details dialog will be open.



On the dialog, you can see the following details: full name, initials, title, email, LDAP user ID, external information. Assigned groups and roles are displayed under the "User groups"/"User roles" labels.

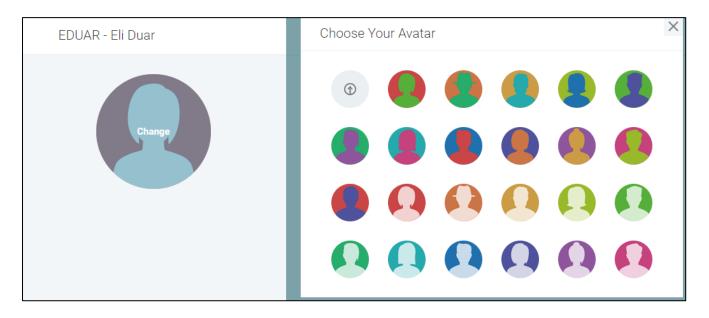


You can change your password by clicking the Change password "dot-dot-dot" menu item.



Click Edit to start editing user details. Click Save to save changes.

You can change your avatar to your own image or to one of the default images.



Application Interface

Upon a successful sign in to the Labworks Enterprise LIMS, the user is navigated to the main area of the application interface. All screens in this area share the same layout consisting of two components:

- 1. **Application Header** is shared between all screens. It contains the global navigation menu and the user profile menu.
- 2. Content Block displays screen-specific information.



The global navigation menu is used to switch between four areas:

- 1. Dashboard area contains configurable tiles with a visual representation of various summary data.
- 2. **Sample Management** area provides various pages to manage samples: creating, viewing sample lists, searching, filtering, or inspecting particular samples.
- 3. **Project Management** area opens the Projects page to manage projects: creating, searching, or inspecting particular projects.
- 4. Configuration area contains various system settings.

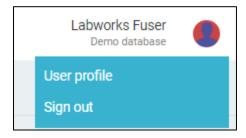
By clicking the **magnifier icon** you can open the **Search Form** and specify the text to search in the **Sample ID** field values of all available samples. Once the form is submitted, you are navigated to the **Sample Explorer** screen with a corresponding filter by **Sample ID** field applied, or the **Sample Details** screen, when there is only one sample found by this query.



If Labworks Enterprise LIMS is integrated with Consumer Portal, you can click on the **Order management** link to open a list of orders on Consumer Portal.



The user profile menu is used to navigate to the **User Profile** screen and sign out of the application to end the session.

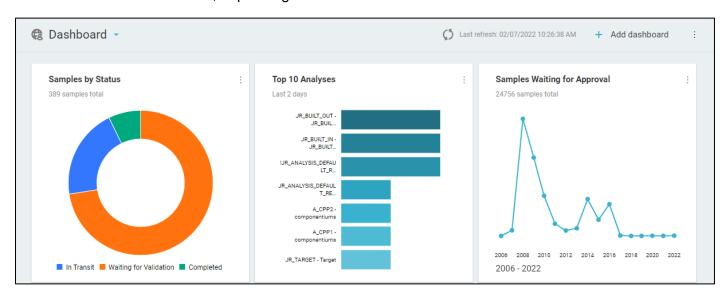


Dashboard

Dashboard is the first screen, the users with assigned roles see when they sign in to the system.

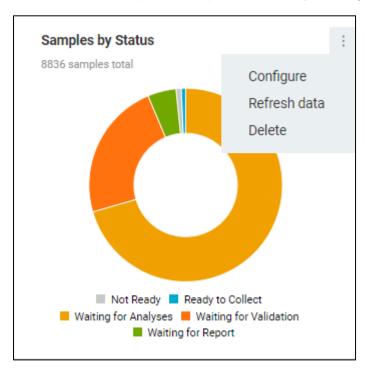
Every dashboard is a configurable set of tiles with a certain summary data.

The summary is generated only for the data you have access to, so **different users may see different data on the same dashboard**, depending on their access level.

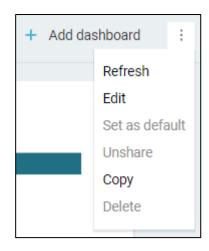


The data displayed in the tiles updates automatically every five minutes.

You can force the update of a particular tile by clicking "Refresh data" option in the tile action menu.



To force the update of the whole dashboard at once, click the **refresh icon** next to the "**Last refresh**" label or the "**Refresh**" option in the dashboard action menu.





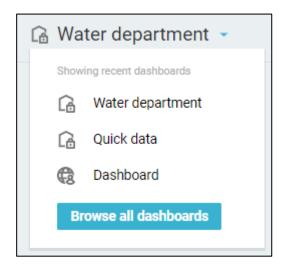
By clicking on charts inside the tiles you can navigate to the **Sample Explorer** screen with appropriate filters applied, to examine the data further.

Dashboard Selection

All dashboards can be divided into following groups by the level of access:

Icon	Access	Created by	Visible to	Configurable by
<u>Ca</u>	Private (not shared)	Yourself	Yourself	Yourself
	Public (shared)	Yourself	All users	Yourself
(3)	Public (shared)	Another user	All users	Dashboard creator

You can freely choose between your private dashboards or any of the public dashboards by clicking the dashboard title. The click propagates a window with a list of up to five recently viewed dashboards.



To access the full list of available dashboards, click "Browse all dashboards" button. The click opens the "Dashboards" sidebar, where you can search, filter and select any of available dashboards to be set as your dashboard.

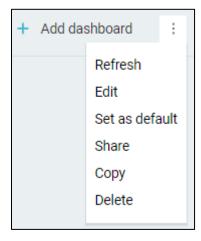
Default Dashboard

The default is a dashboard displayed when you navigate to the **Dashboard** screen.

If you have no dashboard set as default, the global default dashboard will be displayed instead.

Since a public dashboard may be changed at any time by the owner, you can only set your own dashboard as a default one. To have the public dashboard set as your default, you have to create a private copy of that dashboard using the **Copy** action.

To set your own dashboard as a default, click the menu button on the right-hand side of the screen.



In the list of actions, find and click the "Set as default" option.

Now the dashboard is set as default, which is indicated by the check mark icon next to the dashboard title.



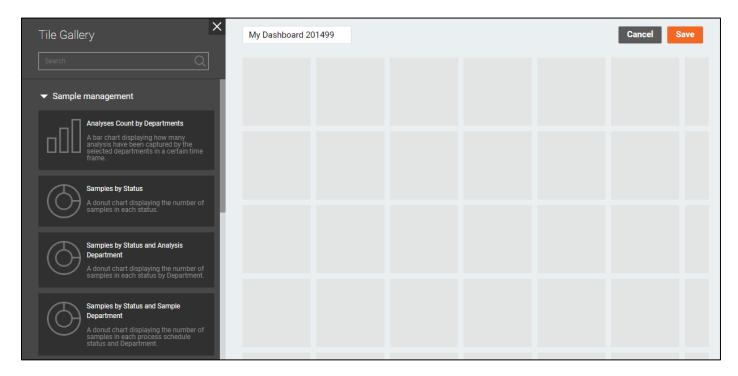
Dashboard Creation

If you wish to have a custom dashboard you can either copy and edit an existing one or create your own dashboard from scratch by clicking "Add dashboard" button on the right-hand side of the **Dashboard** screen.



In the pop-up window, enter the desired dashboard name and click "Create" button.

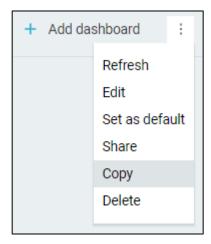
You will see an empty dashboard in the editing mode with the tile gallery opened on the left-hand side of the screen.



Add and configure tiles to your preference and click "Save" button to complete dashboard creation process.

Dashboard Copying

To copy an existing dashboard, select it in the list of dashboards, and click "**Copy**" option in the dashboard action menu.



In the pop-up window, enter the desired name for the copied dashboard and click "Copy" button.

You will see a copy of the dashboard in the editing mode with the tile gallery opened on the left-hand side of the screen.

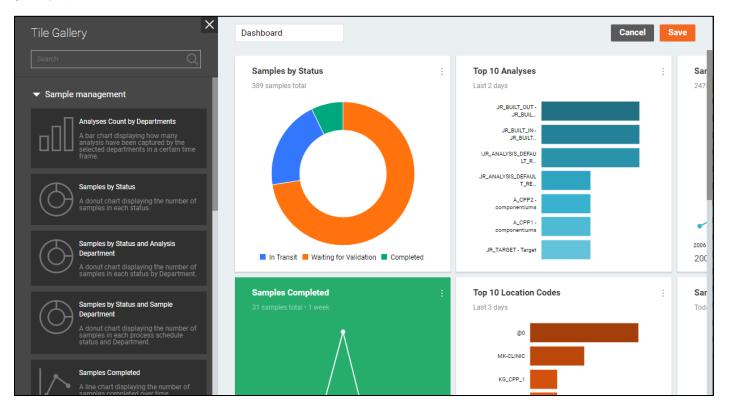


Add and configure tiles to your preference and click "Save" button to complete dashboard copying process.

Dashboard Editing

You can edit only your own dashboards. If you wish to use an adjusted version of an existing dashboard of another user, you have to create a copy of that dashboard using the **Copy** action and edit the duplicate instead.

To edit a dashboard, select it in the list of dashboards, and click "**Edit**" option in the dashboard action menu. You will see the dashboard in the editing mode with the background filled with tile slots and the tile gallery opened on the left-hand side of the screen.



The tile gallery contains a grouped list of all available tile types with options to search through the tile names and collapse or expand a particular group.

While the dashboard is in the editing mode, you can perform following actions:

- Rename the dashboard in the text input field with the current dashboard name
- · Add tiles to the dashboard
 - By selecting a tile in the tile gallery and clicking "Add" button that will add the tile to the next available space in the first row of the dashboard tile grid
 - By dragging a tile from the tile gallery with the left mouse button to the desired location in the dashboard
- Relocate & reorder tiles by dragging the tile within the dashboard bounds with the left mouse button
- Resize tiles within the constraints of a particular tile type by dragging tile border with the left mouse button

When you click "Save" button, the changes are applied to the dashboard and it leaves the editing mode.

The changes are reflected in the interface of other users once they refresh the dashboard, in case if the dashboard is public.

To discard all changes made to the dashboard, click "Cancel" button and confirm the action in the dialog
window.

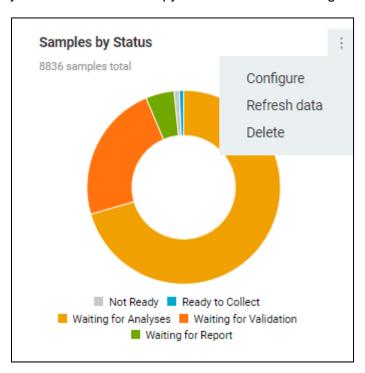
Dashboard Tile Editing

Tile editing and deletion can be performed from the tile action menu toggled by the button on the right-hand side of the tile.

To delete a tile, click the "**Delete**" option in the tile action menu of a particular tile.

To edit a tile, click the "Configure" option.

The users can edit only the tiles of their own dashboards. The "**Configure**" and "**Delete**" options are not available to everyone else. If you wish to use an adjusted version of an existing dashboard of another user, you have to create a copy of that dashboard using the **Copy** action, and edit the duplicate instead.



The "**Configure**" option brings up a tile configuration window. The window contains different settings depending on the tile type:

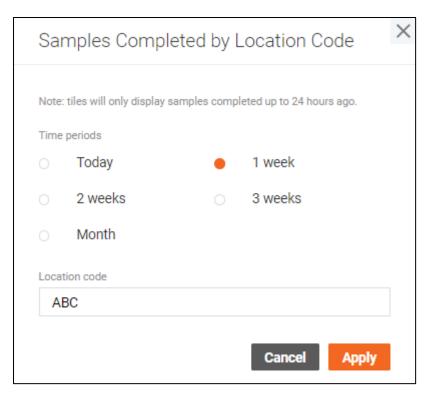
Location Code - the tile data is filtered according to the specified location

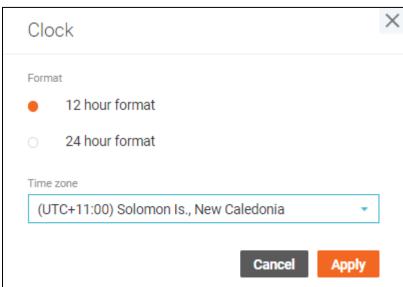
Sample Statuses - the tile data is filtered according to selected sample statuses

Departments - the tile data is filtered according to selected departments

Time periods - the tile data is filtered according to the specified time period

Miscellaneous - special configuration options, not related to the sample management, e.g., the time zone and hour format settings for the clock tile





The availability of tile configuration options depends on your access to particular locations and departments. When you copy a dashboard with unavailable data, a corresponding error message will be displayed in the tile configuration window

When you click "**Apply**" button, the changes are applied to the dashboard and it leaves the editing mode.

All changes made to the tiles are reflected in the interface of other users once they refresh the dashboard, in case if the dashboard is public.

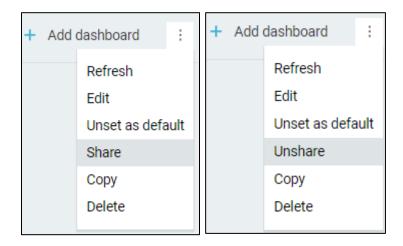
To discard all changes made to the dashboard, click "Cancel" button and confirm the action in the dialog window.

Dashboard Sharing

Shared dashboard becomes publicly available to other users of the system.

To share a dashboard, select it in the list of dashboards, and click "**Share**" option in the dashboard action menu.

The "**Share**" option in the dashboard action menu is replaced by "**Unshare**" option once the dashboard is shared.



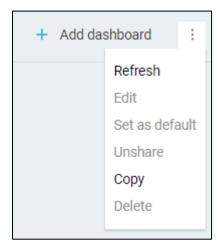
All other actions are still available to the dashboard owner.

Any change made to the public dashboard is reflected in the interface of other users viewing this dashboard.

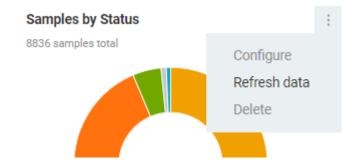
The summary is generated only for the data you have access to, so **different users may see different data on the same dashboard**, depending on their access level.

The shared dashboard can be found by any user in the complete list of dashboards. The only options available to other users in the dashboard action menu are:

- Refresh
- Copy



The only option available to other users in the tile action menu is "Refresh data".



With the "Unshare" action you can reset the dashboard back to private.

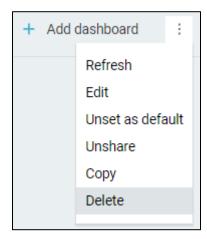
Private and deleted dashboards become unavailable to other users.

Dashboard Deletion

You can delete only your own dashboard, regardless of it being private or public.

Note that deleted dashboard becomes unavailable to other users in case if it was public (shared with other users).

To delete a dashboard, select it in the list of dashboards, click "**Delete**" option in the dashboard action menu and confirm the action in the dialog window.



Sample Management

Sample Management is an area of the system where users can access detailed information about the samples.

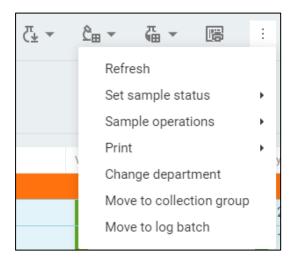
There are the following options under the "Sample Management" section in the header:

- 1. Create samples
- 2. Work queue manager
- 3. Sample explorer
- 4. Log batch explorer
- 5. QA/QC batch explorer
- 6. Collection group explorer
- 7. Sample scheduler

There is a set of buttons you will see on some of the screens that perform certain actions with the samples or analyses:

- Open **Receive samples** screen for the selected samples. The drop-down menu next to the button allows to select the template beforehand. By default, the last used template should be open. In the context menu this action is applied when you select the **Receive** menu item.
- Open **Edit / review samples** screen for the selected samples. The drop-down menu next to the button allows to select the template beforehand. By default, the last used template should be open. In the context menu this action is applied when you select the **Edit / review** menu item.
- Open **Enter results** screen for the selected samples or analyses. The drop-down menu next to the button allows to select the template beforehand. By default, the last used template should be open. In the context menu this action is applied when you select the **Enter results** menu item.
- Print standard labels for the selected samples. In the context menu this action is applied when you select the **Print -> Labels** menu item.

Some sample actions may be hidden under the action drop-down menu:



Refresh – Refresh data for the selected samples.

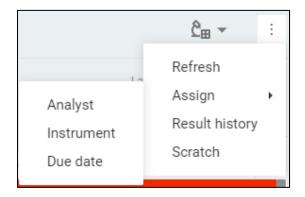
- Set sample status Change the sample status to the selected one. The set of all available statuses,
 the set of statuses available for manual transitions, the status order, and colors are defined by the
 workflow architect. The desktop State Management application is used for configuring workflow
 architect templates.
- Sample operations -> Validate Validate samples. The Validate Samples page opens.
- Sample operations -> Reorder Create samples based on the parent sample properties. The initial status and number of reordered samples are requested before reordering.
- Sample operations -> Delete Delete the selected samples from the system.
- Print -> Custody tracking report Print custody tracking report based on a selected template from the submenu.
- Print -> Results reports Print results report based on a selected template from the submenu.
- Change department Change the sample's departments to the selected one from the Change Department window.
- Move to collection group Move selected samples to a collection group that you select or create in the Move to Collection Group window.
- Move to log batch Move selected samples to a log batch that you select in the Move to Log Batch window.

There are also two buttons that help to find and add samples to the system.

- Open **Scan Samples** window.

- Open **Create Samples** screen. The drop-down menu next to the button allows to select the template beforehand.

Some analyses actions may be hidden under the action drop-down menu:



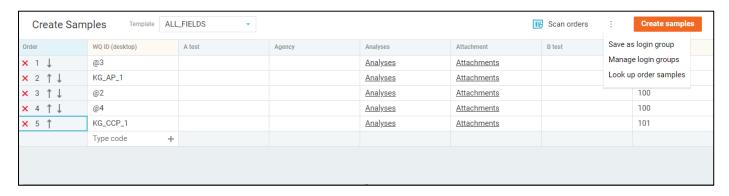
- Refresh Refresh data for the selected analyses.
- Assign -> Analyst Assign an analyst to the selected analyses via the Assign Analyst window.
- Assign -> Instrument Assign an instrument to the selected analyses via the Assign Instrument window.
- Assign -> Due date Assign a due date to the selected analyses via the Assign Due Date window.
- Result history Open the Result history window for the selected analysis.
- Scratch Scratch the selected analyses.

Export sample and analysis data is provided on the **Sample Explorer** and **Work Queue Manager** pages.

Export sample/analysis data. You can select the "Export all" or the "Export selected" option. Sample Explorer allows exporting current page option.

Create Samples

Create Samples screen is intended to provide a convenient way to add new samples to the system.



The sample data should be filled in a spreadsheet with rows corresponding to particular samples and columns – to their fields. The spreadsheet supports MS Office Excel style operations.

By default, the spreadsheet is blank and in order to add a new sample you need to specify a location code. You can do this either by typing it in the location code field, or by clicking the plus icon in the field to open the **Select Location Codes** window where you can browse all location codes with additional data and additional options to ease the process of sample addition.

If the integration with a consumer portal is set up, you can add samples by scanning orders using the **Scan Orders** dialog or viewing them via the **Look Up Order Samples** dialog.

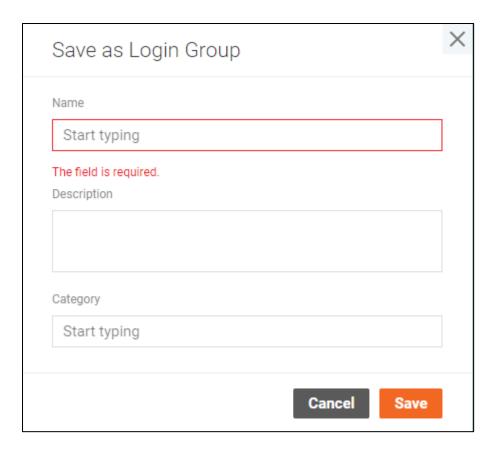
Click to open the **Scan Orders** dialog. To look up order samples, select the **Look up order samples** "dot-dot" menu item.

Samples added by orders are marked with the icon in the first column.

If a selected template allows, you can click on the **Order attachments** value to open the order attachments in Consumer Portal, or you can click the **Order ID** value to open the order general details in Consumer Portal.

The set of fields in the spreadsheet is determined by the selected **Template** and can be changed anytime. Note that if you try to change the template while the spreadsheet is not blank, all sample data will be discarded upon confirmation.

However, you can save the sample data for later by clicking the menu button on the right-hand side and selecting the "Save as login group" option.

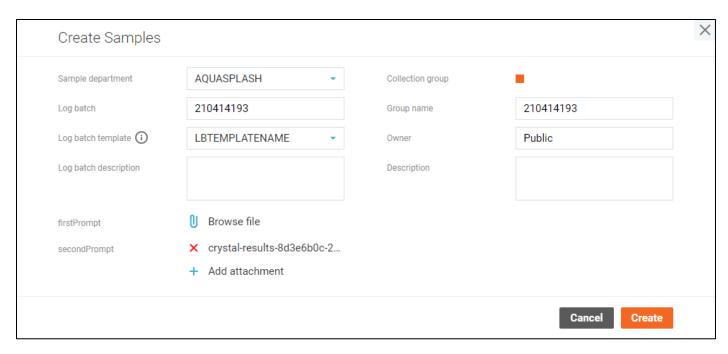


The "Manage login groups" option will navigate you to the Manage Login Groups window where you can update, delete or load any of the available login group data to the spreadsheet, except the collection and submission dates (as they depend on the template settings). The data can be loaded even if the currently selected template is different from the template used to save login group.

The fields may contain not just numbers, dates and text information, but also references to other entities.

You can assign analyses that should be performed with a certain sample, add attachments or specify contacts and mail groups that should receive notifications about the samples.

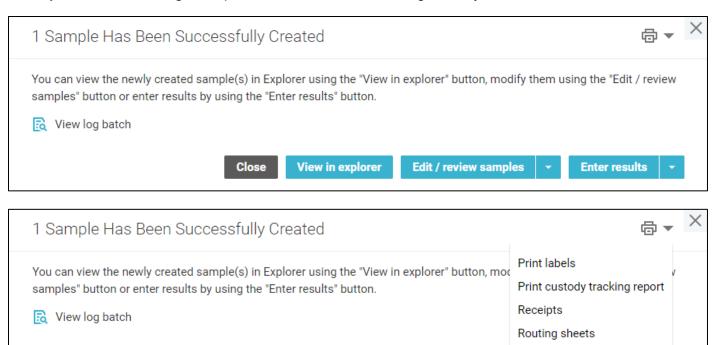
Once you have added all required information about the samples and clicked the "Create samples" button, you will see the **Create Samples** window where you will be asked to enter the information related to the whole batch of samples (log batch).



The log batch may have a log batch template when the sample login template allows it. If it does, you can select a log batch template, and the fields related to that template will be listed under the template name.

The log batch may also be assigned to a collection group on the right-hand side of the window. You are free to specify the details of the collection group as well as the owner.

When you are done adding all required information about the log batch, you can click "Create".



All information is now added to the system and you can view the details of the samples and their log batch (if it was created with a template). You can also update the samples or proceed to the analysis result entry either with the template used last, or the template that you selected in the drop-down list next to the corresponding button.

View in explorer

Close

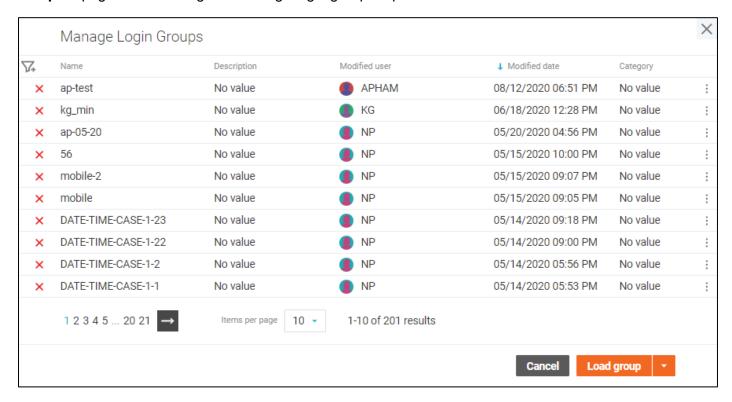
Worksheets

Edit / review samp

Samples may support printable reports depending on the template used during sample creation. This is indicated by the Print drop-down menu in the top-right corner of the Create Samples Success window. Click on the corresponding report to download it as PDF file.

Sample Login Groups

The list of login groups can be accessed by clicking the menu button on the right-hand side of the **Create Samples** page and selecting the "Manage login groups" option.



You can sort and filter the login groups to find the one you need, change the name, description or category of a particular group by selecting the "Edit" option in the group actions menu and delete login groups.

To use a particular login group for sample login, click on it to mark it as the selected one, and then click the "Load group" button.

To load only the location codes mentioned in the group, click on the corresponding option under the load group button drop-down menu.

Scan Orders

The Scan Orders window provides a quick way to find samples from orders using bar code scanner. The dialog is available if the integration with a consumer portal is set up.

Open the Scan Orders window and enter (with or without the bar code scanner) as many order IDs or consumer sample IDs as you want to the field in the top-right to add them to the selection list.



The set of displayed fields can be changed in the "Settings" window.

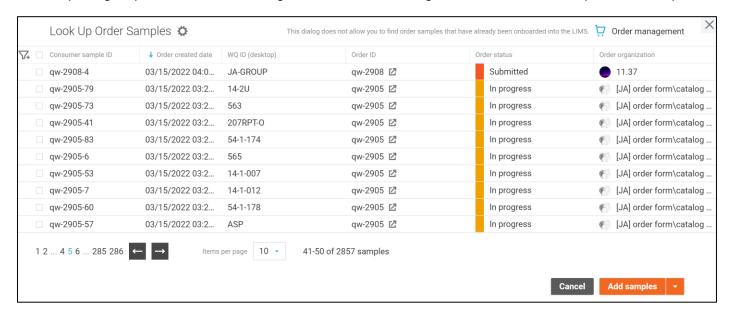
You can click on the **Order attachments** value to open the order attachments in Consumer Portal, or you can click the **Order ID** value to open the order general details in Consumer Portal if such columns are configured in settings.

When you are done scanning the orders/samples, you can either clear the sample login spreadsheet and add just scanned samples, or add the scanned sample IDs to the current sample list using the drop-down menu next to the "Add samples" button.

Apply the **Remove all** button to clear the list of scanned samples in the window.

Look Up Order Samples

The Look Up Order Samples window is needed to find and select multiple consumer samples to populate the sample login spreadsheet. The dialog is available if the integration with a consumer portal is set up.



The set of displayed fields can be changed in the "Settings" window.

You can click on the **Order attachments** value to open the order attachments in Consumer Portal, or you can click the **Order ID** value to open the order general details in Consumer Portal if such columns are configured in settings.

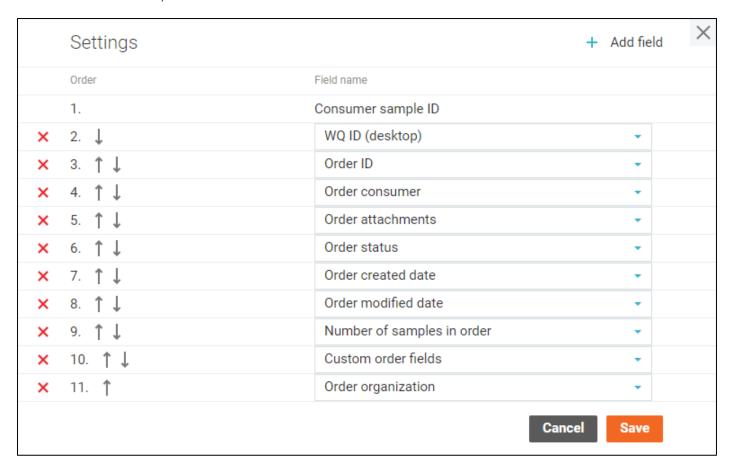
You can use sorting and filters to find the particular samples and preview all samples that you've selected with the "View selected" button in the top-right corner of the window.

When you are done selecting samples, you can either clear the sample login spreadsheet and add just selected samples, or add the selected samples to the current sample list using the drop-down menu next to the "Add samples" button.

Order list settings

The set of fields displayed in the **Scan Orders** and **Lok Up Orders** dialogs can be configured in the **Settings** window.

To access the window, click the button near the title.



You can change the order of the fields, remove certain fields from the appropriate table or add new ones.

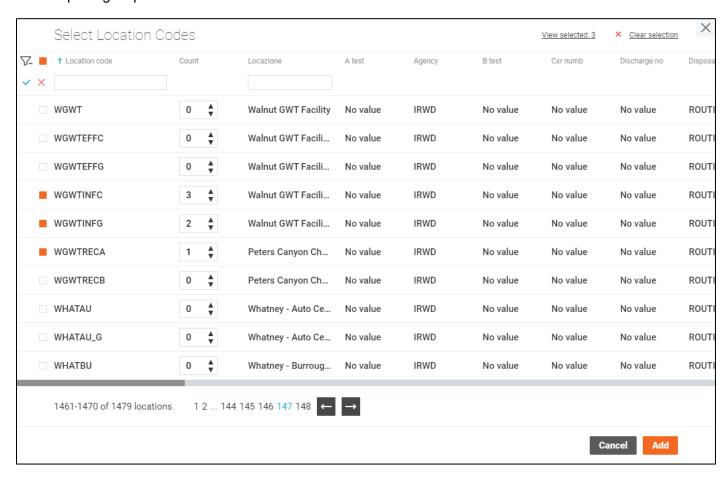
Other users are not affected by your settings.

[&]quot;Cancel" button discards all changes in the settings.

[&]quot;Save" button applies the settings and reloads the table.

Sample Location Codes

Select Location Codes window is needed to find and select multiple location codes in order to populate the sample login spreadsheet.



The "Count" field corresponds to the number of samples you wish to add to the sample login spreadsheet with this location code.

You can use sorting and filters to find the particular codes and preview all codes that you've selected with the "**View selected**" button in the top-right corner of the window.

Once you have selected all location codes that you need and specified the number of samples you want to add with a particular code, click the "Add" button, and the samples will be added to the very end of the sample login spreadsheet.

Sample Special Info

Special Info window contains additional sample fields.

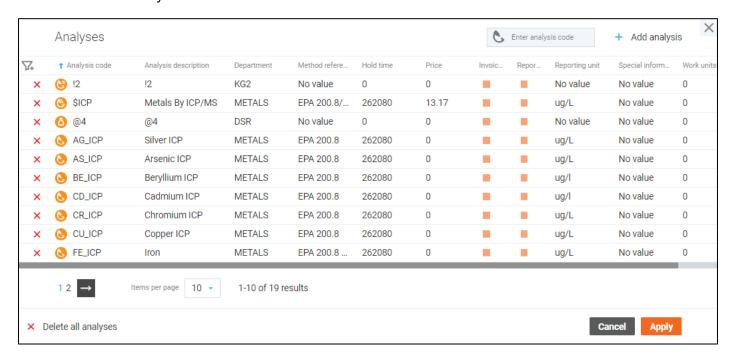


All fields are optional and inherit from the location code by default.

Enter the corresponding sample data and click the "Apply" button to save it.

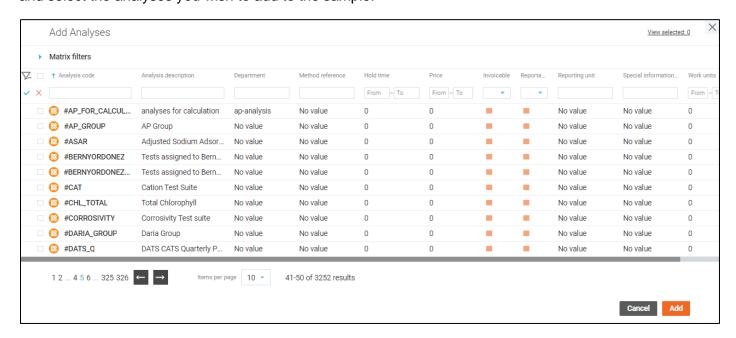
Sample Analyses

Analyses window lets you select the analyses to be performed with a particular sample. You can filter and sort the selected analyses or remove them from the list.

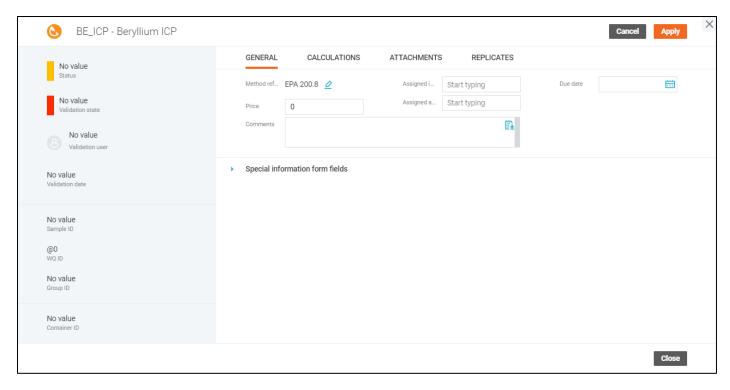


By default, the list of analyses is empty or populated with the default analyses for the sample location and you have to type its name in the field to the left and select it from the suggested ones, or click the "Add analysis" button in the top-right corner to open the Add Analyses window.

On the **Add Analyses** window you can sort the analyses, filter them either by fields or by their Matrix filters, and select the analyses you wish to add to the sample.



You can enter an additional analysis information straight away by clicking on the analysis code. You will see a reduced version of the **Analysis Details** screen where you can fill some of the analysis fields even before the sample is added to the system.

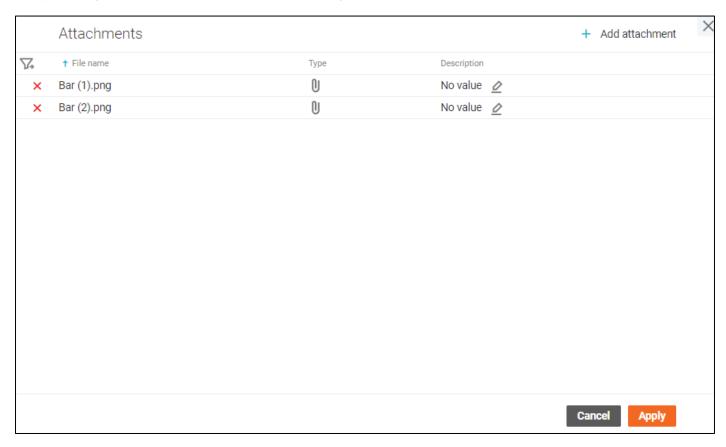


If you wish to specify replicates for the analyses with components right away, you can open the "**Replicates**" tab and set the number of expected replicates as well as the logic for analysis result calculation.

Once you added all required analyses, click the "Apply" button.

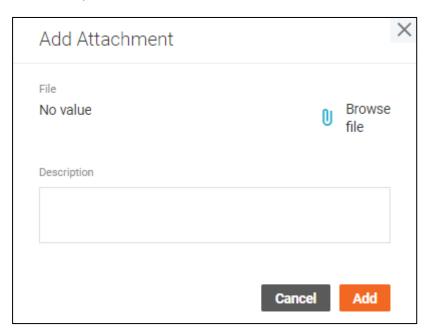
Sample Attachments

Samples may have files attached to them, and they are handled on the **Attachments** window.



The Sample may inherit some attachments from the location. In this case, you can't delete or update them.

To attach a new file to the sample, click the "Add attachment" button in the top-right corner of the window, and select the file by clicking the "Browse file" button. You may add a description of the file if you wish. When done, click the "Add" button and the attachment will be added to the list.



You can filter, sort delete attachments or update their description. Once you added all required attachments, click the "**Apply**" button.

Sample Report Recipients

If you want someone to receive reports about a particular sample, you can use the **Report Recipients** window.



The **Report Recipients** window is available when you click on the "**Report recipients**" cell during the sample login. It contains a list of all users that should receive the reports.

To add users, click the "Add recipient" button on the top-right and select those that should receive the report. To add a group of users, use the "Add reference" button.

The users can be filtered and sorted or deleted from the list.

Once you added all recipients, click the "Apply" button.

Sample Coordinate Info

Coordinate info is a window for geographical sample data input.



The window is available when you click on the **Coordinate Info** field value during the sample creation.

You can only specify the **Sample collection location** by setting a location of a green pin on the map. Use the address field to find the needed location quicker.

Click the "Apply" button to save the coordinates.

Work Queue Manager

Work Queue Manager is intended to view queue samples, analyses or tasks to quick access to regular daily work.

The page requires an appropriate privilege to be assigned to your profile. Once you have this privilege assigned, the **Work Queue Manager** page becomes available.

The page has three tabs: Samples, Analyses and Tasks.

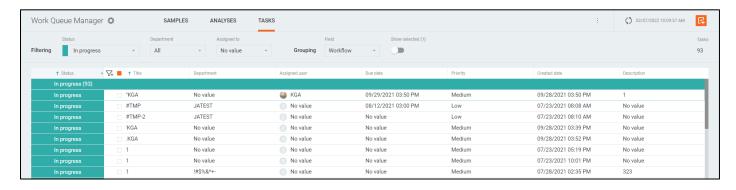
The **Sample** tab displays a list of available samples that have not been completed or completed no more than a certain number of days ago.



The **Analyses** tab displays a list of pending analyses.



The **Tasks** tab displays a list of tasks for laboratory users.



Colored columns can be collapsed/expanded.

The data in all three tables can be sorted by clicking the field labels in the headers of the tables. Subsequent clicks on the same fields reverse the sorting direction.

Default order:

Samples

o sample status in the order defined by the workflow architect,

o descending order by sample ID.

Analyses

- o due status first overdue, and then closest to overdue statuses,
- descending order by sample ID,
- o ascending alphabetical order by analysis code.

Tasks

- o task status: Open, In progress, Closed,
- ascending alphabetical order by the task title.

The data in all tables can be filtered by top filters on the page.

Possible filters:

Samples

- o sample status
- sample department

Analyses

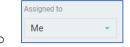
- o analysis due status
- o sample department
- o analysis department
- o analysis code
- assigned analyst
- assigned instrument

Tasks

- o task status
- department
- o assigned to

Tasks can be assigned to:

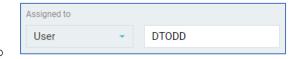
• yourself (the "Me" option),



my groups (tasks assigned to users who are included in the groups that you belong to),



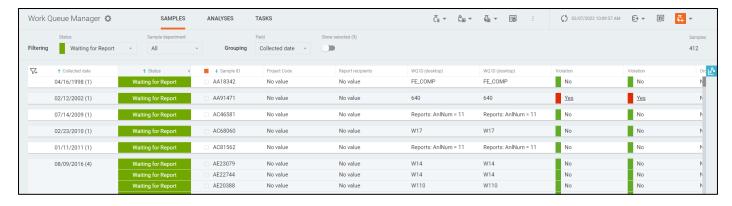
specified user,



specified user group.



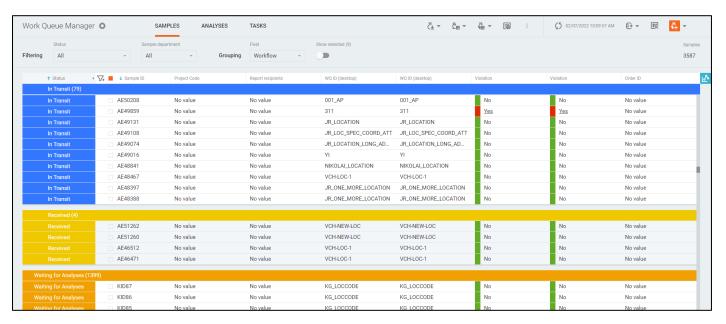
The data in all three tables can be grouped. The first column in a grouped view displays the grouping column name and total items inside the group.



Note: When grouping by date columns, time values are not considered. For example, records with dates "03/06/2020 12:55" and "03/06/2020 11:45" will be combined into one group "03/06/2020" after grouping.

Samples can be grouped by some sample properties as well as by user-defined sample fields. Analyses can be grouped by some sample and some analysis properties. Tasks can be grouped by task properties.

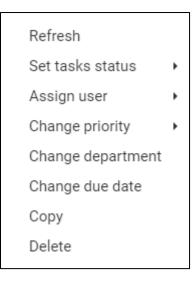
The default sample, analysis or task grouping is "**Workflow**". This is a specific view that looks like sample grouping by statuses or analysis grouping by due statuses or task grouping by task statuses but does not have the grouping column and provides a visual group separator as the colored row.



The table's columns are resizable. To change a column width, you can grab the separator in the table header and release it when the width suits you.

You can select one or more samples/analyses/tasks in the lists and perform actions on them. All general actions on samples and analyses are described in the **Sample Management** section above.

To tasks, the following actions can be applied:



- Refresh Refresh data for the selected tasks.
- Set task status Change the task status to the selected one (Open, In progress or Completed)
- Assign user Assign this task to yourself ("me") or to another user via the Assign User window.
- Change department Change the task's departments to the selected one from the Change Department window.
- Change due date Change a due date to the selected tasks via the **Change Due Date** window.
- Copy Create a copy of one particular task.
- Delete Remove the selected tasks from the system.

- allows adding tasks to the system. When clicking, the **Task Editing** dialog will be open.

To view the selected sample/analyses/tasks, turn on the "Show selected" toggle.

The total number of sample/analyses/tasks displayed on the screen is shown above the table.

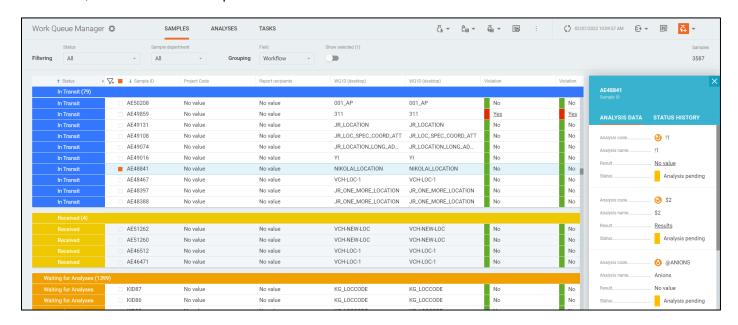
The set of displayed fields can be changed in the **Settings** window for all three tabs.

You can navigate to the details of a particular sample, analysis or tasks by clicking on corresponding fields within the table.

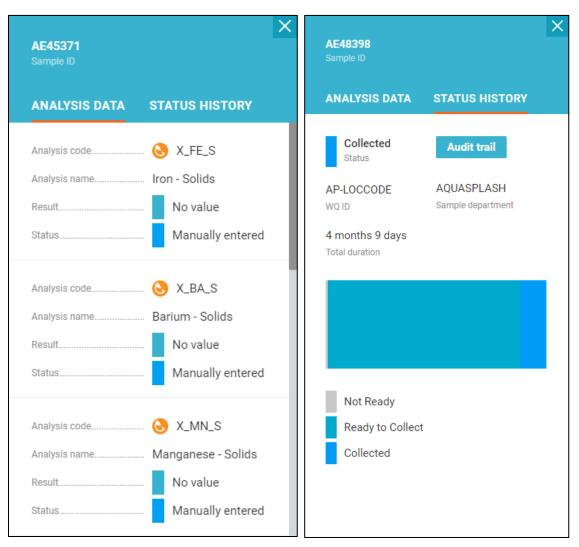
You can click the button to refresh the data on the page or configure automatic refreshing in the **Settings** window. The last update time is displayed near the refresh button.

Sidebar

To view details for focused samples and analyses, you can enable the sidebar option. When clicking the button, the sidebar will be open.



For samples, it displays analysis data with the ability to enter/edit analysis results, and status history data.



For analyses, it displays result history data.

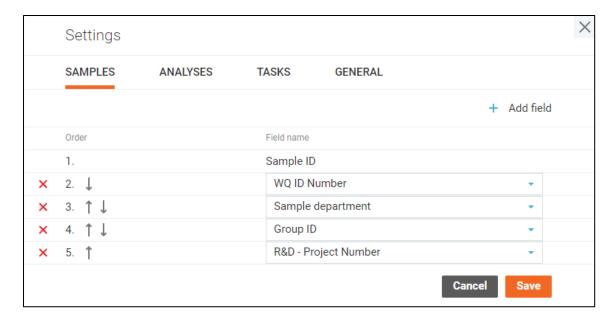


Settings

The set of fields displayed in the Work Queue Manager tables can be configured in the Settings window.

To access the window, click the button near the title.

The field configuration requires an appropriate privilege to be assigned to your profile. Once you have this privilege assigned, the **Settings** window becomes available in the edit mode.



On the **Samples**, **Analyses** and **Tasks** tabs, you can change the order of the fields, remove certain fields from the appropriate table or add new ones.

On the **General** tab, you can configure auto-refresh settings. If auto-refresh is turned on, the **Work Queue Manager** page is automatically refreshed based on the specified refresh period.



[&]quot;Cancel" button discards all changes in the settings.

Other users are not affected by your settings.

[&]quot;Save" button applies the settings and reloads the table.

Sample Explorer

Sample Explorer is one of the main screens of the Sample Management area.

All available samples are displayed in rows with options to sort and filter the samples according to certain criteria.

The data in the table can be sorted by clicking the field labels in the headers of the main or nested tables.

Subsequent clicks on the same fields reverse the sorting direction.

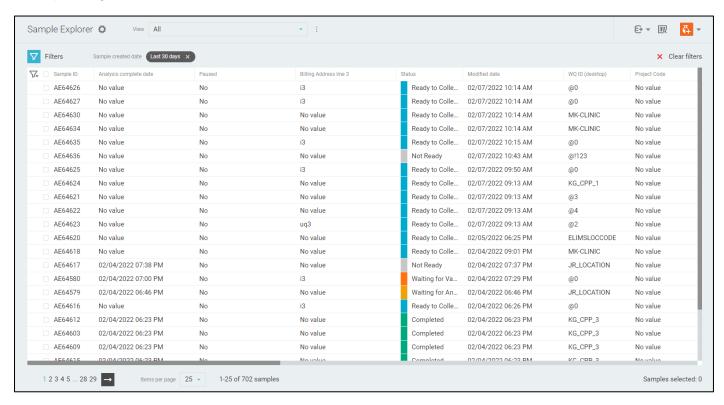
Default order:

- Samples descending chronological order by submission date
- Analyses serial number of the analysis in the sample

The set of displayed fields can be changed in the "Settings" window.

Please refer to explorer filters for details about filtering options.

You can navigate to the details of a particular sample, analysis or analysis results by clicking on corresponding fields within the table.



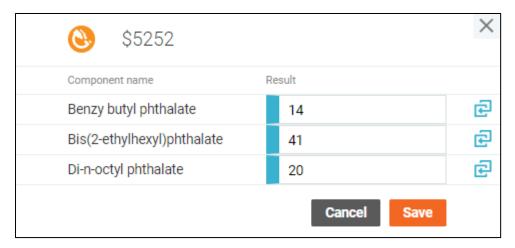
When you click on the sample row, the element expands revealing the list of analyses performed with the sample.



You can change the result of a particular analysis in the in-line mode according to the Inline result entry procedure or select a number of samples and fill their data on the enter result table by clicking the "Enter Results" button. If you change a result of a calculation input, the output result will be immediately recalculated unless the output analysis status is "Manually entered".

The **Analysis Replicates** screen of the single-component analysis can be accessed by clicking the value under the Replicate data.

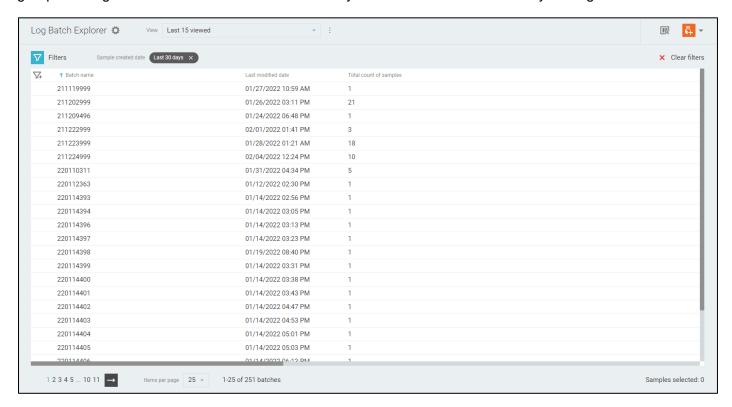
The click on this value for multi-component analysis will open a window with a list of analysis components and their results. You can navigate to a particular component or browse its replicates from this window.



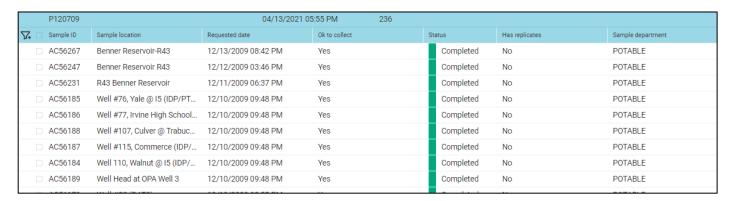
You can select one or more samples in the list and perform actions on them. All general actions on samples are described in the **Sample Management** section above.

Log Batch Explorer

Log Batch Explorer has functionality similar to the sample explorer with exception that the samples are grouped in log batches and there are additional ways to sort and filter the table by the log batch fields.



When you click on the batch row, the element expands revealing the list of samples in that batch. The expanded element works the same way as the list of samples on the **Sample Explorer** screen.



You can select one or more samples in the list and perform actions on them. All general actions on samples are described in the **Sample Management** section above.

The actions can be applied both to individually selected samples and to the entire group via the "dot-dot-dot" menu.

Some log batches may contain various information depending on the template it was created with. This is indicated by an underline when you hover over the Batch name. Click on the batch name to open the **Log Batch Details** window.

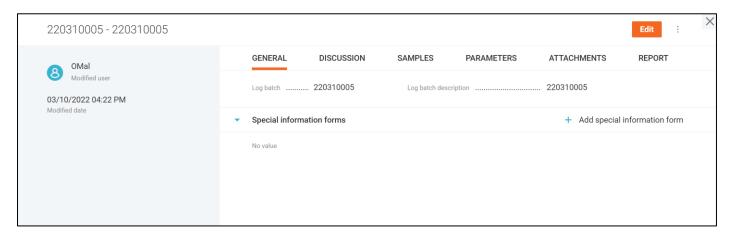
Log Batch Details

Certain log batch templates allow creation of complex log batches that may contain additional information related to all samples in the batch. The **Log Batch Details** window contains all information related to a particular log batch under the tabs.

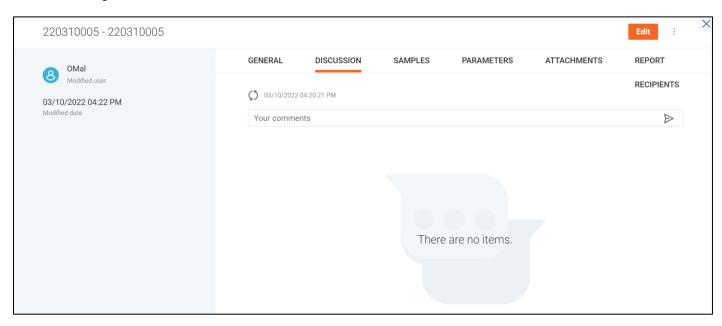
The "General" tab contains the main log batch information along with the special forms data.

There are two types of special information forms:

- 1. Specified according to the log batch template with preset labels (prompts)
- 2. Unspecified special forms



The "**Discussion**" tab displays all comments added to the batch. You can refresh the discussion directly from the dialog.



The "Samples" tab displays a list of samples of that log batch with sorting and filtering options.

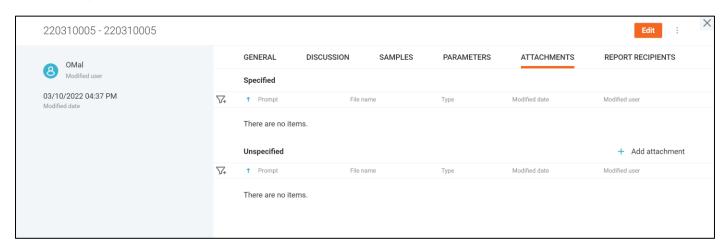


The "Parameters" tab contains custom fields of for this particular log batch. You can add, remove parameters, and set labels for the unspecified parameters.

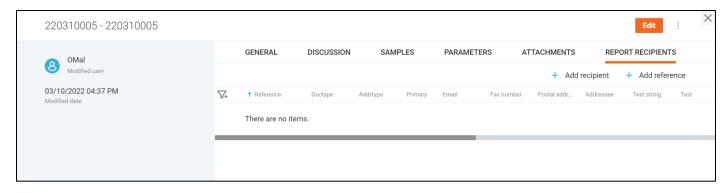


The "Attachments" tab contains all attachments related to the log batch n two groups:

- 3. Attachments specified according to the log batch template
- 4. Unspecified attachments



The "Report recipients" tab is similar to the Sample Report Recipients window, as it contains a list of all users that should receive the reports about the log batch.

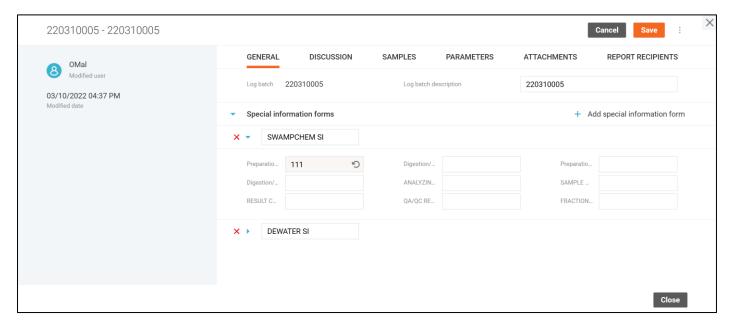


You can update the information displayed in the tabs or leave a comment by entering the "Edit" mode. To do this, you can click the "Edit" button at the top-right corner of the screen.

The "Edit" mode enables automatically when you update the batch by clicking on the following buttons:

- Add special information form button on the General tab,
- Add parameter button on the Parameters tab,
- Add attachment button on the Attachments tab,
- Add recipient / Add reference buttons on the Report recipients tab;

The "Edit" mode is indicated by the "Save" and "Cancel" button at the top-right corner of the window as well as some fields becoming editable.



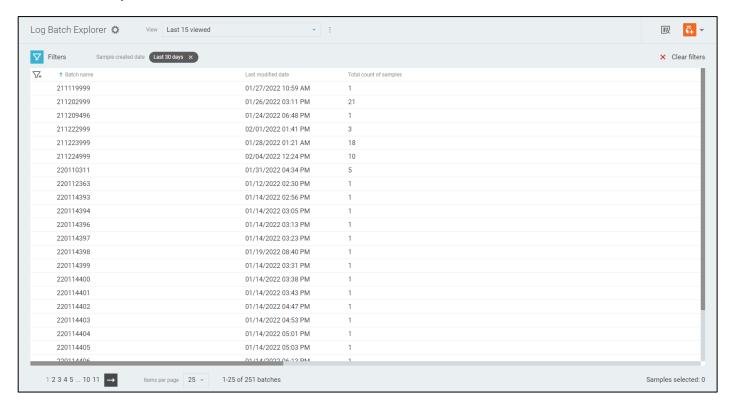
Click the "Save" button to apply the changes, and "Cancel" – to revert them.

All changes made to the log batch are reflected in the **Audit Trail**, available under the drop-down menu on the top-right.

QA/QC Batch Explorer

QA/QC Batch Explorer inherits the functions of log batch explorer, but displays the samples in QA/QC batches instead of log batches.

Note that the same sample may be a member of multiple QA/QC batches and represented in the table multiple times. These samples work synchronously when you perform certain actions with them, such as inline result entry.



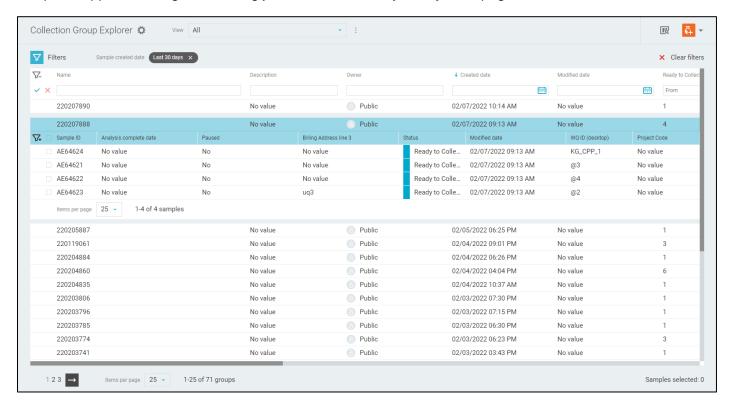
You can select one or more samples in the list and perform actions on them. All general actions on samples are described in the **Sample Management** section above.

The actions can be applied both to individually selected samples and to the entire group via the "dot-dot-dot" menu.

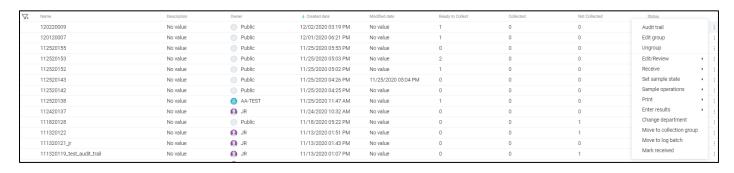
Collection Group Explorer

Collection group explorer displays the information about the samples in a similar way to the **Sample Explorer**, except that all samples are shown under their respective collection groups. There are also special options to filter and sort by collection group fields.

To view the samples of a particular collection group, click on it to expand the list of samples. The list of samples supports sorting and filtering just like on the **Sample Explorer** page.



There is a "dot-dot" menu on the right-hand side of every collection group that contains the list of actions available to the user.



Apart from the regular actions, there are also ones available to collection groups only:

- Edit group opens a window where you can change the collection group attributes such as name, description and owner.
- Audit trail opens the Audit Trail for the particular collection group.
- Ungroup action deletes the collection group removing all samples from it as if they were added
 without a collection group. However, the sample data is not lost, as all samples of the same log
 batch without a group are shown in the list under a fake collection group that has no data and called
 "Ungrouped".

You can select one or more samples in the list and perform actions on them. All general actions on samples are described in the **Sample Management** section above.

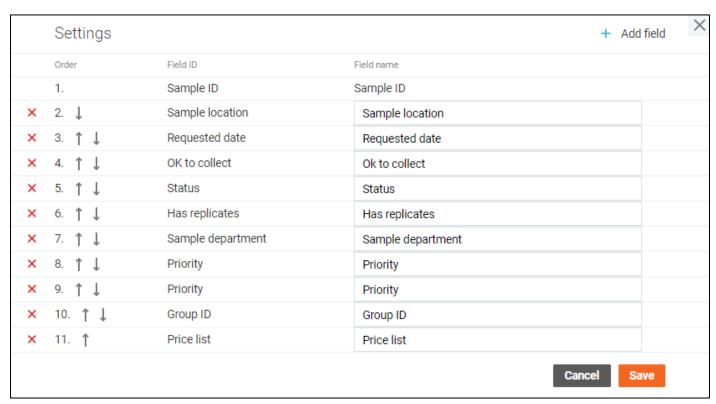
The actions can be applied both to individually selected samples and to the entire group via the "dot-dot-dot" menu.

Explorer Settings

The set of fields displayed in the **Sample Management Explorer** table can be configured in the "**Settings**" window.

To access the window, click the Column options button above the sample explorer table.

The field configuration requires an appropriate privilege to be assigned to your profile. Once you have this privilege assigned, the "**Settings**" window becomes available in the edit mode.



Here you can change the order of the fields, rename them, remove certain fields from the table or add new ones.

"Cancel" button discards all changes in the settings.

"Save" button applies the settings and reloads the table.

Other users are not affected by your settings.

Explorer Filters

The data in the **Explorer** area is displayed according to the filters.

You can narrow down the displayed data using four independent types of filters:

- Quick Filters available in the quick filter bar opened by clicking the gray funnel icon in the table header.
- Views available under the View drop-down list.
- Advanced Filters available in the sidebar opened by clicking the white funnel icon above the table.
- Preset Filters available in the very bottom of the sidebar.

Quick Filters

Quick Filters allow you to apply simple filters directly from the tables.

To filter the elements, expand the quick filter bar by clicking the **funnel icon** on the left-hand side of the table header, specify the filters, and apply them by clicking **check mark icon** in the quick filter bar. Moreover, the filters will be applied as soon as you move the focus to another control or just press Enter.

The **cross icon** in the quick filter bar clears all quick filters.

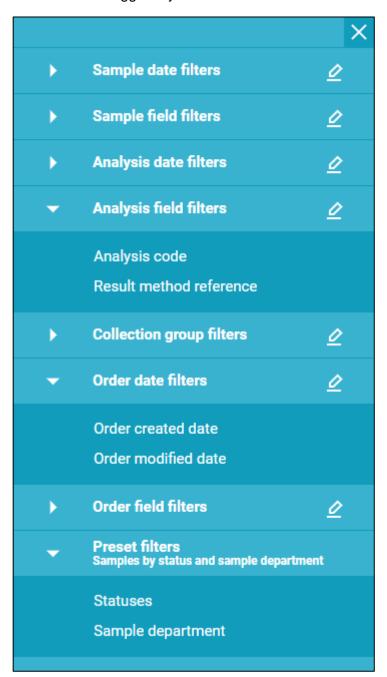


Advanced Filters

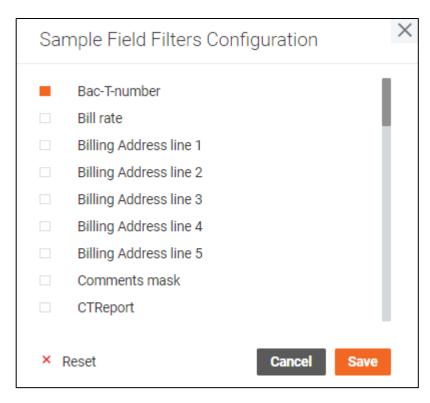
Advanced filters give you extended control over the table by allowing to filter the data by hidden fields.

The **Advanced Filters** are configured in the sidebar, where all available filters are listed in expandable groups.

The sidebar is toggled by the **funnel icon** above the table.



By clicking the **pencil icon** next to the group name, you can select filters that should appear in the sidebar.

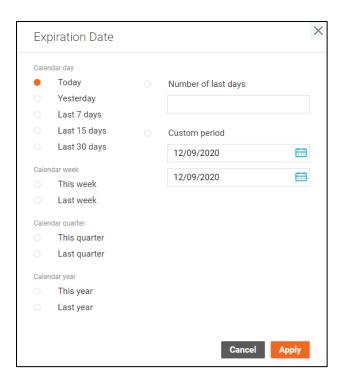


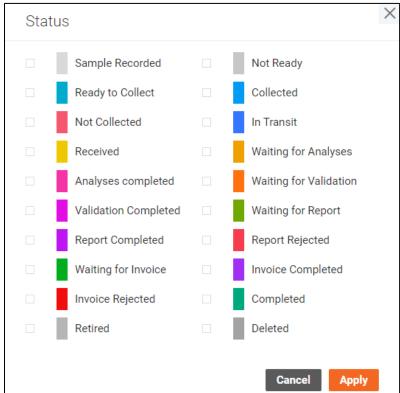
The advanced filters are divided into the following groups:

- Sample filters applied to the lists of samples
- Analysis filters applied to the lists of analyses
- Order filters applied to the lists of samples (Appears if the integration with a consumer portal is set up). Only samples from orders have order properties.
- QA/QC batch filters applied to the list of QA/QC batches (Appears on QA/QC batch explorer only)
- Collection group filters applied to the list of Collection groups (Appears on Collection group explorer only)

Sample, order, and analysis filters are also divided into groups by field data type:

- Date filters applied to all fields of date-time data type
- Field filters applied to the fields of other data types





Once you specify an advanced filter, it appears in the new chip above the explorer table.

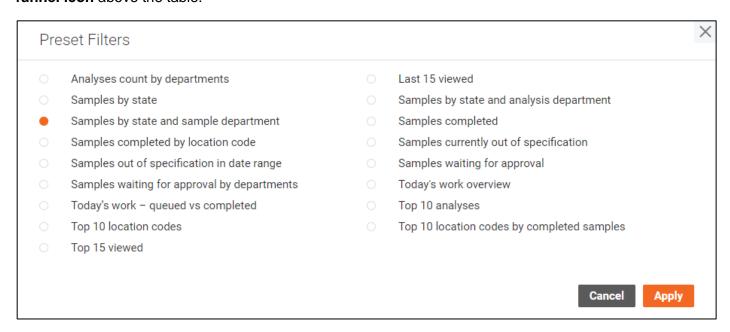


You can adjust the filter by clicking on a particular chip or remove it with the cross icon inside the chip.

"Clear filters" button on the right-hand side of the screen removes all custom filters applying only the default ones instead.

Preset Filters

The **Presets Filters** contain most popular sets of filters. You can find them in the sidebar toggled by the **funnel icon** above the table.



Once you apply one of the presets, this will be indicated above the explorer table.

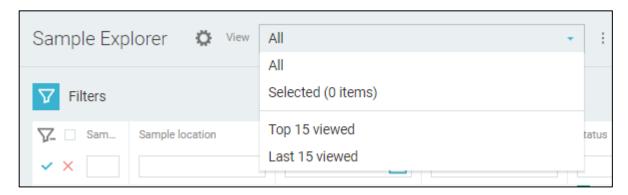


You can adjust the filter by clicking on the corresponding chips or by opening the sidebar and changing the preset filter values there.

The dashboard tiles apply one of these presets automatically when you navigate to the sample explorer by clicking on the dashboard tile chart.

Views

The **Views** work like your personal preset filters that can be customized and saved for later. Views are saved separately for each sample management table and available only to the user who created them.



The default view "AII" displays data about all samples.

You can create a new view by applying desired filters (quick or advanced) to the table and selecting the "Save as new" option under the drop-down menu next to the View field.



Once you provide the name and click the "**Create**" button, the new view becomes available as one of the **View** field options and applied as the active one.

You can update the custom view while it is active by adjusting filters and clicking the "Save" button appeared next to the View field.

To rename custom view, select the "Rename" option under the drop-down menu next to the View field.

To delete it, select the "Delete" option.



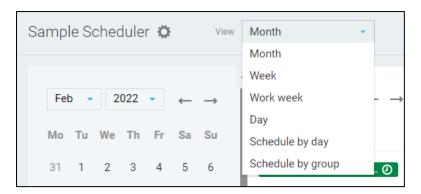
Sample Scheduler

Sample Scheduler is intended to manage events for samples creation, running programs, and tasks creation.

In the event start date-time the special schedule service should automatically do the following:

- Create scheduled samples
 - o Once samples are created, you can find them in Work Queue Manager or Explorers.
- Run programs
- Create scheduled tasks
 - o Once tasks are created, you can find them in Work Queue Manager.

Events can be displayed on the page according to the selected view mode.



You can list periods by clicking on the icons.

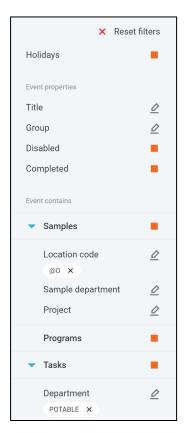
Click the button to return to the current date.

Use the date-picker in the left panel to select the needed date or click the needed cells right on the calendar.

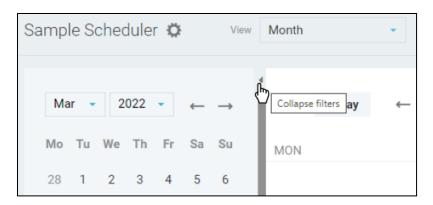




Events in all view modes can be filtered by several options displayed on the left panel – **Events Filters**.



The Left panel with the date-picker and filters can be collapsed or expanded by clicking on the arrow icon.



Click the button to open the **Event Details** dialog to create an event. The dialog can also be open by double-clicking on a particular calendar cell.

Click on any event to open the **Event Details** dialog and view event parameters.



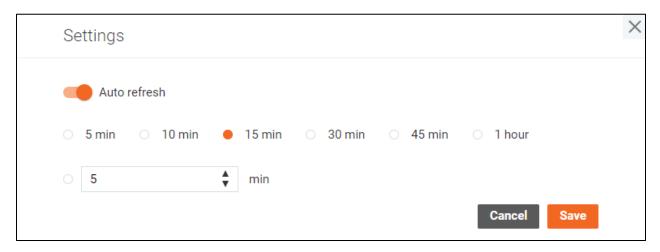
You can click the \circlearrowleft button to refresh the data on the page. The last update time is displayed near the refresh button.



Configure automatic refreshing in the **Settings** window that can be open by clicking on the gear icon near the screen title: .



If auto-refresh is turned on, the **Sample Scheduler** page is automatically refreshed based on the specified refresh period.



"Cancel" button discards all changes in the settings. "Save" button applies the settings. Other users are not affected by your settings.

Event types

Events can be single ones or series of events. Events from a series are marked with the icon. On the **Sample Scheduler** page, you can see every event in a series placed in the date or hour cell according to its start date-time.

Exceptions may appear in the series. They are marked with the icon. An exceptional event is an event with any parameters that do not match the parameters of the entire series. If a particular event from a series has been modified by a user or a user has created some samples or tasks for the event, has run programs manually, then this event will be treated as an exception. Exceptions behave as single events but have a connection with the series. You can open the exceptional event details and switch to the general data for the series. Series changes will not be applied to exceptions.

Events can be in the following execution states:

- Not executed (planned) events
- Events in progress
 - The schedule service is executing these events now.
 - o The events cannot be edited, operations cannot be applied to them.
- · Successfully executed events
 - The schedule service has completed its work, all samples and tasks have been created, all programs have run without errors.
- Executed with errors events
 - o The schedule service has completed its work, but an error occurred.

If a user has created some samples or tasks for the event, has run programs manually, then this event will not be considered executed until the service has done its work at the scheduled time. Samples, tasks, programs will not be created/run again, the service will just check if they have been created, and if so, mark the event as executed.

Holidays are a separate type of events that just display various public holidays. They cannot be edited, moved, or deleted, their details cannot be open, operations cannot be applied to them.

You can disable events so that the scheduler service can skip them. The disabled events are marked with a more transparent background.

Below is the event types visualization for calendar views.

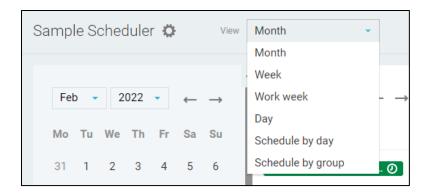
02:34 AM JR quarterly 1... Not executed (planned) single events
 12:50 AM JR 29355 mo... Events from a series
 02:34 AM JR quarterly 1... Exceptional events in a series
 12:50 AM JR 29355 mo... Disabled events
 06:39 AM Title

- 09:30 AM Title title Successfully executed events
- 06:39 AM Title Executed with errors events
- Independence Day
 Holidays

Sample Scheduler Views

You can switch the Sample Scheduler page between the following views:

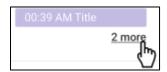
- Calendar views
 - Month
 - Week
 - Work week
 - o Day
- List views
 - Schedule by day
 - Schedule by group



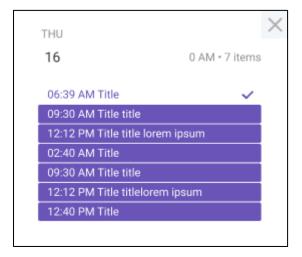
Calendar views display events in calendar cells. Please find more information about event visualization in the **Event types** section. In addition to the type, events contain a start date and a title in calendar views.



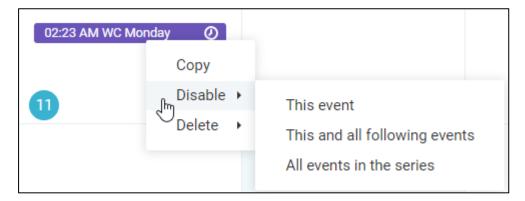
When all events do not fit the cell the "N more" link will be displayed.



Click on this link to see the whole list of events for this cell.



You can open the contextual menu by right mouse button clicking on an event. Select the needed option to perform event operations.

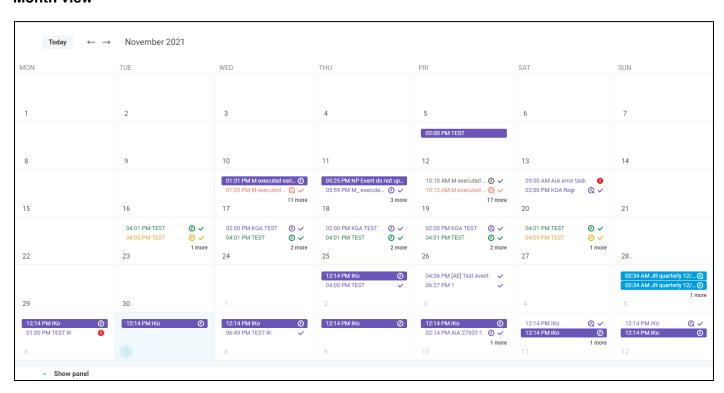


- o Copy an event,
- o Delete a particular event in the series, a particular and all following events, or all events in the series
- Disable a particular event in the series, a particular and all following events, or all events in the series.

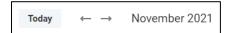
Use drag-n-drop to move events from one calendar cell to another.

Dates and times depend on the user's locale, so other users in a different region may see events placed in different calendar or hour cells than you do.

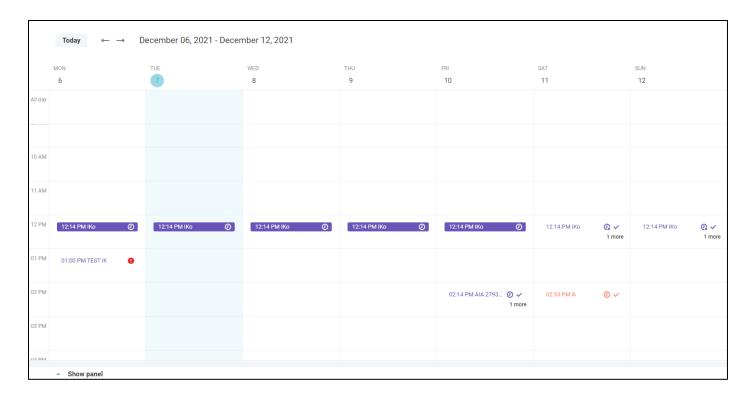
Month view



Events are represented in the calendar view for one month depending on the selected date on the datepicker (small calendar) or on the selected period in the header of the calendar.

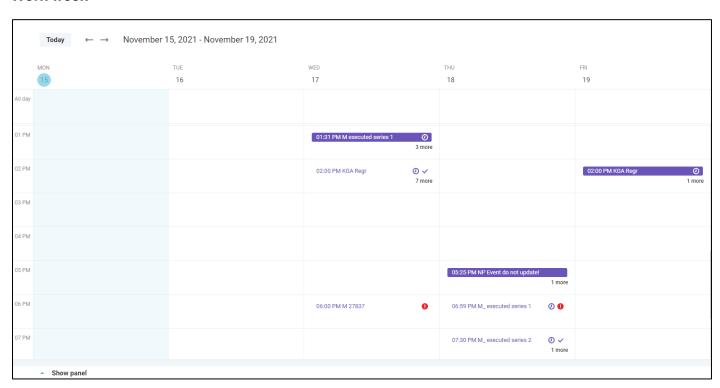


Week view



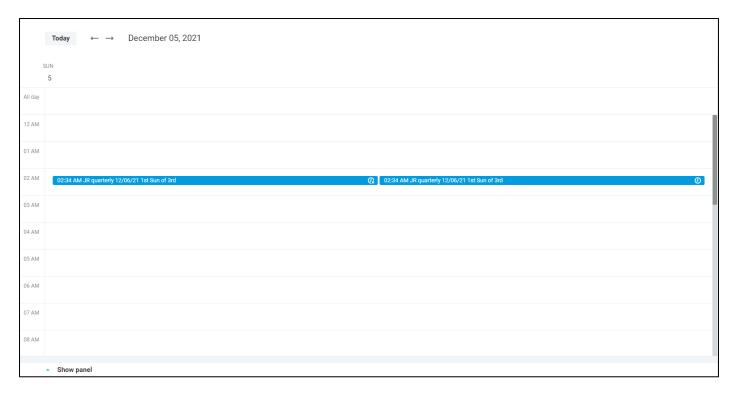
Events are represented in the calendar view for a particular week.

Work week



Events are represented in the calendar view for one week, but only weekdays from Monday to Friday are displayed in this mode.

Day view



Events are represented in hour cells for a particular day.

List views display events in lists.

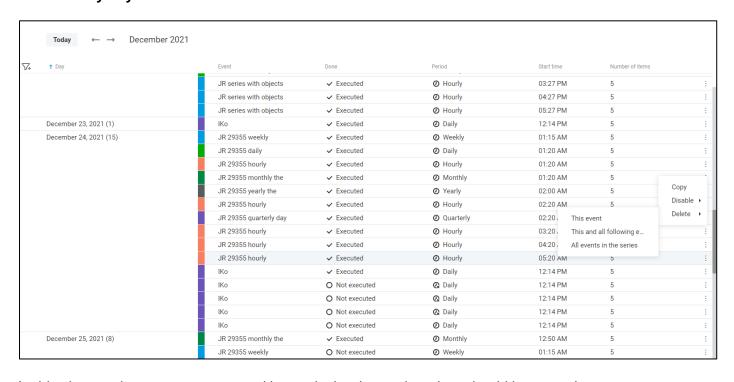
You can perform event operations in list views mode by clicking the icon and selecting the needed option.

Use drag-n-drop to move events from one date/group to another.

By clicking on an event name, you can open the **Event Details** dialog.

All operations are also available by the right mouse button clicking. Use long tap on mobiles or tablets.

Schedule by day



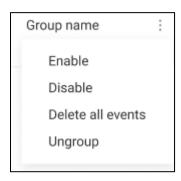
In this view mode, events are grouped by particular dates when they should be started.

Only events for the selected month are displayed. If you want to see events for another month, please choose another date on the date-picker or in the header of the page.

Schedule by group



Events can be united into different custom groups. Users can specify groups during events creation or editing. In the Schedule by group view mode, you can see events combined into these groups. You can apply group operations by three dots icon clicking for an event group name:

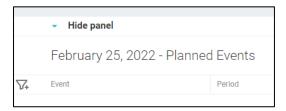


- o Enable or disable all events in the group,
- o Delete all events in the group from the system,
- Ungroup
 - All events in the series will be added to the "Ungrouped" group, so that the Group property for them is empty.

Series of events are displayed as one row in this view mode.

Bottom Panel

You can open the bottom panel and see all events planned to a particular date and samples, programs, and tasks in them. Select the needed date on the date-picker and expand the bottom panel by clicking on the **Show panel** button at the bottom of the screen or click the needed date right in the calendar. If you do not need it, just collapse the panel using the **Hide panel** button. You can expand it again at any time you want.



The panel displays events and their samples, programs, and tasks. Use tabs to see the needed items. On the bottom panel, you can find the event name with the number of items in brackets, its execution status, repeat parameters (period), and the start time.

Successfully executed events are marked with the vicon.

Executed with errors events are marked with the ¹ icon.

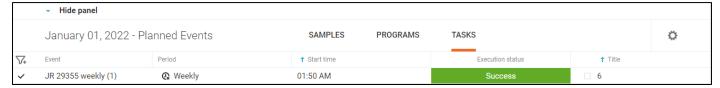
Samples tab



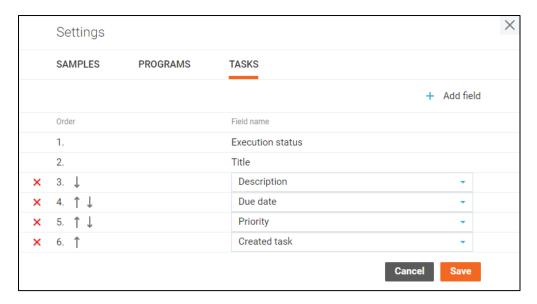
Programs tab



Tasks tab



The set of displayed fields can be changed in the **Settings** window for all three tabs. Click the gear icon to configure columns.



You can change the order of the fields, remove certain fields from the appropriate table or add new ones.

On the bottom panel, you can see the execution status of samples, programs, and tasks (how the schedule service has done its job):

- Not started. The schedule service has not started its work yet.
- In progress / Running. The schedule service has started its work but not finished yet.
- Success. Samples or tasks have been successfully created, programs have been successfully executed, without any errors.
- Error. Error occurred during samples, tasks creation or programs running.

Use filters and sorting for columns to find needed items.



Also, you can perform operations here for samples, programs, and tasks by right mouse button clicking or using the contextual menu (click the icon):

Samples

- create samples manually before the event start date-time
- reorder created samples; or
- check error details for a sample if any errors occurred while trying to create a sample.

Programs

- test program and check its work;
- o run program manually before the event start date-time;
- check output for a being running and executed program; and
- stop running programs.

Tasks

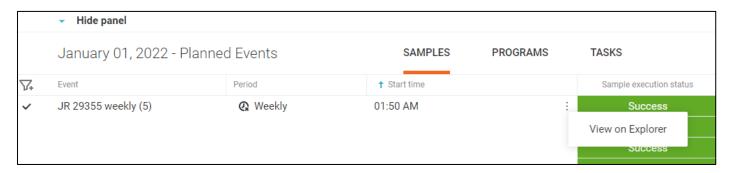
- o create tasks manually before the event start date-time;
- check error details for a task if any errors occurred while trying to create a task.

The bottom panel displays samples, programs, and tasks as they were planned to be created or executed.

If a sample is successfully created, you can open its details by clicking on the <u>Sample ID</u>. The **Sample Details** dialog will be open.



Also, you are able to open all created samples for a particular event in the **Sample Explorer**. Click the dot-dot-dot menu icon for the event to open the contextual menu and select the "View in Explorer" menu option.



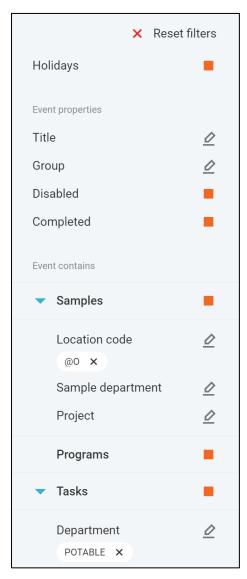
If a task is created, you can open its details by clicking on the <u>View task</u> link. The **Task Details** dialog will be open.



Click on an event name to open the **Event Details** in view mode.



Event Filters

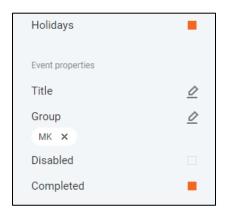


On the left panel, you can filter displayed events by described below parameters.

Click the Reset filters button to reset all filters to default ones.

Event filters

You can filter events by their parameters regardless of the samples, programs, and tasks included in them.



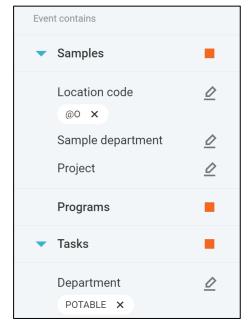
Holidays

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- Display or hide Holidays
- o Title
 - Specify titles of needed events
 - o Click the pencil icon to open the Event Title selection dialog and choose needed titles
- Groups
 - o Filter events by their custom groups
 - o Click the pencil icon to open the **Event Group** selection dialog and choose needed groups
- Disabled
 - o Check the checkbox if you want to see disabled events
- Completed
 - o Select this filter if you need to see completed events

Event items filters (samples, programs, tasks)

Events can contain samples, programs, and/or tasks. Use the following filters to find needed events containing these items:

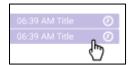


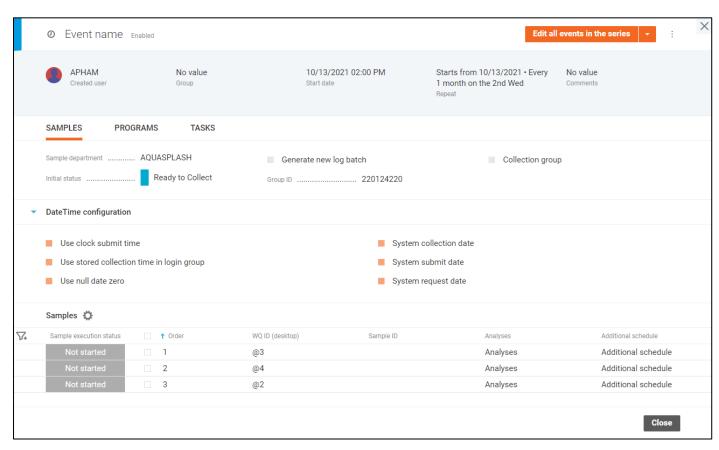
- o Samples. Events for samples creation (contain samples).
 - Location code
 - Specify needed location codes.
 - Click the pencil icon to open the Location Code selection dialog and choose needed location codes.
 - Sample department
 - Select sample departments you are searching for.
 - Click the pencil icon to open the Sample Department selection dialog and choose needed location codes.
 - Project
 - Select projects you are searching for.

- Click the pencil icon to open the **Project** selection dialog and choose needed projects.
- o Programs. Events for programs running (contain programs).
- Tasks. Events for tasks creation (contain tasks).
 - o Department
 - Filter events with tasks by the task department.
 - Click the pencil icon to open the Task Department selection dialog and choose needed location codes.

Event Details

Click on any event to open the **Event Details** dialog and view event details.





On the **Event Details** dialog, you can see all details of an event: which samples, tasks are scheduled to be created, programs to be executed, with what parameters, and with what frequency.

The dialog displays information about 1 particular clicked event.

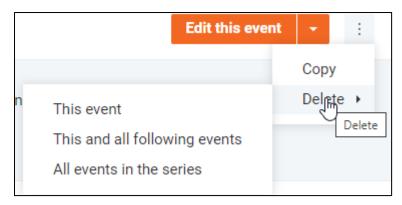
Events from the series are marked with the clock icon.



Exceptions in series are marked with the clock with a cross icon.



The "dot-dot" menu provides users with the ability to perform actions on events.

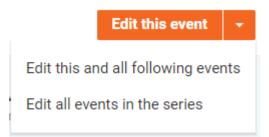


Select the "Copy" menu option to create a new event with the same parameters.

Click on the "Delete" option for single events or one of the sub-options for series to remove not needed events.

To edit the event, you can choose one of the following options:

- Edit this event
 - Edit this one event if the event is single and should not be repeated.
 - Select this option to edit one particular event in the series if for some reason it should be different from the rest of the series.
- Edit this and all following events
 - Choose this option if the part of the series should differ. The series will be split into 2 separate series: the first one will have parameters that were specified before editing, changes will be applied to the second series. The new series will include the open for editing event and all subsequent ones.
- Edit all events in the series
 - o If you want to edit parameters for every event in the series, select this option.



Select the needed option and click the button (or double-click at any place on the dialog) to open the **Event Details Dialog in edit mode**. See details about **Event Editing** below in the corresponding section.

The top part of the dialog and tabs display information about this one open event, but also the repeat parameters of the whole series.

When the event has been executed you will see all data about that. For example, there is a monthly series, scheduled for the 15th, starting from January 1st. Today is March 1st. When clicking on the event of February 15th you will see the Start date 02/15, repeat parameters of the series, and the execution status of samples, programs, and tasks. The execution status displays how they were created or run:

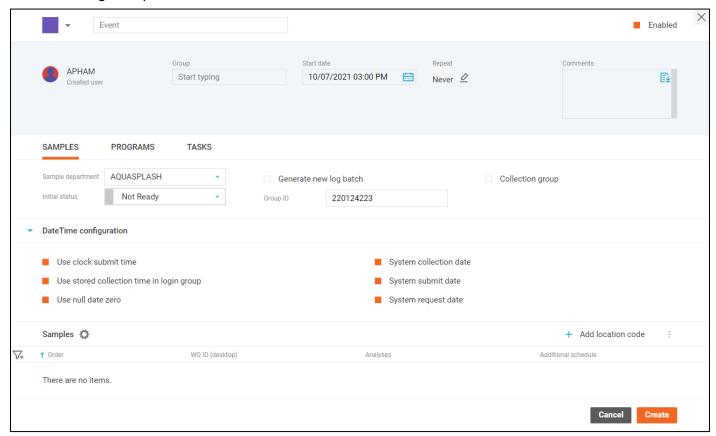
- Not started The schedule service has not started its work yet.
- In progress / Running The schedule service has started its work but not finished yet.

- Success Samples or tasks have been successfully created, programs have been successfully executed, without any errors.
- Error Errors occurred during samples, tasks creation, or programs running.

Samples, programs, and tasks included in the event are divided into tabs.

Event Creating

Click the button to open the **Event Details** dialog to create an event. The dialog can also be open by double-clicking on a particular calendar cell.



The event will be displayed with the selected color on the **Sample Scheduler** page.



Specify the Event title to describe the event purpose.

Select an event group or create a new one if you want your event to be included in any group.

Set the start date and time of a new event when you need the event to be executed.

Single events will be executed at this start date-time. For a series of events the start date-time determines the first boundary. Series contains the boundaries within which the events should be executed, in accordance with the repeat parameters. For example, you can create a monthly series, where every event should be executed 15th with the start date January 1st and the end date December 31st. In that case, events will be scheduled for January 15th, February 15th, etc. until December 15th. Each event in the series will be completed at the time of your choice in the start date-time field.

Repeat parameters are intended to specify the frequency of recurrence of events in a series. Click the pencil icon to open the **Repeat** dialog. Please find more details about the repeat parameters in the **Event Repeat** section in this document.



Also, comments can be added to the event.

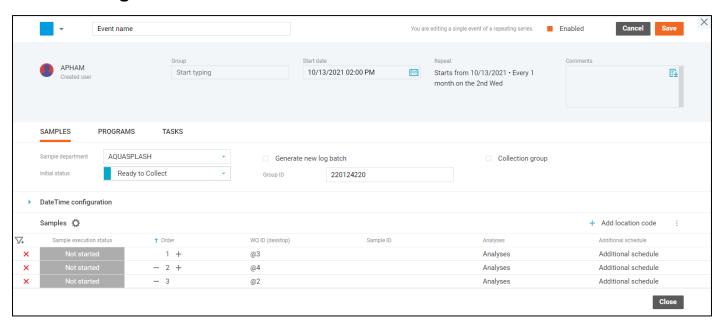
Events can be enabled or disabled. Disabled events will not be executed by the schedule service.



Use tabs to add samples, programs, and tasks to the event. Please find more details about these tabs below in this document.

When all needed details are specified click the "Create" button to add a new event to the Sample Scheduler.

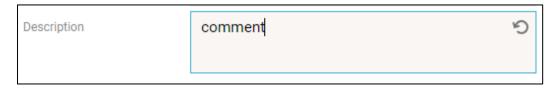
Event Editing



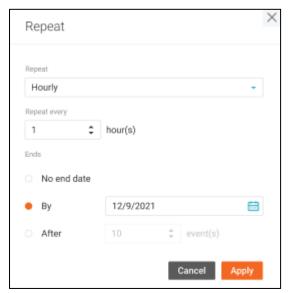
Edit mode for the **Event Details** dialog can be enabled by clicking on one of the "**Edit...**" buttons on the **Event Details** screen in view mode or by double-clicking any of the editable fields.

Certain fields of the event become editable and the "Save" and "Cancel" buttons appear to apply or discard the changes respectively.

Every change can be discarded separately by the "Revert" button next to the updated field.



To change repetition options, click on the pencil icon near the Repeat field to open the **Repeat** dialog. See more details in the **Event Repeat** section.



No longer needed events can be disabled – they will exist in the system, but will not be executed by the schedule service.



You can change the start date depending on the selected edit mode. If the event is single, it will be executed on this new date. If it is a series and one particular event is open in the "Edit this event" mode, the start date will be changed for this event in the series. If the "Edit this and all following events" mode was selected, the new values will set the date when the new series should start. In the "Edit all events in the series" mode, the start boundary of the whole series can be changed.

Samples, programs, and tasks can be edited for this event on the corresponding tabs.

Changes depend on the selected edit mode for the event.

If you clicked the "**Edit this event**" button you can edit a single event or one particular event in the series. In that case, this event becomes an exception in the series no matter what was edited. It will still be included to the series, but the series changes will not be applied to it. Exceptions are marked with the clock icon with a cross on the **Sample Scheduler**.



In this edit mode, all parameters of this particular event are displayed on the **Event Details** dialog. It means that you can see the execution status of samples, programs, and tasks, Sample IDs for created samples, links to created tasks.

If the "Edit this and all following events" button was clicked changes will be applied to this event and all following events in the series. The initial series will be divided into 2 independent series. The initial series will contain all events before the edited one and all parameters specified before editing. The new series will contain this and all subsequent events and changes will be applied to them.

In the "Edit all events in the series" mode, the "template" for all events in the series can be edited. Changes will be applied to all events in the series.

Since in the "Edit this and all following events" and "Edit all events in the series" modes, several events are edited, the screen displays general data for the series, even if some events have different data. Information about samples and tasks creation, programs execution cannot be displayed.

Different events can be included in the series that is being edited. And series changes (the "Edit this and all following events" and "Edit all events in the series" modes) will be applied by special rules and logic, depending on the event type:

- Events in progress the schedule service has started its work on the event execution, but has not finished yet
 - Cannot be edited, operations and changes cannot be applied to them.
- Executed (successfully or with errors) events the schedule service has done its work on the event execution.
 - The following changes will be applied:
 - General event changes (event title, color, group, comments)
 - Disable/Enable

- Deletion
- Disable/Enable group of events
- Group deletion of events (Ungroup or Delete all events)
- All other changes will not be applied (objects changes, event Repeat parameters and Start date changes).
- Exceptional events if something in the event differs from the rest of the events in the series
 - All series changes cannot be applied to exceptions.
 - When you delete the series, exceptions will lose the link to the series and will become single events.
 - Group operations (enable/disable group, delete group, or ungroup) will be applied to exceptions.
 - o You can edit exceptions using the "Edit this event" mode.
 - If change any parameters again in order they match the parameters of the whole series this event is still considered as an exception.

Event Repeat

Events can be single: it means that they should be executed only once. Select the "Never" option on the **Repeat** dialog for single events.



You can also create events that will repeat at a certain frequency – a series of events.

Use other options on the **Repeat** dialog to specify repeat parameters of events.

Hourly



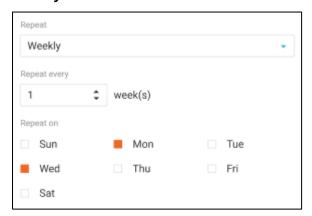
Events should be executed every 1 or several hours from the set start date-time of the series.

Daily



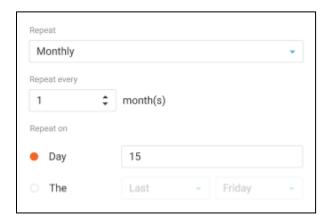
Events should be executed every 1 or several days from the set start date of the series in the specified start time.

Weekly



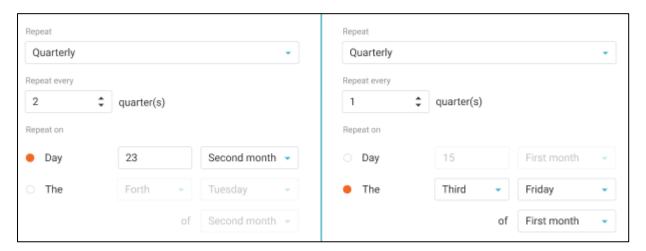
Events should be executed every 1 or several weeks on the selected days of the week.

Monthly



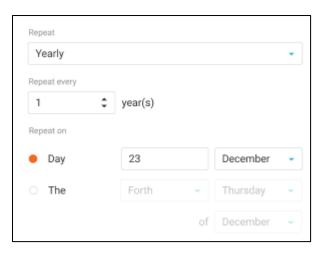
Events should be executed every 1 or several months. Choose a particular date, for example, an event should run every 15th of a month, or specify the needed day of the week, for example, an event should run every last Friday of a month.

Quarterly



Some events are needed to be executed quarterly. You can select a particular date of the first, the second, or the third month of a quarter. For example, I want my event to be run at the end of each quarter on the 25th (March 25th, June 25th, September 25th, December 25th). You can select a day of the week. For example, the first Monday of each quarter (January, April, July, October).

Yearly



The rarest events may recur once a year or several years. Choose the needed date and the month of the year or select the day of the week. For example, every December 25th of a year or the first Friday in January.

Completion of a series of events



A series can have no end date, so they are endless.

A series may have a final boundary, to which it should end. In that case, the last event in the series will be executed on the last suitable date within the boundaries between the start date and the end date of the series. Let's assume that we have a monthly event on every 15th with the start date January 1st and the end date December 31st. The last event in the series will be executed on December 15th.

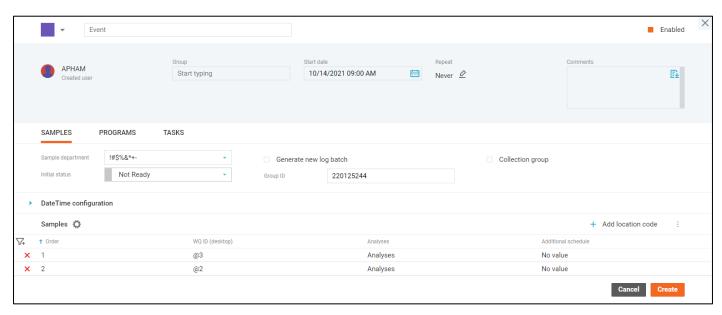
A series may contain a specified number of events. For example, if we have a daily series started from January 1st with 10 occurrences the last event will be executed on January 10th.

The "series" implies that each event in it will create samples, run programs or create tasks according to the template that was set on the details of the event. But there can be exceptions in the series if any particular event should have other parameters. Please see more details on how it may occur it the **Edit Events** section.

Exceptional events are still considered as a part of the series, but there are some rules on how the series changes can be applied to them.

Samples

Event creation mode



Open the **Samples** tab of the **Event Details** dialog to configure samples that should be created by your events.

You can specify general parameters for all samples:

- Sample department
- Initial sample status
 - Samples created by the schedule service will have this status.
- Log batch details
 - You can select one of the existing log batches or ask to generate a new log batch for samples when executing each event in the series.
- Collection group parameters
 - If a collection group is needed, select one of the existing collection groups, create a new one or configure this parameter to automatically generate it each time when creating samples for this event.
 - See more details about log batches and collection groups in the Create Samples section of this document.
- Date and time configuration parameters
 - Configure collected, submitted and requested date, and time parameters.

Add samples to the event by clicking the **Add location code** button (the **Select Location Code** dialog will be open) or use login groups.

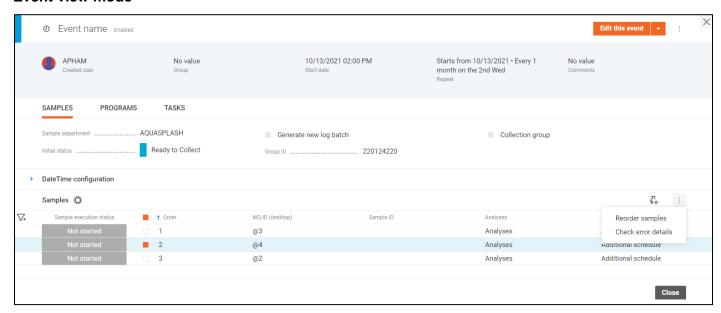


See more details about login groups in the Sample Login Groups section of this document.

When samples are added they are displayed in the table. You can filter, sort, or delete added samples in the event.

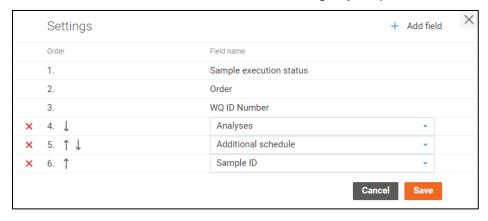
At the configured dates of events, samples will be created in the system based on the selected location codes with the specified parameters.

Event view mode



All sample details on how they were planned to be created are displayed on this tab of the **Event Details** dialog.

You can configure the set of displayed columns by clicking the gear icon. Change the order of the fields, remove certain fields or add new ones according to your preferences in the **Settings** window.

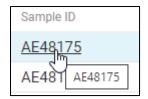


You can filter or sort samples in the table according to your preferences.

Planned samples may differ from created ones because they could be edited after creation.

To see the details with which they were planned, click on the Location code name. The **Location Code Details** dialog in the view mode displays all parameters with which the sample has been planned to be created.

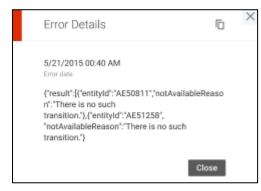
If samples have been successfully created you will see links to them.



Click on the Sample ID to open the **Sample Details** dialog of this created sample.

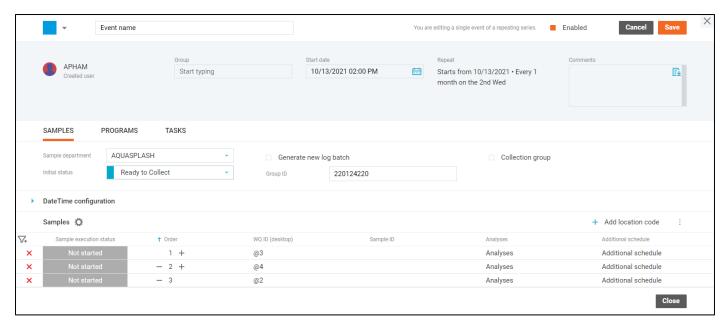
On the **Samples tab** of the **Event Details** dialog in view mode, you can select samples with checkboxes and apply the following operations to them:

- Create samples
 - 。 **亞**
 - o "Not started" samples can be created before the event start time if it is needed.
 - Manually created samples will not be created again by the schedule service.
- Reorder samples
 - Successfully created samples can be reordered.
 - Create samples based on the parent sample properties. The initial status and number of reordered samples are requested before reordering.
- · Check error details
 - When any errors occurred during the sample creation you can find them on the Error Details window.
 - Please select one sample to check the error details.



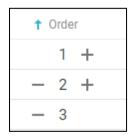
Event edit mode

0

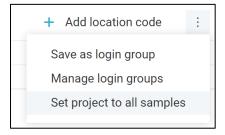


Click on the Location code name to open the **Location Code Details** dialog in edit mode, change needed data and click on the "**Apply**" button.

Also, the order of samples can be changed.



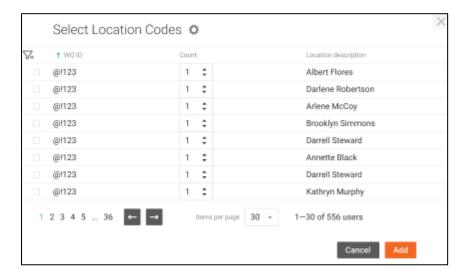
You can set project for added samples in bulk clicking the **Set project to all samples** item of the "dot-dot-dot" menu.



Please note that samples in progress (the schedule service is creating them now) cannot be edited, operations cannot be applied to them.

Select Location Codes

The **Select Location Codes** window is needed to find and select multiple location codes and add them to the event.



The "Count" field corresponds to the number of samples you wish to add to the event with this location code.

You can use sorting and filters to find the particular codes and preview all codes that you've selected with the "**View selected**" button in the top-right corner of the window.

The set of columns on the **Select Location Codes** dialog can be configured. Click the gear icon to open the **Settings** window.

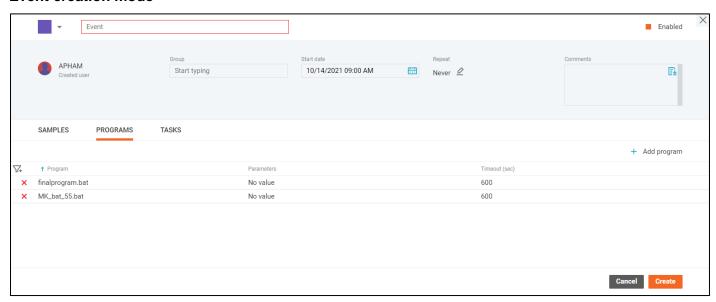


By default, you will see only the Location code, Count, and Location description. But you can add all sample fields if required.

Once you have selected all location codes that you need and have specified the number of samples you want to add with a particular code, click the "Add" button, and the samples will be added to the event.

Programs

Event creation mode



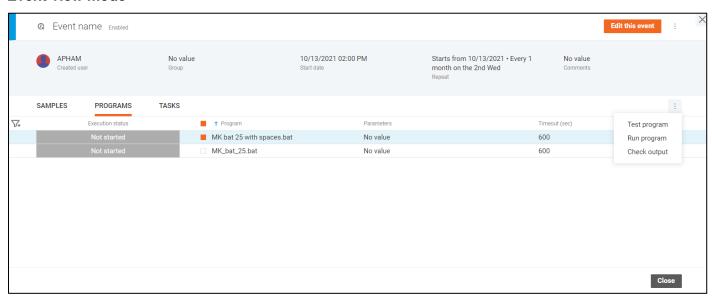
You can schedule the launch of different programs. For example, run some scripts, prepare some processes (e.g., inventory, cleanup, etc.) to perform analysis, or automatically generate a report at a certain time

Open the **Programs** tab of the **Event Details** dialog to configure programs that should be executed by your events.

Click the "Add program" button to open the Add Program dialog.

When programs are added they are displayed in the table. You can filter, sort, or delete added programs in the event.

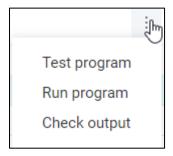
Event view mode



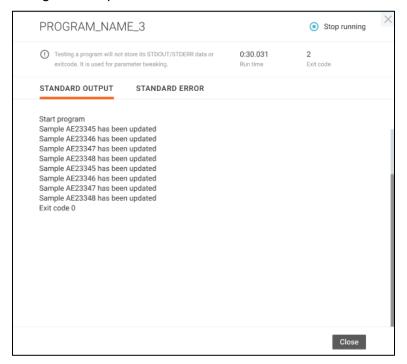
On this tab of the **Event Details** dialog, you can see program parameters with which they were scheduled to launch.

Apply sorting and filtering for more convenient work with the table.

To apply program actions, select items, click the "dot-dot" menu icon and choose the needed option or open the context menu by the right mouse button clicking on records in the table.



Select one program and click the "Test program" option to try and see how it works. The **Test program** dialog will be open.

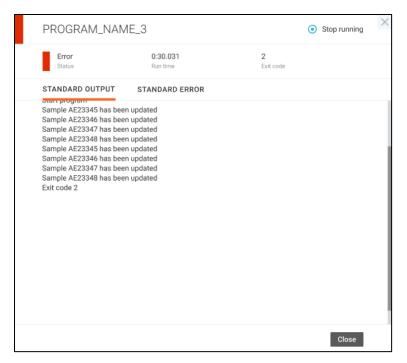


You can see a standard output, errors, run time, and exit code of the program. To stop testing click the "**Stop running**" button. If any errors occurred, you can edit the program and check it again. This action will not store the output, error details, and exit code, but it really runs the program. Please take it into account if e.g., you need to run DB scripts.

If you need to execute a program before the event start time, select the "Run program" option. Running a program will change the execution status of the program in the event. Output, error details and exit code will be recorded, so you can check them later. Programs can be launched as many times as you need. In the event start time programs will be run once again by the schedule service.

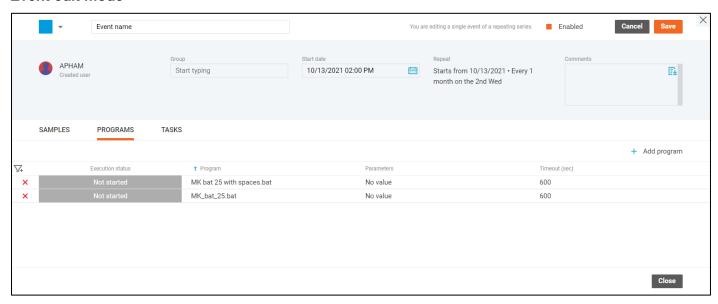
When the program is being executed (by the schedule service or by users manually) it can be stopped by clicking the "Stop running" menu option. The program will receive the "Error" execution status and there will be information in the output data that the program running was interrupted by a user manually.

You can check output for any 1 program by clicking on the "Check output" menu option. It will open the **Check output** dialog.

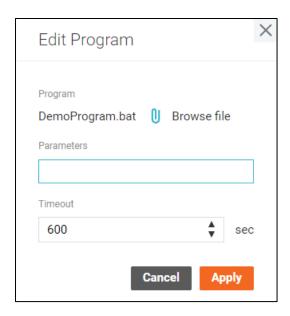


Program execution status, run time, exit code, output, and error details are displayed in this window. If the program is being executed now it can be stopped by clicking the "**Stop running**" button. The output data will be stored for the last program launch for every event.

Event edit mode

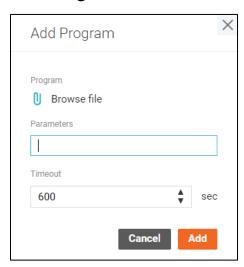


To edit programs, click on the Program name – the **Edit Program** window will be open.



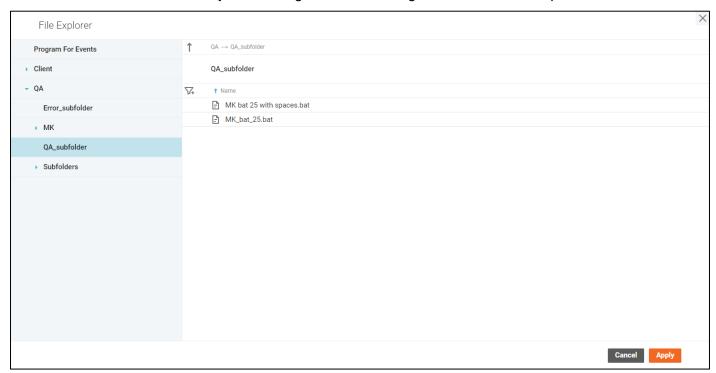
Select another program by clicking the "**Browse file**" button or change parameters, the timeout and click the "**Apply**" button.

Add Program



You should choose the needed application, set parameters, and specify timeout – the maximum time the application should work for, after that execution should be stopped.

Programs can be browsed from paths configured by administrators in the web.config file. When clicking the "Browse file" button the File Explorer dialog with these configured folders will be open.



Use the left panel or breadcrumbs to navigate between folders and subfolders. You can sort or filter subfolders and programs.

To select the program, click on it. Click the "**Apply**" button to apply your selection and add the program to the **Add program** dialog.

Only .exe and .bat files are available for events.

Please note that running such programs is incredibly bad practice as they are prone to system command injection. Be careful.

If you need to schedule the execution of any program, first, create it and place in one of these folders specified in the web.config file.

Please check the program code before adding it to an event. Parameters and their format depend on the program. The Parameters field can be empty.

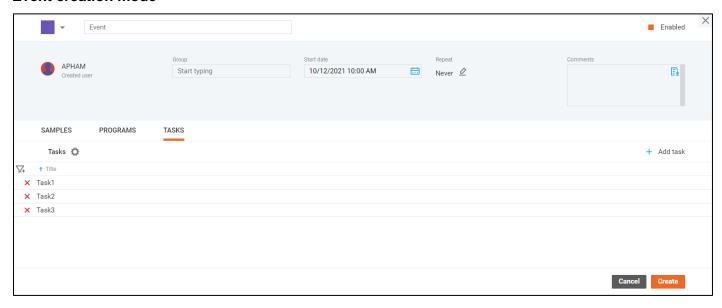
You also are able to test programs on the Sample Scheduler page.

Removed from the path programs will not be executed.

When a program is selected and parameters are specified, click the "**Add**" button to add the program to the event.

Tasks

Event creation mode



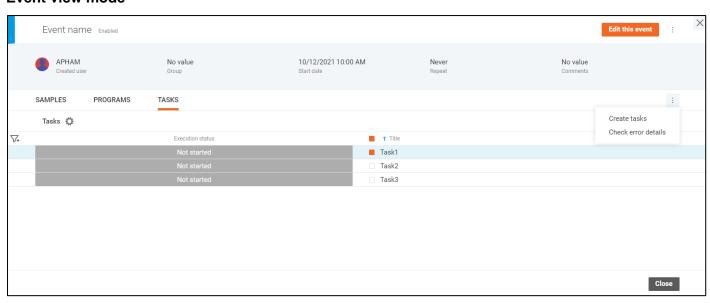
Open the **Tasks** tab of the **Event Details** dialog to configure tasks that should be created by your events. Tasks can be assigned to laboratory users, for example, to prepare reports, check or clean equipment.

To add tasks to an event, click the "Add task" button – the Task Details dialog will be open in creation mode.

When tasks are added they are displayed in the table. You can filter, sort, or delete added tasks in the event.

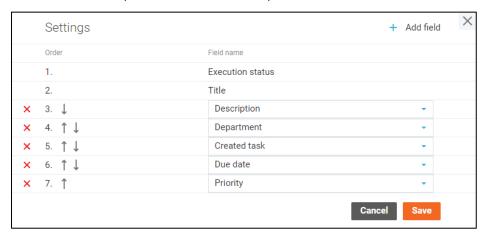
In the event start date-time, the task will be created in the system with the specified parameters and users will be able to see it in **Work Queue Manager** – **Tasks** tab.

Event view mode



This tab of the **Event Details** dialog displays parameters with which tasks were scheduled.

Click on the gear icon to open the **Settings** window and configure columns displaying. You can change the order of the fields, remove certain fields, or add new ones.



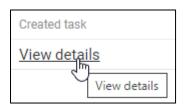
Use filters and sorting for the table with tasks if needed.

Scheduled tasks may differ from created ones because they could be edited after creation.

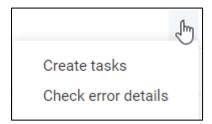
To see the details with which they were planned, click on the Task title and open the **Task Details** (**Scheduled**) dialog in the view mode.



This window displays all parameters with which the task has been planned to be created.



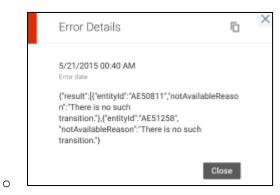
If tasks have been successfully created, click on the <u>View details</u> link to open the **Task Details** dialog of this created task.



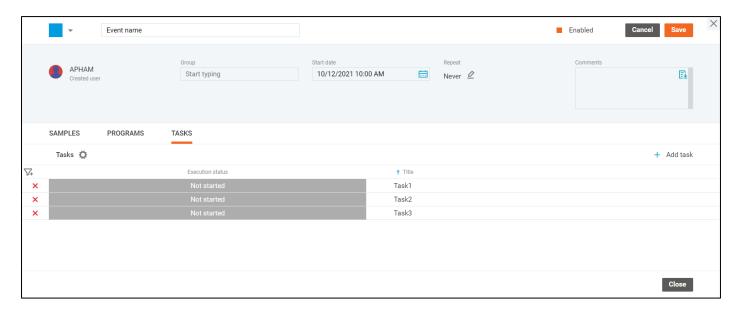
On the **Tasks tab** of the **Event Details** dialog in view mode, you can select tasks with checkboxes and apply the following operations to them:

- Create task
 - "Not started" tasks can be created before the event start time if it is needed.
 - Manually created tasks will not be created again by the schedule service.
- Check error details

- When any errors occurred during the task creation you can find them on the Error Details window.
- Please select one task to check error details.



Event edit mode

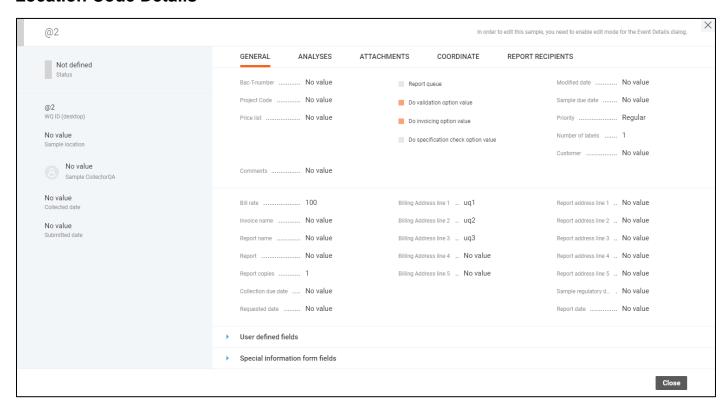


If you want to edit **scheduled** tasks, click on the Task title to open the **Task Details** dialog in edit mode, change needed data and click the "**Apply**" button.

If you want to edit **created** tasks, click on the <u>View details</u> link to open the **Task Details** dialog of this created task, change needed data and click the "**Save**" button.

Please note that tasks in progress (the schedule service is creating them now) cannot be edited, operations cannot be applied to them.

Location Code Details



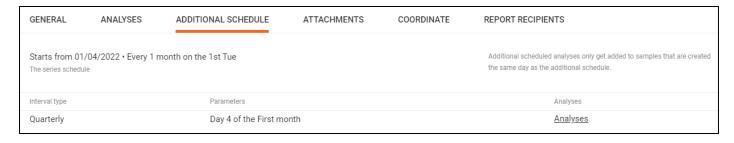
The Location Code Details window displays all data with which the sample is scheduled to be created.

The **General** tab contains the main sample data that is organized in expandable.

The related analyses are displayed under the **Analyses** tab in a list with filtering options. You can navigate to a particular analysis by clicking the analysis code.



If the sample is included in the series of events, the **Additional schedule** tab is available. It displays information about additional analyses that should be added to the main analyses list of the sample with a rarer frequency.



Click on the Analyses link to open the **Analyses** window and see the list of additional analyses.

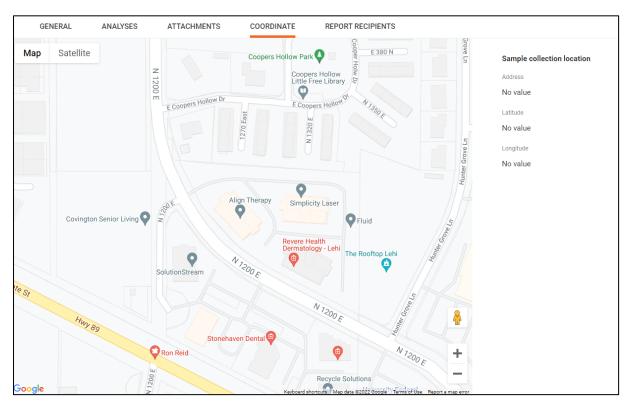


The future sample attachments are listed under the **Attachments** tab.



The Coordinate tab shows a map with the sample and field collection locations.

Since during the sample login, only the **Sample collection location** can be specified, the Field collection location is not displayed on this dialog.

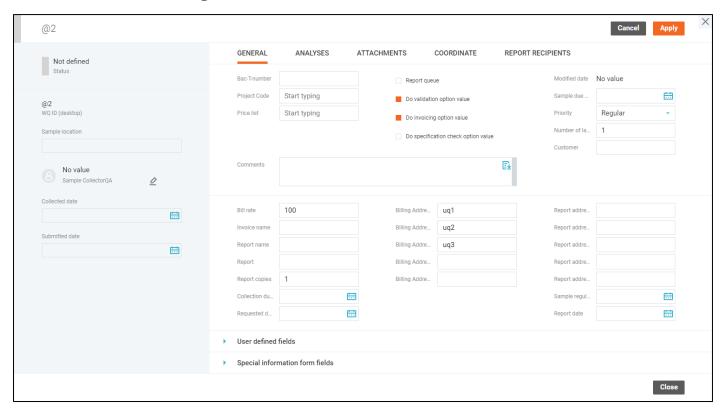


The **Report recipients** tab contains users that receive sample reports.



Location Code Details can be edited only when the event is open in one of the edit modes, or during event creation.

Location Code Editing



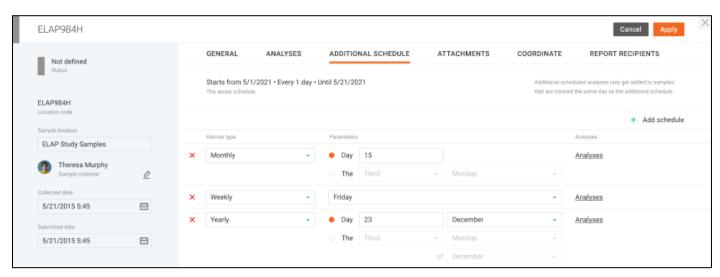
The dialog can be open in edit mode by clicking on the location code name when the event is edited or during the event creation.

Specify needed parameters, add analyses, attachments, coordinate info, and report recipients. Find more details about samples creation in the **Create Samples** section of this guide.

Every change can be discarded separately by the "Revert" button on ext to the updated field.

The sample status is not defined because this sample is not created yet. This is a "template" by which the sample is scheduled to be created.

Scheduled samples in a series of events contain a special tab – **Additional Schedule**.



Usual events in the series will contain only analyses specified on the Analyses tab. But some events in the series, with a rarer frequency, will include a list of additional analyses that must be generated for this sample. For example, if you have a daily series and need to create a sample with TSS analysis, the sample 107

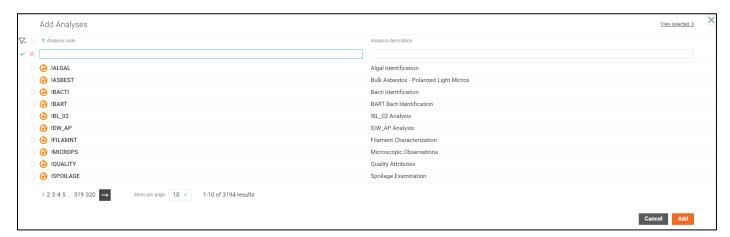
with TSS analysis will be added to the system every day. But you can set the additional schedule: once a week on Mondays generate an additional analysis #HARD. So that the sample created on Mondays will contain TSS and #HARD analyses both.

The additional schedule should match the main schedule of the series. You can find details of the repeat parameters at the top of the tab to prevent mistakes. Please do not forget to change the additional schedule when changing the main schedule of the series.

The additional schedule is similar to the main repeat parameters of a series that are described in the **Event Repeat** section in this document, but it should be rarer than the main event schedule. Also, you can schedule additional analyses every few events, for example, every 10 events.



You can add several additional sets of analyses to one sample. Once the additional schedule is specified click on the <u>Analyses</u> link – the empty **Analyses** window will be open. Click the "**Add analysis**" button to open the **Add Analyses** dialog and select extra analyses for the sample.



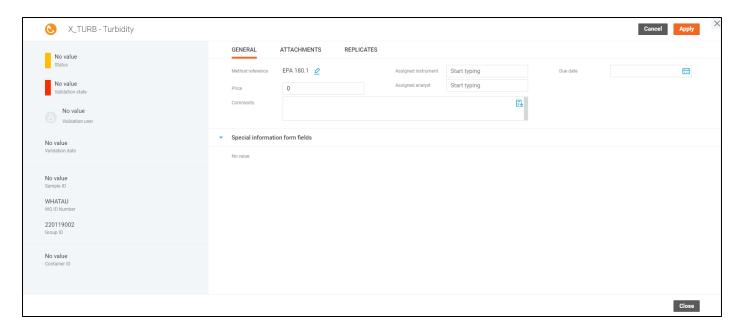
Select needed items and add them to the list of the Analyses dialog by clicking the "Add" button.

On the **Analyses** window, you can see all selected analyses you wish to add to the sample, sort and filter them.



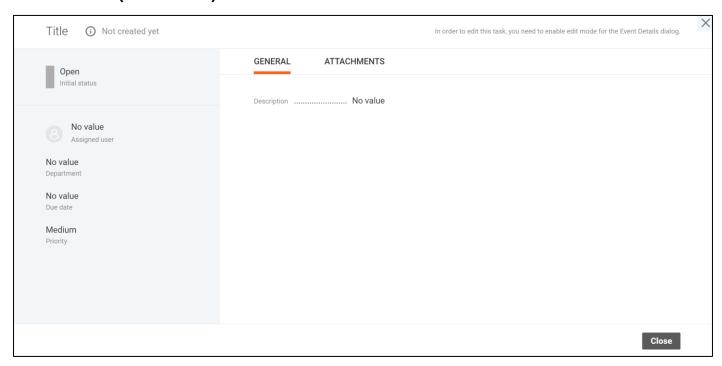
Use the "Enter analysis code" field for a quick search of needed items or click on the "Add analysis" button to open the Add Analyses dialog.

You can enter additional analysis information straight away by clicking on the analysis code. You will see a reduced version of the **Analysis Details** screen where you can fill in some of the analysis fields.



To apply changes to the event, click the "**Apply**" button on the **Location Code Details** dialog in edit mode dialog. To save the sample in the event click the "**Save**" button on the **Event Details** dialog in edit mode or the "**Create**" button on the **Event Details** dialog.

Task Details (Scheduled)

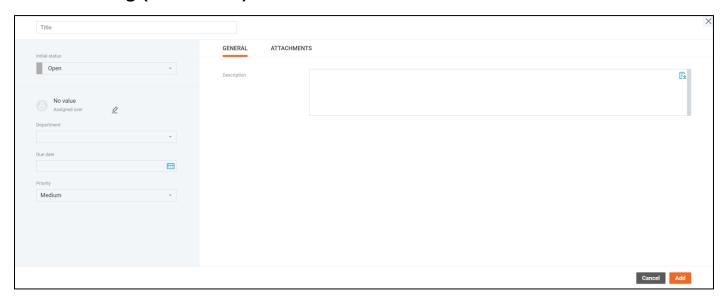


Task Details screen for scheduled tasks displays all information with which the task is planned to be created. To distinguish scheduled tasks from already created ones, the "Not created yet" icon is displayed.

On the **General** tab, you can see the task description. On the **Attachments** tab, the task attachments are listed. You can filter or sort them.

Scheduled **Task Details** can be edited only when the event is open in one of the edit modes, or during event creation.

Task Creating (Scheduled)



To add tasks to an event, click the "Add task" button – the Task Details dialog will be open in creation mode.

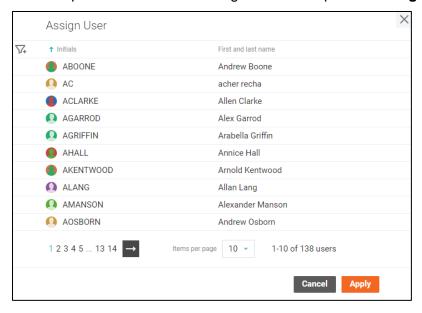
On the dialog, you can specify task parameters, assign it to any user, set priority and initial status. Also, you can attach files if needed.

Set the task title so that assignee can understand what it is about.

The Initial status is intended to select the status with which the task will be created. There are the following options:

- Open
- In progress
- Closed

Click the pencil icon near the Assigned user to open the Assign User dialog.



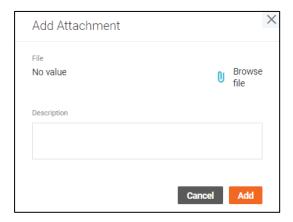
The potential users are displayed in a paginated list with sorting and filtering options. To assign a user, select him/her in the list and click the "**Apply**" button.

Add a description for the future task: what should be done.

If you want to add attachments, open the Attachments tab.



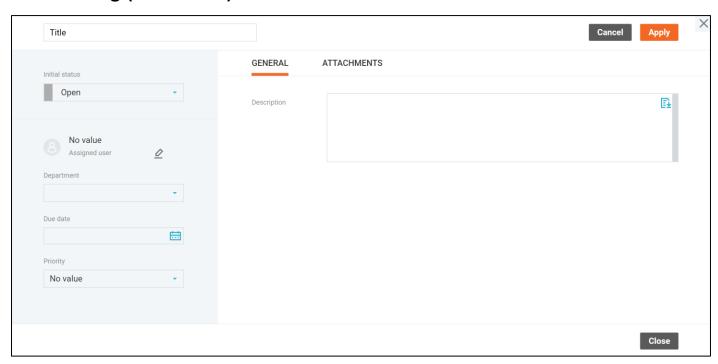
To attach a new file to the task, click the "Add attachment" button in the top-right corner of the window, and select the file by clicking the "Browse file" button. You may add a description of the file if you wish. When done, click the "Add" button and the attachment will be added to the list.



You can filter, sort, delete attachments or update their description.

Once you added all required information, click the "**Add**" button on the dialog and the task will be added to the event.

Task Editing (Scheduled)



The dialog can be open in edit mode by clicking on the task name when the event is edited or during the event creation.

Every change can be discarded separately by the "Revert" button 50 next to the updated field.

You can specify the initial status with which the task will be created in the system, assign the task to any user, select the task department, due date and set the priority.

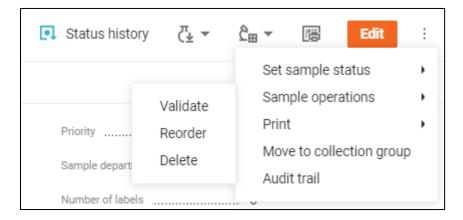
You can filter, sort attachments, add new ones, or remove items from the list on the Attachments tab.

To apply changes to the event, click the "Apply" button on the **Task Details** dialog in edit mode. To save the task in the event click the "**Save**" button on the **Event Details** dialog in edit mode or the "**Create**" button on the **Event Details** dialog.

Sample Details

Sample Details screen displays all information about the sample and all related analyses.

The "dot-dot" menu provides users with the ability to perform actions on samples. All general actions on samples are described in the **Sample Management** section above.



The "Audit Trail" option allows you to browse all changes made to the sample on the Audit Trail window.

The "Status history" option opens the Status History window with the information on sample status changes.

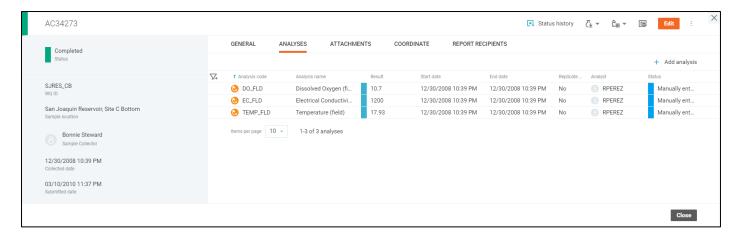
The sample data is displayed on multiple tabs:

General tab contains the main sample data that is organized in expandable.



The click on the sample **Group ID** name opens the **Log Batch Details** page. If the log batch details do not exist, the **Log Batch Details** page will be open with default values. The new details will be added to the system after saving.

The related analyses are displayed under the **Analyses** tab in a list with filtering options. You can navigate to a particular analysis by clicking the analysis code, or enter the result directly in the list.



You can change the result of a particular analysis in the in-line mode by clicking the result value. You can select one of the suggested results or specify a custom one. If you change a result of a calculation input, the output result will be immediately recalculated unless the output analysis status is "Manually entered". To discard or apply the changes made to the result, click the corresponding button appeared on the right-hand side of the field.

When the analysis has replicates, you can access the **Analysis Replicates** screen by clicking the "Yes"/"No" clickable labels under the Replicate data.

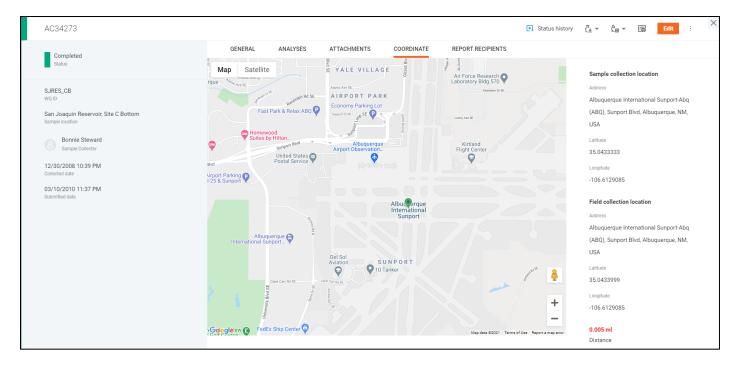
The sample attachments are listed under the **Attachments** tab. You can manage them by entering the **Sample Editing** mode.



The **Coordinate** tab shows a map with the sample and field collection locations.

During the sample login, you can only specify the **Sample collection location** by setting a location of a green pin on the map. But once the sample is collected, you can also set the Field collection location.

When the sample has both locations specified, the distance between them will be displayed below.

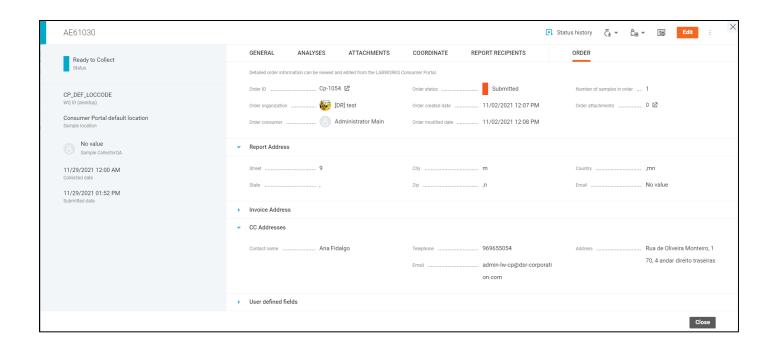


The **Report recipients** tab contains users that receive sample reports.



If a sample is included in an order, the **Order** tab should be displayed on the Sample Details page. The tab shows the order data in read-only mode. The detailed order information can be viewed and edited from the LABWORKS Consumer Portal.

You can click on the **Order attachments** value to open the order attachments in Consumer Portal. You can click the **Order ID** value to open the order general details in Consumer Portal.

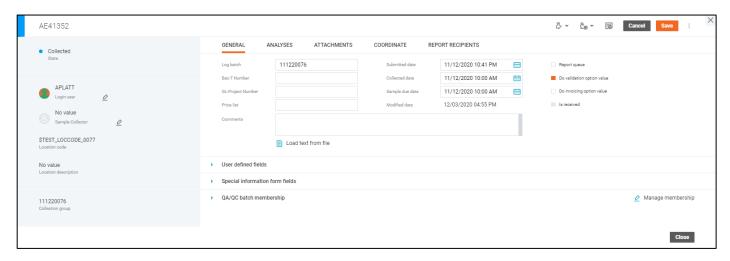


Sample Editing

Sample Editing mode is enabled when you press the "Edit" button on the Sample Details screen, by double-clicking any of the editable fields or with the "Add analysis/attachment/recipient/reference" button in the tabs.

In the edit mode, certain fields of the sample on all tabs become editable and the "**Edit**" button is replaced with "**Save**" and "**Cancel**" buttons that apply or discard the changes respectively.

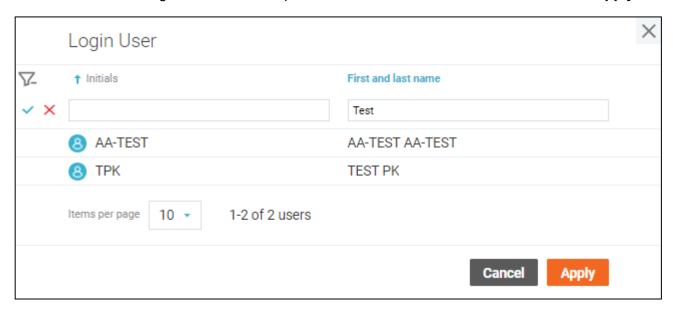
Every change can be discarded separately by the "Revert" button next to the updated field.



The Login user and Sample collector can be selected in the user selection window opened by the corresponding buttons next to these fields.

The available users are displayed in a paginated list with sorting and filtering options.

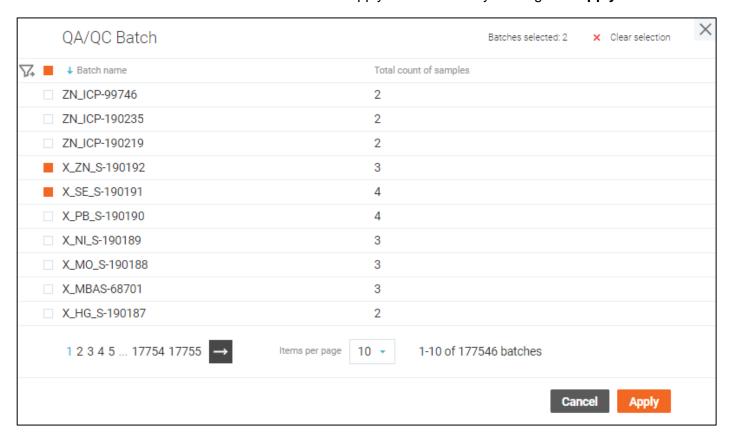
To set a user as the login user or the sample collector, select him in the list and click the "Apply" button.



The batches listed under the **QA/QC batch membership** group can be selected in the corresponding window opened by the "Manage membership" button.

The batches are displayed in a paginated list with sorting and filtering options.

You can select a one or many batches, preview the selection by clicking the "Batches selected: X" option, clear the selection with "Clear selection" button or apply the selection by clicking the "Apply" button.





Sample Status History

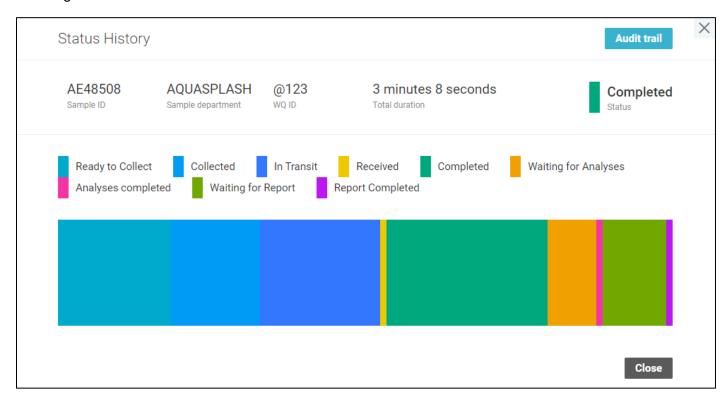
The **Status History** screen is where you can see how the status of the sample has been changing over time.

The history of statuses is displayed in the chart in chronological order and color-coded according to the legend.

The set of sample statuses and their colors are defined by the workflow architect template. It is configured by the desktop State Management application.

The "**Completed**" status, defined by the default workflow architect template, is excluded from the chart when the sample has it as the final one.

You can see the exact time when the sample entered and left a certain status as well as its time period by hovering the cursor over a certain status in the chart.



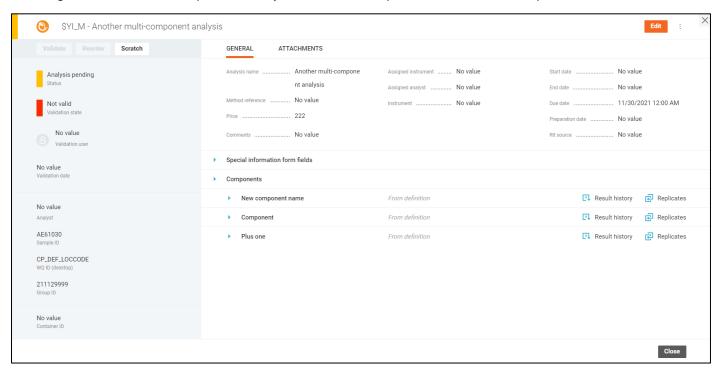
You can see the audit trail where logs are filtered only by status changes.

Analysis Details

Analysis Details screen displays all information about the analysis performed with a certain sample.

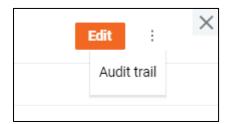
There are four types of analyses with common parameters as well as specific ones.

- Narrative analyses have a specific field "Narrative text" that is considered as a result of the analysis.
- Bottle analyses have an additional field called "**Location**" that does not correspond to the location of the sample, and considered as the result of the analysis as well.
- Single and 🍑 multi-component analyses contain components with their own parameters.



There is a number of buttons in the right-hand side of the screen:

- "Edit" button that enables the Analysis Editing screen.
- "Audit Trail" menu item that allows you to browse all changes made to the analysis on the Audit Trail screen.



The detailed information about the results of other samples underwent this analysis is available on the **Result History** screen, activated by the "**Result History**" button next to the corresponding component.

Single and multi-component analyses may have replicates. They are displayed on the **Analysis Replicates** screen accessed by clicking the "**Replicates**" button next to the corresponding component.

The click on the sample **Group ID** name opens the **Log Batch Details** page. If the log batch details do not exist, the **Log Batch Details** page will be open with default values. The new details will be added to the system after saving.

You can perform following actions with the analysis using the button on the left-hand side of the screen:

- Validate (mark as valid)
- Invalidate (mark as invalid)
- Reorder (request reanalysis)
- Scratch (cancel the analysis)

The exact set of available actions depends on the current status of the analysis.

The Attachments related to the Analysis are displayed under the "Attachments" tab, with sorting and filtering options. You can manage Attachments on the **Analysis Editing** mode.

Analysis Editing

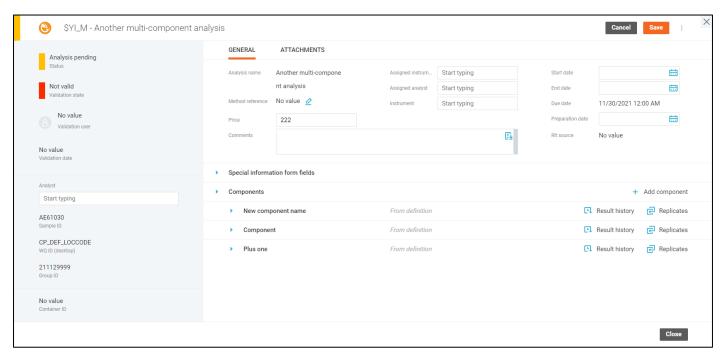
Analysis Editing mode is enabled when you press the "**Edit**" button on the **Analysis Details** screen or by double-clicking any of the editable fields.

Only users trained to perform an analysis can edit this analysis. This rule applies to the entire site.

In the edit mode, certain fields of the analysis become editable and the "Edit" button is replaced with "Save" and "Cancel" buttons that apply or discard the changes respectively.

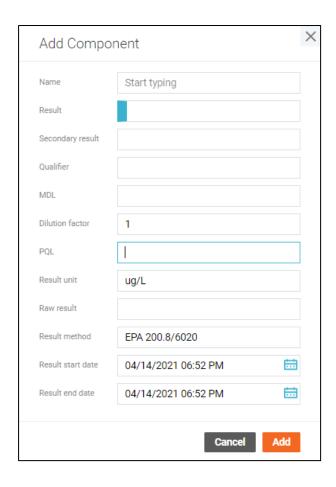
Note that every change to the analysis while it is in the "Validated" state, changes it to "Not Valid".

Every change can be discarded separately by the "Revert" button on ext to the updated field.



Only users trained to perform the analysis can be set as analysts.

It is possible to add custom components to multi-component analysis, beside the default ones that have "From definition" label on them, by clicking the "Add Component" button and submitting the form with component details in the activated window. The custom components can be renamed or deleted later.



In-line Result Entry

It is possible to enter the analysis results across the application using the in-line result entry function.

Only users trained to perform an analysis can edit this analysis. This rule applies to the entire site.

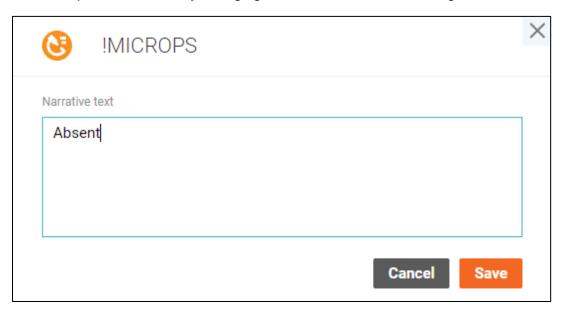
Note that every change to the analysis while it is in the "**Validated**" state, changes it to "**Not Valid**", although it is not visible in the in-line result entry.

The results for single-component and bottle analyses can be entered directly in the list with the analysis by clicking the result value. To discard or apply the updated value, you have to click the corresponding button appeared to the right.

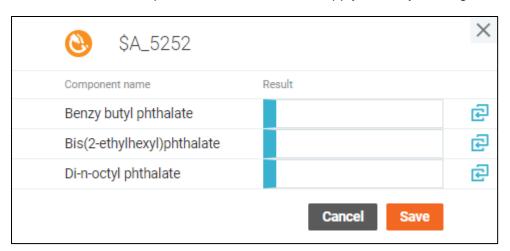


The narrative analysis, on the other hand, shows a dialog window when you click on the result value.

You can update the result by changing the narrative text and clicking the "Save" button.



The multi-component analyses open a window with a list of components and their results. You can specify the value of each component in the window and apply them by clicking the "**Save**" button.



Note that changing analysis result may affect the result of another analysis if it is a part of calculation.

Analysis Result History

You can access the **Result History** screen from analysis details or the enter results table.

The screen contains details about the results of a particular analysis with a list of results of related samples taken in the specified location. Note that only those samples the user has access to are taken into account.

The first part of the screen contains general information about the analysis with the most recent result values displayed in a chart. The data in the chart may be ordered either by **Sample ID** or the **Collected date** field for single- and multi-component analyses. Bottle analyses display up to 20 most recent locations with their corresponding numbers of occurrences in form of a chart. Narrative analyses display a list of results with the number of occurrences of each particular result.

The second part of the screen is a list of affected samples with an option to sort and filter by corresponding fields.

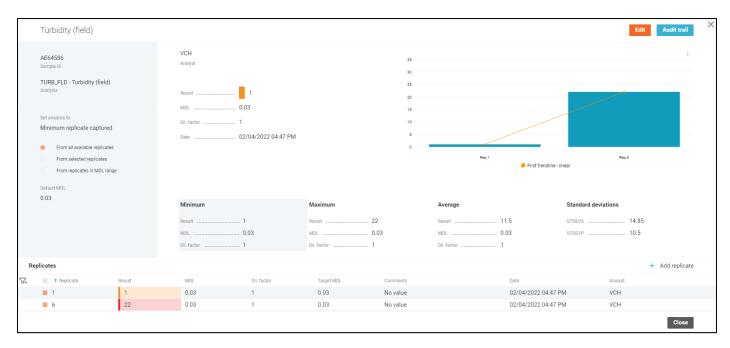
The results are color-coded according to the Analysis Legend.



Analysis Replicates

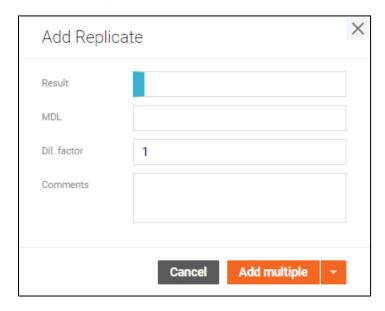
Analysis Replicates screen displays the details about the replicates - a set of repetitions of the analysis intended to test for the deviation of the results.

The "Edit" button on the right-hand side of the screen enables the Analysis Replicates Editing mode and the "Audit Trail" button allows you to browse all changes made to the replicates of a certain analysis on the Audit Trail screen.



The replicates can be added in the window that can be accessed by clicking the "**Add replicate**" button in the right-hand side of the "**Replicates**" table.

To be able to add multiple replicates without closing the window, please select the "**Add multiple**" option under the drop-down menu next to the "**Add**" button.



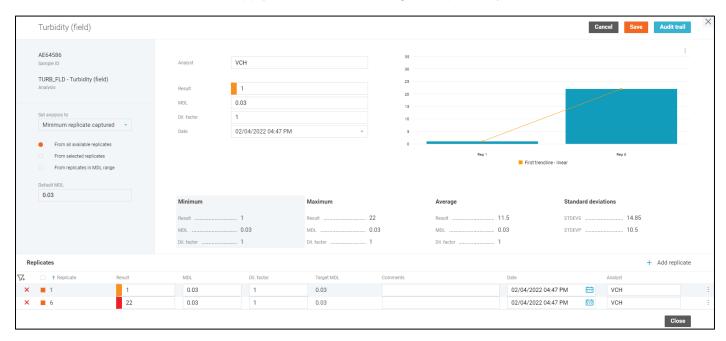
Upon addition, the replicate becomes available in the "**Replicates**" table changing the screen to the editing mode automatically.

When the analysis has at least one replicate, the information is also displayed in the chart.

Analysis Replicates Editing

Analysis Replicates Editing mode is enabled when you press the "Edit" button on the Analysis Replicates screen or by double-clicking any of the editable fields.

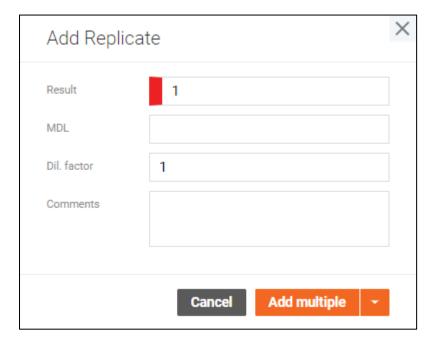
In the edit mode, certain fields of the analysis become editable and the "Edit" button is replaced with "Save" and "Cancel" buttons that apply or discard the changes respectively.



The replicates can be added in the window that can be accessed by clicking the "**Add replicate**" button in the right-hand side of the "**Replicates**" table.

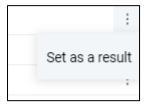
To be able to add multiple replicates without closing the window, please select the "**Add multiple**" option under the drop-down menu next to the "**Add**" button.

The "Default MDL" field value will be used as the default one for new replicates.



Upon addition, the replicate becomes available in the "**Replicates**" table, where you can change the data of each replicate directly anytime. Every change can be discarded separately by the "**Revert**" button next to the updated field in the table.

The drop-down menu to the right of each replicate can be used to set the replicate data as the output data of the analysis.

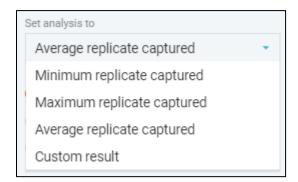


Use the cross buttons on the left to delete replicates.

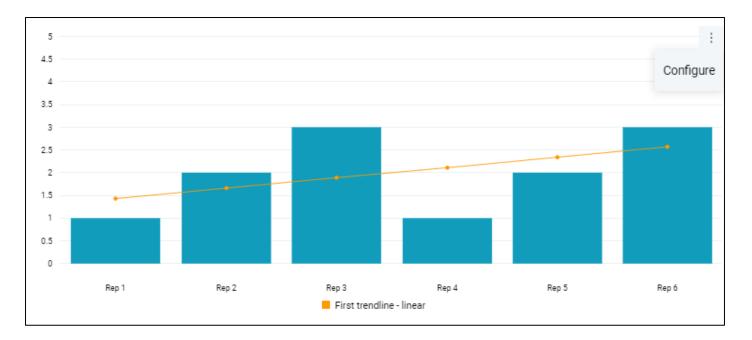
When there are multiple replicates, you can also set the output result using the automatic options to the left from the chart:

- Minimum replicate captured the replicate with minimum result value will be set as the output data.
- Maximum replicate captured the replicate with maximum result value will be set as the output data.
- Average replicate captured the average result value will be set as the output data.
- Custom result the result can be specified manually by typing into the output data fields.

You can also limit the set of involved replicates by taking into account only the replicates in MDL range, or by selecting multiple replicates in the table and checking the "**From selected replicates**" option below the "**Set analysis to**" drop-down list.



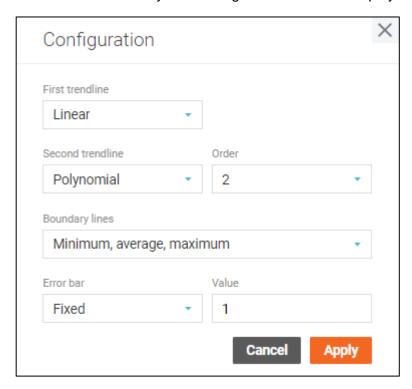
The way the replicate data is displayed in the chart can also be configured. To access the configuration window, click the "**Configure**" button under the drop-down menu in the top-right corner of the chart.



You can choose to display up to two trendlines with a number of preset functions, some of which are parametric.

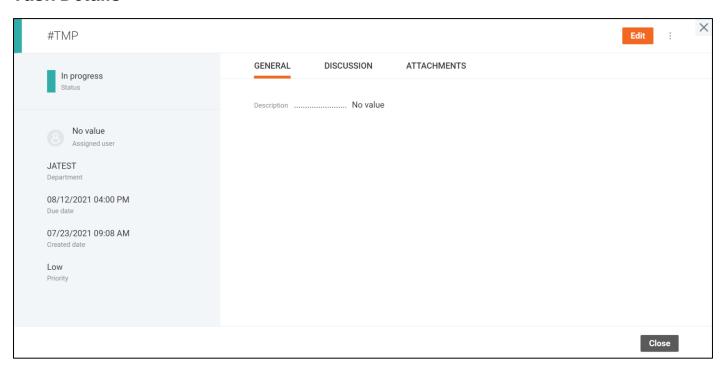
There is an option to display boundary lines corresponding to the minimum, maximum and the average values.

The chart also allows you to configure the error bar display with multiple options.



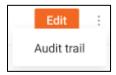
When you want to set the intersection of the trendlines as the output result value, you can click a certain point on the chart. The chart can be zoomed in and out using the mouse wheel, and panned by holding the left mouse button.

Task Details



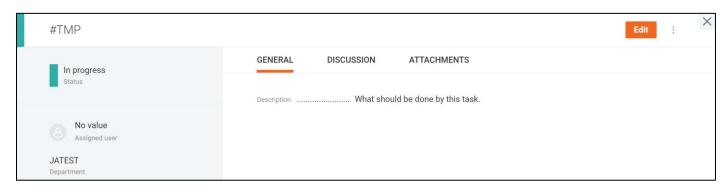
Task Details screen displays all information about the task.

The "dot-dot" menu provides users with the ability to select the "Audit Trail" option and browse all changes made to the task on the Audit Trail window.

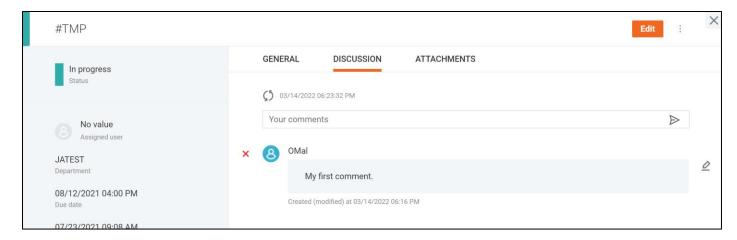


The task data is displayed on 3 tabs.

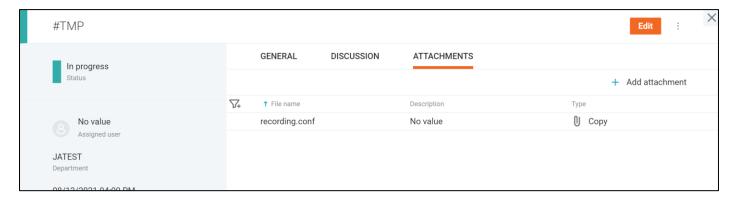
The General tab contains the task description.



The task discussion is displayed on the **Discussion** tab.



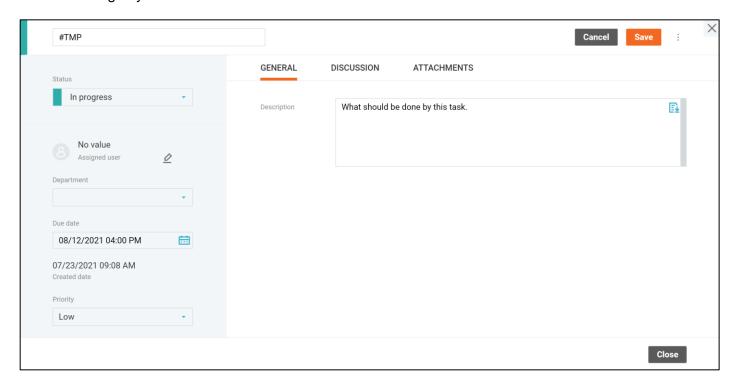
The task attachments are listed under the **Attachments** tab. Filter and sort items according to your preferences. You can manage attachments by entering the **Task Editing** mode.



To enable the edit mode for the **Task Details** dialog, click on the "**Edit**" button.

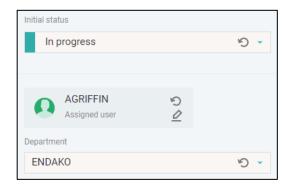
Task Editing

Task Editing mode can be enabled when pressing the "**Edit**" button on the **Task Details** screen, by double-clicking any of the editable fields or with the "**Add attachment**" button in the tabs.

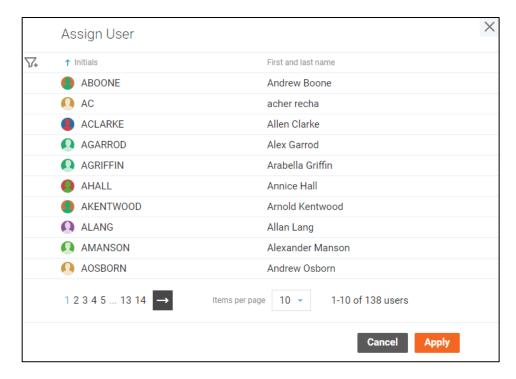


In the edit mode, task fields become editable and the "**Edit**" button is replaced with "**Save**" and "**Cancel**" buttons that apply or discard the changes respectively.

Every change can be discarded separately by the "Revert" button next to the updated field.



The Assigned user can be selected in the user selection window opened by the pencil icon next to this field.

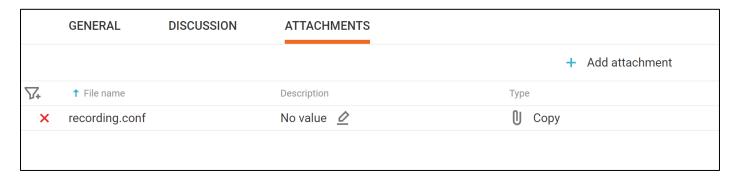


The potential users are displayed in a paginated list with sorting and filtering options. To assign a user, select him/her in the list and click the "**Apply**" button.

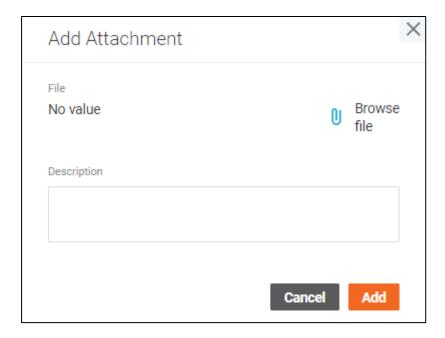
On the **Discussion** tab, you can view comments, add your ones, edit or remove them if you are the author.



Tasks may have files attached to them, and they are handled on the **Attachments** window.



To attach a new file to the task, click the "Add attachment" button in the top-right corner of the window and select the file by clicking the "Browse file" button. You may add a description of the file if you wish. When done, click the "Add" button and the attachment will be added to the list.



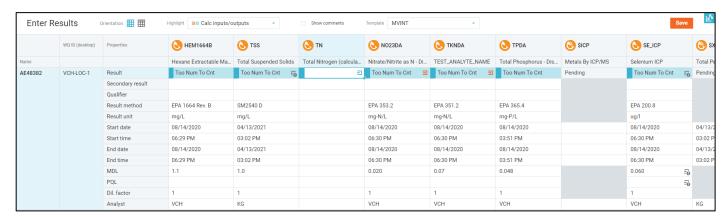
You can filter, sort delete attachments, or update their description.

Enter Results

The Enter Results screen provides an option to enter results for multiple analyses at once.

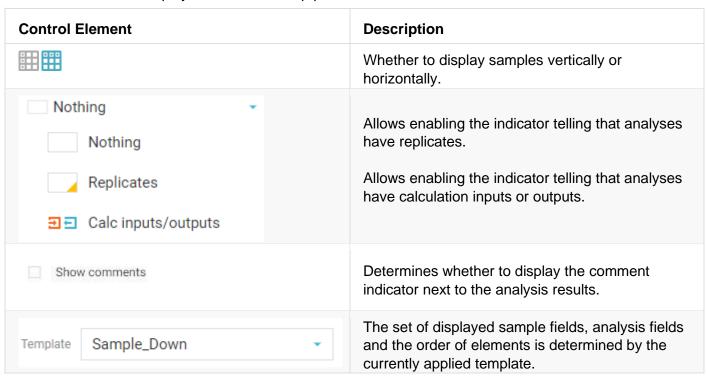
Only users trained to perform an analysis can edit this analysis. This rule applies to the entire site.

The available information on selected samples with corresponding analyses and their results is displayed in the form of a spreadsheet.



You can resize the grid columns if necessary.

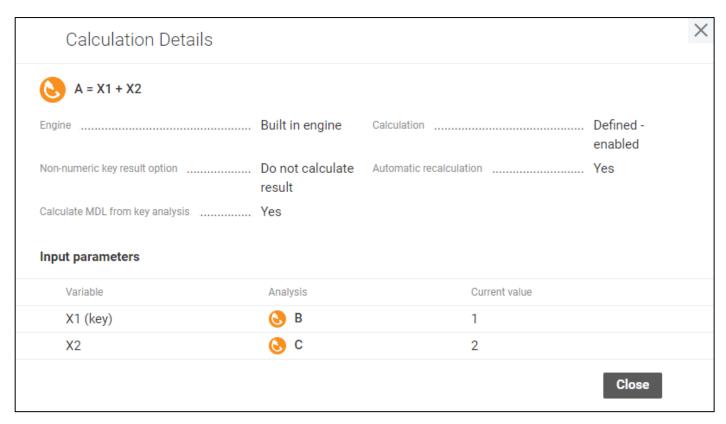
There is a number of display controls at the top part of the screen.



If the "Calculation inputs/outputs" highlighting is turned on, all output analyses will be displayed with the grey icon. When clicking a cell containing a calculation (it does not matter whether an input or an output is focused), all inputs and outputs included in this calculation should be highlighted. The inputs and outputs of the focused calculations are highlighted with the colored icons. However, the unfocused outputs are still displayed with the gray icons on the screen.

If you change a result of a calculation input, the output result will be immediately recalculated unless the output analysis status is "Manually entered". If a calculation output has the "Manually entered" status, it is displayed with the $\frac{1}{2}$ icon.

You can view the details about the calculation through the context menu opened by right-clicking a calculation output in the spreadsheet.

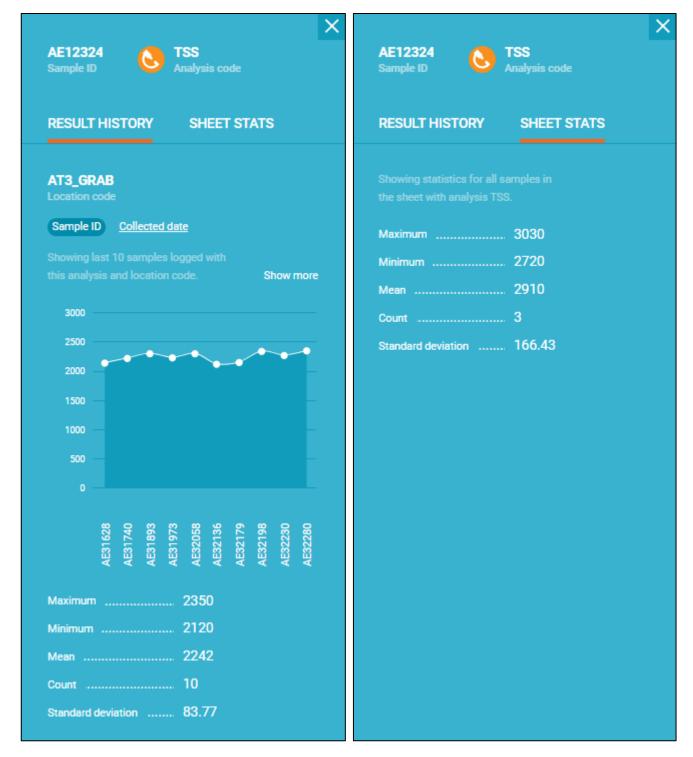


You can navigate to a particular sample, analysis or its replicates using the same context menu.

The spreadsheet data can be copied from or pasted to Microsoft Office Excel spreadsheet via clipboard using context menu and key combinations. Please note that the clipboard may work differently compared to desktop applications. For instance, the source screen should be active when you copy and paste using the context menu.

The result history can be viewed by clicking on the corresponding icon in the top-right corner of the table. It will be displayed in a sidebar and update accordingly when you select different analysis result cells in the table. It shows information about up to 10 latest samples underwent the analysis.

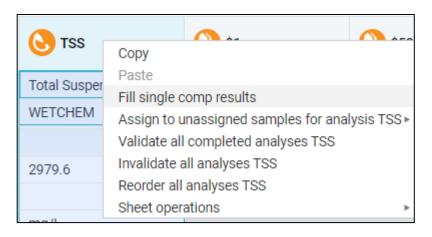
The "Statistics" tab contains only the samples displayed in the table at the moment.

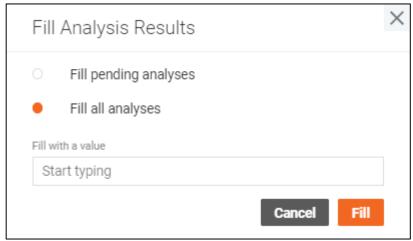


To add one of the displayed analyses to a sample, select the "**Add analysis to sample**" option under the context menu opened by right-clicking at the intersection of the sample and corresponding analysis.

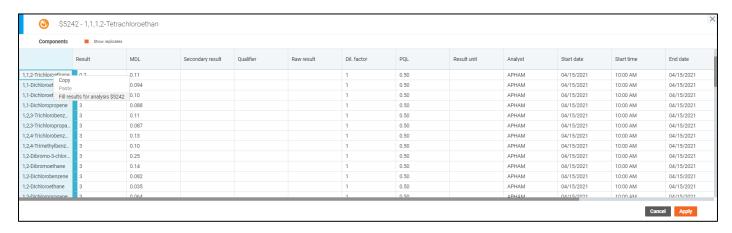
To update analysis comment, select the "Comment" option under the context menu opened by rightclicking any of the analysis field values.

You can update any of the displayed field values by typing directly in the spreadsheet. Using the "Fill single comp results" dialog window, you can update single-component analyses results in bulk. It can be opened by the corresponding option under the context menu opened by right-clicking on a particular row, column, or cell range. The value entered in this window is applied to all analyses in the selected range.

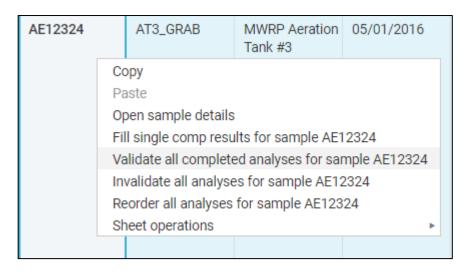




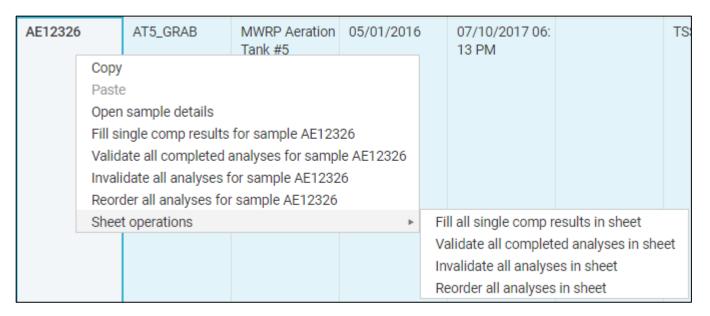
The click on multi-component analysis result value opens a dialog window dedicated to this particular analysis. You can enter the data for any of the components either manually or through "Fill results for analysis <Analysis code>" dialog and click the "Apply" button to close the window.



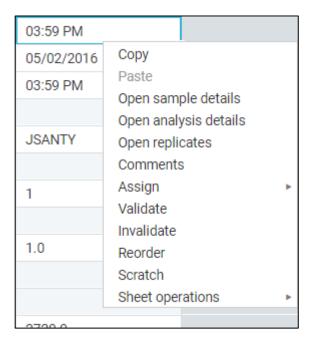
You can validate, invalidate, reorder analysis either for a particular analysis or in bulk for an entire sample or analysis code. It can be done by selecting the corresponding option under the context menu opened by right-clicking on a particular row, column, or a cell.



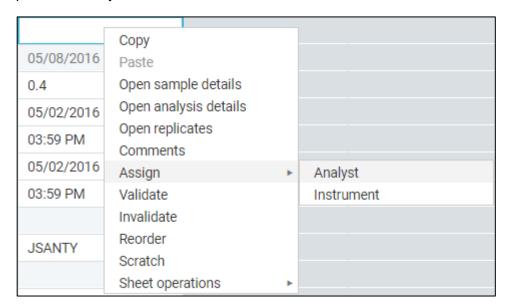
You can apply the operations to the entire sheet by right-clicking any cell.

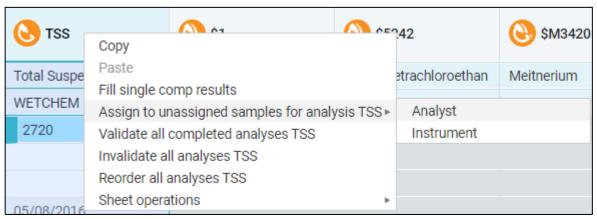


You can scratch a particular analysis by right-clicking a cell and selecting the "Scratch" operation from the context menu.



You can assign an analyst or an instrument to a particular analysis or to all unassigned samples for a particular analysis code.





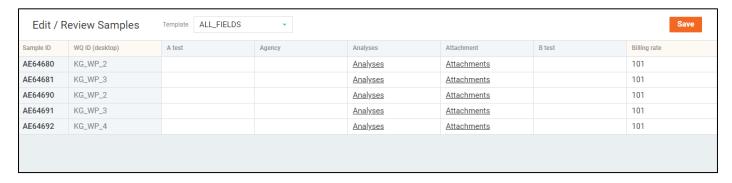
All changes made on the Enter Results screen can be saved by clicking the "Save" button in the top-right corner of the screen.

To discard the changes, click the "Revert" button.

Note that, like with inline result entry, every change made to the analysis while it is in the "Validated" state, sets it to "Not Valid", although this is not indicated on Enter Results screen.

Edit / Review Samples

Edit / Review Samples screen provides a way to update samples in form of a spreadsheet that may contain one or many samples. The spreadsheet supports MS Office Excel style operations.



You can navigate to this screen from the **Explorer** or **Work Queue Manager** screens by selecting one or more samples and clicking the button or by using the context menu.

You can edit / review the samples by selecting the "**Edit / Review**" option under the sample group action menu one of the following screens:

- Log Batch Explorer
- QA/QC Batch Explorer
- Collection Group Explorer

Additionally, you will find the button on most screens of the Sample Management. You can either click on this icon to navigate to the **Edit / Review Samples** with a template that you used last, or select a particular template by selecting it in the drop-down list next to this button.



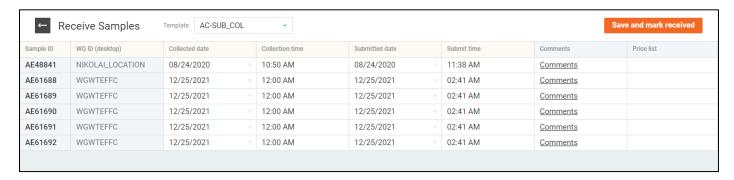
The set of fields available for editing depends on the selected template and the field data input works the same way as it does on the **Create Samples** screen.

In case if you want to revert your changes, click the "Revert changes" button next to the "Save" button.

When you are done editing samples, click the "Save" button to apply the changes.

Receive Samples

Receive Samples screen is similar to the **Edit / Review Samples** screen, except that after the sample data is saved, the samples automatically become received.



You can navigate to this screen from the **Explorer** or **Work Queue Manager** screens by selecting one or more samples and clicking the **4** button.

You can receive the samples by selecting the "**Receive**" option under the sample group action menu one of the following screens:

- Log Batch Explorer
- QA/QC Batch Explorer
- Collection Group Explorer

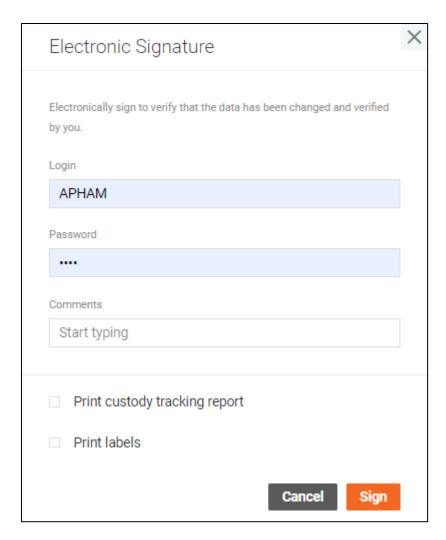
Additionally, you will find the the button on most screens of the Sample Management. You can either click on this icon to navigate to the **Receive Samples** with a template that you used last, or select a particular template by selecting it in the drop-down list next to this button.



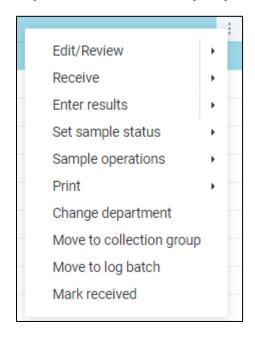
The "Receive" option is available based on the workflow architect rules defined in the State Management desktop application.

When clicking the "Save and mark received" button, you will be requested for a reason for the Audit Trail entry or Electronic Signature. It depends on the workflow architect settings and audit trail configurations.

You can point out to print a custody tracking report or labels after confirming the **Receive** operation.

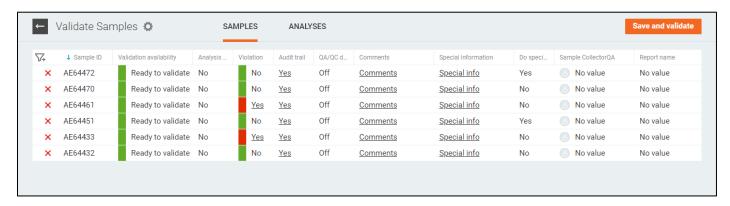


If you want to skip the editing process and just mark the sample group as received, you can select the "Mark received" option under the sample group action menu on the Log Batch Explorer, QA/QC Batch Explorer, Collection Group Explorer pages.

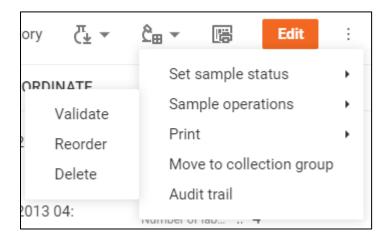


Validate samples

Validate Samples screen provides an option to validate samples.



You can navigate to this screen by selecting the "Validate" option under the "dot-dot-dot" menu of the Explorer, Work Queue Manager, Sample Details screens. The screen is also available from the Explorer and Work Queue Manager screens via the context menu for selected samples.



You can navigate to this screen by selecting the "Validate" option under the sample group action menu one of the following screens:

- Log Batch Explorer
- QA/QC Batch Explorer
- Collection Group Explorer

The "Validate" option is available based on the workflow architect rules defined in the State Management desktop application.

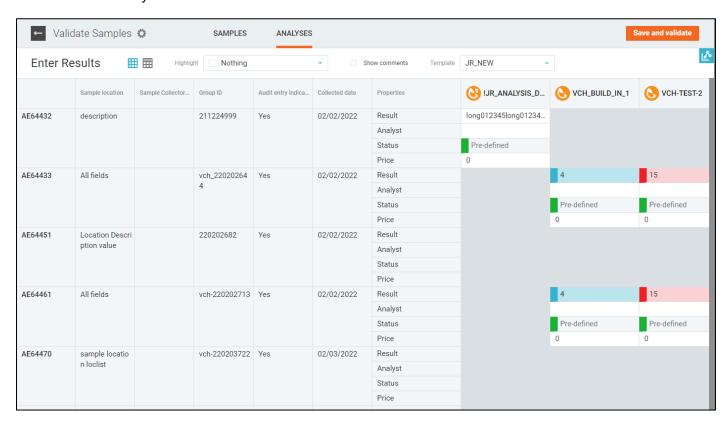
The Validate Samples screen consists of two tabs: Samples and Analyses.

The **Samples** tab provides users with the ability to verify sample fields. The set of fields available for viewing and the number of columns to be locked can be configured via the **Settings** dialog available from the gear icon.

If you do not want to validate a sample or it cannot be validated, you can exclude it from the list via the cross icon.

If there are any violations in sample analyses, the **Violation** column will display "Yes". The click on this value opens the sample details on the Analysis tab so that you can check violation details.

The **Analyses** tab displays the same table as the **Enter Results** screen and provides you with the ability to check and edit analyses details.



Unlike the Enter Results screen, you can specify the **Price** value for each analysis.

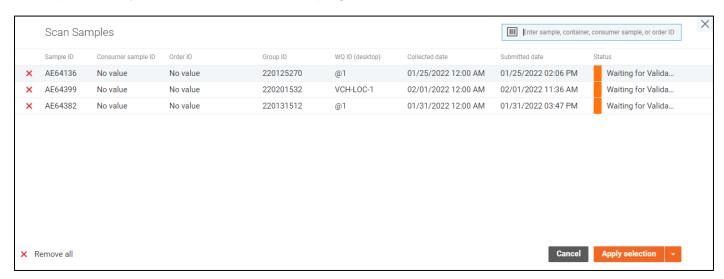
You can navigate to the details of a particular sample by clicking on corresponding fields within the sample list and the analysis table.

When you are done checking samples and analyses, click the "Save and Validate" button to validate the samples. You may be requested for the Electronic Signature. It depends on the workflow architect settings.

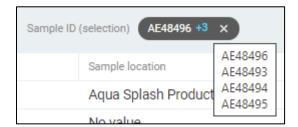
Scan Samples

The Scan Samples window provides a quick way to find samples using bar code scanner.

Open the Scan Samples window and enter (with or without the bar code scanner) as many Container IDs or Sample IDs as you want to the field in the top-right to add them to the selection list.



When you are done scanning the samples, you can either clear the Sample ID filter on the **Sample Explorer** and apply the selection as is, or add the scanned sample IDs to the current selection using the drop-down menu next to the "Apply selection" button.



The Sample Explorer should have these sample IDs displayed in the applied filters' area.

The Work Queue Manager simply displays the scanned samples.



Apply the **Remove all** button to clear the list of scanned samples in the window.

Audit Trail

The audit trail is a list of changes made to a certain sample, analysis or a replicate, that is displayed in the top right corner of the window.

The elements are displayed can be sorted by clicking the labels in the header of the table. Subsequent clicks reverse the sorting order.

To filter the elements, expand the quick filter bar by clicking the **funnel icon** on the left-hand side of the window, specify the filtering options, and apply them by clicking **check mark icon** in the quick filter bar.

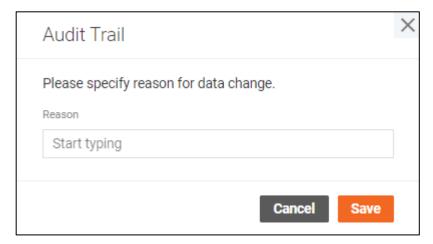
The **cross icon** in the quick filter bar resets the filter.

In order to see the additional events, such as the automatic ones, you can uncheck the "**Display manually entered events only**" checkbox in the top of the window.



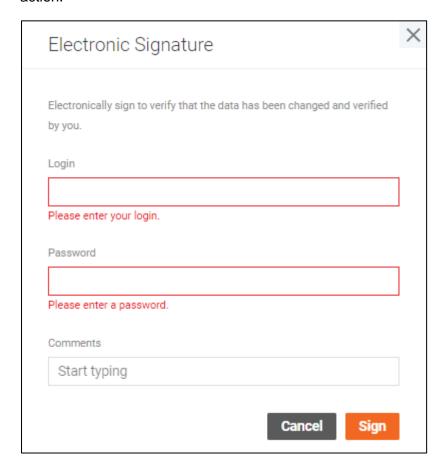
Certain actions, such as sample editing or analysis editing may request a reason to be specified.

You can select one of the common reasons by selecting one from the proposed list, or type a custom comment in the window opened after you apply the changes.



Electronic signature

Some operations with objects require confirmation as an electronic signature. If the system is configured to request an electronic signature, the user must enter the correct password for their profile to confirm their action.



The Electronic signature window also requested you a reason for the Audit Trail entry.

Electronic signature can be configured by the workflow architect via the desktop State Management application. The default workflow architect template is configured to request the e-signature for the following sample operations:

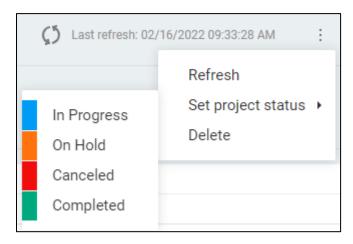
- Receive
- Validate
- Set sample status to Report completed
- Set sample status to Report rejected
- · Set sample status to Invoice completed
- Set sample status to Invoice rejected
- Set sample status to Completed

Project Management

Project Management is an area of the system where users can access detailed information about the projects.

There is a single page that can be open by clicking on the "Project Management" section in the header: **Projects**.

There is a set of operations you will see on some of the screens that perform certain actions with the projects:



- Refresh Refresh data for the selected project.
- Set project status Change the project status to the selected one. The set of all available statuses,
 the set of statuses available for manual transitions, the status order, and colors are defined by the
 workflow architect. The desktop State Management application is used for configuring workflow
 architect templates.
- Delete Delete the selected projects from the system.

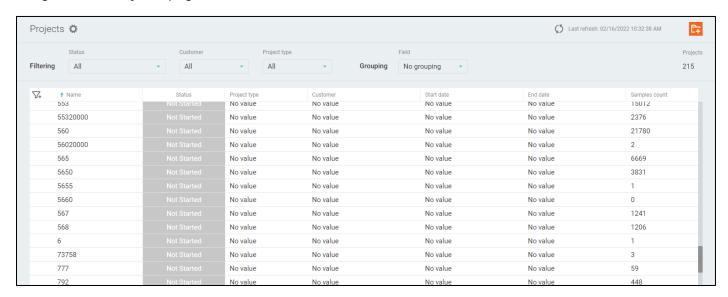
Projects can be nested. A project that does not have a parent project is the root project. Others are subprojects or "child" projects. Root projects are displayed on the Projects page. The "child" projects can be accessed through the root project details page.

There is the button to add root projects to the system. The **Project Editing** dialog will be.

Projects

The **Projects** page is intended to view all projects in the system.

The page requires an appropriate privilege to be assigned to your profile. Once you have this privilege assigned, the **Projects** page becomes available.



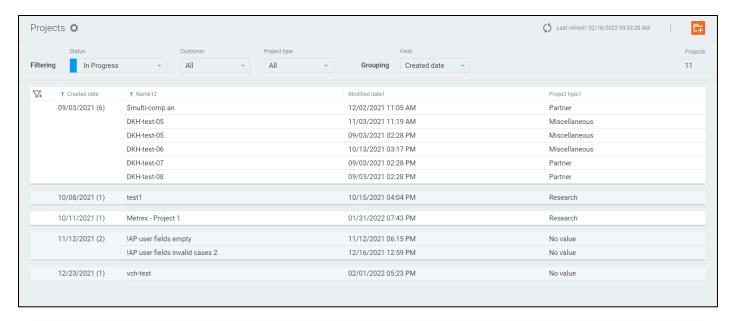
The data can be sorted by clicking the field labels in the headers of the tables. Subsequent clicks on the same fields reverse the sorting direction. The default order is ascending alphabetical order by Project name.

The data can be filtered by top filters on the page.

Possible filters:

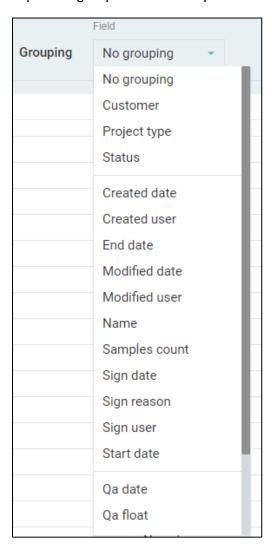
- Status
- Customer
- Project type

The data can be grouped. The first column in a grouped view displays the grouping column name and total items inside the group.



Note: When grouping by date columns, time values are not considered. For example, records with dates "03/06/2020 12:55" and "03/06/2020 11:45" will be combined into one group "03/06/2020" after grouping.

Projects can be grouped by some sample properties as well as by user-defined project fields. The most important groups are at the top. User-defined groups are at the bottom.



The table's columns are resizable. To change a column width, you can grab the separator in the table header and release it when the width suits you.

You can select one project in the list and perform actions on it. All general actions on projects are described in the **Project Management** section above.

The total number of projects displayed on the screen is shown above the table.

The set of displayed fields can be changed in the **Settings** window.

You can navigate to the details of a particular project by clicking on a Project name value in the table.

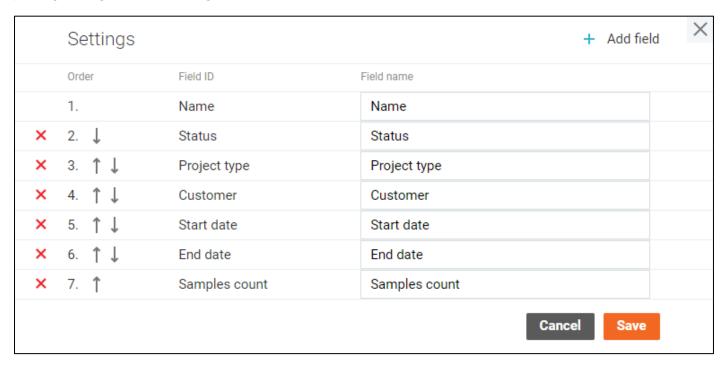
You can click the 5 button to refresh the data on the page. The last update time is displayed near the refresh button.

Settings

The set of fields displayed in the **Projects** table can be configured in the **Settings** window.

To access the window, click the button near the title.

The field configuration requires an appropriate privilege to be assigned to your profile. Once you have this privilege assigned, the **Settings** window becomes available in the edit mode.



You can change the order of the fields, remove certain fields from the appropriate table or add new ones.

Other users are not affected by your settings.

[&]quot;Cancel" button discards all changes in the settings.

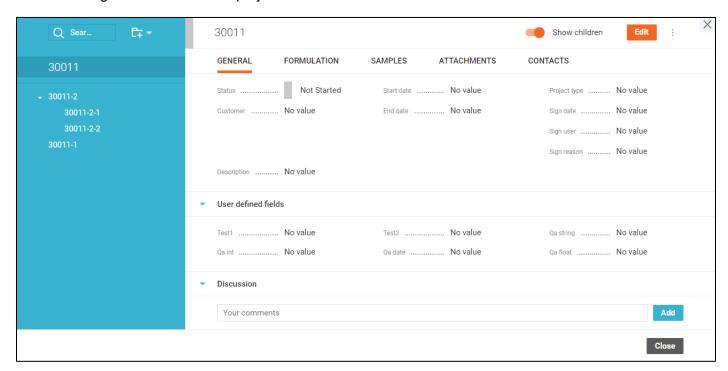
[&]quot;Save" button applies the settings and reloads the table.

Project Details

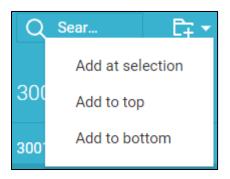
Project Details screen displays all information about the root project and all its "child" projects.

The project "tree" is displayed on the left side panel.

You can navigate between "child" projects to view their details.



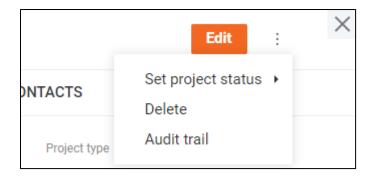
You can add a new "child" project to the root project or another selected "child" project using the **Add subproject**icon. Use selection and the arrow icon next to the **Add subproject** icon to add the new "child" project to a specific place in the "tree".



Use the **Search** control to find projects in the "tree". After the filter applying, the tree will only display the root project and a "subtree" with the target project and all its parents.



The "dot-dot" menu provides users with the ability to perform operations on projects. All general operations on projects are described in the **Project Management** section above.



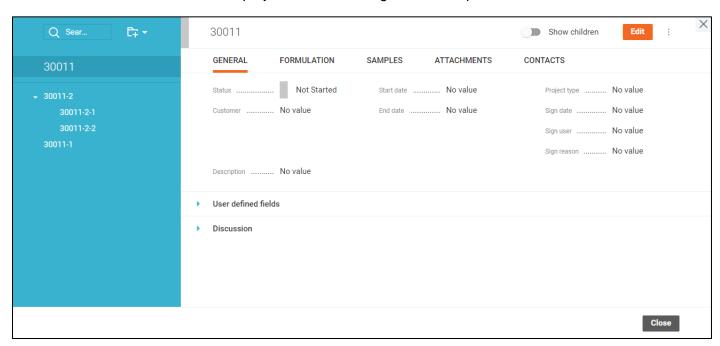
The "Edit" button enables the Project Editing screen.

The "Audit Trail" option allows you to browse all changes made to the project on the Audit Trail window.

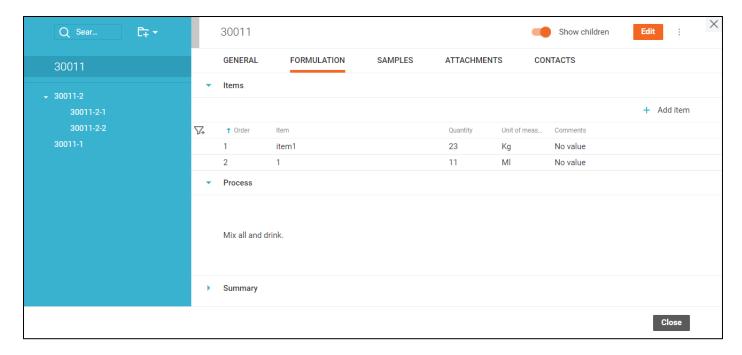
The project data is displayed on multiple tabs. If the root project details are shown, you can view samples, attachments, and contacts of all "child" projects on one screen. Just turn on the **Show children** toggle to enable this option.



The **General** tab contains the main project data that is organized in expandable.



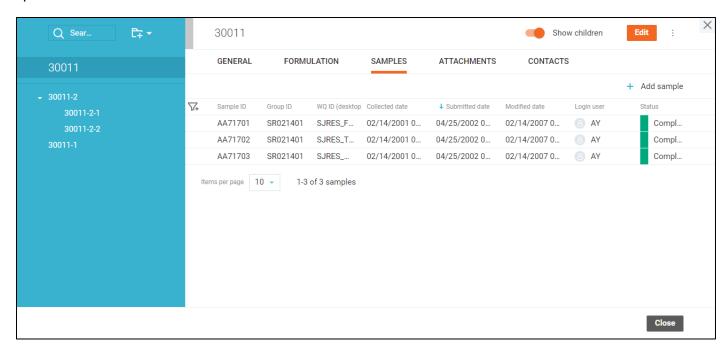
The **Formulation** tab displays a kind of recipe, which lists all the necessary items and describes the "cooking" process. One project has one formulation. "Child" formulations are not displayed on the tab, even if the **Show children** toggle is enabled.



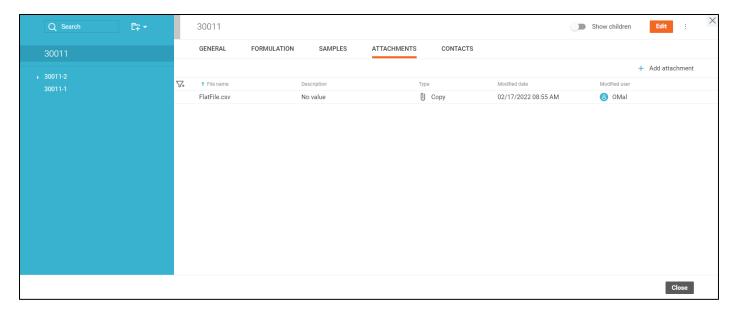
The related samples are displayed under the **Samples** tab in a list with filtering options.

If the **Show children** toggle is enabled and the root project details are open, the list will display samples of all "child" projects as well.

You can navigate to a particular sample by clicking the Sample ID. The **Sample Details** screen will be open.

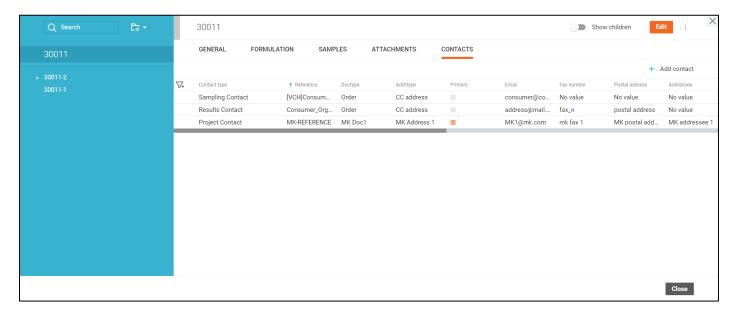


The project attachments are listed under the **Attachments** tab. You can manage them by entering the **Project Editing** mode.



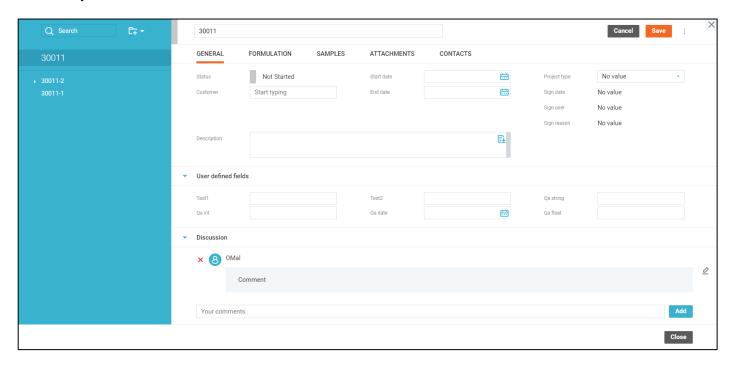
If the **Show children** toggle is enabled and the root project details are open, the list will display attachments of all "child" projects as well.

The **Contacts** tab contains the project contacts.



Project Editing

Project Editing mode can be enabled when pressing the "Edit" button on the **Project Details** screen, by double-clicking any of the editable fields or with the "Add comment/attachment/formulation item/sample/contact" button in the tabs.

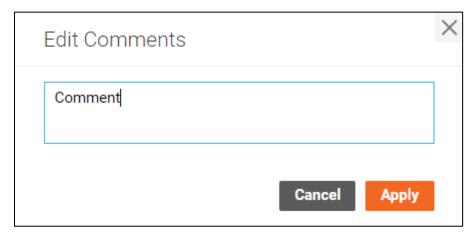


In the edit mode, project fields become editable and the "**Edit**" button is replaced with "**Save**" and "**Cancel**" buttons that apply or discard the changes respectively.

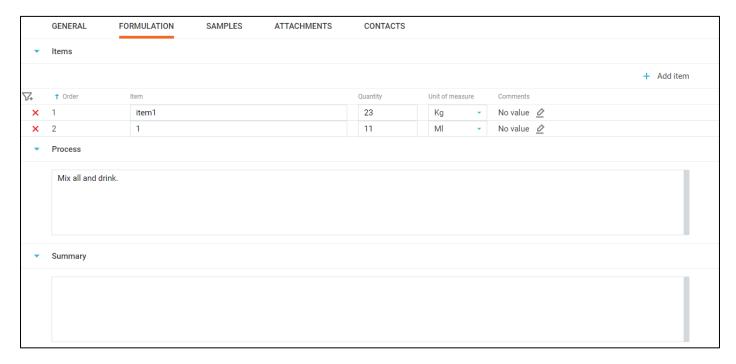
Every change can be discarded separately by the "Revert" button next to the updated field.

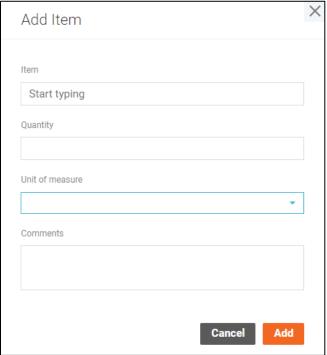


You can add new comments to the discussion by entering text in the "Your comments" field and clicking on the "Add" button. Use the pencil button next to a comment in the discussion to edit it.



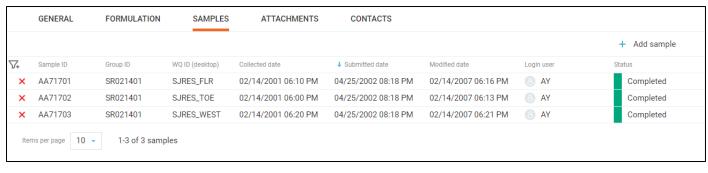
A project may have a kind of recipe with a list of all the necessary items and the "cooking" process description. You can add new items to the recipe using the "**Add item**" button and edit them directly in the list.

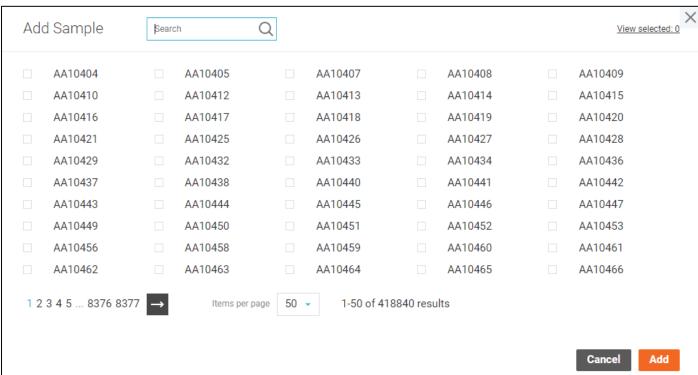




You can filter, sort, or delete formulation items.

You can add any existing sample to the project by clicking the "**Add sample**" button and selecting one or more samples.



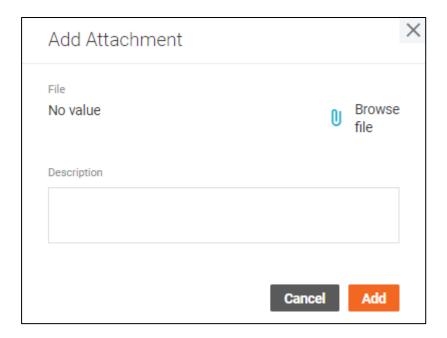


You can filter, sort, or delete samples.

Projects may have files attached to them, and they are handled on the Attachments window.

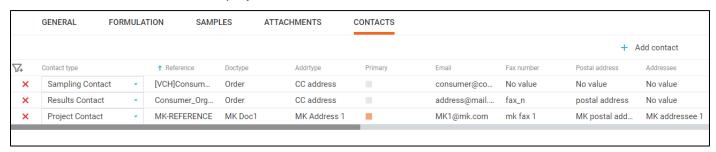


To attach a new file to the project, click the "Add attachment" button in the top-right corner of the window and select the file by clicking the "Browse file" button. You may add a description of the file if you wish. When done, click the "Add" button and the attachment will be added to the list.



You can filter, sort, delete attachments, or update their description.

You can add new contacts to the project.



You can filter, sort, delete contacts, or update their "Contact type" field.

Analysis Legend

Analysis Types

- Narrative analysis
- Single-component analysis
- Multi-component analysis
- Bottle analysis
- Group analysis

Analysis States

- Validated
- Not valid

Analysis Statuses

- Analysis pending
- Manually entered
- Uploaded from file
- Calculated
- Pre-defined
- Scratched

Analysis Result Colors

The color of the bar next to the analysis result value depends on the specification violation:

- The result exceeds specification range
- The result is exceeding warning range but within the specification range
- The result is within the warning range

Collection Group Statuses

- Pending (all samples are in Not Ready or Ready to Collect statuses)
- Completed (no samples in Not Ready or Ready to Collect statuses)
- Received (all samples are reviewed)
- In progress (in all other cases)

Results Posting

Analysis results go through the following steps from entering to posting them to the database: result conditioning, calculation, and rounding.

Result conditioning

Labworks Enterprise LIMS supports the "Standard results substitution" and "Checking dilution factor" features.

"Standard results substitution" is a process that replaces abbreviations from one to four characters entered or imported into results fields with text looked up from a pick list (RLTCODES) in the database. The lookup and replacement occur immediately upon leaving the field containing the abbreviated entry. This feature was created to make it easier and quicker to manually enter commonly used text result values in "standard".

When changing the dilution factor value, the MDL and PQL of the analysis can be automatically recalculated based on specific system settings. Recalculation involves multiplying the MDL/PQL analysis defined for the analysis code by the new dilution factor value and rounding the final result.

More information about the result conditioning step can be found in the *LABWORKS Admin Guide* documentation.

Calculations

Labworks Enterprise LIMS supports the opportunity to calculate an analysis result based on results of other analyses or their components from the sample.

If you change a result of a calculation input, the output result will be immediately recalculated unless the output analysis status is "Manually entered".

Find the instructions for calculation setup in the *LABWORKS eLIMS Calculations Guide.pdf* document included in the Labworks eLIMS installation package.

Rounding rules

When changing a primary result by calculations, the rounding rules must be applied to the result if particular configurations are turned on. Rounding rules are defined based on Analysis code (for single-component analyses) and Analyte (for multi-component analyses) levels.

More information about rounding rules can be found in *the LABWORKS Admin Guide* documentation, as well as all possible system settings for configuring this feature.

Checksum Violations

Checksum violation detection module is one of the Labworks Enterprise LIMS security features.

Only the data collected by the Labworks Desktop Application and Labworks Enterprise LIMS is considered as valid. So, when the database is changed directly, the checksum violation detection module notifies the user about the infiltration.

The module covers changes to the most sensitive data:

- Results of analyses
- Audit trail entries

The notification messages are displayed on the **Analysis Details** or **Audit Trail** screens when any modifications to corresponding data have occurred from outside the system.

Loaded data contains one or more check sum violations! The following analysis results have violations:

X

Loaded data contains one or more check sum violations! The following audit trail records have violations:

WF_TCOL_Total Coliform, Membrane-Filter: Result' modified at '11/17/1997 11:16'