A new module has been added with this SLIMS version to make the data structures used in biobanks into core concepts. This configuration-only module allows visit types and products to be added that are specifically used in studies and keeps them separate from the products used in QC orders.

This includes mapping between the Study, Workflow, Requestable, and Products.

The Study is associated to Visit Types, and those are associated to Specifications (which are the products in the study). The specifications are built in a tree structure with roots and descendants.
Workflow Updates

FLAGS IN WORKFLOW MODULE

Flags are a kind of Content Event Type that allows the user to indicate that something happened to content during an experiment run. Flags have five consequences on the movement of content through a workflow depending on how they are configured. The five possible consequences are:

- **No Consequence** for informational flags
- **These protocols can no longer be used until requeue** in which case content needs to take a different path or requeue
- **These protocols can never be used again** in which case content will need to take a different path or be cancelled if none is available
- **Require requeue** so the contents have to be requeued
- **Require cancel** so the contents have to be cancelled

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**Note** Only flags added in Workflows have consequences. Those added in Content are not available in Workflows.
Workflow Updates

IMPROVED VERSIONING IN WORKFLOWS

To make versioning parts of a workflow easier, a "Version Entire Workflow" button was added to Workflow Management. This versions all modified protocols at once.

Additionally, the "Version Protocol" button is now always visible at the top of the Workflow Management, Protocol, and Simplified Protocol modules, and is displayed white to indicate that no changes are present or orange to indicate that unversioned changes are present.
Content Updates

FILTER REFACTORING IN CONTENT MODULE

Add View, Edit View, and Add Picklist are updated for this version to have greater action economy by combining all the steps into one menu. In the Add or Edit Views pop-up box there are tabs for Filters, Columns, Sort, Group, and Highlighting in the same window. Add Picklist has the same tabs in the window except for filters, because a picklist is effectively already a filter on specific content.

New views still require a name in order to save. The name cannot be changed when editing a view. However, a view can be copied, and a new name provided for the copy.

Picklists result in the creation of an empty picklist with no content linked. Using the Link Content to Picklist action provides the familiar ‘Link Mode’ which allows the user to select content to link to the list. Removal can still be done through the Selection and Context menus.
Show QC Cards by Result

A new method of displaying QC Cards has been added to the QC module to give the user more flexibility in choosing the view that suits their result information.

The x axis display has been changed from sorting by date, where all results of the same day are in the same column, to sorting in order of results performed and connecting them with a line.

This provides the value in the y axis and the results and time they were performed in the x axis. The range is the number of results the user desires to see instead of the date range.
End User License Agreement

An End User License Agreement has been added with this release to provide clarification on the software legal agreement.

The EULA appears after login the first time a user accesses the system, and after they accept, will not appear again unless the text of the agreement is updated in a new version.
PRINT A SIMPLIFIED ELN

The print function of the Simplified ELN screens has been improved to remove unneeded buttons and labels, and make the logo, table, and margins more consistent.
Enhancements to Printing

IMPROVE PRINTING

Printing was updated across the system so that the print action is consistently found in the top right part of a grid or module. When a user clicks on the print action, the document opens directly in the browser’s print pop-up. The SLIMS logo was adjusted to be displayed in the header from any given module (except for SOPs).
Improved Location Copying

This version allows users to choose a parent location when copying a new location. The user can choose the parent location from a dropdown list and rename the copied location easily with one action.
Visualize Locations in Workflows

After samples have been assigned a lane, they can be visualized in three ways, selectable from the dropdown:

- List
- Plate
- Location

Viewing the samples in the location looks like the plate visualization, but the samples are shown in relation to their location instead. Samples from the same location that are not in the workflow are gray, and the ones that are in the workflow are blue.
Grid Templates Aggregation

The Grid Templates have been updated to change the aggregators column, where they are used, and to add a new aggregator.

In the Meta grid, the Aggregators column is renamed to Having. MAX and MIN can be accessed under this column.

In the Columns grid below, a Function column was added. The aggregators COUNT and MEAN are accessible here, and the new aggregator COMMA-SEPARATED VALUES has been added. This displays all the entries in a comma-separated list.
SLIMS Share Improvements

MACRO STEP SUPPORT

SLIMS Share supports several more macro steps for this SLIMS version so that larger macros using the newly supported steps can be exported.

Supported ones now include: Add Content Event steps, Create Location steps, Enroll Content steps, Execute SLIMSGATE Flow steps, Print Label steps, and support for printers (without label templates or role restrictions for now).