

SOFTWARE NOTE

Biacore™ 8K Control Software version 4.0.8.20368

Biacore™ Insight Evaluation Software version 4.0.8.20368

This document describes new features, known issues and resolved issues with Biacore™ 8K Control Software version 4.0.8.20368, Biacore™ Insight Evaluation Software version 4.0.8.20368, eLicense server, Biacore™ Insight Database version 2.1.0.1 in terms of functionality, resolved and known software issues and limitations.

Upgrading from versions before 4.0.x will require an update of the database and the eLicensing system:



- Update of Biacore™ Insight Database (refer to the Biacore™ Insight Database Guide)
 - Update of the Cytiva Software Licensing Server (refer to the Biacore™ eLicensing Guide)
 - Update of all license files to support the Cytiva Software License Server. Please contact your local scientific support or Biacore™ representative.
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I. Operating systems

Biacore™ 8K Control Software v4.0 and Biacore™ Insight Evaluation Software v4.0 are compatible with the following operating systems:

- Microsoft™ Windows™ 10 (Professional or Enterprise, 64-bit) with English System Locale

II. Functionality

The functionality is described in detail in the Biacore™ 8K/8K+ User Manual (29287247) and Biacore™ Insight Evaluation Software Manual (29287248), which is available on the eDelivery portal using the activation ID(s) you received via email after purchase. The manuals and this software note can also be downloaded from www.cytivalifesciences.com/support/software/Biacore-downloads, following log-in.

III. Biacore™ 8K Control Software version 4.0.8.20368

New functionality compared to version 3.0.12

- The software is now Cytiva™ branded
- .NET browser external component replaced with Microsoft component to minimize security issues.

Resolved issues compared to version 3.0.12

- Not able to upgrade Control or Evaluation software to version 4.0 from a computer that has upgraded from version 1.0 to 1.2.
- Warning messages in Biacore™ 8K System check are sometimes hidden.

Resolved issues compared to version 4.0.6.19879

- The installation and deinstallation of the Biacore™ 8K Control Software cannot be performed if the computer has WebView2 version 100.* or later installed. WebView2 can be updated outside of Cytiva control when updating Microsoft Edge or other software using WebView2.

Known issues / limitations

- None.

IV. Biacore™ Insight Evaluation Software version 4.0.8.20368**New functionality compared to version 3.0.12**

- The software is now Cytiva™ branded.
- Exports to presentations, PDF and JSON/XML have been rewritten to improve performance and reduce dependencies on third-party components.
- Possible to show adjusted sensorgrams in the sensorgram chart with the same adjusted level as the plot chart.
- Additional features added to the Extended Screening and Characterization Extension:
 - Possible to show sensorgrams from reference flow cell and ideal fragment profiles in the sensorgram chart.
 - Expected Rmax is automatically calculated for each compound/series using Rmax controls, positive controls or immobilized ligand.
 - Possible to show both fitted and constant Rmax **guiding curves** together with Expected Rmax line and their respective KD lines and values in the affinity chart.
 - Possible to extrapolate the affinity chart fitted curves, including the **guiding curves**.
 - Possible to show the calculated Rmax expected level in the affinity chart.
 - Support of the new **guiding curves** and its KD values in exports to PDF, spreadsheet and presentation.
- A new software extension, Biacore Intelligent Analysis™, added for fragment **Binding level screen** (plot item) and **Affinity screening** (affinity/kinetics item) applications, including **Evaluation methods** for both. All functionality in the extended screening and characterization license is added to Intelligent analysis license so that a user with Intelligent analysis license but without extended screening and characterization license can use all Intelligent analysis functionality.
 - Intelligent analysis model handling in a new item called **Prediction models**:
 - Possibility to import and export models.
 - Create new models, edit or delete existing version of a model.

- Intelligent analysis in plot item:
 - Binder prediction with possibility to predict quality and classification for samples using a pre-trained prediction model by Cytiva™ or customer trained models.
 - Training of new version(s) of existing models.
 - A new classification panel showing classifications for selected samples. The user can also change classification for selected samples to support model training.
 - 5 new binder prediction table columns to support evaluation of prediction and model training.
 - "Color by" for **Binder prediction quality** and **Binder prediction Classifications** .
 - Filtering of the columns **Binder prediction quality** and **Binder prediction Classifications** in the plot table.
- Biacore Intelligent analysis™ in affinity/kinetics items:
 - Quality prediction with possibility to predict sensorgrams to include/exclude in a series, steady state affinity model (with either constant Rmax or fitted Rmax), acceptance state and classification (why accept/reject) for compounds/series using a pre-trained prediction model by Cytiva™ or customer trained models.
 - Training of new version(s) of existing models.
 - A new classification panel showing classifications for selected series. The user can also change classification for selected series to support model training.
 - Possibility to show reference sensorgrams synchronized with selection of series.
 - 5 new quality prediction table columns to support evaluation of prediction and model training.
 - 4 new result table tabs, filtering prediction result in accepted, rejected, uncertain and all (corresponding to old result table) to support evaluation of prediction and model training.
 - Filtering of the column **Quality prediction classification** in the plot table.

Revolved issues compared to version 3.0.12

- Plot: If a secondary y-axis is used, thumbnails and charts become incorrect in exports to Microsoft® PowerPoint® and PDF formats. When a secondary (right) y-axis is used in the Plot, this becomes incorrect in exports to both Microsoft® PowerPoint® and PDF. Also, the x-axis becomes incorrect (it does not contain all values). This error is seen already in the UI when the content to export is specified.
- Sensorgram & Epitope binning items: A minor problem when calculating responses for report points has been corrected. This means that the presented responses when re-opening old evaluations might deviate slightly from previous calculations. Previously the report points used values 1s too far right for 1 Hz data and 0.1s for 10 Hz data.
- In kinetics/affinity item: After fitting and settings acceptance state it is not possible to change any initial value when going back to empty state.
- In Concentration item: Dilution is not considered in "Calc conc vs expected" because it is "Measured conc" that is used to calculate the ratio instead of "Calculated conc" and thereby the dilution factor is

neglected. This is fixed to use "Calculated conc" instead. Note: that calculated concentration analysis results are saved in the evaluation, so the fix does not apply to existing concentration analysis items where the results have already been calculated.

- In plot item for **Binding level screen** application: Update issue when excluding data inside adjustments for control.
- Open adjustments for control and exclude a negative control point inside the charts. The plots freeze and changing the selected channel will not update the plots.
- When importing the positions for a single 384-well microplate, the cycle order may not match the order of the samples in the import file.
- Chart points are not updated in "Adjust Rmax" for ligand decay chart for all series when changing the report point type. The fitted curves are updated.
- Plot item: Color by option "Cut-off" does not appear for manual cut-off.
- The fit combo box for positive control in adjustment for control is not updated in an existing plot item after changes in the variable table.
- Allow negative values for Rmax. It is now possible to obtain a negative Rmax value from the fit. Note that the sensorgrams must be "mirrored" and the initial value must be changed to YMin for this to work.

Known issues / limitations

- Performance: There is no restriction on the number of runs that can be selected and opened for co-evaluation. However, evaluation software performance will be slow when handling too large data sets.
- The affinity lines in On-off rate charts are not supported in exports to presentation due to limitations in Microsoft® PowerPoint®.
- The software does not support special characters that do not exist in standard western fonts, such as smileys or non-Latin characters. When such characters are used in the software they may be ignored or shown as empty squares. Problems are known to occur in PDF exports and database exports but may also occur in other situations.
 - Workaround: Do not use special characters in any text entered in the software.
- Plot: Calculated columns using referencing functions may generate different results on computers with different regional settings, if the table is sorted on a text column containing characters that are sorted differently in different regions (for example ß, Å, Ä and Ö).
 - Workaround: Don't sort the table on text columns when using calculated columns with referencing functions.
- In some situations, the software does not show Sensorgram items after a report point definition has been modified or added.
 - Workaround: If the situation occurs it is possible to save, close and reopen the evaluation, and the Sensorgram item will show as expected.
- Kinetics/Affinity: It is not possible to save evaluations containing a Kinetic/affinity item when either a KD chart or an On-off rate chart has a data label originating from a calculated column.
 - Workaround: Do not use calculated columns for data labels.
- Curve markers are not visible in sensorgrams in exported data:

- The workspace where you prepare your exports: No indication of curve markers – all sensorgrams have same thickness.
- In exported PDF files: No indication of curve markers – all sensorgrams have same thickness.
- In exported PPT files: Indication of curve markers is present as before, with slightly thicker sensorgrams.
- Curve markers are present in exported tables.
- JSON/XML export: For the "EC50 Settings and Parameters" table, the exported ID is not a unique identifier and may confuse users of the export. Note: This will not affect users who export and do not require curve analysis.

V. Cytiva Software Licensing Server

New functionality compared to previous version

- None.

Resolved issues compared to version 3.0.12

- The eLicense server is updated. This version is not affected by the Log4J security issue.

Known issues / limitations

- The eLicense server fails to startup if it resides on a computer that has been put into sleep mode more than 10 times.
 - Workaround: Ensure that the eLicense server host does not use power saving options.
- Update of all license files to support the Cytiva Software License Server. Please contact your local Scientific Support or Biacore™ representative.
- When updating and activating licenses you are required to enter the activation ID(s) you received via email after purchase to login into the eDelivery portal and active the license for each of the different license types. If you have purchased multiple software licenses or extensions this will require repeating this step for each individual activation ID, which is time consuming.
 - Workaround: The email received after purchase also includes a Reference Number (in addition to the activation ID's), use this Reference Number to login into the eDelivery portal instead. You will now see all the licenses connected to that purchase; you can now proceed to activate as previous but in a more efficient way. Note: In the event you have misplaced the email received after purchase that contains both the activation ID and Reference Number, please contact us or your regional applications and sales specialist.

VI. Biacore™ Insight Database

New functionality compared to previous version

- The database is updated. As in previous releases it is still required that all computers connecting to a Biacore™ Insight Database must use the same version of Biacore™ 8K Control Software and Biacore™ Insight Evaluation Software.
- The local database installation is now based on SQL Server Express version 2019 instead of SQL Server Express 2014 Release 2

Resolved issues compared to version 3.0.12

- None.

Known issues / limitations

- There is no GxP support for imported runs or evaluations, neither from Biacore™ T200 system nor from Biacore™ 8K and Biacore™ 8K+ systems.