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1 Scope

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- **Available languages**
  German (GER), English (ENG)

- **Last released version**
  CONCERTO v4.6a SP1

- **Supported operating systems**
  Windows 7® (32-bit, 64-bit), Windows 8.1® (32-bit, 64-bit),

- **Additionally required software packages**
  - Windows 7® 32-bit
    Microsoft Visual C++ 2010 Redistributable Package (x86)
  - Windows 7® 64-bit
    Microsoft Visual C++ 2010 Redistributable Package (x86)
    Microsoft Visual C++ 2010 Redistributable Package (x64)

- **Recommended PC configuration**
  Intel Core i5 2.5 GHz processor or equivalent AMD processor, 1 GB or more of RAM

- **Release date**
  07.11.2014

This document describes the new functionalities of version CONCERTO 2015 v4.7 and is intended for use as a reference when a system is updated to version CONCERTO 2015 v4.7. For detailed information on the relevant functions, please refer to the online Help or the relevant Product Guide.
2 New Functions

2.1 "Events" Area in Layout Explorer

Under Events, a new area in Layout Explorer, you can find all events that are available for the currently selected object. An event script is a script that is called up as soon as a certain event occurs (e.g., OnDraw before an object is drawn, OnLoad when a window is loaded, etc.). The current assignment status for each possible event is also shown.

Double-click a script or the <Embedded> entry to open the Formula/Script Editor for editing. You can use the filter line to filter by text in the currently shown event list.

2.2 Save Window in Layout

Via the new Save to layout check box in a diagram window's properties dialog you can determine whether you want the window to be saved with a layout the next time the layout is saved.

2.3 Classification Diagram

The Classification Diagram is a new x/y display of a single dataset; each grid of the diagram shows the number of measurement points contained in it.

2.4 "Export as" Function – Export to MS Excel

The Export as function (available in the Data Explorer's and Channel Browser's context menu) now also provides the option of exporting tests to MS Excel.

When you export a test to MS Excel, a separate worksheet is created for each data key. In addition to the channels (which are displayed in columns), each worksheet also includes the base channel, channel name, unit and channel description.

2.5 New Function in Channel Browser – Show Channel Information

The Channel Browser's context menu (at channel level) provides a new functionality which allows channel information to be displayed in Channel Browser. After activating Show Channel Information, an additional area is displayed containing data preview and channel dependencies.
2.6 New Tabs in a Formula's Channel Preview and Properties Dialog

Two new tabs are available in the channel preview and the properties dialog of a formula in Channel Browser.

- **Dependencies** shows dependencies of formulas with respect to datasets/channels in a tree structure and provides further useful information.
- **Formula** gives the structure of the respective formula.

2.7 Save as PDF/XPS

It is now possible to save layouts and individual windows as PDF or XPS files. For this purpose, choose **File | Save As | Layout or Window** and select the PDF or XPS file format.

2.8 New Operations in Composer Window - Column Operations

2.8.1 Sort Data Based On This Channel

This function sorts the channel (in ascending order) for which you chose the operation from the channel's context menu. At the same time, all other channels of the data key are also sorted based on the selected channel.

2.8.2 Convert to Base Channel

This function sets an arbitrary channel as base channel. If the selected channel meets the requirements of a base channel (monotonically increasing), a dialog opens where you can make the following settings for the new base channel (the original channel is retained):

- name
- physical dimension
- unit
- type of channel

If this function is applied e.g. to a log-point measurement channel which contains increasing time values, you can use this method to generate a time-based measurement from a logpoint-based measurement.

2.8.3 Extended Function "Copy to new Excel sheet"

This function in the Channel Browser's context menu has been revised. The new context menu entry, **Create Excel Sheet**, allows you to copy the files in a data key into a new Excel file (**New Excel Document**) or into an open Excel file (**Active Open Excel Document**).

For a detailed description of the new user interface functions, please refer to the User Interface Functionalities User's Guide and the online Help.
2.9  Data Explorer

2.9.1  Labels for MDF Name Components

MDF4 is a format with a complex and structured naming scheme. Apart from the channel names, which are not unique with MDF4, there are so-called name components. In order to make it easier for the user to handle MDF name components, CONCERTO supports 'labels' which are declared at data source level in the DXV file. The following syntax is used for this purpose:

Label(component name)=desired name – e.g. Label(cn)=Signal Name

The labels declared in the DXV file replace the actual component names in CONCERTO. The new components are shown on the Attributes property page when you open a channel's properties in Channel Browser.

The new component names are also displayed as column headers in the channel lists in Data Explorer.

2.9.2  Added Function for Grouping Measurements under Data Keys (MDF Format)

Entry: MDFSingleTM=

Value: 0 (default), 1, 2

- Setting false or entry MDFSingleTM=0 (default)
  Setting MDFSingleTM=0 has the effect that the signals are split among multiple data keys if channel names are not unique.
  If all other MDF-specific settings are set to the default values, this means that the base type is used as channel name. For time-based data this means, for example, that the signals are split among multiple data keys based on the scheme (TM1, TM2, \ldots TMn).

- Setting true or entry MDFSingleTM=1
  Setting the entry MDFSingleTM=1 has the effect that the signals are not split among multiple data keys if channel names are ambiguous.
  If all other MDF-specific settings are set to the default values, this means that there is exactly one data key with the name TM. Any channel names that are not unique are extended. A separator and an MDF name component will be added to the original channel name.
  If there are e.g. two channels with the name wub_w, the name component cs (channel source) is added. If the first channel in this field has the value DIM and the second channel the value Inca, the resulting channel names will be TM’wub_w/DIM and TM’wub_w/Inca, respectively.

- Setting device-based or entry MDFSingleTM=2
  By setting the entry MDFSingleTM=2, CONCERTO itself tries to find the best settings and the best way of splitting the channels among the data keys for the respective file.
  If this entry is used with this value, it is usually no longer necessary for you to define the other MDF-specific settings yourself (see below). CONCERTO independently tries to find the best settings for the respective file.
  When using MDFSingleTM=2, it is of course still possible to define these settings manually. This logic is based on the principle of creating unique channel names without creating too many data keys in the process. In the case of ambiguous channel names, CONCERTO tries to split the channels among data keys.
  In order to achieve this, the system searches for an MDF name component with as few different values as possible.
2.9.3 **New Data Source Setting TimeBaseChannel=**

By setting the entry `TimeBaseChannel=` it is possible to define a channel that is to be used as time base for all other channels. The setting is only useful for logpoint-based formats. For this purpose, the channel must contain monotonically increasing values.

2.9.4 **Concatenate Measurements**

By specifying the entry `ConcatenateMeas=` in the DXV file, CONCERTO enables you to concatenate individual measurements and their contents, provided the measurements and their channels have identical names.

Measurements can be concatenated for individual or multiple data keys. Please note that although it is possible to apply this function to multiple data keys, only the measurements within the same data key are concatenated.

2.9.5 **Show Measurements in Addition to Open Measurement**

The entry `MeasAddDataTypes=` in the DXV file enables you to show corresponding or special measurements.

- **Show Corresponding Measurement in Addition to Open Measurement**
  By specifying the entry `MeasAddDataTypes=` in the DXV file, CONCERTO enables you to show a measurement that corresponds to a specified data key name. If no corresponding measurement is available, the first measurement is taken.

- **Show Special Measurement in Addition to Open Measurement**
  By specifying the DXV entry `MeasAddDataTypes=`, CONCERTO enables you to show special measurements. It is also possible to add defined measurements by additionally specifying the measurement number.

2.9.6 **Selective Message Display**

By specifying the entry `MaxMeasPerKey=` in the DXV file it is possible to select a number of n first or last measurements to be displayed. This allows you to reduce the list of displayed tests.

2.9.7 **Save External References (Attachments) of ASAM-ODS Data to File System**

As already known from earlier CONCERTO versions, data files with different formats can be linked to ASAM-ODS tests or measurements by using External References. Such external references may be files of different formats, e.g. iFiles or MDF files. In order to use these files independently of the ASAM Server, CONCERTO now allows you to save the attachments in the file system.

For this purpose, click the relevant test with the attachment in the test list and choose Save As from the context menu.

2.9.8 **Bus-Logging File (BLF)**

BLF data sources can now be used to access data in BLF data format. The actual messages or measurements are located in a BLF file, whereas the information describing the messages is saved in DBC files. CONCERTO needs both the BLF files and the DBC files in order to correctly interpret the data.

In the simplest of cases, the DBC files reside in the same folder as the BLF files. In this case it is sufficient for the DataPaths element in the DXV file to reference this folder.
2.9.9 Additional Functionality in "Load data from..." Dialog

When loading a layout, a separate test selection dialog box (Load data from...) is displayed. It already contains a test list made up of the tests which were open at the time the layout was saved. The test list also includes the data source of the test. In this way, data sources with the same name that are used in different data environments can be clearly identified.

Previously it was possible to make changes to the proposed test list by dragging tests, files or measurements onto a list entry to replace it. The new version also enables you to drag folders from data sources (not the data source itself) onto an entry in the list. When you drag a folder from a data source onto a test in the dialog, all tests in the folder will automatically be opened. Alias names will only be allocated when you click Load. Multiple selection is also possible.

2.9.10 Additional Setting for Server Login – Shared Login

The "Shared Login" server log-in functionality is now available in the advanced data source properties for ASAM ODS databases.

Shared Login:

Activate this check box if you want to share log-in information with other data sources. When changing between the data sources, you will not be prompted again to enter the log-in data. The log-in information is server-specific: There is one password for each server. This password is used for all data sources which access the respective server and for which Shared Login is activated.

For a detailed description of the new Data Explorer functions, please refer to the Data Explorer User’s Guide and the online Help.

2.10 New Formula/Script Editor

The Formula/Script Editor has been overhauled and new functions have been added:

2.10.1 Functions Bar

The Functions bar now includes the following four categories:

- **Functions**
  Lists all Formula/Script Editor functions, arranged in subcategories.

- **Classes**
  Lists all classes with the respective functions.

- **Macros**
  Lists the macros of all CONCERTO macro paths.

- **User Variables**
  Enables quick access to all user variables, which can be called and edited via the Extras | User Variables menu option in the main application.

The Search field in the upper part of the Functions window enables you to search the different function types for terms and functions. The search query represents a full-text search which returns all items that contain the term you are searching for.
2.10.2 Message Window

The message window contains 3 new tabs:

- **Find Results**
  Shows the search results returned by the Find in Files function.

- **Mathematical Display**
  Displays mathematical functions with their notation. The displayed items are not editable.

- **Documentation Preview**
  Displays formatted documentation text (in DoxyGen format) for formulas/macros/scripts.

2.10.3 Debug Window

This window only appears when the execution of a macro function, formula or script was stopped by a Breakpoint or Run to Cursor. It contains several pages:

- **Watch**
  This window displays all variables (datasets) already used and their values along with the dataset arrays, arranged in columns in alphabetical order. The base values (if any) can also be shown in addition to the Y values (see below). You can drag the columns to arrange them in the order you want. To redisplay the variables in alphabetical order, choose Automatic Sort from the context menu.

  Via the **View | Options** menu option ("Debug window properties" property page) you call up a dialog for setting the display options for the variables.

  The Watch window also has a new filter function (Search line above the variables). The logic matches the one used in the channel filter list in Channel Browser.

- **User defined**
  Variables can be selected by double-click and dragged into this window.

  This window's context menu provides the same options as the Watch window plus two additional options for adding and deleting variables.

- **Auto**
  This page is a combination of the Watch and User defined pages. It shows the variables at the current cursor position and in the line directly above. This makes it easier to debug long scripts.

2.10.4 Dependency Tracer

Instead of showing source code, the Dependency Tracer has a graphic that shows all the datasets/channels a formula depends on in order to be calculable.

You may call up the Dependency Tracer in one of the following ways:

- **Toolbar**

  Alternatively, Via a formula's Trace Formula Dependencies context menu entry in Channel Browser

  For the displayed boxes the following logic applies:

  - square = formula
  - round = input channel
  - green = formula/input channel that is available and calculable
  - red (configurable) = formula/input channel that is not available and not calculable

  The colors can be configured via the **View | Options** menu entry, **General** property page.
Via the relevant button in the upper right corner of the Tracer window a legend can be displayed which shows the meaning of the displayed boxes.

### 2.10.5 Display Settings for the New Formula/Script Editor

Choose **View | Options** in the menu to call up a dialog for defining display options for the new Formula/Script Editor.

The dialog consists of three property pages:

- **General**
  Here you edit settings for the Dependency Tracer.

- **Editor**
  This is where you edit general settings, such as syntax color, font and tab size.

- **Debug window properties**
  Here you edit settings for the Debug Window.

### 2.10.6 Find in Files

The new Formula/Script Editor enables you to search work environments, data sources, folders and files for formulas, macros, scripts and embedded scripts. You can call up this function via the toolbar. A dialog will open where you can define search criteria.

The search result is displayed on the Find Results tab in the message window. Clicking a line in the message window will take you directly to the editing window where the found result(s) is/are highlighted blue.

You may interrupt a search at any time by clicking the **Stop** button.

### 2.10.7 New Script Functions

#### 2.10.7.1 FillExcelReport

This function enables you to fill predefined cells in an MS Excel template via a script. In addition, it saves a new MS Excel file as a new instance. In order to be able to fill Excel template cells with data, markers need to be set in the Excel template.

#### 2.10.7.2 ReCompileCalcGraf()

This function compiles the CalcGraf models currently open. The number of cylinders may be set optionally.

#### 2.10.7.3 CloseCalcGrafModel()

This function closes the specified CalcGraf model. The name of a CalcGraf model may be set optionally.

#### 2.10.7.4 GetAlternative()

This function returns the measurement values of an alternative dataset type. This may be used for various data types, e.g. MDF hybrid channels.
2.10.7.5 Extended Function "Export encrypted"

As a new option of this functionality, all formulas/macros/scripts in a folder can be encrypted.

For a detailed description of the new Formula/Script Editor functions, please refer to the Formula/Script Editor User’s Guide and the online Help.
# Improved/Extended Functions

This chapter lists the most important improvements and added functions in this service pack. To get a complete list, send an e-mail to CONCERTO.support@avl.com.

## 3.1 JC-3953 Error When Labeling X-Axes

In the display of x/y diagrams, the x-axis was not fully labeled unless the longest channel used was in topmost position in Layout Explorer.

## 3.2 JC-3955 "Remove from all Windows" Function not Working Properly

When using the Remove from all Windows function from the Channel Browser’s context menu, the alias name was not properly removed from the Report object.

## 3.3 JC-4802 Auto Range Not Working Correctly

The Auto Range axis setting did not work correctly when a dataset was removed from an x/y diagram. Auto Range or Redraw had to be performed manually.

## 3.4 JC-4820 Limit in List Box Object

In certain circumstances, the limit for list box entries was exceeded. The limit has now been increased.

## 3.5 JC-4829 Crash Caused by Corrupt Channels

Crashes caused by corrupt channels in CTF format could be eliminated. The problem was caused by the way channels with different abscissa and ordinate lengths were handled.

## 3.6 JC-4836 + JC-4947 Automatic Legend Adjustment Not Working Correctly

Legends for x/y diagrams were not automatically adjusted after adding or deleting datasets. Furthermore, the line style in the legend was not adjusted if it was changed in the diagram.
3.7 **JC-4870 + JC-5068 Memory Leak in CONCERTO**

Memory leaks could be removed, which has improved CONCERTO's performance.

---

3.8 **JC-4874 Auto Range not Working for Logarithmic Scales**

The *Auto Range* function did not work correctly for logarithmic scales. The function now also works for this type of scales.

---

3.9 **JC-4891 concerto.ini Entry GLOBALENVIRONMENTFILE= Removed**

The `GLOBALENVIRONMENTFILE=` entry was deleted if the specified dxv file could not be loaded for some reason.

---

3.10 **JC-4892 Selections in Form Tables Deleted**

Line selections in form tables were deleted if another object was selected. Selections are now retained and can be used when the form table is re-selected.

---

3.11 **JC-4895 Incorrect Channel Sorting**

In certain circumstances, channels in Channel Browser that contained numeric values in their name were sorted incorrectly.

---

3.12 **JC-4897 Update Problems with Split Measurements**

Opened tests were not updated if Measurement Splitting was changed in the Data Source Properties. Furthermore, a wrong data key name was displayed if updating was performed manually.

---

3.13 **JC-4898 Measurement Splitting not Working with OnLoad Macro**

The *Measurement Splitting* function did not work if a macro for loading channels was defined in the Data Source Properties.

---

3.14 **JC-4900 Incorrect Sorting in My Computer/Network View**

Sorting in the Data Explorer's My Computer/Network view did not work. It was only possible to sort by name.
3.15 JC-4902 Empty workenvironment.dxv File not Shown

When creating a new work environment, a workenvironment.dxv file is created, which previously was not displayed in Data Explorer due to the file being empty. This default behavior has been changed and the empty workenvironment.dxv file is now displayed after creating a new work environment.

3.16 JC-4903 Error Message for Invalid Combinations in Script Function LoadFileSeries()

The `LoadFileSeries()` script function previously permitted invalid combinations of measurements for the creation of series, which was not possible if the function was selected via the context menu. Now, an error message is displayed instead of invalid series.

3.17 JC-4929 Incorrect Unit Conversion in Form Tables

Unit conversion in form tables did not work correctly if a macro was additionally defined for the form table.

3.18 JC-4938 + JC-5018 Invariable Width of Base Track in Preview Window

The base track in the data preview window was not variable, which is why values longer than the defined column width were truncated.

3.19 JC-4948 Faulty IndexOf Script Function

The `IndexOf` script function could not handle invalid values. It always output the last valid value.

3.20 JC-4961 Composer Window not Created

When creating ComposerFiles, no empty Composer windows were created if the setting `Create Composer Window` was selected in ComposerFile definition.

3.21 JC-4970 Improved PDF Printing

Printing PDF files using various PDF printers did not result in a satisfactory performance. This has been changed – a new PDF print option (see `Save as PDF/XPS` on page 10) has been added along with improvements in performance.
3.22 JC-4989 Using Data Key Description as Data Key Name for Diadem TDM/TDMS Data

In earlier versions, CONCERTO used the data key description as data key name if the same base type (e.g. TM) was used multiple times in the test. In the previous version this was no longer possible. Now, this behaviour can be defined by using the dxv entry `TDMKeyNames=`.

- `TDMKeyNames=0`: Uses the data key description as data key name for Diadem TDM/TDMS data.
- `TDMKeyNames=1`: Uses the data key name (e.g. TM) and creates index numbers to distinguish multiple identical names (e.g. TM1 – TM3).
- `TDMKeyNames=2`: Uses one data key for all channels of the same type.

3.23 JC-5016 Wrong Data Displayed for Multiple Measurements

If a given data key contained channels with identical names, wrong data were sometimes displayed if the channels included multiple measurements.

3.24 JC-5025 Map Shading not Possible with a Control Dataset

Map shading was not possible if a control dataset was being used (with a different length or resolution compared to the map datasets).

3.25 JC-5029 Tests not Displayed in Data Explorer

Data Explorer could not display tests of an ODS5 data source, a name such as e.g. TestName.001 or TestName_001 and Test_Attrs=Name;Version,3 or NameAttr1=Name + NameAttr2=Version,3.

3.26 JC-5045 CTF Files not Correctly Embedded in Layout

CTF files were not embedded correctly in a layout. The CTF file was loaded directly into the tmp folder but not into the layout.

3.27 JC-5046 +JC-5091 Faulty Function "Add everywhere & sync."

The Add everywhere & sync. function in a cursor's context menu did not work properly. In certain cases, no cursors were added (e.g. if logpoint-based data were displayed in the diagram).
3.28  JC-5063 + JC-5179 Setting User Variables for Cursors

Previously it was not possible to define user variables for cursors via script. The script function `SetCursor()` now enables you to set the user variable for a required cursor.

3.29  JC-5064 Incorrect Values for Horizontal Cursors

If y-axes of different diagrams were linked and if horizontal cursors were used in these diagrams, the values for these horizontal cursors were sometimes not displayed correctly.

3.30  JC-5077 Crash Caused by Embedded Data Handling

In certain cases, CONCERTO crashed if data embedded in a layout were loaded before the output data.

3.31  JC-5085 Crash in Formula/Script Editor’s Debug Mode

In certain circumstances, CONCERTO crashed if an embedded script was being edited in the Formula/Script Editor’s Debug mode.

3.32  JC-5096 Translation of Data Key Names not Possible

It was not possible to translate data key names for the data of a Generic ASCII data source.

3.33  JC-5114 + JC-5196 Creating Formulas for Series Data not Possible

It was not possible to create formulas for series data.

3.34  JC-5118 Copy Channels Function in Data Preview Window not Working Correctly

Channel data were not copied correctly if using the Copy Channels context menu function in the data preview. In certain cases, data, channel names and descriptions were not taken over correctly (e.g. due to gaps).
4 Limitations and Known Problems

4.1 Data Explorer Settings Under Windows 7 64-bit

Under Windows 7 64-bit, arguments in DXV entries must be specified between quotation marks (e.g. "datapath" "%1" "%2" instead of "datapath" %1 %2).

4.2 ITS00377140 File Plug-ins for 64-bit CONCERTO

The following data file plug-ins are currently available for the CONCERTO 32-bit version only:

- BLF
- GT Power
- Yokogawa
- Magic
- Digalog
- AST Simulation
- PUMA Recorder (MCF)

Conversion of these plug-ins to 64-bit is planned for future versions.

4.3 File Plug-ins for Windows 8.1

CONCERTO v4.7 no longer supports the following data file plug-in:

- Cameo

4.4 ITS00369489 JPN and CHN Characters in Formula/Script Editor

No comments in Japanese or Chinese language can be entered and displayed in the Formula/Script Editor.

4.5 ITS00367718 Program Crash When Reading Long Channels of File Type MATLAB MAT File

Due to a limitation in the Matlab Library used in CONCERTO, files might not be able to be read, which could then cause the program to crash. Such files cannot be read in Matlab either. In Matlab this circumstance is indicated by the message *too many elements*.

4.6 ITS00374656 Layout Settings Menu

Settings made via the Extras | Layout Settings menu cannot be undone by using the <CTRL> + Z keyboard shortcut.
4.7 JC-4748 MatLab Runtime Environment in CONCERTO 64-bit

The MatLab runtime environment cannot be used in CONCERTO 64-bit.

4.8 JC-4732 GlobalVar("$APPLICATION_VERSION") in CONCERTO 64-bit

If using the Formula/Script Editor function
GlobalVar("$APPLICATION_VERSION"), the last character of the returned value
is not shown (e.g. 460.0.96.31 instead of 460.0.96.319).

4.9 JC-4696 Differing Behavior of Column Headers in Data Explorer

Column headers in Data Explorer behave differently depending on the type of
list:

- Test list (data source selected in tree view):
  If columns are re-sorted, the column width of shifted columns will remain
  unchanged.
  It is possible to rearrange the columns.

- All other lists (such as e.g. channel list, data key selected in tree view):
  If columns are re-sorted, the column width will also change.
  It is not possible to rearrange the columns.

4.10 JC-4691 Multiple Data Paths and User Variables

If multiple data paths are defined in the data source definition, the user variables
no longer function.

4.11 JC-4730 Data Type TRR in CONCERTO 64-bit

The data type TRR is not available in CONCERTO 64-bit.

4.12 JC-3634 AVI Video Files Stop after 1242360 ms

Videos in the AVI format with a running time longer than 1242360 ms automati-
cally stop after this time. This is because the used API does not allow for longer
sequences.

4.13 ITS00372791 Automatic Return of a FLEXlm License

By setting the entry LockLicenseTime in the Extras | Pre-Sets menu it is
possible to define the automatic return of the used FLEXlm license if
CONCERTO has been in an inactive state for n minutes.

This feature, however, is not provided if, during this inactive period, CalcGraf or
the CONCERTO start dialog is open.
4.14 JC-4705 Array Formulas without Hash Character (#) in Formula Name

If array formulas are created and assigned a name that does not contain a hash character (#), the resulting formula channels cannot be expanded.

4.15 Borrowing Licenses via Laptop

If using a laptop, it might not be possible to borrow CONCERTO licenses (particularly if using a docking station). CONCERTO borrows the license from the server and assigns it to the active network card. Please note that this is the same network card as the one used when working with CONCERTO later on (docking station vs. LAN or W-LAN).

4.16 Modification of Data Key Sorting

To improve the performance of CONCERTO, a new sorting mechanism for data keys was introduced for specific data formats. Consequently you might have to adapt existing formulae, macros or scripts, if they contain data sets which does not have a data key definition e.g. SPEED ⇒ D:SPEED and which exists in several data keys.