MDA V8.5.7 – What's New

Functional Enhancements & Usability Improvements

Cumulated Slides for
MDA V8.5.x Releases

ETAS

DRIVING EMBEDDED EXCELLENCE

MDA V8.5.7 – What's New

Overview

- **What's New for MDA V8.5.7 (December 2021)**
  - Functional Enhancements
  - Files, Formats & Data Types
  - Usability Improvements
- **General Notes**
  - Installed Components and System Requirements
- **Candidates for Future Versions**
- **What's New of Former Versions of MDA V8.5.x**

(Underlined chapter names are hyperlinks)

MDA V8.5.7 – What's New

Summary for MDA V8.5.7 (December 2021)

- **Functional Enhancements**
  - Import of Calculated Signals from an existing MDA V8 configuration (*.xdx)
- **Files, Formats & Data Types**
  - Extensions for customer specific textual measure file formats to enable a more flexible handling of time channel, signal name and meta information
  - MdfConvert.exe supports customer-specific textual measure file formats
  - Show conversion formula for signals with a nested conversion
  - Read ASAM ‘FUNCTION’ and ‘GROUP’ information from MDF files
- **Usability Improvements**
  - Improved tooltip for calculated signal defined as a constant value
  - Improved tooltip if "Reduced Data" is shown in the oscilloscope
  - Path for saving a print-out of an oscilloscope or scatter plot is persisted

MDA V8.5.7 – What's New

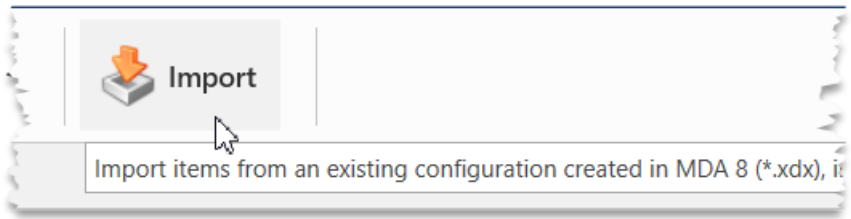
Functional Enhancements of MDA V8.5.7 (December 2021)

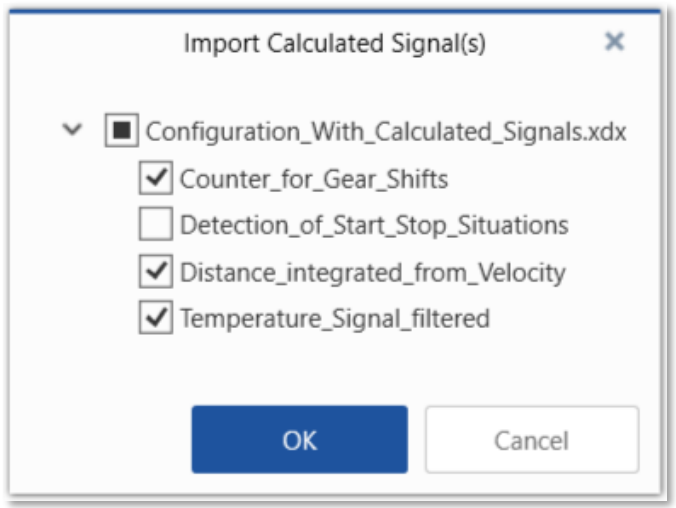
- **Functional Enhancements (MDA V8.5.7)**
  - Import of Calculated Signals from an existing MDA V8 configuration (*.xdx)
- Files, Formats & Data Types
- Usability Improvements

MDA V8.5.7 – What's New

Functional Enhancements: Import of Calc. Signals from an existing MDA V8 configuration (V8.5.7)

- Easier reuse of calculated signals by importing calculated signals from an existing configuration file
- Import functionality was extended to allow the selection of an XDX file created with MDA V8.x
- User can choose in a new import dialog which calculated signals shall be imported
- MDA V8.5.7 redirects automatically the references of the imported calculated signals to the available measure file if the target configuration contains exactly one measure file
- Additionally, the same redirection happens for inputs signals of a calculated signal when a copy&paste operation is done





Notes:
- Import of XDA configurations and XCS files created with INCA or MDA V7 was already supported and remains unchanged.
- If a calculated signal has as input signal another calculated signal, user is reminded to check whether the relation after the import is still correct.
- Import of calculated signals from an XDX configuration requires a compatible configuration, i.e. created with the same or an earlier MDA V8 version.

MDA V8.5.7 – What's New

Files, Formats & Data Types in MDA V8.5.7 (December 2021)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.7)**
  - Extensions for customer specific textual measure file formats to enable a more flexible handling of time channel, signal name and meta information
  - MdfConvert.exe supports customer-specific textual measure file formats
  - Show conversion formula for signals with a nested conversion
  - Read ASAM ‘FUNCTION’ and ‘GROUP’ information from MDF files
- Usability Improvements

MDA V8.5.7 – What's New

Files, Formats & Data Types: Extensions for textual measure file formats (V8.5.7)

- Enhancements allow to read and write more flexibly customer-specific textual measure file formats
- New options are proved for a flexible definition of
  - Time channel (*'timeFormat'*) supports time information like "2021-12-15 14:32:07.5"
  - Signal name, device name and unit (*'signalNameFormat'*) supports e.g. a combination like "SignalName \ Device (Unit)"
- Furthermore, some error messages for 'MdfConvert.exe' command line tool have been simplified

exampleAsciiFormat.ini

```
42  ; Time type
43  ; Optional. Default is "relative".
44  ; 1) relative - Time signal is in seconds relati
45  ; 2) absolute - Time signal is a string value wit
46  timeType="absolute"
47
48  ; Time format specifier
49  ; Optional. No default value.
63  ; specified as "%Y-%m-%d %H:%M:%S,%F". For "%S%f"
64  timeFormat="%Y-%m-%d %H:%M:%S%F"
65
```

exampleAsciiFormat.ini

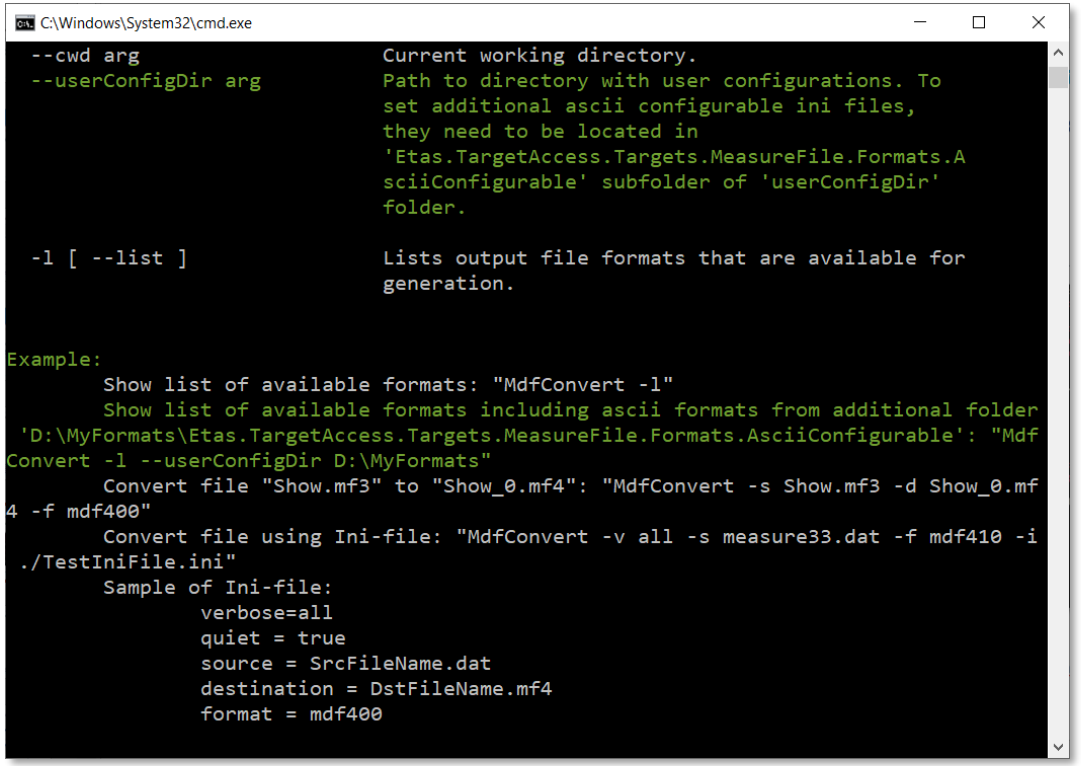
```
124 ; Signal name format.
125 ; Optional. If omitted, the signal name optionally
126 ; It specifies how the signal names specified in t
127 ; The signal names can consist of the signal name
128 ; place holders "%signalName", "%deviceName" and "
129 ; defined as separators. If the specified format d
130 ; the whole string is imported as signal name with
131 ; If both "%unit" and 'unitsRow' are defined the
132 ; If the ascii-file format has a unit for the tim
133 ; "ms" (millisecond), "us" (microsecond), "ns" (na
134 ; Examples:
135 ;     "%signalName\%deviceName": Signal name is fo
136 ;     "%signalName (%unit)": Signal name is follow
137 ;     "%signalName - %deviceName (%unit)": A combi
138 signalNameFormat="%signalName\%deviceName"
139
```

Notes:
- Functionality is supported in MDA V8 application and in Command Line Tool 'MdfConvert.exe'.
- For details how to use the new options see example file 'exampleAsciiFormat.ini' at C:\ProgramData\ETAS\MDA\8.5\CorePlugins\Etas.TargetAccess.Targets.MeasureFile.Formats.AsciiConfigurable
- Specifications for file formats delivered with MDA V8 (like TSV, MRF, ASCII, DXL) remain unchanged. This means, when exporting into such a format: the time information is given in seconds (relative to start of recording), and the device information is appended to the signal name (e.g. name\device).
- With MDA V8.5.7 the definition for the time channel format can be either relative or absolute, namely a combination of date & time only. An absolute time channel format without the date information (like hours:minutes:seconds) is currently not supported.

MDA V8.5.7 – What's New

Files, Formats & Data Types: MdfConvert.exe supports customer-specific textual file formats (V8.5.7)

– Together with MDA additional command line tools are delivered, which can be used to perform file operations independent from the MDA user interface
– ‘MdfConvert.exe’ supports
  – Conversion between measure file formats
  – Extraction of signals (by using e.g. LAB files)
  – Extraction of data for a sub-time range
– Location of file formation definitions (INI files) can be set as argument of MdfConvert.exe
– This facilitates the usage of such file formats in MdfConvert.exe

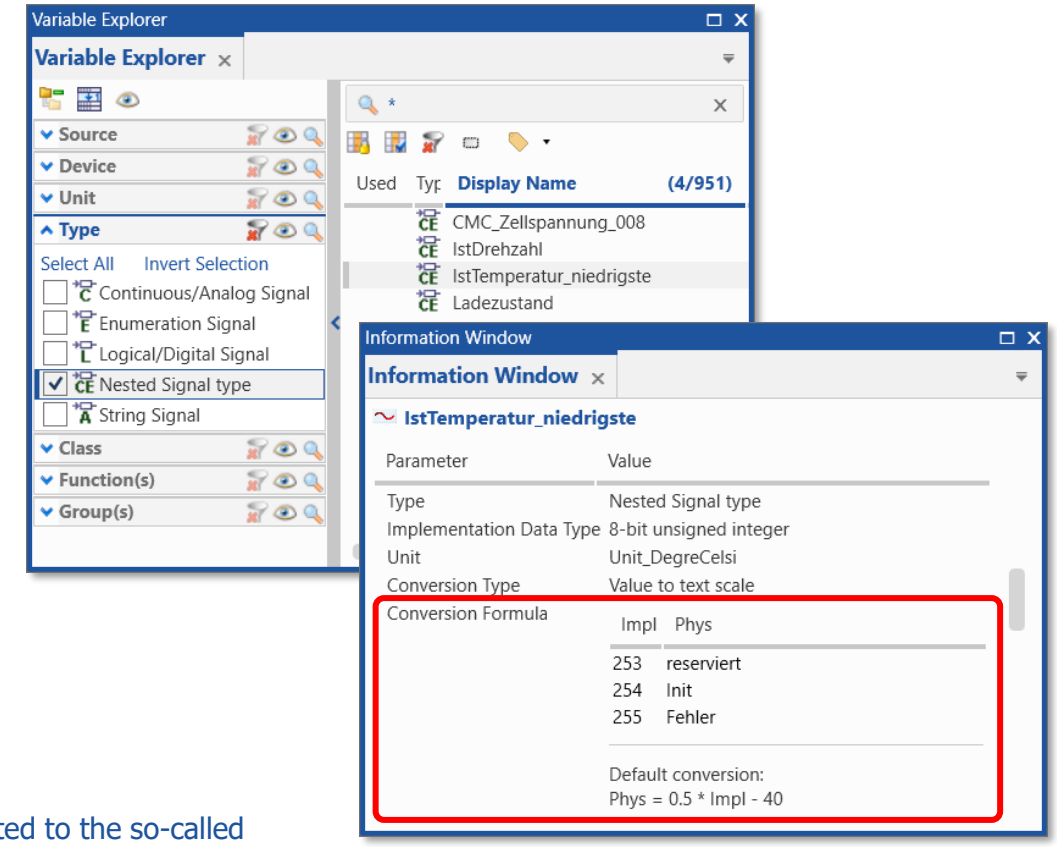


Notes:
- ’MdfCovert.exe’ can be found in the installation folder for MDA: C:\ProgramFiles\ETAS\MDA\8.5\McdCore
- The complete functionality of ‘MdfConvert.exe’ is documented and can be seen by entering the command: “mdfconvert --help” in a console.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Show conversion formula for signals having a nested conversion (V8.5.7)

- For signals having a combination of a verbal and a numeric computation method the information window in MDA V8.5.7 now shows all conversions in the ‘Conversion Formula’ block
  - The details of the verbal conversion are always listed on top and can be scrolled if needed
  - The numeric ‘default’ conversion is always displayed at the bottom of the table
  - Contents can be copied into the clipboard (Ctrl+C)
- This clearly shows which conversion method is applied for a specific Raw value
- A new icon (CE) was introduced for this signal type

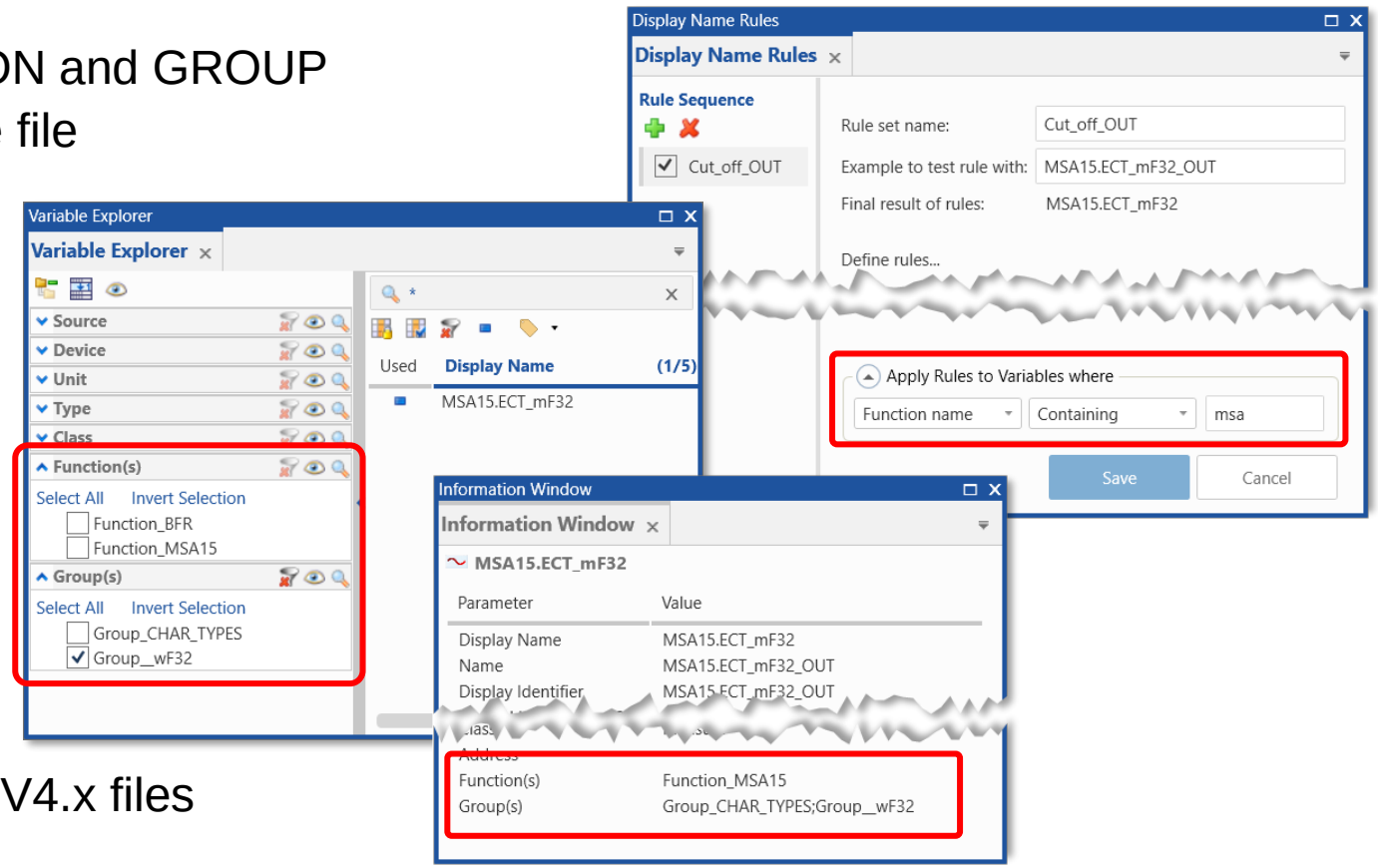


Note:
- Support of signals having a combined verbal and numeric computation method is limited to the so-called ‘STATUS_STRING_REFERENCE’ case. This means a combination of one block having a numeric conversion and one block with a verbal conversion table.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Read ASAM ‘FUNCTION’ & ‘GROUP’ information from MDF files (V8.5.7)

- MDA V8.5.7 reads software FUNCTION and GROUP information from an MDF V4 measure file
- This information can be used for
  - Filtering in the Variable Explorer
  - Providing more meta information for the selected signal in the Information Window
  - Defining more precisely the target group of signals to be truncated by a Display Name Rule Set
- FUNCTION and GROUP information is also stored in newly exported MDF V4.x files



Note:
- FUNCTION and GROUP information must be provided in the MDF measure file. INCA will support this functionality in one of the next versions.

MDA V8.5.7 – What's New

Usability Improvements in MDA V8.5.7 (December 2021)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.7)**
  - Improved tooltip for a calculated signal defined as a constant value
  - Improved tooltip if "Reduced Data" is shown in the oscilloscope
  - Path for saving a print-out of an oscilloscope or scatter plot is persisted

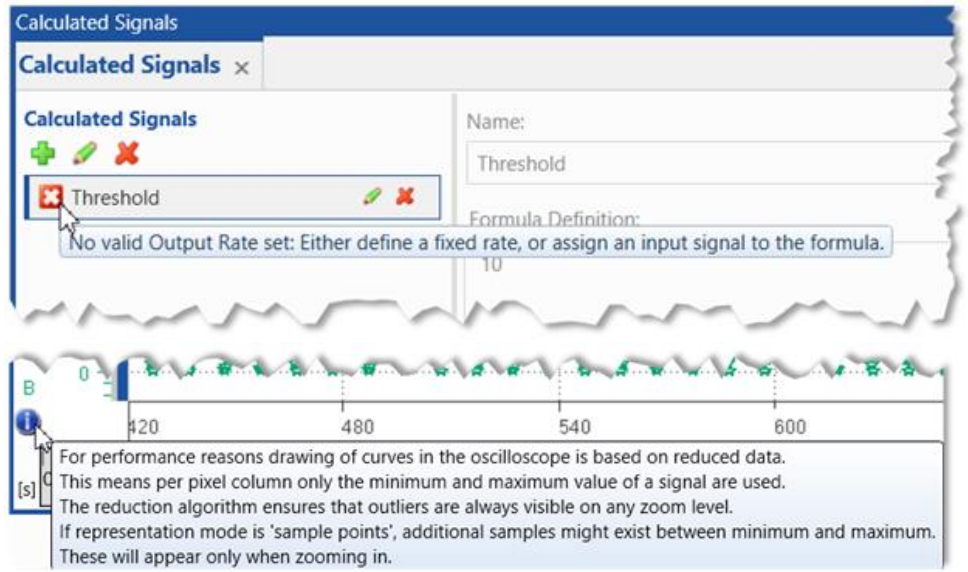
MDA V8.5.7 – What's New

Usability Improvements (V8.5.7)

Improved tooltips

– If a calculated signal is defined as a constant value the output option must be set properly, e.g. by selecting a fixed raster

– If in an oscilloscope so-called ‘reduced data’ is used for displaying the signal curves or samples, meaning and consequences are explained in the tooltip



Print-out paths are persisted

– When saving a screenshot from an oscilloscope or a scatter plot, MDA V8.5.7 now persists the selected path and uses it as default for the next "save print-out" operation

Note:

- The mechanism for reduced data ensures that outliers (extreme min or max values) will be always visible.
  Only in case a signal is shown in sample representation, it might happen that intermediated values are not shown.
  These will then appear when zooming in.

MDA V8.5.7 – What's New

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(Underlined chapter names are hyperlinks)

MDA V8.5.7 – What's New

General Notes

Additionally Installed Components	MDA V8.3.x	MDA V8.4.1	MDA V8.5.7
.Net-Runtime-Environment [1)]	V4.6.2	V4.6.2	V4.8
VCxRedist (V credist_x86 / V credist_x64)	VC10 + VC15 + VC17	VC10 + VC15 + VC17	VC15 + VC17 + VC19 [2)]
ETAS Certificate	X	X	X
ETAS License Manager (x86 / x64) [3)]	V1.7.1	V1.7.4	V1.8.5
Direct X	V9	V9	V9
Others			
ETASShared (IPManager only)	12	13	13
System-Requirements			
Windows® 7 (64 bit) [4)]	X	- [4)]	- [4)]
Windows® 8.1 (64 bit)	X	X	X
Windows® 10 (64 bit) [5)]	X	X	X
Windows® Server 2016 or 2019	-	-	X [6)]

[1)] This component is installed only when no or an older version is installed. This is checked by a Microsoft installation routine.
[2)] For Visual C++ 2019 Redistributable x64 only.
[3)] ETAS License Manager is installed only when no or just an older License Manager version is installed.
[4)] Support of Windows® 7 OS ended in early 2020. MDA V8.4.0 was the last MDA V8 version supporting Windows® 7 OS.
[5)] Supported are Windows® 10 64bit (version 1803 or higher), and Windows® 10 64bit Enterprise (LTSC 2016 or higher).
[6)] Windows® Server support given in MDA V8.5.4 (from March 2021) or higher. Usage of MDA is limited to one user at one time.

MDA V8.5.7 – What's New

Overview

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MDA V8.5.7 – What's New

Candidates for Future Versions of MDA

- The following improvements are **candidates for future versions** of MDA8
  - Copy & Paste Display Name Rule Sets, and Import Rule Sets from existing XDX configurations
  - New category ‘LAB files’ for filtering in the Variable Explorer
  - Relative path information is used to find measure files assigned to a configuration
  - Additional calculation functions like ‘Rolling Minimum’, ‘Rolling Maximum’, ‘Reset Average’ …
  - Enhancements for ‘MdfCombine.exe’ to enable appending of MDF files
  - Automatic assignment of 1-bit signals with verbal computation method to a Boolean strip
  - Further enhancements for Read & Write support of ASCII-based measure files

Please note:
This is an early information about what might come in a future version of MDA.
It is **no commitment** for a specific improvement in a specific version of MDA.

MDA V8.5.7 – What's New

Overview of Former Versions

- **What's New of Former Versions of MDA V8.5.x**
  - MDA V8.5.6 (September 2021)
  - MDA V8.5.5 (June 2021)
  - MDA V8.5.4 (March 2021)
  - MDA V8.5.3 (December 2020)
  - MDA V8.5.2 (September 2020)
  - MDA V8.5.1 (June 2020)

(Version names are hyperlinks)

MDA V8.5.6 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in September 2021

ETAS

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MDA V8.5.7 – What's New

Summary for MDA V8.5.6 (September 2021)

- **Functional Enhancements**
  - Display Name Rules can be applied to signal groups defined by Device, ECU or Function
  - Copy variable meta information from all columns in Variable Explorer
- **Files, Formats & Data Types**
  - Export of enumeration signals into textual file formats
  - Support of ARXML files to interpret CAN Bus Trace files (*.blf) (Add-On)
- **Usability Improvements**
  - Show in File Explorer removed measure files which are causing no-match signals
  - Oscilloscope improvements for signal representation
  - Duplicate layers, and harmonized ‘Copy’ & ‘Copy Contents’ behavior
  - MDA V8 becomes the default application for opening XDA files
- **Miscellaneous**
  - Better overview and access to MDA V8 feature videos
  - Python API for MCD Core
  - Documentation of interface for instrument plug-ins

MDA V8.5.7 – What's New

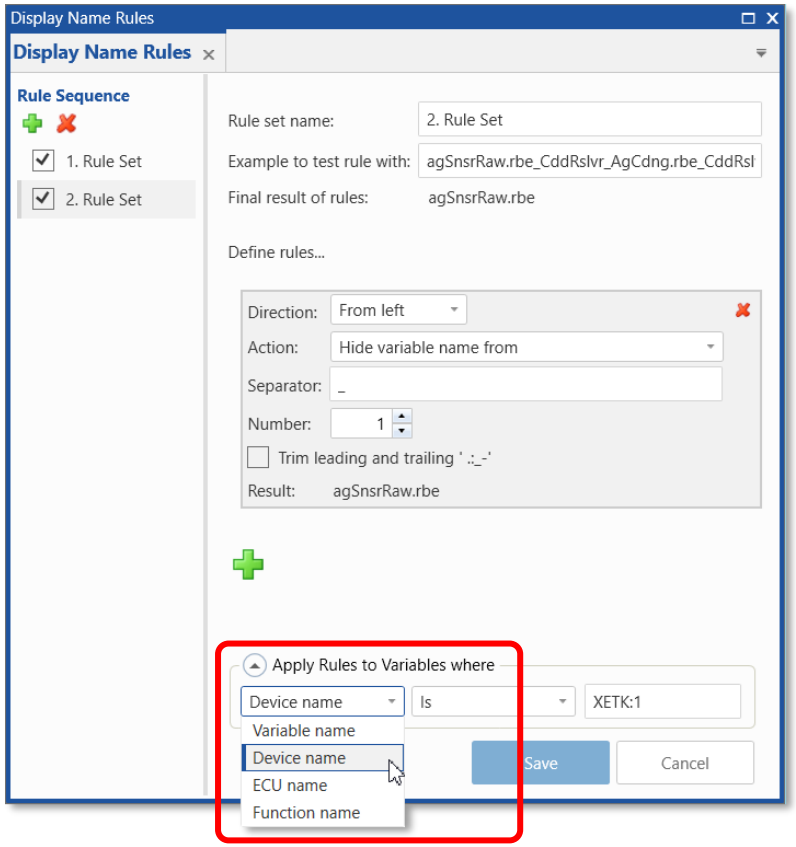
Functional Enhancements of MDA V8.5.6 (September 2021)

- **Functional Enhancements (MDA V8.5.6)**
  - Display Name Rules can be applied to signal groups defined by Device, ECU or Function
  - Copy variable meta information from all columns in Variable Explorer
- Files, Formats & Data Types
- Usability Improvements
- Miscellaneous

MDA V8.5.7 – What's New

Functional Enhancements: Display Name Rules can be applied to a group of signals (V8.5.6)

- Often variable names are long, hard to read and consume valuable screen space
- Since MDA V8.5.5 multiple Rule Sets are supported *
- Each Rule Sets can be applied to a target group of variables specifically
- So far a group was definable by the variable's name only
- With MDA V8.5.6 the group can be defined more flexible by choosing one of the following criteria
  - the variable name
  - the device or ECU meta information of the variable
  - the affiliation of the variable to a FUNCTION

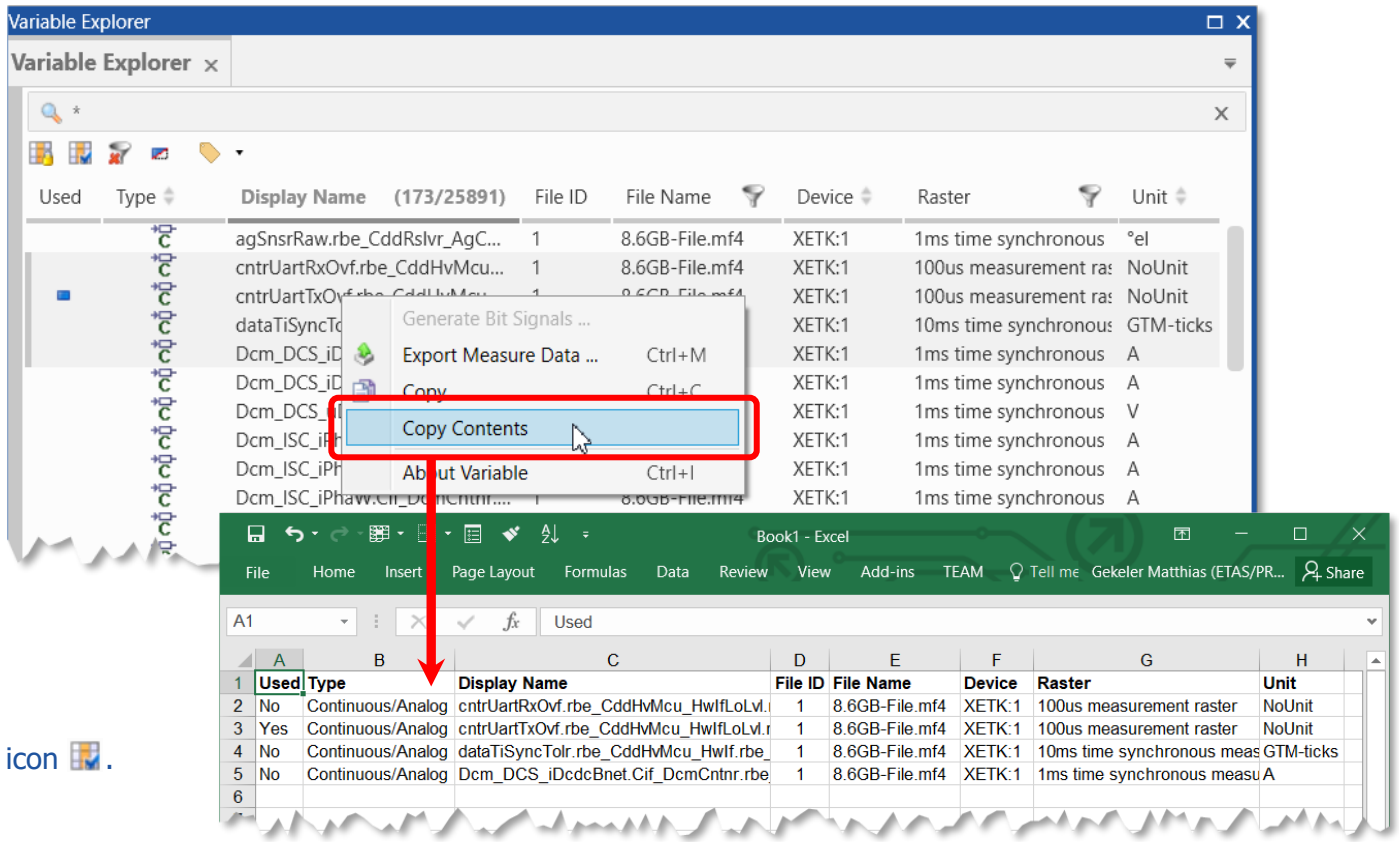


* Notes:
- For details of MDA V8.5.5 functionality see slide "Support of several rule sets"
- If a FUNCTION is defined, all variables of its sub-functions are included as well.

MDA V8.5.7 – What's New

Functional Enhancements: Copy variable meta information from Variable Explorer (V8.5.6)

- The Variable Explorer provides a lot of meta information for the listed variables
- This information might be helpful for documentation or other cases
- Via the new context menu entry “Copy Contents” the information for all selected rows and from all active columns is copied into Windows® clipboard



Notes:
- Active columns can be defined by the Show/Hide columns icon .
- Icons are converted into a text.
- Columns are separated by a tabulator.
- The value ‘No Data’ indicates that an empty string was copied to the clipboard.
- If 4.000 or more rows are selected, then the copy operation must be confirmed by the user.

MDA V8.5.7 – What's New

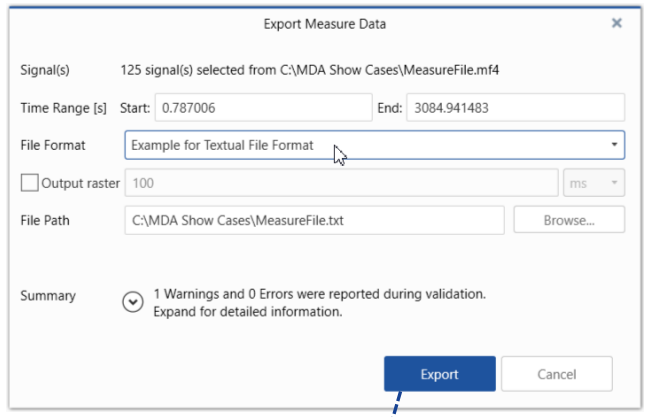
Files, Formats & Data Types in MDA V8.5.6 (September 2021)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.6)**
  - Export enumerations into textual file formats
  - Support of ARXML files to interpret CAN Bus Trace files (*.blf) (Add-On)
- Usability Improvements
- Miscellaneous

MDA V8.5.7 – What's New

Files, Formats & Data Types: Export enumerations into textual file formats (V8.5.6)

– To reuse measure data in other applications (e.g. Excel) it is often required to create a new file in a textual format out of MDA V8
– In MDA V8.5.6 the existing interface for export of measure data is enhanced to include signals having a verbal computation method (so-called ‘enumerations’)
– A new option in the *.INI files for textual file formats specifies whether the numerical decimal raw value (default) or the textual string value will be written in the export file



Handling of Values for Enumerations depending on option in *.INI file

‘Decimal Value’

	A	B	C
1	Time	Boolean	Gear
2	0	0	0
3	1	1	1
4	2	0	1
5	3	1	2
6	4	0	2

‘Verbal Value’

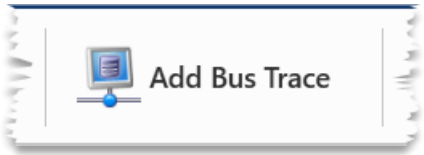
	A	B	C
1	Time	Boolean	Gear
2	0	FALSE	IDLE
3	1	TRUE	ONE
4	2	FALSE	ONE
5	3	TRUE	TWO
6	4	FALSE	TWO

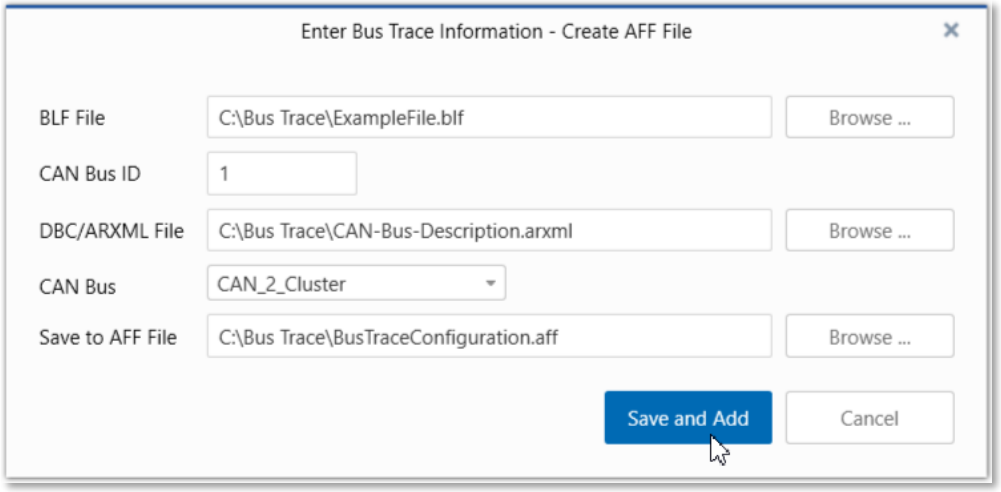
Notes:
- For details see Manual or Online Help “Defining ASCII Measure File Formats”.
- Functionality is supported in MDA V8 application and in Command Line Tool ‘MdfConvert.exe’.
- Default applies if option is not specified in a customer-specific *.INI file.
- Option’s name is ‘EnumerationStoreMode’. For details see example file ‘exampleAsciiFormat.ini’ in C:\ProgramData\ETAS\MDA\8.5\CorePlugins\Etas.TargetAccess.Targets.MeasureFile.Formats.AsciiConfigurable
- File formats DXL (using the textual enumeration value) and DXL INCA dialect (using the decimal value) remain unchanged.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Support of ARXML files to interpret CAN Bus Trace files (*.blf) (V8.5.6)

- Add-On for MDA V8.5.6* supports Autosar ARXML files to interpret CAN Bus trace files (*.blf)
- When adding a CAN Bus trace file simply select the corresponding description file either in
  - DBC format plus CAN ID, or
  - ARXML format plus CAN Bus name
- Input files are combined to an AFF file which is shown in the File Explorer
- Trace data is interpreted and resulting trace signals can be used just like ordinary measure file signals





* Notes:
- The Add-On is an ETAS Engineering solution and needs to be ordered additionally.
- A valid license is required to use the functionality, license check happens when clicking the "Add Bus Trace" icon.
- CAN protocol 2.0 and J1939 are supported.
- ARXML file must be in format V4.x. Only the description for CAN busses is used from the ARXML file. FlexRay description is ignored.

MDA V8.5.7 – What's New

Usability Improvements of MDA V8.5.6 (September 2021)

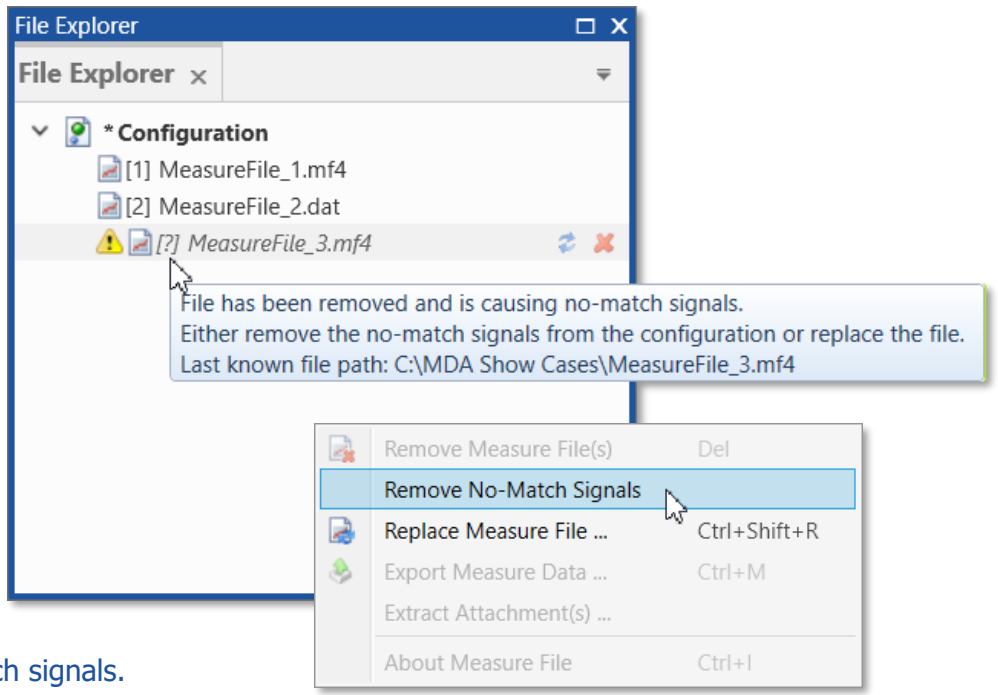
- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.6)**
  - Show in File Explorer removed measure files which are causing no-match signals
  - Oscilloscope improvements for signal representation
  - Others: Duplicate layers, and harmonized ‘Copy’ & ‘Copy Contents’ behavior
  - MDA V8 becomes the default application for opening XDA files
- Miscellaneous

MDA V8.5.7 – What's New

Usability Improvement: Show removed measure files which are causing no-match signals (V8.5.6)

– To show better that signals in no-match state exist because of a removed measure file the file name remains visible in the File Explorer of MDA V8.5.6

– The no-match situation can be resolved in three ways
  – The file entry is used for a file replacement
  – Another measure file is ‘added’ and used in the ‘Add or Replace’ dialog to replace a removed file
  – The no-match signals are removed e.g. directly via context menu of the removed file entry, and if no signals are referencing to the file anymore its entry disappears from the File Explorer

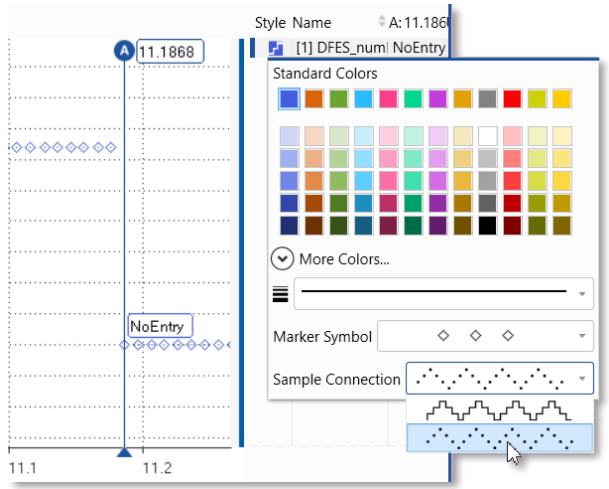


Notes:
- Entries for removed files appear at the end of the file’s list in grey italic font as for no-match signals.
- File ID shown at a removed file is [?] as for the corresponding no-match signals.
- Calculated Signals having input signals in no-match state must be modified or removed manually. The user gets a hint in the status bar of MDA.

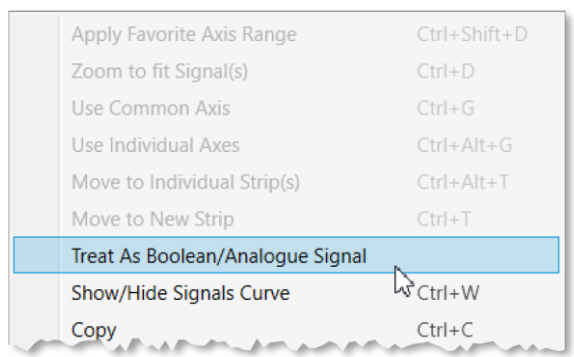
MDA V8.5.7 – What's New

Minor Usability Improvements for Oscilloscope (V8.5.6)

– Sample-wise representation for Enumeration signals
  To make the real samples more obvious also for enumeration signals now besides step-wise connection a pure sample representation i.e. without connecting line is possible



– Treat as Boolean or Analog signal
  To assign a signal easily to a Boolean strip or back to an analog strip the context menu on signal level offers a modified entry how the signal shall be treated



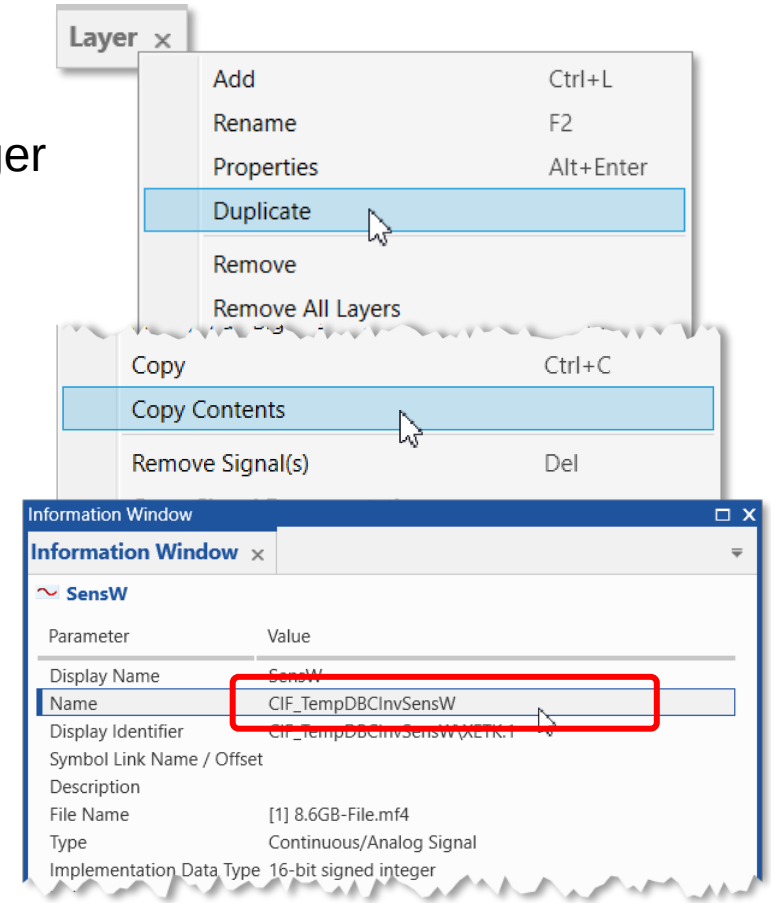
Note:
- Both representation setting and assignment to boolean or analog are persisted and used as default when the signal is selected again even from another measure file or in another configuration.

MDA V8.5.7 – What's New

Usability Improvement: Duplicate layers, and harmonized ‘Copy’ & ‘Copy Contents’ behavior (V8.5.6)

– Duplication of a layer *
  To create quickly a copy of a layer, a new entry ‘Duplicate’ exits in the context menus of the layer tab and the Configuration Manager

– Harmonized Copy & Copy Contents behavior
  – In an instrument via ‘Copy’ (CTRL+C) only the variable name gets into the clipboard; additionally, oscilloscope and statistics instrument provide a context menu entry to ‘Copy Contents’ of the selected rows into the clipboard (including the row headers)
  – In the Information Window the Copy (CTRL+C) operation takes just the value (e.g. the actual variable name) without the parameter name as long as just one row is selected *

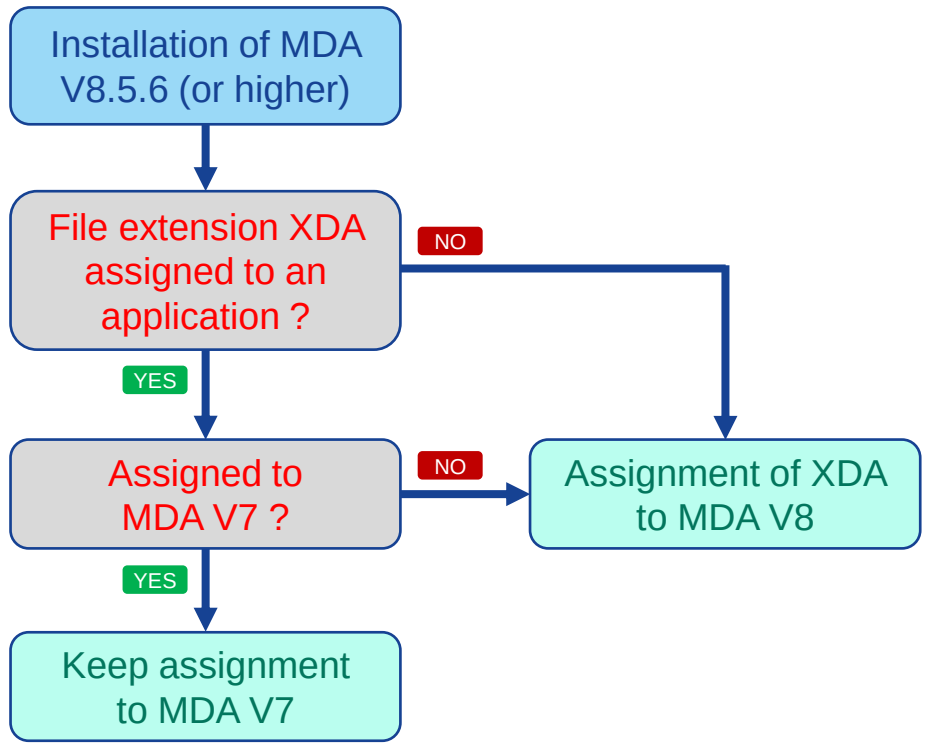


* Notes:
- Numbers are appended to the duplicated layer and its instruments for uniqueness.
- When copying multiple entries, the parameter name is included to facilitate identification of the values.

MDA V8.5.7 – What's New

Usability Improvement: MDA V8 becomes the default application for opening XDA files (V8.5.6)

– To facilitate usage of *.xda configuration files created in INCA or MDA V7 the file extension ‘XDA’ is associated to MDA V8.5.6 during installation
– Association to MDA V8 happens only if XDA extension is **not** associated already to another application
– When *.xda is associated to MDA V8 a simple double-click of an *.xda file starts MDA V8 and imports the configuration



Notes:
- With association to MDA V8 the *.xda file is imported, and MDA V8 tries to load the referenced measure file.
- In case MDA V8 is already open, it is recommended to import an *.xda file using the ‘Import XDA’ icon in the configuration ribbon.
- When MDA V7 is installed later-on *.xda files are associated again to MDA V7.
- Changing the association manually from MDA V7 to MDA V8 is not recommended, as *.xda files need to be imported, and not just loaded into MDA V8.

MDA V8.5.7 – What's New

Usability Improvements of MDA V8.5.6 (September 2021)

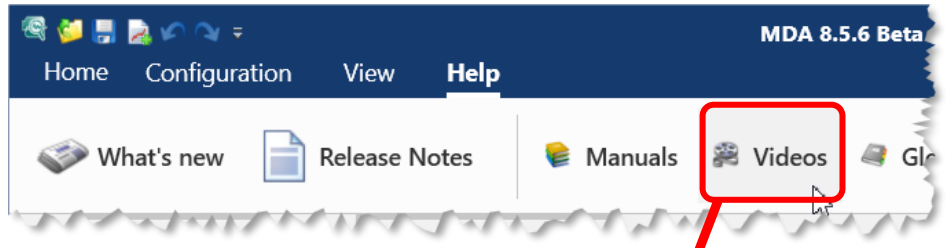
- Functional Enhancements
- Files, Formats & Data Types
- Usability Improvements
- **Miscellaneous (MDA V8.5.6)**
  - Better overview and access to MDA V8 feature videos
  - Python API for MCD Core
  - Documentation of interface for instrument plug-ins

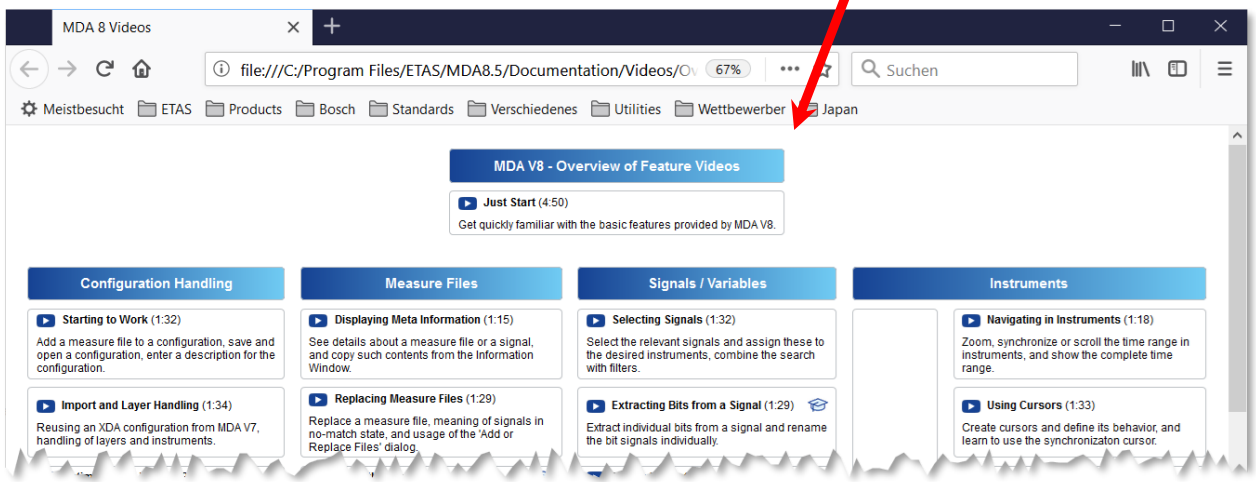
MDA V8.5.7 – What's New

Miscellaneous: Better access to and overview of MDA V8 feature videos (V8.5.6)

- The MDA V8 installation includes feature videos to demonstrate the application's functionalities
- With V8.5.6 an overview page for videos is shown sorted by theme, brief description and playable by a single click
- The overview page can be accessed from the Help ribbon, and the new Home page

- Videos are also available in
  - ETAS Download Center and
  - 'MDA playlist' of ETAS YouTube channel



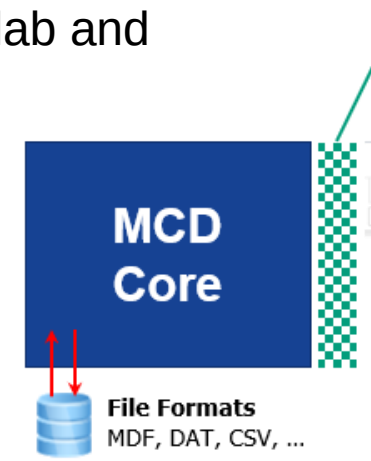


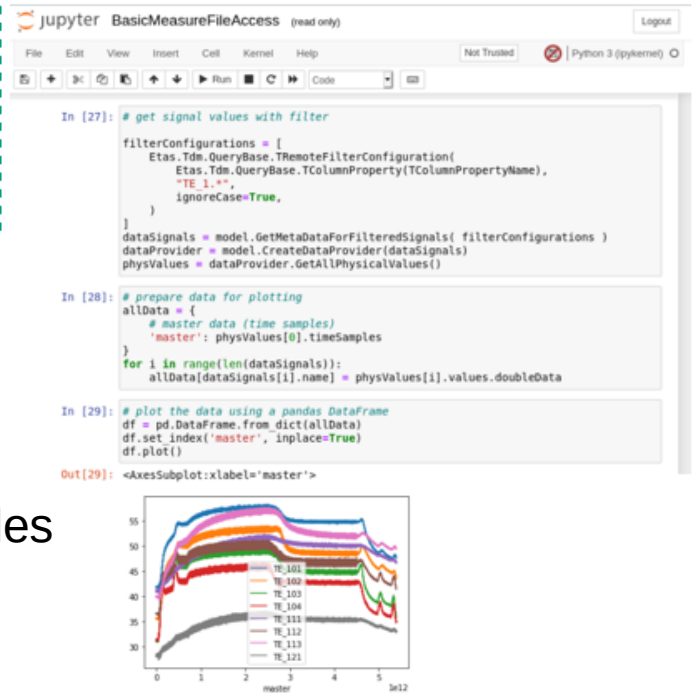
Notes:
- A new video is available which demonstrates how to get quickly familiar with the handling of MDA V8 (duration 4:50 min).
- In ETAS Download Center and ETAS YouTube channel also presentations for MDA V8 versions are offered.

MDA V8.5.7 – What's New

Miscellaneous: Python API for MCD Core (V8.5.6)

– Access to files, variables and data is handled by component MCD Core
– MCD Core provides interfaces for C++, C#, Java, Matlab and newly since September 2021 for Python
– Via interface complete MCD Core functionality can be used, for example
  – Loading of measure files (MDF and other formats)
  – Read meta information for files and variables
  – Get signal data (in original or a resampled raster)
  – Conversion between file formats
– MCD Core can be used on Windows and Linux OS
– Software Development Kit (SDK) is available on demand and includes: detailed documentation, both Python and Jupyter Notebook example files



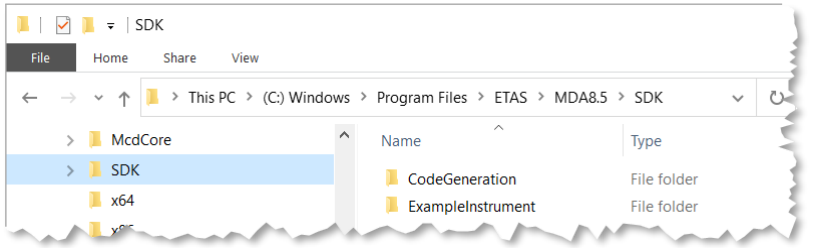


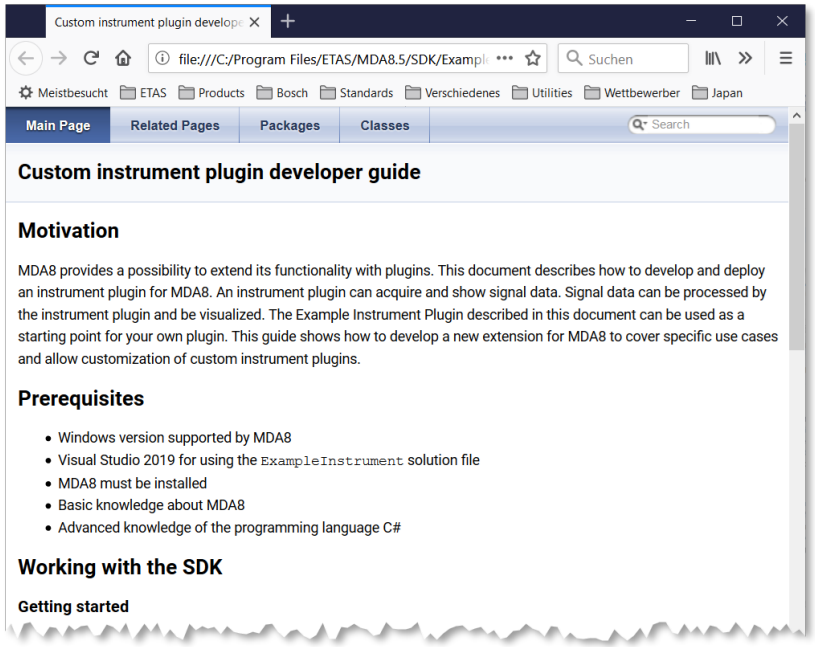
Notes:
- MCD Core interface supports only one counterpart at the same time, for example MDA V8. Consequently, MDA V8 and other applications can not be connected to the same MCD Core instance in parallel.
- Supported Python versions are 3.7, 3.8 and 3.9.

MDA V8.5.7 – What's New

Miscellaneous: Documentation of interface for instrument plug-ins (V8.5.6)

- For a better support of customer-specific use cases sometimes another representation of the measurement data is needed
- Customers can integrate their own instruments as plug-ins into MDA V8
- The same interface is used by native MDA V8 instruments
- The installation package of MDA V8.5.6 includes all the necessary materials to develop own instruments
  - An API reference documentation
  - A working sample instrument as source code
  - A tutorial describing creation of own instruments





Notes:
- To open a configuration with customer-specific instruments the instrument plug-ins are required.
- Instrument plug-ins must be compiled newly for a new version of MDA V8.
- ETAS reserves the right to adapt the instrument interface as needed.
- For technical reasons customer-specific instruments for INCA and MDA V8 can not be exchanged.

MDA V8.5.5 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in June 2021

ETAS

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MDA V8.5.7 – What's New

Summary for MDA V8.5.5 (June 2021)

- **Functional Enhancements**
  - Support of several rule sets for Display Name Rules
  - Enhancements for filtering via categories in Variable Explorer
- **Files, Formats & Data Types**
  - Support of signals having a ‘nested conversion’ computation method (STATUS_STRING_REFS)
  - Creation of measure files with resampled data to achieve equidistant time stamps
  - Indication and extraction of measure file attachments
- **Usability Improvements**
  - Manual replacement of a signal while keeping its configuration settings
  - Property for appearance of file name in print-out of oscilloscope and scatter plot
  - Removal of signals in no-match state
  - Home Page for recently used files and direct access to most relevant activities
  - Calculated Signals: Improved tooltips for used function and for error message
  - Acceleration of MDA’s start behavior

MDA V8.5.7 – What's New

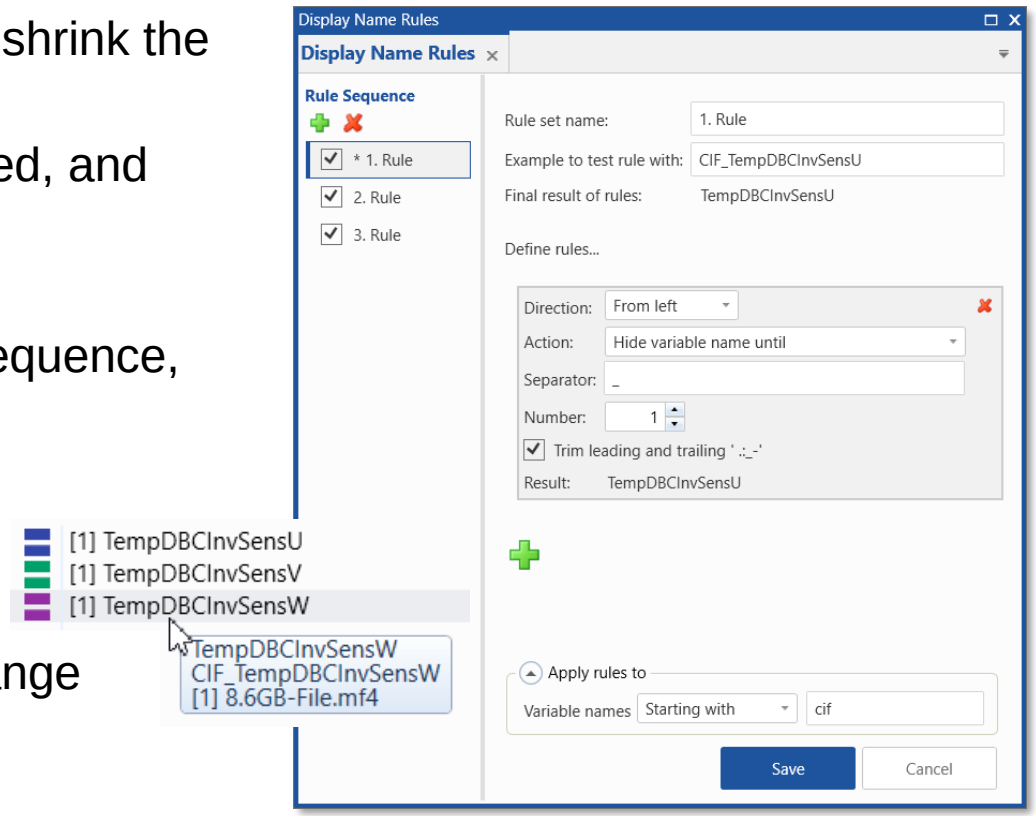
Functional Enhancements of MDA V8.5.5 (June 2021)

- **Functional Enhancements (MDA V8.5.5)**
  - Support of several rule sets for Display Name Rules
  - Enhancements for filtering via categories in Variable Explorer
- Files, Formats & Data Types
- Usability Improvements

MDA V8.5.7 – What's New

Functional Enhancements: Support of several rule sets for Display Name Rules (V8.5.5)

- With longer variable names the need is increasing to shrink the variable names to its relevant parts
- Since MDA V8.4 one Display Name Set can be defined, and applied to a defined group of variables
- MDA V8.5.5 supports multiple Rule Sets
- Rule Sets are used in the order shown under Rule Sequence, via drag&drop the Rule Sequence can be changed
- If a signal name was shrunk by one Rule Set no further shrinking happens by any other Rule Set
- Shrunk signals names have an extended tooltip
- Editing a Rule Set is possible after selection, any change (indicated by *) must be saved before being applied



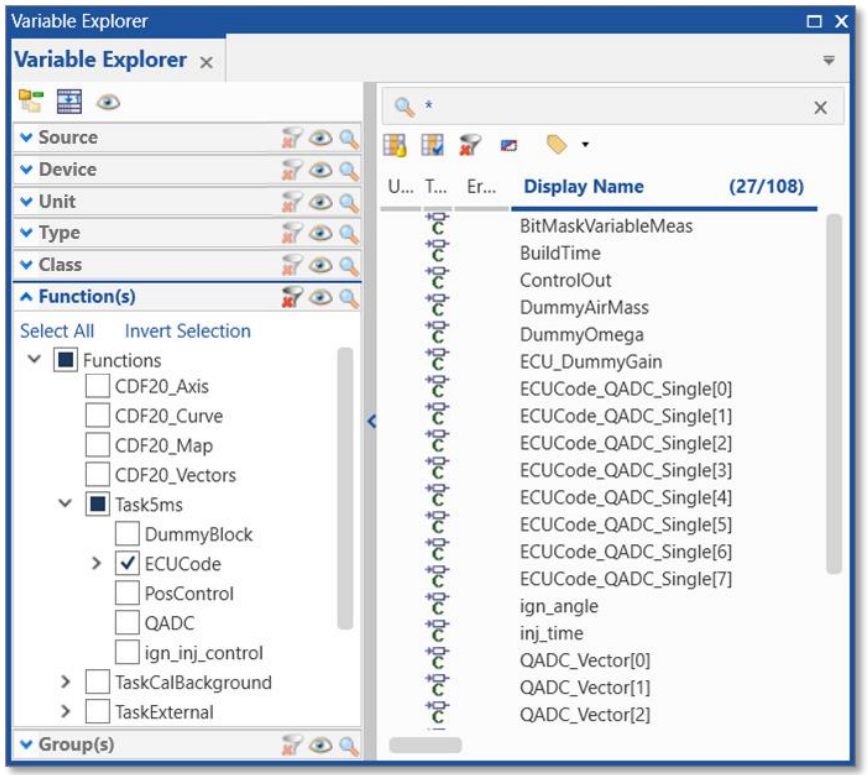
Notes:

- Rule sets have an effect on the display name only, which shows up in instruments and Calc. Signals. When replacing a measure file the 'Name' is used for signal mapping, and not the 'Display Name'.

MDA V8.5.7 – What's New

Functional Enhancements: Filtering via categories in Variable Explorer (V8.5.5)

– To support further criteria for filtering the variables list additional categories are introduced:
  – ‘Function’ and ‘Group’ as hierarchical tree views
  – ‘Unit’ and ‘Class’
– Selection of sub-entries in a tree is indicated by
  ☑ All sub-entries are selected
  ■ At least one sub-entry is not selected
– In the active category a Search can be started directly by typing, this reduces the listed entries
– In several columns filter possibility is removed and ascending/descending (▲▼) sorting is provided



Notes:
- Basic behavior of Filter functionality is unchanged. For details see slide ‘Quick Filters for Variable Explorer (V8.5.4)’.
- Categories can be expanded or collapsed using CTRL+Cursor Right / CTRL+Cursor Left, for tree nodes just Cursor Right resp. Cursor Left.
- A future version of INCA V7 will include Function and Group information into MDF V4 files.

MDA V8.5.7 – What's New

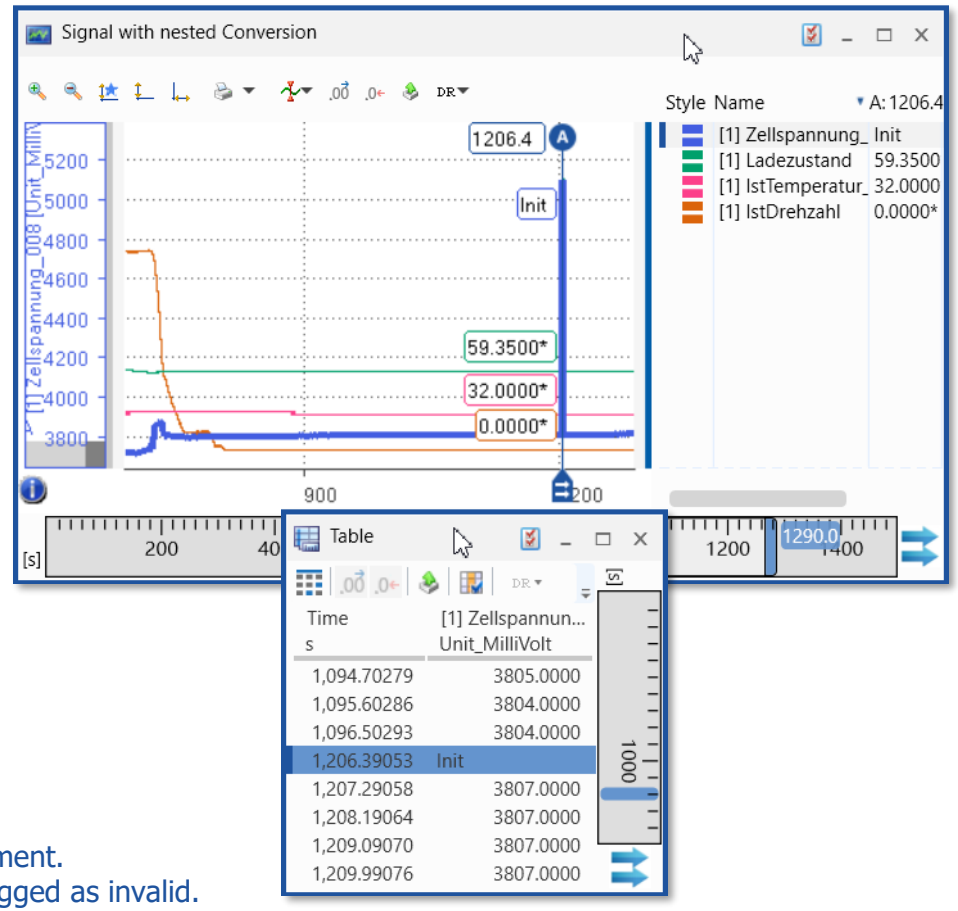
Files, Formats & Data Types in MDA V8.5.5 (June 2021)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.5)**
  - Support of signals having a ‘nested conversion’ computation method (STATUS_STRING_REFS)
  - Creation of measure files with resampled data to achieve equidistant time stamps
  - Indication and extraction of measure file attachments
- Usability Improvements

MDA V8.5.7 – What's New

Files, Formats & Data Types: Support of Signals having ‘Nested Conversion’ Comp. Method (V8.5.5)

- Conversion methods for signals can be
  - Purely numerical
  - Purely verbal (so-called enumerations)
  - A combination of both, called ‘nested conversion’
- A special type of nested conversion is supported by MDA V8.5.5 namely having as default a numerical and one level of verbal conversion only
- Such ‘STATUS_STRING_REFS’ can be used in
  - Oscilloscope (using mainly numerical scale, with the correct numerical or verbal value in the cursor tooltip)
  - Table (numerical and verbal values are listed)
  - Calculated Signals (just numerical samples are used)

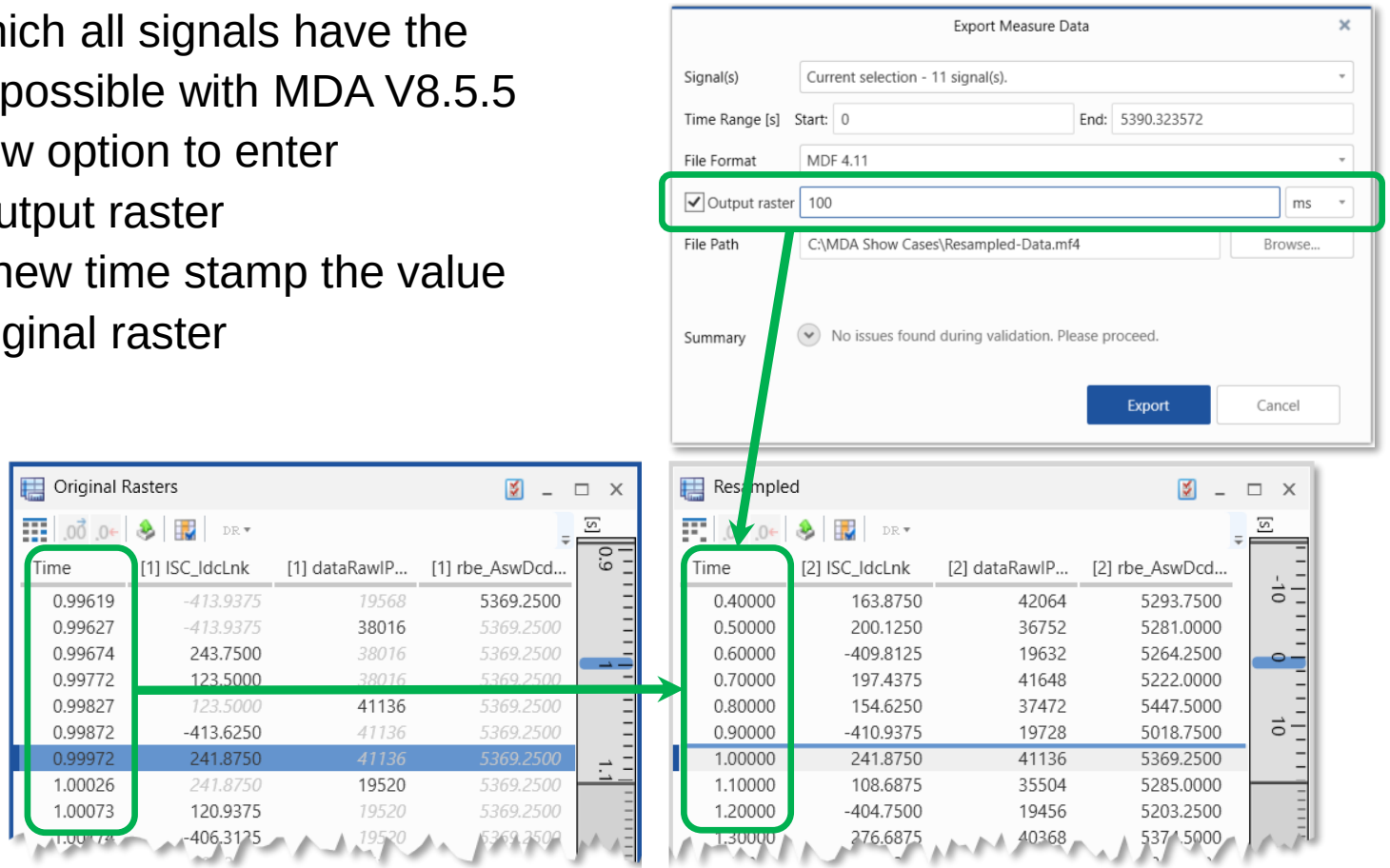


Notes:
- Details for the conversion method shown in the Information Window are simplified at the moment.
- In case of calculated signals, a sample with a verbal value results in an output value being flagged as invalid.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Creation of measure files with resampled data (V8.5.5)

– Creation of a measure file in which all signals have the same equidistant time raster is possible with MDA V8.5.5
– The export dialog includes a new option to enter the time value for the desired output raster
– In the new measure file at any new time stamp the value of the last real sample in the original raster is used (‘last-sample-mode’)

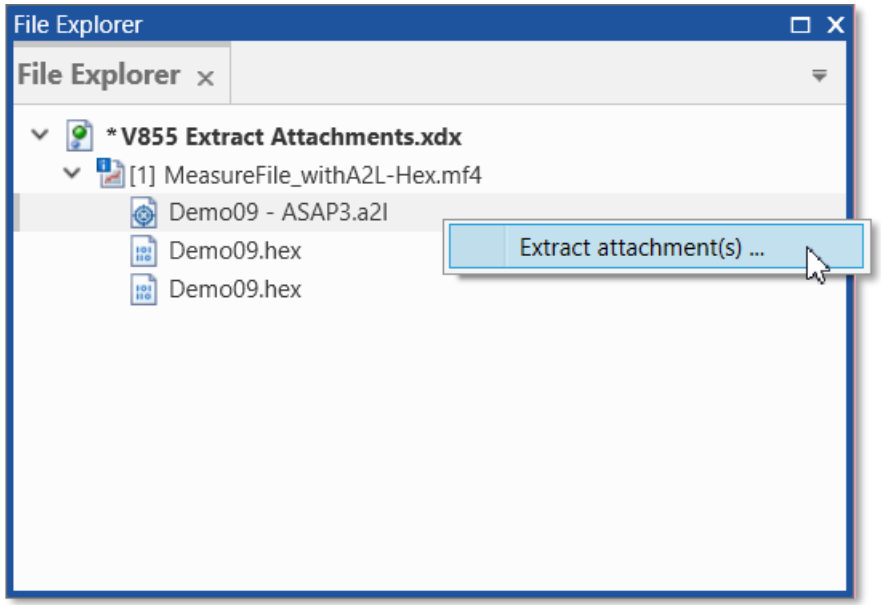


Note:
- For signals which were recorded in slower rasters than the raster selected for resampling, the ‘last-sample-mode’ might cause that the signals’ values stay constant for some time stamps and then change abruptly.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Indication and extraction of measure file attachments (V8.5.5)

– Measure files (*.mdf) recorded with INCA can include attachments like A2L and HEX files, DBC files or others, or can have references to external files
– MDA V8.5.5 indicates such attachments and references in the File Explorer
– The attachments can be extracted and stored as individual files
– When exporting an MDF file including A2L and HEX attachments, attachments are excluded from the export



Notes:
- MDA will display attachments also for measure files created with other tools, as long as these are according to the definition in ASAM MDF standard.
- During extraction MDA uses the attachment's name as default name, but ensures uniqueness by appending numbers to the file name if needed.

MDA V8.5.7 – What's New

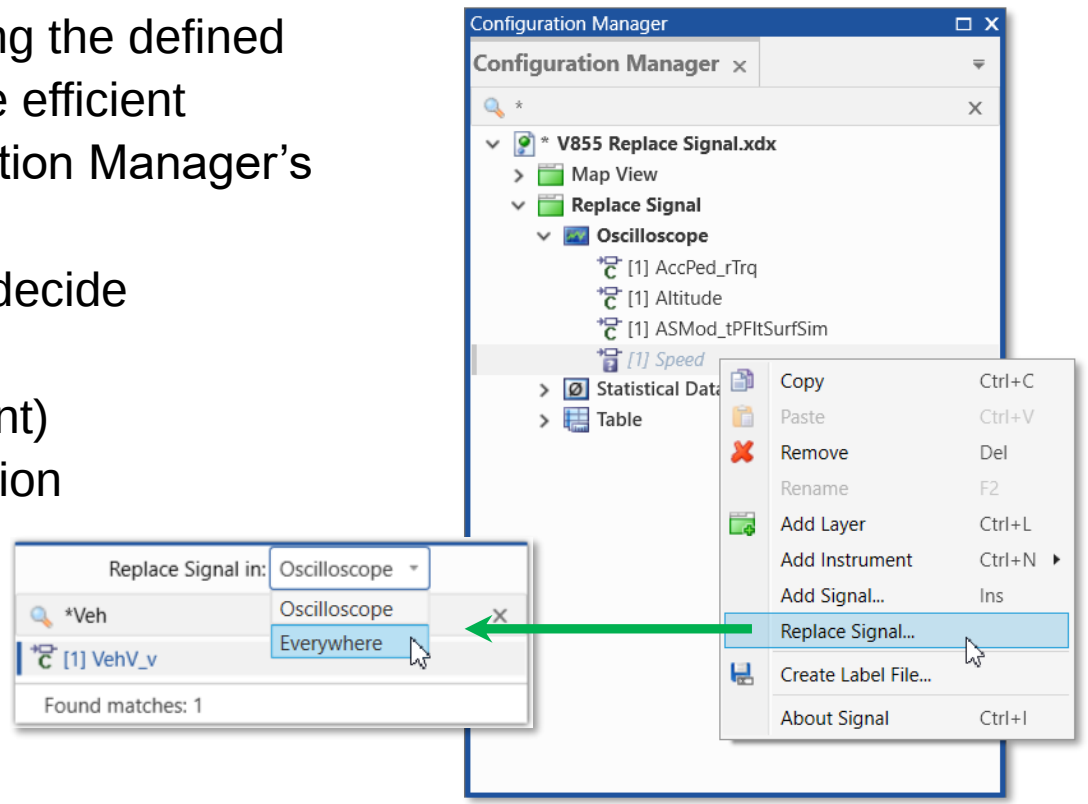
Usability Improvements of MDA V8.5.5 (June 2021)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.5)**
  - Manual replacement of a signal while keeping its configuration settings
  - Property for appearance of file name in print-out of oscilloscope and scatter plot
  - Removal of signals in no-match state
  - Home Page for recently used files and direct access to most relevant activities
  - Calculated Signals: Improved tooltips for used function and for error message
  - Acceleration of MDA's start behavior

MDA V8.5.7 – What's New

Usability Improvement: Replacement of a signal while keeping its configuration settings (V8.5.5)

- To replace a signal by another one while keeping the defined signal settings, makes signal replacement more efficient
- MDA V8.5.5 has such an entry in the Configuration Manager's context menu
- The dialog for selecting a new signal allows to decide where the original signal shall be replaced:
  - only at the defined location (i.e. one instrument)
  - at any place where it is used in the configuration (incl. all instruments and calculated signals)
- Signal list shown in the INSERT dialog is sorted by signal name ignoring the File ID

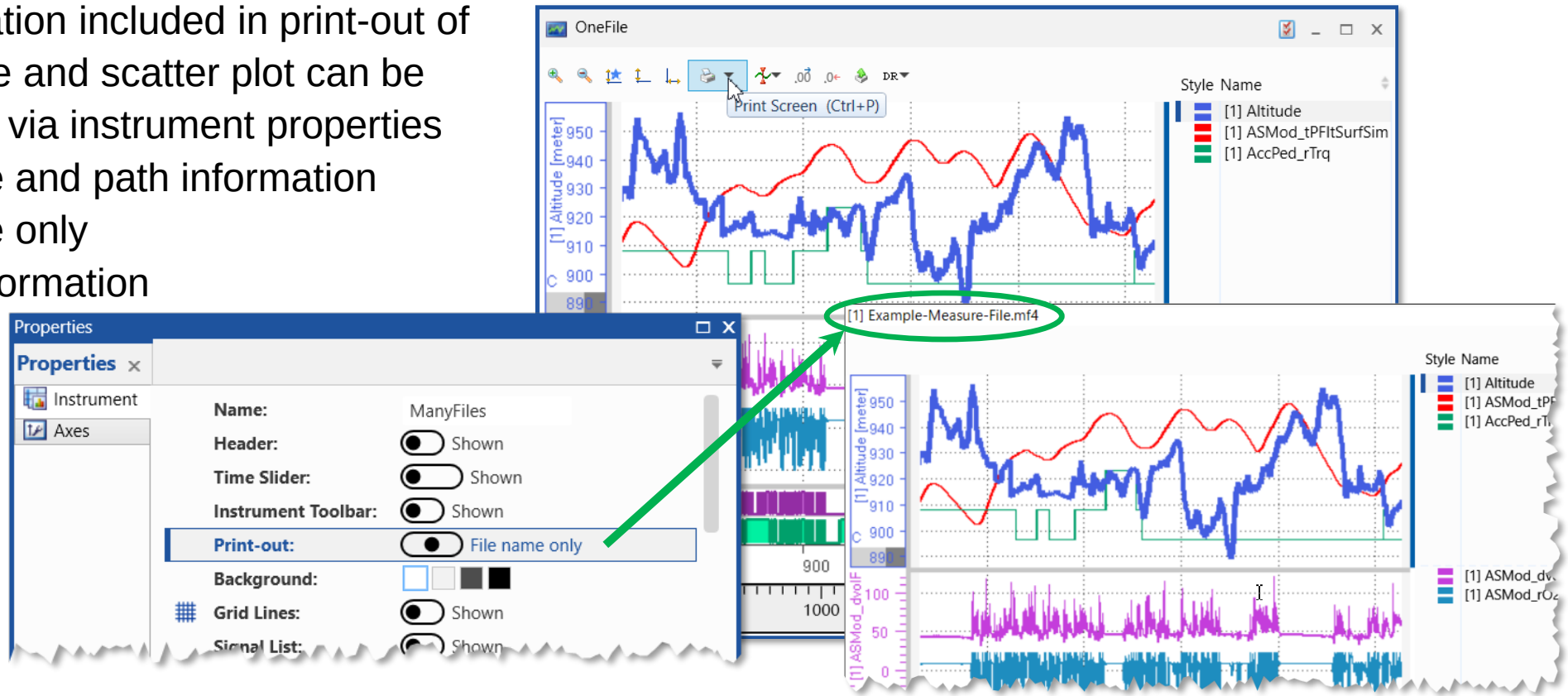


Notes:
- If needed UNDO can be used for the replacement operation.
- In a future version MDA's status bar will inform about the results of the replacement operation.

MDA V8.5.7 – What's New

Usability Improvement: Property for appearance of file name in print-out (V8.5.5)

– File information included in print-out of oscilloscope and scatter plot can be customized via instrument properties
  – File name and path information
  – File name only
  – No file information

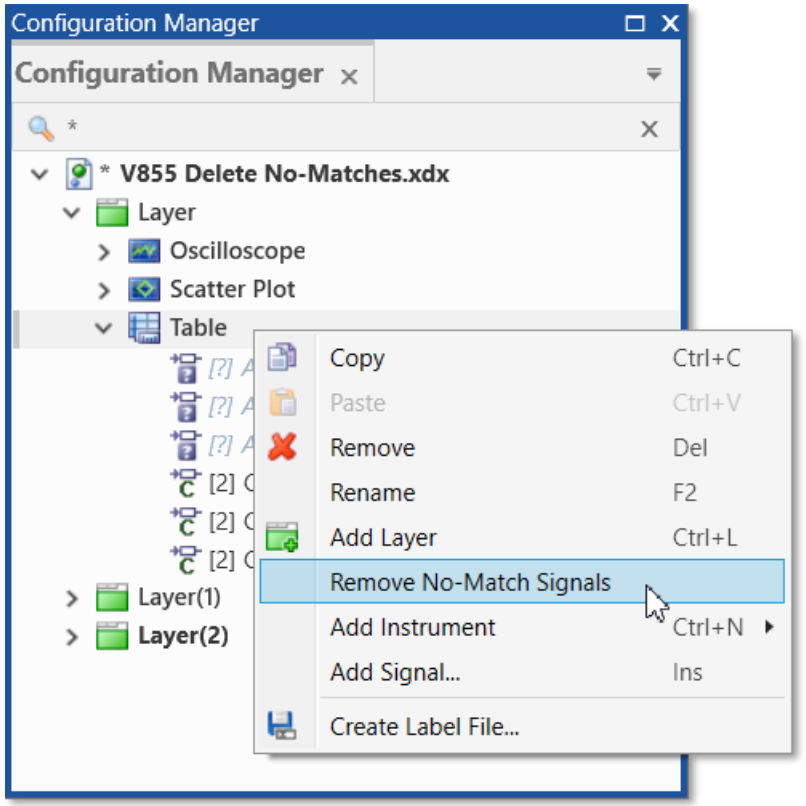


Note:
- Last selected setting is persisted per user and used as default for new instrument of the same type.

MDA V8.5.7 – What's New

Usability Improvement: Removal of signals in no-match state from layer or instrument level (V8.5.5)

- Signals in no-match state can be removed quickly within MDA's Configuration Manager
- The context menu of an entry in the tree view allows to define the no-match signals to be removed
  - On the configuration level:
    All no-match signals from the whole configuration (already available since MDA V8.4.0)
  - On a layer or an instrument level:
    No-match signals limited to the specified level (new in MDA V8.5.5)

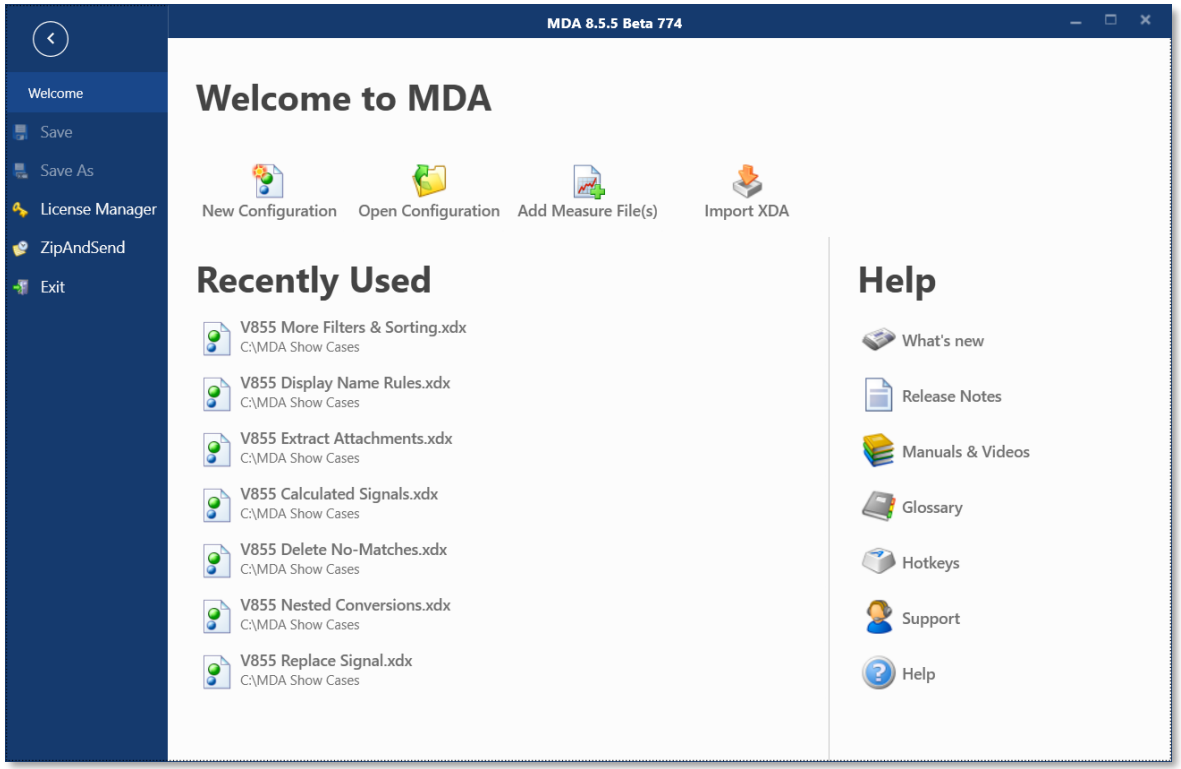


Notes:
- Calculated signals remain in the configuration, even if an input signal is a signal in no-match state.
- Multi-selection of instruments is supported as well as multi-selection of layers, but not a mixed multi-selection of layers and instruments.

MDA V8.5.7 – What's New

Usability Improvement: Home Page for direct access to most relevant activities (V8.5.5)

- To accelerate usage of MDA a new view named ‘Home Page’ appears when MDA V8.5.5 is started
- The most relevant actions are listed
  - Opening or creating a configuration
  - Adding a measure file
  - Importing an XDA configuration
- Additionally direct access is given to
  - ETAS License Manager
  - ZipAndSend for issue reporting
  - any kind of documentation materials

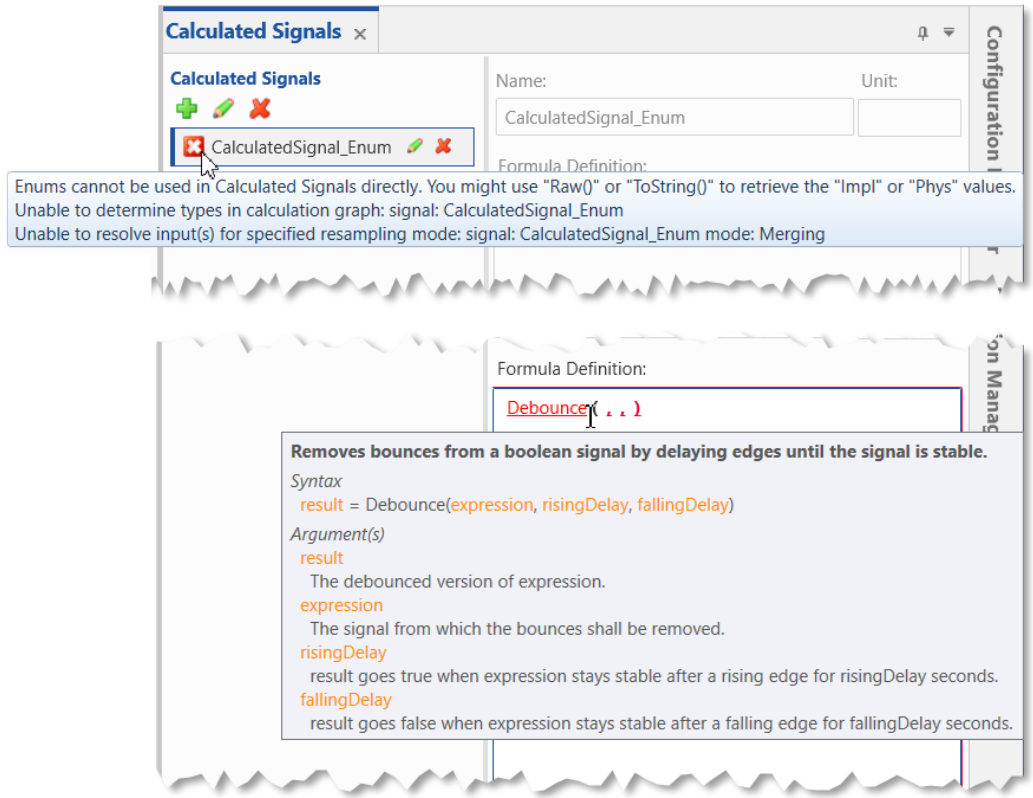


Note:
- If opening of a measure file or a configuration is done, MDA V8 will load the file directly without showing the Home Page.

MDA V8.5.7 – What's New

Usability Improvement: Calc. Signals – Tooltips for used function and error message (V8.5.5)

- To support usage of Calculated Signals two tooltip improvements were implemented
- Tooltip for erroneous calculated signals
  - In case an Enumeration signal is used directly in a formula, the tooltip of the error icon for the calculated signal reminds about the usage of the Raw() function
- Tooltip for Functions
  - Within the Formula Definition field a tooltip is shown for the used function
  - This prevents that the function must be selected in the toolbox list



MDA V8.5.7 – What's New

Usability Improvement: Improved start-up behavior of MDA V8 (V8.5.5)

- Several changes were done to improve the start-up time of MDA V8
  - If the computer system has a multi-core architecture, now multiple cores are used for several operations during start-up
  - The calculation for the progress bar of the start screen was optimized
  - When the new Home Page appears, MDA loads only relevant components
- Overall an acceleration of about 10% could be achieved

Note:
- Mentioned changes were done in several of the last three MDA V8.5.x releases.

MDA V8.5.4 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in March 2021

ETAS

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MDA V8.5.7 – What's New

Summary for MDA V8.5.4 (March 2021)

- **Functional Enhancements**
  - Calc. Signals: Support of 2D Look-Up tables (i.e. Maps) and linear interpolation mode
  - Quick Filters for Variable Explorer
  - Basic Video instrument (Add-On)
- **Files, Formats & Data Types**
  - Compression of MDF V4.1 measure files
  - Handling of signals with ‘invalid’ samples in Statistics instrument
  - Show inverted conversion formula
- **Others**
  - Support of Windows Server 2016 and 2019
  - Issue Reporting & Access to Documentation
- **Usability Improvements**
  - Show file name on print-out of oscilloscope and scatter plot
  - Background color for Layer headers
  - Support of Favorite Axis for Enumerations
  - Indication of overall export status
  - Improved cursor synchronization in GPS Map instrument
  - Improvements in the Open dialog for replace measure file operation
  - Restore default view of docking windows
  - Clean-up of icons used in instruments properties docking window

MDA V8.5.7 – What's New

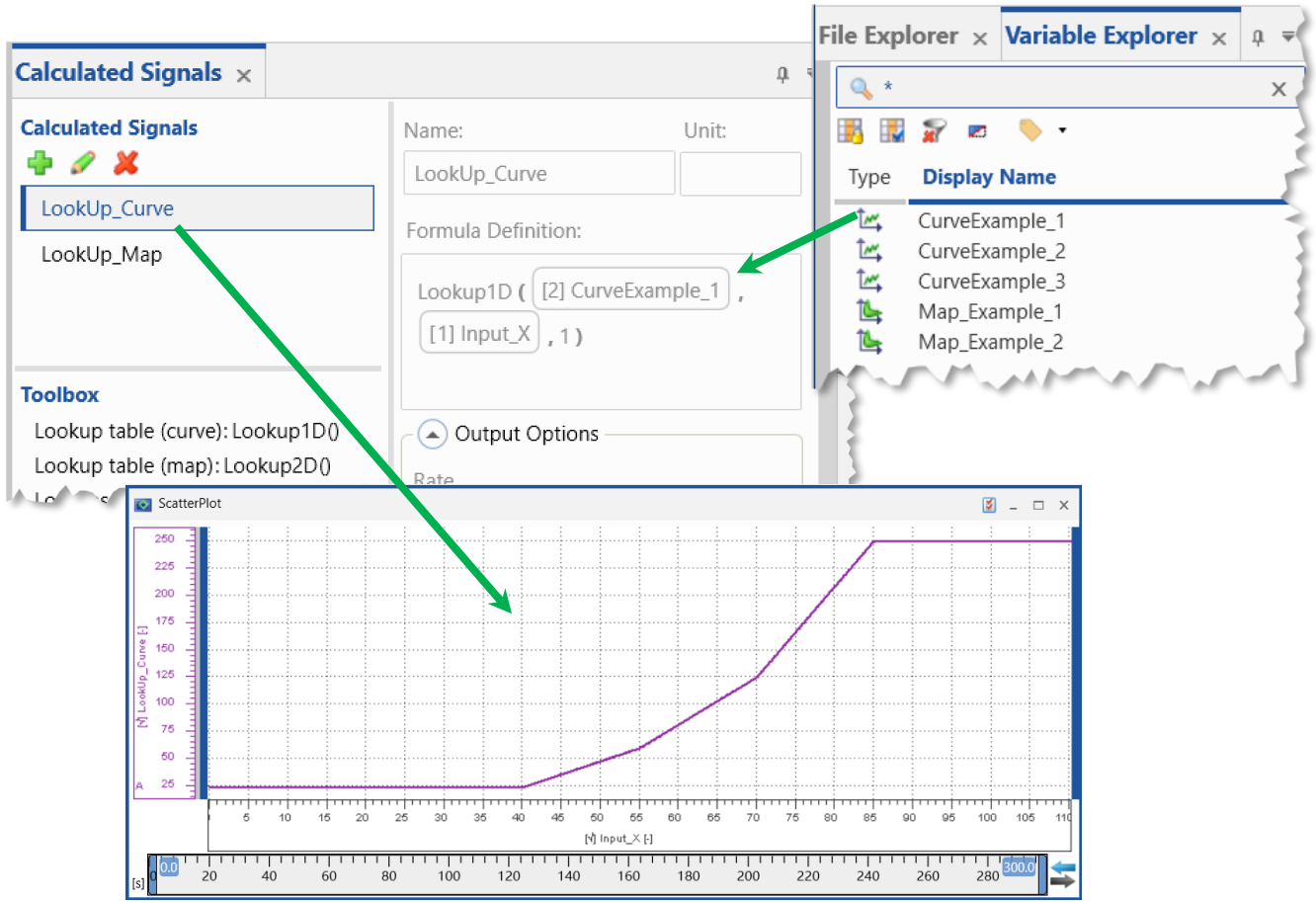
Functional Enhancements of MDA V8.5.4 (March 2021)

- **Functional Enhancements (MDA V8.5.4)**
  - Calculated Signals: Support of 2D Look-Up tables (i.e. Maps) and linear interpolation mode
  - Quick Filters for Variable Explorer
  - Basic Video instrument (Add-On)
- Files, Formats & Data Types
- Usability Improvements
- Miscellaneous

MDA V8.5.7 – What's New

Functional Enhancements: Calculated Signals: Support of Look-Up tables (V8.5.4)

- With MDA V8.5.4 look-up tables are supporting additionally
  - Maps, and
  - Linear interpolation mode
- Parameters (i.e. Curves or Maps) provided via a CDF file are listed in the Variable Explorer
- Calculated Signals functions for ‘Lookup Table 1D’ or ‘… 2D’ exist, using a Curve or a Map as input
- Additionally a signal as well as the interpolation mode are required

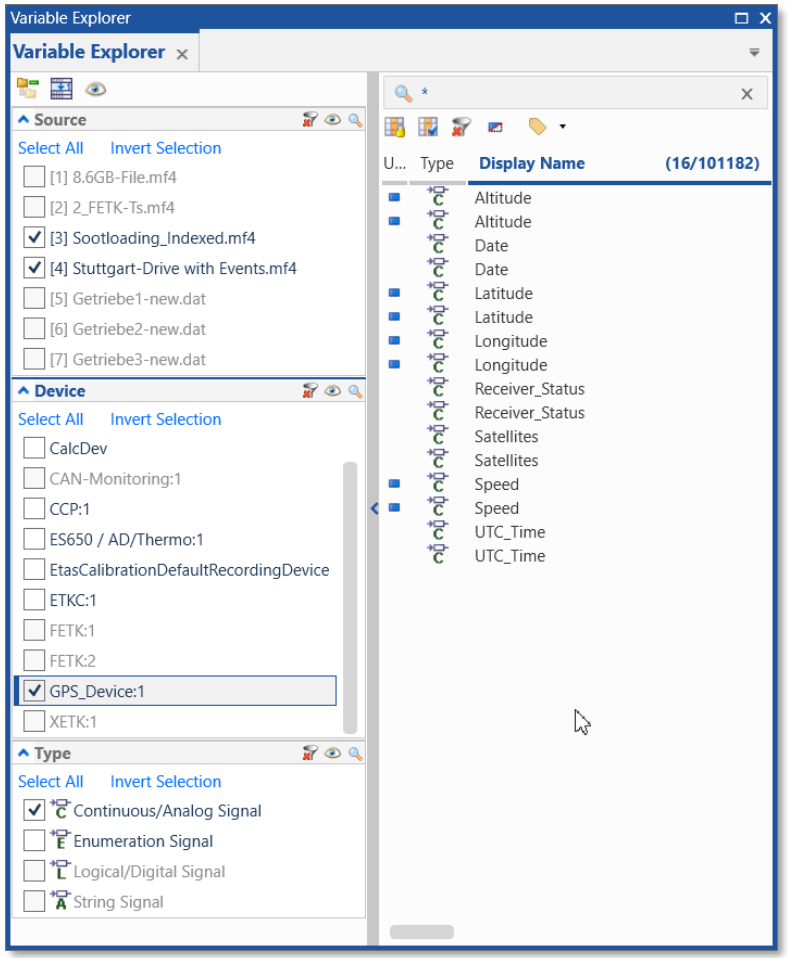


Note:
- Axis values of Curves and Maps used as input for Lookup Tables must have monotonous axis points.

MDA V8.5.7 – What's New

Functional Enhancements: Quick Filters for Variable Explorer (V8.5.4)

- For a faster and comfortable definition of filters functionality of Variable Explorer is extended
- In the area for the Filters entries from one or more categories (e.g. Source, Device, etc.) can be selected which define the variables shown in the variables list of the Variable Explorer
- Filters can be combined with the Search Field (logical AND)
- The eye icon allows to temporarily disable a category, and to re-activate it again quickly
- Accordion mode defines to expand only one category at a time, and to collapse all others

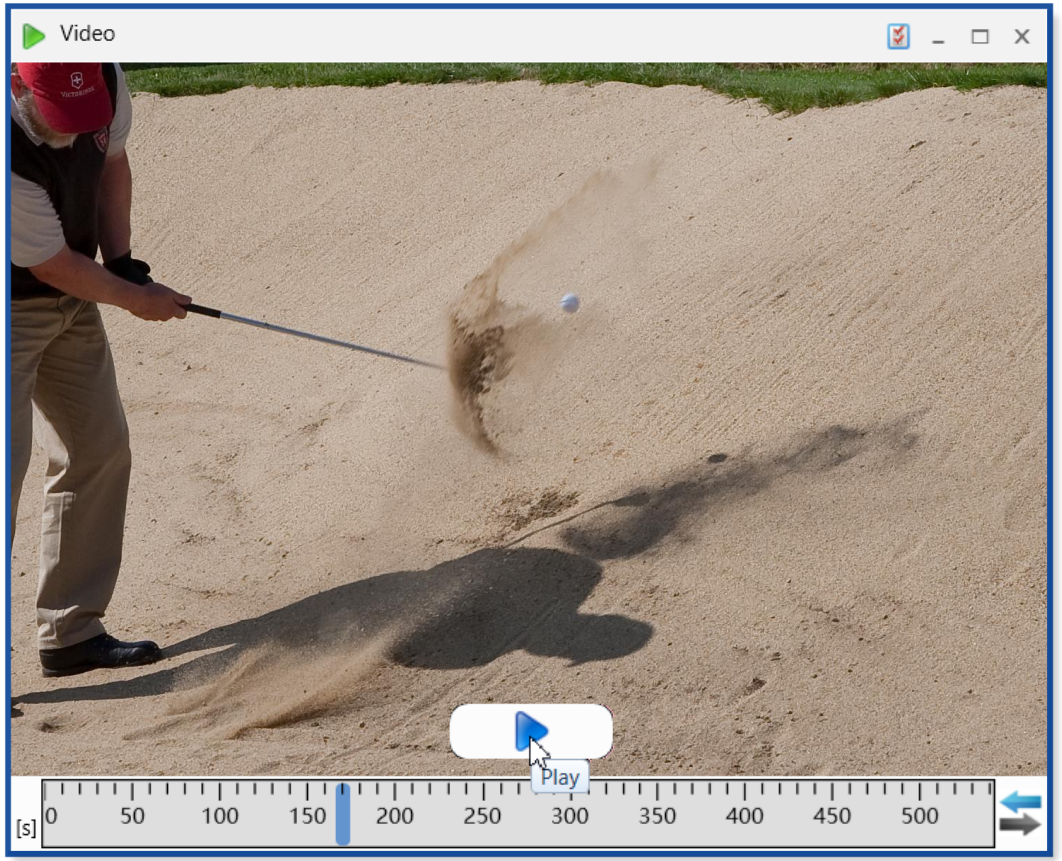


Note:
- Entries in a category list which are shown in grey are excluded because of a filter selected in another category, and can not be selected.

MDA V8.5.7 – What's New

Functional Enhancements: Video Instrument (V8.5.4)

– A basic version of a Video instrument is available as add-on for MDA V8.5.4*
– Only videos recorded using INCA's Video Add-On can be displayed by adding the signal 'VIDEO_TIMECODE' to MDA's video instrument
– Play / Stop button to display the video
– Synchronization with other instruments is supported



* Notes:
- The Video instrument add-on is an ETAS Engineering solution. It requires a valid license, which is combined with the license for the INCA Video add-on.
- Keyboard support for Video instrument will follow in a future MDA version.
- Ball came to rest close to the pin, and player could tap in for Par.

MDA V8.5.7 – What's New

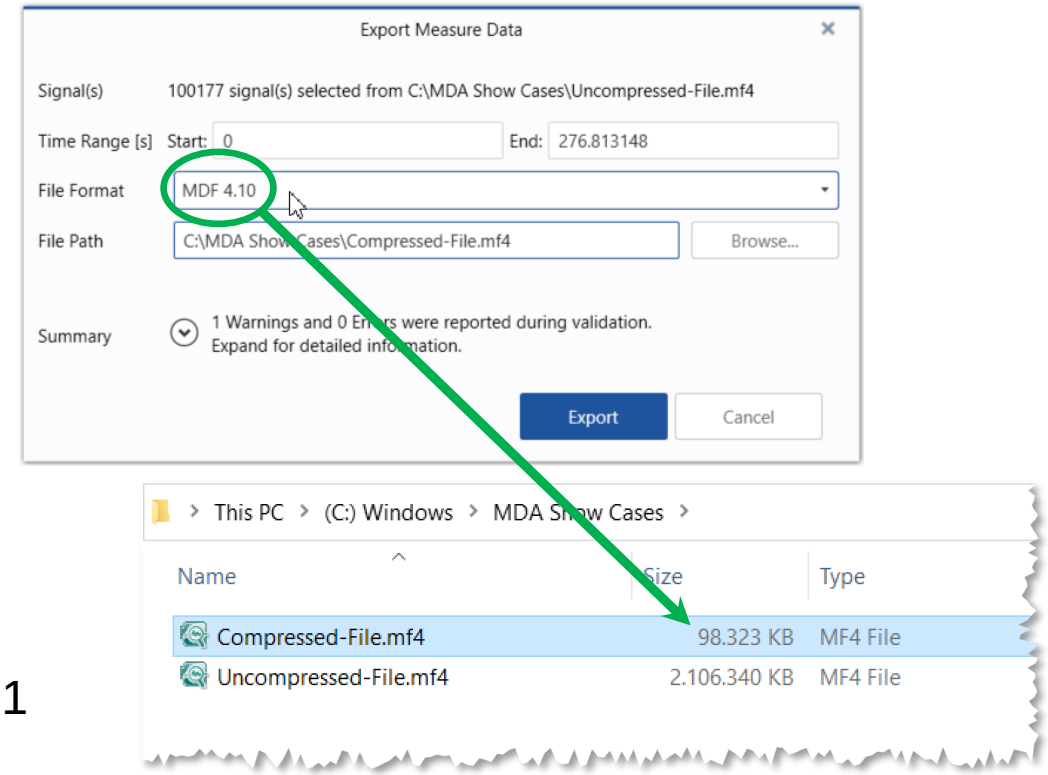
Files, Formats & Data Types in MDA V8.5.4 (March 2021)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.4)**
  - Compression of measure files in MDF V4.1.x format
    Support of MDF V4.1.1
  - Handling of signals with ‘invalid’ samples in Statistics instrument
  - Show conversion formula also in inverted form
- Usability Improvements
- Miscellaneous

MDA V8.5.7 – What's New

Files, Formats & Data Types: Compression of measure files in MDF V4.1 format (V8.5.4)

- To reduce the size of MDF measure files, MDF V4.1 standard specifies how files shall be compressed
- During export of a measure file into MDF V4.1.x format MDA V8.5.4 applies compression automatically
- Also when using Command Line Tools MdfConvert.exe, or MdfCombine.exe, and target file format is MDF V4.1.x the resulting measure files will be compressed
- MDA V8.5.4 supports additionally MDF V4.1.1

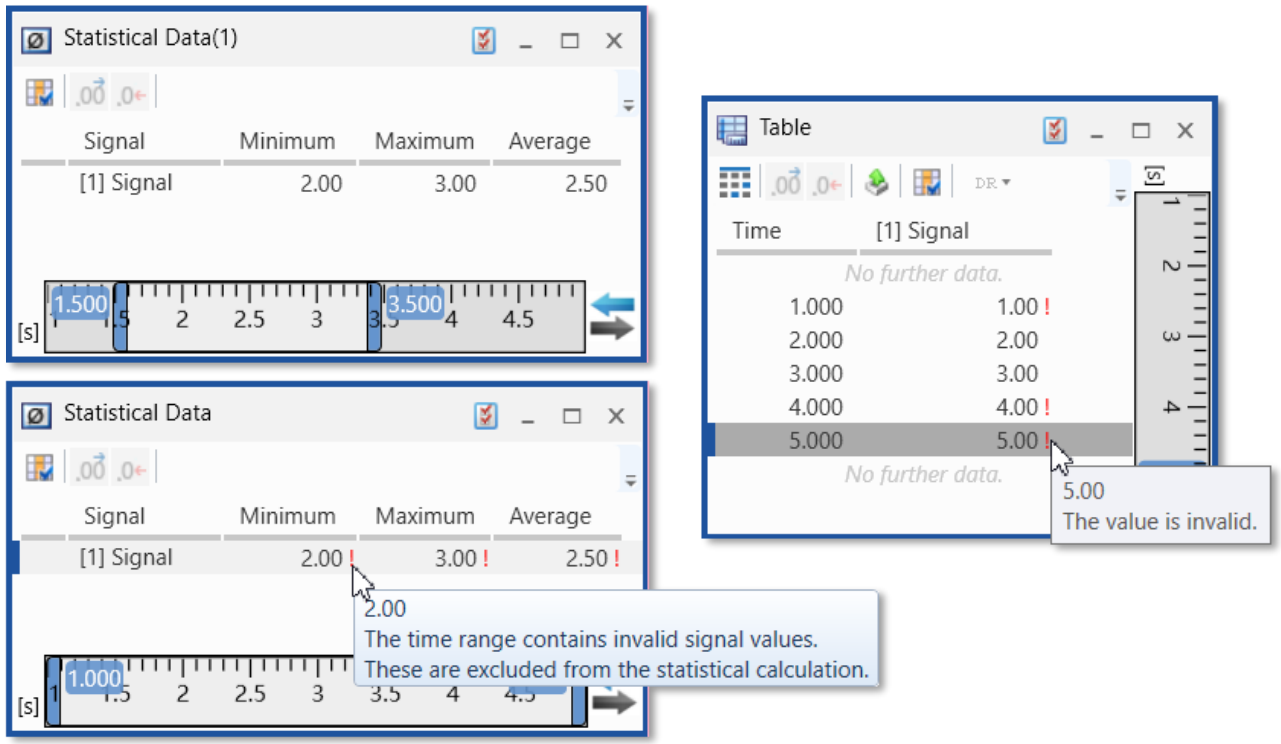


Note:
- Actual compression result, i.e. achievable reduction ratio, depends on the data in the file. With random data only about 50% size reduction can be achieved. For files with real data compressed MDF V4.1 file shrinks to low values of about 5% to 25%.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Handling of signals with ‘invalid’ samples in Statistics instrument (V8.5.4)

– The statistics instrument can show directly Minimum, Maximum, Average values and the Standard Deviation for the selected time range
– If in selected time range samples with an ‘invalid flag’ exist, MDA V8.5.4 ignores automatically such samples from the statistical calculations
– An exclamation mark indicates these samples, and a tooltip explains the case

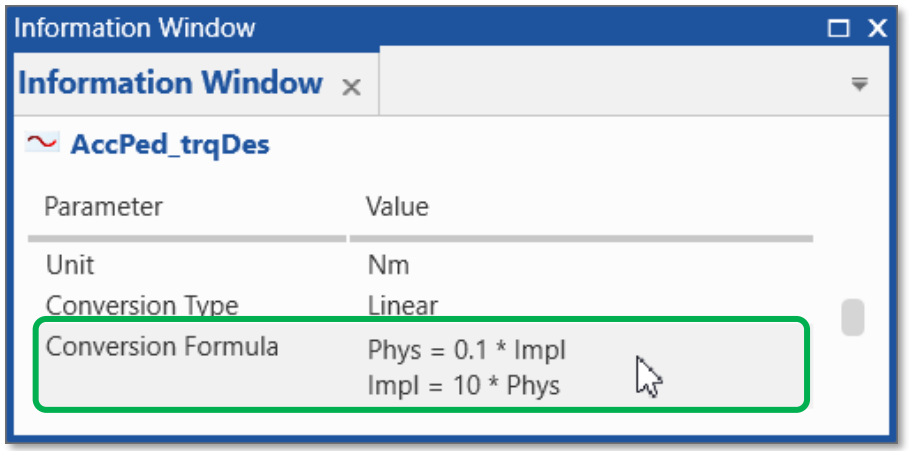


Notes:
- Also in the table instrument an exclamation mark indicates ‘invalid’ samples, but shows additionally the data value.
- In the oscilloscope ‘invalid’ samples are not drawn, i.e. the signal curve will show a gap.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Show conversion formula also in inverted form (V8.5.4)

– To display data typically a conversion formula is needed to show the physical value of a signal
– Usually the conversion formula is given:
  in MDF files in the direction from Implementation (i.e. Hexadecimal) value to Physical value,
  in A2L files from Physical to Implementation value
– Showing the conversion formula in both directions is especially important in case of calibration variables, but makes also in MDA V8.5.4 the conversion more understandable for the user



Notes:
- In case a conversion formula can not be inverted completely (from –INF to +INF), no inverted conversion is shown.
  This happens for example in cases of conversion formulas which include a quadratic term (coefficients "A" and "D" are not 0).
- Formulas can be copied to Windows® clipboard using CTRL+C.

MDA V8.5.7 – What's New

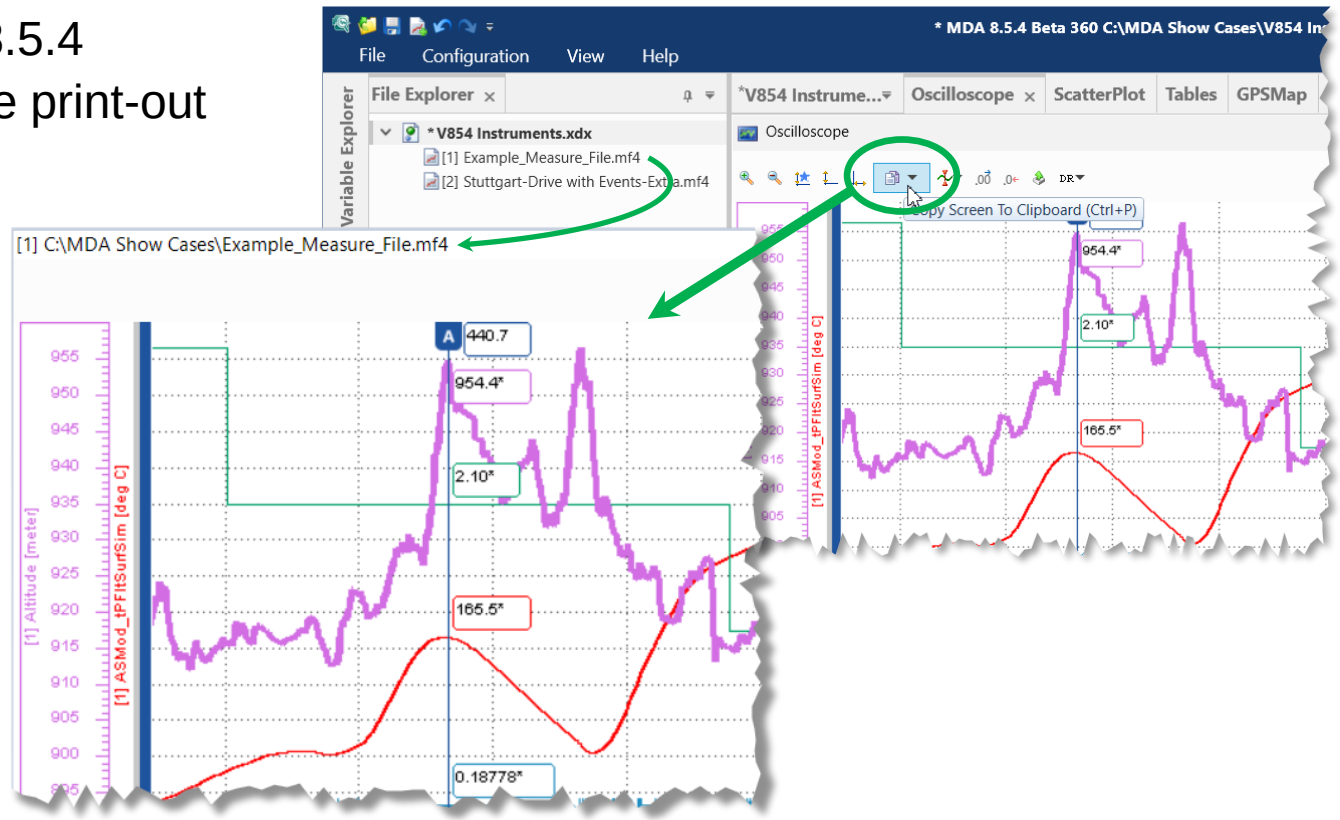
Usability Improvements of MDA V8.5.4 (March 2021)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.4)**
  - Show file name on print-out of oscilloscope and scatter plot
  - Background color for Layer headers
  - Support of Favorite Axis for Enumerations
  - Indication of overall export status
  - Improved cursor synchronization in GPS Map instrument
  - Improvements in the Open dialog for replace measure file operation
  - Restore default view of docking windows
  - Clean-up of icons used in instruments Properties docking window

MDA V8.5.7 – What's New

Usability Improvement: Show file name on print-out of oscilloscope and scatter plot (V8.5.4)

– For easier creation of reports MDA V8.5.4 includes the measure file names in the print-out of oscilloscope and scatter plot
– Only file names of signals displayed in the instruments are listed on the print-out
– The print-out itself follows ‘What You See Is What You Get’ principle in view of colors, time and axes ranges, visibility of axis, cursors, signal values etc.

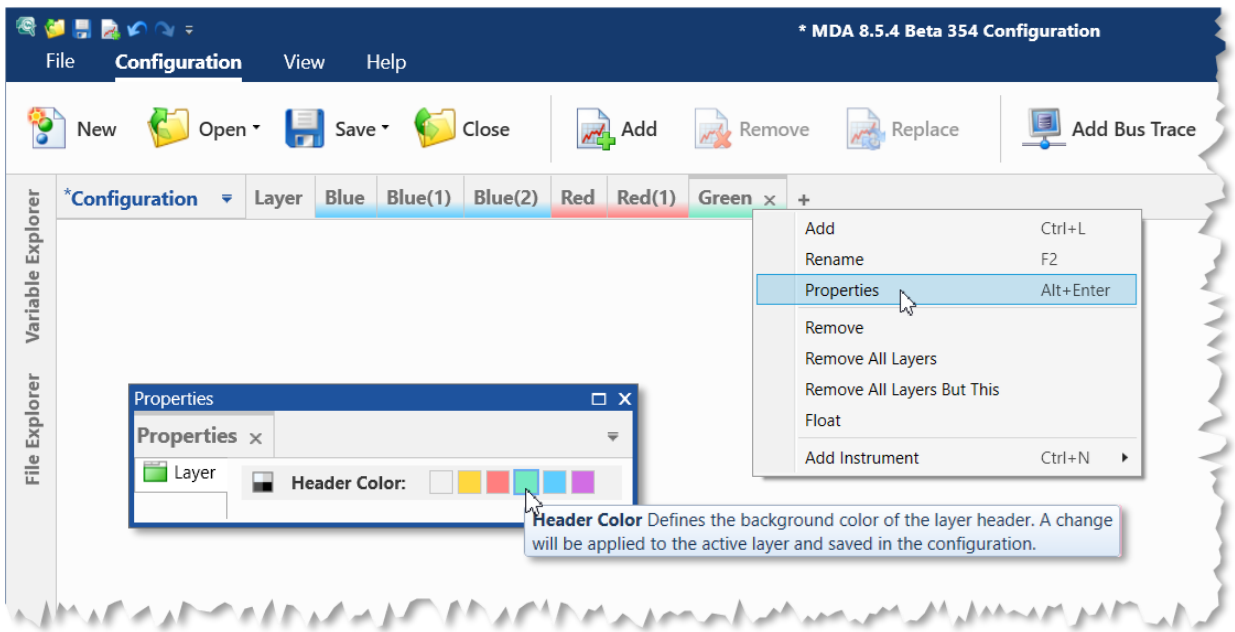


Notes:
- If needed the path information is skipped to show the file name only.
- For Calculated Signals ‘[√] VirtualTarget’ is written as file name.

MDA V8.5.7 – What's New

Usability Improvement: Background Color for Layer Headers (V8.5.4)

– To facilitate orientation in a configuration with many layers a background color can be defined per layer header
– The background color for a layer header can be selected in the Properties window
– Available colors are predefined and limited, to ensure good readability of the layer name, and sufficient contrast to the layer header background

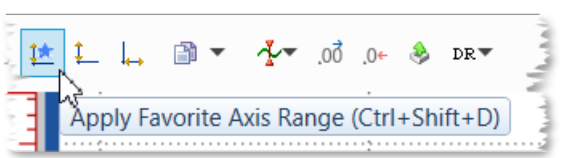


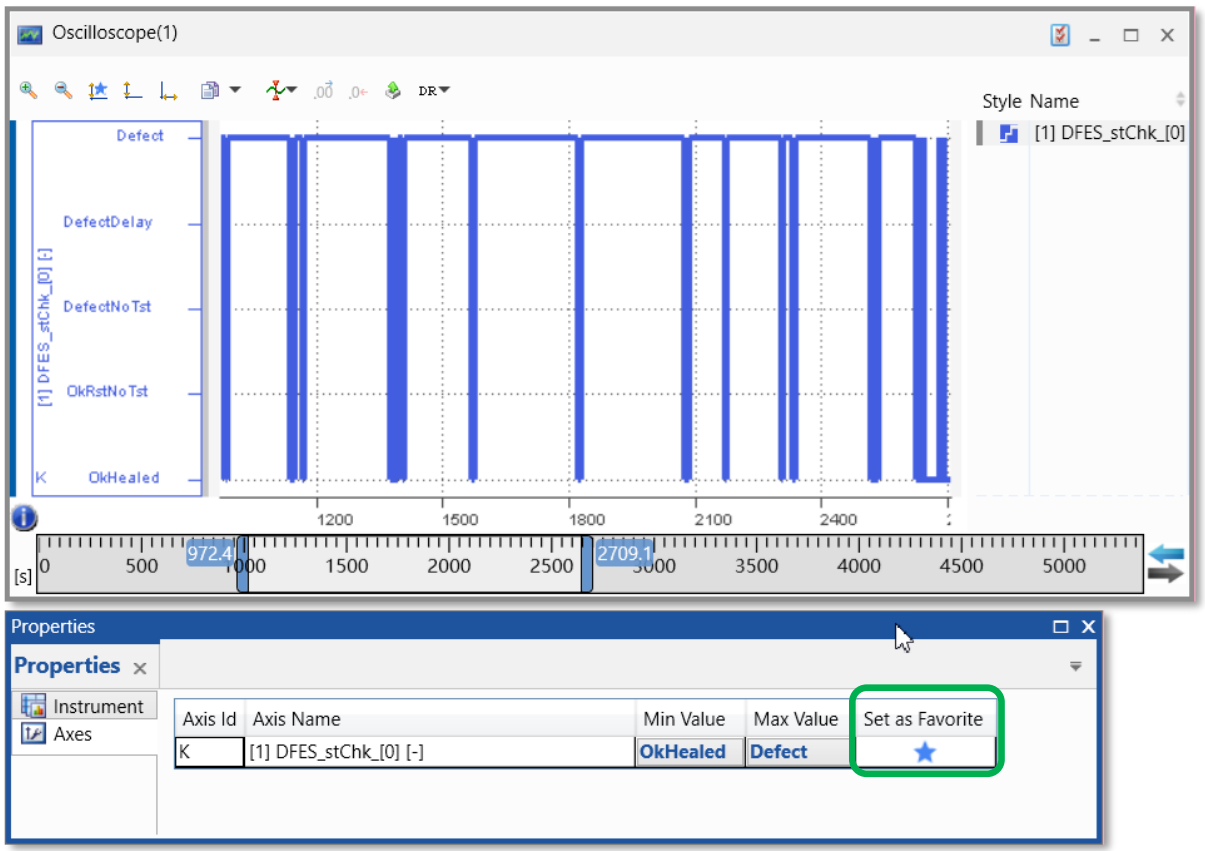
Note:
- Layer color is applied to the lower part of the layer header only, to maintain the contrast even if layer name is shown in grey to indicate the inactive state.

MDA V8.5.7 – What's New

Usability Improvement: Support of Favorite Axis for Enumerations (V8.5.4)

– Existing functionality to define a so-called ‘Favorite Axis Range’ is extended to Enumeration signals in MDA V8.5.4
– By means of a Favorite Axis Range the user can predefine an axis range which is used as default when a signal with this name is added newly to an oscilloscope
– Additionally an icon and or a short-cut are provided to zoom axes quickly to the favorite axis range



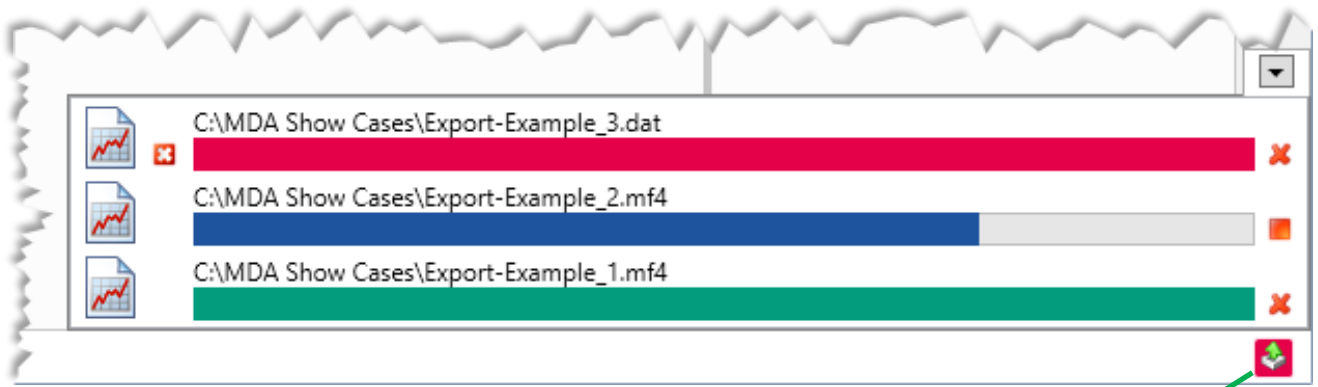


Note:
- Each enumeration signal gets always its individual axis.

MDA V8.5.7 – What's New

Usability Improvement: Indication of overall export status (V8.5.4)

– To inform the user about the current status of the export processes, the icon for the export progress gets a background color
– The color of the overall export status indicates:
  - no export is active
  - all exports finished successfully
  - at least one export running
  - at least one export failed
– The icon for overall export status is visible even when the detailed progress view is not expanded

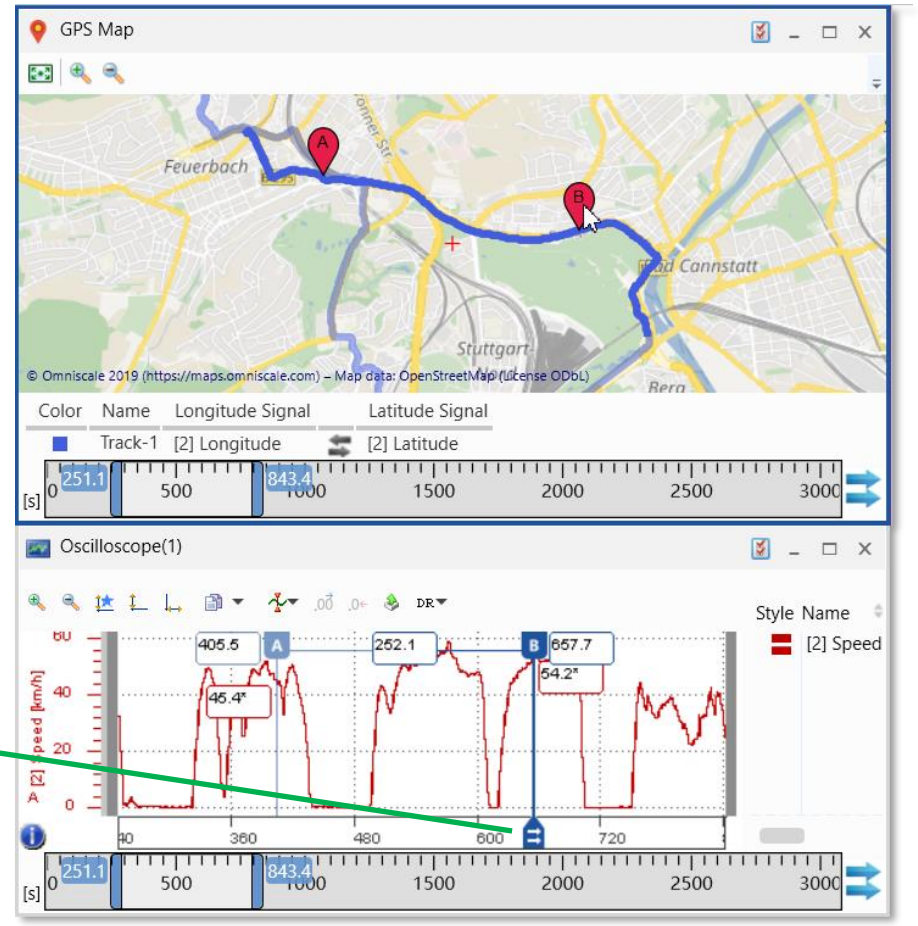


Notes:
- Red (i.e. failed) overrules Blue (i.e. in progress) overrules Green (i.e. successfully finished) status.
- An export which was cancelled manually by the user has no effect on the overall export status.
- With MDA V8.5.4 export of measure data can be triggered from table instrument also via short-cut 'CTRL+M'.

MDA V8.5.7 – What's New

Usability Improvement: Improved Cursor Synchronization in GPS Map Instrument (V8.5.4)

– To display the same point in time from different perspectives i.e. instruments, MDA supports synchronization across different instruments and even instrument types
– The ‘Synchronization Cursor’ is used to timely align the instrument views, and a movement of this cursor effects all instruments*
– With MDA V8.5.4 also in the GPS Map view a cursor can act as synchronization cursor, i.e. its movement effects the corresponding cursor in the oscilloscope



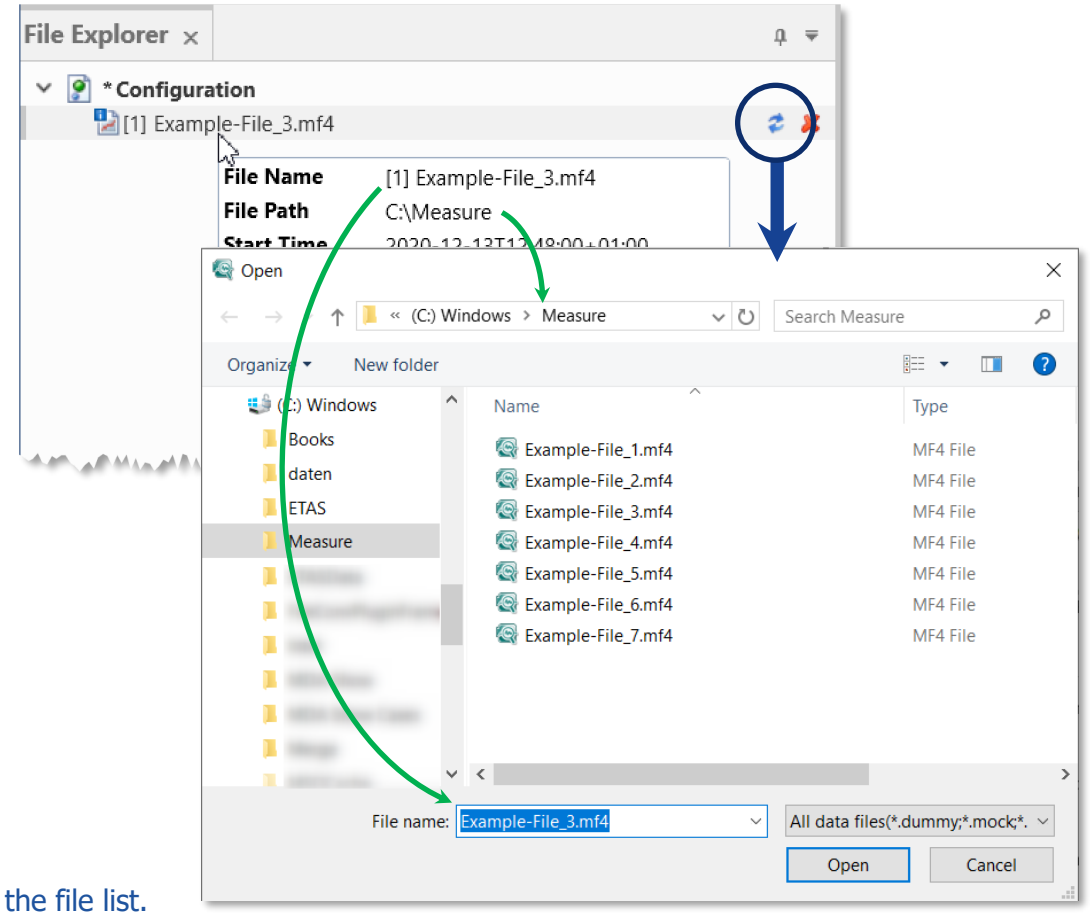
Indication of synchronization cursor

* Notes:
- Exceptions: Statistics instrument doesn’t support cursors, and Scatter Plot does not support cursor synchronization.
- If cursors in the oscilloscope are anchored, both cursors keep their time distance.

MDA V8.5.7 – What's New

Usability Improvement: Take-over of measure file name into Replace File Open dialog (V8.5.4)

– To facilitate the selection of a measure file in case of a ‘Replace’ operation MDA V8.5.4 includes two changes:
  – If accessible, the path of the file to be replaced is used in the Open dialog
  – The ‘old’ file name is copied into the File Name field of the Open dialog

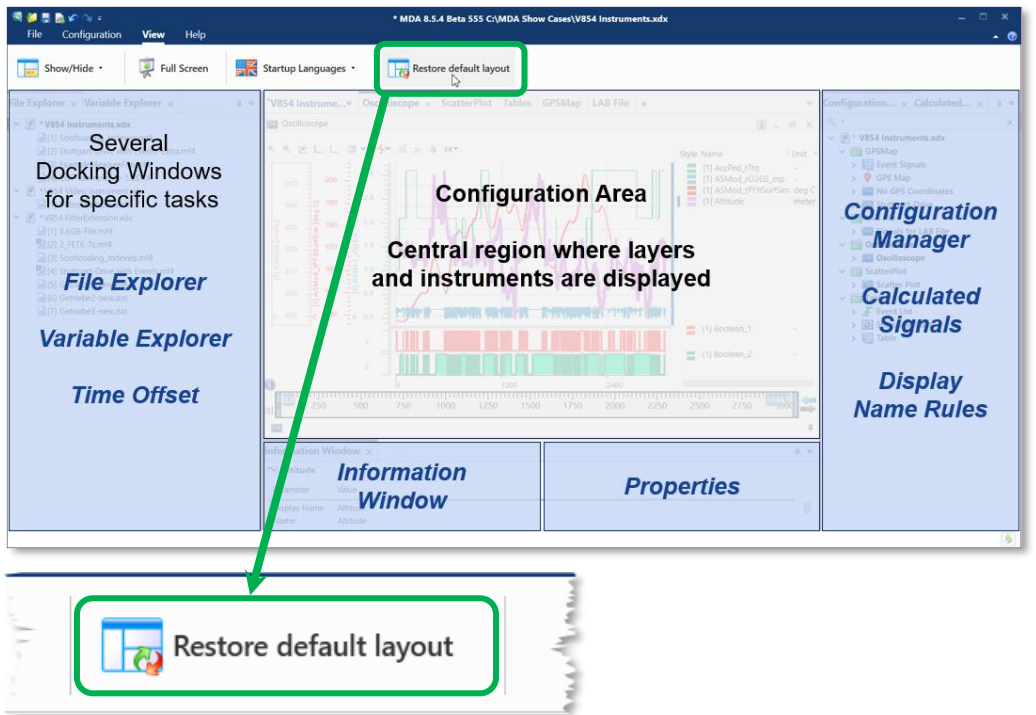


Note:
- File name field has the focus, as Windows® doesn’t support pre-selection in the file list.

MDA V8.5.7 – What's New

Usability Improvement: Restore default view of docking windows (V8.5.4)

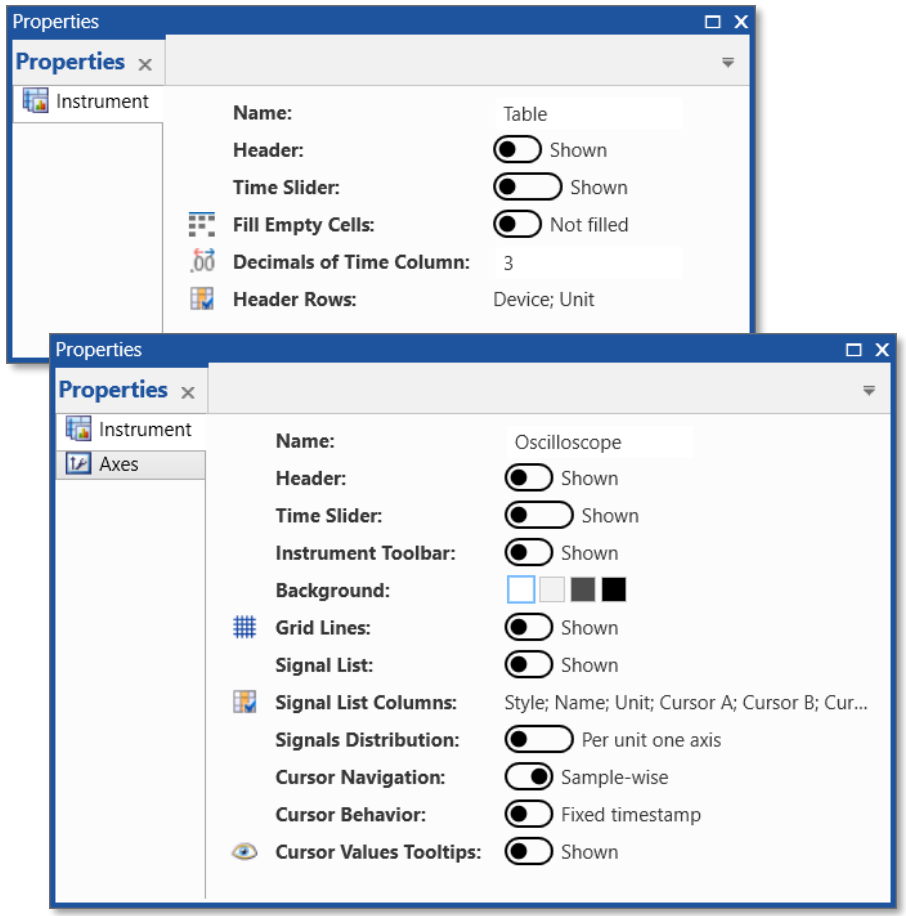
– For a best usage of the monitor space docking windows in MDA can be positioned, resized, or set to hide
– To support a comfortable usage MDA persists the last applied settings
– This might cause that a docking window is not found anymore
– To overcome such a situation the **View** ribbon includes a new entry ‘Restore Default Layout’
– After a restart all docking windows appear again at their original positions and in default appearance



MDA V8.5.7 – What's New

Usability Improvement: Clean-up of icons used in Properties docking window (V8.5.4)

- A user test revealed that the high number of icons in the Properties windows for instruments does not support to find the right entry quickly
- A clean-up of the icons is done in MDA V8.5.4
  - Clearly identifiable icons remain
  - Icons used elsewhere in the UI remain
  - Superfluous, unclear icons are removed



MDA V8.5.7 – What's New

Files, Formats & Data Types in MDA V8.5.4 (March 2021)

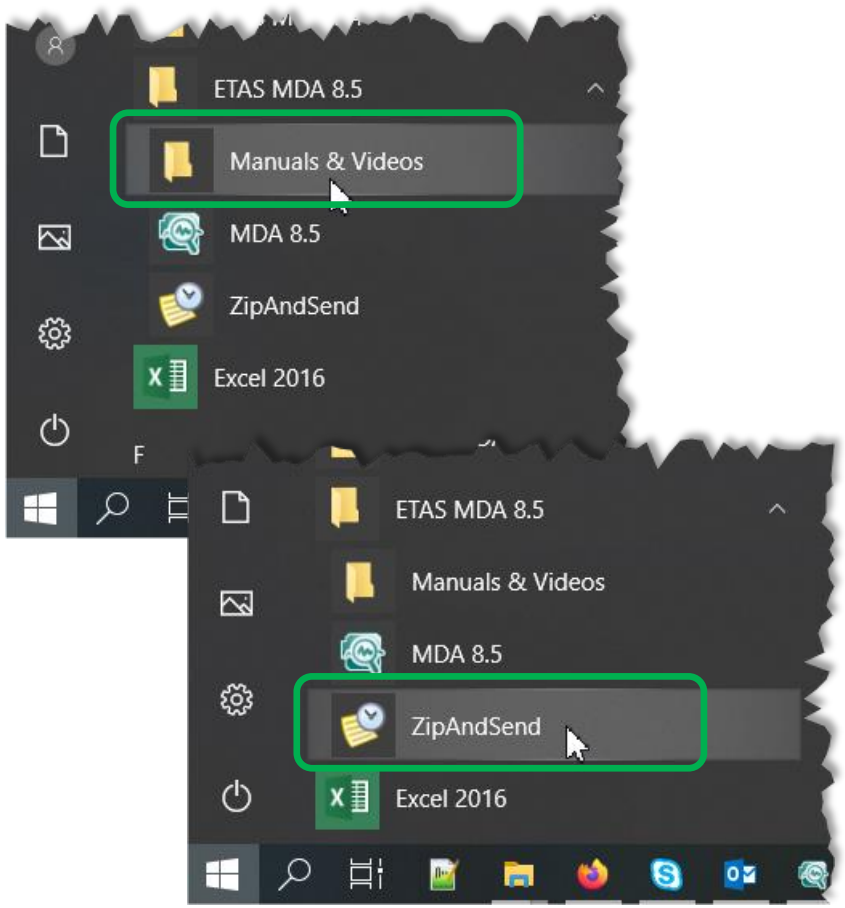
- Functional Enhancements
- Files, Formats & Data Types
- Usability Improvements
- **Miscellaneous (MDA V8.5.4)**
  - Access to Documentation Material and Issue Reporting

MDA V8.5.7 – What's New

Miscellaneous: Access to Documentation Material and Issue Reporting (V8.5.4)

– Access to documentation material for MDA V8 is possible from the Help ribbon within MDA UI, and via the Windows Start menu
– Material includes e.g. Manuals, and Feature Videos

– To facilitate reporting of issues for MDA V8, even if MDA application fails to start, Windows Start menu provides the entry ‘ZipAndSend’
– Via ZipAndSend a collection of log files is created, and attached to an email which can be send to ETAS
– It is recommended to provide log files created via ZipAndSend directly and unchanged, because then extracts of Window Event Logging are included (in anonymized manner i.e. without person-related data)



MDA V8.5.3 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in December 2020

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MDA V8.5.7 – What's New

Summary for MDA V8.5.3 (December 2020)

- **Functional Enhancements**
  - Calculated Signals: Support of 1D Look-Up tables (i.e. Curves, not interpolated)
  - Oscilloscope: Properties window includes properties for cursors and signal list columns
- **Files, Formats & Data Types**
  - Export from Instrument level: All signals from all files can be included into export file
  - Connection line for a signal with time gaps is drawn correctly in the gap areas
  - Adaptations for MdfCombine.exe Command Line Tool
  - Support of *.blf Bus Trace Files (Add-On)
- **Usability Improvements**
  - Export Improvements
    - Progress view shows status of export for LAB files
    - Show exported file directly in Windows Explorer
  - Minor Oscilloscope Improvements

MDA V8.5.7 – What's New

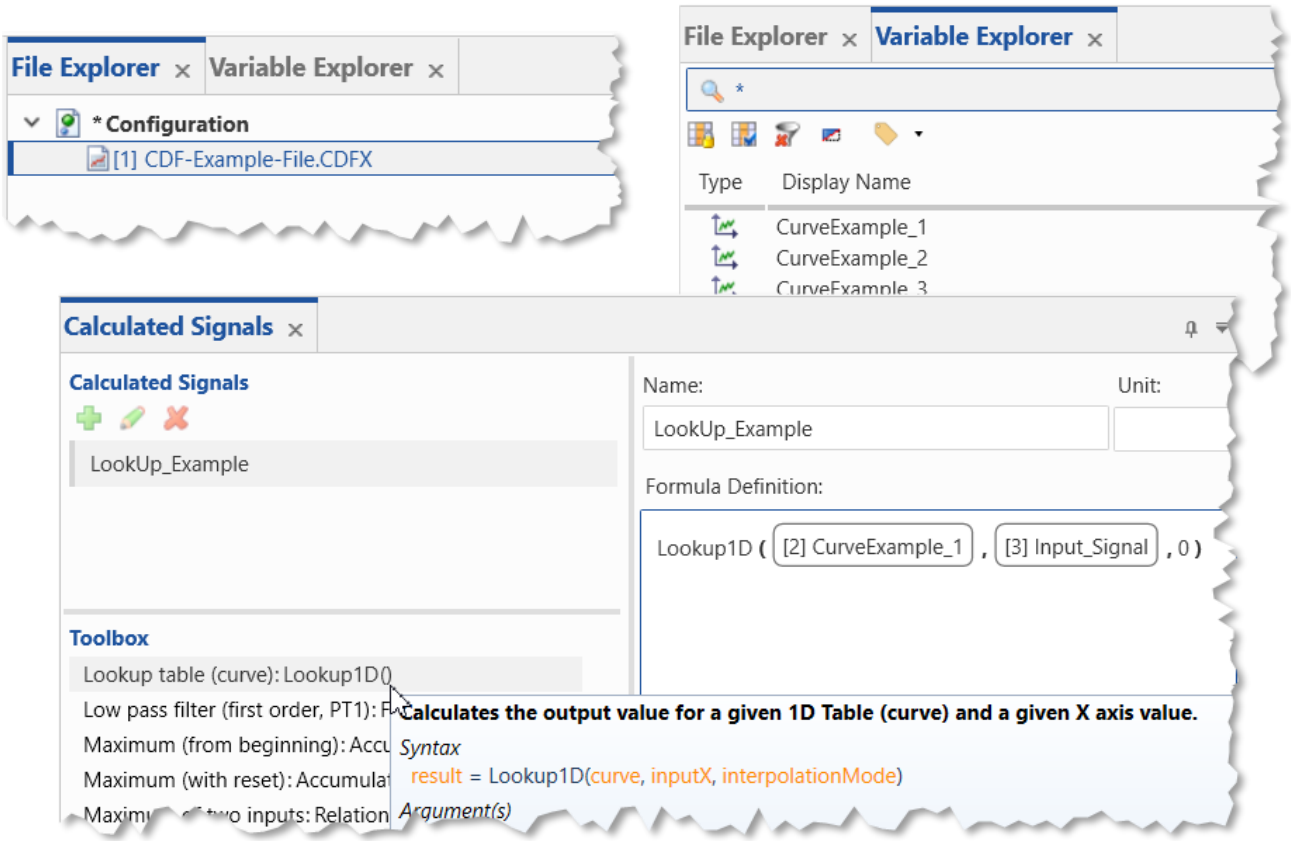
Functional Enhancements of MDA V8.5.3 (December 2020)

- **Functional Enhancements (MDA V8.5.3)**
  - Calculated Signals: Support of 1D Look-Up tables (i.e. Curves, not interpolated)
  - Oscilloscope: Properties window includes properties for cursors and signal list columns
- Files, Formats & Data Types
- Usability Improvements

MDA V8.5.7 – What's New

Functional Enhancements: Calculated Signals: Support of Look-Up tables (V8.5.3)

- MDA V8.5.3 allows to add CDF files to a configuration
- Parameters (i.e. Curves) contained in the CDF file are listed in the Variable Explorer
- Curves are used as input for new Calculated Signals function 'Lookup Table (Curve)'
- Lookup Table requires additionally a measured signal as input as well as the interpolation mode*

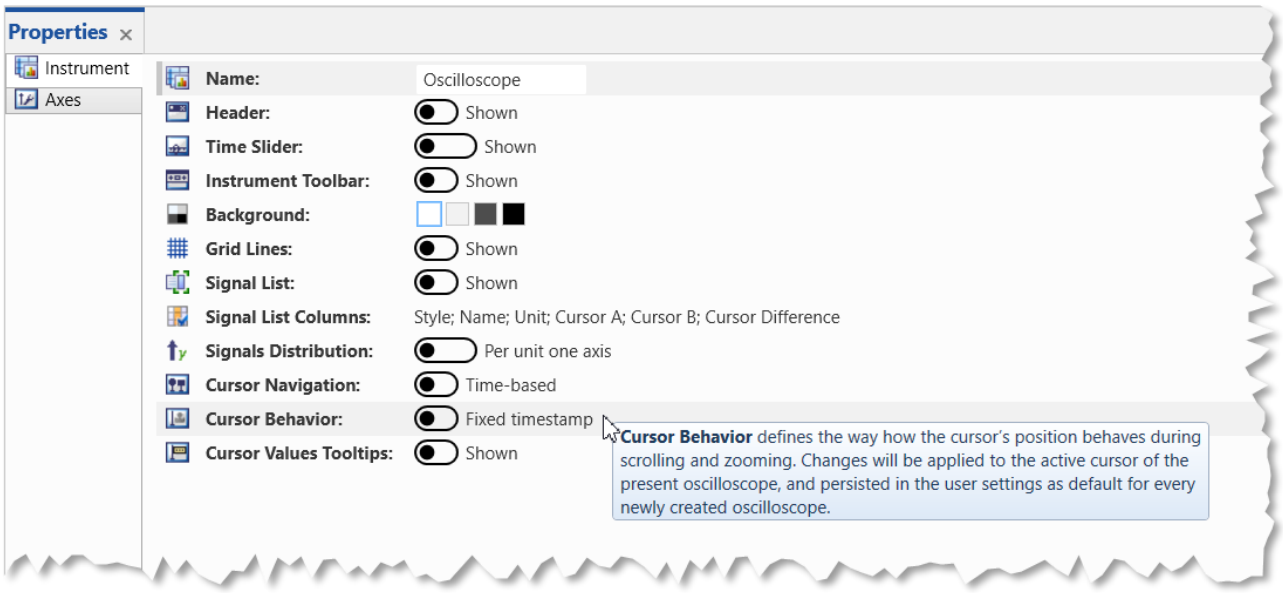


* Notes:
- In MDA V8.5.3 interpolation mode is limited to constant (i.e. step-wise) interpolation.
- Curves used as input for Lookup-1D function must have monotonous axis points.

MDA V8.5.7 – What's New

Functional Enhancements: Properties for cursors and signal list columns (V8.5.3)

– For MDA's oscilloscope additional instrument properties are available in the Properties window
  – Signal list columns
    i.e. which columns are displayed
  – Cursor navigation mode
    i.e. time-based vs. sample-wise
  – Cursor behavior
    i.e. fixed timestamp vs. anchored
– More details for each property are given in the tooltip including how a property effects the instrument and its default behavior



Note:
- Instrument properties are accessible via an icon in the instrument header, an entry in the context menu, and the keyboard combination Alt+Enter.

MDA V8.5.7 – What's New

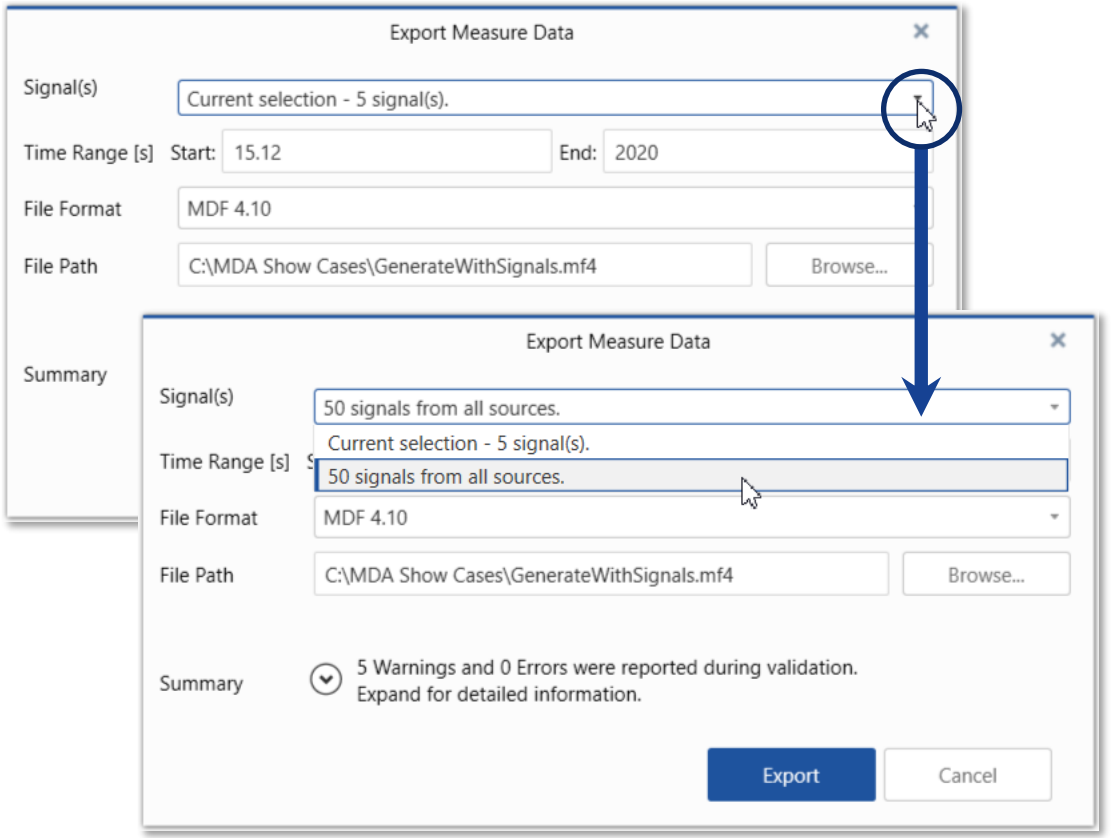
Files, Formats & Data Types in MDA V8.5.3 (December 2020)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.3)**
  - Export from Instrument level: All signals from all files can be included into export file
  - Connection line for a signal with time gaps is drawn correctly in the gap areas
  - Adaptations for MdfCombine.exe Command Line Tool
  - Support of *.blf Bus Trace Files (Add-On)
- Usability Improvements

MDA V8.5.7 – What's New

Files, Formats & Data Types: Export all Signals from Instrument Level (V8.5.3)

– From instrument level it is possible to export the measure data for the displayed signals, and the visible time range
– With MDA V8.5.3 via a drop-down menu not only the displayed signals can be included, but all signals from all measure files loaded in the configuration incl. calc. signals
– This facilitates the creation of a new measure file with a complete set of signals for a defined time range only

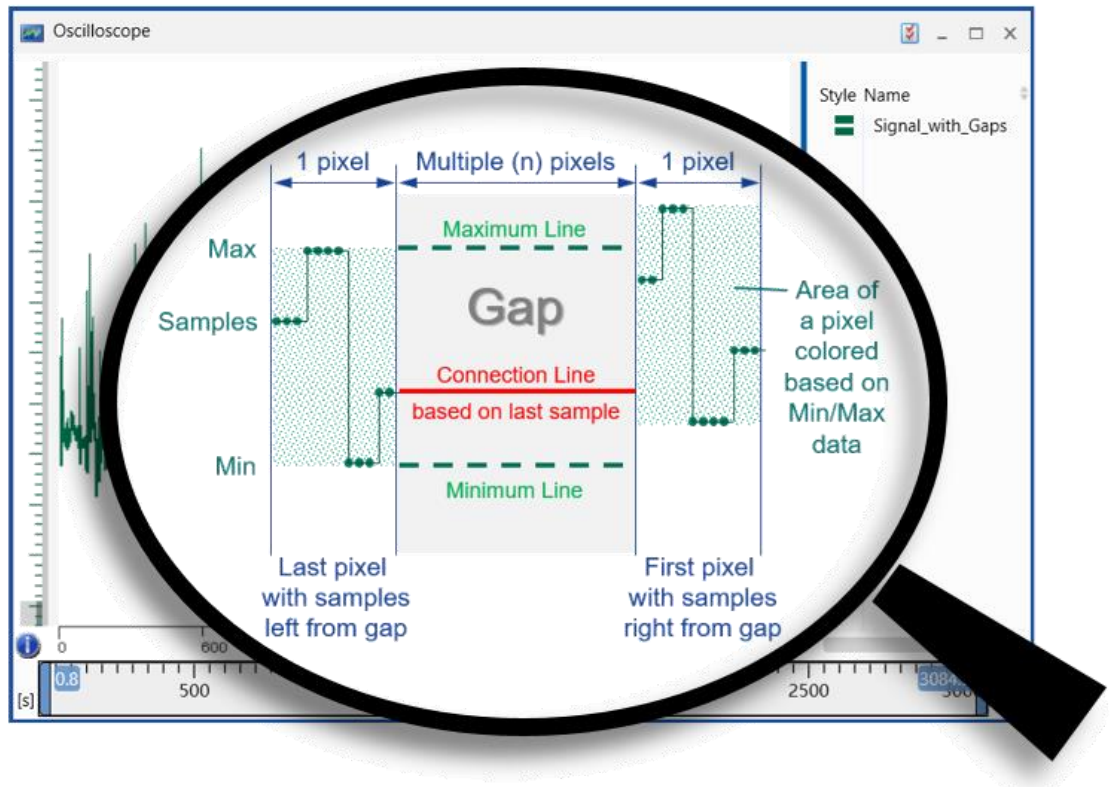


Notes:
- Time range can be adapted independently as desired.
- To export only a defined subset of signals export can be triggered from Variable Explorer.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Correct connection line for signals with time gaps (V8.5.3)

– For high performance of displaying signal curves in the oscilloscope usually reduced data is used
– Reduced data provides per pixel on the screen only Min and Max values
– Along time areas (‘gap’) in which no samples exist this results often in a misleading connection line
– MDA V8.5.3 detects such gaps and requests detailed data from the measure file
– Based on the detailed data even the last available sample on the pixel left from a gap can be found, and an accurate connection line is drawn

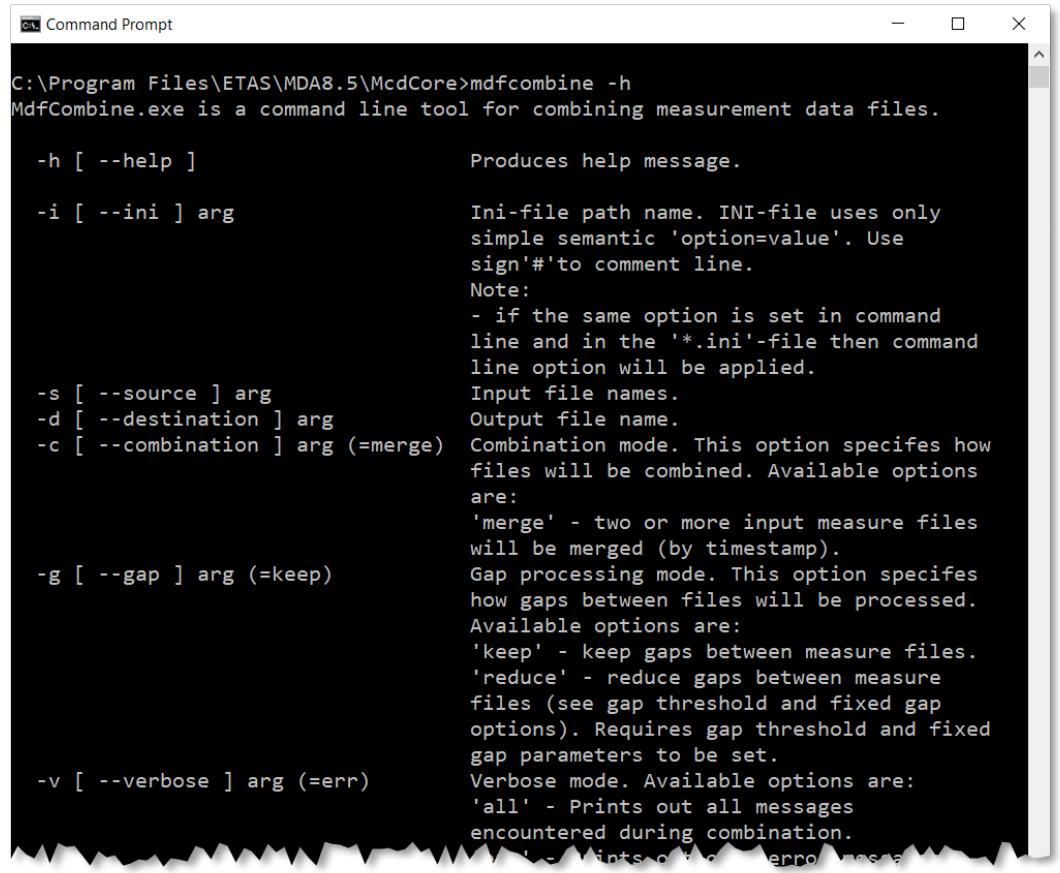


Notes:
- Gap detection is only done for signals having a discrete data type, like Boolean or Enumeration signals, and for signals assigned to a Boolean strip.
- For curve drawing first reduced data is used, then gap detection and re-fetching of detailed (i.e. raw) data is done.
  For signals having time gaps a delay might be noticed until the accurate curve is drawn, which depends on performance of file access, file size, etc.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Adaptations for MdfCombine.exe Command Line Tool (V8.5.3)

- For MdfCombine.exe command line tool (see MDA V8.5.2) some options were modified
- New terms have a clearer formulation
  - ‘Pause’ is replaced by ‘Gap’
  - ‘PauseThreshold’ by ‘GapThreshold’
- New arguments were introduced
  - ‘-g’ can be used to define ‘Gap’
  - ‘-t’ can be used to define ‘GapThreshold’
  - ‘-f’ can be used to define ‘fixedGap’
- Complete list of supported parameters and options is shown when using *>mdfcombine.exe --help*

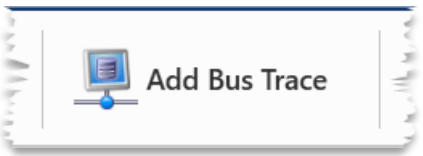


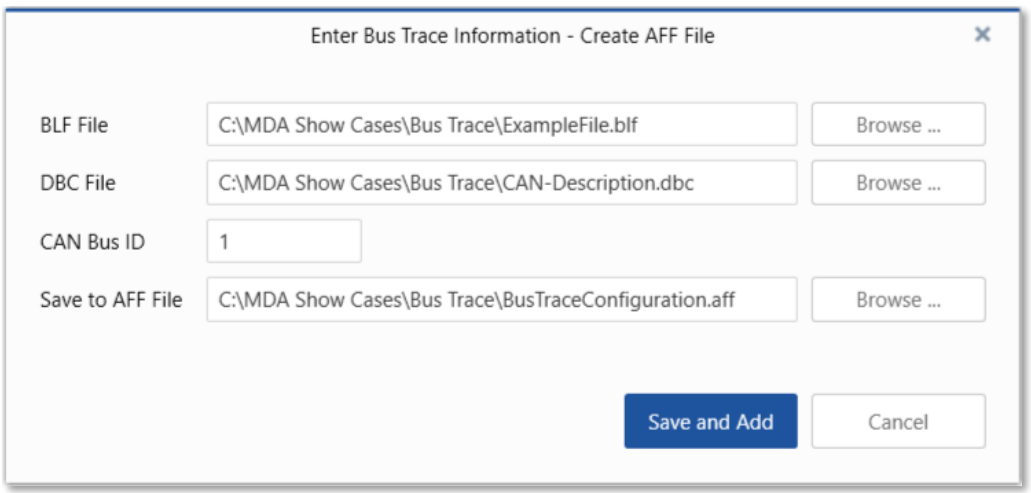
Notes:
- If original source files have overlapping time ranges, merging is not supported.
- Event signals are excluded when merging measure files.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Support of *.blf Bus Trace Files (V8.5.3)

– With a new Add-On* for MDA V8.5.3 bus trace files (*.blf) and CAN monitoring description files (*.dbc) can be loaded
– In the Configuration ribbon an additional icon is given to open the dialog for selecting the files
– Trace file contents are interpreted as defined in the CAN monitoring description file, and can then be used as ordinary measure files
– Input files are combined to an AFF file shown as entry in the File Explorer
– Monitoring signals appear in the Variable Explorer





* Notes:
- The Add-On is an ETAS Engineering solution and needs to be ordered additionally.
- File format for bus description must be *.dbc, bus support is limited to CAN and CAN-FD.

MDA V8.5.7 – What's New

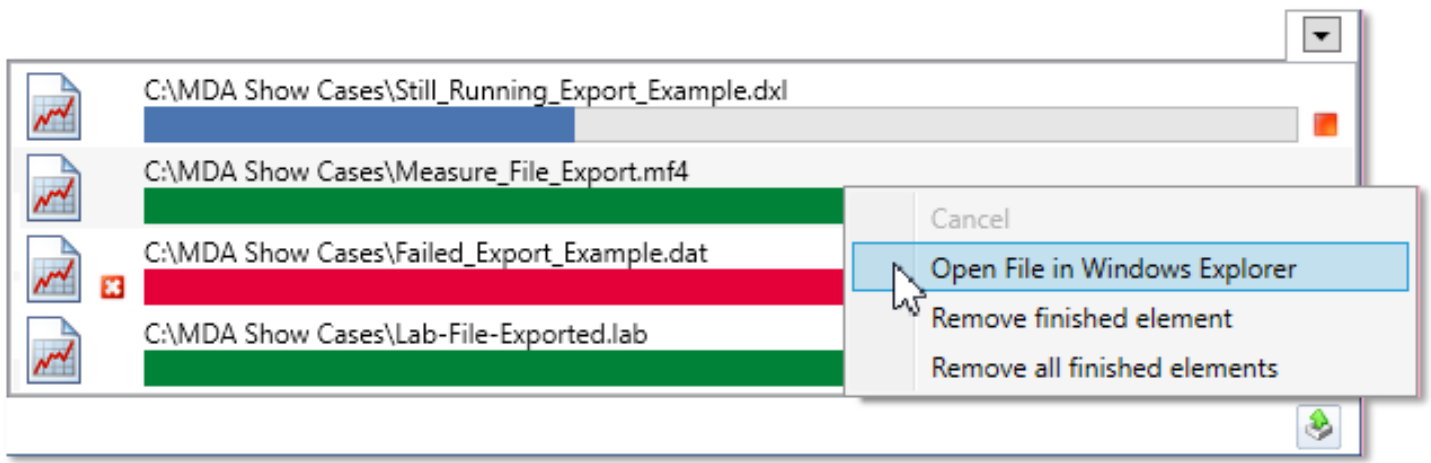
Usability Improvements of MDA V8.5.3 (December 2020)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.3)**
  - Export Improvements
    - Progress view shows status of export for LAB files
    - Show exported file directly in Windows Explorer
  - Oscilloscope Improvements
    - Enable “Move to New Strip (CTRL+T)” also for single signals
    - Ignore Infinity samples during Zoom-to-Fit

MDA V8.5.7 – What's New

Usability Improvement for Export Measure Data (V8.5.3)

– Two smaller enhancements for the export progress view were implemented
  – Export status for creation of *.lab files is listed
    in the same manner as for measure files
  – A new entry in the context menu
    allows for any exported file
    to show the file directly
    in Windows Explorer

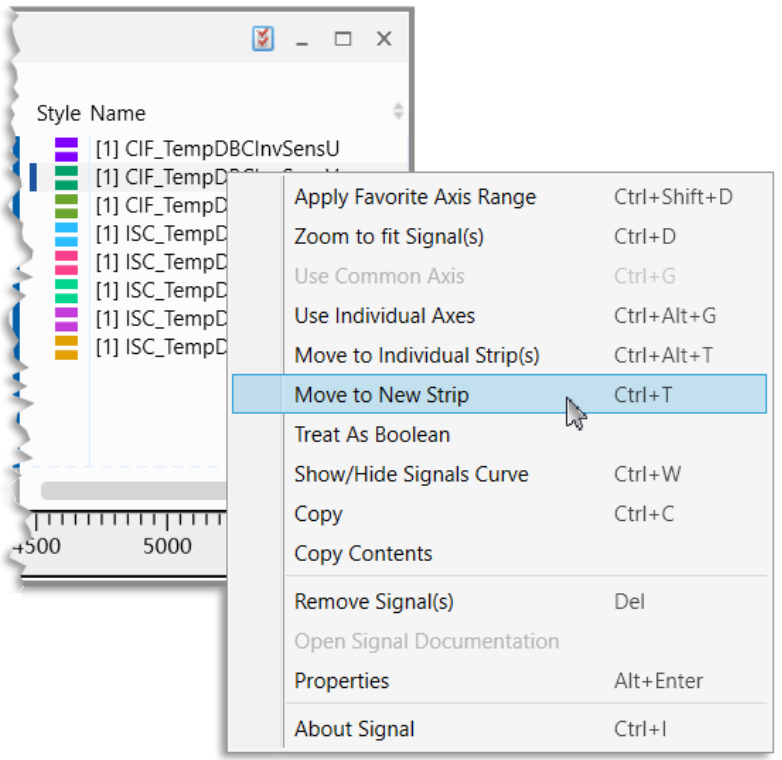


MDA V8.5.7 – What's New

Usability Improvements for Oscilloscope (V8.5.3)

– With MDA V8.5.3 two small usability improvements for the oscilloscope are implemented
  – To enable a quick signal-to-strip distribution, a modified context menu entry ‘Move to new strip (CTRL+T)’ is available
  – It is active even in case only a single signal is selected in the source strip

  – When performing a zoom-to-fit operation the samples having infinity values (+INF / -INF) are ignored



MDA V8.5.2 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in September 2020

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MDA V8.5.7 – What's New

Summary for MDA V8.5.2 (September 2020)

- **Functional Enhancements**
  - Properties docking window for instrument-specific properties
  - Axes Properties for oscilloscope and scatter plot
  - Indication of EVENT signals along GPS tracks
  - Merge signal assignments when copying & pasting objects between configurations
- **Files, Formats & Data Types**
  - Merging of multiple measure files into one combined measure file (basic step)
  - Support of display of signals with non-monotonous computation method in the oscilloscope
  - Improvements for adapted HEX resp. BIN representation for signals of data type FLOAT
  - Enable editing of measure file default comment
- **Usability Improvements**
  - Link measure file extensions to load the file in MDA V8 (“AddOrReplace” behavior)
  - Harmonized behavior of Search Field in Variable Explorer, Configuration Manager and INSERT dialog
  - Layer Tab Enhancement: Removal of Close (X) icon
  - Oscilloscope Improvements: Tooltips for Selection Wheel sectors & No fractions (decimals) for Boolean signals
  - Variable Explorer: Smaller column width for icon columns (comparable to INCA VSD)

MDA V8.5.7 – What's New

Functional Enhancements of MDA V8.5.2 (September 2020)

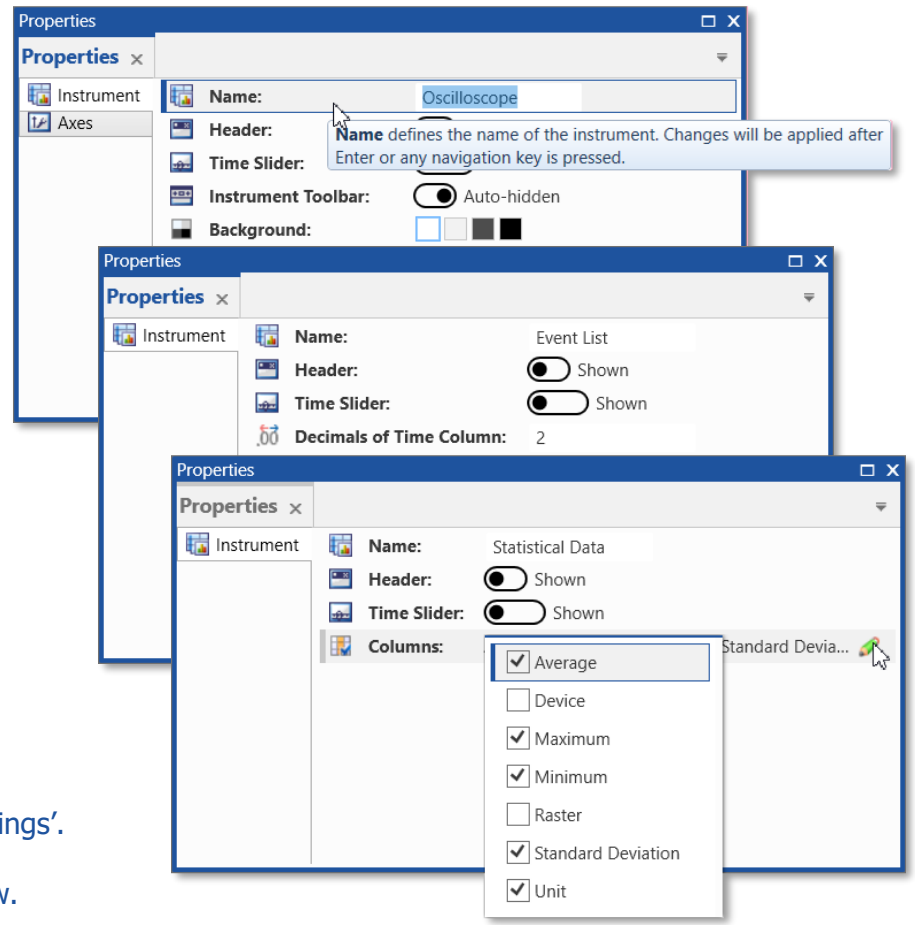
- **Functional Enhancements (MDA V8.5.2)**
  - Properties docking window for instrument-specific properties
  - Axes Properties for oscilloscope and scatter plot
  - Indication of EVENT signals along GPS tracks
  - Merge signal assignments when copying & pasting objects between configurations
- Files, Formats & Data Types
- Usability Improvements

MDA V8.5.7 – What's New

Functional Enhancements: Properties docking window for instrument-specific properties (V8.5.2)

– The Properties docking window is enhanced per instrument type by instrument-specific properties
– A tooltip explains meaning and potential options
– Changing a property results in an immediate change of the currently active instrument
– In case a property represents the default for an instrument type, it is applied for new instruments
– Instrument toolbar is cleaned-up by removing less frequently used property functionalities

Outlook
– Further tabs for e.g. signal properties will follow

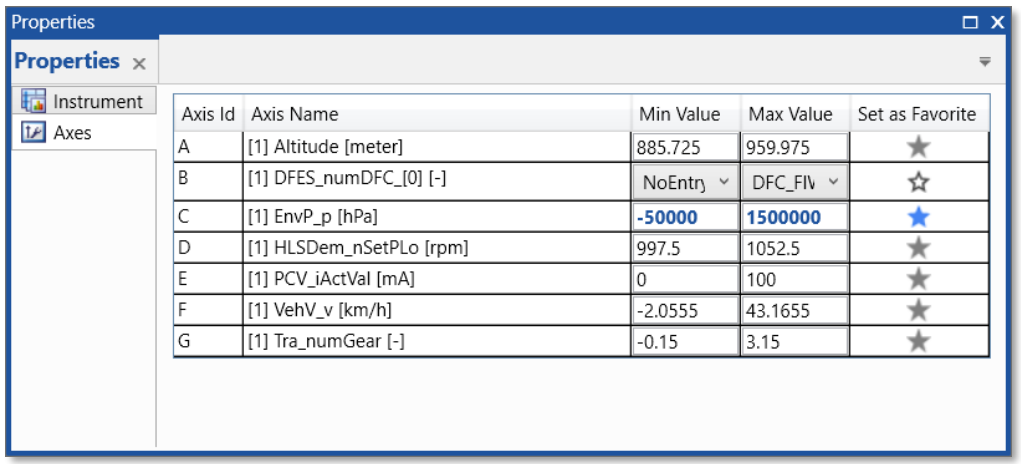


Notes:
- Properties with default character are listed in the MDA V8 Manual Chapter 1.3 'User Settings'.
- Some oscilloscope-specific properties for cursors will be added in future.
- Same short-cut as in INCA namely 'Alt+Enter' is used to open Properties docking window.

MDA V8.5.7 – What's New

Functional Enhancements: Axes Properties for oscilloscope and scatter plot (V8.5.2)

- To facilitate for oscilloscope and scatter plot the definition of axis ranges and favorite axis behavior the Properties docking window is extended by an additional tab for ‘Axes’ properties
- A change of an axis range is applied directly to the active instrument
- When an axis range is ‘Set as Favorite’:
  - This range is used as default when assigning the signal to an oscilloscope or scatter plot
  - The favorite axis range can be re-stored easily via icon ( ) and context menu entries

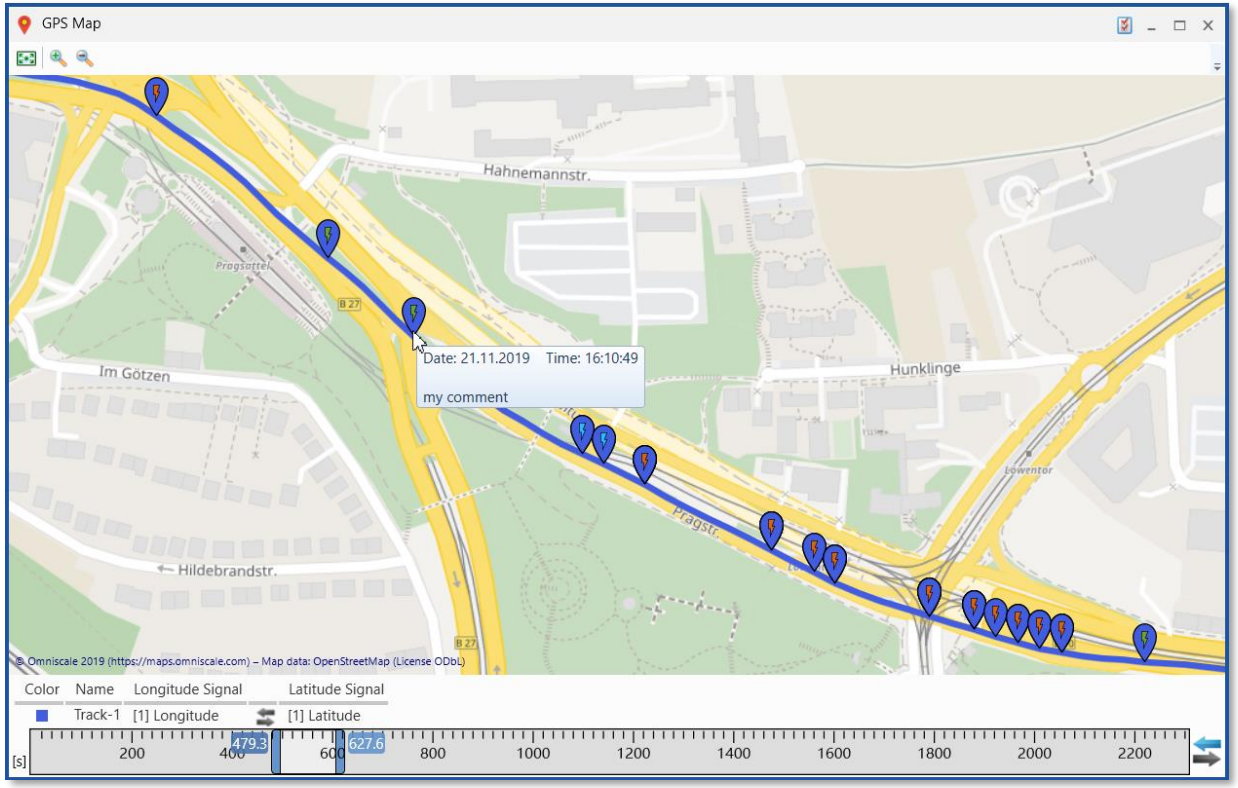


Notes:
- A change effects only the active instrument, but no other existing oscilloscope or scatter plot.
- Favorite axis range is valid for oscilloscope, and scatter plot only.
- Favorite setting can not be deleted, but is overwritten when setting another range as favorite range.

MDA V8.5.7 – What's New

Functional Enhancements: Indication of EVENT signals along GPS tracks (V8.5.2)

- When adding event signals to a GPS map the location where an event occurred is indicated by an icon
- For a clear identification even in case of several tracks the color of the icon itself uses the same color as the track
- The color of the flash inside the icon represents the kind of the event, like Pause, Comment, Calibration Activities, etc.



Note:
- An event is detected based on the data type EVENT.

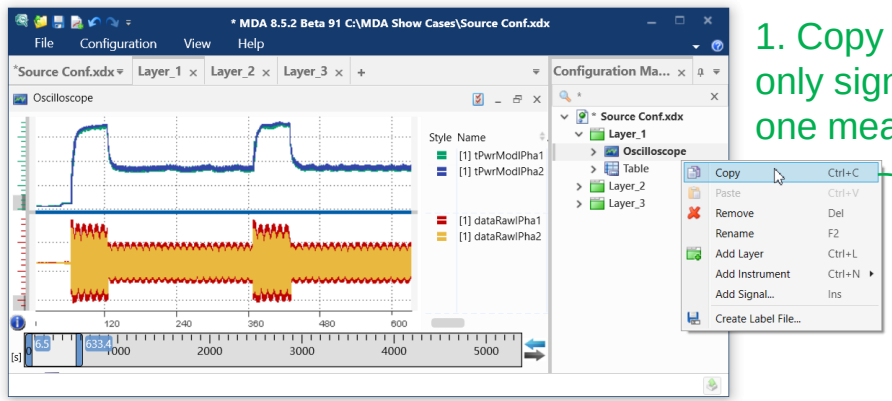
MDA V8.5.7 – What's New

Functional Enhancements: Merge signal assignments when copying & pasting (V8.5.2)

- To avoid that signals are getting into no-match state, MDA V8.5.2 applies an automatic signal mapping under specific boundary conditions
- If a Copy & Paste operation between different configurations is done, MDA checks whether clipboard contents and the target configuration contain both ‘only one’ file, then the copied signals are mapped to the target meas. file
- Mapping is based on the same algorithms as when replacing a measure file, i.e. MDA V8 tries to keep ‘blocks of signals’ (e.g. from the same device etc.) together

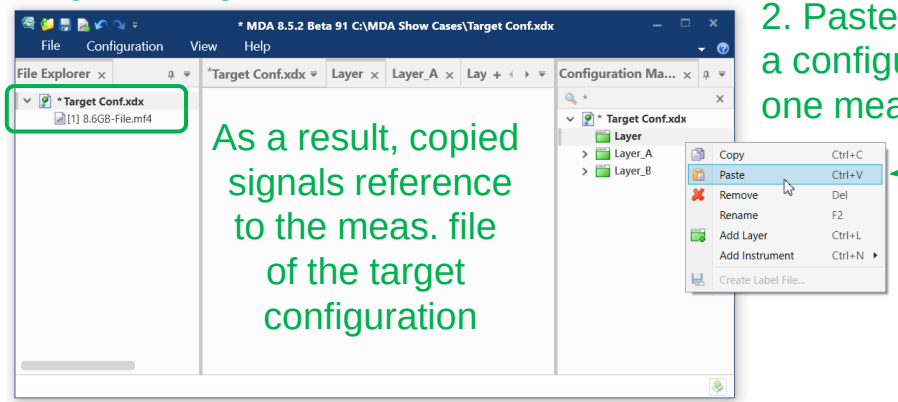
Note:
- ‘Only one’ means: the copied signals are all from the same meas. file, and the target configuration shows exactly one measure file in the File Explorer.

Source Configuration



1. Copy includes only signals from one meas. file

Target Configuration



2. Paste happens into a configuration with one meas. file only

MDA V8.5.7 – What's New

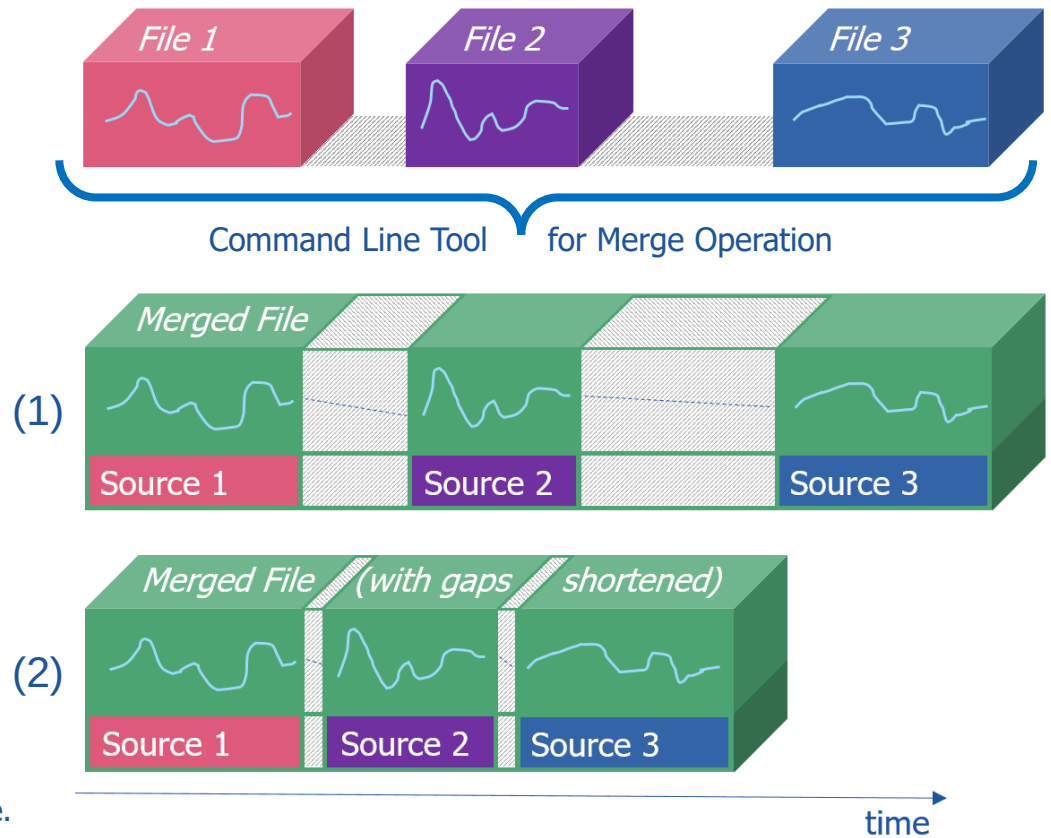
Files, Formats & Data Types in MDA V8.5.2 (September 2020)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.2)**
  - Merging of multiple measure files into one combined measure file (basic step)
  - Support of display of signals with non-monotonous computation method in the oscilloscope
  - Improvements for adapted HEX resp. BIN representation for signals of data type FLOAT
  - Enable editing of measure file default comment
- Usability Improvements

MDA V8.5.7 – What's New

Files, Formats & Data Types: Merging of multiple measure files to one measure file (V8.5.2)

- Together with MDA V8.5.2 a command line tool is delivered, which allows to 'Merge' multiple meas. files into one combined measure file
- 'Merge' means: the contents of the separate files are sorted chronologically, thereby signals having the same name and setup (device, raster, data type, etc.) but from separate files, result in one combined signal
- Parameters allow to define how time gaps at connection points are treated:
  (1) original duration of gaps is kept,
  (2) gaps are shortened to a defined duration

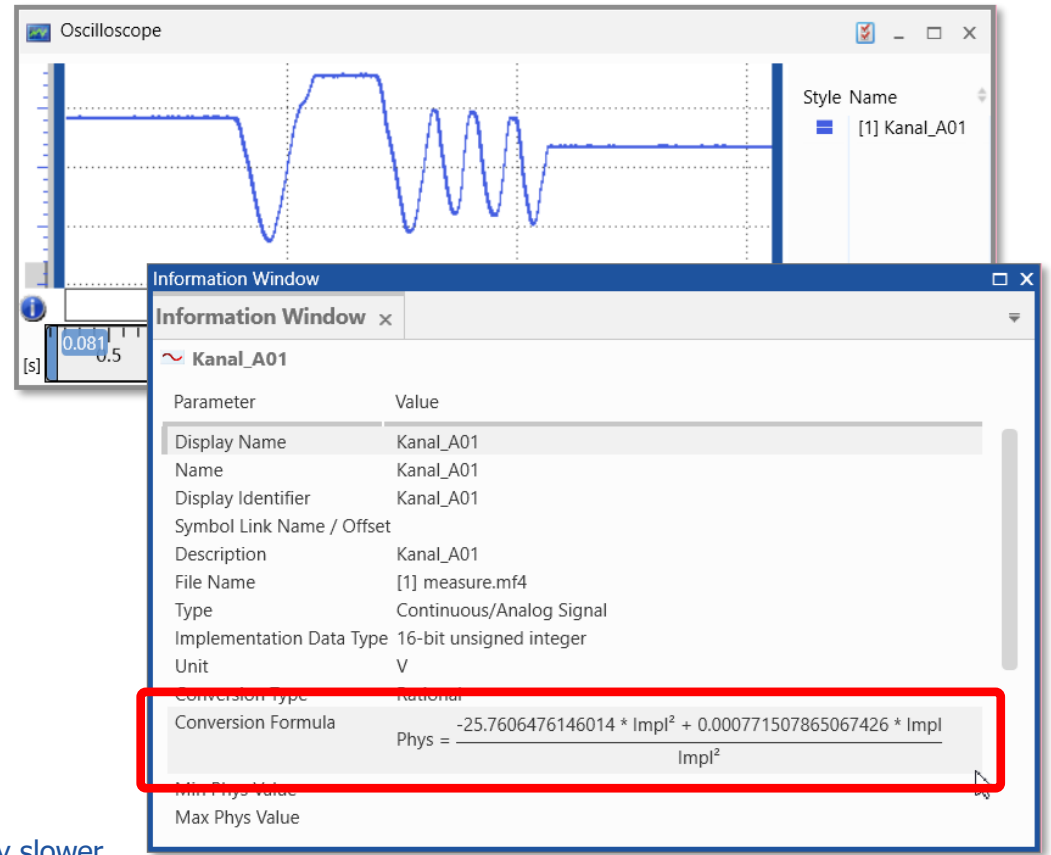


Notes:
- 'MdfCombine.exe' is installed by default in %ProgramFiles%\ETAS\MDA8.5\McdCore.
- If original source files have overlapping time ranges, merging is not supported.
- Event signals are excluded when merging measure files.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Display of signals with non-monotonous conversion (V8.5.2)

– For performance reasons oscilloscope is using reduced data when displaying signal curves
– As the index is based on implementation (‘raw’) data while signals are typically displayed with physical values, so far the oscilloscope did not display signals with non-monotonous conversion formula
– In MDA V8.5.2 this limitation is removed, and signal curves are shown in the oscilloscope

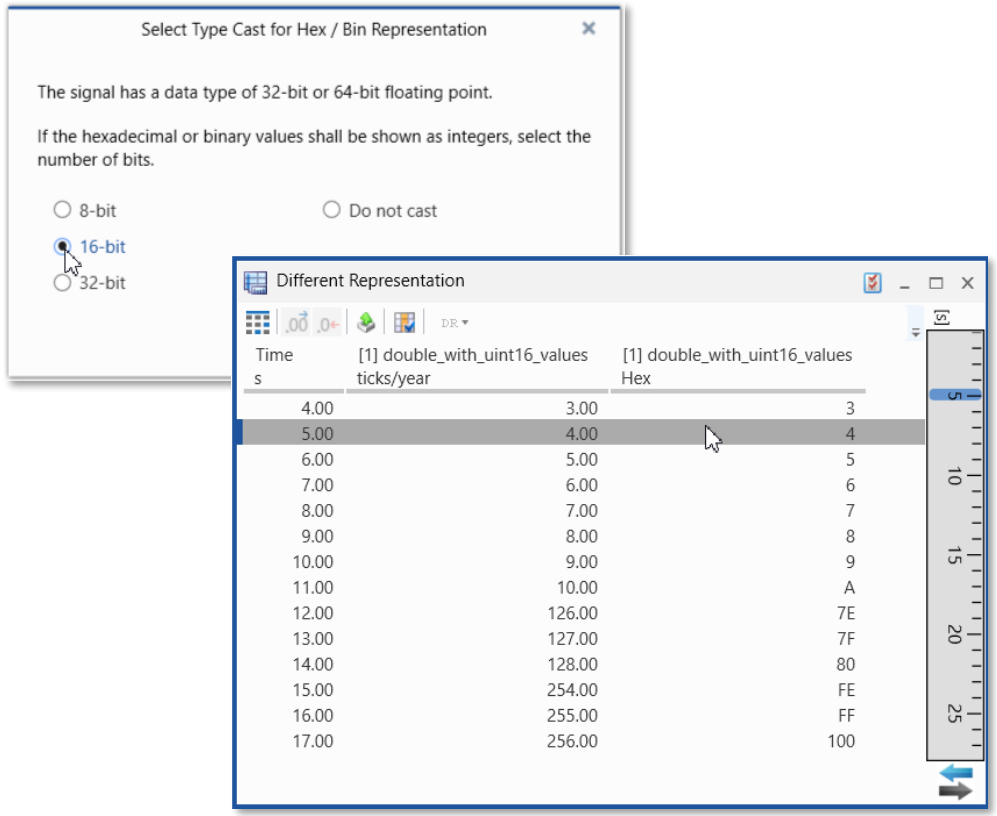


Note:
- Performance for drawing curves of signals with non-monotonous conversion is slightly slower, but comparable to the drawing of signal curves from a measure file without standard index.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Enhancements for HEX & BIN representation of Float signals (V8.5.2)

- Already with MDA V8.5.1 for so-called #MeasureCal signals having Float data type a user-definable setting for hexadecimal (HEX) and binary (BIN) data representation was introduced
- With MDA V8.5.2 this user definable data representation is extended for any kind of signals having Float data type

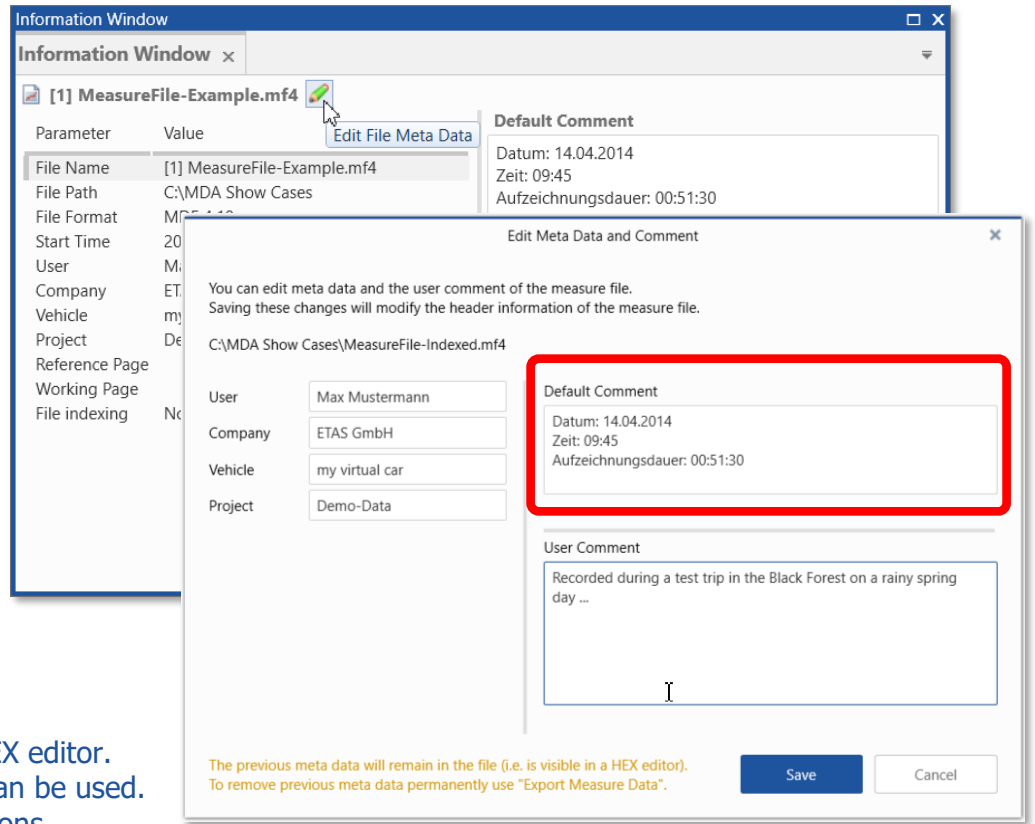


Notes:
- MDA extends the number of bits automatically if a too small number was selected for the actual values.
- In case the physical value has decimals, the value is rounded to the next integer (e.g. 9.5 [phys] -> 10 [phys] -> A [hex]).

MDA V8.5.7 – What's New

Files, Formats & Data Types: Enable editing of measure file default comment (V8.5.2)

– At the end of a measure file recording in INCA, the user can enter a comment; additionally INCA might enter some recording information, called ‘Default Comment’
– Contents of the Default Comment are defined in INCA recording options, and are updated automatically when the meas. file is created
– With MDA V8.5.2 also the Default Comment can be edited manually



Notes:
- To edit the meta information write-access for the file must be given.
- Existing meta information remains in the measure file, and is visible e.g. in a HEX editor. For a permanent removal of previous meta information ‘Export Measure Data’ can be used.
- The character combination “§@” is forbidden, as it separates the comment sections.
- When saving changed meta information the ‘date modified’ of the file is adapted, but the ‘file creation date’ remains unchanged.
- Especially for MDF V3.x (*.dat) files, the number of characters for User, Company, Vehicle and Project are limited.

MDA V8.5.7 – What's New

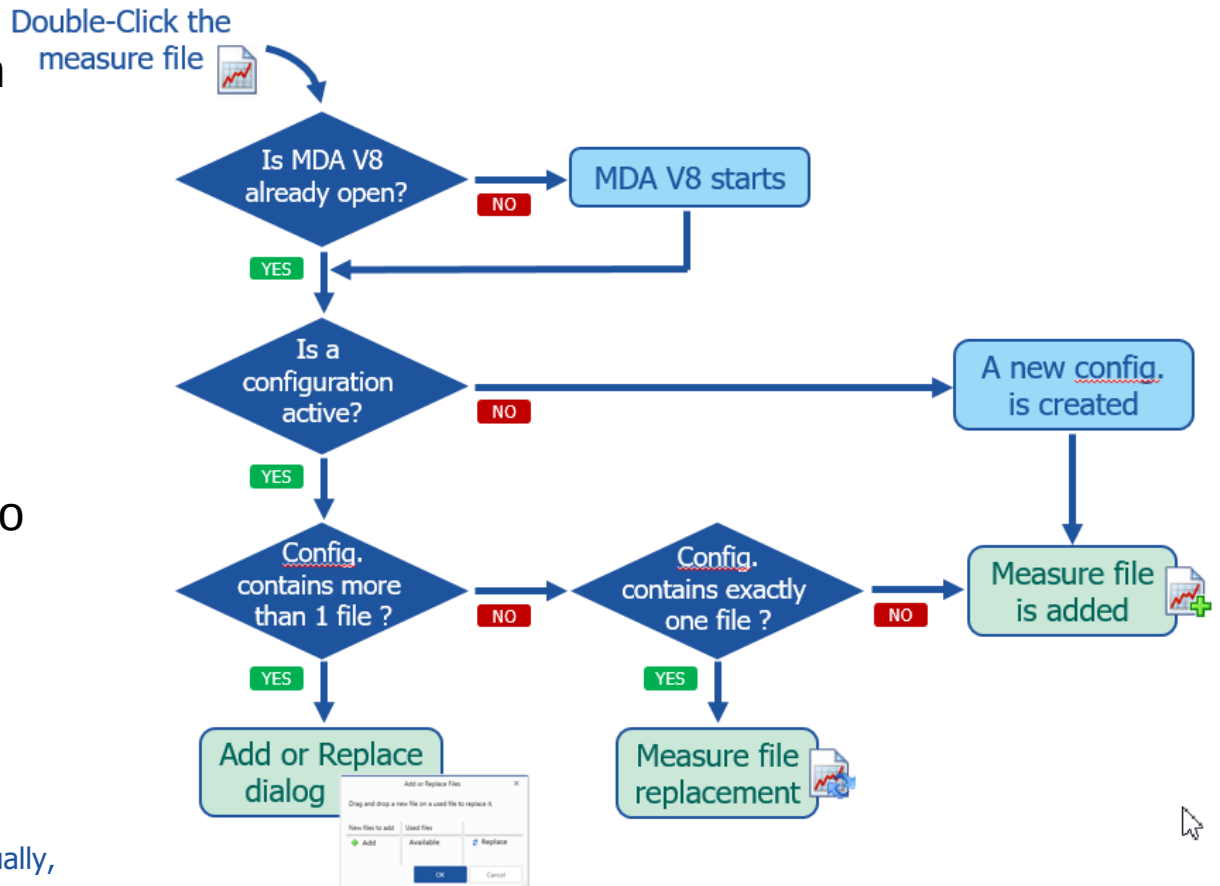
Usability Improvements of MDA V8.5.2 (September 2020)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.2)**
  - Link measure file extensions to load the file in MDA V8 (“AddOrReplace” behavior)
  - Harmonized behavior of Search Field in Variable Explorer, Configuration Manager and INSERT
  - Layer Tab Enhancement: Removal of Close (X) icon
  - Oscilloscope Improvements: Tooltips for Selection Wheel & No decimals shown for Booleans
  - Variable Explorer: Smaller column width for icon columns (comparable to INCA VSD)

MDA V8.5.7 – What's New

Usability Improvements: Link of measure file extensions to load the file in MDA V8 (V8.5.2)

– To enable a quick usage of measure files in MDA, during installation some measure file extensions (i.e. *.dat, *.mf4, and *.mdf) are assigned to MDA V8 application
– When double-clicking such a file, MDA is started, and the file is loaded
– The ‘Add Or Replace’ behavior is followed, i.e. if exactly one measure file is assigned to the active configuration, this file is replaced automatically

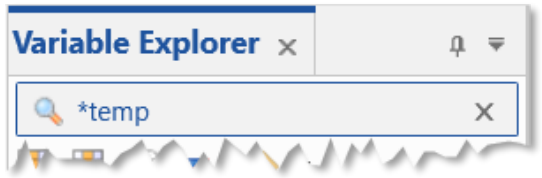


Notes:
- If an assignment of one of the file extensions was already done manually, the assignment must be confirmed once. (Windows functionality.)
- ‘Add Or Replace’ behavior is also followed when MDA V8 is triggered directly from INCA after a recording.

MDA V8.5.7 – What's New

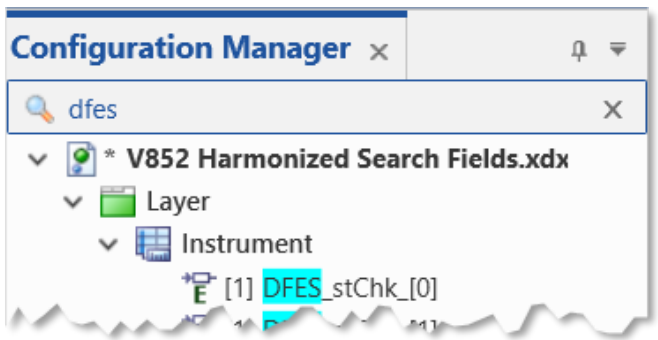
Usability Improvements: Harmonized behavior of Search Field (V8.5.2)

- In MDA V8 a search for a signal or variable is supported at different locations, namely in the Variable Explorer (Shift+F4), the Configuration Manager (CTRL+F), and the window when using INSERT key
- With MDA V8.5.2 the behavior of these search fields was harmonized, so that now at all locations it is possible
  - To enter the * wildcard for a not specified number of characters (multiple * in one search are supported)
  - To show the last used search string for a direct reuse
  - To pre-select the last used search string (excl. the initial *) for defining quickly a new search



Search mode "Contains"

The wildcard * is used at the end of the string even if not entered



Search mode "Starts with"

Search is not case-sensitive

Last used string can be directly overwritten or adapted

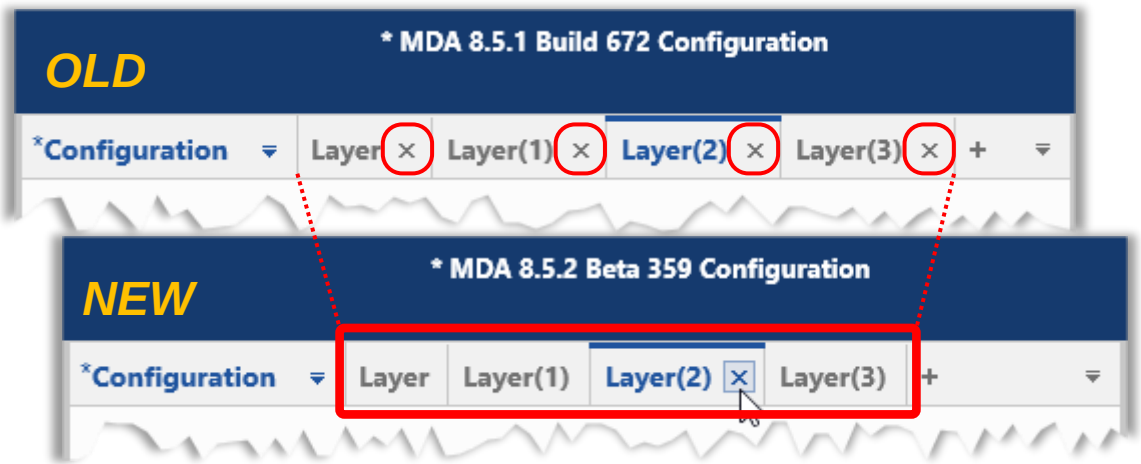
Notes:
- For technical reasons, the initial wildcard * in the Variable Explorer re-appears automatically. Nevertheless there can be characters entered left from the * to perform a 'Starts With' search.
- Search mode 'Ends With' is not offered.

MDA V8.5.7 – What's New

Usability Improvement for Layer Tabs: Removal of Close (X) icon (V8.5.2)

– With MDA V8.5.2 an improvement for the layer tabs was introduced

– The X icon at each layer tab was removed for the not active layers
  – To avoid an accidental deletion when a layer switch via mouse click is done, and
  – To reduce the layer tab width which allows to display more layer tabs

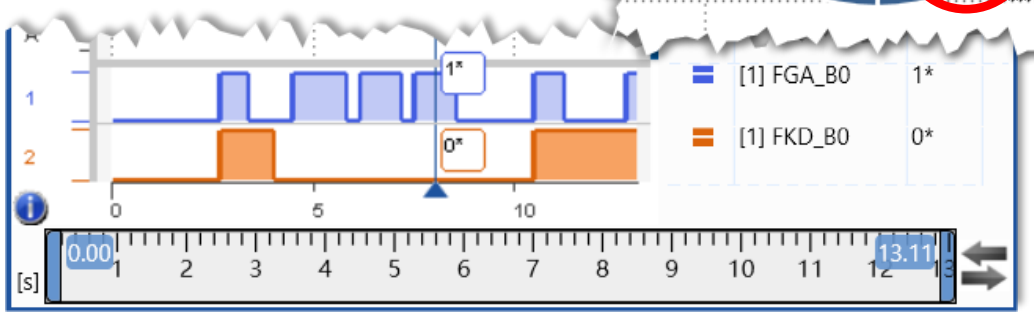


MDA V8.5.7 – What's New

Usability Improvements for Oscilloscope: Selection Wheel & Boolean signals (V8.5.2)

– With MDA V8.5.2 some improvements for oscilloscope usability are introduced
  – For the sectors in the Selection Wheel tooltips are provided, explaining the consequence of the currently selected sector
  – New icon for the option to 'Take-over axes assignment' from the source oscilloscope for easier understanding

– For signals assigned to a Boolean strip, automatically signal values are shown without decimals

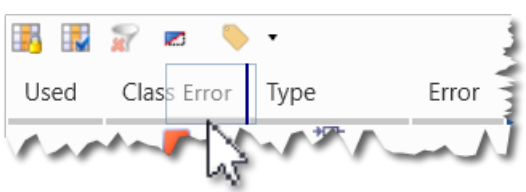


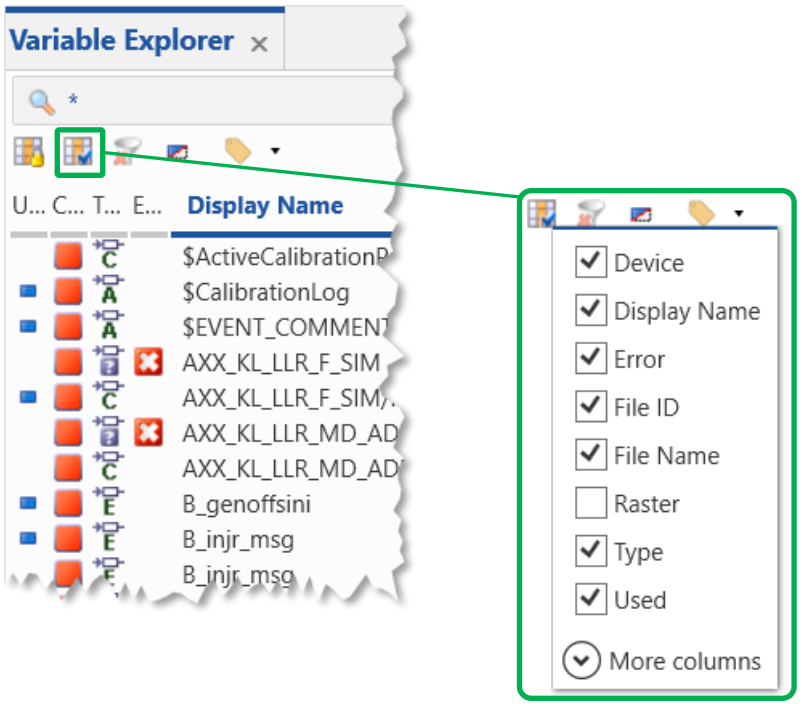
Notes:
- For basic description of Selection Wheel, see 'Usability' in What's New section for V8.5.1.
- Enumeration signals always get individual axes.
- Enumeration Signals with two states (e.g. 1=TRUE, 0=FALSE) need to be assigned manually to a Boolean strip.

MDA V8.5.7 – What's New

Usability Improvements: Variable Explorer: Smaller column widths for icon columns (V8.5.2)

– To reduce the space consumption in the Variable Explorer, the column widths for Used, Class, Type, and Error were reduced significantly to a comparable width as in INCA Variable Selection Dialog
– To define which columns are shown use the column selection drop-down list
– To reorder the columns, click the header row, and drag & drop to the desired position





Note:
- Reordering is easier, when the column width is increased first, and reduced again after re-ordering.

MDA V8.5.1 – What's New

Functional Enhancements & Usability Improvements

Slides for MDA Release
in June 2020

ETAS

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MDA V8.5.7 – What's New

Summary for MDA V8.5.1 (June 2020)

- **Functional Enhancements**
  - Import of formula definition for calculated signals (*.xcs) from INCA or MDA V7.x
  - First step: Basic Properties window for all instruments
- **Files, Formats & Data Types**
  - Editing of measure file comment and other meta-information
  - Creation of Label files (*.lab)
  - Performance aspect: Indication of missing file index for MDF files
  - Adapted HEX resp. BIN representation for so-called #MeasureCal signals
- **Usability Improvements**
  - Oscilloscope: Automatic update of signal values at cursors with detailed signal data (part 2)
  - Oscilloscope: Selection Wheel to define signal-to-axis assignment when dropping signals
  - Open Information Window via ‘About Variable’ from Variable Explorer (Ctrl+I)
  - Adaptation of Font Size and Line Spacing for more compact list views
  - Further smaller improvements and changes

MDA V8.5.7 – What's New

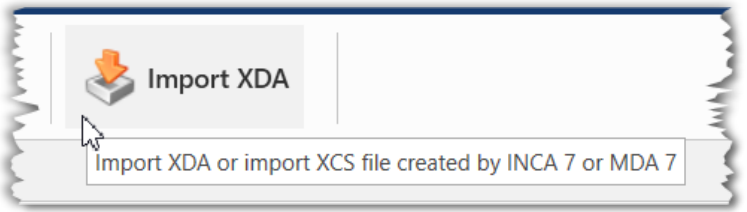
Functional Enhancements of MDA V8.5.1 (June 2020)

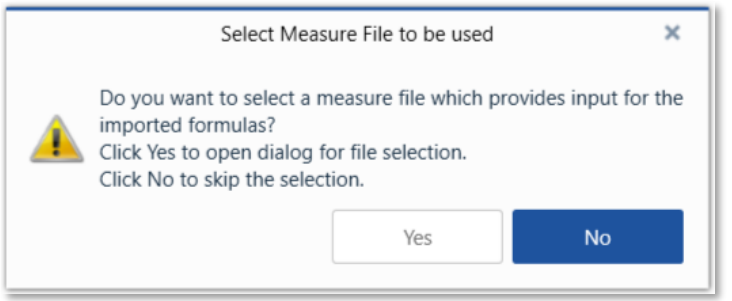
- **Functional Enhancements (MDA V8.5.1)**
  - Import of formula definitions for calculated signals (*.xcs) from INCA or MDA V7.x
  - First step: Basic Properties window for all instruments
- Files, Formats & Data Types
- Usability Improvements

MDA V8.5.7 – What's New

Functional Enhancements: Import of formulas for calc. signals from INCA or MDA V7.x (V8.5.1)

– Calculated signals can be exported from INCA Experiment Environment, or from MDA V7.x in *.xcs file format
– Reuse of the formula definitions of these calc. signals is possible by importing the *.xcs file via the ‘Import XDA’ icon
– During import procedure a measure file should be selected, as based on this selection the input signals for the calc. signals are mapped automatically
– If no measure file is selected during *.xcs import, a placeholder file entry will be created in the File Explorer, which can be replaced later



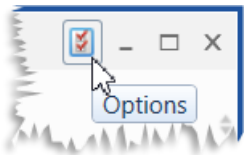


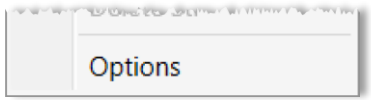
Notes:
- The same limitations apply as for the import of calculated signals from an *.xda file. For example, if a calculated signal with the same name exists already, the import fails.
- MDA V8.5.1 supports import of *.xcs file only, but not writing.
- To exchange calculated signals between MDA V8 configuration use Copy & Paste feature.
- Signal mapping follows the same mapping rules as in case of a measure file replacement.

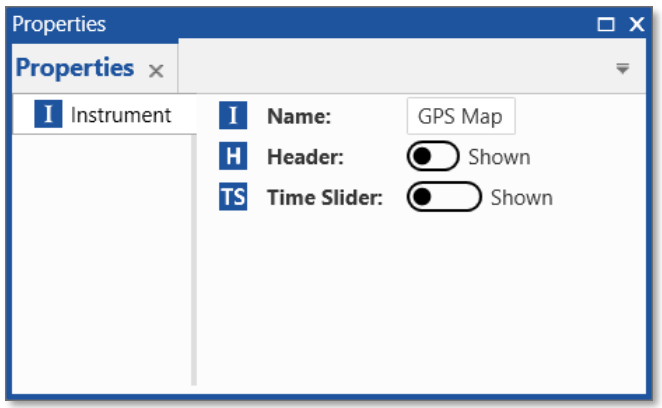
MDA V8.5.7 – What's New

Functional Enhancements: Basic Properties window for all instruments (V8.5.1)

– A basic properties docking window for generic instrument properties is introduced with MDA V8.5.1
– As a first step it includes only few instrument properties, namely
  – Instrument Name
  – Visibility of instrument header, and
  – Visibility of time slider bar
– It replaces the former Options dialog







– Outlook
– In future MDA versions instrument-specific properties will be added to the Properties window. First instrument-specific properties, then properties of signals, axes etc.

Note:
- Better understandable icons and Keyboard combination to open Properties window will follow.

MDA V8.5.7 – What's New

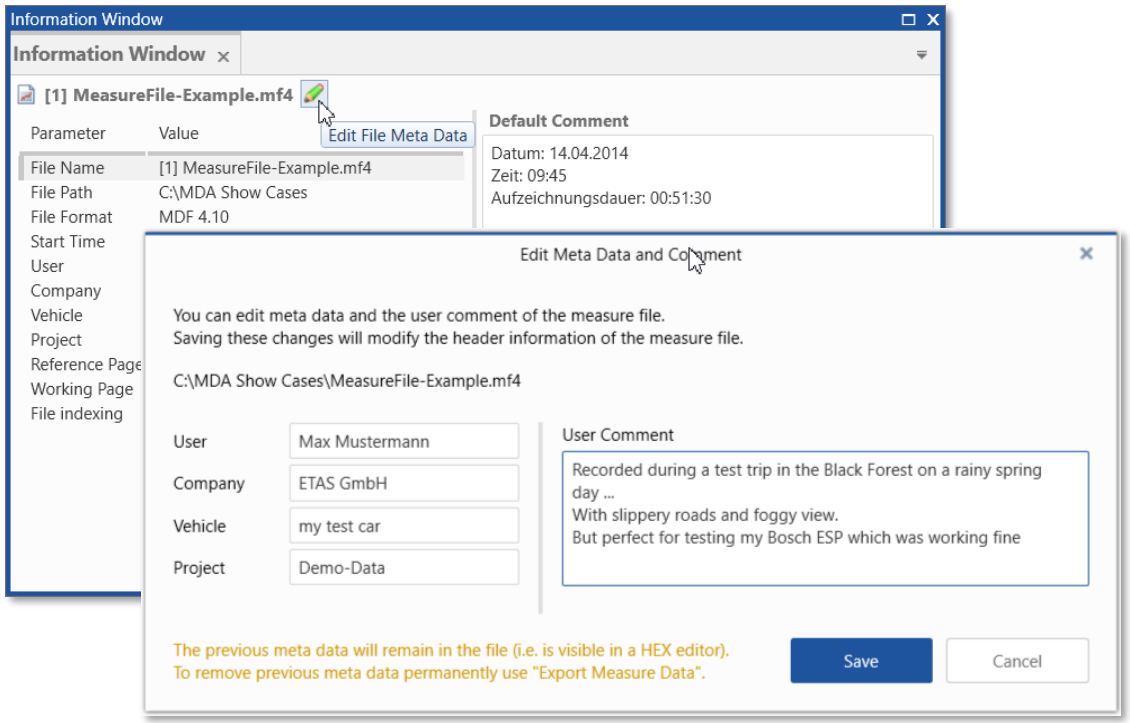
Files, Formats & Data Types – Changes in MDA V8.5.1 (June 2020)

- Functional Enhancements
- **Files, Formats & Data Types (MDA V8.5.1)**
  - Editing of measure file comment and other meta-information
  - Creation of Label files (*.lab)
  - Performance aspect: Indication of missing file index for MDF files
  - Adapted HEX resp. BIN representation for so-called #MeasureCal signals
  - Further small changes in MDA V8.5.1
- Usability Improvements

MDA V8.5.7 – What's New

Files, Formats & Data Types: Editing of meas. file comment and other meta-information (V8.5.1)

– MDF measure files usually include so-called meta-information like the default and user comment, a user name, project (A2L) and data file names used in INCA, and others
– With MDA V8.5.1 the existing meta information can be edited e.g. to correct or adapt it
– After pressing ‘Save’ the adapted contents are stored in the measure file, and updated in the Information Window

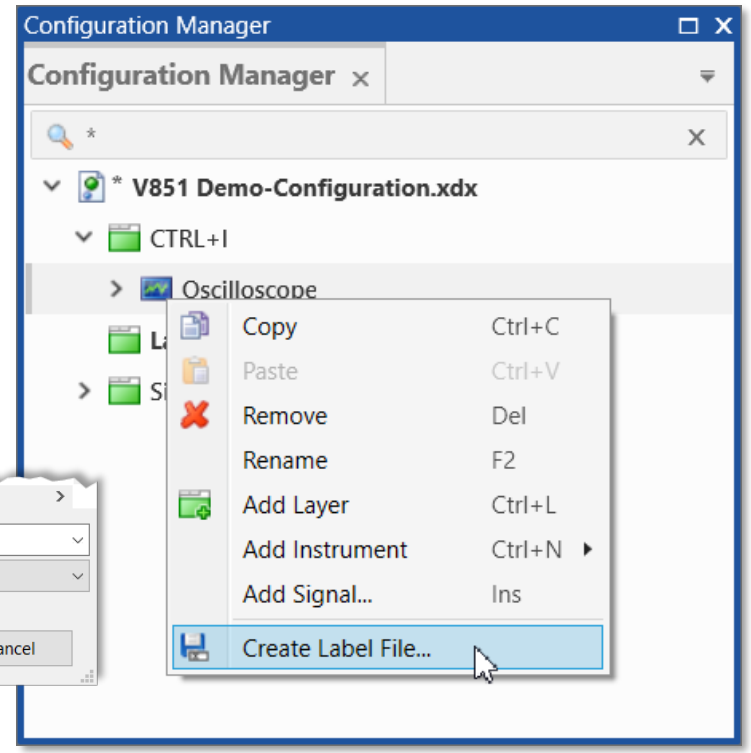


Notes:
- To edit the meta information write-access for the file must be given.
- Existing meta information remains in the measure file, and is visible e.g. in a HEX editor.
  For a permanent removal of previous meta information ‘Export Measure Data’ can be used.
- When saving changed meta information the ‘date modified’ of the file is adapted, but the ‘file creation date’ remains unchanged.
- Especially for MDF V3.x (*.dat) files, the number of characters for User, Company, Vehicle and Project are limited.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Creation of Label files (*.lab) (V8.5.1)

- To facilitate variable selection in INCA, so-called ‘Label files’ (*.lab format) can be used for filtering
- MDA V8.5.1 can write such Label files including signal names, and optionally raster information
- By using context menu entry “Create Label File …” in the Configuration Manager all signals of the selected node are included into the file
- Label file is stored via a standard “Save As …” dialog in which format version can be selected

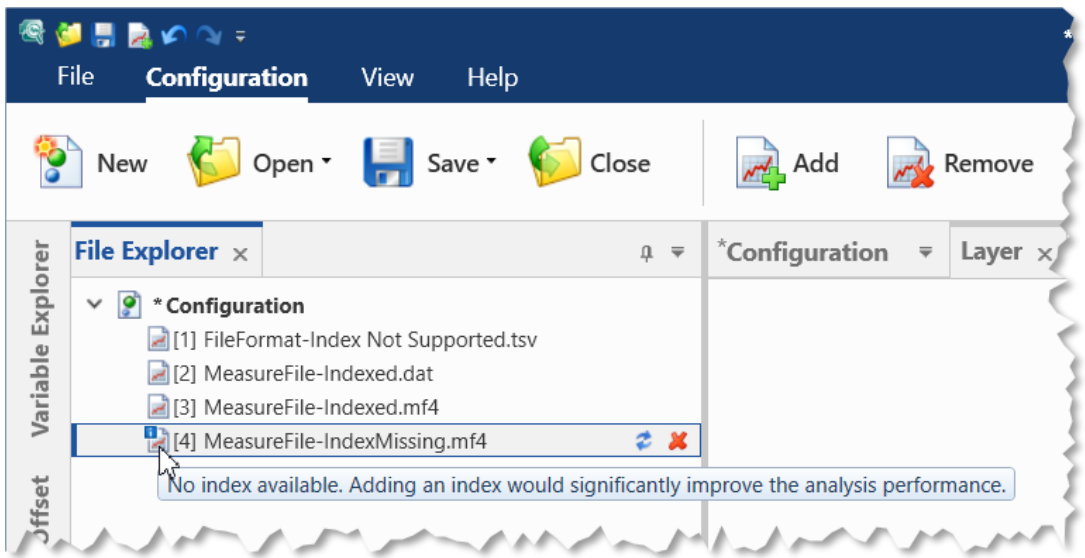


Notes:
- Supported Label files formats are V1.0 (purely signal names), and V1.1 (signal names and raster information).
- Function and Group information is not available for MDA V8 so far, and is therefore not added to V1.1 Label files.
- Signals in ‘no-match’ state are skipped when writing the Label file.
- Reading Label files into MDA (e.g. as filter in the Variable Explorer) might be part of a future MDA version.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Indication of missing file index for MDF files (V8.5.1)

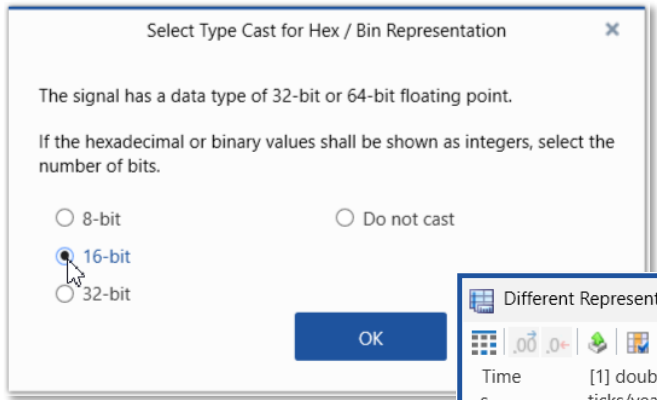
– To benefit most from the performance capabilities of MDA V8 measure files having an ASAM Standard Index are recommended
– Signal curves of indexed files are displayed much faster when scrolling or zooming
– ASAM Standard Index is supported by MDF Formats V3.3 (*.dat), and V4.x (*.mf4)
– MDA V8.5.1 indicates by a blue overlay icon when a file format supports the index, but has no suitable index
– Index status is also shown in the measure file tooltip and the Information Window
– Indexing can be activated via INCA user options:
User Options -> Experiment -> Measure -> General -> Write Index to File

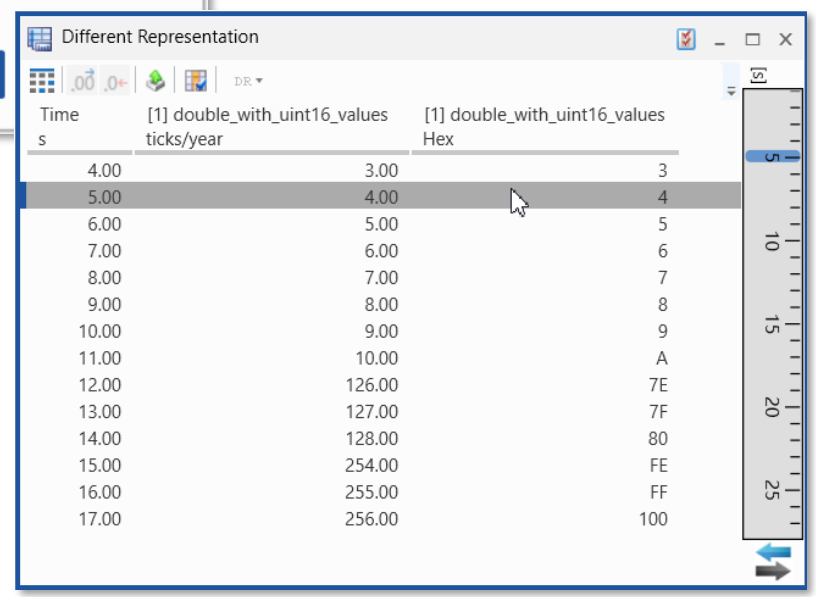


MDA V8.5.7 – What's New

Files, Formats & Data Types: HEX & BIN representation for so-called #MeasureCal signals (V8.5.1)

- For calibration variables recorded in INCA the data type Float is used, which can differ from the actual data type of the calibration variable
- MDA V8.5.1 enables to define manually the number of bits used as basis for the Hexadecimal or Binary representation of a #MeasureCal signal in table and oscilloscope (Hex only)
- If the user selection does not fit to the actual signal values (e.g. values are outside data type range) the number of digits for the hex or bin value is extended on the fly





Notes:
- By default 32 bit are preselected, also in case of multi-selection of signals.
- Last selected bit number is used as default when representation of a signal is changed again.
- When selecting "Do not cast" the FLOAT value according to IEEE-754 is shown in hex or bin representation.

MDA V8.5.7 – What's New

Files, Formats & Data Types: Further smaller changes in MDA V8.5.1

– **File handling in case of Snapshot Recording**
  In case a snapshot recording was triggered from INCA, and MDA V8 is still using the temporary measure file, and now the recording in INCA is stopped and the measure file is saved with a different name, then MDA V8 ensures that the temporary measure file is removed eventually

– **Path for customer-specific ASCII plugins**
  The path for *.ini files providing details about interpretation of ASCII based measure files was changed to:
  %ProgramData%\ETAS\MDA\8.x\CorePlugins\Etas.TargetAccess.Targets.MeasureFile.Formats.AsciiConfigurable

MDA V8.5.7 – What's New

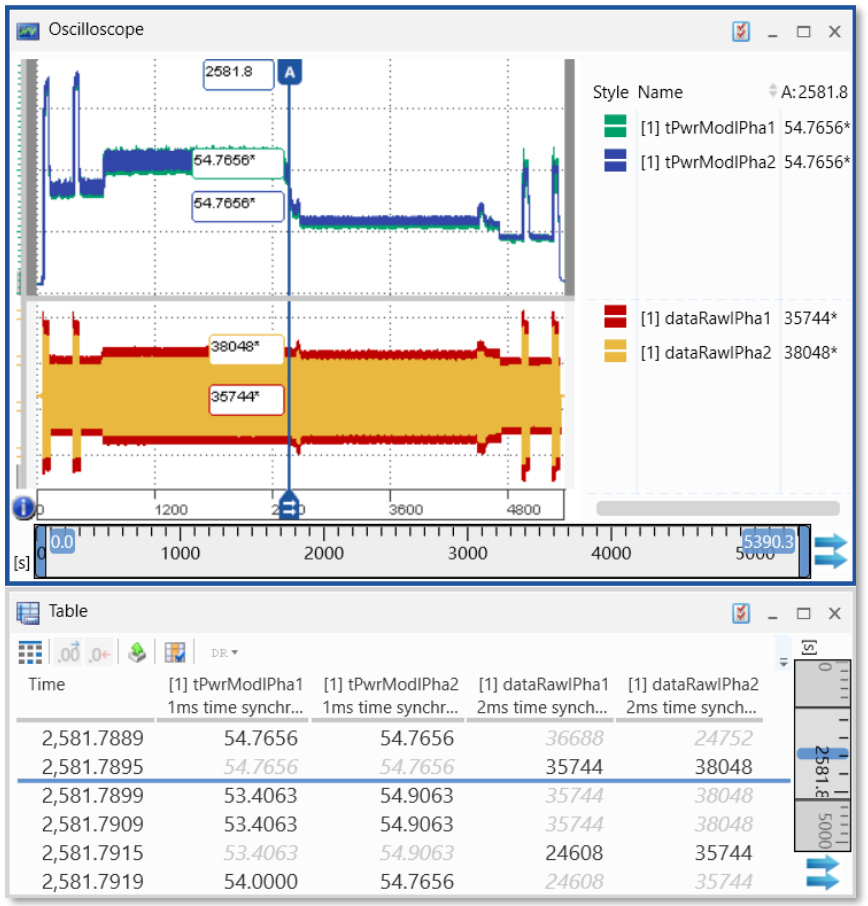
Usability Improvements of MDA V8.5.1 (June 2020)

- Functional Enhancements
- Files, Formats & Data Types
- **Usability Improvements (MDA V8.5.1)**
  - Oscilloscope: Update of signal values at cursors with more detailed data (part 2)
  - Oscilloscope: Selection Wheel to define signal-to-axis assignment when dropping signals
  - Open Information Window via ‘About Variable’ from Variable Explorer (CTRL+I)
  - Adaptation of Font Size and Line Spacing for more compact list views
  - Further smaller improvements and changes

MDA V8.5.7 – What's New

Usability Improvements: Update of signal values at cursors with more detailed data (V8.5.1)

– For a quick data representation in the oscilloscope, the data displayed is so-called ‘reduced data’ based on the standard index of the file (if available)
– The index provides minimum and maximum values for time ranges, and ensures that outliers are visible
– For performance reasons signal values shown at cursor positions are using reduced data initially
– With MDA V8.5.1 when the cursor is no longer moved the unreduced i.e. detailed data for the signal values is requested, and as soon as loaded, the indicator (~) for reduced data disappears automatically

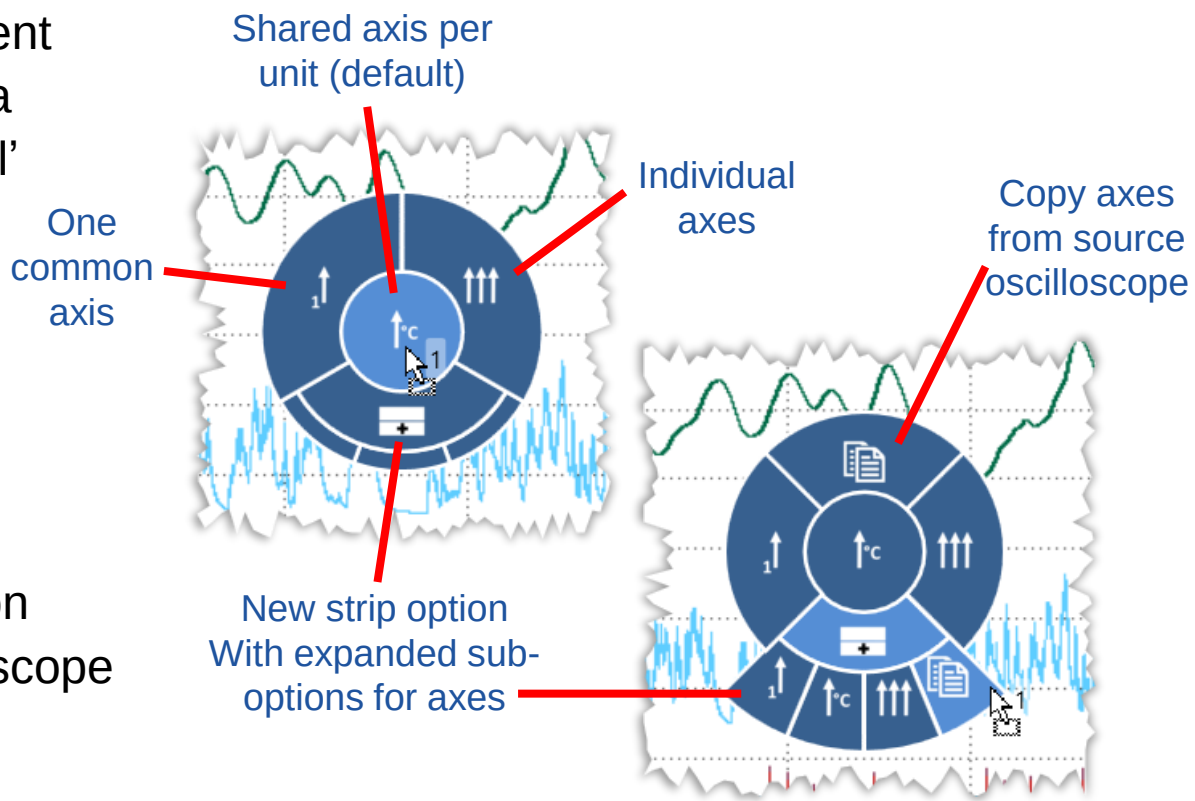


Notes:
- As precise time position of a cursor the center of a pixel is used. The next sample left or right provides the detailed value.
- The time position of the cursor is kept when zooming in or zooming out.
- Option to suppress ~ indication was removed from cursor drop-down menu.

MDA V8.5.7 – What's New

Usability Improvements: Selection Wheel for signal-to-axis assignment (V8.5.1)

– To define quickly the signal-to-axis assignment when dropping signals into an oscilloscope a new element is offered: the ‘Selection Wheel’
– It appears in the graphical area and in the signal list after a short delay
– User can choose between different options
  - All signals share one common axis
  - Shared axis per unit
  - Each signal gets an individual axis
  - Creation of a new strip & axis as sub-option
  - Copy axis assignment from source oscilloscope

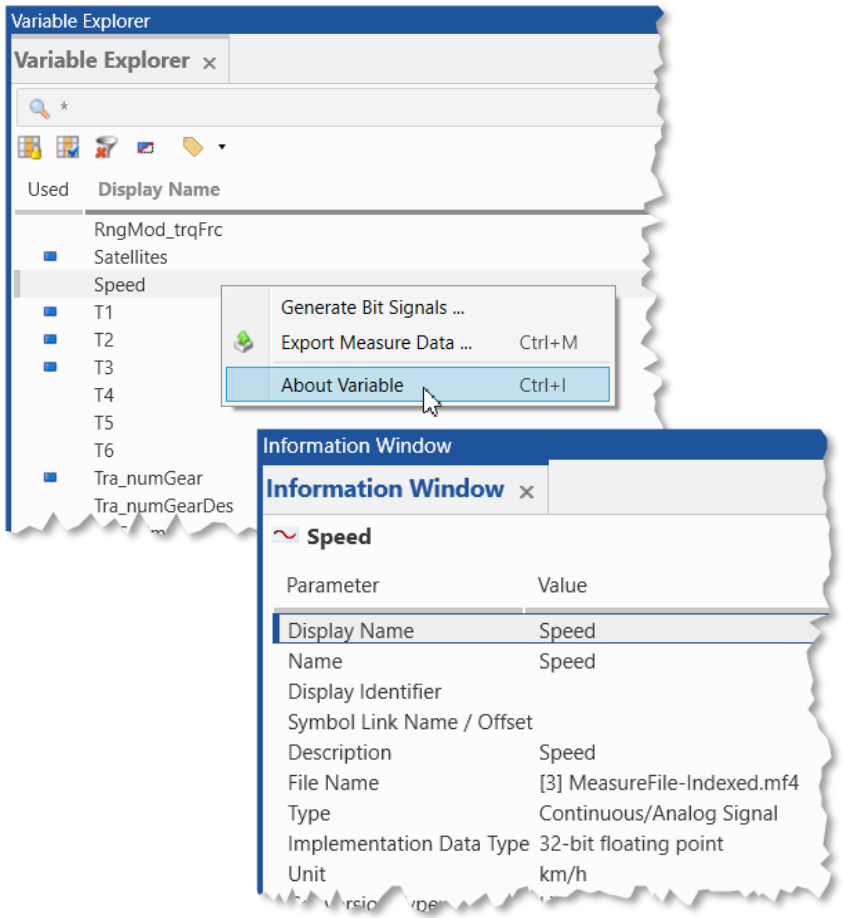


Notes:
- Selection wheel does not appear when dropping happens fast.
- When signals are dropped, first assignment to analog strip is checked, i.e. Events and Booleans are handled separately.
- Limitations of sharing an axis remain unchanged.
- Default defined in axis options is applied when INSERT dialog is used, or dropping is done in Configuration Manager.

MDA V8.5.7 – What's New

Usability Improvements: Open Information Window via ‘About Variable’ from Variable Explorer (V8.5.1)

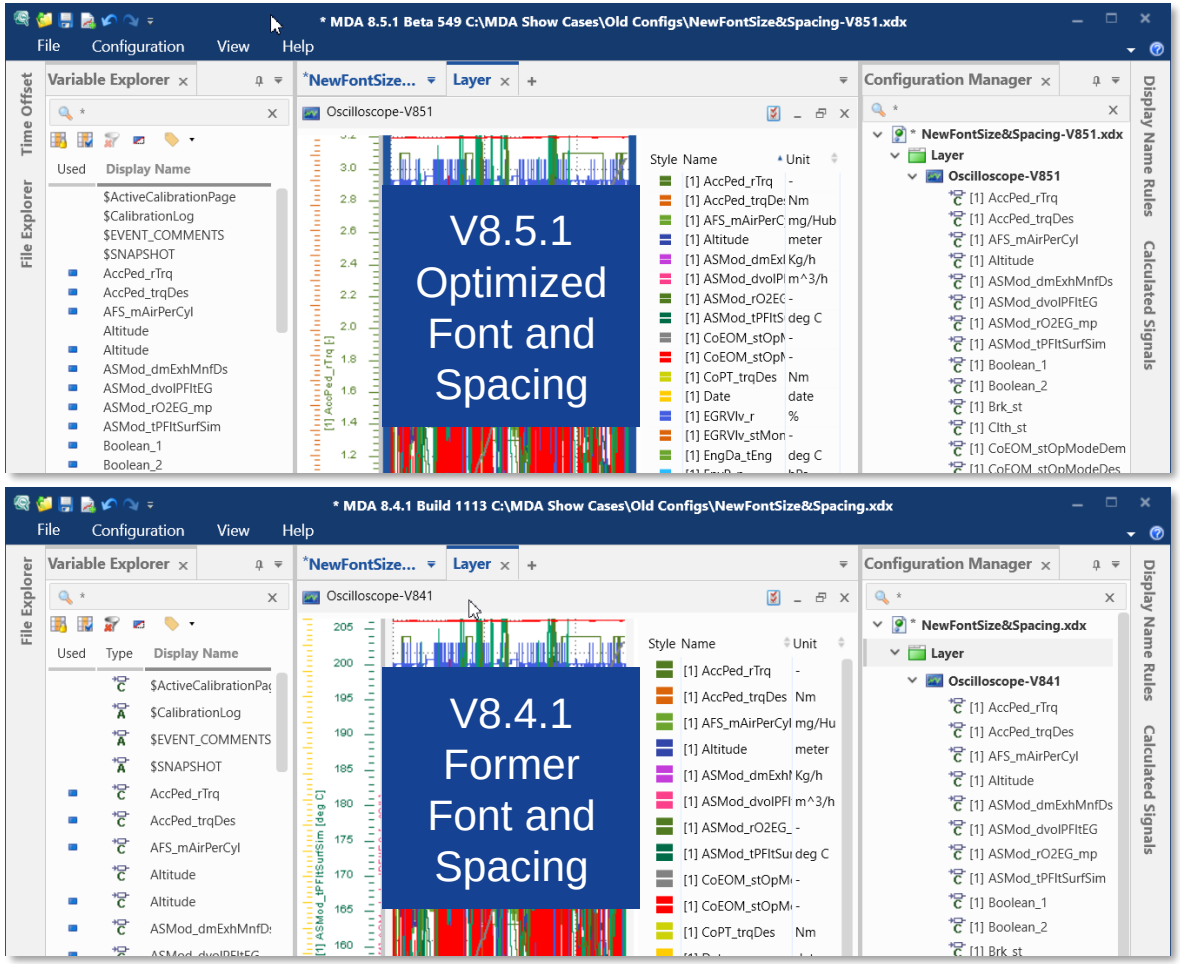
– Before selecting a signal it can be helpful to have a look into the meta information for identifying the right signal
– To see quickly the signal meta information a direct access from Variable Explorer to Information Window is enabled in MDA V8.5.1 using
  – context menu entry “About Variable”
  – or short-cut CTRL+I
– Signal meta information is shown for the currently focused signal, and changes when switching to another signal in the list



MDA V8.5.7 – What's New

Usability Improvements: Adaptation of Font Size and Line Spacing for more compact list views (V8.5.1)

– To use the available screen space more efficiently, font sizes and line spacing were reworked
– The new settings effect mainly entries in listings, like Variable Explorer, Configuration Manager, Signal List in oscilloscope, Information Window, …
– The selected style is a compromise between readability and small size, and results in a similar number of entries as in comparable MDA V7.x views



MDA V8.5.7 – What's New

Usability Improvements: Further smaller improvements and changes in MDA V8.5.1

– **Variable Explorer**
  Hotkey (CTRL+M) to open the Export Measure Data dialog is supported
  Using multi-selection in combination with Copy (CTRL+C) copies the names of all selected list entries

– **Calculated Signals toolbox contents**
  For non-English languages the naming and explanation of functions was reworked completely *

* Note:
- Especially for newly introduced functions the names and descriptions might appear in English. These will be translated in the next MDA V8 version.

Thank you for using MDA V8.5

ETAS

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