



An Axiometrix Solutions Brand

# imc STUDIO Monitor 2023

What is new

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## Disclaimer of liability

The contents of this documentation have been carefully checked for consistency with the hardware and software systems described. Nevertheless, it is impossible to completely rule out inconsistencies, so that we decline to offer any guarantee of total conformity.

We reserve the right to make technical modifications of the systems.

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## Open Source Software Licenses

Some components of imc products use software which is licensed under the GNU General Public License (GPL). Details are available in the About dialog.

A list of the open source software licenses for the imc measurement devices is located on the imc STUDIO/imc WAVE/imc STUDIO Monitor installation medium in the folder "*Products\imc DEVICES\OSS*" or "*Products\imc DEVICEcore\OSS*" or "*Products\imc STUDIO\OSS*". If you wish to receive a copy of the GPL sources used, please contact our Hotline.

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## Update

Along with the PC software imc STUDIO Monitor (imc STUDIO), the software comprises components such as the firmware and devices driver packages imc DEVICEcore and imc DEVICES. With a firmware update, the firmware can be loaded into the system. Please check regularly whether any new software/firmware versions are available and perform an update if your version of imc STUDIO Monitor (imc STUDIO) supports the new firmware. Further information can be obtained from the imc Hotline or the imc website.

### Download links:

imc STUDIO <https://www.imc-tm.com/imc-studio/software/>

# Introduction

The imc STUDIO Monitor 2023 you now possess is a version which is updated to the newest level of PC technology. This version of imc STUDIO Monitor is designed for 64-bit computer architecture. For this purpose, many key components have been updated, revised or even redesigned from scratch. The outcome is a modernized system architecture which provides substantial improvement of performance. To mention a few points up front:

- imc STUDIO Monitor is now a multi-threading capable 64-bit version,
- the display in the curve window is substantially more powerful and smooth.



Please do not use any experiments which had been created in Version 5.2.

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Due to the new developments implemented in imc STUDIO Monitor, it is not possible to transfer old experiments into it. Please select a different device. However, it is possible to reuse Panel pages from older experiments.

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In particular, you should read the chapter "[Update-notes and compatibility](#)" before performing the update. It presents all the functional changes and modifications which need to be observed when updating.

The imc team wishes you total success in accomplishing your measurement tasks with imc STUDIO Monitor.

## imc STUDIO Monitor 2023

This is the first version of imc STUDIO Monitor 2023. Many functions have not yet been implemented and will undergo further development in subsequent versions.

### Currently available:

- All channels/variables belonging to the selected device return data.
- The channels/variables can be dragged to the Panel and displayed there while the measurement runs.
- Values can be written to variables in imc STUDIO Monitor - e.g. Display-variables.
- The configuration can be saved/loaded.

### The following functions are not yet implemented:

- Saving of the measured data.
- Reaction to changed device configuration: When the configuration is changed in imc STUDIO, the device must be re-selected in imc STUDIO Monitor.
- Views adapted to imc STUDIO Monitor: At this time, all views available in imc STUDIO are used.

## Stand-alone imc STUDIO Monitor installation and license

imc STUDIO Monitor is now a stand-alone product with separate licensing, and no longer a supplemental package for imc STUDIO Standard, Professional or Developer. Thus, in order to operate imc STUDIO Monitor no additional imc STUDIO license is required any longer.

Below is an overview of the installation variants and the respective licenses required:

Installation variety	Required licenses	Description
imc STUDIO	One imc STUDIO Edition	imc STUDIO allows <b>configuring of measurement devices, performance of measurements</b> , and monitoring of instantaneous readings. Data can be viewed and edited live at one work station.
imc STUDIO Monitor	imc STUDIO Monitor	imc STUDIO Monitor makes it possible to <b>connect with one or more measurement devices during a running measurement</b> , particularly for the purpose of monitoring the instantaneous readings. Data can be viewed and edited live on multiple workstations.
imc WAVE	imc WAVE Analyzer license	imc WAVE is a software package for <b>NVH analysis</b> (Noise Vibration and Harshness). It can be equipped with multiple, separately licensed analyzers. The software enables the user to perform measurements, evaluations, data visualization, and to compose reports specifically for acoustic tests.

## Available plug-ins/components

Due to the conversion to a separate product, the composition of the components has been modified. In Version 5.2, the Monitor-component could be combined with all editions of imc STUDIO. This is now no longer possible, so that some functions such as Scripting or Sequencer are not available. Conversely, there are now additional components available, which had not been available in combination with imc STUDIO Standard, such as the advanced Widgets.

Below is a table correlating plug-ins and their functions.

Available plug-ins/components	Description	
	● : included      ○ : optional	
imc STUDIO Monitor	Framework of the multi-client monitoring	●
	User administration: Access control, roles and rights management	●
Setup	Device driver and interface for monitoring of imc devices	●
Panel	Display of measurement data	●
Widgets: Standard	Gauges and control elements (basic selection)	●
Widgets: Automotive, Industrial, Designer, Aviation	Extended selection and styles	●
Project Management	Projects and Experiment templates	●
Data Processing	User interface for configuring mathematics functions Interface for processing of data streams	●
imc Inline FAMOS	Real-time analysis on data streams (PC based platform and license)	○
Inline Analysis	imc WAVE: NVH analysis on data streams (PC based platform and license)	○
Bus Decoder	Extension package for decoding of fieldbus log channels	●
Powertrain Monitoring	Extension package for monitoring powertrains	○

For more information on the individual components, see the technical data sheet for imc STUDIO Monitor.

## 1 General Changes in imc STUDIO Monitor



### 64 Bit

imc STUDIO Monitor 2022 has been completely converted to 64-bit and requires a 64-bit operating system.

Advantages:

- Thanks to 64-bit, additional PC-resources become available. Under some circumstances, the demands of imc STUDIO Monitor went to the limits of a 32-bit program.
- The file size for measured data and circular buffer memory is no longer limited to 2 GB (does not apply to data storage on devices belonging to the firmware group "imc DEVICES").

### The list of operating systems supported has been modified

#### Supported operating systems

Windows 10/11 64-bit

This enables us to adapt better to the currently prevalent operating systems. Older component such as those required for Windows 7/8 and 32-bit systems can be deleted, in order to de-clutter the system.

### Project management

imc STUDIO Monitor organizes the experiments in a database and in projects, as is familiar from imc STUDIO. It is possible to create multiple projects into which the individual experiments can be sorted.



### Accessible introduction via the homepage

It is now possible to obtain the manuals for the system directly from the homepage. As well, the manuals for the hardware and other imc-products are available directly on the homepage.



### Use of the new data format

The new imc file format (*imc3*) is now supported, applied and generated.

One major advantage of this format is the display of large data volumes in the curve window. It is no longer necessary to load large data volumes completely. Instead, only so much data are loaded for the curve window as can also be displayed. In this way, you are able to quickly scroll and zoom, no matter how large the volume of data is.

Storage of the data is resilient to interruptions; even incomplete files can be used without the need for repairs.

The prerequisite for loading the files generated is imc FAMOS from version 2021.

In imc FAMOS, it is possible to set whether to save the files in either the old imc2 or the new imc3 format. imc STUDIO Monitor applies this setting. We continue to recommend saving the measured data in the imc3 format.

## 2 Firmware and new hardware

### imc DEVICES as a driver package for imc STUDIO Monitor

The drivers and firmware components for imc devices are provided in "imc DEVICES".

- imc DEVICES: For devices belonging to groups [A4-A7](#)<sup>23</sup> (e.g. CRONOS family, C-SERIES, SPARTAN, BUSDAQ) Configuration of the devices, as well as starting of the measurement are accomplished by means of the separate device software program imc STUDIO or imc WAVE. The driver and firmware component Setup in imc STUDIO Monitor is exclusively for configuring the monitoring of the devices.

This imc STUDIO Monitor version has been released along with the following firmware and devices driver packages:

- Firmware imc DEVICES 2.16 R2



### Compatibility: Discontinuation of imc devices belonging to groups 2 and 3

In conjunction with the new firmware, the following devices and device groups are no longer officially supported: All devices belonging to groups 2 and 3. This includes all devices having serial numbers 12xxxx (including imc CRPL, imc CRSL, imc C1, imc C-SERIES).

What needs to be observed when using the devices? We no longer test the new version on older devices. In consequence, new functions may not work with these devices. Additionally, error handling is not performed for the devices.

We assume that the devices will now continue to operate as before. However, we can not guarantee that this will continue to be the case with future version.

(For your information: this does not apply to the devices imc CRSL-N, imc C1-N/FD and imc C-SERIES-N/FD. Support of these devices continues; they can be identified by the serial numbers 14xxxx.)

Please contact our hotline if you have any questions.



## 3 Panel and Widgets



### Display in the curve window is substantially more powerful and smooth

The refresh rate of extensive data sets is now up to 500 times faster.

For instance, when zooming out or when sampling data at a high rate, there are very many samples in the visible region, so instead of the individual samples a reduced min/max-curve is displayed. This difference is not visually detectable. This functionality is already familiar from imc FAMOS and now also enabled for streaming data during measurement.

Prerequisite:

- equidistantly sampled channels, such as analog channels, ...
- the "symbols" for each data point may not be activated

### Widget - Table (Automotive, Industrial, Designer)

The count of decimal places in conjunction with the factor has been revised. In this context, there have been a variety of changes and corrections:

- "*Decimal places*": "*auto*" has been renamed to "*Automatic formatting*".
- "*Decimal places*" offers a selection list: 0, 1, 2, 3, Automatic Formatting, Inherited from Column (only in the cell) - other numbers can be entered.
- For the property: "*Decimal places*", the functionality of: "*Automatic formatting*" has been re-defined. The value selected signifies that as many decimal places are displayed as needed to make up to 5 significant digits visible, including pre-decimal places.

Example value	0.001213141 V	0.0012 V
For the factor: " <i>Automat...</i> "	1.2131 mV	1.2 mV
For the factor: " <i>micro</i> "	1213.1 $\mu$ V	1200 $\mu$ V

- When the "*Factor*" is set to "*Automatic formatting*", then "*Automatic formatting*" is also always used for the count of decimal places, no matter what its actual setting is. For instance, if the "*Factor*" is inherited from the column and that column has "*Automatic formatting*", then any count of decimal places can appear there; the setting for the count is ignored.

### Bug fix and compatibility:

When loading older experiments, the settings are corrected if

- the "*Factor*" had been set to "*Automatic formatting*" and
- the count of decimal places had been a fixed number

In this case, the count of decimal places is also set automatically to "*Automatic formatting*" in accordance with the new definition.

Bug fix: If "*Decimal places*" was set to "*auto*", then "one" decimal place was always shown. Now "*auto*" is no longer equivalent to "1". In some cases, this will cause the display of existing experiments to change. If this happens, change the setting for the count of decimal places if you wish to retain exactly one decimal place.



### "Execute menu action" Widget - Larger icons

The menu ribbon icons are displayed according to scale in the Widget "Execute menu action". This means the icons adjust their size to the Widget's size. This makes these icons easier to recognize. The icons adjust their size while retaining high resolution; the old ones only were stretched out.



"Execute menu action" Widgets



### Float-variable on the DIO-Widget

The DIO-Widget is implemented as the preferred choice for the device's DIO-ports and Integer pv-variables. Float-variables can also be displayed. The handling for the Float-variables has been improved.

1. pv-Float - The bit count has been limited to 22 bits.
2. If the Widget is linked with Float variables, then boundary violation symbols are displayed if the number is either too small or too large for 22 bits.



### Inserting Widget - Commonly used Widgets

When you drag a variable to the Panel, a choice of Widgets is offered. The list is automatically modified according to your previous selection. Widgets which you had recently inserted frequently have priority among the choices available.

In the subgroups, all Widgets are available for selection, as accustomed.



### Data Browser - Transfer to imc FAMOS

You can conveniently transfer the variables/measurements selected to imc FAMOS by means of the context menu, and analyze and evaluate the channels measured there.



### Data Browser - Miscellaneous

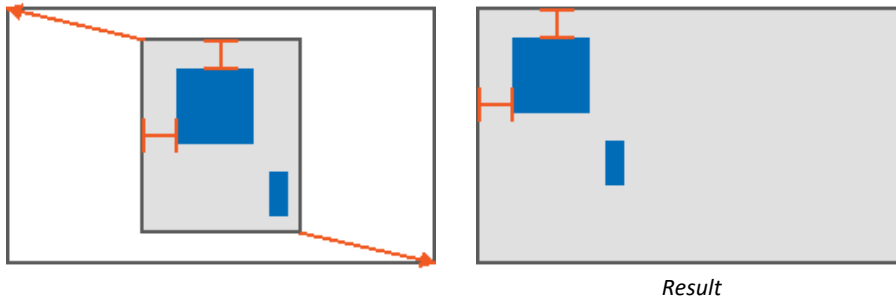
The following functions are no longer supported:

- "Filter list" in the Data Browser. You are still able to assemble a filter.
- "Navigation mode" in the Data Browser. Navigating by button through the measurement or event is no longer possible. You are still able to select any measurement using the mouse and keyboard.
- "Shows comparison measurement" in the Data Browser. The function is currently hidden.



### Adapt Panel page to window size (keep Widget size)

New function: The Panel page adapts to the size of the currently available space by only adjusting the page size. This is like when you adjust either the right or the bottom page margin.



The sizes of the individual Widgets thus remain intact.



### Discontinued: "Audio-Widget"

The following Widget is no longer supported: "Audio-Widget". It was only needed for the channel type "[Audio-Report channel](#)<sup>16</sup>" which was also discontinued.

If you load an experiment belonging to the predecessor version which contains a Widget, the Widget is displayed empty and the corresponding message is displayed.

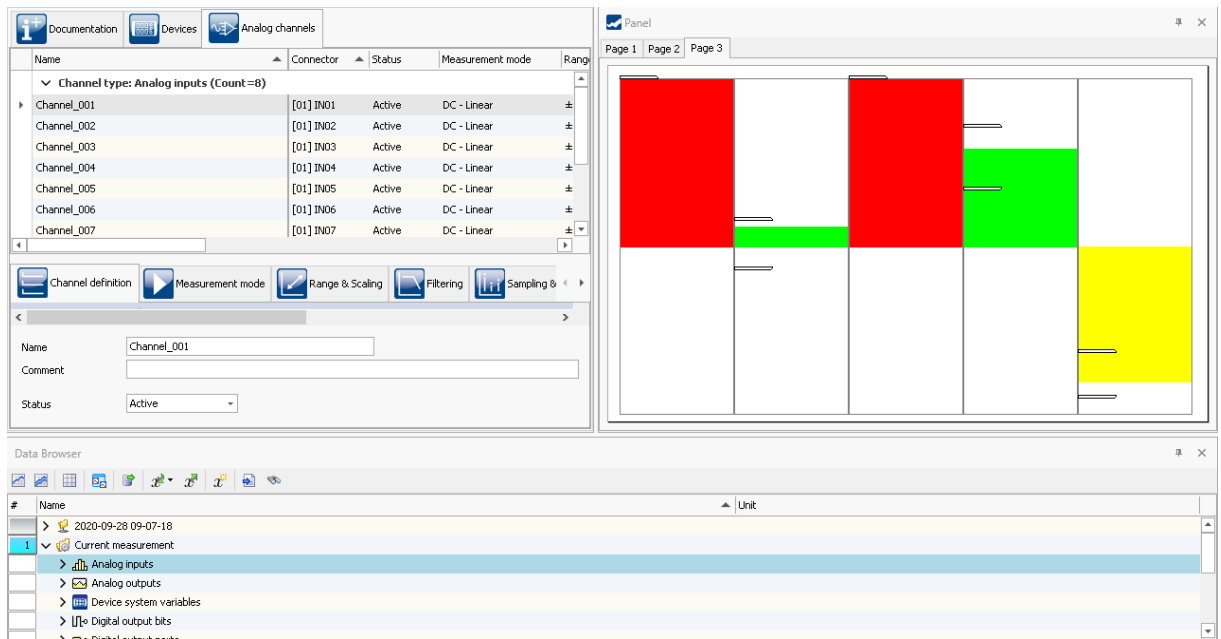
## 4 Style

The user interface now features a new and improved design (device configuration pages, Logbook, progress indicators, options, menu ribbon, ...). The design elements are more flat and modern, the colors have been modified, some icons and dialogs have been revised... Some examples are stated below.



### Window arrangement and self-defined window compositions

You can display the tool window and main window on other pages. For instance, you can show the Panel in the Setup.

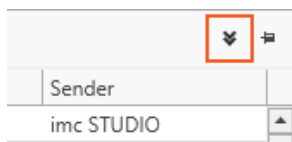


Example: Panel and Data Browser are displayed together in the main window "Setup".



### Collapsing the Logbook

The Logbook is provided with a button for collapsing it when it is not pinned. If the Logbook pops open to show a message, you can use this button to collapse it back out of sight.



As previously, it still also automatically collapses when you take the focus away from it.

## 5 imc Inline FAMOS



### Cross-device calculations

imc Inline FAMOS under imc STUDIO Monitor now provides the ability to apply calculation operations to channels belonging to different devices, if the channels are assigned to "BaseTrigger" (measurement Start/Stop).

## 6 Inline Analysis - imc WAVE

The channel-based calculations familiar from imc WAVE are now also available in imc STUDIO Monitor.

The Inline Analyses "**imc WAVE Noise**", "**imc WAVE Vibration**" and "**imc WAVE Rotation**" offer numerous capabilities for spectral examinations in the fields of **acoustics**, **vibration analysis** and **order-tracking analysis**. What this means is taking signals measured over the time domain, typically generated by microphones and accelerometers, and performing spectral frequency analyses, such as Fast Fourier Transformation or 1/3- and octave spectrum analysis, on them in real time. For this purpose, a comprehensive variety of settings options are available in order to allow parameterization of the analyses according to established standards. This includes time- and frequency-weighting with standard procedures and filters, window functions, etc.

The Inline Analysis "**imc WAVE Structure**" offers functions for 2 channel **spectrum analysis**, e.g. frequency response function or coherence.

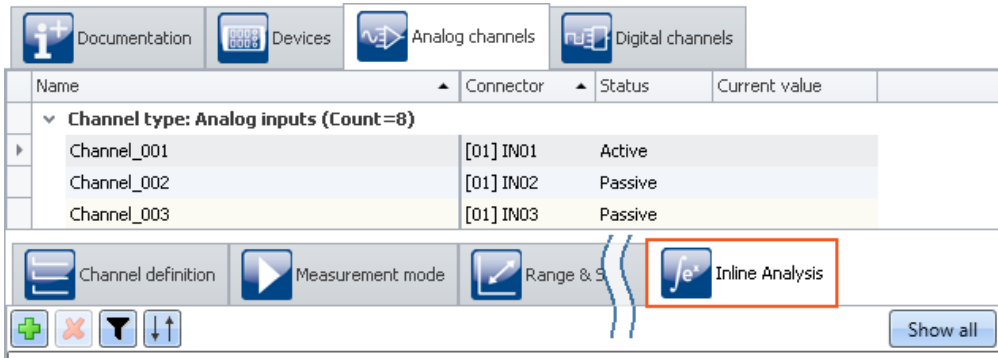
With the corresponding license, you are able to activate the following analyzers:

Name and license required	Description
imc WAVE Noise	<p>Functions for noise analysis, e.g. sound pressure level, Leq, sound intensity, FFT-spectra, 1/3-octave and 1/1-octave spectrum.</p> <ul style="list-style-type: none"> <li>• Sound level meter Standard IEC 61672-1</li> <li>• 1/3- and 1/1-octave analysis as 3D or averaged Standard IEC 61260-1</li> <li>• FFT analysis as 3D or averaged</li> <li>• Determining the sound intensity (time plot, narrow band spectrum and 1/3-octave spectrum) for measurements with an intensity probe</li> </ul>
imc WAVE Rotation	<p>Functions for analysis of rotating machinery</p> <ul style="list-style-type: none"> <li>• Resampling of time-domain channels</li> <li>• Order-tracking analysis as a 3D or averaged</li> <li>• FFT analysis as a 3D or averaged</li> <li>• Calculation of an input signal over time to a channel over RPMs (RPM-presentation)</li> <li>• Calculation of spectrum over time or revolutions, to a 3D-channel over RPMs (RPM-vector-presentation)</li> <li>• Calculation of 3D cross sections</li> </ul>
imc WAVE Vibration	<p>Functions for vibration analysis of human vibration and machine diagnostics</p> <ul style="list-style-type: none"> <li>• Filters (LP, HP, BP, BS, simple/double integration, simple/double differentiation, envelope curve)</li> <li>• Machine diagnostics standard ISO 10816 and ISO 20816</li> <li>• Human vibration filters standard ISO 2631-1, ISO 8041, DIN EN 12299</li> <li>• 1/3- and 1/1-octave analysis of vibration as 3D or averaged Standard IEC 61260-1</li> <li>• FFT analysis as 3D or averaged</li> </ul>
imc WAVE Structure	<p>Functions for 2-channel analysis in the frequency domain</p> <ul style="list-style-type: none"> <li>• Generation of output signals for the purpose of subsequent modal analysis</li> <li>• Calculation of transfer functions with noisy input- and/or output signals</li> <li>• Calculation of the coherence as a quality indicator</li> <li>• Power rating by means of the cross-power-spectrum and spectral power density</li> <li>• FFT analysis as 3D or averaged</li> </ul>

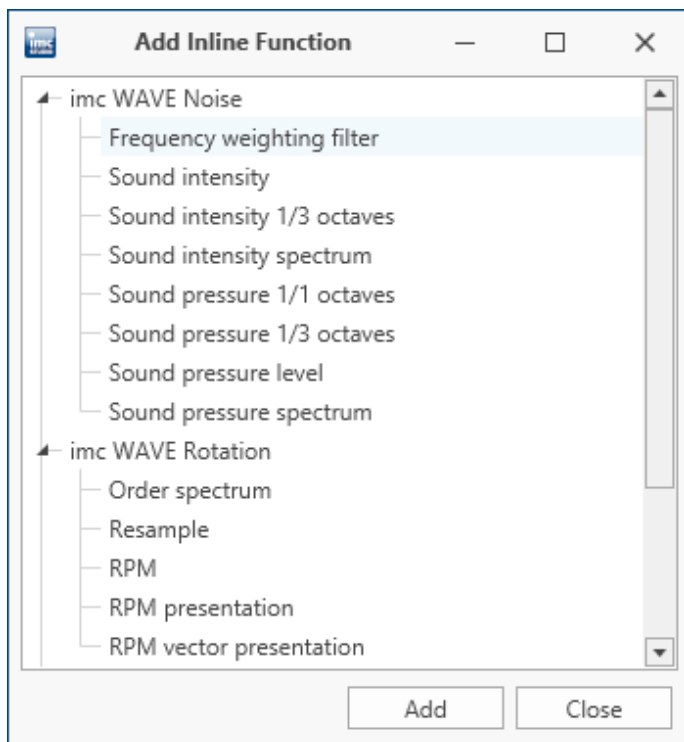
Using the "Inline Analysis"-dialog, you can calculate/derive additional channels from a measured channel.

**Setup page:** Analog channels

**Dialog:** Inline Analysis



Here you can activate and parameterize Inline Functions specific to individual channels.



*Adding a new Inline Functions*

## 7 Variables



### Display of user name and role on Report-pages

New system variables are available: User name ("*Name*") and user role "*Role*". By means of these variables, you are able to have the user who is logged in automatically indicated in the Report.



## Custom variables created in custom main category

When you create a variable having no category, it is automatically placed among the "*User-defined variables*". When you create a variable having a category, this category is no longer created under "*User-defined variables*", but instead in parallel with it. This allows you to create your own custom folder structures.

If you wish to create a category within the category "*User-defined variables*", you can still do so. Just write a "\" before the category name.

### Example

Category: "MeasurementPoint\_1". A category called "MeasurementPoint\_1" is created in **parallel with** the other categories, such as "*Analog Inputs*". It contains the variable.

Category "\"MeasurementPoint\_1". This creates a category "MeasurementPoint\_1" **within the category** "*User-defined variables*". It contains the variable.

This applies, for example, to variables created by means of the command: "*Load variable*" or to generating a user-defined variable by means of the Data Browser.



## Category-editing - No category

Category editing for user-defined variables and imported variables has been revised.

- The state "*No category*" no longer exists. Anything which previously had "*no category*" is now "*user-defined*".
- The internal identifier "\_\_USER\_\_" is no longer used for identifying the "*user-defined variables*".
- You are able to create variables outside of the category "*user-defined variables*".

### Compatibility:

- Configured commands work in the same way as previously. Here, you will not need to make any changes.  
The exception are commands which have loaded variables previously created under "*no category*". The variables are now created under "*User-defined variables*".
- If you are accessing the internal identifier "\_\_USER\_\_" in any form (e.g. with imc FAMOS), please make modifications accordingly.



### Compatibility: "Data table" - variable type no longer supported

User-defined variables of the type "*Data table*" can no longer be created. When an experiment having such a variable is loaded, a corresponding message is posted in the logbook. The variable is no longer present in the experiment. These variables had been needed for the [SQL-command](#)<sup>[20]</sup>.

### Compatibility: "Channel" - variable type no longer supported

User-defined variables of the type "*Channel*" can no longer be created. When an experiment having such a variable is loaded, a corresponding message is posted in the logbook. The variable is no longer present in the experiment.

These variables are no longer needed for initialization since variables can now be created and replaced using "*Load Variable*".

### Compatibility: Audio-Report channel - variable type no longer supported

User-defined variables of the type "*Audio-Reportkanal*" can no longer be used. The [Audio-Widget](#)<sup>[11]</sup> and the [Audio-commands](#)<sup>[20]</sup> have been eliminated. When an experiment having such a variable is loaded, a corresponding message is posted in the logbook.

The variable type "*Text-Report channel*" is not affected.



## 8 Import and export - Variable, measurement, parameter set



### Replacing variables from files has been simplified

You now have the ability to **create** new variables and **replace** existing variables in the **same action**. Existing variables could previously only be overwritten using "*Import Variables*", and new variables could only be created using "*Load Variables*". These two actions have been combined.

- Now you can use the action "*Load variable*" to either create new variables from a file or to overwrite existing ones. When you overwrite, all properties of the target variable are also overwritten.
- The action "*Import Variable*" has been renamed to "*Refill variable*": With this action, you are still able to fill existing variables with new values without changing their properties.

Both actions are available in the Data Browser and as a command.



#### Note

#### Background information

A function "Load Variable" is now implemented, which resembles "Load Data" in imc FAMOS. Therefore in contrast to Version 5.2, in the new version it is permitted to overwrite existing variables. A confirmation prompt appears for each conflict of variables. If any of the confirmation prompts is canceled, the entire import automatically cancels. In this way, the system prevents the loading of an incomplete set of controller parameters, for example.

When an existing variable is overwritten in the process of loading, then it is effectively completely replaced, including all of its properties. In consequence, the old variable is neither deleted nor is any new one created, so that no "events" are triggered by the deletion or creation. This is important for scripts, curve windows, etc.

In contrast to imc FAMOS, there are variables which cannot be overwritten, e.g. channels or pv-variables. The reason is that, for instance, these variables belong to the specific device, or possess specific data formats and other properties which must be retained. If the user attempts to overwrite them, an error message is posted indicating that they can't be overwritten.

It is also not allowed to overwrite any user-defined variables whose validity range is not "temporary". These variables are assumed to have been explicitly created as having a certain data type, which must be retained. The validity range as well must be retained. Temporary user-defined variables, by contrast, are similarly volatile to data returned by imc FAMOS-sequences. For this reason, they may be overwritten by "Load Variable" and can thus, under some circumstances, take a completely different type, etc.

With the "Load Variable" command, there is an option for determining whether existing variables can be overwritten with or without a confirmation prompt. By default, this option is activated, meaning that there is no confirmation prompt for overwriting.

By using "Refill Variable", it is possible to change the content of existing variables. This resembles "Import Variable" in version 5.2. In this way it is possible, for instance, to change the content of pv-variables or user-defined variables. Since this only changes the variables' content and not their type, the target variable and the variable to be loaded must have the same properties, including, for example, the unit. This is managed more strictly than in 5.2; thus, only values and the sample count may be different. Therefore, please always use "Load Variable" in cases where changes are possible.



### Compatibility: Export Variable: imc's custom csv-format no longer supported for variables

The imc custom csv-format has been removed, which contained a csv with a specified link to a Raw/Dat-file. In the command "*Export Variables*", this format was denoted by "\*.csv".

When an experiment having an existing csv-exporter is loaded, a corresponding message is posted in the Logbook. As a precaution, the export type is converted to "dat". Please correct this selection later if appropriate, for instance to a different csv-format.

The following components are affected: Command: Export Variable, export via the Data Browser, options for "Export current Data".

Note: "*Export parameter set*" (e.g. export of the device configuration as a parameter set) is possible in this format without any restrictions.

### Compatibility: Export parameter set: XML format no longer supported

The XML format has been eliminated.

When an experiment having an existing xml-exporter is loaded, a corresponding message is posted in the Logbook. As a precaution, the export type is converted to "csv". Please correct this selection later if appropriate, for instance to a different format.

### Compatibility: Export parameter set: User-defined text-variables can not be exported as a parameter set

For **exporting variables' values**, instead of the command: "*Export parameters*", the command "**Export variable**" should be used. This command is specially designed for variable values. User-defined text variables can no longer be exported using the command: "*Export parameters*".

## 9 Sequencer and commands



### Command "*Delete Variable*" revised

Variables can be deleted from any category: Previously the command could only delete variables belonging to the category "*User-defined*". Since user-defined variables can now be created in their own categories, this limitation no longer applies.

The option "*Treat error as warning*" has been eliminated. Now a warning is categorically issued and no longer an error message. If it is not possible to delete a variable upon running, such as device variables and system variables, an appropriate warning is posted.



### Command "Run imc FAMOS sequence" - saving of results modified

When the sequence results are transferred back to imc STUDIO Monitor, they can be saved along with an existing measurement. Results which are not saved now land under "Current Measurement", even when a measurement is selected as the target.

To imc FAMOS			From imc FAMOS			Options		
Transfer variable from imc FAMOS								
Storage location (only for saved results):								
Last completed measurement ( LastMeasurement )								
	imc STUDIO variable		imc FAMOS variable		Save			
	Res1	▼	Res1		<input checked="" type="checkbox"/>			
	Res2	▼	Res2		<input type="checkbox"/>			

*Res1 is saved as a file and as a variable in the last completed measurement.*

*Res2 is saved as a temporary variable under "Current Measurement".*



### Compatibility: Command "Run imc FAMOS Sequence" - return values

As the target variable in imc STUDIO Monitor, an appropriate data type is now expected. A channel can no longer be transferred to a "User-defined Variable" of the type "Numeric" (Single Value). Previously the system assumed that the last value would be the one to expect. But it could also be an error in the implementation. Now a message is posted to indicate when the data type is not appropriate.

Please modify the type in imc FAMOS if you wish to obtain a single value. If you need a channel, use as the target a variable created by imc FAMOS. This will then always be assigned the appropriate data type.

### Compatibility: Command "Run imc FAMOS Sequence" - Only the dat-format remaining

This command only saves data in dat-format now. It does not adopt the formats which are set in the Options for the action "Export current data".



### Compatibility: A variable can no longer possible be deleted using the command "Set variable"

The option/column "Delete" is no longer available. As previously recommended in the user's manual, for such a case the command "Delete Variable" is to be used.

When you load an experiment created in the predecessor version, in which the delete function was performed, a corresponding entry is made in the logbook. This entry records the variables which had been deleted by means of the command.

**Alternative solution:** You can add the command "Delete Variable" at the corresponding location. The existing command "Set Variable" no longer contains the variables to be deleted.



### Discontinued: "SQL-Command"

The following command is no longer supported: "SQL-Command". It no longer meets the current requirements of SQL-communication.

When you load an experiment created in the predecessor version which contains an SQL-command, a corresponding message appears in the logbook. An "empty" command as a placeholder is inserted into the sequence where you use the command, in order to indicate the location.

**Alternative solution:** In such a case, please use the imc FAMOS Database Kit or the component Scripting in order to incorporate a custom solution (license required).

### Discontinued: "Playback audio channel" and "Record audio channel"

The following commands are no longer supported: "Playback audio channel" and "Record audio channel". They were only needed for the equally discontinued channel type "[Audio-Report channel](#)".

When you load an experiment belonging to the predecessor version which contains either of these commands, a corresponding error message appears in the logbook. In the sequence in which you use one of these commands, an "empty" command is inserted as a placeholder in order to mark its position.

# Update-notes and compatibility from 5.2 to 2023

If you plan to update from Version 5.2 to 2023, there are a few things which you may need to observe regarding any existing databases. In particular, be aware of the following points:

Area	Function
Discontinued devices	<ul style="list-style-type: none"> <li>• <a href="#">Devices</a> belonging to groups 2 and 3</li> <li>• imc HiL</li> </ul>
Variables	<ul style="list-style-type: none"> <li>• Category processing - "<a href="#">No category</a>" no longer exists</li> <li>• User-defined variables: The types "<a href="#">Channel</a>", "<a href="#">Audio-Report channel</a>" and "<a href="#">Data table</a>" are no longer supported.</li> <li>• <a href="#">Export Variable</a>: The csv-format is no longer supported for variables.</li> <li>• <a href="#">Export parameter set</a>: The XML format is no longer supported.</li> <li>• <a href="#">Export parameter set</a>: User-defined text-variables can not be exported as a parameter set.</li> </ul>
Data Browser	<ul style="list-style-type: none"> <li>• "<a href="#">Filter list</a>" has been eliminated</li> <li>• "<a href="#">Navigation mode</a>" has been eliminated</li> <li>• "<a href="#">Shows comparison measurement</a>" has been eliminated</li> </ul>
Widget	<ul style="list-style-type: none"> <li>• The "<a href="#">Audio-Widget</a>" are no longer supported</li> </ul>
<a href="#">Widget - Table</a>	<ul style="list-style-type: none"> <li>• Interplay between settings for "<a href="#">Factor</a>" and "<a href="#">Decimal places</a>" has been changed.</li> <li>• Decimal place count: "<a href="#">auto</a>" no longer equates to "1".</li> </ul>
Commands	<ul style="list-style-type: none"> <li>• It is no longer possible to delete a variable using the <a href="#">Kommando "Variable setzen"</a>.</li> <li>• Discontinued: "<a href="#">SQL-command</a>"</li> <li>• The commands: "<a href="#">Playback audio channel</a>" and "<a href="#">Record audio channel</a>" are no longer supported</li> <li>• The command "<a href="#">Run imc FAMOS sequence</a>" - Channel return values can no longer be transferred back to a "<a href="#">User-defined variable</a>" of the type "<a href="#">Numeric</a>" (Single value).</li> <li>• The command "<a href="#">Run imc FAMOS sequence</a>" - This command only saves data in dat-format now.</li> </ul>
imc STUDIO PowerQuality	imc STUDIO PowerQuality is no longer supported

## Additional missing components and functions belonging to Version 5.2



### Individual functions:

- Textual Report channels: The Report channels are deleted from the experiment when it is loaded.
- Data Browser: Deactivation of grouping according to category.
- Panel: Navigation Bar
- Saving of the measured data.
- Reaction to changed device configuration: When the configuration is changed in imc STUDIO, the device must be re-selected in imc STUDIO Monitor.
- Views adapted to imc STUDIO Monitor: At this time, all views available in imc STUDIO are used.

# Device overview

Some of the capabilities discussed in this document only pertain to certain device models. The associated device groups are indicated at the respective locations. The groups are shown in the following table which can be used with imc STUDIO Monitor.

— not available      ● standard      ○ optional  
 CRXT imc CRONOS-XT      CRFX imc CRONOSflex      CRC imc CRONOScompact

imc device	SPARTAN BUSDAQ	BUSDAQflex	SPARTAN-R SPARTAN-N	CRSL-N	CRC-400 CRFX-400	C1-N C-SERIE-N	C1-FD C-SERIE-FD	CRFX-2000	CRC-2000G	CRC-400GP	CRFX-2000G	CRFX-2000GP	CRXT
Driver package	imc DEVICES												
<b>Group</b>	<b>A4</b>		<b>A5</b>				<b>A6</b>		<b>A7</b>				
Sn <sup>1</sup>	13		14				16		19				
TCP/IP Interface [MBit/s]	100		100				100		1000				
Monitor connection	●		●				●		●				
Connections <sup>4</sup>	4		4				4		4				

1 Extend serial number range by four digits (three for imc EOS)

4 Number of imc STUDIO Monitor-connections or imc REMOTE (as of 14xxxx) connections

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