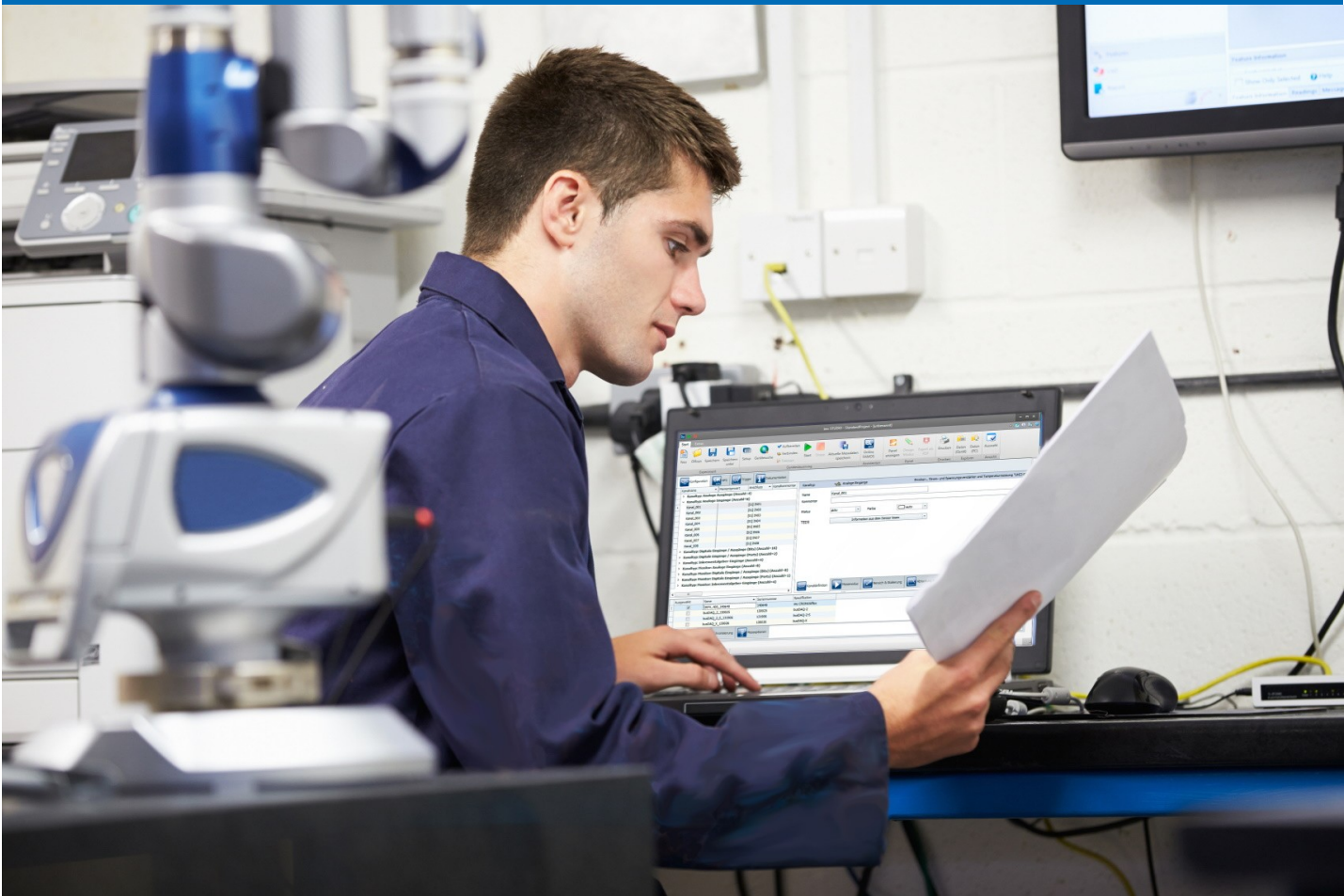


imc STUDIO 5.2

What is new

Doc. date created: 2024-01-31



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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The software described in this document may only be used in accordance with the provisions of the "imc Software License Agreement".

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 tech support.

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Update

Along with the PC software 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 supports the new firmware. Further information can be obtained from our tech support or the imc website.

Download links:

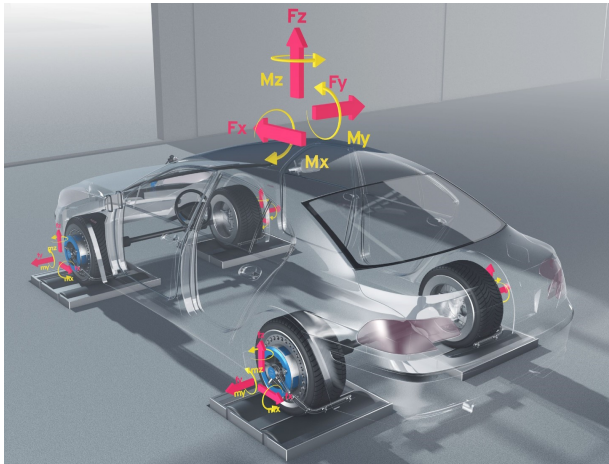
imc STUDIO <https://www.imc-tm.com/imc-studio/software/>

imc STUDIO 5.2 R25

imc WFT Assistant

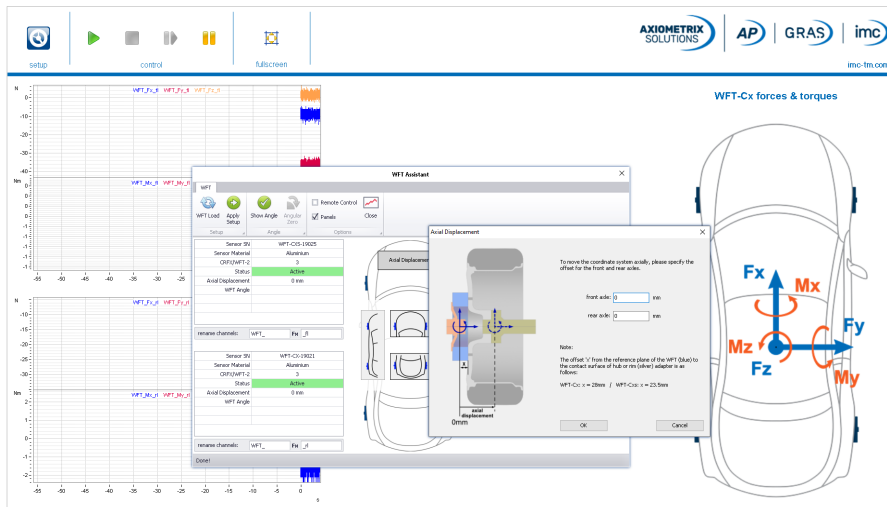


Configuration and usage of 6-component wheel force transducers



Forces and moments in the vehicle coordinate system

The WFT plug-in provides a user-friendly Assistant for configuring the 6-component WFTs, as well as pre-made Panel-pages for optimized display of measured results.



Sample Panel-page and Assistant interface

Reference

Documentation

Documentation on the WFT-Assistant is presented in the imc WFT Manual or in the special description "[AddInfo_WFT.en.pdf](#)" on the imc website, located in the download area under "[Wheel Force Transducers](#)".

<https://www.imc-tm.com/download-center/product-downloads/wheel-force-transducers/manuals>

Miscellaneous optimization

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Bus Decoder	Decoding of Fieldbus bits by the Bus Decoder caused the appearance of the error message: " <i>OBD_DataSink::CreateBusfilterSink(): m_pBusfilterSink != NULL Bus Decoder</i> ".

1 Firmware and new hardware

imc DEVICES as a driver package for imc STUDIO

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

- imc DEVICES: For devices belonging to the firmware group A - e.g. CRONOS family, C-SERIES, SPARTAN, BUSDAQ



Notes



Compatibility between imc STUDIO and imc DEVICES

In regard to the use of imc DEVICES as the device driver, there is a clear distinction determining the compatibility of versions/version groups:

imc STUDIO version	assigned firmware / version group	additionally compatible
5.2 R1-R2	2.10	---
5.2 R3-R9	2.11	2.10
5.2 R10+	2.13	2.10, 2.11

For version 5.2, the applicable rule is: the assigned version group and all **predecessor groups going back to 2.10** are compatible with the imc STUDIO-version used.

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

- [Firmware 2.13 R20](#) 
- [Firmware 2.13 R19](#) 

1.1 Firmware 2.13 R20

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
CAN-Assistant	A2L import: " <i>MAXTIX_DIM</i> " is supported.
CAN-Interface	CAN FD When CAN FD messages were sent in Motorola format, it caused the measurement to crash.

1.2 Firmware 2.13 R19

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
imc Online FAMOS	Function: <code>OtrFrequLine</code> : The parameter " <i>Period length</i> " was no longer accepted as a decimal number.
CAN-Assistant	In a certain case, import of a DBC-file returned the error: " <i>Invalid file format</i> "; error number: 21095. The DBC-file was correct, however one parameter's expected values were not complete and needed to be corrected.
CAN-Interface	<ul style="list-style-type: none"> XCP on CAN In certain cases, sending via XCP on CAN caused the CAN-Interface to crash. In the Prepare stage, the device would restart when other channels besides an ECU configuration were created in the CAN-configuration.
WFT	The imc Online FAMOS-function <code>RunAutoBalance</code> now also starts the balancing of the WFT-channels both via imc STUDIO, e.g. with a virtual bit, and in Autostart.
imc BUSDAQflex with CANFD	The device restarted in response to high data volume on multiple CANFD-nodes.
imc BUSDAQflex	A watchdog now monitors the WLAN connection. This ensures that the WLAN connection is re-established even if no DHCP server is available at the time of waking up (even with <code>WakeOnCAN</code>). The watchdog checks at regular intervals whether the DHCP server is available again and requests an address.
Hardware imc SPARTAN BC16	Low passes with a corner frequency < 5 Hz showed an amplitude which was too low.
Connection to the device	The firmware programs are automatically allowed in the " <i>Windows Defender Firewall</i> " upon installation. For this reason, popup dialogs about the firewall no longer appear upon first connecting to the device.

imc STUDIO 5.2 R24



fos4X - Data storage of the fos4X-channels has been revised.

Previous behavior:

fos4X-channels were previously saved as equidistantly sampled channels. The time stamp of the first sample returned was used as the starting time. The time stamps of any subsequent samples were ignored since it was assumed that the samples would arrive at the specified sampling rate.

This mode is now replaced with two new procedures. You can now toggle between time-stamped data and equidistant data (resampled).

Background:

With long-duration measurements, it can occur that the data do not arrive at exactly this rate. Deviations by as much as 0.01 per mil have been observed. This produces noticeable effects when the measurement duration is long. For this reason, the exact time stamp is important.

If you record data with "Time stamp", it is possible to obtain an equidistant channel by resampling with imc FAMOS, for instance, during post-processing after the measurement.

In order to avoid needing resampling, the mode "Sampling rate" is provided. Here imc STUDIO performs the resampling directly during the data are recording. This compensates for the possible slightly deviating sampling rate.

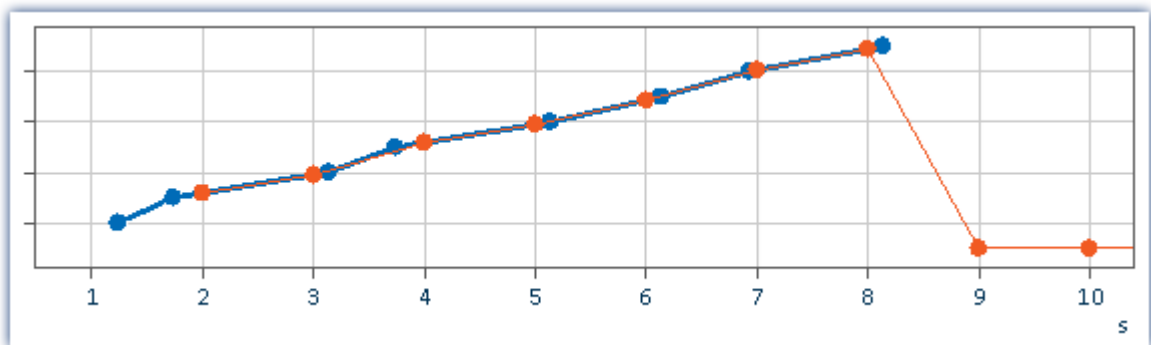
X-axis: Time stamp

- The time stamps provided by the 3rd-party fos4X device are saved. The measurement duration of time-stamped channels is limited to 800 days. Additionally, they require more memory space. The precision of a time stamp is 256 ns.
- The sampling rate set is also required for sending the requests to the fos4X-device. This is the rate at which you want to receive the data.

X-axis: Sampling rate (equidistant data)

- The data stream starts at the next full second on the clock after arrival of the first sample. The system performs linear interpolation between the values returned at the sampling rate specified. Adjacent to any error fallback values, calculation of the interpolation applies the error fallback value.

Example with exaggerated offset to illustrate:



Parameter "X-axis" set to Time stamped (blue) or Sampling rate (orange)
Values at 9 s and 10 s: error fallback values



Security vulnerability from log4net

The Assembly for Log4Net has been updated to Version 2.0.14.

Note: There is no risk due to this security flaw when used in conjunction with imc STUDIO. Log4Net is used as an element of the scripting editor, so it is sporadically loaded and used. However, this scripting-editor is a programming tool for enhancing imc STUDIO with custom functionality. It is not a web-server or any similar mechanism running in the background, which could be induced by some external request to run malware (which is the problem arising from the log4j security flaw). Furthermore, the scripting-editor has no Administrator privileges. Thus, no malware could have any effects on the system beyond the effects produced by script you wrote yourself.

For this reason, there is no cause for alarm in regard to any published version of imc STUDIO to date. In this version, the assembly has been updated.



Note

See also

<https://github.com/advisories/GHSA-2cwj-8chv-9pp9>

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Command: E-Mail	Files sent using the command "E-Mail" were locked. It only became possible to edit them again once imc STUDIO was closed. Now, the file is no longer locked.
Profinet-IRT	Upon transfer to a different device, the Profinet-configuration went missing.
Application module	When an experiment was created in which an Application module was used without an editor, it was no longer possible to save the experiment.
Widget - Table	PDF-export - The values displayed in a table do not contain up-to-date values if the table was not visible at the time at which export was performed.

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

- [Firmware 2.13 R18](#)¹¹
- [Firmware 2.13 R17](#)¹²
- [Firmware 2.13 R16](#)¹³

1.1 Firmware 2.13 R18

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Hardware: imc CRONOSflex	An internal error (9934) was corrected, which occurred in very rare cases in consequence of repeated triggering.

Area	Description
CAN-Assistant	<ul style="list-style-type: none"> For signals in the format "<i>real number</i>", it is now possible to specify a scaling-factor and scaling-offset. If they exist, the factor and offset are also included when importing DBC-files. The system's behavior when importing CBA-files having more than one node has been improved. The settings can be loaded to the selected node individually. A2L-Import When importing A2L files, it was only possible to search for labels in the A2L import dialog a few times. After that, the list of labels remained empty.
CAN-Interface	<ul style="list-style-type: none"> In spite of only moderate demands on the CAN-node, the error 5101 (aggregate sampling frequency of CAN-channels too high) occurred. XCP on CAN When both nodes of an interface were used for XCP, then on the second node, not all necessary messages were send.
imc CANSAS modules	Under some circumstances, adjustment of the Baud rate of multiple imc CANSAS modules no longer worked: upon configuring, a warning immediately appeared, indicating that a module was no longer found.
XCPOE-Interface	When the frequency of transmitted XCPOE packets was high, packets could go missing due to an overload of the XCPOE interface. The interface's performance has been optimized so that now up to 10k packets/second can be processed.

1.2 Firmware 2.13 R17

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
CAN- and XCPOE-Assistant	In the CAN- and XCPOE-Assistant, the maximum count of events and DAQ-lists supported has been increased to 40.
CAN-Assistant - PIDs	<p>OBD2-ECU Protocol</p> <ul style="list-style-type: none"> In the CAN-Assistants, additional PIDs conforming to the standard SAE J 1979DA:2021-04-21 have been implemented for the OBD2-ECU protocol. In the CAN-Assistant, it is now possible to enter user-defined PIDs with the OBD2-ECU protocol.
CAN-Assistant - A2L	In some circumstance, after importing an A2L, the CAN-Assistant could display duplicates of an event. This was reported as an error upon running the syntax check.
imc Online FAMOS	The syntax check which runs upon reading values from a CAN-message has been optimized.
CRONOS-PL\DIOINC CRONOS-PL\ENC-4	With the DIOINC- and ENC-4 boards of the imc CRONOS-PL device family, in the mode " <i>Angle (abs)</i> ", the angle was indicated incorrectly, since the scaling " <i>Imp/revolution</i> " was not calculated correctly.
CRFX\HISO-8	At slow sampling rates (below 2 Hz), incorrect offsets were generated in 16-bit mode.

1.3 Firmware 2.13 R16

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
WFT	<ul style="list-style-type: none"><li data-bbox="488 362 1476 461">• Balancing via imc Online FAMOS: When performing balancing using the imc Online FAMOS function RunAutoBalance, an internal data overflow occurred in imc Online FAMOS.<li data-bbox="488 465 1476 497">• The balancing-interval now indicates the correct count of revolutions.

imc STUDIO 5.2 R23

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Widget - Table	<ul style="list-style-type: none"> It was no longer possible to set the table's visibility in response to a variable's value. The table was always invisible if a variable was entered. Texts were no longer displayed: Values of text variables and contents of the property: "Text".
Command: "Execute device action"	The command "Execute device action" could no longer be configured or used. An error was raised. The command can now be used again.
Profinet-Assistant	<p>When loading experiments, in some cases a warning was posted that a new version of an external editor (e.g. Profinet-Assistant) was available. However, updating was not possible.</p> <p>Now the editor used (Profinet-Assistant) is no longer saved with the experiment. Instead, the editor provided with the existing installation of imc STUDIO is always used.</p> <p>Upon first loading the experiment with the new version of imc STUDIO, the message is displayed again one single time. The change takes effect upon saving, so that the message is no longer displayed afterward.</p>
imc API	With the imc API, a theme name (including "None") can be transferred to the constructor of the imc STUDIO-component. For "None", the theme is not overwritten.

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R15

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
CAN-Assistant	<ul style="list-style-type: none"> In various situations (e.g. when closing imc Online FAMOS or when adding a comment on the channel), in some cases the error message "<Name>: Channel name does not exist" was posted, even when the channel did exist. The message appeared when ECUs were accessed via XCP. When importing a CAN-configuration with activated support of "J1939" to a node with support of CAN-FD, selecting "Prepare" caused the measurement device to reboot. When importing .arxml files, when the messages' names were very long, the same new name was sometimes assigned to different messages.
ARINC-Assistant	The ARINC-Assistant has been enhanced and now saves additional parameters in the configuration (*.idB2-format); e.g. bus speed.
XCPoE-Assistant	Opening the XCPoE Assistant raised an error.
Certificate	<p>The installation contains a new certificate. Additionally, it is available for download on the homepage.</p> <p>For transfer via secure https access, a certificate obtained along with the installation purchase. This certificate has an expiration and must be renewed annually.</p>
imc Online FAMOS	The function "AudioBaordThirds" is no longer provided in the Functions list. However, it can still be used.

imc STUDIO 5.2 R22

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Device interface configuration	By means of the Device Interface-configuration, it was possible to enter IP addresses which do not conform to standards. Now any additional preceding zeroes, letters or periods entered are no longer adopted.
Bus Decoder	The Bus Decoder can now decode data containing texts.
fos4X	fos4X-devices support laser power regulation. Previously, it was always active even if in some cases it was not desired. Now the setting is no longer modified by imc STUDIO. This makes it possible, for example, to set the value by means of the fos4X-program "fos4TV".
RoaDyn2000-Editor	<ul style="list-style-type: none"> In the Editor for assigning outputs, in the column "Channel", the channel names "As" and "An" were interchanged. Name collision handling for RoaDyn2000-Editor Before closing the dialog with "OK", the Editor checks whether all channel names assigned are unique. If any conflict is detected, you are not able to close the dialog. Closing by clicking on "Cancel" remains possible. In consequence, name decoration no longer occurred.
imc LICENSE Manager	imc STUDIO failed to respond in various situations. A new version of imc LICENSE Manager fixes this problem and is now included with installation. (Also already included in the AddOn for imc STUDIO 5.2 R21)
About-Dialog	The About-dialog has been expanded. It now presents the license texts of the currently opened Open Source components.

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R13

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
CAN-Assistant	<ul style="list-style-type: none"> In devices of the types imc CRONOS and imc C-SERIES, assignments of CAN-process variables in sendable messages was lost upon closing the Assistant. In the CAN-Assistant, AUTOSAR (ARXML) import was conditional on enabling of the ECU-protocols. This is no longer applicable as long as no ECU protocols are imported by that means. During DBC-import, the invalid characters "/" and "\" in names are automatically replaced with underlines "_". This also applies to the message names (since these are sometimes used to construct digital ports).
Flexray-Assistant	<ul style="list-style-type: none"> ARXML-import: Import of AUTOSAR v4.3.1 has been implemented. An AUTOSAR (ARXML) file would not be imported if any optional data were missing.
IWT-Fieldbus	The interface for the IWT-Fieldbus has been supplemented with some functions.
LIN-Assistant	When importing LDF-files, frames were rejected when they had no content.

Area	Description
Problems when creating an Autostart experiment	<ul style="list-style-type: none"><li data-bbox="483 253 1468 344">• imc Online FAMOS: With the function <code>CodeRange</code>, when a single value was assigned as the 1st parameter instead of a channel, the system crashed when an Autostart experiment was created.<li data-bbox="483 360 1468 454">• NTP-synchronization for ANDIS devices: The NTP parameters can now be written by a script to the configuration and this can be written to the ANDIS as an Autostart experiment.

imc STUDIO 5.2 R21

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Options	The option "Reduce logbook entries" was not saved. Now the Sequencer-info-messages are reduced (not displayed) also after re-starting.
Widgets - Tables	The tables did not respond to the setting " <i>Refresh rate</i> ". No matter what setting was made, the refresh rate used was always " <i>Fast</i> ". Thus, when you are displaying many variables in a table, you now have the ability to significantly reduce the demands on the CPU by setting the update rate to " <i>Slow</i> ".
Experiment management	Data integrity has been enhanced for cases when overwriting experiments with measured data. The prompt for deleting all measurement data has been improved. The system prevents immediate exiting of the prompt by a single click.
imc Inline FAMOS	Interval data saving on the PC: When the function " <i>FFTAverage</i> " was applied to channels which were not equidistant, the interval data saving was not applied correctly. Folders dated in the future were generated.

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R12

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
imc Online FAMOS	<ul style="list-style-type: none"> New function available: "<i>ReduceDataRate</i>" - This function is applied to fieldbus channels which were sampled at a (slightly) higher data rate than necessary (ratio up to 2.5). In consequence, such channels contain some duplicate measured values. "<i>ReduceDataRate</i>" eliminates these duplicate measured values as far as possible while still achieving the target data rate. The functions "<i>Mean</i>", "<i>Max</i>", and "<i>Min</i>" were no longer accepting any variables which had been defined in the control command "<i>OnInitAll</i>".
CAN	<ul style="list-style-type: none"> CAN-Assistant - Export to the format .dbc modified Channel names containing a dot "." character in their name caused problems when loading the file to other tools. Now, upon exporting a dot character is converted to an underline "_". Import of an A2L was performed incorrectly. Once imported, the channels sometimes had the wrong number in the name. XCP on CAN - Send-channels in the format "<i>Real Number (4 Byte)</i>" were sometimes sent as Integer data.
XCPoE	Import of an A2L was performed incorrectly. Once imported, the channels sometimes had the wrong name and wrong address.
Profinet and Application module	Some changes to Profinet and Application module channel parameters were discarded when the Assistant was re-opened and then closed. The changes affected were such which had not been made in the Assistant (e.g. by means of the Setup pages), and which are also otherwise not editable in the respective Assistant.
Manuals	Some E-Book manuals could not be opened on PCs in the region of Asian-language fonts.

imc STUDIO 5.2 R20

This version implements some minor bug fixes. Additionally, advances have been made in preparations for integrating the new imc device firmware for the coming new generation of devices.

When selecting the product during installation, you will find a new entry: "*Firmware and driver package imc DEVICEcore*". You can leave this choice always activated even if you are not using any imc DEVICEcore-device.

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

- Firmware 2.13R11

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Automatic Timed Start with CRFX/CRXT	In some cases, the following phenomena occurred: Upon starting measurement for a second time, the CRFX/CRXT crashed. Upon stopping, the message 137 "The data acquisition DSP could not end the measurement ..." appeared. The error occurred often when measurement was performed with at least one channel having a sampling frequency of 100 kHz!
imc Online FAMOS	In two cases of compiling the imc Online FAMOS source text, the following error message was posted: "Type error on right side ...". One case involved a bug which is now fixed with this version, in which compiling is now possible again. In the other case, the message was wrong. The correct message would have indicated that the DSP's internal memory was full.

imc STUDIO 5.2 R19

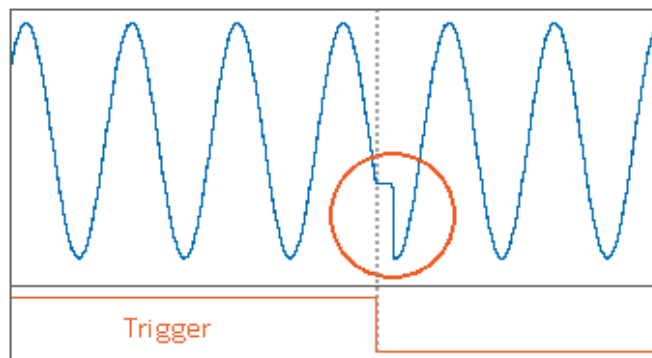
1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R10

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Firmware-update Recognition of minimum version requirement	Testing for the minimum version required for a firmware update is now performed automatically upon setup of the firmware update dialog. Thus the user is directly informed when the minimum version requirement has not been met and the "Update"-button is disabled.
CAN-Assistant - Importing A2L-files	The data type "Matrix" is now supported. The results generated consist of multiple channels. Furthermore, problems with importing the data type "Digital Bits" have been resolved.
imc CANSAS	Making a change of a channel name applicable throughout multiple slots Whenever names of channels were changed in the imc CANSAS-Assistant with applicability throughout multiple slots, then after they were applied in imc STUDIO, other imc CANSAS channel names were incorrectly also changed.
imc Online FAMOS- channels	The user-defined Y-unit was not applied to virtual channels having special characters or spaces in their channel name.
Updating the pv-variable	Updating of the pv-variable was delayed for a few 100 ms after conclusion of a triggered data capture. The following diagram shows the effect, e.g. when the pv-variable controls an analog:



2 General changes in imc STUDIO

The list of operating systems supported has been revised

Supported operating systems

Windows 10

Windows 8.1

Windows 7

This gives us better ability to accommodate the most up-to-date operating systems.

Miscellaneous optimization

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Balancing during measurement Taring or bridge balancing	<ul style="list-style-type: none"> When balancing was performed during a measurement, the system indicated a measurement data overflow. Data which had already been measured were no longer present under the "<i>Current Measurement</i>". Saving of the measured data was not interrupted. When balancing was performed during a measurement, the behavior of incremental counter inputs changed. For example, a configured dual-track encoder behaved as a single-track encoder. <p>The errors resulted from a change implemented in the level indicators (in the Panel Widget of that name and in the Setup in the column "<i>Corrent value</i>"). This change has now been reversed. The ranges of the level indicator display are only applied after performing "<i>Download</i>" or "<i>Reconfigure</i>". They are no longer adjusted directly after taring.</p>
imc Inline FAMOS-channels	<ul style="list-style-type: none"> In cases of data overflow, all channels are assigned a new event. In the process, the X0 (X-Offset) is set accordingly. However, imc Inline FAMOS-channels were assigned a slightly deviating value, so that the channels no longer were positioned directly above each other in the curve window. The user-defined Y-unit was not applied to virtual channels having special characters or spaces in the channel name.
Experiment management	<p>Whenever experiment folders are copied by means of the Explorer, the folder name changes. However, the internal files keep their names. When such experiments were loaded, there were a variety of consequences in imc STUDIO. These included that the experiment was deleted after closing the program and the measured data landed in the old experiment folder.</p> <p>Now the system prevents such experiments from being loaded and posts a warning.</p> <p>If you wish to use an experiment under a different name, there are a variety of methods. For instance, you can duplicate the experiment using "<i>Save As</i>", or create a backup using the Export function. When importing the backup, you can specify a new name. That would make the names consistent.</p>
Leftover program processes in the Task Manager	<p>Opening the page "<i>Data Processing</i>" or executed imc FAMOS sequences often caused processes belonging to imc STUDIO and imc FAMOS or imc DEVICES to fail to clean up properly once imc STUDIO was closed. In the Windows Task Manager, it was often possible to observe leftover tasks.</p>
imc Format Converter	<p>The imc Format Converter was unable to convert any files when special characters were used in either the folder name or the file name.</p>

Area	Description
Panel page PDF export	Depending on the printer driver, the table -Widget in the PDF-file could sometimes be empty if it was very close to the page margin. This error is now detected by the system. The graphics scaling of the table is now automatically adjusted according to the result, in order to make successful export possible. This adjustment may require a few seconds for the system to perform.

imc STUDIO 5.2 R18

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R9

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
imc CRONOSflex	Transfer of data from CRFX-modules has been optimized. In very rare cases, in triggered channels the measurement was stopped and the base system rebooted.
imc CRONOSflex UNI-4	Bridge balancing - Recognition of overmodulation has been improved. In some cases, overmodulation had not been recognized.
imc CRONOSflex WFT-2	<ul style="list-style-type: none"> • Signal taring in mobile (stationary) operation has been improved. • The application of the axial displacement and wheel radius in the calculation of the torques Mx and Mz has been improved. These had not previously been applied correctly.
imc CRONOS XT UNI-4	Support of the hardware module completed.
Manual	The user's manual for the WFT-modules has been revised. Additionally, the description of the WFT-C ^{XS} measurement wheel has been added there.

2 General changes in imc STUDIO

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
imc Online FAMOS and imc Inline FAMOS	<ul style="list-style-type: none"> • The "Tolerance" function can now be used in the IF-function without an assignment. • New imc Inline FAMOS-tasks could not be renamed. Now the name entered is applied.
Setup	<ul style="list-style-type: none"> • DO: After setting certain digital output bits, it was not possible to set other output bits. • Asian operating systems: Metadata columns sometimes lost their settings when Assistants (e.g. CAN, Display Editor, ...) were opened and then closed.
Commands - Run imc FAMOS sequence	<p>When the Sequencer was stopped while a synchronous imc FAMOS-command was running, some data from the imc FAMOS-sequences remained in the Windows TEMP-folder. Upon closing imc STUDIO, there also were temporary files from the asynchronous imc FAMOS-sequences left over in the folder if the sequences were not completed. These files are now cleaned up once they are no longer needed.</p> <p>When closing imc STUDIO, there is now an additional message posted if there are still sequences to be processed. Upon closing, the sequence currently running is not interrupted. However, any return values will not be processed. Any additional sequences in the queue for processing are canceled. You can cancel the closing of the program.</p>
Project Management	An experiment was sometimes deleted when the database was located in the network and the experiment was started via double-click/link.
Installation medium	There had been two installation setups for the Format Converter. The one under imc DEVICES has been eliminated.

imc STUDIO 5.2 R17

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R8

imc REMOTE WebServer access - TLS1.2 encryption



As of Firmware version 2.13R8, all supported imc measurement devices support access by imc REMOTE WebServer, based on the TLS1.2 encryption.

2 General changes in imc STUDIO

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
Widget - Table	Editable channels such as user-defined variables of the type Channel could no longer be edited within the table. Now it is again possible to edit values.
Widgets - Standard	<ul style="list-style-type: none"> The Drop-Down-lists for some parameter settings belonging to the Standard-Widgets were empty (on English-language systems); e.g. Image, Table, Lable. Table: With the text, the property "Margin" was not working on the top and bottom (but left and right did work).
Widgets - Event-dialog	When the Event-dialog was called directly from the context menu, and the key was pressed in a command configuration dialog there, then the Widget was deleted. The key now no longer has any effect in such cases.
Command - Run imc FAMOS sequence	When the Project Management is deactivated, the imc FAMOS-command did not work correctly. Upon conclusion of the imc FAMOS-command, an error was always recorded in the logbook.
Scripting	Scripts failed to be copied when an experiment was imported to a different device; scripts were lost.

imc STUDIO 5.2 R16

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

- Firmware 2.13R7

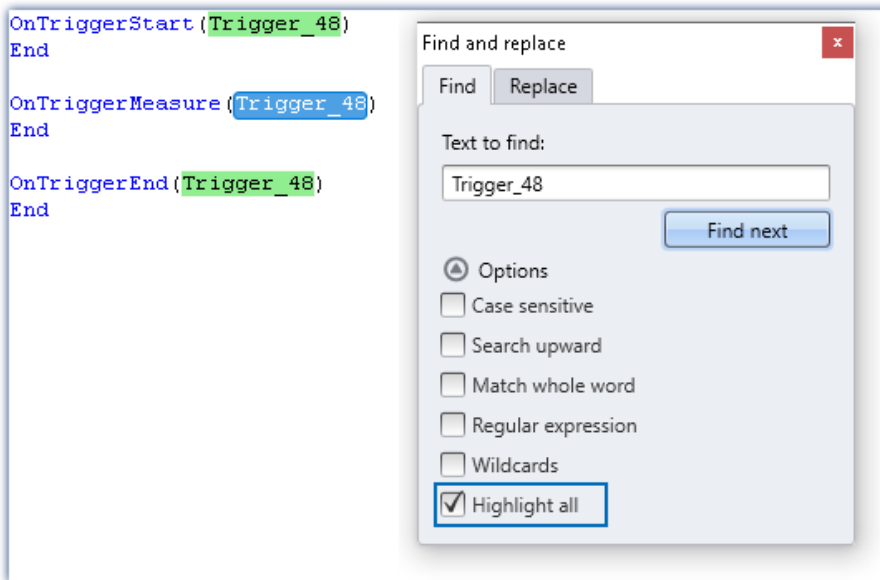
In this version, certain issues have been resolved.

2 imc Online FAMOS and imc Inline FAMOS



Find - Highlight all

The Find & Replace dialog has been expanded with a new option: "*Highlight all*". When this option is activated, all search hits are additionally highlighted in light green.



3 Automation



Repository - Recording states

It is now possible to record states in the Automation repository. Events and their associated commands are included along with the state.

imc FAMOS-data cutting is discarded, since it is not necessarily associated with only one state.

4 Widgets



32-bit-Integer-Status-Variable on the DIO-Widget

The DIO-Widget is primarily implemented for the device's DIO-ports. Now the Widget is also able to handle the device's Integer-pv-variables correctly.

For this purpose, the count of a pv-variable's bits displayed has been limited to 32 (0-31). Additionally, it is possible to handle negative numbers since the Integer-pv-variable is a signed integer.

Thus, this data type comes with a 32-bit Integer-Status variable.

The limitation to 32 bits also applies to Float-pv-variables. However, be aware that in this case not all bits can be used. The same limit also applies to all other Float variables. Therefore, it is preferable not to use these variable types with this Widget.

5 Miscellaneous optimization

Alongside minor bug fixes, the following important improvements have also been implemented:

Area	Description
User-defined events	When the condition for a user-defined event was modified, the event subsequently failed to trigger. If any imc FAMOS-command was associated with the event, in this case the command was deleted.

imc STUDIO 5.2 R15

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R6

Fieldbus



CAN - A2L files with multiple Transport-Layer instances

For importing A2L files, multiple Transport-Layer instances are now supported. When the file is loaded, the layers are offered for selection in a list. The channel selection dialog for the respective layer appears next.

CAN - Channels from an ARXML-import

- A warning is posted in the status bar when the user attempts to make any changes to the channels imported by means of ARXML.
- Import by means of the channel selection dialog has been optimized. Only such PDUs which are required by an imported channel are now set up.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
imc Online FAMOS Editor - Folding	You are now able to completely expand or collapse the control commands in the Editor by means of a context menu entry.
Measurement range increased - Strain gauge measurement	In some cases it is necessary to be able to measure strains of up to 30000 μeps . For this purpose, the maximum measurement range boundaries have been increased.
Device properties	The "Device properties" now only display such properties which are actually used in imc STUDIO applications. The following properties, which are not used, have been hidden: <ul style="list-style-type: none"> • imc DEVICES - The option deactivated the device for use under imc STUDIO. • imc CANSAS - This option only provides an indication of whether the device supports imc CANSAS modules.
CRFX/WFT-2	imc STUDIO now also supports such mounting mechanisms which return angle values which are rotated by 180°. Previously, it had not been possible to zero angle values lying outside of the range $\pm 180^\circ$.
Firmware-update password	When the firmware-update was password protected, then the dialog under imc STUDIO for prompting entry of the password was not shown. Now this dialog also appears under imc STUDIO.

2 Setup and Device Control



Renaming the coupling "AC with current supply" to "IEPE"

Some amplifiers offer the option "AC with current supply" for the parameter "Coupling". This selection option has been renamed to "IEPE" (Integrated Electronics Piezo-Electric). This provides a clear indication of the application purpose for which the option is intended.

Please be aware of the following:

- You continue to be able to use experiments in a normal way. If "AC with current supply" is set, the parameter is automatically revised to "IEPE". The default values will also be adopted correctly.
- If you are importing existing parameter set files in which the coupling is set to "AC with current supply", then revise these files. Use a text editor to replace all locations of "AC with current supply" with "IEPE".

Existing parameter set (text editor):

Name	Measurement mode	Coupling
Channel_001	Voltage	AC with current supply
Channel_002	Voltage	AC with current supply
Channel_003	Voltage	AC with current supply



Revised parameter set:

Name	Measurement mode	Coupling
Channel_001	Voltage	IEPE
Channel_002	Voltage	IEPE
Channel_003	Voltage	IEPE



Predefining the data storage path for "Save current Measurement Date as"

The menu item "Save current Measurement Date as" can be assigned a preset (in the Options dialog). For example, you can pre-define the data storage path in which the data storage dialog is to launch. However, if this folder didn't exist, the default folder and not the desired path was displayed.

New behavior: If the folder doesn't exist, it is created temporarily. But if you don't save the files in it, the folder is deleted once the dialog is closed. However this only happens when it had been created by this method and if it is really empty.



Bug fix: "Start option" is discarded

The "Start option" (e.g. next minute) was discarded when an experiment belonging to an older version was loaded (only affects imc STUDIO 5.2 R14). The issue has been resolved.

- No manual correction is needed for experiments having the Start-option from version 5.2 R13 or lower, when opened in 5.2 R15 (without having been saved in the meantime in Version 5.2 R14).

The following problem remains: Once the experiment has been loaded into 5.2 R14 and saved there, the experiment is not corrected automatically in 5.2 R15.

- **Manual correction** is required when experiments made in the version 5.2 R13 or lower and having the start option set were opened in Version 5.2 R14:
The error remains undetected and the experiment is saved without the correction having been performed. The experiment is then not automatically corrected in Version 5.2 R15. You need to re-set the start option.

3 Commands



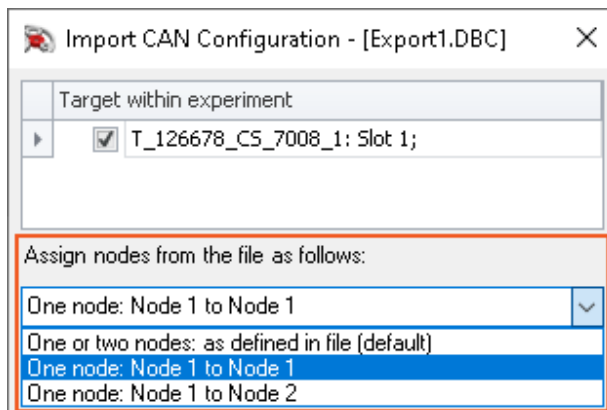
Importing a MFB-configuration - CAN-import

The options for CAN-import have been supplemented:

- **Node selection:** If the configuration only contains information on one node, you can now select to which node to perform the import.
- **dbc-file:** You can now import CAN-configuration files of the file type "dbc" by using the command. Previously, only cba-files were supported.

Node selection:

By means of making this assignment, you can select how the file is to be imported.



Selection	Description
One or two nodes: as defined in file	The file's content is processed sequentially. The first node (belonging to the file) is placed on the first node (in the Assistant). If there is any second node in the file (only cba), then this is set on the second. This mode matches to the previous behavior. If there is no second node in the file, the configuration of the second node is deleted from the Assistant.
One node: Node 1 to Node 1	The file contains only one node - The content of the file is imported to the first node in the Assistant. The configuration of the second node remains intact .
One node: Node 1 to Node 2	The file contains only one node - The content of the file is imported to the second node in the Assistant. The configuration of the first node remains intact .

Compatibility:

Existing experiments do not require revision. The importing procedure still works as before. For importing purposes, the following selection is used: "*One or two nodes: as defined in file*".

Menu item: "Import/Export":

By means of this menu item, you can also import MFB-configurations. Here, the same options are available for your use.

4 imc Inline FAMOS



More flexible sample window width for moving functions such as max, min, etc.

The maximum ratio of window width to reduction width has been increased to 1000:1 (previously 10:1); for the functions: "max", "min", "mean", "rms" and "stdev".

5 Installation



Limiting the installation options

For the driver and firmware package for imc STUDIO (imc DEVICES), only such components are still offered which are used in imc STUDIO. The following components are no longer installed:

Option/Component	Description
COM-Interface	Installation of the ActiveX components
imc Online FRAME	Installation of the imc Online FRAME Workbench with Compiler
CAN Database - Import	Vector database linkage, DBC-Format. Activation via software is not supported under imc STUDIO. Perform the activation for each device separately.

New name for the selection option imc DEVICES

In order to make it clear that the firmware is required for use of the imc devices, the name in the product selection list has been modified:

"Firmware and driver package imc DEVICES (CRONOS, C-SERIES, SPARTAN, BUSDAQ)"

6 Miscellaneous optimization

Alongside bug fixes, the following important improvements have also been implemented:

Area	Description
User interface partially frozen	<p>General bug fix! The most recent few versions manifested a certain error in various ways. This included that some user interfaces were not displayed correctly, or that the software is categorically inoperable. The error frequently occurred when going from one main window to another; e.g. from Sequencer to Panel.</p> <p>In such cases, an entry was made to the logbook files containing the note "PresentationCore".</p> <p>The error occurs since the update of an external component. It has been possible to localize the error and to remove some of its causes. For example, the sliding animation when showing certain docked tool windows caused the problem; this has now been deactivated globally.</p> <p>If you still observe this behavior, please contact us directly. Please make note of the last few actions which you had taken before its occurrence:</p> <ul style="list-style-type: none"> • which main window had been changed, • which tool windows were present, • which tool windows had been opened. <p>If no windows were active, then please specify what action you had most recently performed. Even if you were not able to reproduce the error.</p> <p>This will assist us in tracking down the error.</p>

Area	Description
Setup - The state of data storage	The option " <i>Data storage state after download</i> " did not work correctly. The state only changed correctly if a preparation of the device was required upon starting measurement. Now the state is also set correctly when the menu item " <i>Reconfigure</i> " is executed.
Setup - Diskstart: wrong configuration loaded	When connecting with a running Diskstart measurement, the correct configuration was not loaded in the following case: <ul style="list-style-type: none"> • any additional changes to the device configuration were performed after creation of a Diskstart configuration and written to the device upon "<i>Download</i>".
Setup - Device search for video devices	When video devices were successfully found in consequence of a device search, the dialog indicating "no new devices found" was still displayed unless any new imc devices were also found. Now the dialog only appears when none of the devices named was found.
Setup - Profinet-Editor	The Profinet-Editor is now displayed correctly even with larger font sizes and higher resolution.
Panel - Curve window	Text format: In the selection list, some text formats have been renamed; e.g. imc DEVICES was removed from the name. New names: <ul style="list-style-type: none"> • CAN, LIN message • 4 Byte abs. time • 3-number sets (hex) • Flexray message

imc STUDIO 5.2 R14

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R5

Hardware



PROFINET-IRT

The new Fieldbus-module "PROFINET-IRT" can be used with this version.

Fieldbus



CAN - Support of the format ARXML

Devices having a CAN-FD interface support the ARXML-format (AUTOSAR XML). Due to this, the device is able to process PDU-oriented messages.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Fewer Start-Menu items	For the driver and firmware package for imc STUDIO (imc DEVICES), dedicated Start-Menu items are no longer created.

2 Sequencer



Sequencer-output to Logbook - Reducing entries

When you run the Sequencer, many commands make entries to the logbook. By means of these entries, you have a way to analyze the background of situations in the signal. For example, which commands started right before a problem occurred, or in what loop the routine was working at that time.

In the Options under the item "Sequencer" there is a new option "*Reduce Logbook-entries*". When you activate this option, the following Sequencer-messages **no longer appear in the Logbook window** and are not written to the logbook file:

- Start/End command
- Messages on loops (For/While)
- Messages on case distinctions (If/Switch).

This provides the advantage that more important entries in the logbook may be noticed sooner.

3 Commands



imc FAMOS - Variables-list

Input support for the measurement name has been revised and extended

Background info: Input support is available for the measurement name: Click in the input box after the channel name on keyboard combination: <CTRL> + <SPACE>. A list of various input choices appears.

The choice: "@Last concluded measurement" has been deleted. Conversely, the following have been added:

- @LastMeasurement: corresponds to "*Last concluded measurement*"
- @CurrentMeasurement: corresponds to "*Current measurement*"

4 Panel and Data Browser



Data Browser - Display of only the most important columns

The **columns displayed** have been limited to "**Name**" and "**Unit**" of the variable. The columns "*Event time*", "*Comment*" and "*Category*" have been hidden. You can show them again at any time by means of the column chooser and save them in the view.

This is a change of the view; thus the change has no effect on existing databases.

Panel page on the monitor

When a Panel page is displayed on a **second monitor**, this page layout is **saved in the experiment** and restored upon subsequent loading. If the monitor is no longer present upon loading, the page appears again, embedded in the Panel.

5 Automation



Automation - Renaming variables in imc FAMOS sequences

When elements are imported from the Clipboard or the task is transferred to a different device, you can **automatically rename** the **variable name** in these elements. This function now also takes effect on imc FAMOS sequences (data cutting). The **In/Out variables** are now replaced. The sequence and the imc FAMOS-variables are not taken into account.

6 3rd-party devices



3rd-party devices trigger user-defined events

Variables in 3rd-party devices can now trigger user-defined events; e.g. it is possible to make the system responds to a value change in the variable.

7 imc Online FAMOS and imc Inline FAMOS



imc Online FAMOS and imc Inline FAMOS - functions: min, max, mean

In the control command [OnTriggerMeasure](#), the functions "min", "max" and "mean" no longer accept any single values for their 1st parameter. Since this control command is missing any time reference for single values, this function may only be applied to channels which provide time information.

In imc Online FAMOS, in the constructs [OnTimer](#) or [OnSyncTask](#) the function can still be applied to single values. For purposes of the calculation, the function remembers the last values (*window size*) in order to return a result. The last values are derived from the points in time when the function is called; e.g. in the construct [OnSyncTask](#), once per second.

8 Miscellaneous optimization

Alongside bug fixes, the following important improvements have also been implemented:

Area	Description
Installation - documentation	Some older versions install the documentation with a write-protection attribute. Later versions then did not install their own respective newer documentation. Now the attribute is corrected for proprietary imc documents upon installation and the new documentation is installed.
Project management - Experiment-extensions	When you use imc STUDIO without project management, the experiments are assigned the extension: ".imcExp", instead of ".imcStudio". When you go back to the project management, or if you wish to open these experiments on a different PC having project management, then this file type is now also accepted and can be imported without any workarounds.
Setup - Synchronization	With some devices having serial numbers 12xxxx, "IRIG" was offered as the synchronization signal output even though this output type is not supported.
Setup - External editors e.g. KMT or RoaDyn	You can now delete external editors from the experiment by clicking on the button "Manage external editors". You must previously have added the button to your view via "Modify menu ribbon".
Setup - Firmware-version selection	If you have installed multiple versions of imc DEVICES, you can now change versions for multiple devices simultaneously in the firmware version selection dialog.
Setup - device name	Duplicate device names are no longer permitted, since under some circumstances they caused problems, e.g. with the automatic name extensions for channels. Existing experiments can still be used.
Command - Variable export	Exporting from a saved measurement - When ASCII (csv/asc) or XLS was selected as the target format, export failed and a warning was posted: "No data selected for saving." Now export to these data types also works from a saved measurement.
Window size in the Events-dialog, e.g. of Panel-buttons	The default size of the Configuration window has been increased and no longer is adjusted to the column width. The system remembers the size for each command for the duration of the running instance. This doesn't depend on where the command configuration is opened (e.g. Sequencer, Widget).
Widgets	Widget: Standard meter: When the factor is set to "automatic", the scale values are set accordingly following a change of the value, however the factor displayed had previously not been modified accordingly.

Area	Description
Automation	<p>When a Automation-configuration available in the device was changed while there was an existing connection to the device, then upon processing the configuration, the error "<i>Unable to access deleted row information via the row.</i>" was reported.</p> <p>This problem occurred when elements were deleted from the existing configuration and then inserted again (e.g. a state was moved to a new element (branching, step) by means of Drag&Drop.</p>
Scripting	<ul style="list-style-type: none">• The following process has been accelerated: Writing a device variable using "<i>SetContent</i>", without that the value changes.• Removal of a script from the Panel pages properties was not saved. After loading the experiment, it is now no longer present.

imc STUDIO 5.2 R13

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R4

imc Online FAMOS



imc Online FAMOS supports Accu-functions

The Accu-functions are now also available in imc Online FAMOS. By means of these functions, you can determine the minimum, maximum, mean value, RMS-value, standard deviation and length of the input signal over the entire measurement duration.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
imc BUSDAQflex with WLAN	When "WakeOnCAN" was activated, the "falling asleep" process went too slowly when the connection was via WLAN. The falling asleep has been accelerated and there is now no difference between LAN- and WLAN-connections.
Synchronization: PTP	The option "SlaveOnly" was not reset when the device was later defined as "Master only".

2 General changes in imc STUDIO



Logbook

Each time an entry is made to the logbook, information is saved in a logbook file. A new file is created each time the program is started. This means that after a certain amount of time very much hard drive memory may be used up.

In general, the data in very old files are no longer necessary. So now there is a new option for performing a cleanup of the logbook folder: "Delete logbook-files". After the specified number of days, the logbook-files are deleted automatically (default: 30 days). The verification test is performed upon each start of the program, or a 12 midnight if the program is currently running.

Additionally, logbook files are now each saved in a separate folder for each day.



Setup - Saving metadata with a Diskstart configuration

Regarding: "Meta-data in Channels". You are able to save metadata about the channel. This applies to saving to the PC as well as to on the device.

This previously was not applicable to Diskstart. Now, the metadata are saved with the channel upon a Diskstart. The metadata which are used are such which were available at the moment in time when the Diskstart configuration was created. Subsequent editing of the metadata is not possible.



Widgets - calculations with units

New behavior of the Widgets "Table" and "Numeric Input" belonging to the groups: Automotive, Industrial and Designer.

1. Certain units containing a factor, e.g. "kg" are now converted in calculations. Other units which by chance have the same initial letter as a factor are no longer processed in this way; for instance "Gallon", where the "G" is no longer interpreted as "giga".
2. Using the Widget-property "Factor", you can specify the target factor, even if the variable's unit is "kg", for instance. Correct conversion to grams or tons is performed. By means of the factor "1", the exact unit entered is outputted.

The same applies to many other units.

Example: The unit is set to "kV", the value to "0.005". If the factor is set to "1" or to "kilo", the Widget displays "0.005 kV". If the factor is set to "milli", then "5000 mV" is displayed. For "Automatic Formatting", the displayed output is "5 V" (the factor selected by the system then depends on the magnitude of the value).



imc FAMOS-command - Transferring variables from different measurements

Often, additional parameters are required for the purpose of evaluating saved measurement data. Such parameters are recorded along with the variables under "Current Measurement". Using a imc FAMOS-command, you can transfer variables both from a measurement and from "Current Measurement".

To imc FAMOS		From imc FAMOS		Options	
Transfer variable to imc FAMOS					
Source location:					
Last completed measurement					
imc STUDIO variable			imc FAMOS variable		
Channel_001				Channel_001	
DisplayVar_01@CurrentMeasurement				DisplayVar_01	
DisplayVar_02@CurrentMeasurement				DisplayVar_02	
DisplayVar_03@CurrentMeasurement				DisplayVar_03	

In this example, a measurement is selected. Additionally, variables from "Current Measurement" are transferred. In this case, use the following syntax for the imc STUDIO variable:

<VariableName>@CurrentMeasurement or <VariableName>@Measurement#0

Example: *DisplayVar_01@CurrentMeasurement*

3 Miscellaneous optimization

Alongside bug fixes, the following important improvements have also been implemented:

Area	Description
Setup - Balancing times displayed incorrectly	<p>In many cases, the balancing time displayed changed by itself by one hour. This happened upon loading an experiment, when changing measurement ranges, or upon importing a parameter set. Now, the correct times are indicated.</p> <p>Note: Old entries and files still indicate the wrong time; if the shifted time is already saved with the experiment, it will remain that way, but it will not change any more. Old parameter sets still reflect the wrong time. But with a newly saved parameter set, the correct time will remain intact even upon importing.</p>
Options - Setup-dialog responses	You are able to pre-define two additional dialog responses for automated processes. The additions are " <i>Supply settings changed</i> " (when the supply voltage is changed) and " <i>Channel settings will be reset</i> " (e.g. for resetting of balancing values).
imc Online FAMOS and imc Inline FAMOS Editor	<ul style="list-style-type: none"> • When the IF-function was inserted from the Function window, the "END" was not indented properly. • The Function Assistant did not generate any curly brackets around the parameter names when they contained special characters.
Command: Export Variable	File overwrite confirmation prompt upon exporting: When exporting in the dat-format, you can check the respective box to choose whether to overwrite all files or none. This has now been implemented for all other file format. When multiple file formats are exported together, the checkbox applies to all formats.
Automation	Routines involving events in the Automation have been stabilized. Occasionally, an event had no conclusion, so that the task froze at this location.
imc STUDIO Monitor	The options for Monitor were not saved and took no effect. Now you can once again use the options " <i>Write single values</i> " and " <i>Autoselect channels</i> ".

imc STUDIO 5.2 R12

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R3

Fieldbus



CAN-Assistant - pv-variable as Send-message

You are now once again able to select a CAN receive-message's pv-variable as a send-message. Thus for instance, you can directly send a received message on a different node.

CAN-Assistant - OBD2 - Updated PID-list

For the OBD2-protocol, the PID-list has been revised to meet the standard SAE1979 (2017/2019). The following channels have been added: PIDs 8E, 8F, 9*, A* and B0.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
GPS-receiver	Information about the GPS-receiver is displayed in the dialog " <i>Device-Properties</i> "; e.g. the identifier and the version.
imc Online FAMOS - Editor	When executing the menu item " <i>New</i> ", the standard control commands are restored when control commands are activated.
CAN-Assistant	<p>Improved ARXML-import: Factor and offset</p> <ul style="list-style-type: none"> Under some circumstances, following an import the factor and offset had incorrect settings. In some cases, the ARXML-file contains multiple scaling values, which caused the correct factor and offset values to be overwritten. Now, the correct values are imported. <p>Improved A2L-import: Long event names can now be used</p> <ul style="list-style-type: none"> A2L-files contain both short and long event names. For the purposes of processing and display in the CAN-Assistant, only the short event names have been used to date. In certain A2L-files, however, the short event names are not always unique. In this case, not all events can be displayed in the CAN-Assistant. Now the long event names are processed upon importing.

2 Setup and Device Control



Device search via the context menu

On the Devices-page, the context menu has been supplemented in the area of device searches. This makes the functionality quickly accessible and avoids needing to browse through the menu ribbons.



Strain gauge configuration

The strain gauge diagrams have been revised to reflect their current response to the arithmetic sign. Additionally, certain errors in the representations have been resolved.

Strain gauge

Channel name	Channel_001
Coupling	Poisson half bridge
Resistor	120 Ω
Mode	Strain
Bridge factor N	1 + ν
Gauge factor	2
Unit	μ eps
Transverse strain coeff. ν	0.3
Modulus of elasticity E	
Input range	±7600 μ eps

Half bridge with 2 active strain gauges. One strain gauge along main expansion, the other transverse to it. Exploits transverse contraction while providing good temperature compensation.

3 imc Online FAMOS and imc Inline FAMOS



imc Online FAMOS and imc Inline FAMOS - functions in conditions

When a function (e.g. "Greater") is used in a condition, an assignment is no longer absolutely necessary.

Previously, only the following syntax was allowed:

```
If Greater(Current_RPMs, 2200) = 1
```

Now the following alternative is also possible:

```
If Greater(Current_RPMs, 2200)
```

imc Online FAMOS and imc Inline FAMOS - calculation results in conditions

If the result of a calculation is always certainly a Boolean value, the variable can be used in the subsequent conditions without any assignment, as if it were a bit-variable.

Previously only the following syntax was allowed:

```
a = b > c
If a = 1
```

Now the following alternative is also possible:

```
a = b > c
If a
```

The variable "a" is a local variable which is created in [OnInitAll](#). "b > c" always returns either 1 or 0 as its result.

Even if the variable contains non-Boolean results at other locations, it can be used in this case.

This behavior only applies to local variables and not for device variables.



imc Inline FAMOS - variables in condition

The following change applies as of this version:

Bit-variables now no longer absolutely require a comparison operator (=) in the IF-function. The following code can now be used:

`"IF VB_Switch_1 AND VB_Switch_2"` or `"IF VB_Switch"`. The prerequisite is the use of variables of the type "Bit". Virtual Bit, Ethernet-Bit, CAN-Bit, ...

The use of fieldbus-bits had only been implemented for imc Online FAMOS. This has now been extended to imc Inline FAMOS.

imc Inline FAMOS - BitNot with new parameters

The function `BitNot` with a new optional parameter for the data format.

With this parameter, you specify into which integer data format the number is to be converted previously. 8, 16, 32 signed bits 1-bit (digital). The original notation can continue to be used and existing source code does not require revision.



imc Online FAMOS Syntax Highlighting

The Syntax Highlighting for the functions "Till" and "Step" did not work in the Editor; e.g. `For i = 1`

`Till 100 Step 1`.

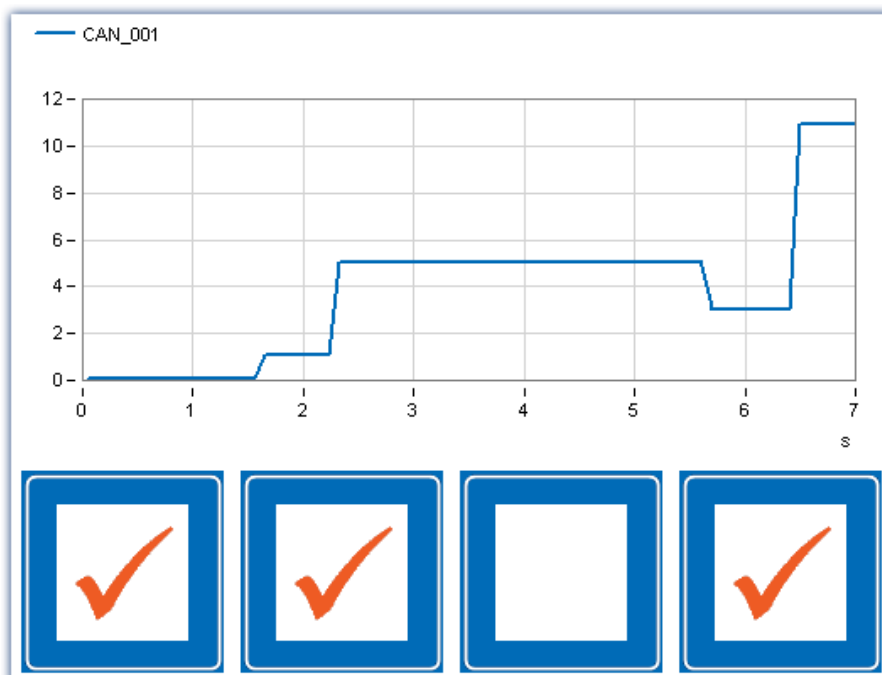
4 Panel, Widgets and Data Browser



Status display in individual bits of variables - Graphics switch

Using the property: "Bit mask" you can select which bit is to be displayed. When the 1st bit is selected, the Widget only displays the value of the 1st bit. In this way, state indicators on the Panel page provide a good overview of various channel states.

This function is now also possible in conjunction with the graphics state switch. In this way, you can use your own personal graphic for the states.



A Fieldbus channel returns multiple channel states at one time. In the end, the bits 0, 1, and 3 are set for a total of = 11.



PDF with incorrect typeface results

The typeface in the "Input box"-Widget looked more "bold" in a PDF or in a printout than on the Panel.

"Printout font" is a topic which we can only improve in stages. imc STUDIO passes the page layout information to the user's setup's default printer, which then produces the PDF or the printout. Thus, we have little influence over the results, which depend strongly on the printer driver.

If you still have problems in this matter, please contact our tech support with detailed info on your default printer.

5 Miscellaneous optimization

Alongside bug fixes, the following important improvements have also been implemented:

Area	Description
Project management - Save Experiment As	When you save the current experiment under a new name, the experiment is reset so that the variables are assigned their respective initial values (e.g. Device Variables = "0", or user-defined variables get the specified initial value). The event " <i>Experiment_Loaded</i> " is triggered.
Project management - Creating a project	When you create a new project, the status of the experiment currently open is saved temporarily and reloaded later after the new project has been set up. In consequence, the values of the variables are reset to the condition they would have if the experiment were re-loaded. In the process, the event " <i>Experiment_Loaded</i> " is not triggered. If you need this to happen for your experiment, please re-load it manually.
Command: IF	Among the comparison operators offered, "Unequal" (!=) did not appear in the list. This choice was missing from the list, only. When it was entered manually, it worked just as before.
Command: imc FAMOS	The command has been supplemented with the option " <i>Always overwrite existing files</i> ". When results are saved along with the measured data, a message appears if any file in the folder has the same name. Using this option, you can always have the file overwritten by default.
Panel - Curve window	When the curve window was associated with a measurement via a measurement number, then if the experiment was saved under a different name or if the Panel page was copied, certain settings affecting the X-axes were reset. For example, the scroll mode and the axis scaling were reset.
Setup - RoaDyn2000	Automatic name assignment improved. When the Editor was opened again, the channels names appeared with an extension indicating the device name, even though this was not necessary. Now the name assignment is only performed if the channel name already exists, e.g. when using two slots.
Setup - fos4X	fos4X third-party devices can no longer be selected.
Scripting - Script import	You can now import scripts by means of a menu item in all editions. The menu item does not appear in the menu ribbon of the Standard-view. For this reason, you could add the menu item to the menu ribbon and then save the view ("Customize Ribbon" is not possible in the Runtime-edition). The menu item can be denied to individual user groups by means of setting the access privileges accordingly.

imc STUDIO 5.2 R11

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R2

Hardware



CRFX/WFT-2 with pv-variables

For the WFT-2 amplifier's channels, the pv-variables are now available. These can be activated on the Setup page "Variables".

TEDS - Importing the measurement range

The system can read and import a measurement range from the TEDS.

Fieldbus



CAN-Assistant - CAN channels not in log channel

Optionally, transmitted CAN channels can now be switched off in the log channel. If switched off, also in the imc Online FAMOS function `OnCanReceive` transmitted channels are not detected.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
CRFX/UNI-4 temperature measurements	The monitor channel displayed wrong values for temperature measurement. For example 0 °C for a Type K measurement.

2 General changes in imc STUDIO



imc Online FAMOS and imc Inline FAMOS

When a variable name contained a special character, it was not always possible to use the variable in the IF-function.

The code `"IF {VB_Switch-} = 1 AND {VB_Switch+} = 1"` caused a syntax error.

Bit-variables now no longer absolutely require a comparison operator (=) in the IF-function. The following code can be used:

`"IF VB_Switch_1 AND VB_Switch_2"` or `"IF VB_Switch"`. The prerequisite is that variables of the type "Bit" are used. Virtual bit, Ethernet-bit, CAN-bit, ... (CAN-bit currently not yet in imc Inline FAMOS)



Setup - Export of adjustment values

When parameters which are relevant for adjustment are imported, inconsistent states can occur if not all parameters for the adjustment are appropriate. E.g. if only the compensation values are imported.

This remains true, but now when these values are exported the system ensures that all adjustment information is available when one of these relevant columns is exported. Clicking on the button: "*Export configuration*" causes a selection list offering multiple exporting alternatives to appear:

Parameter set export

What should be exported?

- All columns of tables on current page
- Visible columns on current page
- Selected columns of the current page
- Selected columns and rows of the current page
- Balancing settings
- Choose columns manually

OK Cancel

The five options within the selection frame above also export the adjustment information as soon as a relevant adjustment column is included. This function has been newly implemented in the three highlighted items.

The possibility to edit the export file manually still remains, but in consequence, the adjustment information may become inconsistent.



Editing Panel pages linked to privileges

It is now possible to link the right to edit Panel pages with user privilege levels. Certain pages are then protected while others are not.

With the access rights level "*Panel*" it is possible, for instance, for even the "*imc Standard User*" to create or import custom pages (by default, this is refused). However, for this user level it had previously been illegal to also edit this page.

Now the rights to the individual page depend on the respective user level. Thus, an "*imc Standard User*" who creates a page also has the right to edit and delete it. If a user on a different level creates the page, then these rights remain with an "*imc Advanced User*".

3 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description																		
Experiment management	<p>When an experiment is not saved after having been created, then all files belonging to the experiment are now deleted.</p> <p>One example: The action "New Experiment" is executed. A device is selected and the measurement started. Subsequently, imc STUDIO is closed and "Don't save" is selected in response to the prompt.</p> <p>In this case, the experiment is deleted along with all measured data, since it had not previously been saved. In the prompt to save, there is a notification that the measured data will also be deleted.</p> <p>Once the experiment has been saved or import from an existing experiment has occurred, the experiment is safe in the database, even if not saved upon closing imc STUDIO.</p>																		
Project management	<p>Variables having the validity scope "Project" were not loaded when a database/project needed to be converted. This applied, for example, to the update from 5.2 R9 to 5.2 R10. After updating from 5.2 R9 to 5.2 R11, all variables now appear correctly.</p>																		
Setup - Limitations to strain gauge channel measurement ranges	<p>The system failed to limit the available measurement ranges for strain gauge channels. Many measurement ranges were offered which were not technically possible.</p> <p>Example: For the mode: "Full bridge with Poisson strain gauge in opposed arms"</p> <table border="1"> <thead> <tr> <th>Previously provided</th> <th>Limited to the correct range</th> </tr> </thead> <tbody> <tr> <td>700 µm/m</td> <td>700 µm/m</td> </tr> <tr> <td>1500 µm/m</td> <td>1500 µm/m</td> </tr> <tr> <td>3800 µm/m</td> <td>3800 µm/m</td> </tr> <tr> <td>7600 µm/m</td> <td>7600 µm/m</td> </tr> <tr> <td>15000 µm/m</td> <td>15000 µm/m</td> </tr> <tr> <td>38000 µm/m</td> <td></td> </tr> <tr> <td>...</td> <td></td> </tr> <tr> <td>760000 µm/m</td> <td></td> </tr> </tbody> </table> <p>For conversion of the existing experiments, there are no steps needed. Internally, the system already applied the correct measurement ranges. Thus, only the display in the column now also reflects the correct value. The measurement ranges are thus the same as before.</p>	Previously provided	Limited to the correct range	700 µm/m	700 µm/m	1500 µm/m	1500 µm/m	3800 µm/m	3800 µm/m	7600 µm/m	7600 µm/m	15000 µm/m	15000 µm/m	38000 µm/m		...		760000 µm/m	
Previously provided	Limited to the correct range																		
700 µm/m	700 µm/m																		
1500 µm/m	1500 µm/m																		
3800 µm/m	3800 µm/m																		
7600 µm/m	7600 µm/m																		
15000 µm/m	15000 µm/m																		
38000 µm/m																			
...																			
760000 µm/m																			
Setup - Importing strain gauge adjustment values	<p>The incorrect strain gauge measurement ranges (see previous item) caused the system to sometimes fail to import the adjustment values. This error has been resolved by not offering the ranges affected.</p>																		
imc Application Module-editors	<p>Editors are now checked for compatibility upon loading the experiment.</p> <p>The imc Application Module-editors are designed for a particular imc STUDIO-version and can only be used in conjunction with it. When you use your own external (incompatible) editor, a notification to update the editor appears after loading.</p>																		
Curve window	<p>Numbers displayed in the format: "Hexadecimal" flickered. Sometimes the numbers were completely hidden.</p>																		

imc STUDIO 5.2 R10

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.13R1

Hardware



imc CRONOS-XT



Measurements under special ambient conditions such as heat, cold, splashing water and vibrations require suitably protected measuring systems. The imc CRONOS-XT meets these requirements while maintaining maximum flexibility and modularity for the user during configuration of the system.

Operation of XT series devices requires this software version.



6-component wheel force transducers - WFT-2 for imc CRONOSflex



The WFT-2 is a imc CRONOSflex module for the acquisition of two WFT sensor systems.

In motor vehicle development, 6 component wheel force transducers (WFTs) are used to determine and record forces and torques at the wheels during test drives – in all three dimensions, resulting in 3 forces (F_x , F_y , F_z) and 3 torques (M_x , M_y , M_z). The measurement results generate the data used for computer simulations or as input parameters for test rig systems.

2 General changes in imc STUDIO

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
imc Inline FAMOS and imc Online FAMOS	The function " <i>IntegralFFT</i> " generated an incorrect unit for the results channel. If the input channel had the unit "V", the results channel now has the unit "Vs" instead of the previous "V/s".
imc Inline FAMOS	Whenever the " <i>Greater</i> " function is used in a condition, an explicit assignment is now always required. Just like in imc Online FAMOS. Previously, the following alternative syntax was also possible: <code>If Greater(Current_RPM, 2200)</code> Now only the following syntax is permitted: <code>If Greater(Current_RPM, 2200) = 1</code>
Scripting	Upon exporting scripts, the system again saves data in the normal unpackable zip-format.
Powertrain Monitoring	The Powertrain Monitoring-DLLs were not installed. In consequence, the components did not work if not created with previous versions.

imc STUDIO 5.2 R9

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.11R9

Fieldbus



CAN-Assistant - Importing ARXML files

The "ARXML" formats associated with the development partnership "AUTOSAR" (**AUT**omotive **O**pen **S**ystem **AR**chitecture) can now be imported.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Devices with incremental counter modules	After updating to the firmware version 2.11R8 (imc DEVICES), devices equipped with incremental counters could experience an error (timeout) in accessing the I2C Bus.
imc Online FAMOS	Some configuration possibilities for the function " VibrationFilter " caused an overflow message to occur during measurement.
Synchronization with GPS	GPS receivers from the company GARMIN returned an incorrect date as of 4/6/2019. The firmware of imc devices now corrects this error for all GARMIN receivers of the type 18x 5Hz which use the firmware version 4.0. With older GARMIN models, there is a residual possible discrepancy of a few seconds.
CAN-Assistant	When importing ECU-XCP channels from an "a2l"-file, the dots (".") in the channel's name were previously changed to an underline ("_"). Dots are now allowed in channel names and are no longer converted. Exception: In order to avoid confusion with pv-variables, channel names beginning with "pv." are renamed to "pv_".

2 General changes in imc STUDIO



The Quick Access toolbar is saved

The Quick Access toolbar's state is now saved along with the views. If you have made any changes, they are detected. If the view has not been saved yet, you are notified about this upon closing imc STUDIO.

Defining Logbook filters for the program start

You can pre-configure the filter settings using the option. Thus for example, you can have certain information entries hidden by default. Such entries can later be displayed again if needed without affecting the default setting. This option is applicable to a specific project.

About-dialog shows AddOn version

The About dialog provides information on whether an imc DEVICES AddOn is used. Previously, only the "Build Date" was indicated. Now the date of any AddOn present also appears.



Sizes of Assistant windows are saved

The position and size of the various Assistants are now saved for subsequent sessions. Thus for instance, the imc Online FAMOS-Editor starts in the same position where it was when last closed.

This applies to all Assistants such as CAN, LIN, imc Online FAMOS, Synthesizer, ...



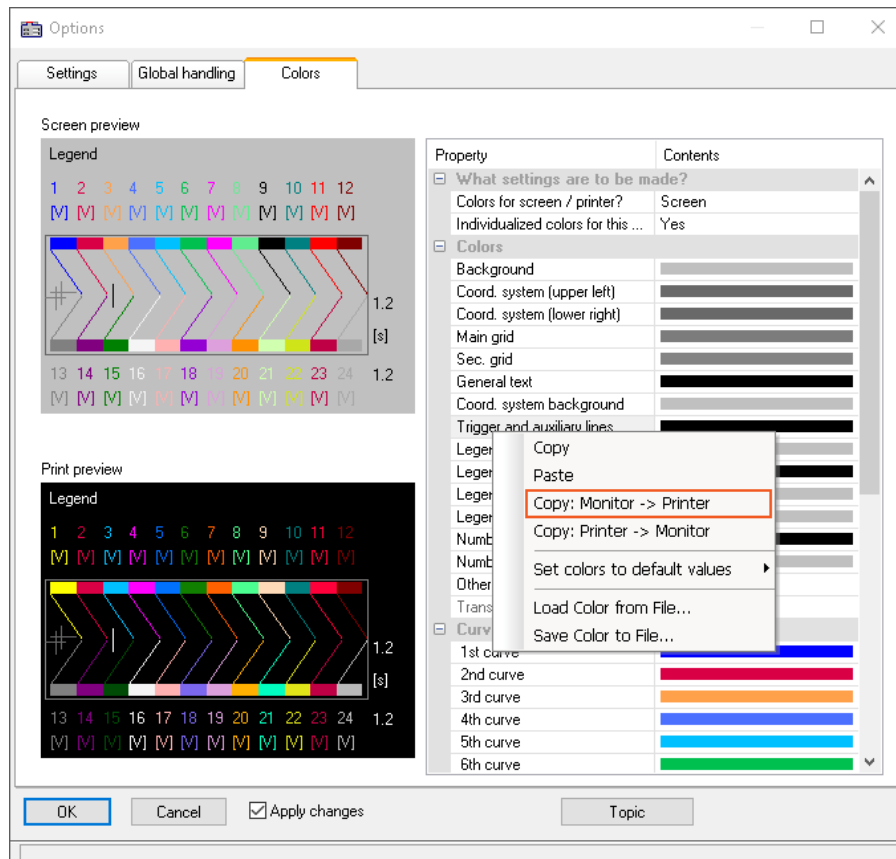
Curve window colors

The curve window colors can be configured separately for the screen and for printout. However, for the printout, the correct colors were not used; for example, when Panel pages were printed out, the curve window was assigned the colors designated for the screen but not those for the printout. This applied to both Report- and Dialog-pages.

Now, the printer colors are used for the printout.

This affect existing experiments; since the correct colors are now used, the printout results may appear differently if other colors are set for it.

Remedy: You can recreate the same results as before by applying the screen colors to the printout.



The colors are now used as follows:

Dialog-page

On screen: Screen colors

In the printout: Printer colors

Report-page

On screen: Printer colors (the Report-page is designed for printout or for PDF. In consequence, the printer colors are used here.)

In the printout: Printer colors

3 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Setup	<p>Disconnecting and re-connecting</p> <ul style="list-style-type: none"> • Problems with saving a Fieldbus log channel. When the system disconnected from a running measurement and resumed at a later time, the saving of the log file did not restart. <p>Importing supplemental files</p> <ul style="list-style-type: none"> • When a supplemental file was imported in an already (re)configured device, the connection status changed to "<i>disconnected</i>" and was thus inconsistent with its real status. Now the status remains "<i>connected</i>". <p>Deleting balancing</p> <ul style="list-style-type: none"> • When balancing was deleted via the context menu ("<i>Remove balance/scaling information</i>"), some information remained in force; e.g. the "<i>Balance compensation 2</i>". Previously, calibration by the manufacturer needed to be performed. Now it is sufficient to delete via the context menu.
Widget: Graphical switch	<p>The graphical switch caused substantially increased demands on the CPU. Various effects were observed when the switch was used. For example, some properties could no longer be changed and some windows no longer opened.</p>
User-defined events	<ul style="list-style-type: none"> • In the selection of variables, user-defined variables having their own categories were not displayed correctly. They were all designated "<i>User-defined</i>". Each category and sub-category now appears with its own correct name. • Events were not triggered correctly if the associated variables' names were not spelled correctly regarding case sensitivity. Now the spelling is case-insensitive.
Data Browser	<p>Renaming measurements: Illegal characters and reserved folder names (such as "<i>config</i>", "<i>CON</i>", ...) are now detected immediately upon being entered. When you try to confirm your entries, an appropriate notification is posted.</p>

imc STUDIO 5.2 R8

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.11R8

Fieldbus



CAN-Assistant - Messages larger than 4 Bytes

Data units larger than 4 Bytes can be transferred in multiple CAN-messages. The prerequisite is the use of a suitable ECU-protocol: "UDS", "KWP2000" or "Diagnostics On CAN".

imc Online FAMOS



imc Online FAMOS-functions - Converting units

The following functions can now convert units: "IntegralP", "IntegralP2", "Integral2".

Using the external editor

Support of external editors such as "Notepad++" has been re-introduced. It is recommended to continue to use the imc Online FAMOS-editor. Familiar help functions such as syntax-highlighting or accessibility tools are not supported but might be possible to pre-configure in the external editor itself.

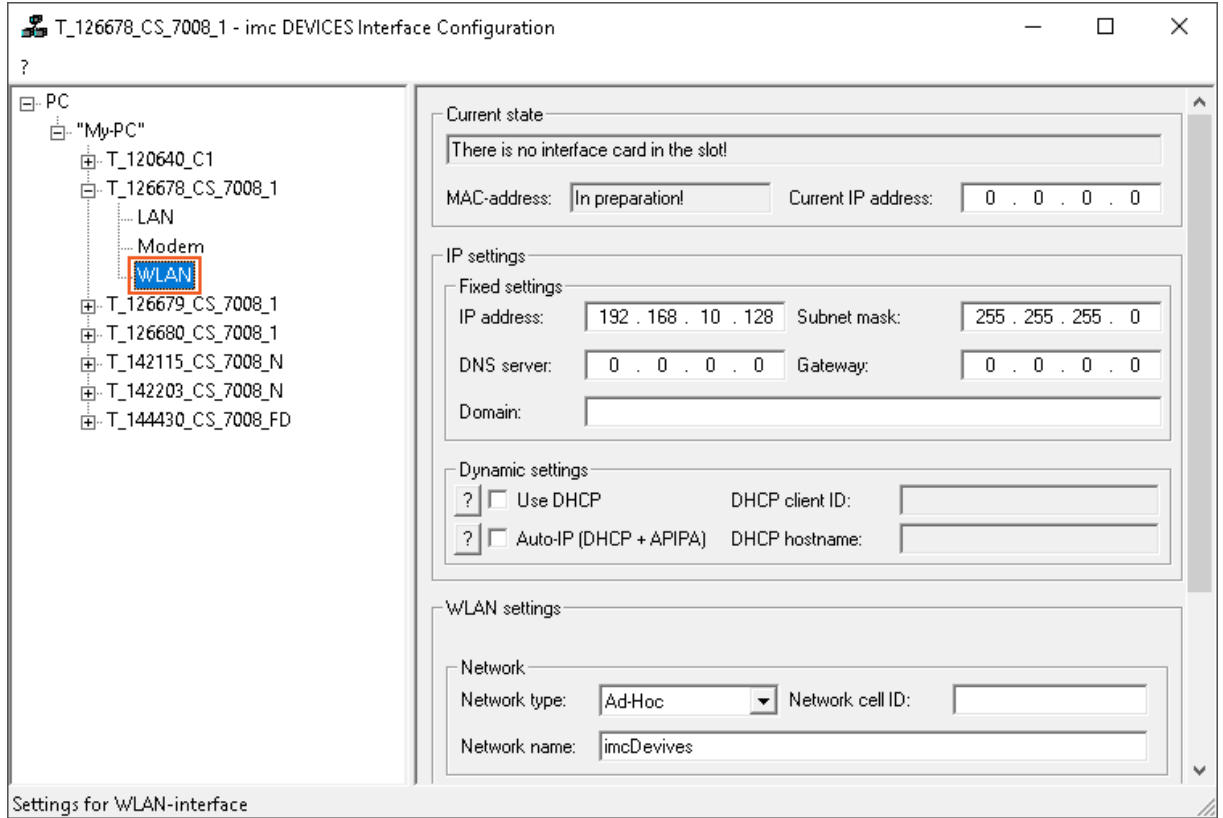
The properties of the respective editors, such as how to close the editor without first explicitly saving, must be taken into account. With "Notepad++", it is possible to retain changes which have not yet been saved in this way. This can lead to complications.

Interface Configuration



WLAN-configurations easier to locate

It is easier to find the WLAN-configurations. The page "PCMCIA" has been renamed to "WLAN".



Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
CAN-Assistant - OBD-2-channels	The substitute values were handled incorrectly. Any specified offset was ignored.
Flexray Assistant	Incorrect ECU entries often caused incorrect message to be posted: <i>"slotMatrix.AddAllowedXcpFrame() failed. 2nd"</i> . Now, appropriate information for locating the error is provided.
imc Online FAMOS/imc Inline FAMOS - Editor	Improvement of the Editor's search function. The search function (CTRL+F) now remembers the last search term.
DAC scaling	DAC scaling was not applied. If the DAC was set in imc Online FAMOS, the new value was outputted at the output one-to-one. Now, the scaling set is applied.
imc HiL	Very large imc HiL-files/configurations could not be loaded. The error 5001 was reported: <i>"The fieldbus system did not confirm the command in time."</i>
Zero signal level with UNI2-8/DCB2-8	At a sampling frequency of 0.1 Hz and activated AAF, all frequencies were filtered away. Thus, a zero level was always outputted. Now, the AAF is allied correctly.

2 General Changes in imc STUDIO



Module serial number for CRFX-modules is displayed and is available for export

Setup page: "*Digital channels*": The column "*Module SN*" can now be added by means of the column selection. Furthermore, this column is included in the export, so that the values are available for modules in the export-file (e.g. the module CRFX/HRENC-4).



Data storage - FFTs are assigned events to rectify time reference

Saved FFTs previously had no events in such cases where, for instance, an overflow occurred. Instead, after loss and subsequent restoration of the connection, any new segments were simply appended to the last one. Now, a new event is generated. This means the new segments are correctly referenced to time.



Device-bits in a Automation-task

CAN-bits and (recorded) DI-bits can now be used in a Automation-task. Thus it is possible to access individual bits.



imc Inline FAMOS-Functions - Converting units

The following functions are now able to convert units: "*IntegralP*", "*IntegralP2*", "*Integral2*".

3 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Command: Load/Import Variable	The command could not be run in a certain combination of settings. When placeholders were used for the folder and additionally the option " <i>Load/Import All</i> " was selected, a message incorrectly reporting an invalid character in the filepath was posted.
Curve window	<ul style="list-style-type: none"> Scaling of the x-axis (curve window with FFT) always skipped back to "<i>Auto</i>" when loading the experiment. Now it loads correctly. When multiple channels were moved to the Panel simultaneously using Drag&Drop, and a (standard) curve window was selected, the scroll mode was set to "<i>No</i>". Now it is set to "<i>Scroll</i>", as for a single channel. The level indicator failed to apply the correct measurement range when the channel was in the measurement mode: "<i>Strain Gauge</i>" ("<i>Meter</i>" > "<i>Miscellaneous</i>" > "<i>Physical value ±100%</i>").
Data storage	Messages indicating data overflow in empty channels are no longer displayed. When an empty imc Inline FAMOS channel was saved, a data overflow was reported; e.g. if the channel was calculated in an IF-branch which never was run.
Automation	In a certain case, activated synchronization was not observed (Synchronization: wait until event is concluded). The system skipped straight to the next state even if a command was not yet finished. This occurred whenever, before a change was applied, a synchronized event had previously only been triggered once in the routine.
Experiment-template with commands	When starting imc STUDIO, an experiment template is loaded automatically. If the template contained a command " <i>Browse in workspace</i> " attached to a Panel-button, the command did not work.

Area	Description
Installation	Using the frame setup, the fieldbusses ARINC and AFDX were not included in the installation for the firmware (imc DEVICES), even if they were selected.
ChannelLoader	Experiments with " <i>ChannelLoader</i> " from older minor-versions could not be opened successfully.

imc STUDIO 5.2 R7

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.11R7

Fieldbus



DBC-import with a defined default sampling interval

If no sampling interval for a message is defined in the DBC-file, then it was set to a value of 100 ms following the import.

Now the default sampling interval defined in the file is used. Messages which have their own sampling interval retain it.

Device properties



Log file with device properties

Whenever changed device properties are adopted, a text file is generated. The filename was edited accordingly. It now also contains the data and time when last changed, in order to provide traceability:

Name of the file: "*PropertiesLog_<Devicename>_yyyy-MM-dd_HH-mm-ss.txt*"

All information on the device properties currently set is saved as soon as the button "Apply" in the Properties dialog is clicked.

Storage location: Firmware folder of the device software, e.g. "*C:\Program Files(x86)\imc\imc_DEVICES_2.11R7\Firmware*".

New hardware supported



imc CRONOScompact/LVDT8

The amplifier imc CRONOScompact/LVDT8 is now supported. it is specially designed for LVDT-measurements (Schaevitz-coils according to the transformer principle and inductive half bridges).

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
GPS channel names	It was no longer possible to rename GPS channel names.
imc Online FAMOS	<ul style="list-style-type: none"> Values from the Properties-dialog were not adopted by the variable if they contained one or more apostrophes. The Restore-function did not appear with color highlighting in the Editor. In addition, the help text was missing.
Re-connection with device	Re-connection with the device following loss of connection (in cases of network problems such as overload or interference) has been optimized. The connection process has been accelerated so that significantly less measurement data now go missing.

2 General Changes in imc STUDIO

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Menu ribbon not always up-to-date	The menu ribbon buttons as well as the quick access toolbar occasionally did not correctly reflect conditions correctly. In such cases they were out of synchronization with the device's actual state or to with that of other components (e.g. Sequencer [Start/Stop], measurement device status [Start/Stop/Connect/Disconnect]).
Commands > Import Variables	On some device channels, it is not possible to import values from files. These include analog channels, virtual channels, incremental counters, ... Previously, import to these channels was ignored. Now an appropriate warning is posted.
Commands > Import/Load/Export Variables	All entries in the Variables list can be edited simultaneously. E.g. multi-selection can now be used to set the file format for all variables simultaneously when exporting.
Commands > Import parameter set	Import of parameter sets has been made faster in languages such as Japanese, Chinese, ...
imc Online FAMOS and imc Inline FAMOS Editor	<p>The text search has been improved.</p> <ul style="list-style-type: none"> Adopting text from the selection: Highlight text in the Editor. Open the Search-window e.g. by using <CTRL>+f. The highlighted text is entered and prepared for the search.
imc data format	<p>There is a new version of the imc data format. This version provides some advantages for imc FAMOS. The format can only be generated by imc FAMOS as of version 7.4. imc STUDIO 5.2 R7 is able to read it but not generated.</p> <p>The data calculated by imc FAMOS are displayed in the Data Browser like all other data, if they are saved along with the measured data. With any older version of imc STUDIO, the data can not be opened. In imc FAMOS, you can set the format in which imc FAMOS is to save the calculated data.</p>
Automation - imc FAMOS data cutting	With imc FAMOS, cutting of data belonging to time-stamped channels is not possible in a Automation-task. Previously, the system failed to block attempts to do so. Now, a pertinent warning is issued upon processing of the configuration.
Automation	pv-variables created in imc Online FAMOS can now be used for Automation-value limit monitoring. Possible applications include adjusting boundary values for the task by means of imc Online FAMOS, or monitoring of the pv-variables.

Area	Description
Scripting	You can now use the NTP-parameters in Scripting.

imc STUDIO 5.2 R4

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.11R2

Device properties



Textfile for device properties

A text file is now created when changing the device properties. All information of the current device properties are saved as soon as the "Accept" button is pushed.

Storage location: Firmware directory of the device software, e.g. "C:\Program Files(x86)\imc\imc_DEVICES_2.11R2\Firmware".

Name of the file is: PropertiesLog_<Devicename>.txt

imc Online FAMOS

See "General Changes in imc STUDIO" > "[imc Online FAMOS and imc Inline FAMOS Editor](#)"⁵⁸".

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Topic	Description
imc Online FAMOS	<ul style="list-style-type: none"> The function <code>OtrEncoderPulsesToRpm</code> returned the value "0" if it was configured with two missing teeth. imc Online FAMOS syntax check did not report error when using the function <code>ECUSend</code> with faulty arguments.
CAN-Assistant	When importing a CBA file, there was no messagebox as to whether the existing configuration may be overwritten.

2 General Changes in imc STUDIO



CAN-sending channels in the Bus Decoder

CAN-sending channels can now also be extracted by the Bus Decoder. Previously, only receive-messages could be processed. Now it is also possible under the tab "Validity" to make the associated settings for CAN-sending channels.



imc Online FAMOS and imc Inline FAMOS Editor



- There had been differences between the functioning of the autocomplete mechanisms in imc Inline FAMOS and in imc Online FAMOS regarding the preset. The "first suggestion" from the list is applied by means of the Tab-key. When the ENTER-key is pressed for the "first suggestion", a line break is inserted. When navigating through the list of suggestions, either TAB or ENTER can be used to apply the suggestion.
- The autocomplete mechanism now also displays pv-variables.
- The channel comment is displayed along with the properties (Help-window).
- The font size in the Editor can be altered by means of CTRL+scroll wheel.
- The function key F3 now continues the search, even if the search dialog was closed.
- When opening the text search dialog, a selected text is now suggested as search text.

The changes to the imc Online FAMOS-Editor which had been made earlier have now also been implemented in the imc Inline FAMOS-Editor:

- With code-folding of IF-conditions, the condition is now included in the display. Only the content of this control command is hidden.
- The autocomplete mechanism now provides the matching "END" for control commands; e.g. if you insert an "IF".
- Automatic indenting for control commands now also works on subsequent levels, not only on the first.
- In the drop-down menu for the control commands, commands were displayed which were mentioned in comments.



Cross-correlation in imc Inline FAMOS

A new function has been implemented: "`CrossCorrelation`". It cross correlates a test channel with a reference channel.



Options

The confirmation prompt appearing upon closing of the Options has been revised. Now, with the project options, it only asks whether changes are to be saved directly. Application options are automatically saved upon closing imc STUDIO.

3 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
CAN-Assistant	Import of a2l-files has been accelerated significantly.
Widget > Standard	Widgets of the group " <i>Standard</i> " (text box and single-line/multi-line input) can now also resolve variables read out of a measurement by means of "@", e.g. " <i>Name@Measurement#1</i> ". Previously, after saving and re-loading an experiment, only three question marks were outputted: "???".
Commands > Import/Load Variable	The use of placeholders in filenames did not work; they were not resolved. Now, a file can also be specified by means of a placeholder, but the variables to import/load from it must additionally be specified.

imc STUDIO 5.2 R3

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.11R1

Fieldbus



Sending CAN-messages with time synchronization

With the help of Synchronous-Tasks in imc Online FAMOS, it is now also possible to send CAN-messages.

The following constraint must be observed: CAN-messages can (as previously) either be sent in the asynchronous Task, or in a synchronous task. Sending in multiple synchronous tasks is not possible.



FlexRay decoded in the Bus Decoder

The sampling intervals for the Bus Decoder are now calculated correctly according to the settings. The following parameters are used for that purpose:

$$\text{Sampling interval} = \text{gMarcoPerCycle} * \text{gdMarcotick} * \text{CycleRepetition}$$

However, the imc measurement devices can only output at the fixed sampling rates (... , 1, 2, 5, 10, 20, ...). In the device itself, an appropriate sampling rate is assigned according to this pattern. In consequence, the FlexRay-channel in the Bus Decoder can have a different sampling rate than the FlexRay channel in the device.

Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
imc Online FAMOS Editor	<ul style="list-style-type: none"> • With code-folding of IF-conditions, the condition is now included in the display. Only the content of this control command is hidden. • The autocomplete mechanism now provides the matching "END" for control commands; e.g. if you insert an "IF". • Automatic indenting for control commands now also works on subsequent levels, not only on the first. • The Syntax-Check had been performed only one single time. Attempts to repeat performing it without having made any change did not cause the associated error message and position indication to be shown. • In the drop-down menu for the control commands, commands were displayed which were mentioned in comments. • With the function "SetData", it was no longer possible to send variables' values. • The code folding did not work properly in some cases. When control commands appeared in comments, these were identified and evaluated by the folding mechanism and thus caused problems in the display. But not for executing the code. • The function "STri" no longer worked with variables. It was only possible to enter fixed numbers as the parameters.
imc CANSAS-SENT	Loads "SENT"-description files to imc CANSAS with "Slow Channels" for a imc CANSAS-SENT-module. Affected channels were adopted into the CAN-Assistant as "passive". They should have been active.
Triggering of imc CANSAS channels	The system failed to observe the event dwell time for imc CANSAS-Fieldbus channels. The setting "0 s" was always used.
Network data storage with saving intervals	<p>With some devices of serial number 19xxxx, it had not been possible to save data to a network</p> <ul style="list-style-type: none"> • when a fixed number of saving intervals was set AND • only one channel was saved.
imc CRONOSflex with CAN and imc Online FAMOS	<p>Interference on the CAN-Bus had negative effects on the processing of imc Online FAMOS.</p> <p>The resource demands on imc Online FAMOS temporarily spiked (recognizable by higher values with the function "GetSampleCount").</p>
Capacity of memory cards	The capacity of a memory card in the device was far overstated. The imc Online FAMOS-function "DiskFreeSpace" returned incorrect results.

2 General Changes in imc STUDIO



Importing variables to saved measurements

For the dialogs and commands "Load Variable" and "Import Variable":

It is now possible to specify the target measurement with the command. Thus it is possible to import variables as well as videos to a measurement. No measured data are saved with the measurement. They are temporarily saved in the Data Browser in the measurement folder. Thus they are available for used in the display or for further calculations.



Timed start-settings: Support for synchronized starting of all devices

If the starting option is set to "immediately", the devices do not all start simultaneously. Now, a corresponding notification text appears in the dialog for the timed start if:

- the checkbox "Synchronous start" is checkmarked and
- the starting option is set to "immediately".

Note: Simultaneous starting of the devices is possible with "automatic timed start", for example. With the option "immediately", the devices measure synchronously, and are started quickly, but serially.

The screenshot shows the 'Timed start' dialog box with the following fields and settings:

- Current time: 21.08.2018 14:02:41
- Start option: Immediately (dropdown menu)
- Start date: 21.08.2018
- Start time: 14:02:41
- Time offset: 0 s
- Synchronous start

Notification text: Simultaneous starting of the devices is possible with "Automatic timed start", for example. With the option "immediately", the devices measure synchronously, and are started quickly, but serially.



Handling time zones

In imc STUDIO, it is possible for differing time zones and clock readings to coincide.

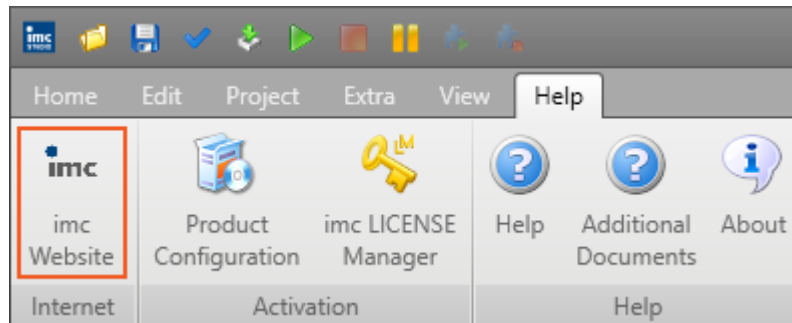
- The external clock (e.g. GPS-mouse) may indicate different time than the PC.
- The devices may be located in different countries.
- On a business trip, the laptop's clock time may reflect a different time zone than the device's.

The clock-Widget can be set for different time zones. For this purpose, there is a new selection available: "imc STUDIO-Time zone". With this selection, the clock automatically uses the device's time zone. With the selection: "Local time zone", the PC's time zone is used.



Reaching information and help texts more quickly

There is a new button "*imc Website*" in the "*Help*" menu ribbon. By means of this button, imc's web page is opened in the browser. Here, the user is provided with a quick way to contact imc , for example.



3 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Automation	<ul style="list-style-type: none"> User-defined variables: The designation for the Integer-variable type has been corrected. No adaptations to experiments are required. When an unknown variable (typo) was used in the Automation-editor, the error was no longer reported correctly. For this reason, it was not clear that it was necessary to look for the error in the Automation-editor.
Panel	<ul style="list-style-type: none"> Some commands were missing from the Panel-context menu: "<i>Page Layout for Printout</i>", "<i>Copy Page</i>", "<i>Paste</i>" and "<i>Rename</i>" The Panel-zoom affected the font size and scale of Widgets created. It depended on whether or not the zoom was activated.
Diskstart/Autostart	For a " <i>Diskstart</i> ", the selection " <i>at defined time</i> " is no longer available as a starting option. " <i>At defined time</i> " is valid only one single time and in many cases it prevents a measurement from starting. This limitation does not apply to a " <i>Timed start</i> ".
Events	It was not possible to trigger events for testing purposes. The function "Start" had no effect.
Commands for events	When, for example, an experiment was loaded directly via a desktop shortcut, a "Browse in Workspace" command associated with the Sequencer event "After Experiment Loaded" was not executed.
Placeholders	Even when path-placeholders were used correctly, at various locations a warning was mistakenly posted which said that the path was not valid.
Powertrain Monitoring	The button "Powertrain Monitoring Panel" caused an error message to appear; the dialog did not open.
User administration	Access rights for the free-floating curve window were not saved.

imc STUDIO 5.2 R2

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

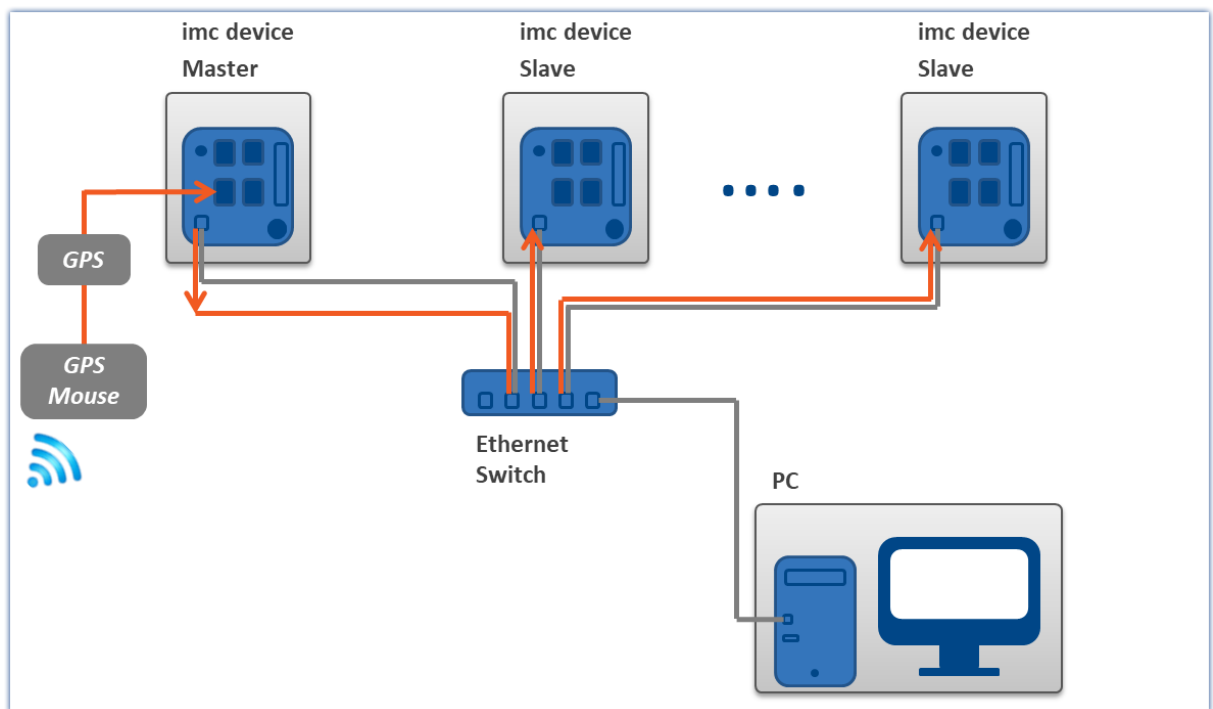
1.1 Firmware 2.10R3

Synchronization



New synchronization type: PTP-Master only

If the network includes **no PTP-server true to absolute time**, you can **synchronize** one **imc device** to a hardware synchronization signal (e.g. GPS). When you define that **device as the PTP-master**, it will no longer be synchronized by any other PTP-subscriber.



A PTP-master clock synchronizes itself to the GPS-clock. All other PTP-subscribers in the network can be synchronized to this master.

PTP-Master only, and DCF or IRIG-B output

As an additional way to output the time information as the PTP-master, the device can also be defined as the DCF- or IRIG-B-Master.

RAM-Buffer



Automatic adjustment of the RAM-buffer (e.g. for high-speed channels) – Corrections no longer required

When **multiple high-sampling-rate channels** are used, the **RAM-buffer** in the device may eventually become **insufficient**. In the past this caused the following error to occur: *"Insufficient memory in device! Please observe the RAM buffer time of the channels and the number of triggers."*

Previously, *"auto"* signified a fixed value which depended on the device class. In all systems having an aggregate sampling rate of 400 kHz or more, the buffer duration was 10 s. In the new version, the **setting "auto" now dynamically adjusts the RAM buffer to between 2 seconds and 10 seconds**.

Existing experiments do not need to be modified. *"auto"* had been the default setting. Thus, the new function is used immediately unless the buffer had been set for a fixed value.

imc Online FAMOS: Events-channels



OFA_Events-channels now retain their settings upon transfer to a different device

Since the channel's default **name** always **depends on the device**, the channel is newly created upon being transferred to a different device. However, this means it also loses all of its settings. For instance, the setting which determines whether the channel is to be saved. Additionally, Widgets do not display the new channel, since they still reference the old names.

Now, **the channel keeps the name**. Even if it no longer fits the device name. But the advantage is that channel transfer is now possible without any corrections needed.

Tip: Assign an appropriate and distinct name to the channel. To do this, open the imc Online FAMOS-editor and there, open *"Properties"* (F5). Here, change the name for the OFA_Events-channel.

2 General changes in imc STUDIO (2)

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Sequencer	In some cases, the selection in the table and in the event area jumped to the top. In consequence, it was continually necessary to scroll to the desired line.
Automation	<ul style="list-style-type: none"> An internal channel is saved along with the measured data, if an imc FAMOS-event is attached to a "State". This channel is now no longer saved. Extending a "State"-element (across multiple tracks), or reducing its extent was not recognized as a change. If that was the only change to the Automation, it was not reflected upon next starting the measurement, nor saved along with the experiment. Now the change is recognized correctly. Upon starting measurement, the preparation process is accomplished correctly.
Widgets	Some Widgets were slightly shifted in location when an experiment was loaded.
Curve window	A curve window made substantial demands on software resources if a segmented channel (e.g. an FFT) with the following settings was displayed: Scroll mode: <i>"Scroll"</i> and X-axis <i>"logarithmic"</i> .
Panel	Variable names which contained the German keyword <i>"Messung"</i> were not supported. Widgets displayed yellow warning triangles.

Area	Description
Error upon moving between pages	The process of shifting from the Trigger-page or Power Quality to the Panel has been corrected. In some cases, the page was changed so that it became necessary to restart imc STUDIO.
Licenses via the License Server	When the connection to the license server (network licensing) was temporarily lost, imc STUDIO would close automatically after some time. Now, instead of that a message box appears in the foreground until the connection has been re-established.

imc STUDIO 5.2

1 Firmware and new hardware

This imc STUDIO version has been released along with the following firmware and devices driver packages (imc DEVICES).

1.1 Firmware 2.10(R2)

Synchronization and supported firmware



The synchronization between PC-components and the devices has been improved

The PC virtual clock's (VRTC) adjustment algorithm has been revised; **in consequence the synchronization** of PC components to the device clocks is **more precise**. This applies to Video or 3rd-party devices, for example. The new VRTC only works in conjunction with appropriate firmware versions: 2.10 or higher. For this reason, it is not possible to use older firmware versions. Devices of Group 5 and higher (as of serial number 140000) support the new synchronization precision level. With older devices, there is no change.

This change does not affect synchronization between devices, but only between the PC-components and the device.



Note

Older firmware versions are no longer supported

imc STUDIO 5.2 only works with firmware as of Version 2.10.

Hardware



imc SPARTAN/LVDT16

New amplifier imc SPARTAN/LVDT16 is now supported. The amplifier is specially designed for LVDT measurements (Schaevitz coils according to the transformer principle and inductive half bridges).

Data storage on device



Minimizing data volume requirements on the device hard drive by means of compression

For certain channel types, it is possible to reduce the disk space requirements (file format: "imc FAMOS ZIP"). In the background, the file size is minimized by means of zip-compression. The result depends accordingly on the nature of the signal.

Data compression of the following channel type is newly introduced:

- **digital input-ports**

In total, data compression is thus available for the following channel types:

- analog/digital fieldbus channels
- log channels of the CAN-Fieldbus
- digital input-ports

GPS



GPS channels can now be renamed. Thus, the name can be selected to match the application.

Fieldbus



CAN-Assistant

- Import and export via CBA file can now be executed individually for each node.
- It is now possible to convert a "send message" into a "receive message" or vice versa. "Edit" menu of the CAN Assistant: "*Transform messages*".



ARINC-Assistant

- Reception of BCD labels is now possible in reverse order.
- BNR and BCD can now be defined by factor and offset.

Fieldbus



FlexRay

- The FlexRay-log channel can now be decoded by imc STUDIO during the measurement. Decoding after the measurement by imc FAMOS is possible.
- UpdateBits are now supported: PduUpdateBits and SignalUpdateBits.



Note

Update Notes

By adding the FrameDescriptionBlob, it is possible that previously created FlexRay configurations show an "Error in the cluster...". In this case, the value "{ResultName}_Fdb" must be entered in the FlexRayCluster properties under "Construction rule for channel names in the FrameDescriptionBlob".

Measurement setup	Name	ID	Comment
Slot 2			
FlexRay-Cluster 1	FlexRayCluster01		
Frames			

Property	Value
Default properties	
Name	FlexRayCluster01
Comment	
Construction rule for channel names	{Clu}_{Fra}_{Sig}
Construction rule for names of Monitor channels	{Clu}_{Fra}_{Sig}_mon
Construction rule for BitPort channel names	{Clu}_{Sig}
Construction rule for names of BitPort Monitor channels	{Clu}_{Sig}_mon
Construction rule for ECU channel names	{Clu}_{Ecu}_{Sig}
Construction rule for names of ECU Monitor channels	{Clu}_{Ecu}_{Sig}_mon
Construction rule for channel names in the FrameDescriptionBlob	{ResultName}_Fdb
Construction rule for names of bus- and error-logging channels	{Clu}_{Sig}

TEDS



When reading in the channel settings from TEDS, the sampling rate is no longer accepted. If more than two different sampling rates were read in via TEDS, this led to aborting in the past.

2 General Changes in imc STUDIO

Improved window handling and recognition of changes to views

A new technology is now used for the software interface. In consequence, there are a few new functions and adaptations in terms of operation techniques. Additionally, some issues and problems have been resolved.

- The tool windows now have a defined width. The width doesn't change when the tool window is pinned.
- The logbook is now opened even when a dialog has the focus. E.g., in the past the logbook was not opened if saving of a Diskstart configuration failed due to an error. Now the user sees immediately where the problem is.
- Adaptations of the user interface, such as changes to the order of columns on the Setup pages, are detected automatically. When you close imc STUDIO, there is an explicit prompt asking whether to save the changes with the view.
- The buttons at some locations in the ribbon were not operable.

The list of operating systems supported has been revised

Supported operating systems

Windows 10

Windows 8.1

Windows 7 (32 Bit; recommended: 64 Bit)

This gives us better ability to accommodate the most up-to-date operating systems. It is possible to delete old components such as ones needed by Windows XP, which has the effect of streamlining the system.

3 Setup and Device Control



No more loss of data due to forgetting to save

Data storage on the PC is now activated for all channels by default. This applies to all channel types such as analog, virtual, Fieldbus channels, etc. Thus, data loss is prevented, since the option can no longer be selected by mistake. If data storage is not desired, it can of course be deactivated.



Reference

If this function is not desired, you can deactivate data storage also for newly created channels by means of "Default values".

For a detailed description, see the user's manual under: "*Setup - Device configuration*" > "*Ribbon*" > "*Configuration*" > "*Default Values*"



Single trigger release now no longer default

The amount of trigger releases is now pre-set to "unlimited". Any trigger count limit must be set deliberately instead.



Secure connection to the device via imc REMOTE SecureAccess

"imc REMOTE SecureAccess" enables direct and secure access to a device even when there is an activated firewall. There is now the possibility to add a device to the measurement by means of "imc REMOTE SecureAccess".



Note

Prerequisites

- The option "imc REMOTE SecureAccess" is available for a price and is protected by an activation code.
- Only imc devices from serial number 140000 onward are supported.
- For transfer via secure https access, a certificate obtained along with the installation purchase. This certificate has an expiration and must be renewed annually. After expiration, the system provides notification that the certificate is no longer valid. Depending on the security level set for your IT environment, you may no longer be able to establish a connection with the imc device. In this case, contact our tech support and your IT-administrator.

Saving characteristic curves from an experiment

In the tool window "Sensors" under the heading "Connected sensors", any imc STUDIO characteristic curves used are indicated. Unless the program knew these characteristic curves for other reasons, they could not be used in different experiments. You now have the option of copying the characteristic curves by means of Drag&Drop to the group headed by "User-defined characteristics". Thus, the characteristic curves are known to all experiments and can be used in them.

Security during password entry

Passwords are no longer displayed visibly. This had affected accessing of a network drive when saving data from a device.

Hiding of settings which are not applicable

For histograms, it had been possible to activate circular buffer memory. This is now no longer possible since a histogram contains no time information.

Deleting imc CANSAS from the configuration

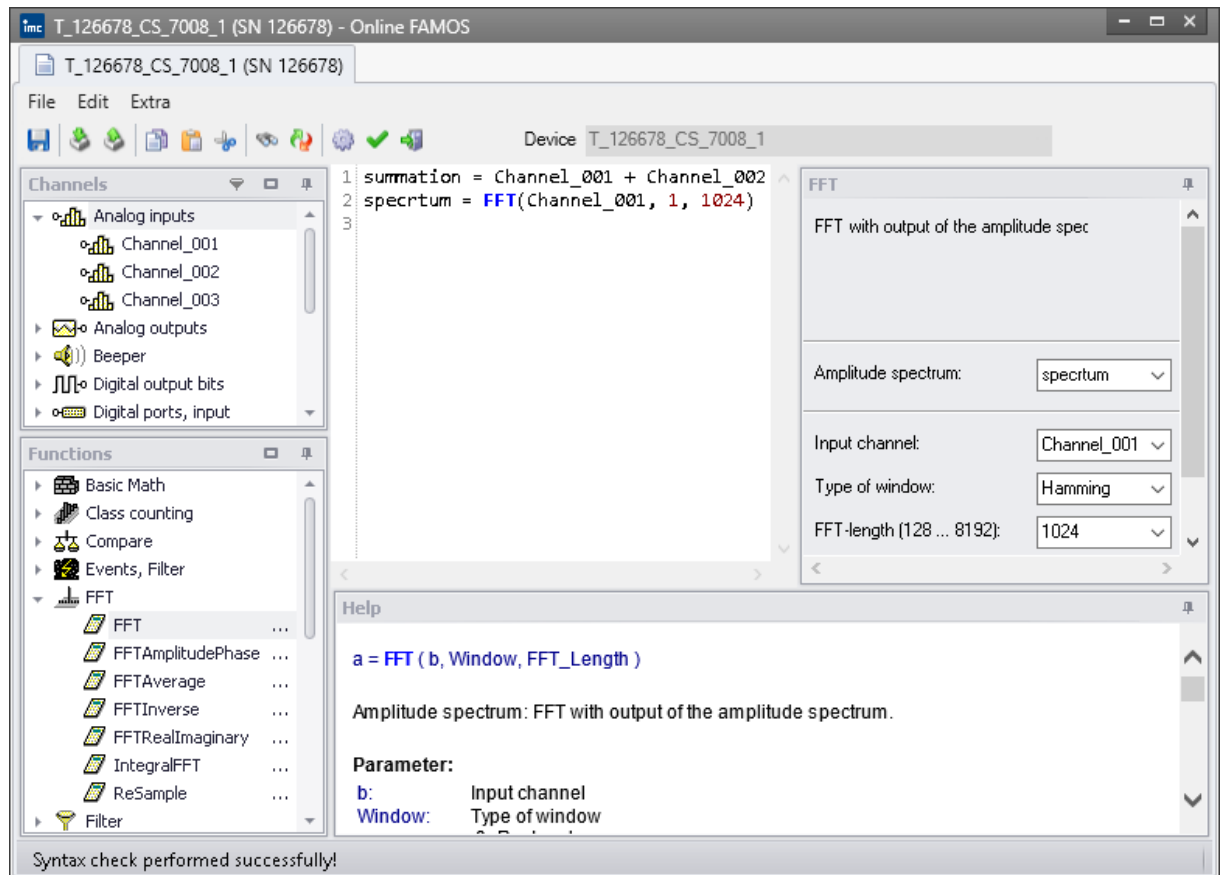
Previously, the imc CANSAS configurations could not be deleted from the CAN configuration if imc CANSAS was not installed. This is now also possible with newly created experiments. For experiments created with imc STUDIO 5.0 or older, this remains not possible.

4 imc Online FAMOS



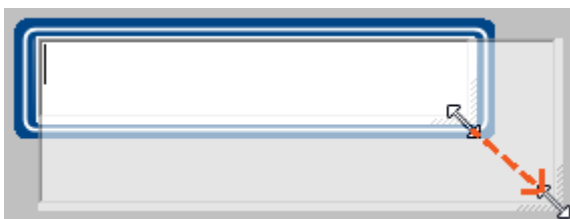
imc Online FAMOS's editor has been modernized. All functions belonging to the imc Inline FAMOS editor have been adopted into it.

In particular, the Editor's syntax support and user input via the Formula Assistant deserve mention. The Editor now comes with all familiar functions of a script editor in order to offer support in making entries. For instance, by offering suggestions while the source text is entered.



5 Panel, Widgets and Data Browser

Text-Widget - More room for the entry

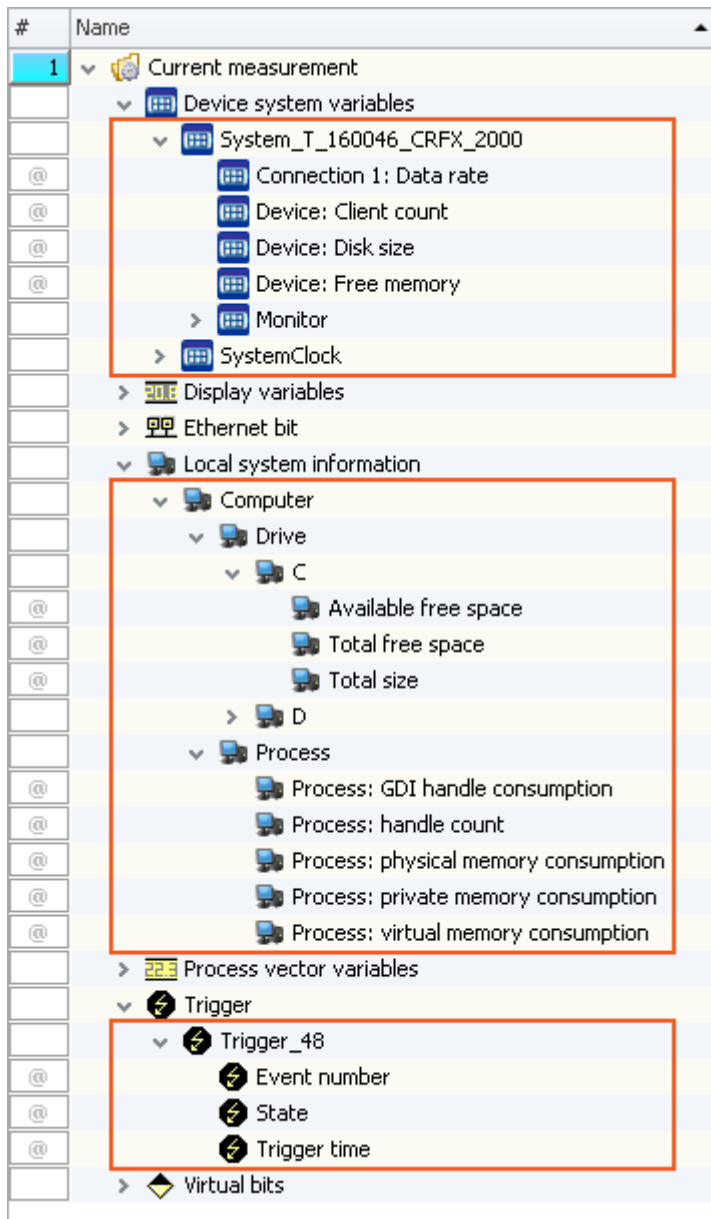


The space for entering text is often not sufficient. The text-Widget has a fixed size and entry is additionally impeded by scroll bars. Now it is possible to enlarge the input box using the mouse. As soon as the entry is confirmed, the input box's size re-adapts itself to the Widget.

Exact specification of Widget: Automotive, Industrial and Designer -

"Input, Output" > "Text"

A new type of variable facilitates the embedding of system information in the report



"Complex variables" enable a tree diagram structure to be established within the Data Browser. The following variables are displayed as "Complex variables": Device system variables, local system information, and triggers.

All these variables possess various types of information which are now displayed separately and which can be moved to the Panel by means of Drag&Drop.

Improved working with the zoom in conjunction with adjusting the page size

The zoom factor is now deactivated when the Panel page is adjusted to the window size. Previously, the zoom was taken into account, with very diverse results.

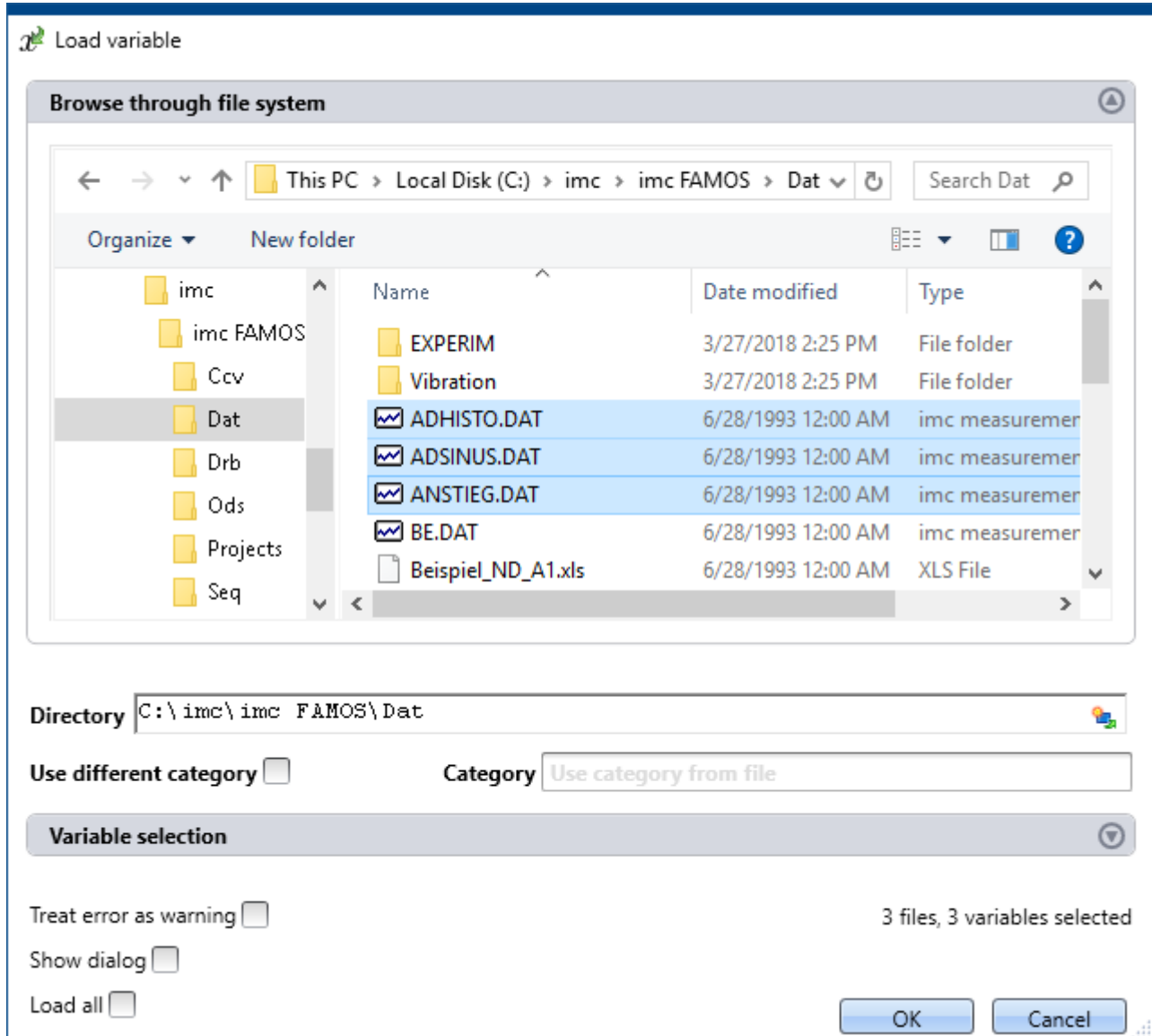
6 Commands

Easier operation of "Load variable" and "Import variable"

The functions in the Data Browser and the associated commands "Load variable" and "Import variable" have been revised. (Background info: "Load" sets up the variable and "Import" writes a new value to existing variables)


As a result of this revision, file selection is faster.


In the upper region there is an Explorer with which to select a file:



Here, you can navigate to and select files by means of the familiar "Explorer"-functions. After selection, you can close the dialog with "OK". All selected data are loaded and selected for the Import command. This simplifies the operation method and makes it faster.

If you don't select any file in the Explorer, all importable files belonging to the current folder are automatically selected.

Below the file selection window, there is an input box for the folder path, which can be used as an alternative for specifying the file(s) desired. Here, you can enter placeholders () or paths which only exist once the command is run.

Using the buttons () near the right edge, you can, for example, expand the Variables area. You can also make additional settings such as

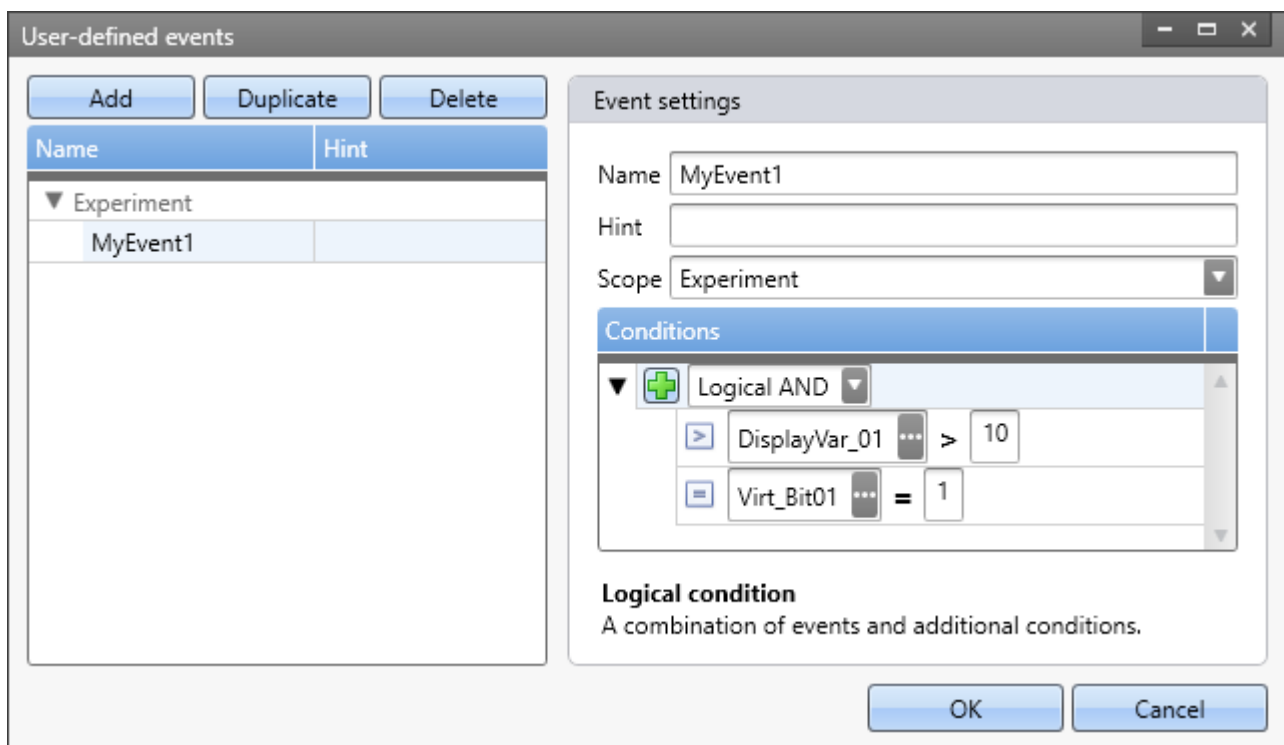
- selecting/de-selecting files or variables by means of the checkbox (). For such cases, for instance, where not all variables belonging to a file are to be loaded.
- adding additional elements. For the case where the variable only exists once at the command's runtime.

7 User-defined events

A better overview and more options for your application

Combining two events with each other? This is now possible. You can now apply a variety of logical operators to your events. Thus you can now easily create compound events which previously were not possible.

Using the new Editor, you have an extensive overview of your events. No matter what their scope or type. All are displayed in one dialog and can be set and edited directly.



Example: The event is triggered if the display variable is above 10 AND the virtual bit equals 1.

8 Installation

Silent product installation with pre-made configuration

To obtain uniform installation on multiple computers, the Setup program can be pre-configured. Subsequently, the installation is performed without interruption or any additional entries to make. Toward this end, the configuration is saved in prepared ini-files. The configuration is imported from these file and applied.

You can generate the ini-files automatically. For more information on this topic, see the user's manual: "*Setting Up*" > "*Information and Tips*" > "*Unattended Installation - Silent Installation*".

9 Miscellaneous optimization

Alongside fault removal, the following important improvements have also been implemented:

Area	Description
Sequencer	Logbook entries from the Sequencer were not hidden. Information entries in the logbook which were attributable to the Sequencer were not always correctly assigned the category "Information" and were not hidden for that reason.
Installation and product configuration	<ul style="list-style-type: none"> The component "imc STUDIO Automation Engine" always needed to be activated first for the purpose of Runtime functions. Now it is active by default in all Editions, just like all other "Engine"-components. Subsequent correction of the product configuration is no longer necessary. In the process of installing imc STUDIO Monitor, the product configuration was not always configured correctly. For the "Developer" Edition, the Widgets and the Sequencer were not activated. Un-installing "imc Documents" - On some computers, the process of un-installing "imc Documents" froze and was not concluded properly.
Project management	The project management dialogs now filter out "non-matching" projects. These include, for instance, the dialogs "Save As", "Manage Project" and "Open Experiment". "Non-matching" projects can refer to the imc STUDIO projects for imc WAVE, and vice versa. Use of the same database is now possible, but not recommended.
Setup and Device control	With the strain gauge measurement range, the superfluous sign, e.g. " $\pm -770000 \mu\text{eps}$ " is now omitted. Now, the readout is correctly " $\pm 770000 \mu\text{eps}$ ".
Panel and Widgets	<ul style="list-style-type: none"> Fitting the page size of tiled pages - Errors in the fitting of the page size have been resolved. There had been problems with tiled pages, which were also even magnified. Multiple copied Widgets are now inserted with slight indenting, so that they are not all placed on top of each other. Widget: "Table" - Text-zones - For text-zones, it had been possible to set ranges, which caused undesired effects. Text-zones now no longer have any ranges. Widget: "DIO" - If the Widget was linked with a user-defined variable, then one CPU core was at full capacity if the variable had the value "0". Widget: "Image" - Using the setting "Center image" caused the image to become fuzzy when copied and changed its position.

Area	Description
Data Browser	<ul style="list-style-type: none">• If the "Measurement settings" associated with a measurement are loaded from the Data Browser, a complete experiment is loaded. When you click on "Save", there is a prompt for confirmation that you intend to overwrite the current experiment, since it represents an older state of the experiment. However, this prompt did not appear when the user saved upon exiting imc STUDIO.• The variables-functions (Export/Import/Load) via the Data Browser always needed to have their settings made from the beginning. Now, when the function is called the next time, the system automatically targets the most recent path. Other settings also remain in force so that they do not need to be reset each time.
Commands	Commands: "Import/Export parameter set", "Import/Export/Load variables" and "Import/Export Panel page" The placeholders "SETUP" and "MEASUREMENT" were previously not available.
Scripting	<ul style="list-style-type: none">• In the Scripting, the Panel-API-functions "ShowPage" and "HidePage" did not work.• Linking the curve window with variables by means of a measurement number or a fixed name could not be reversed via script.• In the script restoration dialog, the question was no longer visible when the script names were long.• When a script was exported as a DLL, no external resources were exported along with it. (Precondition: "Local copy = true").• When an Event-script was created with the storage scope "Project", it still had the storage scope "Experiment".
imc Inline FAMOS	The function "RSFlipFlop" did not work.
Powertrain Monitoring	In the case of very many measurements of large size, it was occasionally not possible to load the measurements.



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Contact imc

Address

imc Test & Measurement GmbH
Voltastr. 5
13355 Berlin

Phone: (Germany): +49 30 467090-0

E-Mail: info@imc-tm.de

Internet: <https://www.imc-tm.com>

Tech support

If you have problems or questions, please contact our tech support:

Phone: (Germany): +49 30 467090-26

E-Mail: hotline@imc-tm.de

Internet: <https://www.imc-tm.com/service-training/>

imc ACADEMY - Training center

The safe handling of measurement devices requires a good knowledge of the system. At our training center, experienced specialists are here to share their knowledge.

E-Mail: schulung@imc-tm.de

Internet: <https://www.imc-tm.com/service-training/imc-academy>

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