Simcenter Testlab Release Notes

Release 2406
July 2024

SIEMENS

About Siemens Digital Industries Software

Siemens Digital Industries Software is a global leader in the growing field of product lifecycle management (PLM), manufacturing operations management (MOM), and electronic design automation (EDA) software, hardware, and services. Siemens works with more than 100,000 customers, leading the digitalization of their planning and manufacturing processes. At Siemens Digital Industries Software, we blur the boundaries between industry domains by integrating the virtual and physical, hardware and software, design and manufacturing worlds. With the rapid pace of innovation, digitalization is no longer tomorrow’s idea. We take what the future promises tomorrow and make it real for our customers today. Where today meets tomorrow. Our culture encourages creativity, welcomes fresh thinking and focuses on growth, so our people, our business, and our customers can achieve their full potential.

Support Center: support.sw.siemens.com
Send Feedback on Documentation: support.sw.siemens.com/doc_feedback_form

Table of Contents

Overview & Licensing

Simcenter Testlab Neo mapping to Simcenter Testlab Classic

Simcenter Testlab Neo products can be launched and will consume the corresponding Simcenter Testlab Classic license. Below is the mapping table of Simcenter Testlab and Simcenter Tecware product codes to Simcenter Testlab Neo product codes as available with release 2406.

Mapping table					
Simcenter Testlab				**Simcenter Testlab Neo**	
	Product code	**Product Name**		**Product Code**	**Product Name**
Testlab	TL-DTP.20.1	Simcenter Testlab Desktop - Standard		TL-DTP-0010	Simcenter Testlab Desktop Neo
	TL-DTP.21.1	Simcenter Testlab Desktop - Advanced		TL-DTP-0010	Simcenter Testlab Desktop Neo
				TL-DTP-0011	Simcenter Testlab Interactive Analysis
	TL-SIG.28.3	Simcenter Testlab Time Recording add-in		TL-ACQ-0010	Simcenter Testlab Time Data Acquisition
	TL-GPR.60.2	Simcenter Testlab Time Data Editor - Standard		TL-DTP-0011	Simcenter Testlab Interactive Analysis
				TL-SIG-0082	Simcenter Testlab Tacho Processing
	TL-GPR.51.2	Simcenter Testlab Time Data Signal Calculator		TL-DTP-0011	Simcenter Testlab Interactive Analysis
				TL-SIG-0082	Simcenter Testlab Tacho Processing
	TL-GPR.61.2	Simcenter Testlab Time Data Editor - Advanced		TL-DTP-0011	Simcenter Testlab Interactive Analysis
				TL-SIG-0082	Simcenter Testlab Tacho Processing
	TL-SIG.54.3	Simcenter Testlab Run Data Averaging & Comparison Organizer		TL-GPR-0081	Simcenter Testlab Run Averaging
	TL-ACT.57.3	Simcenter Testlab Audio Replay & Filtering		TL-ACT-0210	Simcenter Testlab Advanced Audio Replay
	TL-ACT.65.3	Simcenter Testlab ANSI-IEC Octave Filtering add-in Signature		TL-ACT-0265	Simcenter Testlab Octave Analysis
	TL-ACT.66.3	Simcenter Testlab Advanced Sound Quality Metrics		TL-ACT-0266	Simcenter Testlab Sound Quality Analysis
	TL-GPR.23.2	Simcenter Testlab Signature Throughput Processing		TL-SIG-0123	Simcenter Testlab Signature Analysis
	TL-SIG.57.3	Simcenter Testlab Order Tracking add-in for Signature		TL-SIG-0578	Simcenter Testlab Synchronous Resampling
	TL-SIG.58.3	Simcenter Testlab Angle Domain Processing add-in for Signature		TL-SIG-0578	Simcenter Testlab Synchronous Resampling
				TL-SIG-0579	Simcenter Testlab Synchronous Resampling Adv
	TL-ACT.58.2	Simcenter Testlab Sound Diagnosis		TL-DTP-0011	Simcenter Testlab Interactive Analysis
				TL-ACT-0266	Simcenter Testlab Sound Quality Analysis
				TL-ACT-0210	Simcenter Testlab Advanced Audio Replay
	TL-ENV.26.3	Simcenter Testlab Shock Response Processing (Offline SRA)		TL-ENV-2263	Simcenter Testlab Shock Response Spectrum
	TL-GEO.03.2	Simcenter Testlab Geometry		TL-GEO-0203	Simcenter Testlab Geometry Creation
	TL-ODS.52.2	Simcenter Testlab Operational Deflection Shapes & Time Animation		TL-ODS-0252	Simcenter Testlab Operational Data Animation
	TL-GPR.56.2	Simcenter Testlab Offline RPM Extraction		TL-GPR-0057	Simcenter Testlab RPM Extraction
	TL-STR.21.2	Simcenter Testlab Impact Testing		TL-STR-0110	Simcenter Testlab Impact Acquisition
	TL-TPA.20.2	Simcenter Testlab Virtual Point Transformation		TL-TPA-0220	Simcenter Testlab Virtual Point Transformation Tool
	TL-ENV.39.9	Simcenter Testlab Mission Synthesis	New 2406	TL-ENV-2399	Simcenter Testlab Mission Synthesis
	TL-ACT.98.4	Simcenter Testlab Sound Power based on Sound Pressure	New 2406	TL-ACT-0298	Simcenter Testlab Sound Power
Tecware	D-P06.02.1	Simcenter Tecware Desktop		TL-DTP-0010	Simcenter Testlab Desktop Neo
				TL-DTP-0011	Simcenter Testlab Interactive Analysis
	D-P06.07.2	Simcenter Tecware Automation		TL-GPR-0080	Simcenter Testlab Process Designer
	D-P06.06.2	Simcenter Tecware Analysis		TL-GPR-0080	Simcenter Testlab Process Designer
				TL-DUR-0023	Simcenter Testlab Load Data Analysis
				TL-DUR-0030	Simcenter Testlab Anomaly Library
	D-P06.01.1	Simcenter Tecware Load Data Processing		TL-DTP-0010	Simcenter Testlab Desktop Neo
				TL-GPR-0080	Simcenter Testlab Process Designer
				TL-DUR-0023	Simcenter Testlab Load Data Analysis
				TL-DUR-0030	Simcenter Testlab Anomaly Library
				TL-DTP-0011	Simcenter Testlab Interactive Analysis
	D-P06.08.2	Simcenter Tecware Fatigue Life Analysis		TL-DUR-0040	Simcenter Testlab Fatigue Life Analysis
	D-P06.12.2	Simcenter Tecware Damage-based Time Compression		TL-DUR-0050	Simcenter Testlab Rainflow Based Test Definition

Obsoleting and integrations of products

Each release, some product codes and features are obsoleted or integrated in other product codes. Please contact your Siemens local office to support you towards a smooth transition.

The table below provides you the update for the 2406 release.

Product Code	*Product Name*	*Transition note*
TL-SCD.94.2	Simcenter Testlab Vehicle Busses Support	No replacement is needed, the feature is integrated in the TL-DTP.21.1 and TL-DTP.20.1 from 2406 release on.

License server

RLM license server

As in previous release, the default licenses generated for Simcenter Testlab and Simcenter TecWare are RLM licenses.

Siemens License Server

Since Simcenter Testlab 2021.1 on, Simcenter Testlab and Simcenter Tecware support Flexlm Licensing. It allows customers who also own products from other Simcenter product families to use the same license server Daemon (ugslmd).

Always install the latest available Siemens License Server, available on Support Center.

The following features are extended in release Simcenter Testlab 2406::

- Sum of tokens: When the customer has several token licenses like 100, 50, and 50 served by the same license source, i.e. for one license server, the pool of tokens is the total sum, i.e. 200,
    - Example. If a license needs 120 tokens, in 2306 release with Siemens License Server before v.2.4.0.0, there are 3 token licenses, 100, 50 and 50 tokens each, the server does not add these tokens together. Thus, the server does not have enough tokens for a license which needs 120 tokens (because none of the token licenses has 120 tokens). In 2406 release, allthe token licenses are summed, in this case 100+50+50 = 200 tokens, so 120 tokens can be checked out to cover that license usage.

However, please beware that compared to the RLM license server, following functionality is not yet supported with the Siemens Licensing Server (FlexLm) in the Simcenter Testlab 2406 release:

- Borrowing of tokens: Borrowing product licenses is supported but borrowing tokens is not supported. When the customer has a pool of tokens, and if the user wants to use an application without connecting to the network with the server, it will not be possible to borrow tokens to work offline. Following alternatives are possible: borrow product licenses, use a dongle or use a local license file.

- RLM supported dongles are not supported , , e.g. Flex9, Flex10 and RLM dongles:

When a dongle is needed, a Siemens License Server supported dongle can be requested.

If you would like to know more about the Siemens Licensing Server support, please contact your local customer service for more information.

The Siemens License Server can be downloaded from support center (Siemens License Server).

Please beware that the below products are not supported with Siemens Licensing Server :

- Simcenter Sound Source localization
- Simcenter Sound Camera
- Simcenter Sound Designer
- Simcenter Digital Image Correlation
- Simcenter Testlab Apps

Simcenter SCADAS

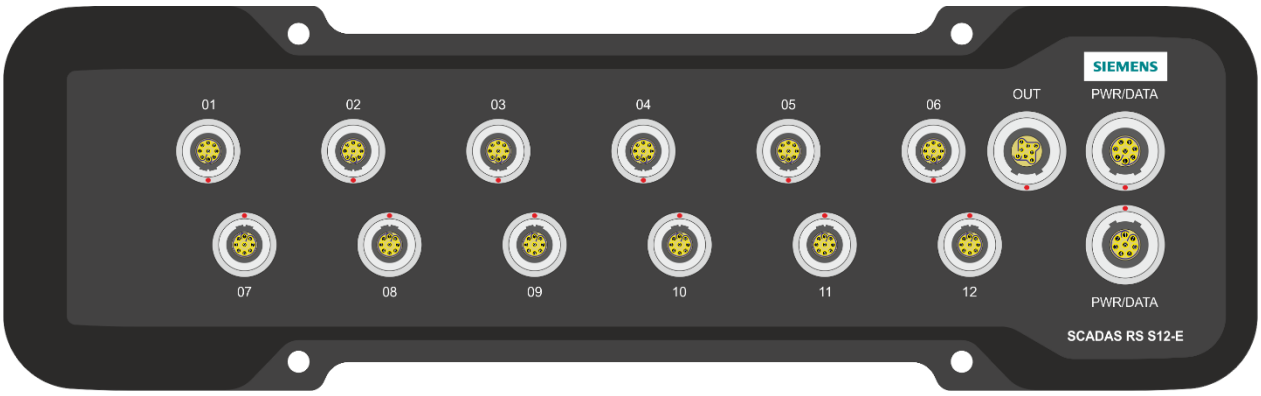
Simcenter SCADAS RS

Simcenter Testlab 2406 supports a new SCADAS RS unit extending further the platform for microphones. SCRS-S12-E combines 12 channels of sensor signal conditioning with extended bandwidth in a single unit. The SCADAS RS systems and units can also now be used to acquire FRFs using Simcenter Testlab Impact Acquisition.

SCRS-S12-E

Simcenter SCADAS RS 12 channel Sensor Unit Extended Bandwidth

The SCRS S12-E is part of the Simcenter SCADAS RS data acquisition units. It combines 12 channels of sensor signal conditioning with extended bandwidth in a single unit. S12-E is an extended bandwidth version of the S24 unit, and complements durability measurements with NVH-like applications requiring rugged or distributed systems. The SCADAS RS S12-E extends the bandwidth of the SCADAS RS S24 up to 22.1 kHz, and with an additional Sharp FIR filter that blocks any alias already at Nyquist, while having such a passband of 22.1 kHz.



Product Features

- 12 channel inputs with multiple conditioning options selectable per channel
- Channel to Unit supply isolation up to 100 V
- 576 kSamples/s combined throughput
- Up to 51.2 kHz sample rate and 22.1 kHz bandwidth at 24 bits
- Wide temperature range from -40 °C (-40 °F) to +65 °C (149 °F)
- On-board Simcenter SCADAS RS Configuration App

Conditioning Options

- Accelerometers, force cells, torque cells, fluid pressure sensors
- Piezo electric ICP® sensors
- Piezo resistive and capacitive sensors
- Voltage inputs up to ±60 V
- Sensors with external supply
- 0/4 to 20 mA transmitters (over shunt)

SCRSA-CAM001

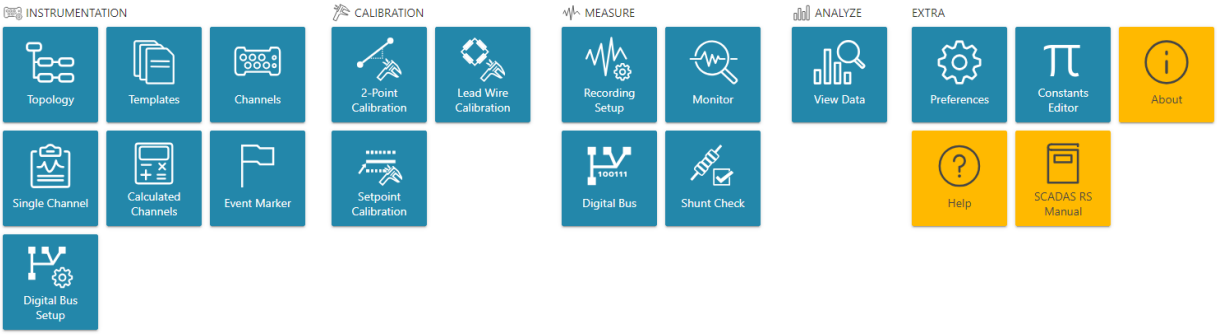
A new highly IP rated rugged camera is now supported and available with the Simcenter SCADAS RS system. This can be connected to the Simcenter SCADAS RS REC unit via the USB2 or USB3 connectors and can be configured via the Simcenter SCADAS RS Recorder App.

Product Features

- Max resolution 1980x1080 px
- Max frame rate 30 fps
- Rugged design. IP rating IP69K
- Cable length 3 m
- 4 standard ¼ inch screw holes for easy mounting on standard camera brackets and supports

Simcenter SCADAS RS Recorder App

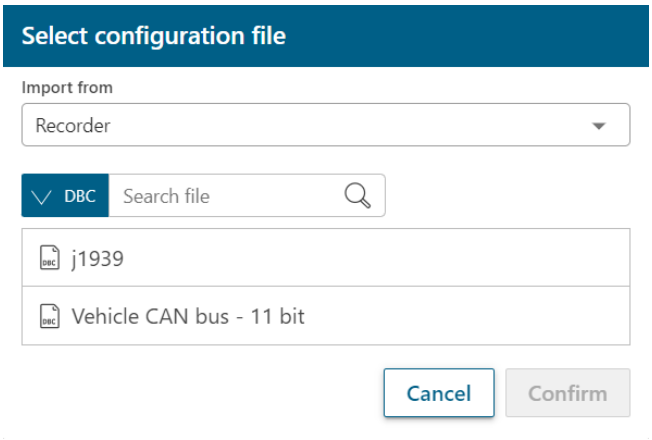
Many new functionalities and features as well as usability improvements have been introduced with the new release 2406 of the Simcenter SCADAS RS Recorder App. Some of those are visible in the below screenshot of the updated initial dashboard. All of those are introduced in the following subsections and make the Simcenter SCADAS RS Recorder App a much more complete as well as mature application usable from instrumentation and setup, through measurements and validation.



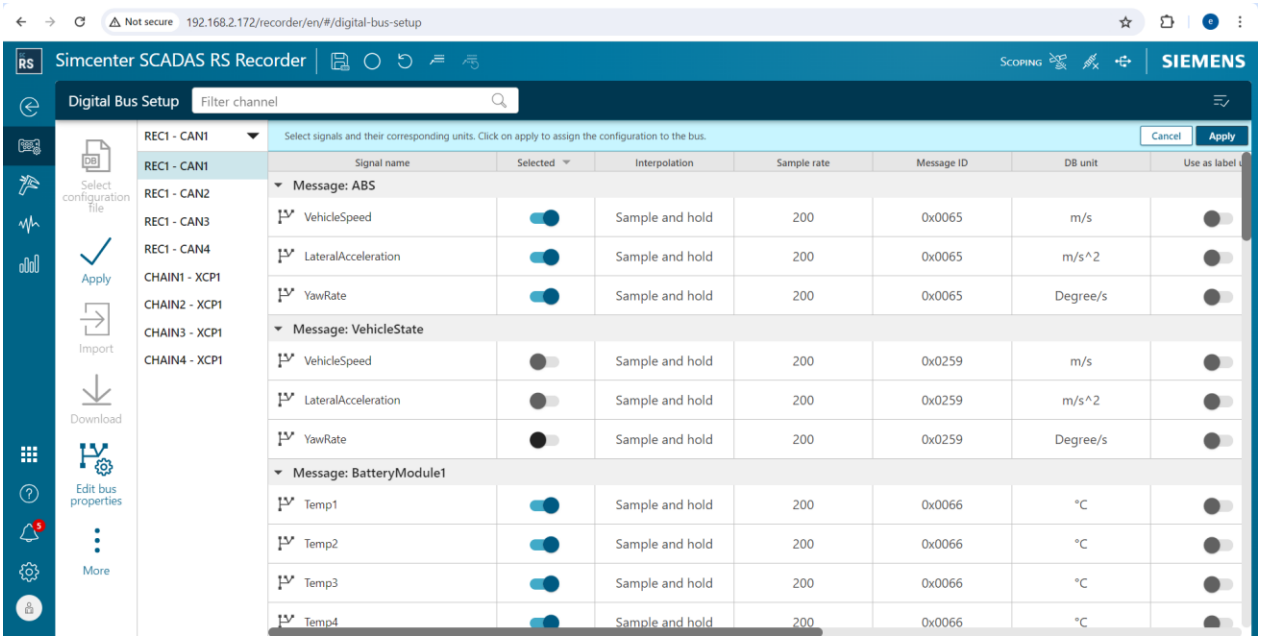
Digital Buses Support

Support of DBC files for CAN configuration Simcenter SCADAS RS Recorder App

It is now possible to configure a CAN bus measurement on the SCADAS RS REC or SCADAS RS DI units using DBC files directly from the Simcenter SCADAS RS Recorder App. DBC is amongst the first and most widely used type of database file containing decoding information required to acquire CAN signals. These can now be loaded directly on the SCADAS RS REC memory through a dedicated command on the interface, and later on assigned to a specific CAN bus on the RS unit and used for configuration.



From the DBC file it will be possible to select which signals will be part of the configuration (selected) hence available for any following step.



XCP over Ethernet support in Simcenter SCADAS RS Recorder App

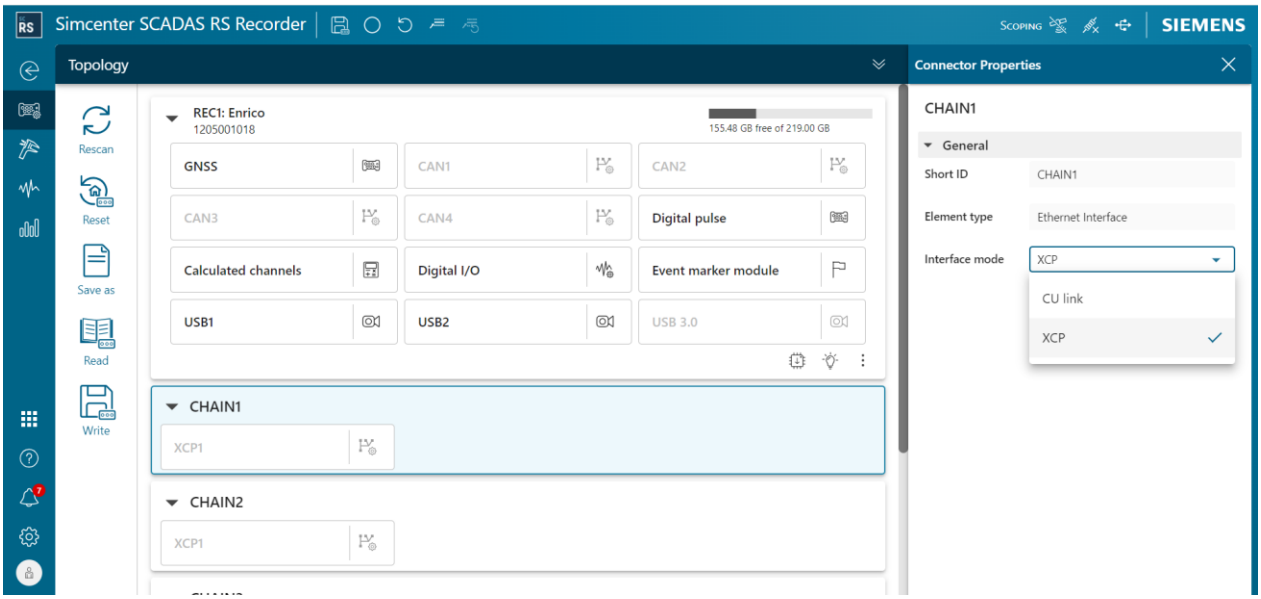
The XCP (Universal Measurement and Calibration Protocol) protocol is a network protocol originating from ASAM which was born to calibrate electronic control units (ECUs) available on vehicle architectures. This higher layer protocol can be used on top of several physical layers (e.g. CAN, Ethernet, Flexray etc.) and contains two parts: the calibration part – used to write on the ECU memory and perform the calibration; the measurement part – used to read from the ECU memory for example to measure certain parameters or signals from the ECU. This protocol is available during development of new vehicles and can hence be used to extract more signals or the same signals but at a higher sampling rate for example than what is available by default on a vehicle CAN bus.

In this new release (and latest service level 2306.0003) of the Simcenter Recorder App and Simcenter SCADAS RS REC Unit we are now extending communication through XCP over the Ethernet physical layer for the measurement part of the protocol (no calibration) – XCP over CAN was already supported in

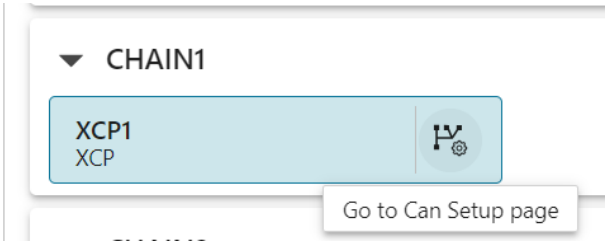
previous releases. It is hence possible to measure extra signals or signals at higher rates as extra LDSF Digital Channels. The configuration is done entirely through the Simcenter Recorder App by loading and making use of the related A2L file, which is a standardized file typically used for XCP configuration and ECU description, and which will list the signals available through such protocol.

The mode of operation of a dedicated daisy chain can be switched now to “XCP mode” to enable this communication, while the configuration can then be made through the Digital Bus Setup page as for any other protocol (like for standard CAN, J1939, XCP over CAN) which can be accessed also through the shortcut available in the interface. From such page the A2L file can be loaded, the required signals selected, and the necessary parameters (like the Update rate) can be set.

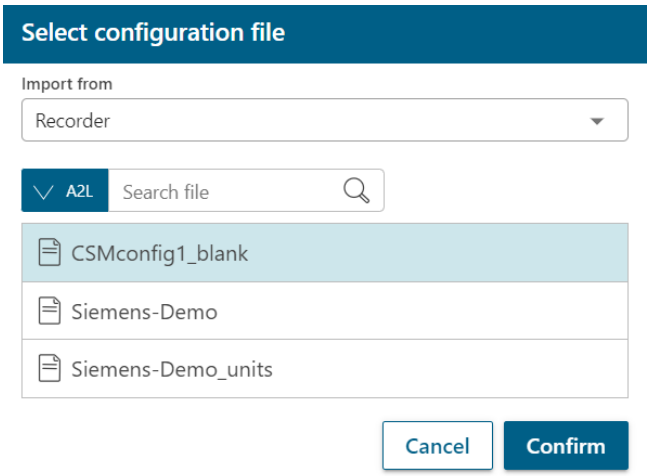
Interface mode selection from topology page:



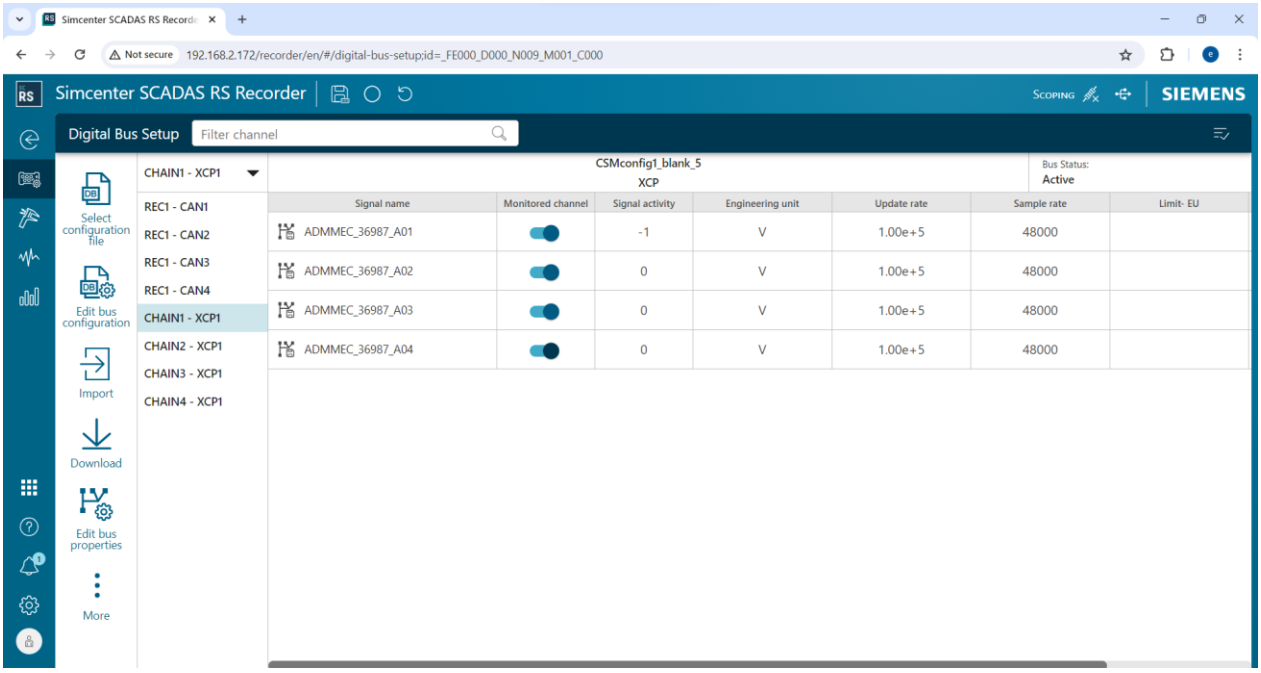
Short cut to digital bus page:



A2L configuration file selection:



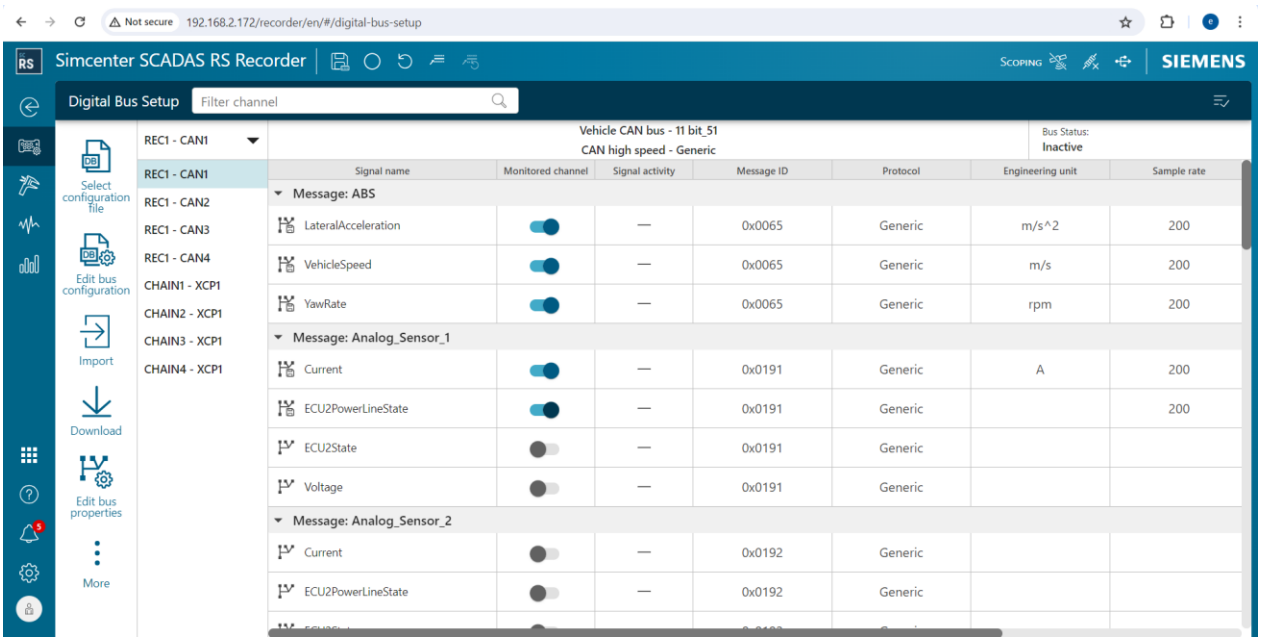
Digital Bus Setup page for XCP over Ethernet setup:



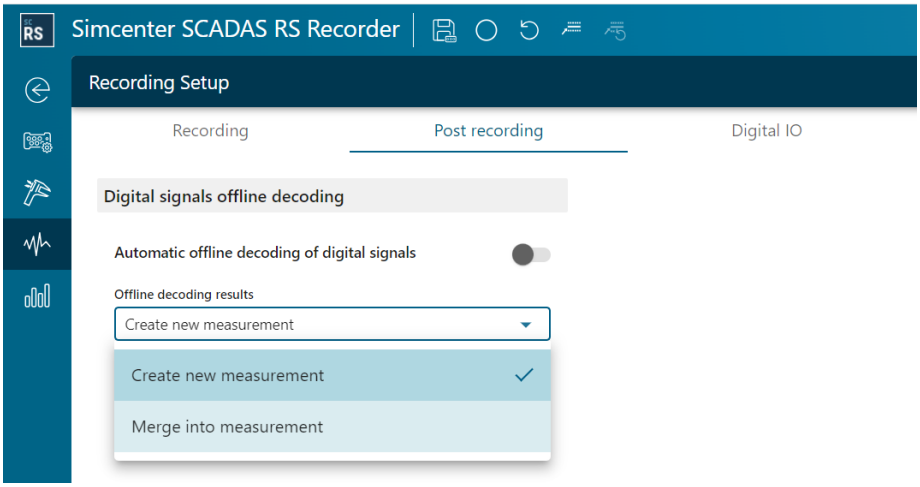
CAN decoding offline

CAN signals can now be decoded after the recording has finished directly on the Simcenter SCADAS RS REC. Indeed, all the raw data passing through the CAN bus is always recorded whenever data is on the bus and the basic communication is established, therefore the CAN decoding offline capability allows to retrieve more data if needed at a later stage. This has numerous advantages in the context of CAN measurements. For example, it allows to overcome the limitation of 32 CAN signals per CAN bus that can be decoded online and saved in the LDSF data. Furthermore, it gives the possibility to retrieve additional data which might become relevant at a later stage, in case such data was not considered relevant at the moment the recording was made or there was no time to make a proper selection.

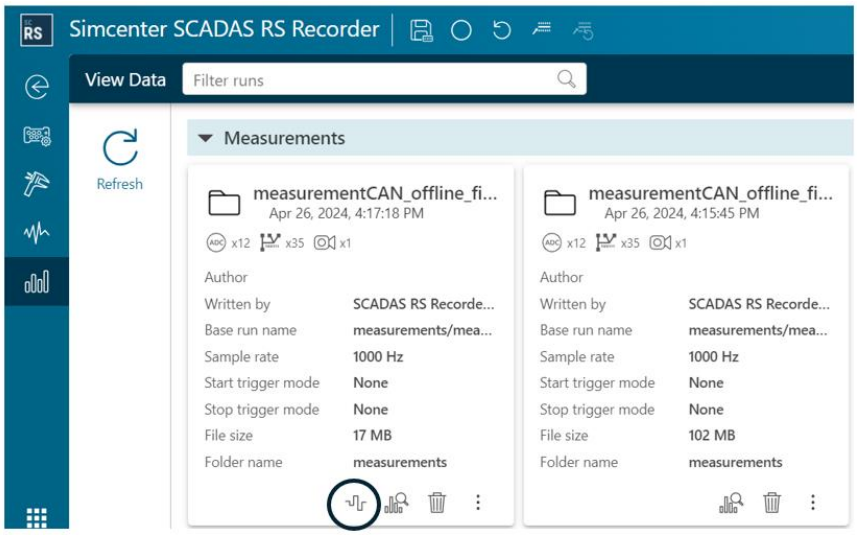
While monitored signals are decoded online and stored within the LDSF file during the recording, the rest of the selected signals can be decoded offline from within the Simcenter SCADAS RS and Simcenter SCADAS RS Recorder App.



A tab is added in the Recorder Setup related to Post recording, where it can be set if the offline decoding will start automatically at the end of the run and if the new data will be stored in the original run folder or in a new copy of the run.



In case of offline decoding to be initiated manually, a dedicated button will be available in the related run folder to activate the process, at the end of which all the available CAN traces will be available for view or download.



XCP over CAN – decoding offline

Similarly to what is possible for standard CAN (see previous section), it is now also possible to define offline decoding for XCP over CAN. The mechanism is almost identical as for the previous case and allows to overcome the limitation of up to 32 signals decoded per CAN bus, as well as to retrieve more data after a recording has been made, assuming that a proper A2L file with the proper list of selected signals was used for configuration of the online recording.

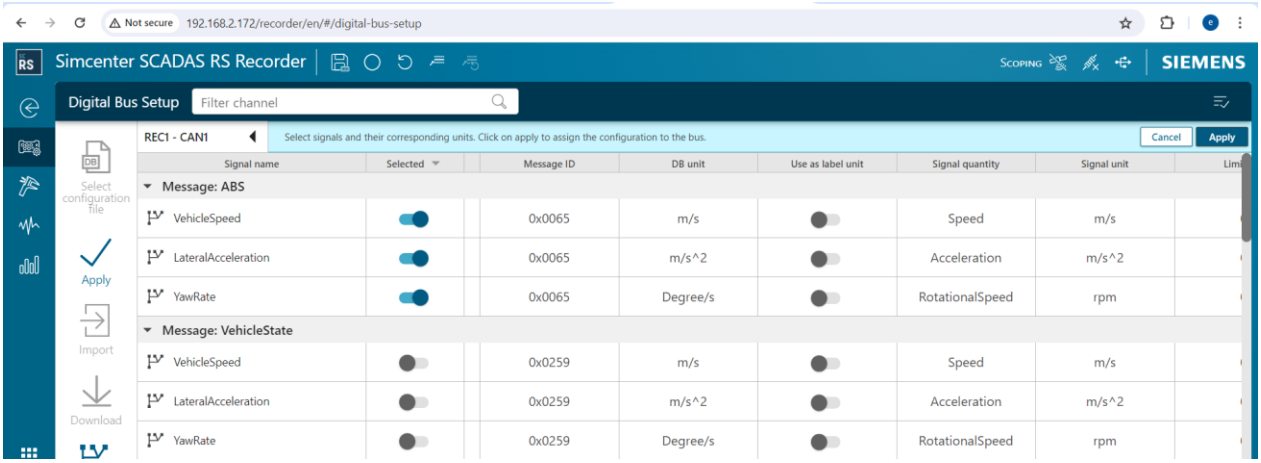
The user interface for this operation is very similar to the one defined for the CAN decoding offline feature.

XCP busload indicator

Whenever setting up an XCP measurement session through the XCP over CAN or XCP over Ethernet support of Simcenter SCADAS RS, we are requesting specific data to be produced and sent out by a specific Electronic Control Unit (ECU) we are connecting to. As soon as we increase the number of signals requested and / or their requested rate (Update rate), the bandwidth or amount of information transmitted – XCP busload – increases. It is important that this one does not reach a limit given by the physical media (or layer) on which the data is transmitted. Such limit will be the Baudrate for XCP over CAN or 100 Mbit/s for XCP over the daisy chain connector of a Simcenter SCADAS RS REC unit. An indicator is offered which indicates a percentage of utilization of such physical limit with also an indication of a warning or error areas – i.e. corresponding to sufficient margins with respect to 100%. This indicator is an estimation of the XCP busload which will be generated by the current selection of signals, with relative Update rates.

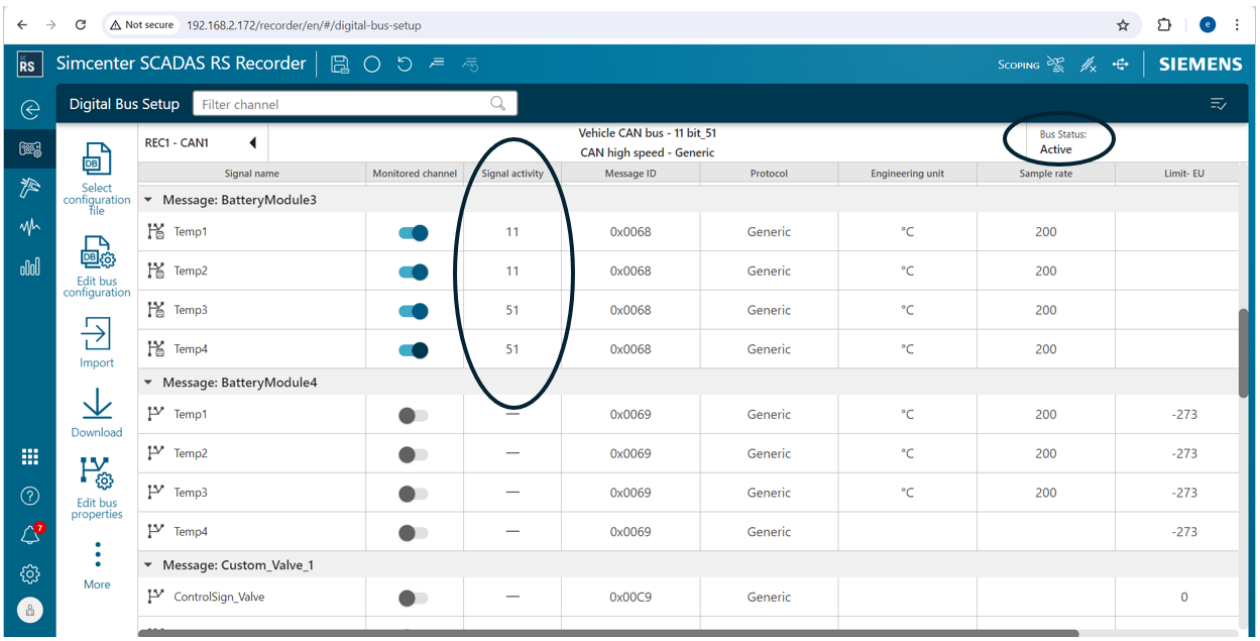
Support of the Testlab Unified Unit System (TUUS)

The full Simcenter Testlab Unified Unit System (TUUS) is now supported in the Simcenter SCADAS RS Recorder App. This has a major impact in functionalities like CAN, XCP over CAN and XCP over Ethernet, where now units available in the corresponding databases used for configuration (DBC, A2L files) are properly mapped to quantities available in the TUUS and annotated accordingly. Therefore, digital signals are also annotated with the proper quantities and those will be properly considered e.g. if further processing is applied to the data within Simcenter Testlab. The use of unit labels is also possible.



Detection of Digital Bus activity (for CAN and XCP)

Whenever setting up acquisition of data over CAN, XCP over CAN or XCP over Ethernet, we might encounter several issues including wrong basic bus parameters settings, electrical or connection issues, communication issues in general etc. Therefore, it is useful to have some indication that decodable data is available on the connection we are measuring and trying to configure, in order to help in the configuration or in troubleshooting problematic situations. In this new 2406 release an indication of the activity (or inactivity) of the entire bus as well as individual signals we may want to acquire is available directly in the Digital Bus Setup page and in other relevant parts of the Simcenter SCADAS RS Recorder App.

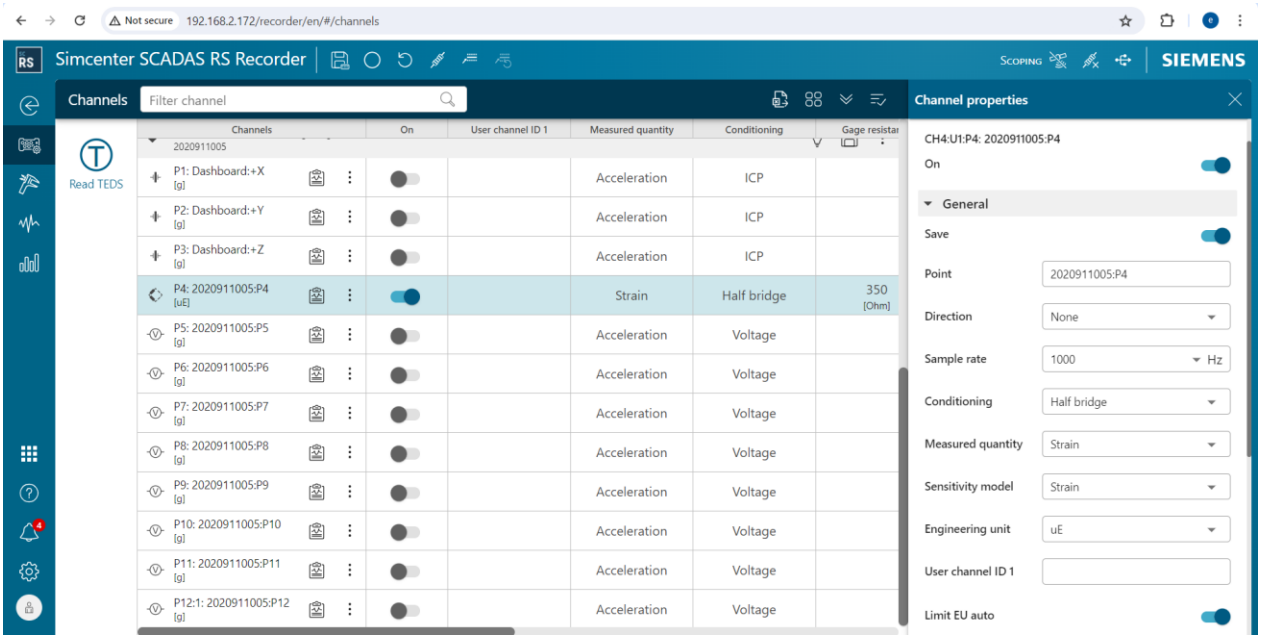


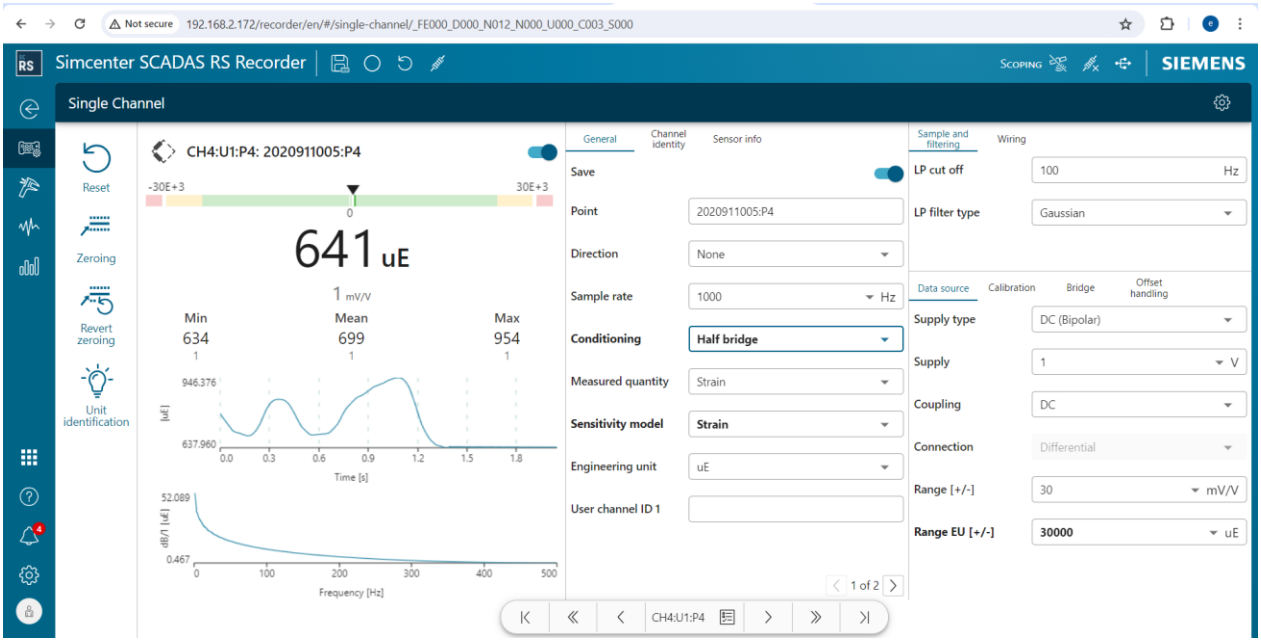
General Usability

Regrouping and visibility of channel properties and Single Channel instrumentation

In order to better guide the user and simplify the instrumentation step a few improvements have been introduced both on the property pane level as well as on the Single Channel task :

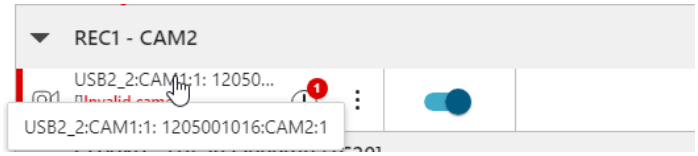
- New grouping as well as a new ordering of the channel properties in the property pane
- A new layout which makes use of a tabs as well as the newly introduced grouping of channel properties in the single channel instrumentation task of the Simcenter SCADAS RS Recorder App
- A selective mechanism for the visualization of the channel properties, which only displays the relevant parameters depending on the type of sensor we are instrumenting. This is applied both in the property pane as well as in the single channel instrumentation task.

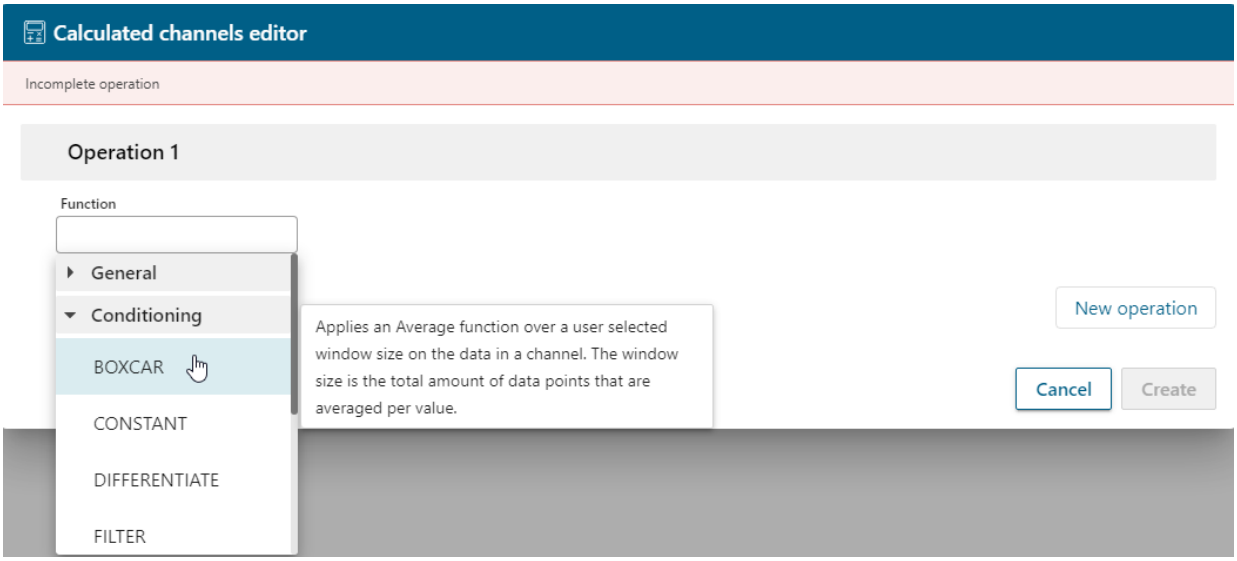


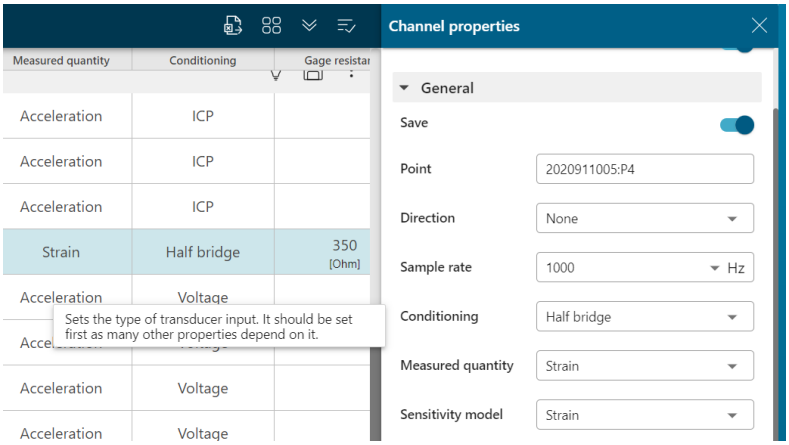


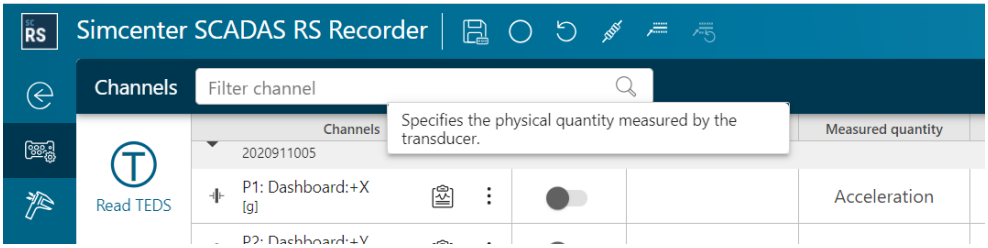
Tooltips

Tooltips have been introduced in order to improve usability, to help first time users to get more quickly used to the application as well as more experienced user to easily retrieve the meaning of certain parameters or functions. Hovering over a command or button – on desktop systems – or pressing and holding – on mobile devices – will display a small explanatory text of the specific command or button. Tooltips are available for several features: if text is truncated, on channel properties, column headers, mathematical operations amongst others.





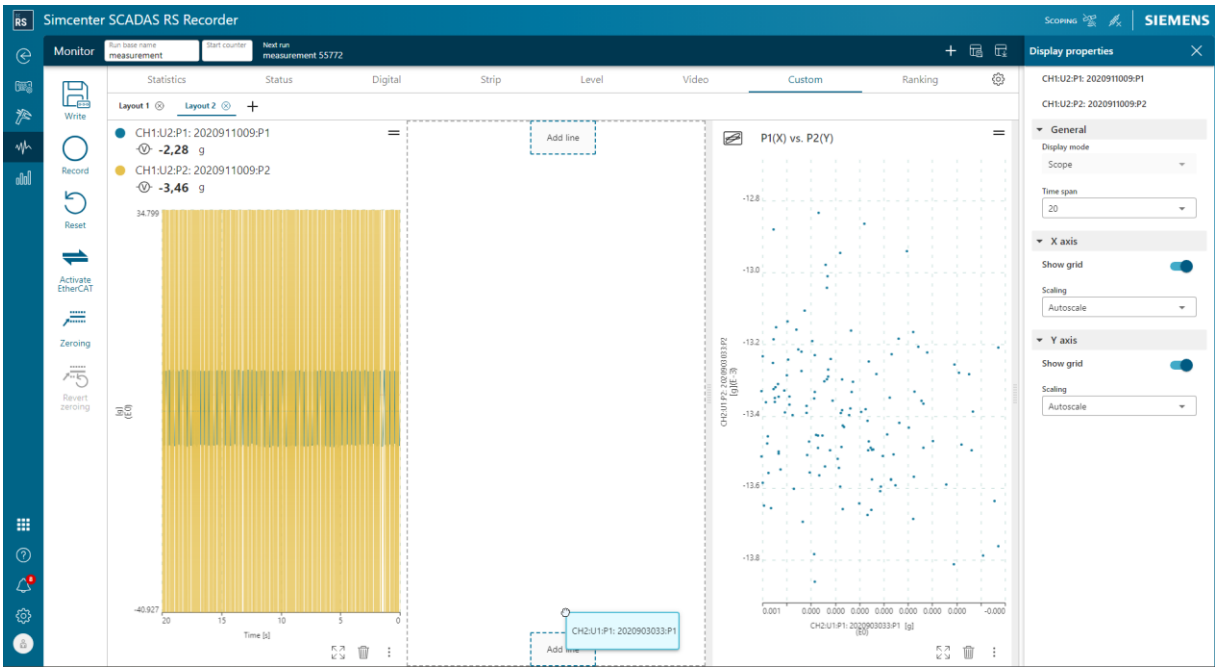


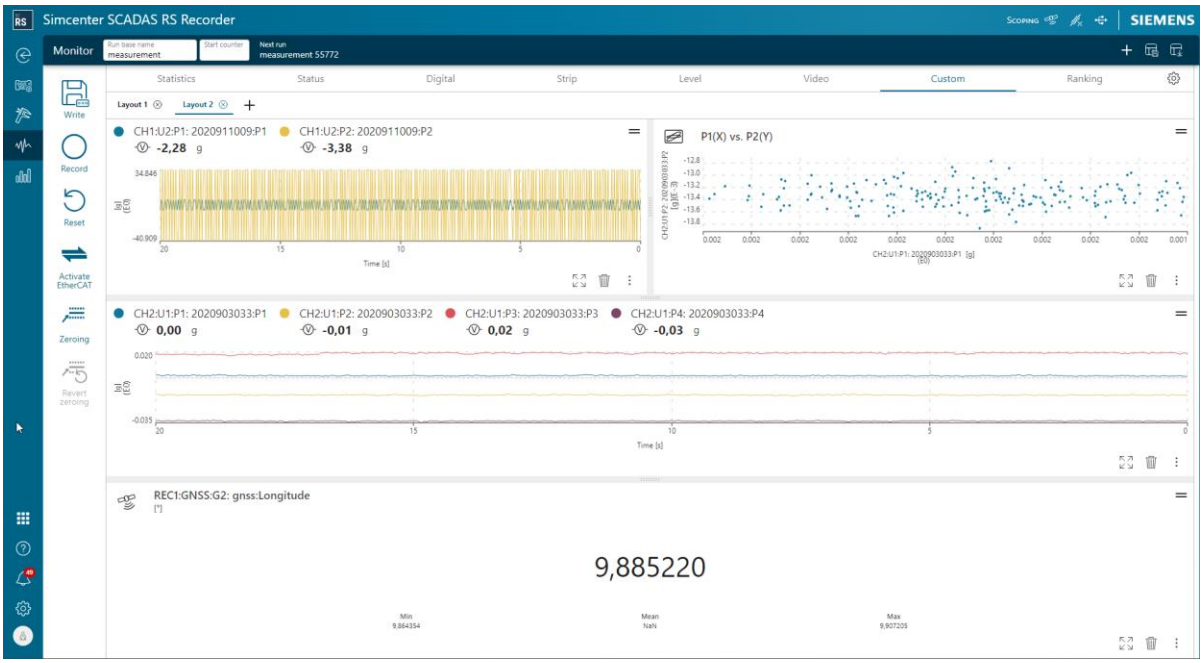


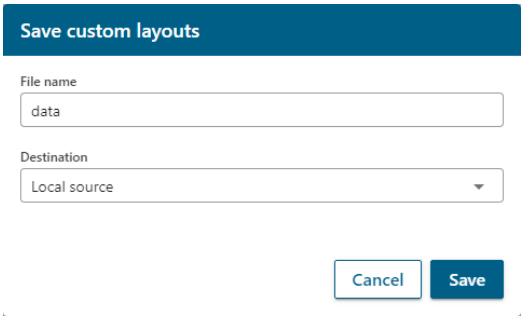
Custom Displays Improvements

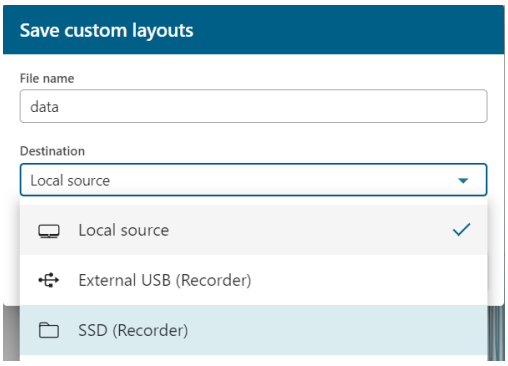
The user experience and friendliness of the custom displays has been improved with the following features and / or modifications

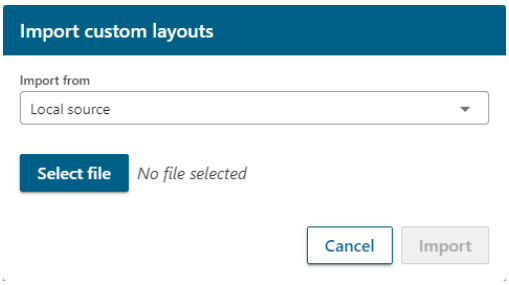
- Remove scrolling extend displays to fit all the available space on the screen
- Reorder and resize the displays
- Button to focus on a single display on request
- Tab mechanism to switch between up to 5 layouts for the same session
- Store layouts on the REC memory, on an external drive connected to the REC, or on the client device (local download folder)
- Load layouts from the REC memory, from an external drive connected to the REC, or from any location on the client device




Simcenter SCADAS RS Recorder
SIEMENS
Monitor
Statistics
Status
Digital
Strip
Level
Video
Custom
Ranking
Write
Record
Reset
Activate EtherCAT
Zeroing
Revert zeroing
Layout 1
Layout 2
CH1:U2:P1: 2020911009:P1
-2,28 g
CH1:U2:P2: 2020911009:P2
-3,38 g
P1(X) vs. P2(Y)
CH2:U1:P1: 2020903033:P1
0,00 g
CH2:U1:P2: 2020903033:P2
-0,01 g
CH2:U1:P3: 2020903033:P3
0,02 g
CH2:U1:P4: 2020903033:P4
-0,03 g
REC1:GNSS:G2: gnss:Longitude
9,885220


Save custom layouts
File name
data
Destination
Local source
Cancel
Save

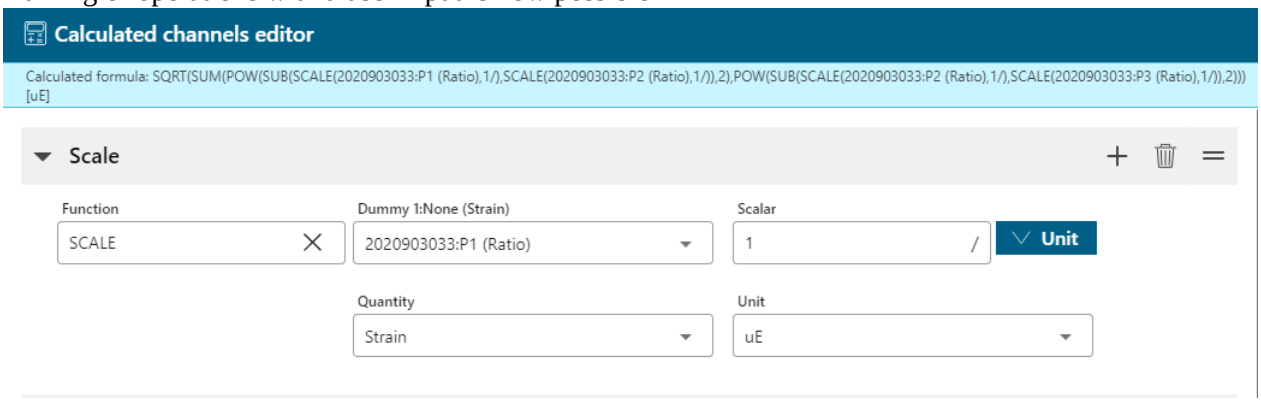

Save custom layouts
File name
data
Destination
Local source
Local source
External USB (Recorder)
SSD (Recorder)


Import custom layouts
Import from
Local source
Select file
No file selected
Cancel
Import

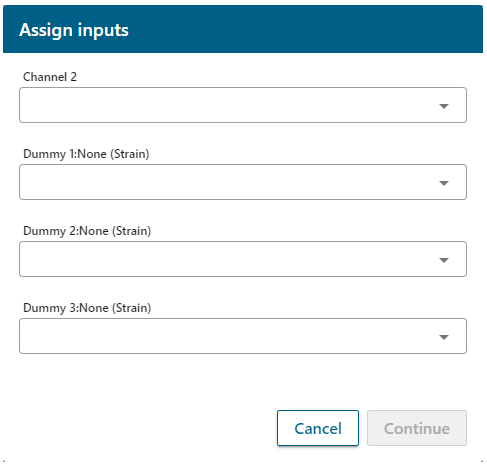
Calculated Channels usability improvements

The usability of the Calculated channels functionality and task has been improved with the introduction of a series of features

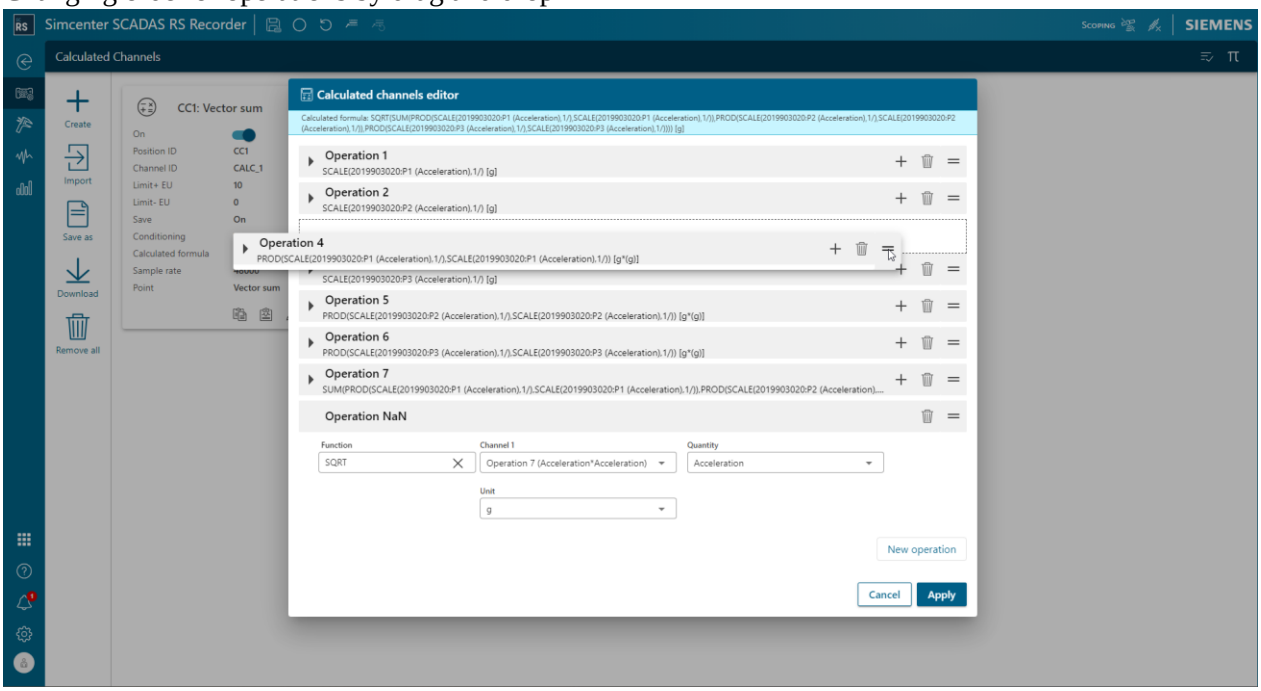
- Naming of operations with a user input is now possible



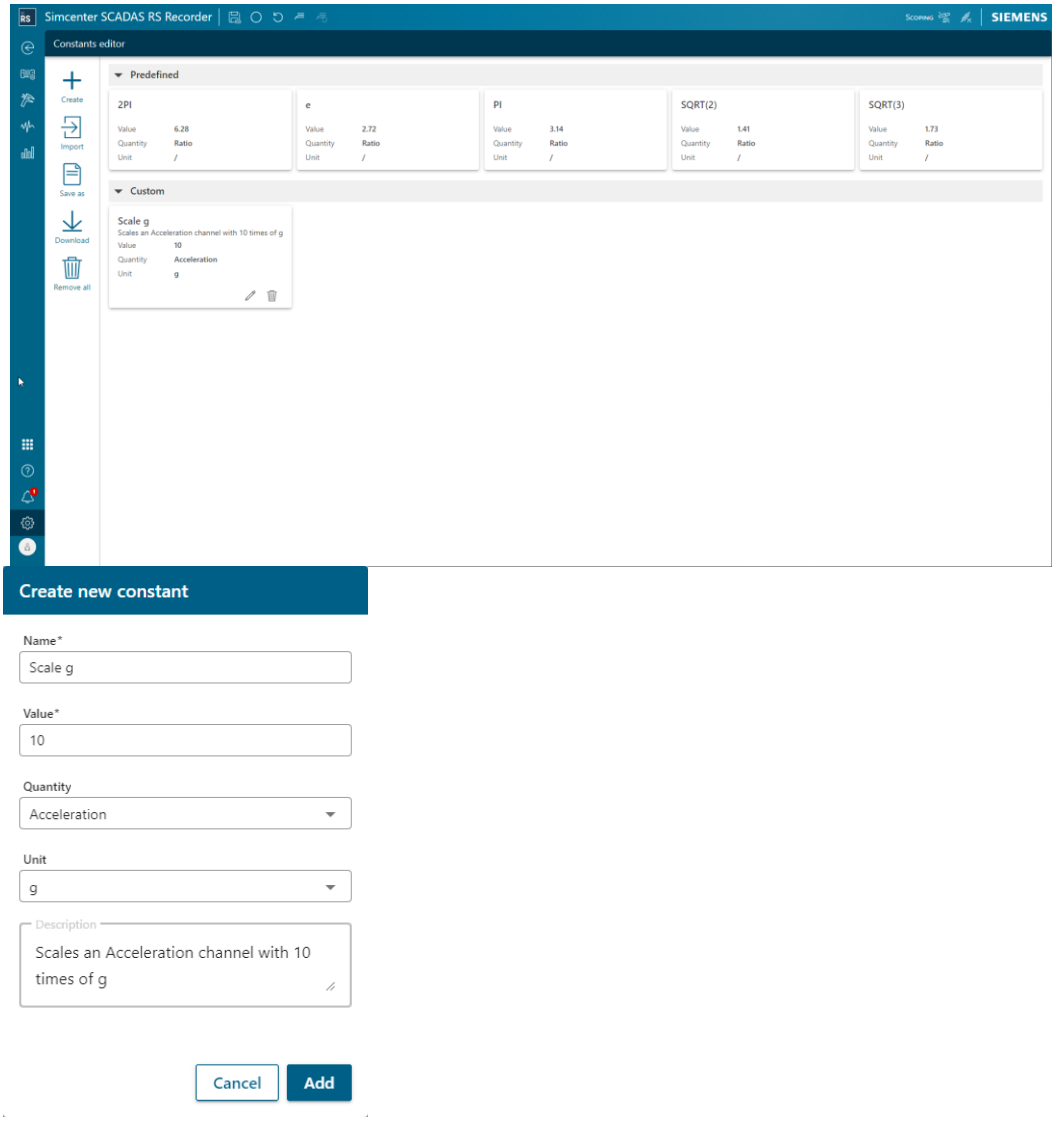
- Improved interface for the assignment of the input channels of calculated channels previously defined



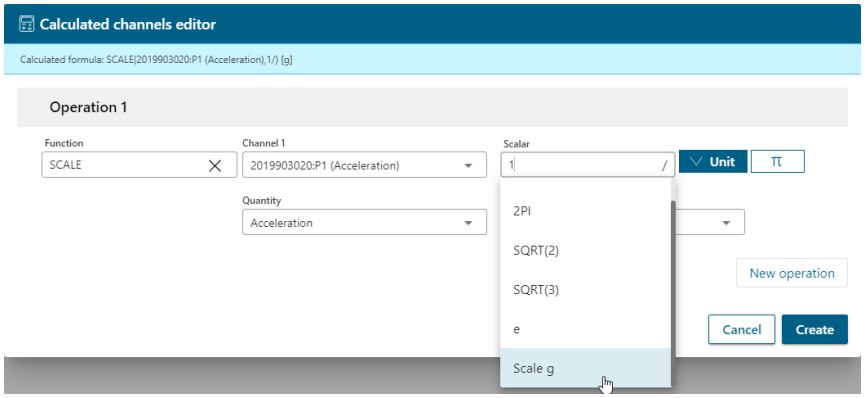
- Changing order of operations by drag and drop



- Usage of constants for scale and offset function
    - It is possible to define constants through a Constants editor with units available in the TUUS. Predefined as well as custom constants are available.

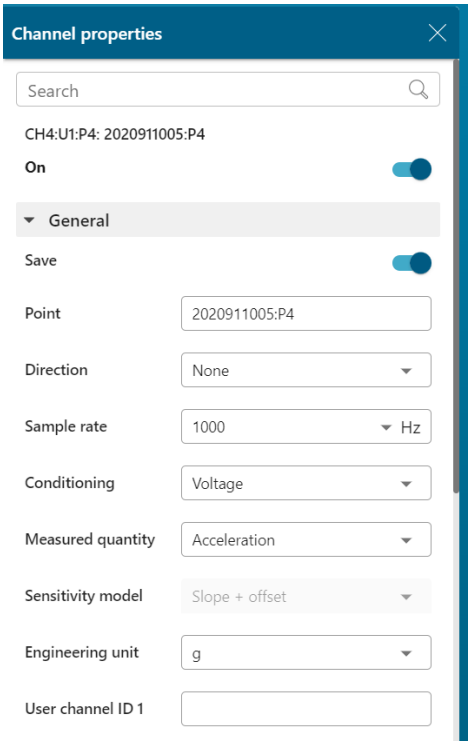


- The available constants can later on be used in functions like scale and offset



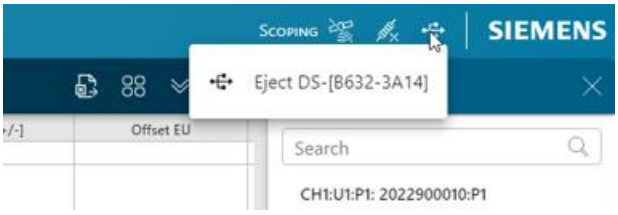
Wider property pane layout

In order to enable the visualization of more properties all together on the screen, a new wider visualization mode has been introduced where the property name is placed next to the value field, hence reducing the vertical space required on the user interface. The property can be changed and reverted to the less wide layout in case availability horizontal space on screen must be instead prioritized. This can be achieved with changing the parameter “Show property pane on left” from the Preferences task.



USB external drive unmount / safe eject function

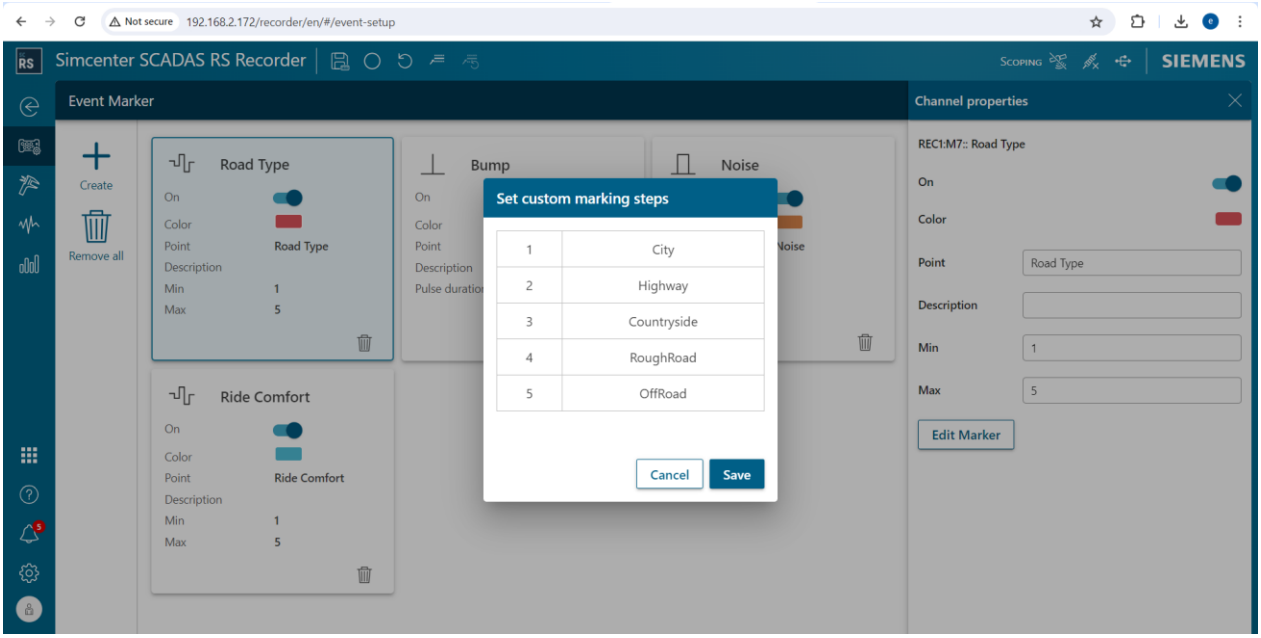
In order to maximally exploit the USB 2.0 and USB 3.0 bandwidth for the data export to external drives connected to the USB2 and USB3 ports of the Simcenter SCADAS RS REC units, an external drive unmount or safe eject function has been added and accessible from the USB icon in the status bar. This also lists the available and connected drives.



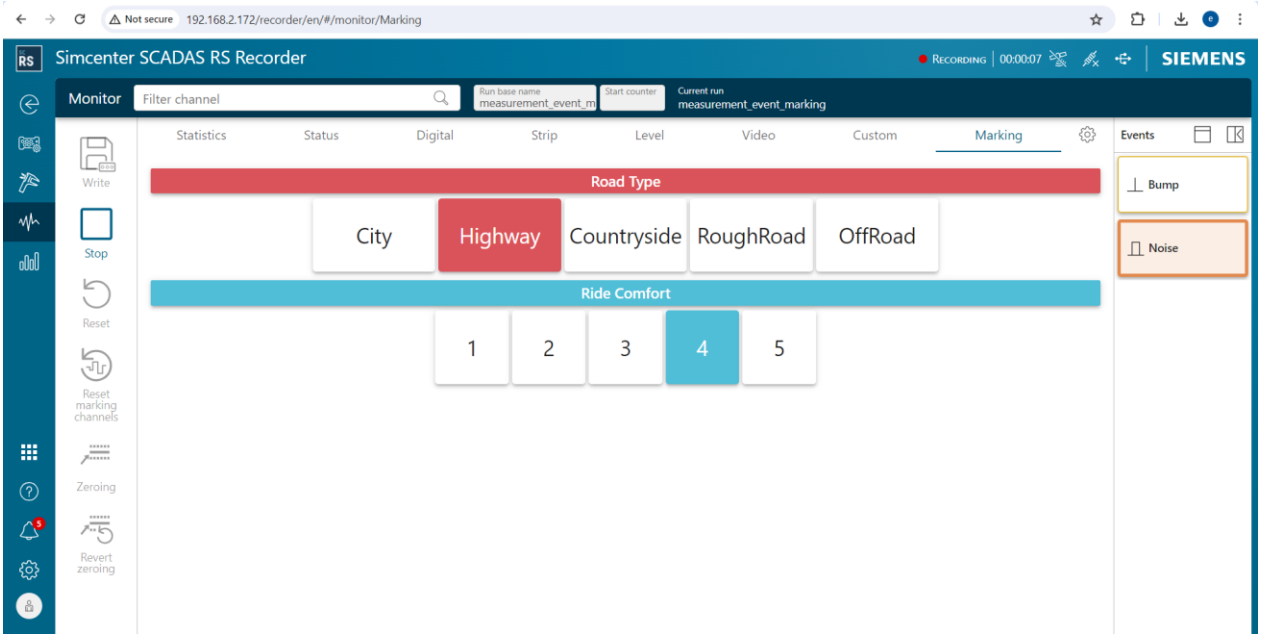
General acquisition and settings

Event Marker

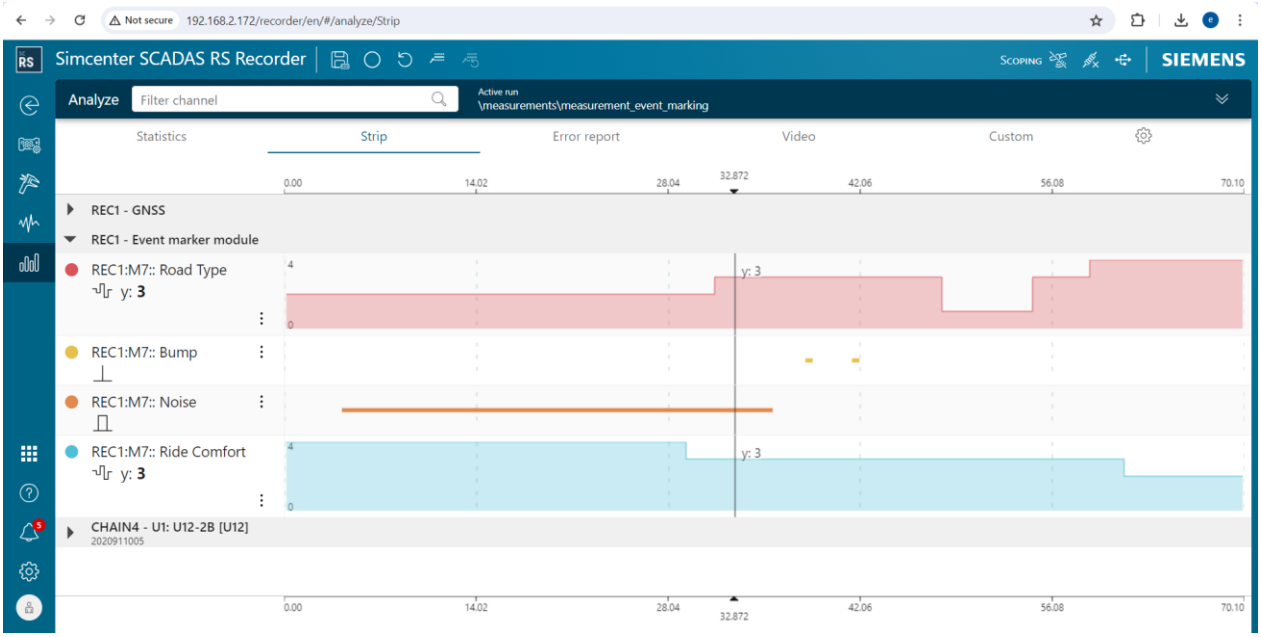
Besides objective measurements done through analog or digital sensors or modules, it is sometimes necessary to acquire subjective inputs based on a driver's or engineer's judgement to mark a specific event that happened or rate a specific qualitative parameter or environmental condition. For these reasons an Event Marker module has been introduced which allows the definition of Events (pulses of fixed duration or hold for events of variable durations), and Ranking traces.



After their definitions, both Events and Markers are available as buttons in the Monitor page which can be pressed by the user during a recording to generate time traces stored directly with the rest of the analog and digital measurements.

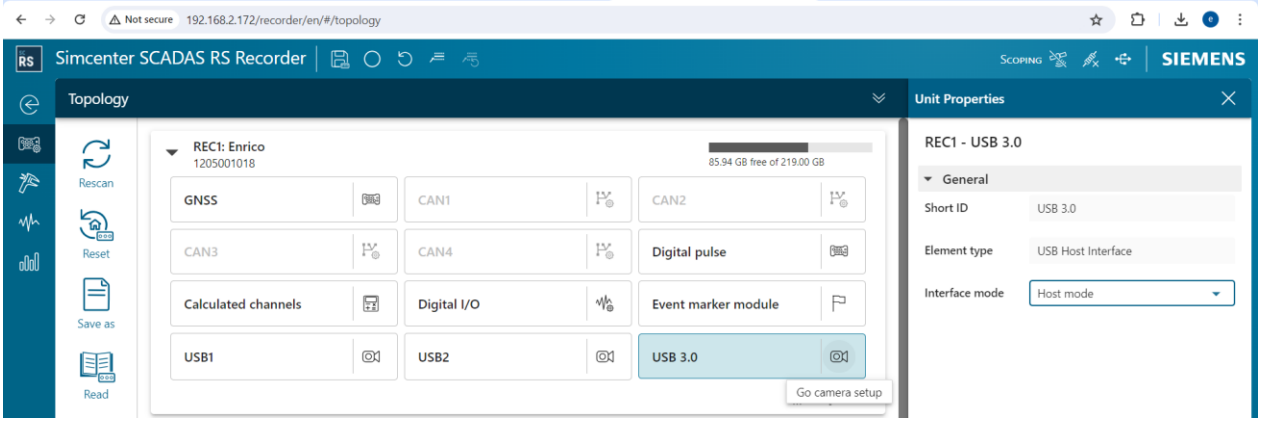


Event traces might be useful as an example to annotate every time a bump was hit, a specific noise was heard or any other binary event that took place at a specific point in time. Marking traces instead can be used for two different purposes: on the one hand to rank a subjective quality metric on an integer scale definable by the user, and on the other hand to mark e.g. a specific road segment being driven on or environmental condition with the use of labels.



USB camera: usability improvements and support over the USB3 connector of the Simcenter SCADAS RS REC unit

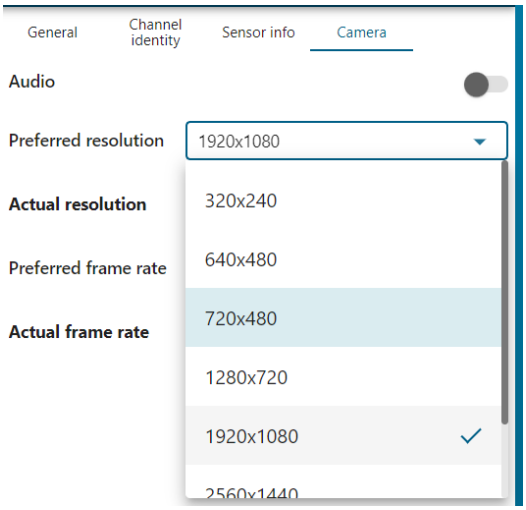
From the 2406 release it is possible to connect a USB camera also to the USB3 connector of the Simcenter SCADAS RS REC unit, hence enabling potentially 3 USB cameras to be concurrently connected and recorded.

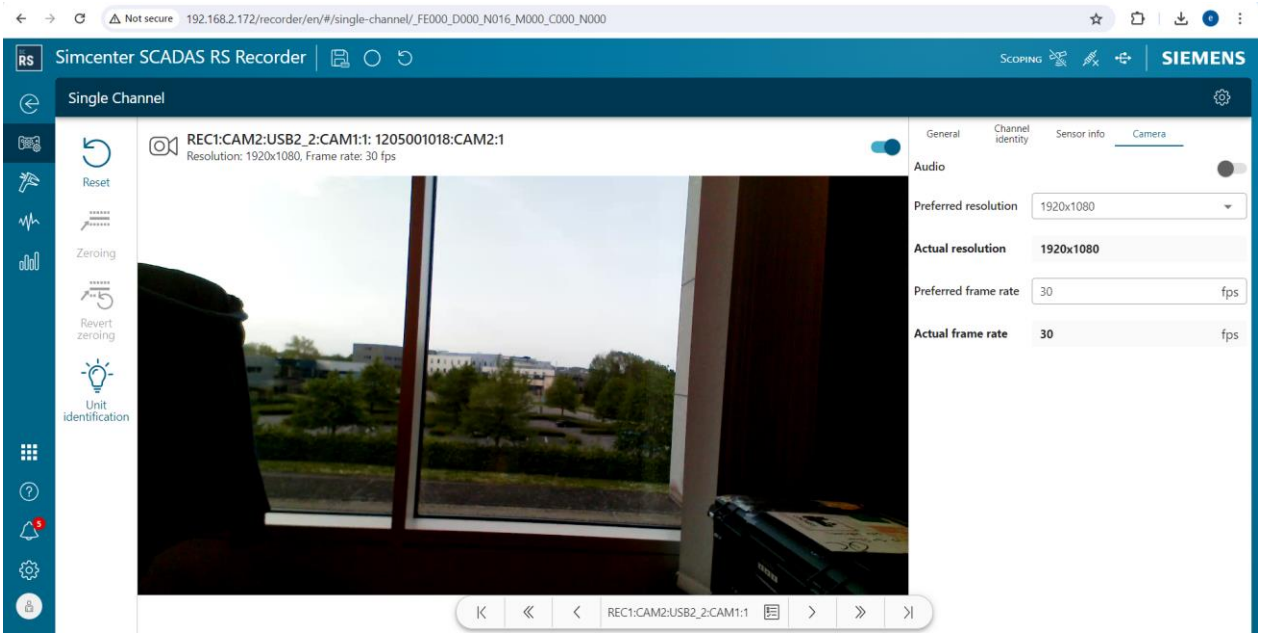


A few features have been introduced to improve usability of the USB camera solution as well

- Drop down menu for the selection of USB camera resolutions

- Actual resolution and actual frame rate parameters to show the current camera parameters that are effectively and currently available on the connected USB camera; those values are also available directly on the video displays
- An error flag has also been introduced to indicate if a bandwidth limitation has occurred on the USB2 port, which suggests switching the camera to a lower resolution or bandwidth or connecting the camera to the USB3 connector instead

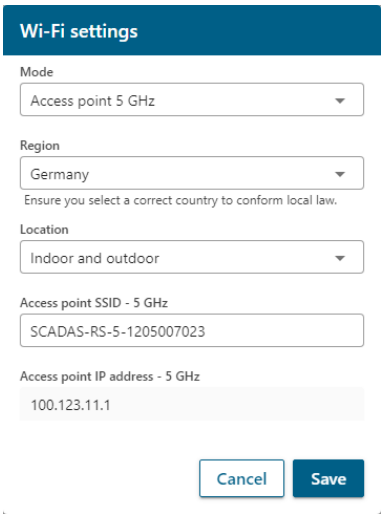




Regional Wi-Fi Settings

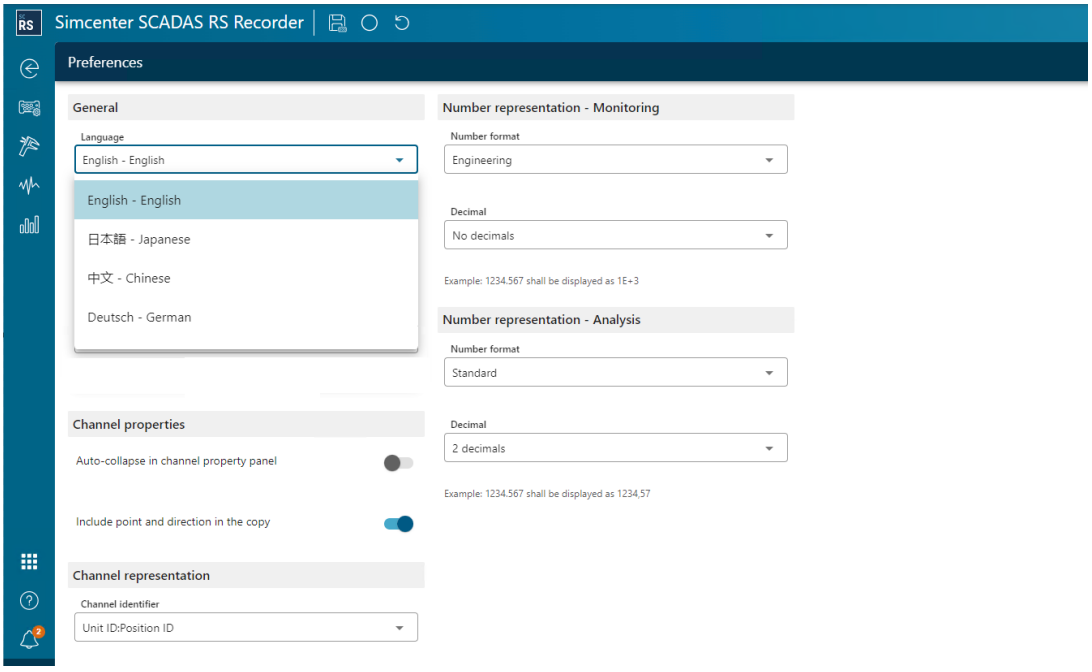
Since 2406 a new mode is available for Wi-Fi settings, i.e. the Access point 5.0 GHz mode, next to the already available Access point 2.4 GHz mode

If an Access point 5.0 GHz is selected, an automatic selection of the frequency band used is made depending on the indoor or outdoor usage, in order to conform with regional legislations



Localization of SCADAS RS

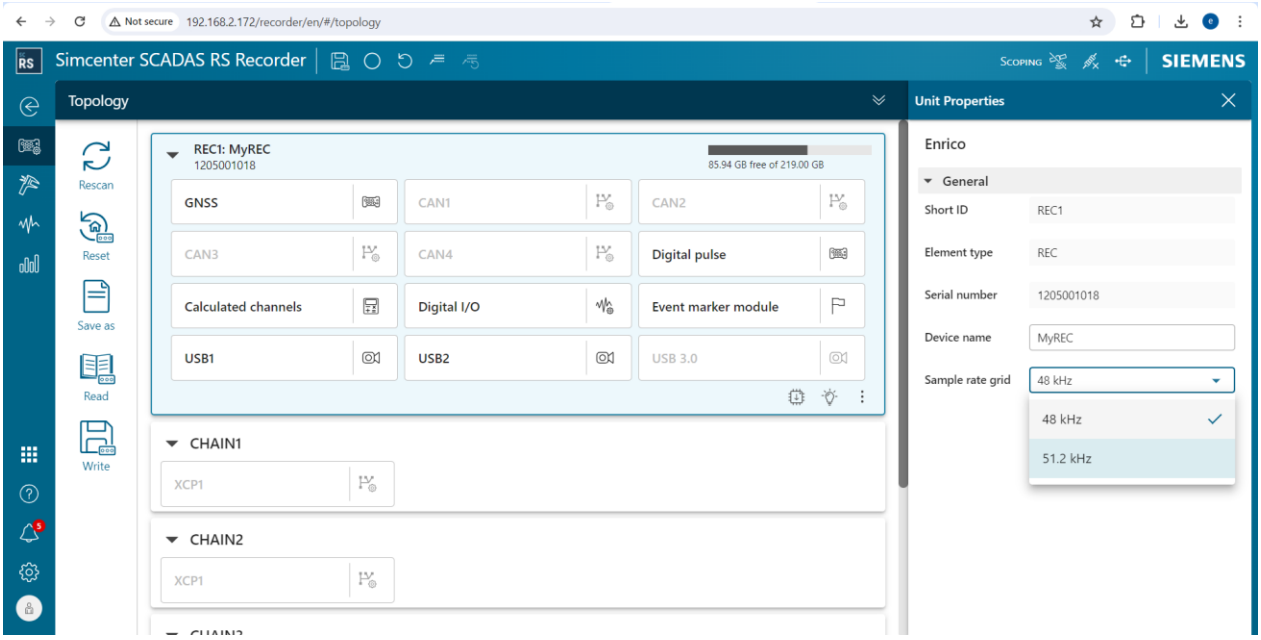
Change of the localization is now possible from the system Preferences task. While the default language remains English (Default), three more languages have been added: Japanese, Chinese, and German. Those languages and translations are aligned between Simcenter Testlab and Simcenter SCADAS RS Recorder App.



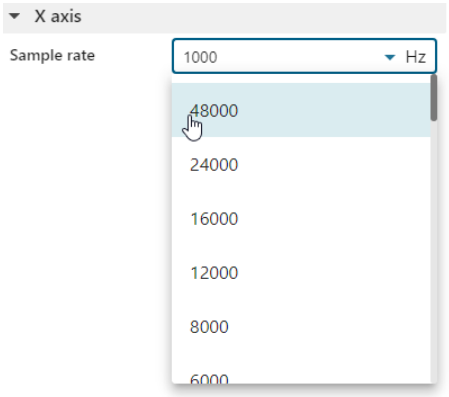
Support of 51K2 sample rate grid

A new set or grid of sample rates is now supported within the new 2406 release. A selection parameter called “Sample rate grid” has been introduced which allows the switch between

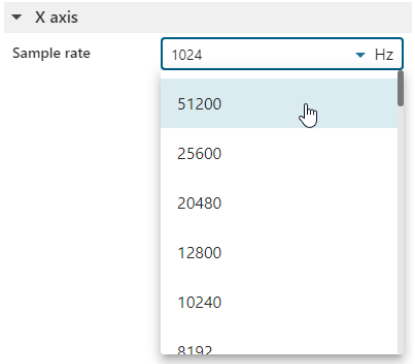
- a so-called 48K grid, which includes all the sample rates supported since the beginning by Simcenter SCADAS RS, i.e. values like 1 Hz, 10Hz, 100 Hz, 200 Hz, etc. up to 48 kHz
- a so-called 51K2 grid, which instead supports sample rates more traditionally found in Simcenter SCADAS Mobile/Lab and Simcenter SCADAS XS families and up to 51,2 kHz



Sample rates for a 48K sample rate grid



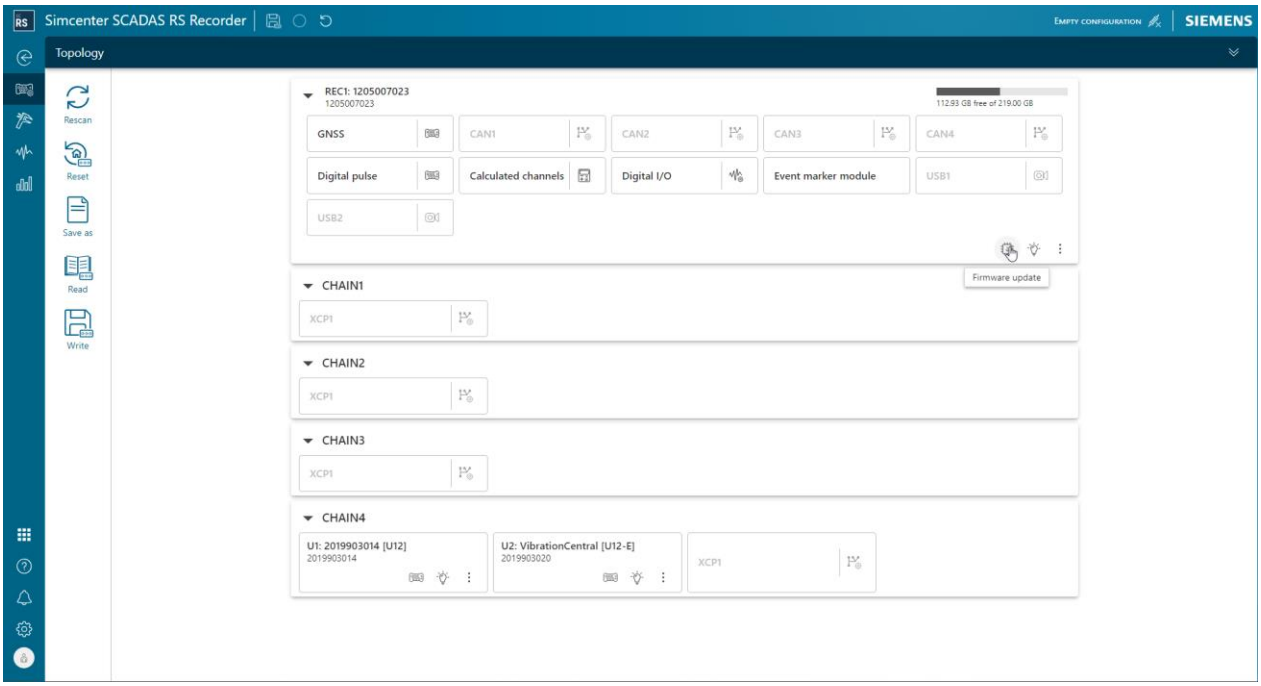
Sample rates for a 51K2 sample rate grid

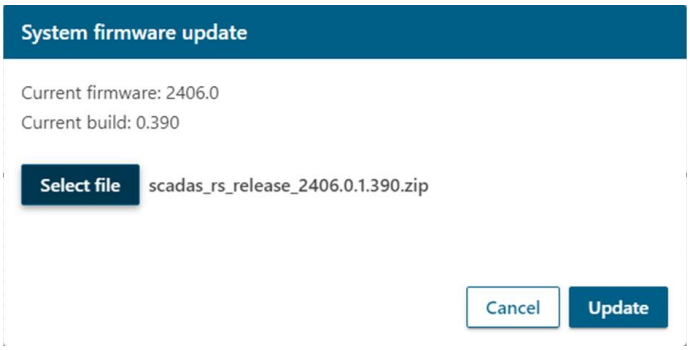


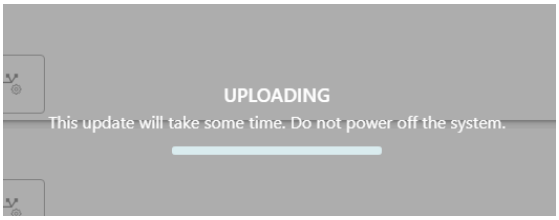
Support and maintenance enhancements

Firmware update of whole SCADAS RS system (→ SCADAS RS system level firmware update)

In order to reduce the time spent on updating the units firmware, a system level approach has been introduced for this purpose. Now a single archive containing the firmware updates of all units types (SCADAS RS REC and SCADAS RS CUs) is loaded on the SCADAS RS REC and this is then applied and propagated to all units currently connected to the SCADAS RS REC with a single action.







If new units are connected which have a lower (older) firmware version, this is detected and with the same action the newly connected unit(s) can be updated as well. A progress bar is also available to monitor the progress of the update on the multiple units.

Firmware update of the single units is still available should this become relevant, e.g. to update CUs when a SCADAS RS REC is not available.

Simcenter Testlab Neo

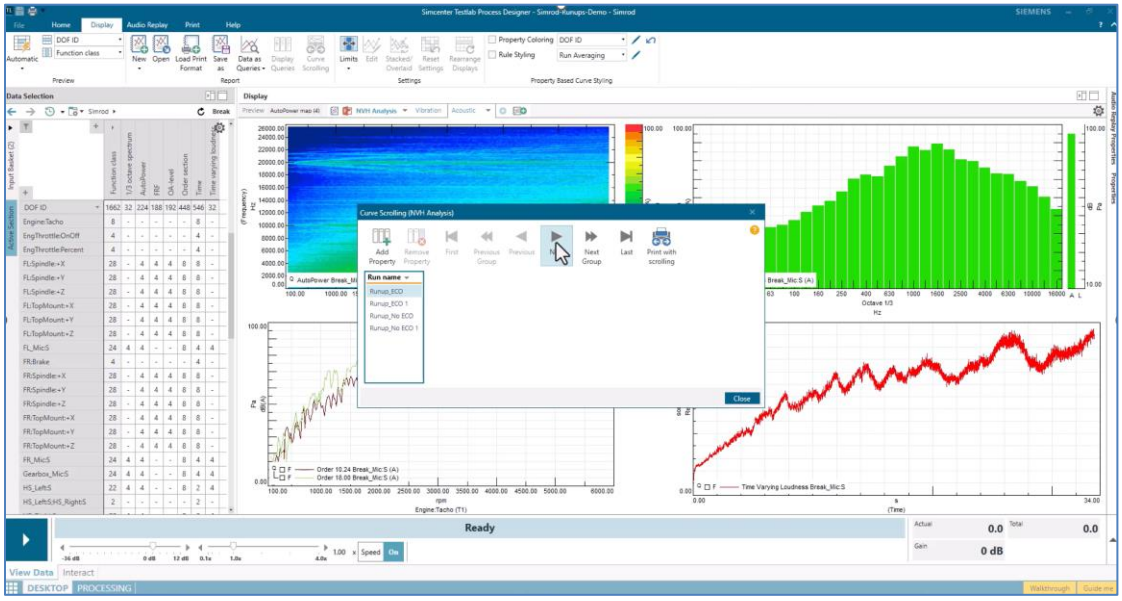
Desktop

Batch reporting/printing

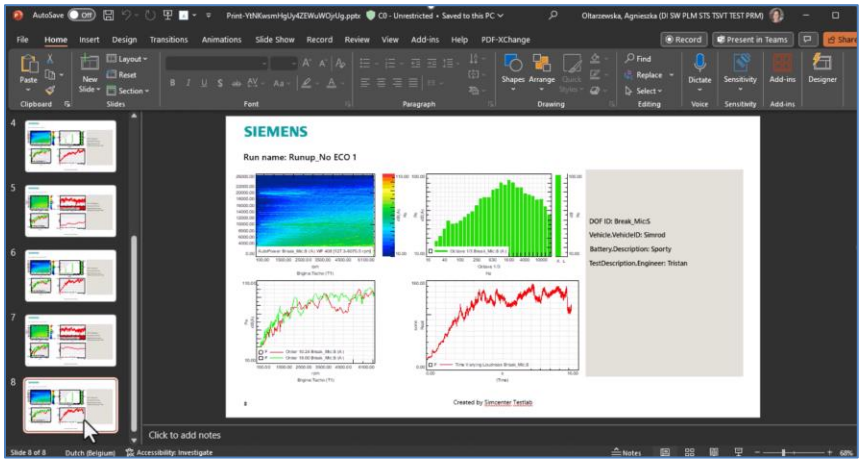
Simcenter Testlab Neo 2406 supports the well-known and appreciated batch reporting/printing.

When batch reporting/printing, multiple loops across not only Engineering (Function class, DOF ID…) but also Descriptive Annotations (Test Engineer, Serial number…), systematically gather the annotation information, populate predefined templates in Word and PowerPoint -the so-called print formats-, and ensure that each report page is accurately and consistently presented. This approach is particularly beneficial for generating detailed reports where large volumes of data need to be documented and analyzed regularly. By automating the reporting and printing, organizations can enhance productivity, maintain high standards of accuracy, and facilitate better data-driven decision-making.

In a first step, you scroll through data to overview the processing and/or measurement results. The curve scrolling will make use of the **query mechanism** per Simcenter TL Report (or Simcenter Testlab Report).



Once the scrolling works as expected, simply hit the ‘Print with scrolling’ button in the second step and enjoy a PowerPoint or Word report being created automatically.



The above-mentioned print formats can be created directly from the Simcenter Testlab Report and are automatically coupled to that Testlab Report. These print formats contain placeholders for all the user pictures in a Simcenter Testlab Report. In Word or PowerPoint, this print format can then be further customized by adding text, images or even Fields. These Fields will extract all metadata of the printed data when (batch) printed. So, not only the user pictures are populated with the correct curves but also metadata (e.g. Run name, Test Engineer, DOF ID, Function class…) is listed after printing.

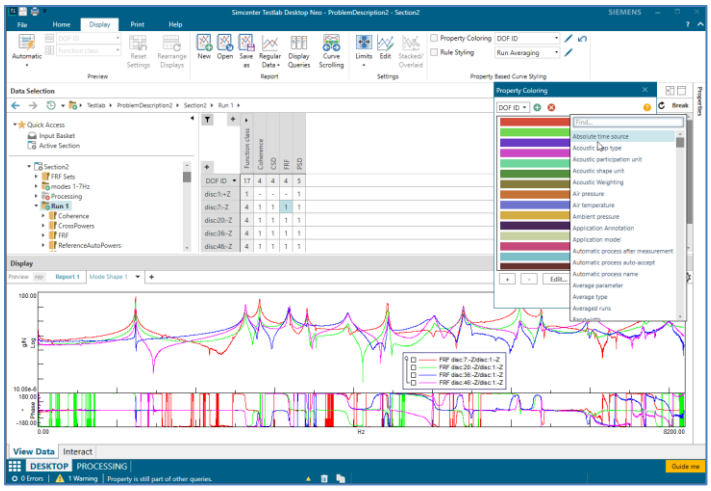
This new batch reporting/printing solution works also when your data is stored in Simcenter Testlab Data Management. Based on metadata (metadata related to context are explained in Consistent data annotation based on descriptive templates), the query mechanism finds the correct data in the ASAM-ODS database and batch reporting/printing ensures that all curves are shown in Simcenter Testlab Report and are automatically printed to Word or PowerPoint.

So, simply ask batch reporting/printing, to loop over all data in the database and batch print e.g. the Overall levels, of e.g. a BMW X6 and a Mercedes EQS -measured and processed by e.g Test Engineer Jean-Claude-, and some minutes later the Word or PowerPoint report will be ready for further analysis.

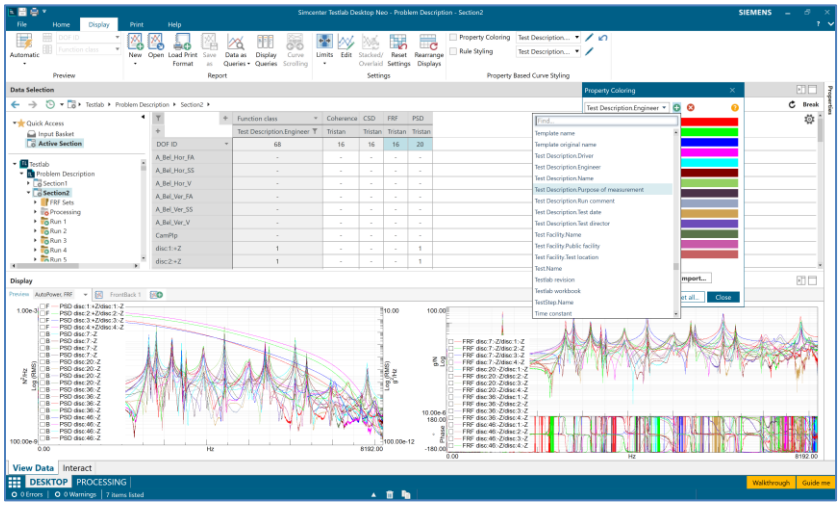
Property-based curve coloring & rule styling

A user can quickly identify data based on property-based curve coloring and rule styling from Simcenter Testlab 2306 on. There are 2 setups possible. The user can ask that the curve for each separate run, DOF ID, function class... etcetera can have a certain color. He/she can also create a curve styling based on rules, e.g., the data of the run with the exact name Run1 should have for all its curves a black color with a certain width length, trace style and so on. In Simcenter Testlab 2306, only engineering properties were supported.
Now, as of Simcenter Testlab 2406 also Descriptive Annotations are supported. Meaning: for example, all curves of data which have ‘NVH Check’ as value for the property ‘Purpose of Measurement’ should be shown in red. Another example: all curves measured on a BMW X1 should be drawn in blue with the maximal curve width and the curves of the Mercedes EQA in green.

Simcenter Testlab 2306

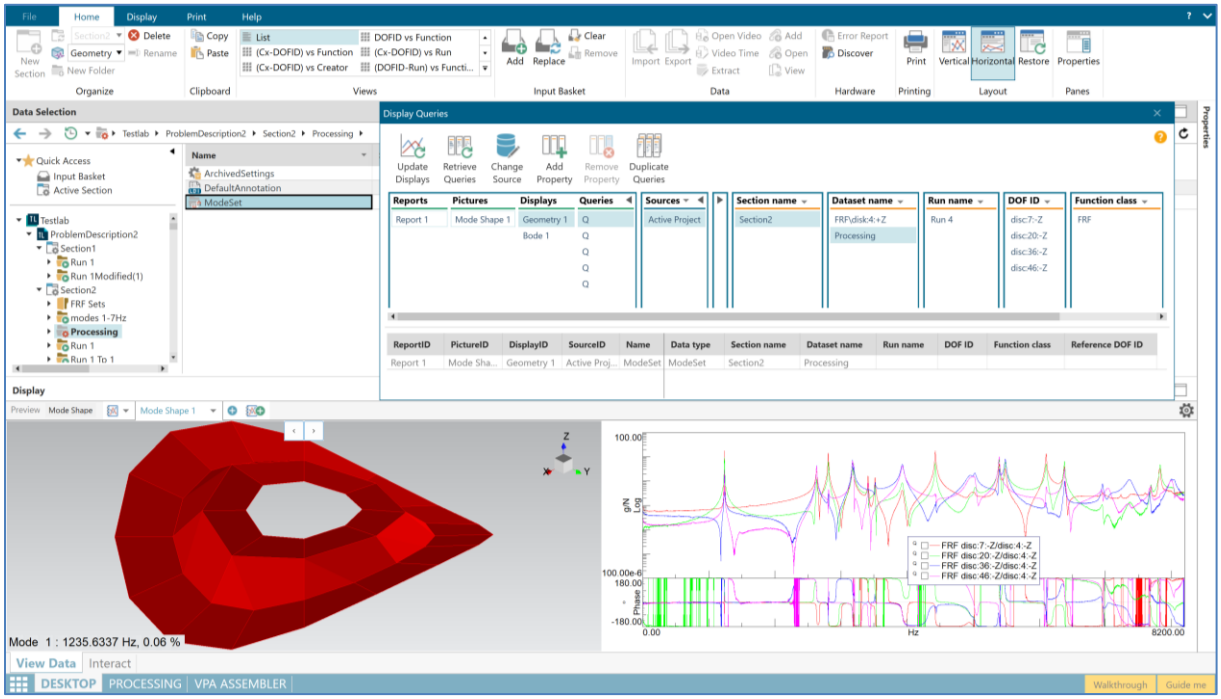


Simcenter Testlab 2406



Query mechanism: Mode set support

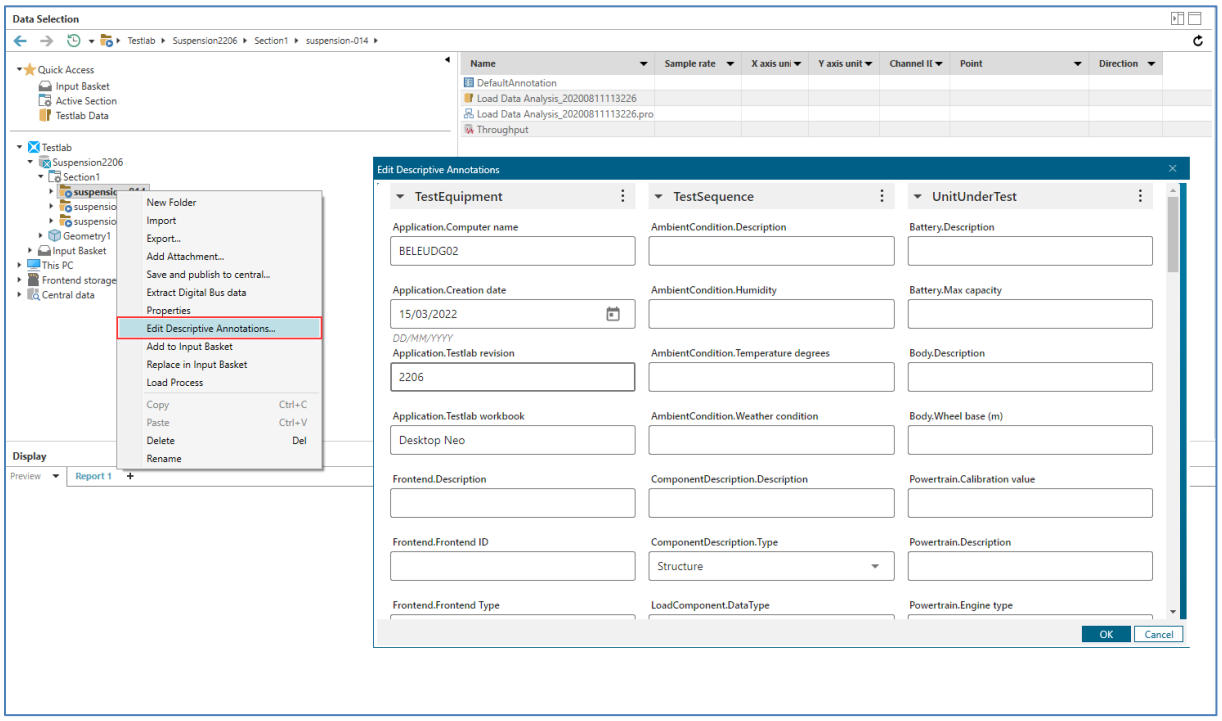
In Simcenter Testlab 2406, a user can visualize/compare mode sets based on Engineering properties (e.g. Run name, Section name…) and Descriptive Annotations (e.g. Test Purpose, Test engineer, Serial number,…), so he/she can be sure that the correct data is shown and that they compare apples with apples. Mode sets, locally or centrally stored, are now fully supported in Simcenter Testlab Neo Reporting.



Consistent data annotation based on descriptive templates

In Simcenter Testlab 2206.0001, we introduced a new concept for contextual annotation, so called “Descriptive Annotation”. From then on, the user could and still can add context to his/her measured and/or processed data e.g. Test Engineer, Vehicle Type, Test Purpose.

This annotation mechanism is based on a fully customizable ASAM-ODS NVH application data model. This data model ensures consistent annotation across all Simcenter Testlab application- Neo & Classic - even in cooperation with Simcenter Testlab Data Management. Consistent annotation is critical for optimizing the re-use of data.

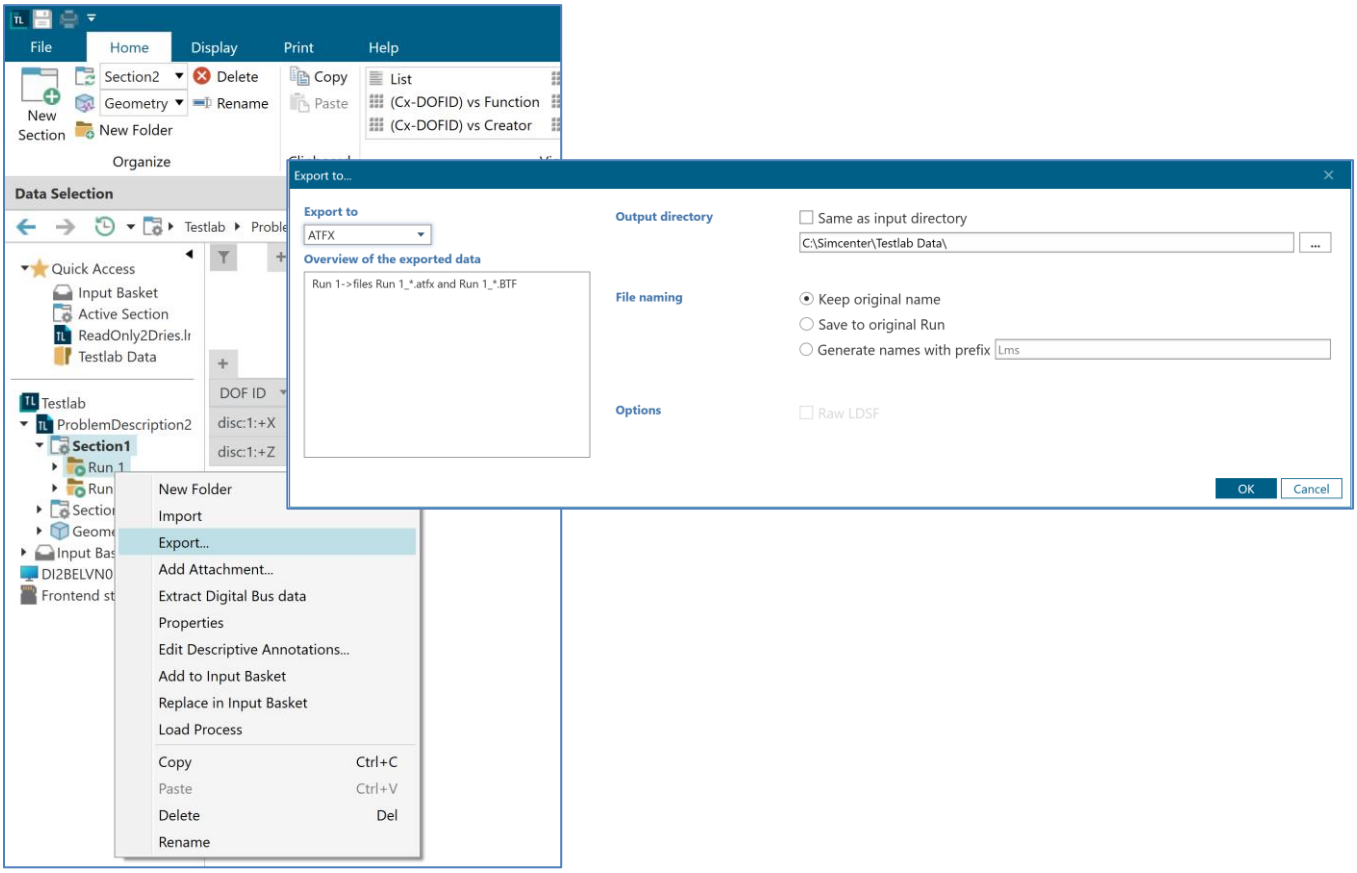


The admin creates the Descriptive data model which contains all contextual properties agreed upon in the company. Descriptive Templates can then be made which are fit for a certain test, unit under test, test team, etc. These Templates contain only subcollection of all the properties in the data model. Once a user loads this Descriptive Template in Simcenter Testlab, he/she can annotate his/her measured/processed data. The actual annotation is saved in the Descriptive instance on Run level.

Export to ATFX includes Descriptive Annotations

When Descriptive Annotations is enabled the Export to ATFX will include all contextual information, as of Simcenter Testlab 2406. Other suppliers can read this context info when following the ASAM NVH application model.

Not only the Factory Model is supported but also customized Descriptive Data Models.

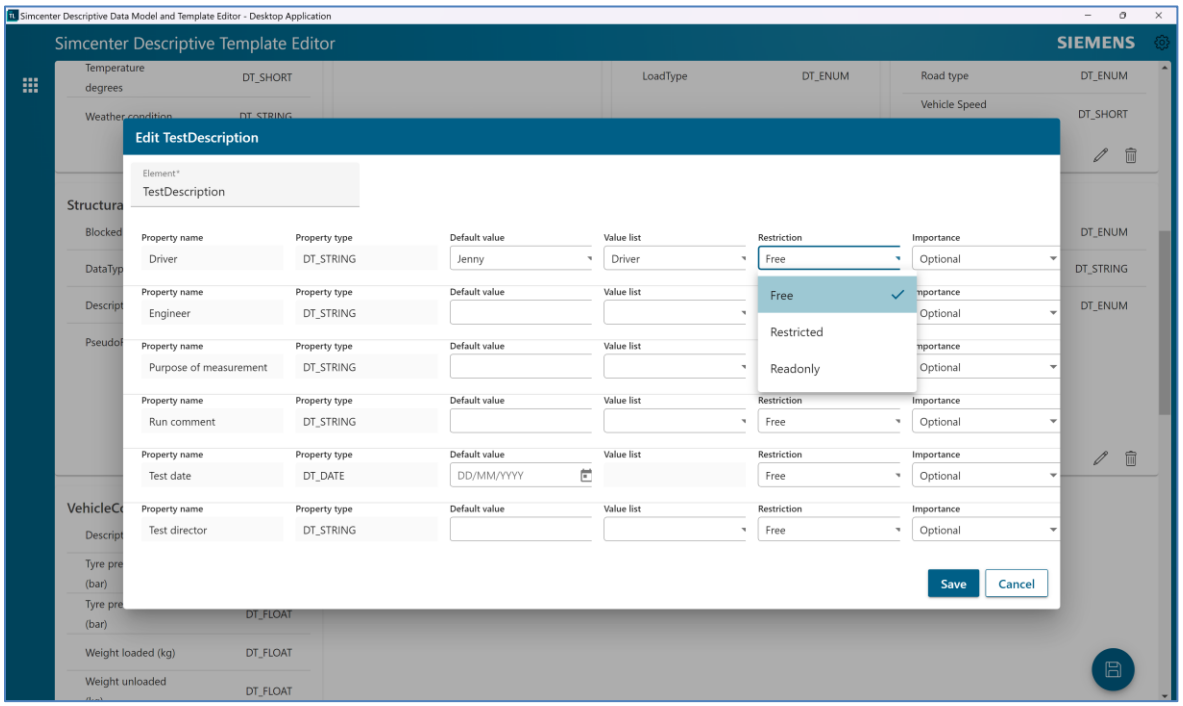


Free value support in Value Lists

Value Lists limit the possible values to a predefined list when filling in/editing some Descriptive Annotations, making the life of technician/engineer simpler and less error prone.
However – sometimes – the correct value is not present in the list.

In the Simcenter Descriptive Data Model and Template Editor of Simcenter Testlab 2406, the admin assigns ‘Restriction’ ‘Free’ to a Descriptive property for which a Value List is defined.

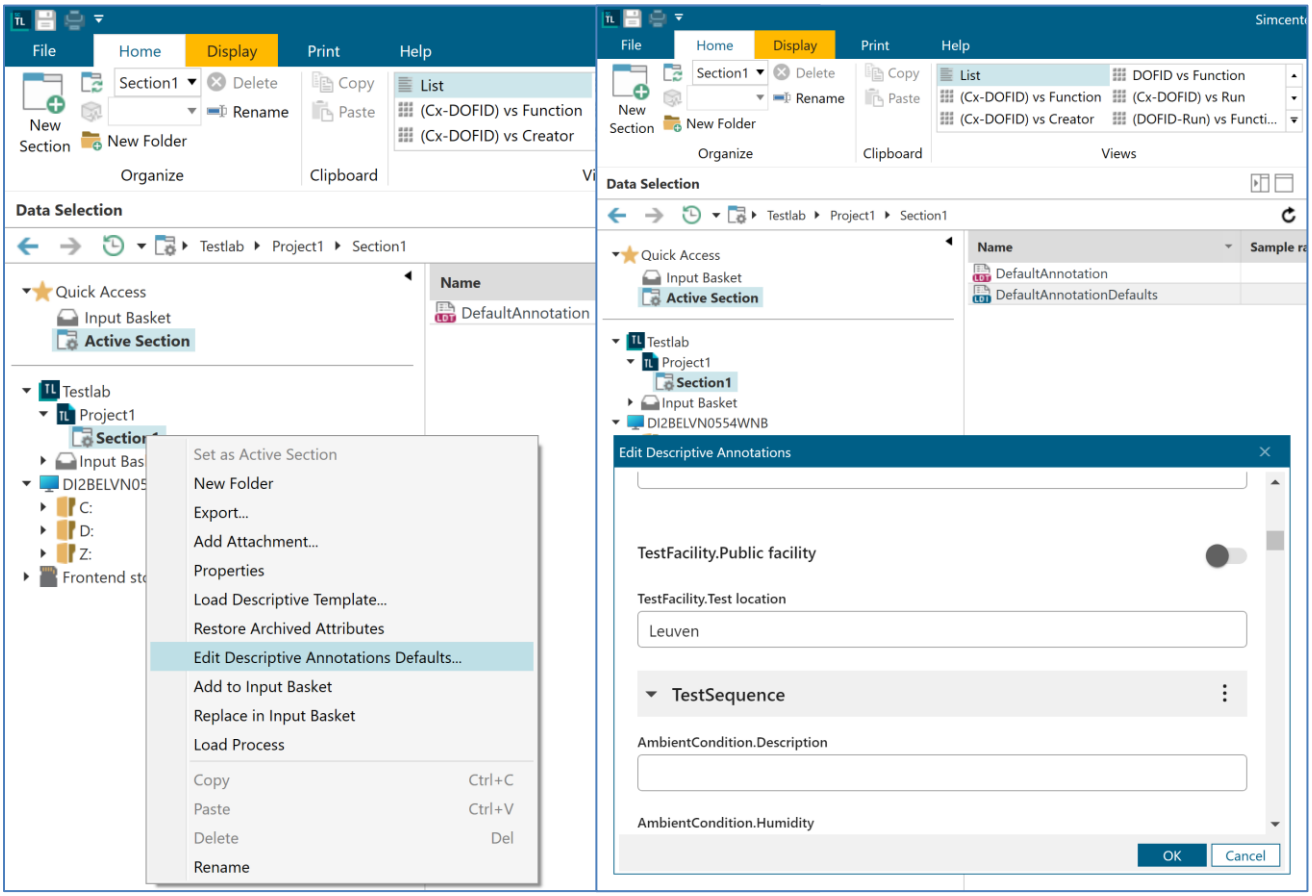
In Simcenter Testlab 2406, the user can then choose one of the predefined values in the list for the Descriptive property or he/she can enter a new value he/she wants.



Default values handling directly in Simcenter Testlab

In Simcenter Testlab 2306, Defaults for the Descriptive Annotations could only by filled in in the Descriptive Template, via the Simcenter Descriptive Data Model and Template Editor, normally by an Administrator.

In Simcenter Testlab 2406, this is still possible. To further improve the usability of the solution, a user can now also edit or add extra Defaults for all or specific user selected properties inside Simcenter Testlab on Section level by choosing ‘Edit Descriptive Annotations Defaults’.



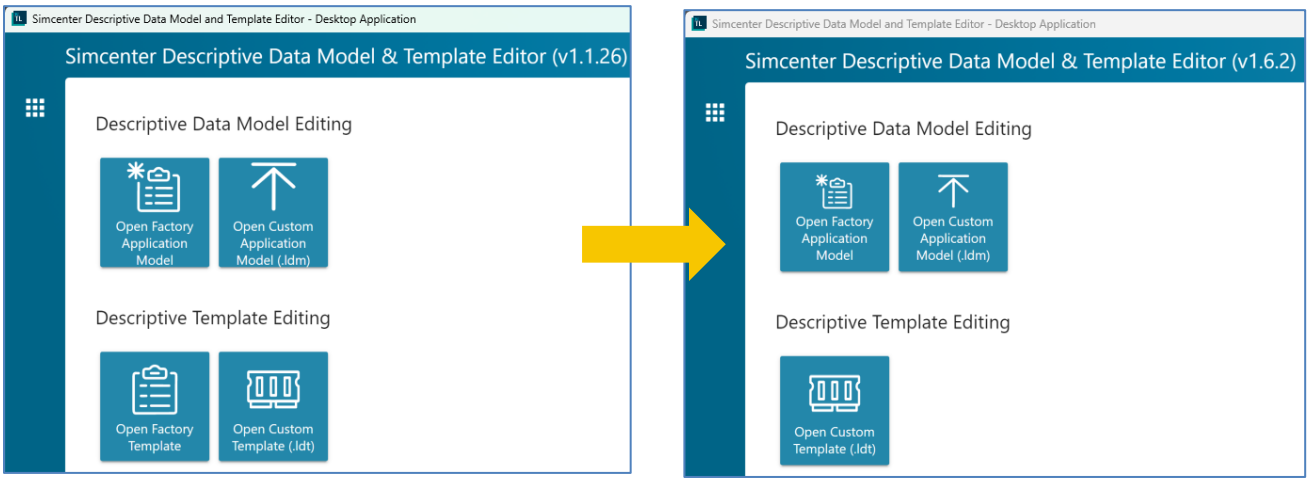
Improved Descriptive Template & Data Model creation

In Simcenter Testlab 2406, the Simcenter Descriptive Data Model And Template Editor is simplified,

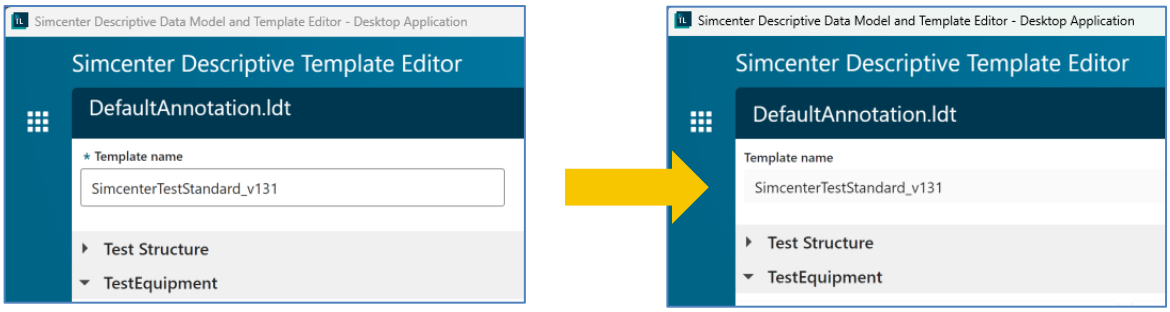
Out of the box, the admin just needs to setup his/her Descriptive Data Model and automatically a Descriptive Template is created with all available properties. While in previous releases, the Descriptive Template of new Data Model was not automatically generated, and the admin needed to perform extra clicks and thus extra steps to get the needed Descriptive Template.

This 'Master' Descriptive Template can then be used to create smaller Descriptive Templates fit for purpose. Advanced options, like changing the Template name, are now disabled for general admins, so the synchronization with Central Data Servers (ex. With Simcenter Testlab Data Management) is enforced.

Simplified UI to guide admins/users in a smoother way.



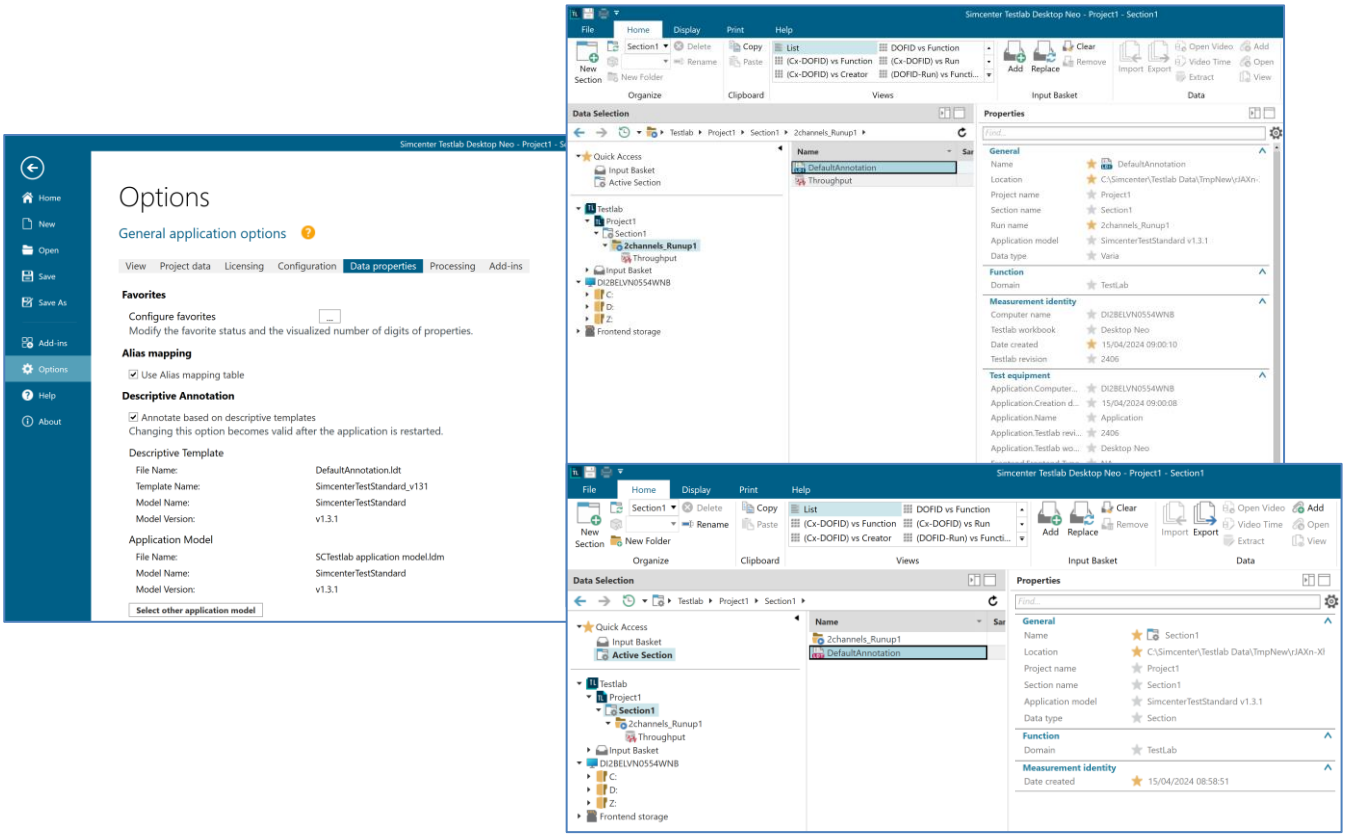
The Template name is automatically filled and blocked to protect the synchronization with the Server.



Improved visibility on used Descriptive Template & Data Model

In Simcenter Testlab 2406, extra info is added in the Data Property tab of the Options. This info tells the user which Model name and Model version is used, for the Default Descriptive Data Model. For the Default Descriptive Template, the Template name, Model name & version is mentioned.

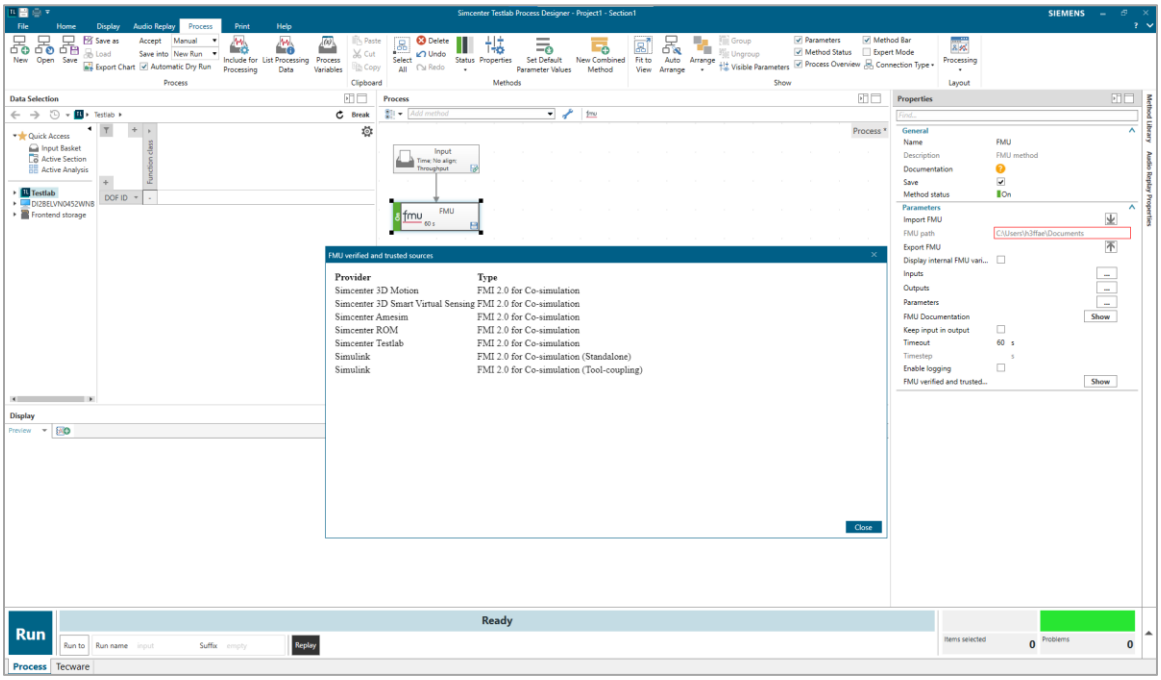
Also, inside the normal Property Pane, more info is displayed for the Descriptive Template of a Section and for the Descriptive Instance of a Run. For the Descriptive Template and instance, you can now easily find back the Data Model on which these entities are based. Plus, you can also identify the used Template name.



Model-based System Testing

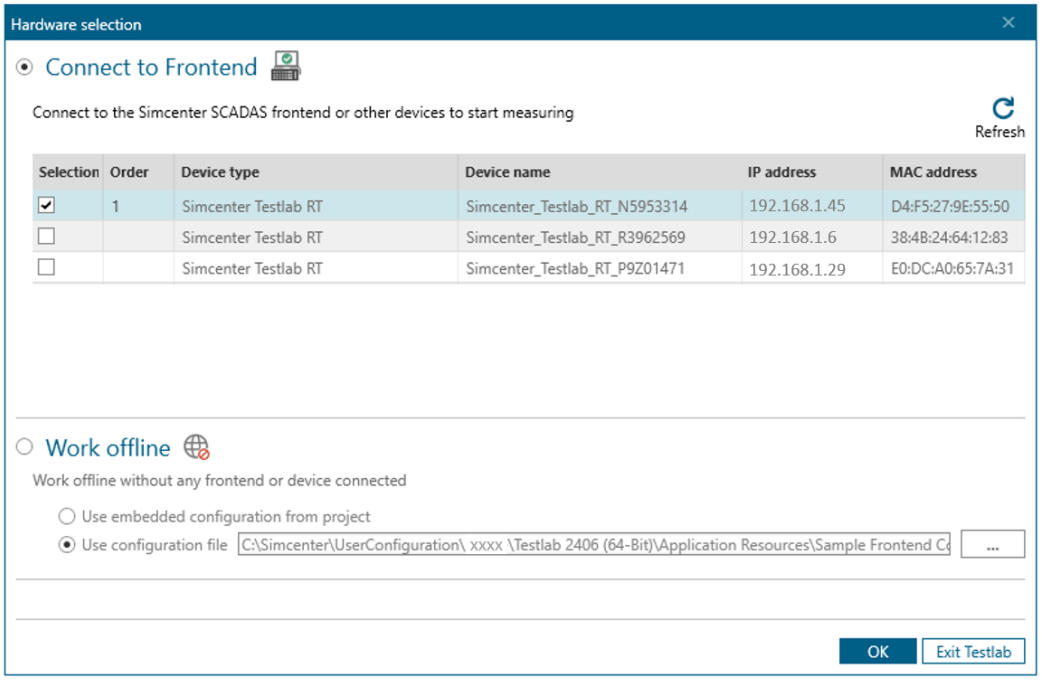
The following functionalities were added in this release of Simcenter Testlab to better link simulation and testing. They cover both offline and real-time use-cases.

- A list of verified and trusted providers was made available for the FMU method in Process Designer. It lists the providers of simulation models using the FMI standard for which additional testing and verification was done in Testlab Neo. This provides extra confidence versus non-verified providers that these simulation models will work out-of-the-box in Simcenter Testlab Process Designer.

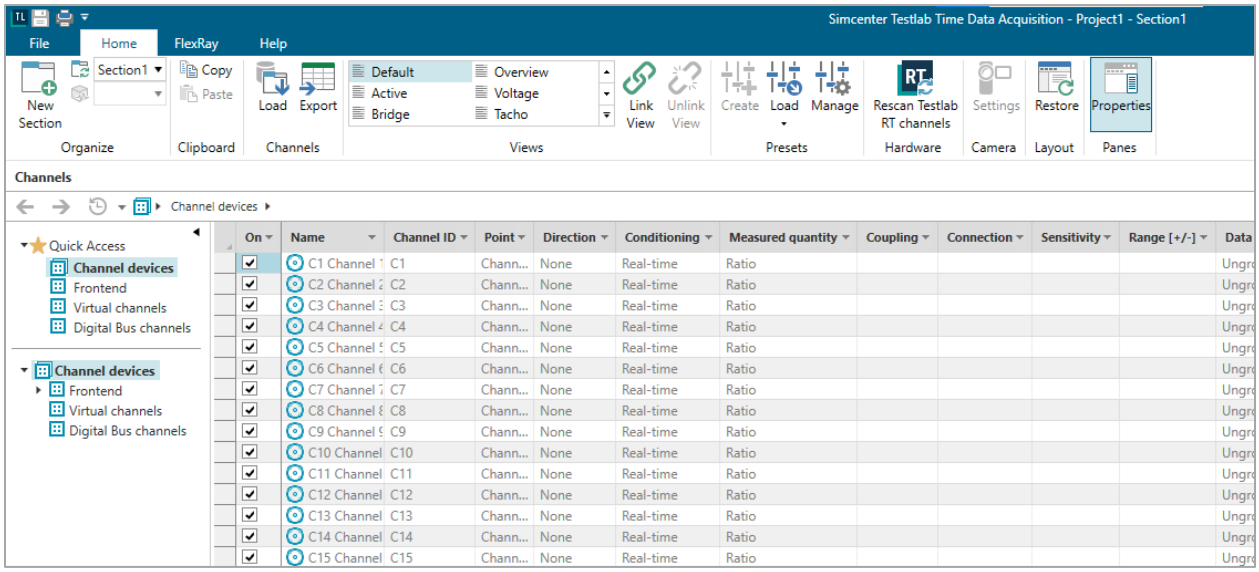


- Amesim FMUs, as of Amesim 2404, do not need a minimal install any more to run in Simcenter Testlab Process Designer. The minimal install remains available in the Simcenter Testlab - Drivers for Amesim to run FMUs from earlier versions of Amesim. This simplifies embedding Amesim FMUs in Testlab Neo.

- The hardware selection dialog of Testlab Time Data Acquisition was extended with functionality for discovering Simcenter Testing hardware over the network. This includes the Testlab RT hardware platforms. Upon starting Testlab Time Data Acquisition, Testlab RT hardware platforms on the network subnet are automatically discovered. One can be selected for acquisition of its real-time channels (simulated and physical channels).



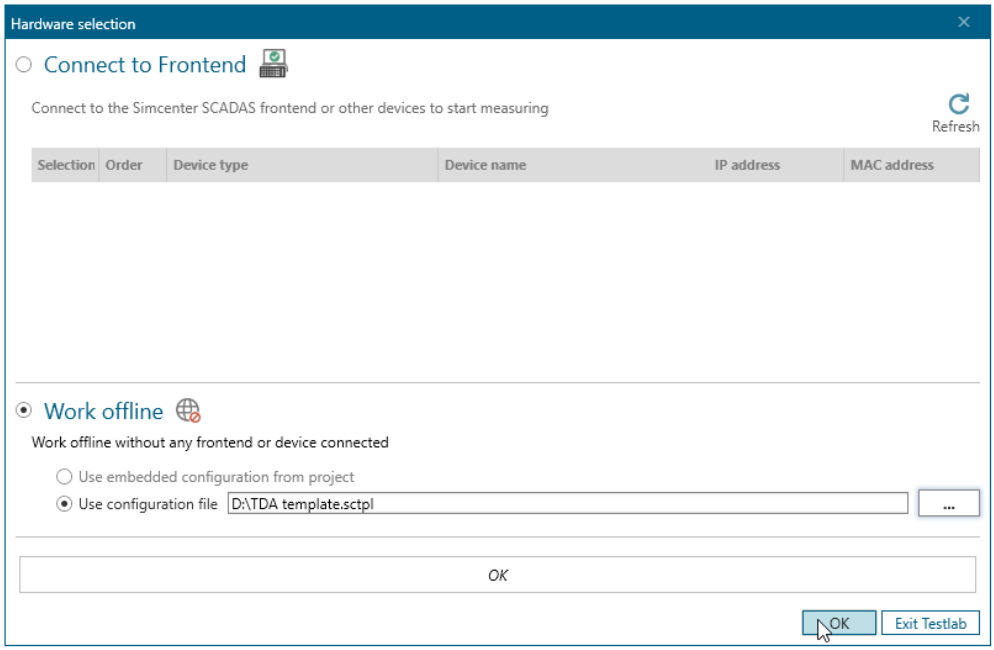
- A rescan functionality for Testlab RT channels was added to the Instrumentation tab in Testlab Time Data Acquisition. Whenever Testlab RT channel properties have changed or the Testlab RT active test has changed, pressing the “Rescan Testlab RT channels” button re-loads the latest configuration from Testlab RT. This speeds up the data acquisition setup and measurements with Simcenter Testlab RT.



General Acquisition

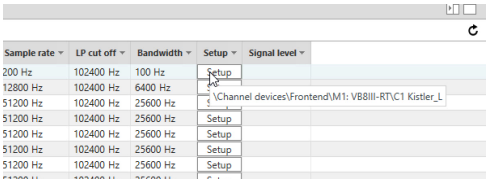
Start a project from a sctpl file

It is now possible to start a new acquisition project with Simcenter Testlab Time Data Acquisition (and the Recording Workbook or the Acquisition Setup) using an existing *.sctpl file as hardware configuration, not only a *.fec or *.nfec. It is therefore possible to start a project by reusing settings from an existing Simcenter SCADAS RS recording or template.



New acquisition setup interface

The 2406 release of Simcenter Testlab Neo offers users a new single channel instrumentation page that provides a clear overview of all advanced parameters. The single channel editing page is directly reachable through the simple click of the “setup” button from the channel grid.

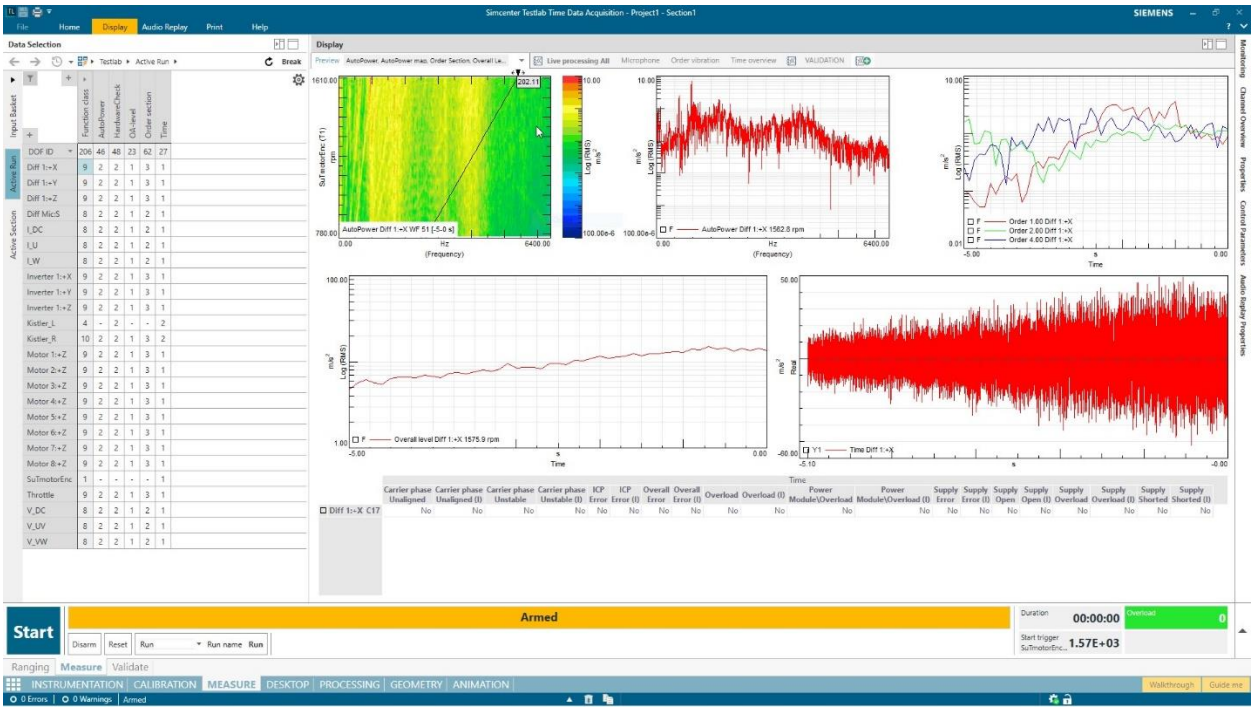


The channel grid columns default view has been modified to show the most important channel parameters.

This new setup task allows to adapt all the channel parameters with a quick overview on the most important ones. The parameter overview is adapted depending on the input channel type to ensure a clear overview of relevant information (Example: Supply is hidden for ICP sensors). The channel modification can be done while the system is armed, allowing the users to directly see the effect of the modification on the time, statistics, and spectrum data.

Online data monitoring

With the release 2406 of Simcenter Testlab Neo, it is now possible to calculate and display real-time NVH metrics such as spectrum map, order section, overall level, acoustic level, spectrum averaging, and peak hold with the Time Data Acquisition module. These metrics can be visualized against time or any “slow” data like rotational speed, torque, or vehicle speed axis. These functionalities are seamlessly integrated into a clear and interactive toolbox. These functionalities are included with the Simcenter Time Data Acquisition module.



During the acquisition, the processed data can be visualized through the pivot table and preview mode, providing a quick overview and validation. Users can also manually create, and overlay displays with existing datasets. The calculated data during the acquisition are there to assist the acquisition process but are not saved with the throughput data. A standard process from Process Designer can be launched automatically at the end of the measurement provided that the proper add-ins are available.

Simcenter SCADAS RS reconnect

It sometimes happens that the connection to the frontend is lost while doing acquisition. In release 2406 of Simcenter Testlab Neo a “reconnect” option has been added. This allows to reconnect to the SCADAS RS frontend and continue working while being connected without having to restart the application. Eventual hardware changes that were done in the software while being disconnected are pushed when reconnecting. Note: this functionality will not work in case the frontend structure is changed while disconnected (adding/removing conditioning units).

Simcenter SCADAS RS sample grid support

Two sample rates grid are now available on SCADAS RS hardware: the 48 kHz one and the new 51.2 kHz.

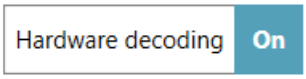
- The 48kHz one allows following sample grid in Hz (depending on conditioning unit type): 0.2; 0.3; 0.4; 0.6; 0.8; 1; 1.2; 2; 3;4; 6; 8; 10; 12; 20; 30; 40; 60; 80; 100; 120; 200; 300; 400; 600; 800; 1000; 1200; 2000; 3000; 4000; 6000; 8000; 12000; 16000; 24000; 48000.The 51.2kHz one allows following sample grid in Hz (depending on conditioning unit type): 204.8; 409.6; 819.2; 1024; 1638.4; 2048; 3276.8; 4096; 5120; 8192; 10240; 20480; 51200.

Generic CAN Support

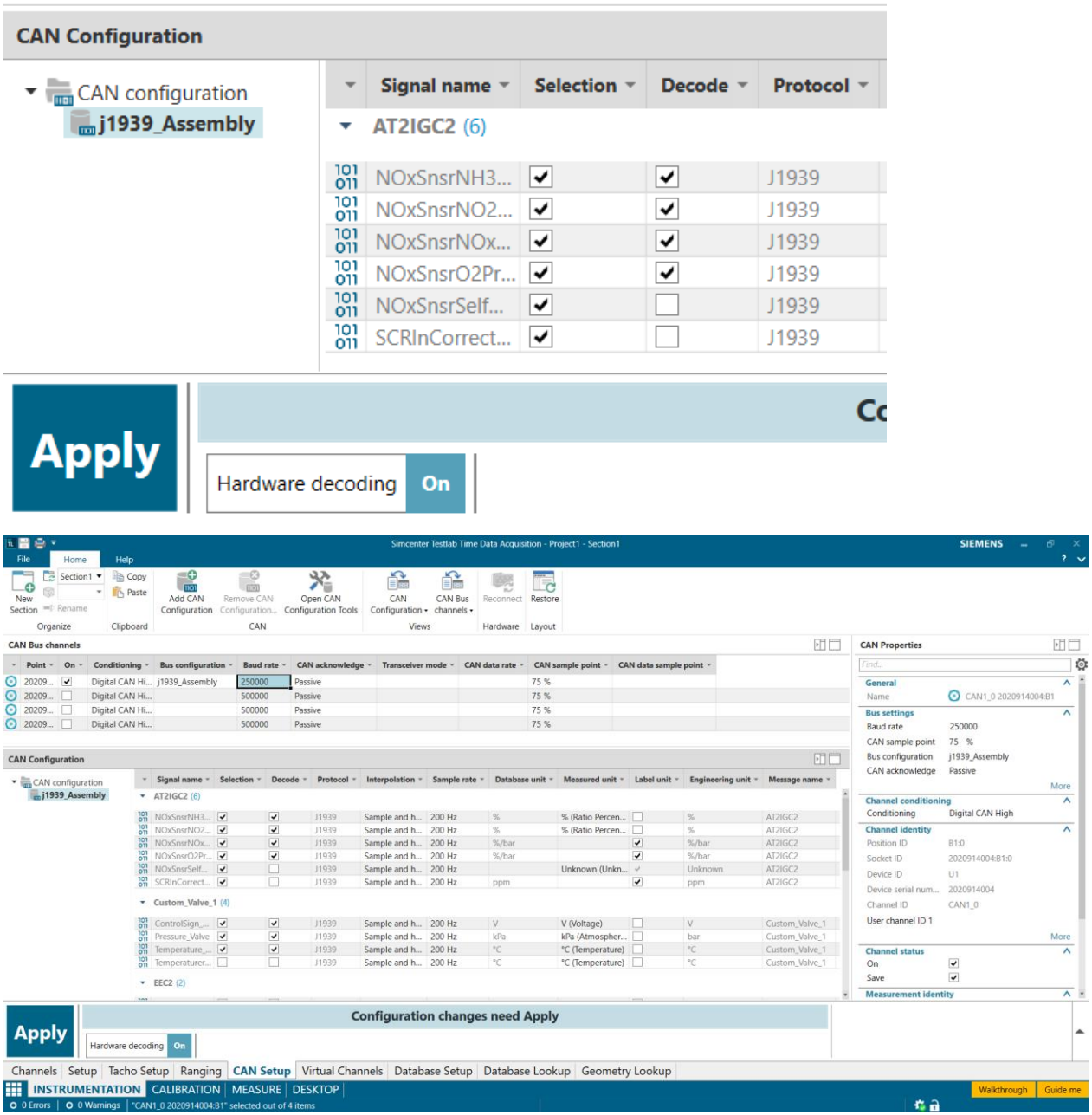
CAN setup usability improvements

Simplification of the CAN configuration process has been carried out in support of both Simcenter SCADAS RS as well as Simcenter SCADAS Mobile, XS and Lab users. The CAN configuration can now be done entirely from the CAN setup task thanks to the introduction of a few new features

- Hardware decoding - switch “On” or “Off”. With Simcenter SCADAS RS, CAN signals can be decoded on the Simcenter SCADAS RS REC unit (Hardware decoding) hence be directly displayed and monitored on the Simcenter SCADAS RS Recorder App and used for triggering or calculated channels definition and are potentially directly stored as ldsf traces within a standalone acquisition. By switching the Hardware decoding switch (only available when preparing a CAN configuration for Simcenter SCADAS RS) to “On” all those advantages are applied. However remember that only up to 32 signals can concurrently be decoded online on the hardware and also only a sample and hold method can be used for interpolation. Hence with the switch set to “On” also those limitations apply. If the Hardware decoding flag is set to “Off” instead, then this means that the CAN decoding is performed within Simcenter Testlab hence the selected signals are available only within such application. Note that in this case there are no limitations in the number of decoded signals and also a linear interpolation can be used.



- Decode flag. Furthermore, a new parameter shows up in the case of Hardware decoding = “On”, which is the Decode flag. This is used to determine which of the selected signals are in fact then decoded on the hardware and hence can be used for monitoring within the Simcenter SCADAS RS Recorder App and can be potentially recorded as ldsf traces in a standalone acquisition. This flag replaces the need to move to the Channels task to complete the CAN configuration, which was instead necessary in the previous version of the software. Note that signals for which the Decode flag is not ticked but for which the Selection flag is ticked can be still viewed in a view and forget mode in the Simcenter SCADAS RS Recorder App, and can be decoded offline.



Note that the use of the Selection flag will suffice to create CAN channels in the case of Simcenter SCADAS RS configuration with Hardware decoding switched Off or Simcenter SCADAS Mobile, XS or Lab configuration.

A more explicit indication about when an Apply button action is required as well as a simplification and alignment of the CAN property names between Simcenter Testlab and Simcenter SCADAS RS Recorder App are among additional improvements carried out within this task.

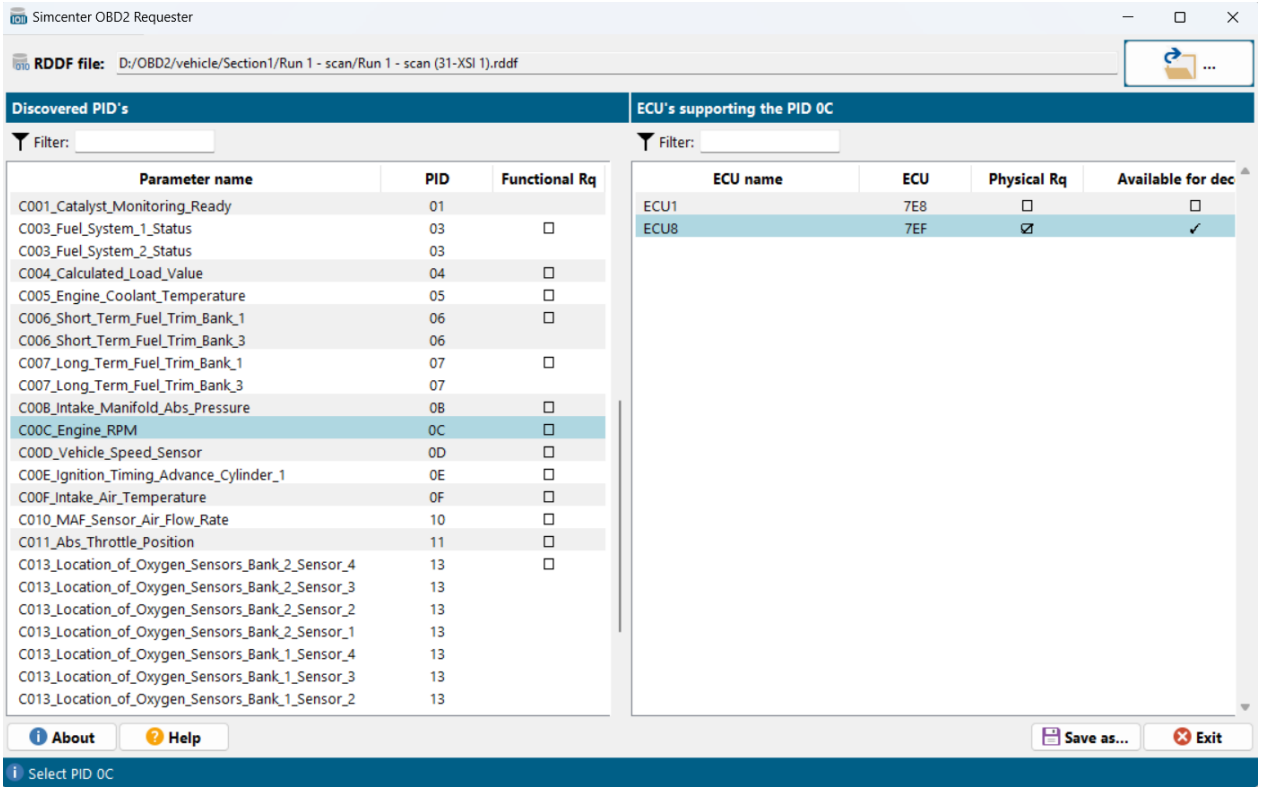
OBD-II configuration helper tool

With more and more ECUs (Electronic Control Units) available on today's vehicles the complexity of OBD-II communication via the CAN protocol has also become more complex. In practice multiple ECUs using specific and dedicated addresses might be the publisher of the required data. Knowing those

specific addresses upfront is not a given and this is why a new tool has been introduced since the release 2306.0001 hance also available in the new 2406 release of Simcenter Testlab. This is a standalone tool which can be found in the software installation folder and can be used to define the necessary DBC files required to request and decode the OBD-II data for a specific vehicle.

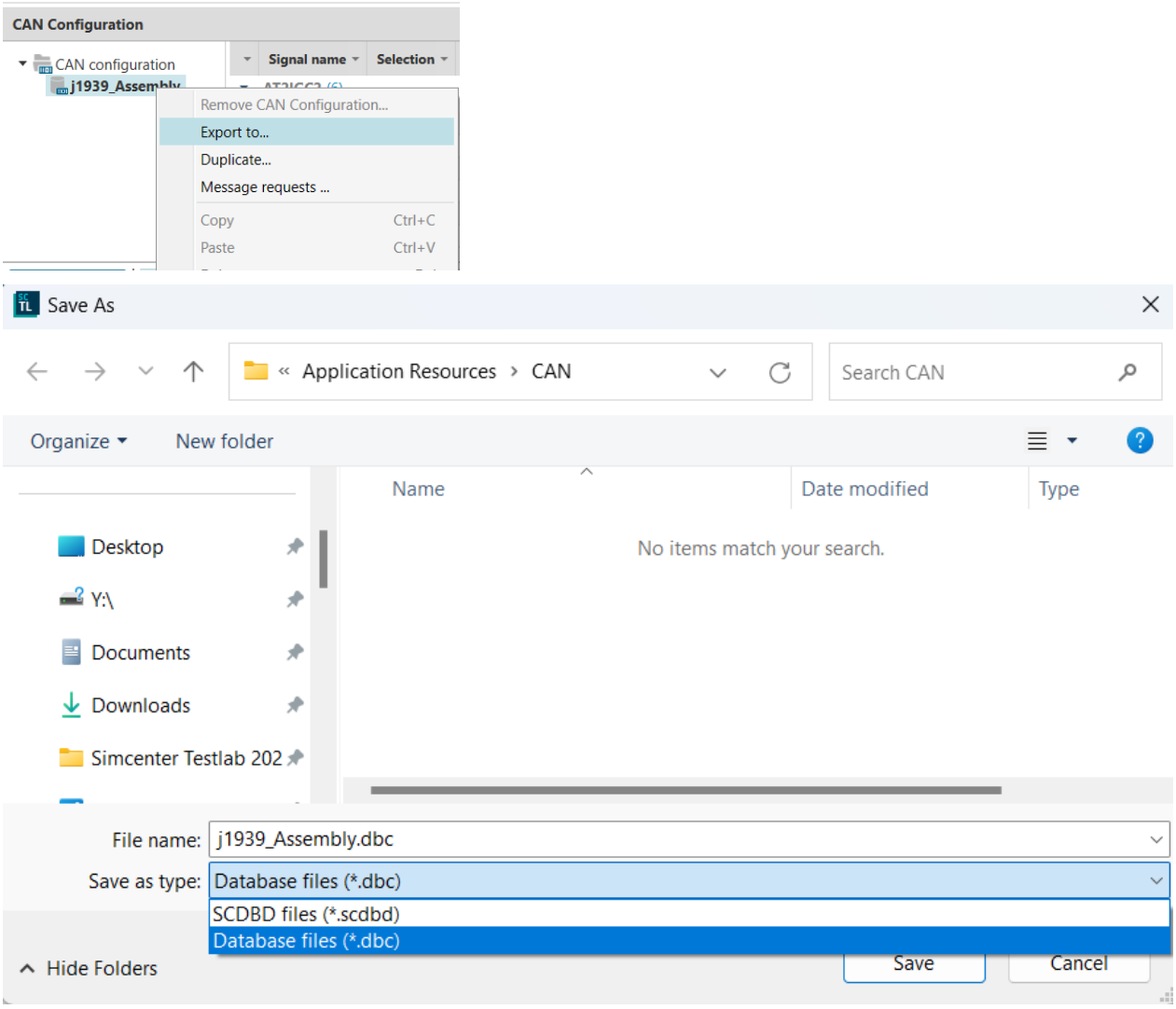
The process goes in three steps

- A first step is done to acquire a short measurement on the OBD-II bus configured with a generic scanning DBC file which can be found among the application resources
- The previous step will generate an RDDF file containing some OBD-II information including addresses of the ECUs and the available data for each of them. This RDDf file can then be loaded into the so called Simcenter OBD2 Requester (OBD-II configuration helper). Within this tool we can then see a list of available data and respective ECU addresses. We can make a selection of the required data here also specifying if the request of data needs to be functional (sent to all ECUs) or physical (specifically sent to one or more ECUs). As some vehicle might implement only one or the other type of request, it is important to have the possibility to choose between both. Once the selection is made it is possible to export as a DBC file.
- This DBC file can then be loaded inside Simcenter Testlab and a CAN configuration made, which will contain the proper vehicle OBD-II profile



DBC file export

In some occasions it might be useful to share a reduced version of a larger DBC file or the result of a merge action between multiple DBC files. For this reason we have introduced the option to export a CAN configuration not only as an SCDBD file but also as an DBC file. This is accessible through the usual context menu action for export of the SCDBD configuration (as already available from previous software versions), then selecting the DBC option as save as type.

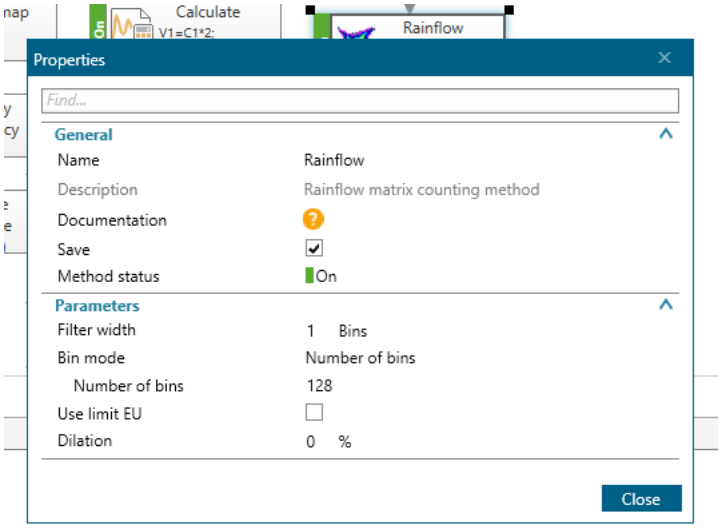

CAN Configuration
CAN configuration
j1939_Assembly
Signal name
Selection
Remove CAN Configuration...
Export to...
Duplicate...
Message requests ...
Copy Ctrl+C
Paste Ctrl+V
Save As
Application Resources › CAN
Search CAN
Organize
New folder
Name
Date modified
Type
No items match your search.
Desktop
Y:\
Documents
Downloads
Simcenter Testlab 202
File name: j1939_Assembly.dbc
Save as type: Database files (*.dbc)
SCDBD files (*.scdbd)
Database files (*.dbc)
Hide Folders
Save
Cancel

General Processing

Process Designer

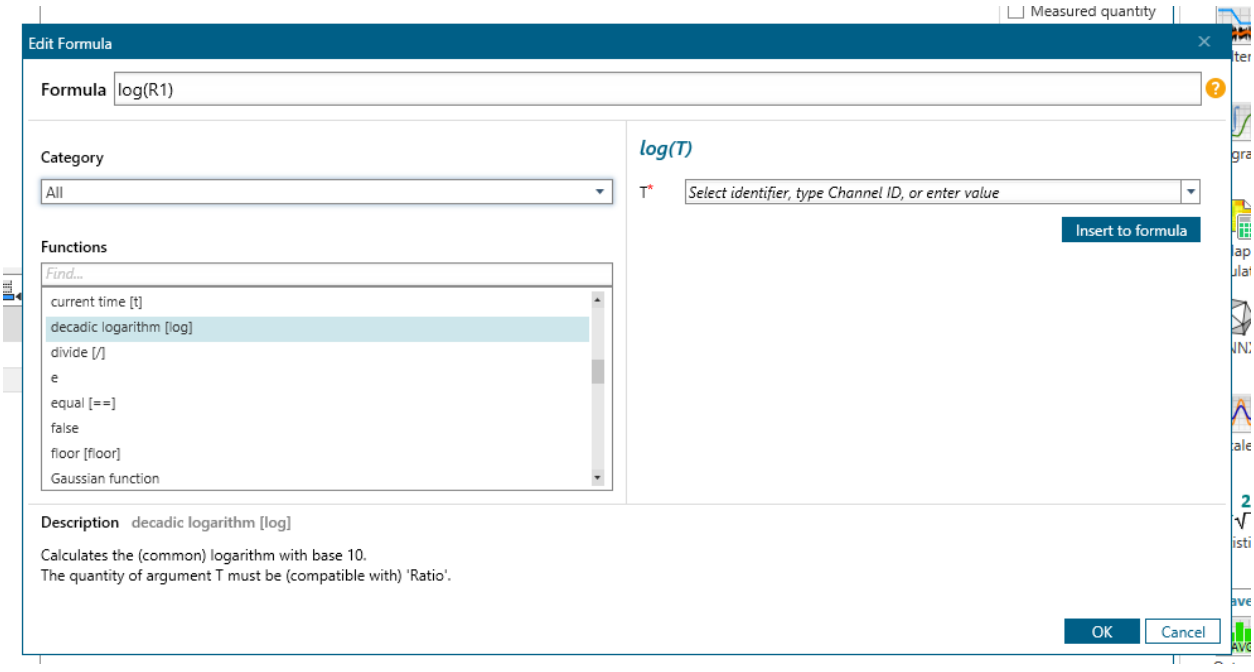
Double-click to edit method properties

You can now double-click on a method to open its *Properties* pane dialog and quickly modify the settings:



Calculator methods: new Edit formula button

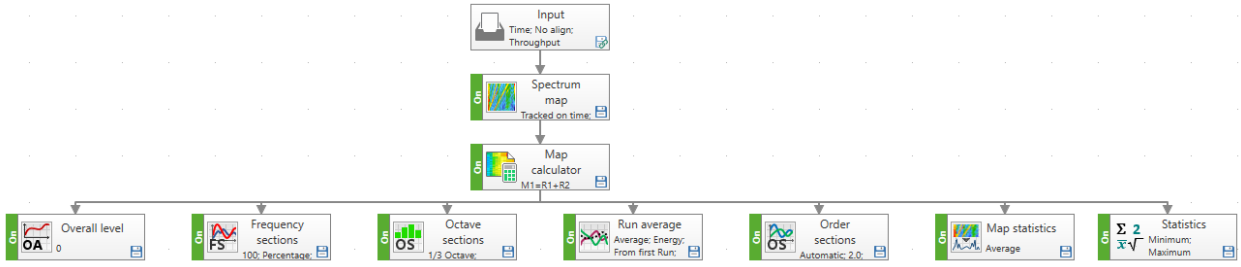
To improve the usability of the Calculate methods, a new *Edit formula* button has been added to the Calculate, Block calculator and Map calculator methods.

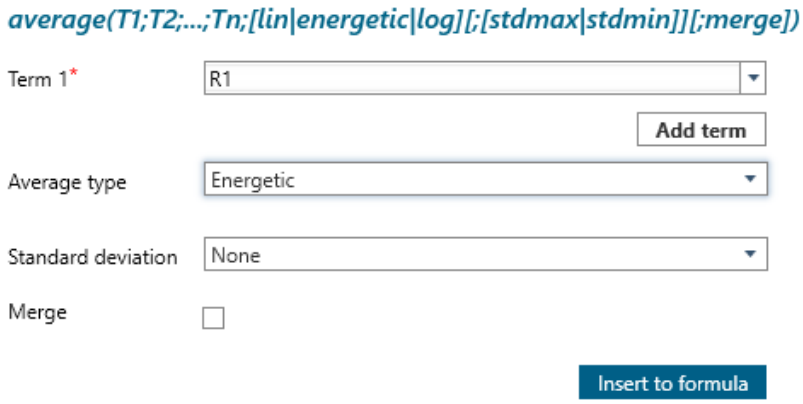


The new dialog lists all supported functions, a short explanation and dynamic list of required fields and values.

Map calculator

With the release 2406 it is possible to do operations on maps in process designer. Time traces are the starting point from the process, and a single spectrum map can be connected to the new “Map calculator” method. It is possible with this method to do calculations across multiple channels from the same input run. Multiple functions like arithmetic operations, average, envelope and vectorsum are available. It is possible to connect the calculated spectrum maps to sections or run average like a standard spectrum map. The new method is available with the “Interactive analysis” add-in.



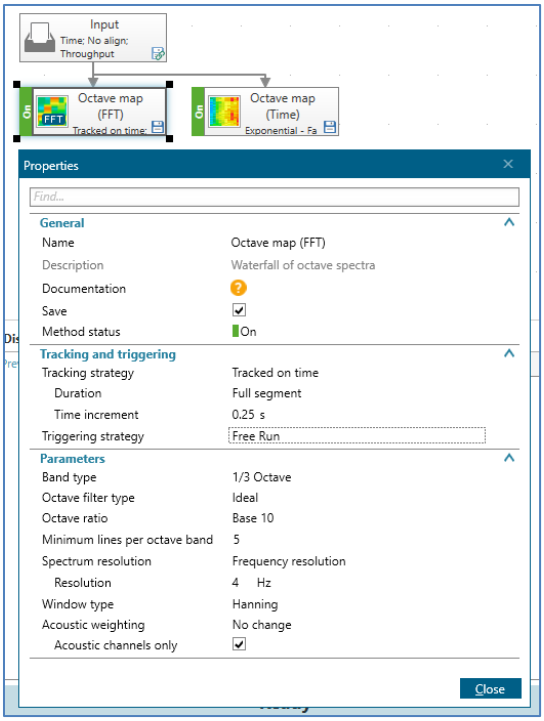


FFT based octave

A new method is available in the “Signature analysis” and the “Sound quality analysis” licenses, the FFT-based octave map. This method calculates an octave map based on frequency domain, unlike the existing “octave map” which works on time domain through a series of filters.

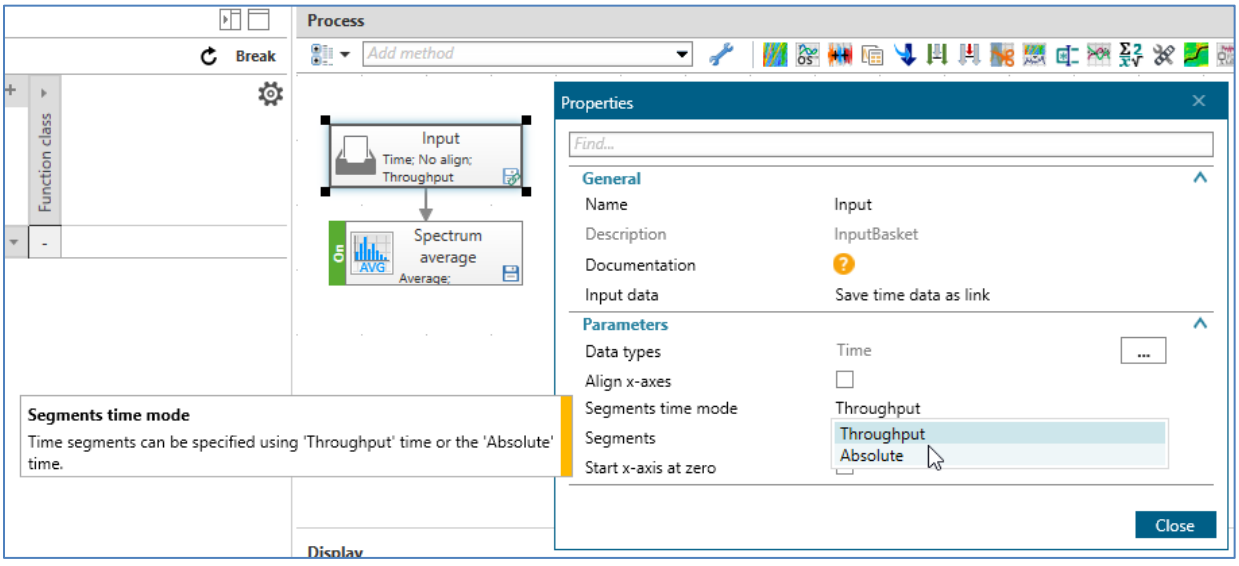
In this new method, multiple octave band types are available (1/1; 1/3; 16; 1/12; 1/24). Two filter types can be used (Ideal or ANSI Emulation). Octave ratio is base 2 or 10. The user can define a minimum number of lines per octave band. Other options like tracking and triggering are like other existing maps methods.

The icon and names of the octave map (FFT or Time based) have been updated to identify them in the list of methods. Old process with time-based methods will automatically be updated.



Segmenting on absolute time

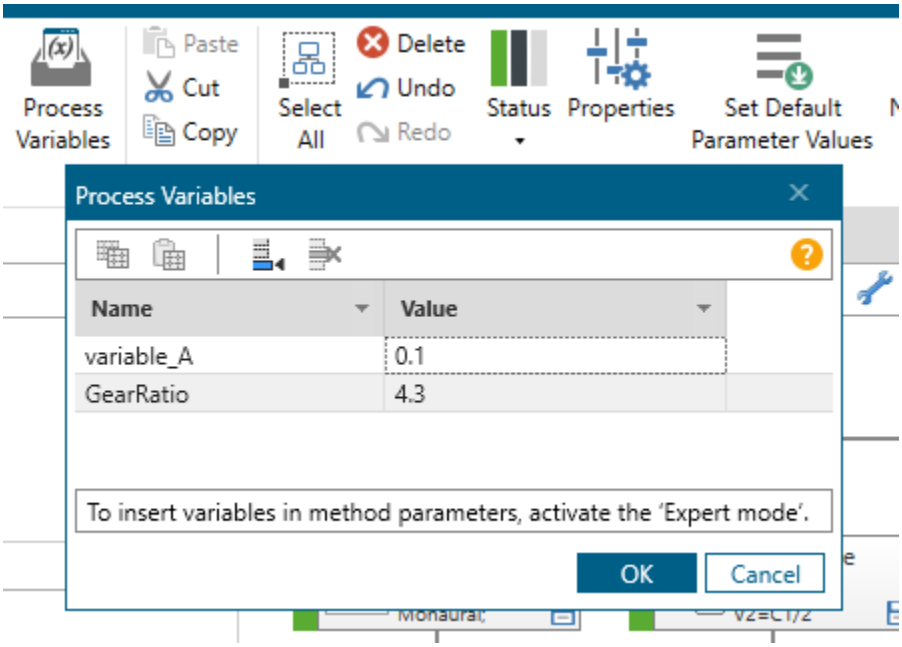
In the input method of process designer, it is possible to define one, or multiple, time segments. With the release 2406 it is possible to define the segment(s) either in time -throughput- (like previous releases) or in time -absolute-. You can therefore load multiple runs, eventually measured with different systems at different timing, and cut segments for all of them at the same absolute time.



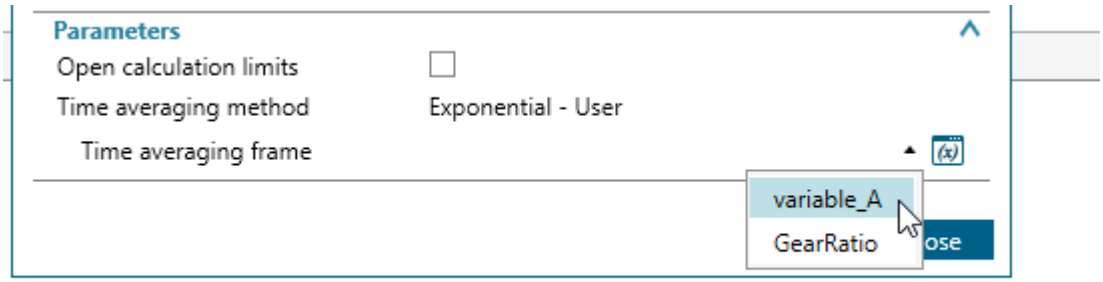
Process Variables

You can now define user variables to globally set parameters from a single location with Process Designer (only supported when Expert mode is enabled via the ribbon). Process variables allow to apply

the same property value, such as the filter cutoff frequency, tracking step resulting run name from one central location in the software, making it easy to manage complex processes with multiple parallel branches.



All supported parameters will now show a light-grey variable icon on the right-side of the input field. Clicking on that icon will switch the input mode from user variable to a process variable and the already defined variables can be then selected.



Improved method searching

The Method Library search mechanism has been extended with searching not only for the method name, but also the description as well as a set of pre-defined nicknames. As a result, searching for “OAL” will now also find the Overall level method.

Calculate Octave sections from Octave maps

Octave sections can be now calculated both on time-based and FFT-based Octave maps.

Mission Synthesis

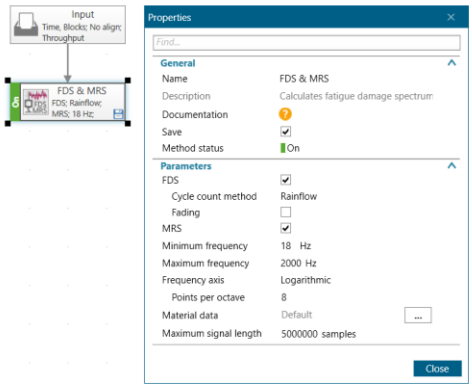
In Simcenter Testlab 2406 the Mission Synthesis add-in of Process Designer enables the calculation of Fatigue Damage Spectra (FDS) and Maximum Response Spectra from different runs (starting from time data, PSD or sine sweep Spectra), the possibility to combine different environments in a single mission and the calculation of realistic random (PSD) or sine (Spectra) shaker test profiles.

The add-in allows access to six new methods:

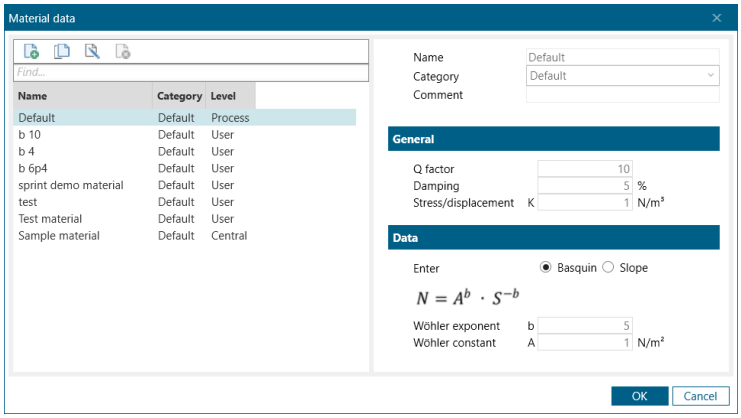
- FDS & MRS
- Combine FDS & MRS
- FDS & MRS to PSD
- FDS & MRS to Swept Sine
- PSD to FDS & MRS
- Swept Sine to FDS & MRS

FDS and MRS

In Simcenter Testlab 2406 it is possible to calculate Fatigue Damage Spectrum (FDS) and/or Maximum Response Spectrum (MRS) blocks from time data.



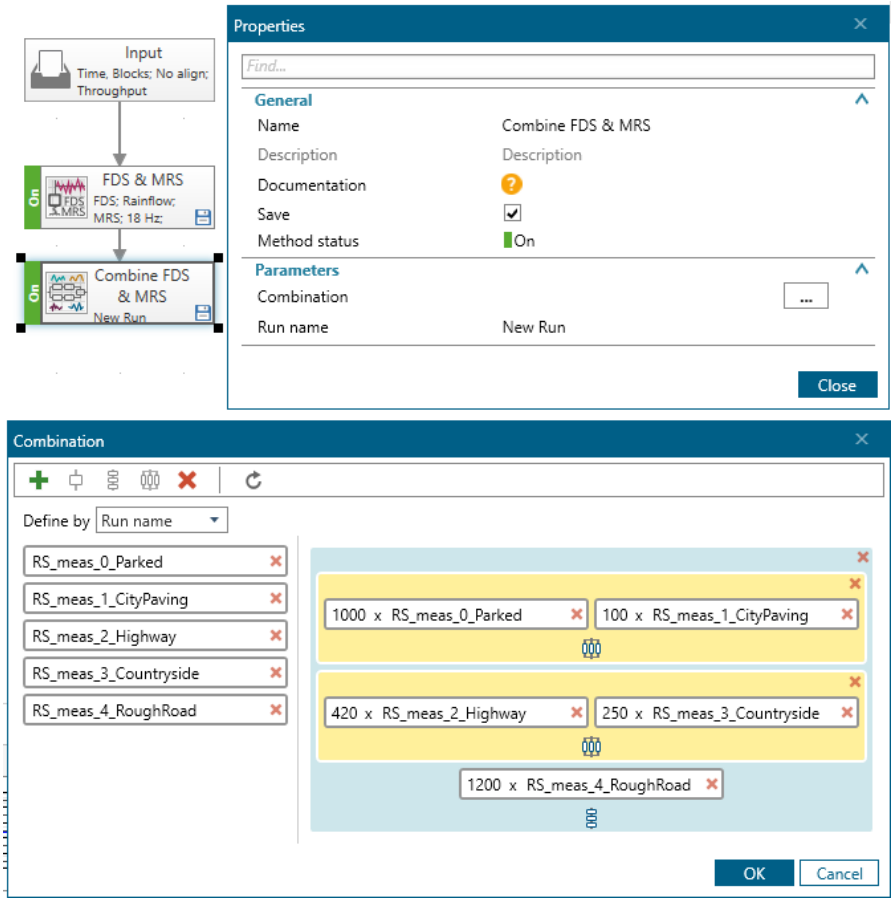
The method allows to access a material database to define and select the material properties assumed in the Mission Synthesis calculations.



These properties can be recalled automatically in other methods that are part of the Mission Synthesis library.

Combine FDS & MRS

In Simcenter Testlab 2406 it will be possible to combine different events/situations defined as single Run's FDS and/or MRS and calculate the FDS and MRS of the complete specified mission. This can be done in a very interactive way via the *Combine FDS & MRS method*.

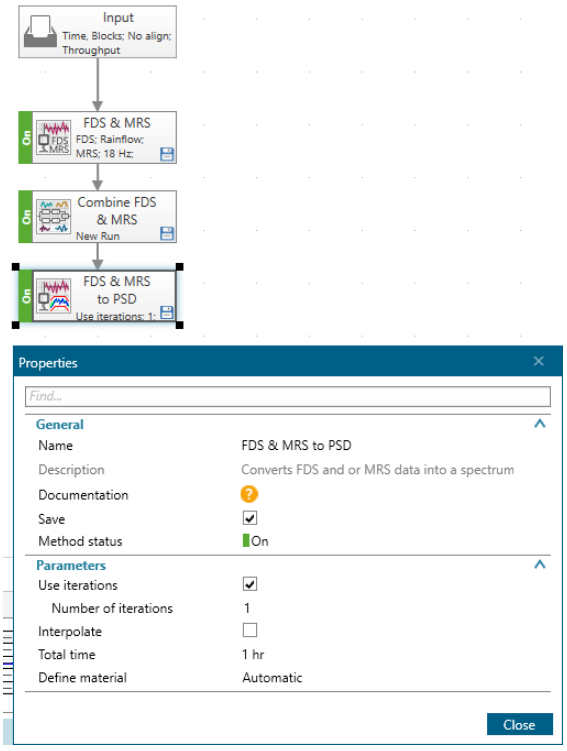


The method takes in input FDS and MRS from multiple runs (e.g. the output of the *FDS & MRS* method), applies a user defined number of repetitions and derives the FDS and MRS of the specified mission.

The mission can be specified in a unique and interactive way via a dedicated pop-up where the user can assemble the missions specifying the runs that occur in series and/or in parallel.

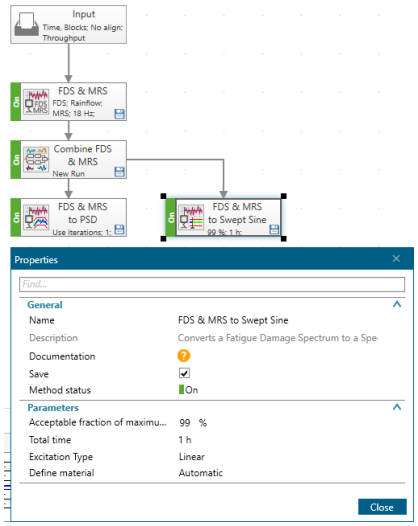
FDS and MRS to PSD

In Simcenter Testlab 2406, a PSD block can be calculated from a Fatigue Damage Spectrum (FDS) or a Maximum Response Spectrum (MRS) using the FDS & MRS to PSD method. Typical use is in combination with FDS and MRS blocks calculated in Process Designer with the FDS & MRS method or the Combine FDS & MRS method. In these cases the method automatically uses the material properties adopted for the input FDS and MRS. Alternatively material properties can be assigned manually.



FDS and MRS to Sine Sweep

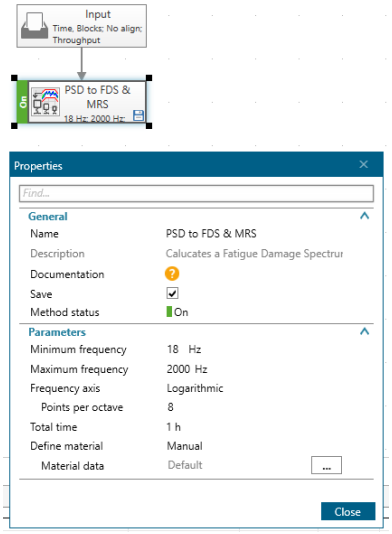
In Simcenter Testlab 2406, a Spectrum block (for Sine Control tests) can be calculated from a Fatigue Damage Spectrum (FDS) or a Maximum Shock Response Spectrum (MRS) using the FDS & MRS to Swept Sine method. Typical use is in combination with FDS and MRS blocks calculated in Process Designer with the FDS & MRS method or the Combine FDS & MRS method. In these cases the method automatically uses the material properties adopted for the input FDS and MRS. Alternatively material properties can be assigned manually.



The max sweep rate and the minimum sweep time are always annotated in a dedicated property field of the resulting Spectrum blocks.

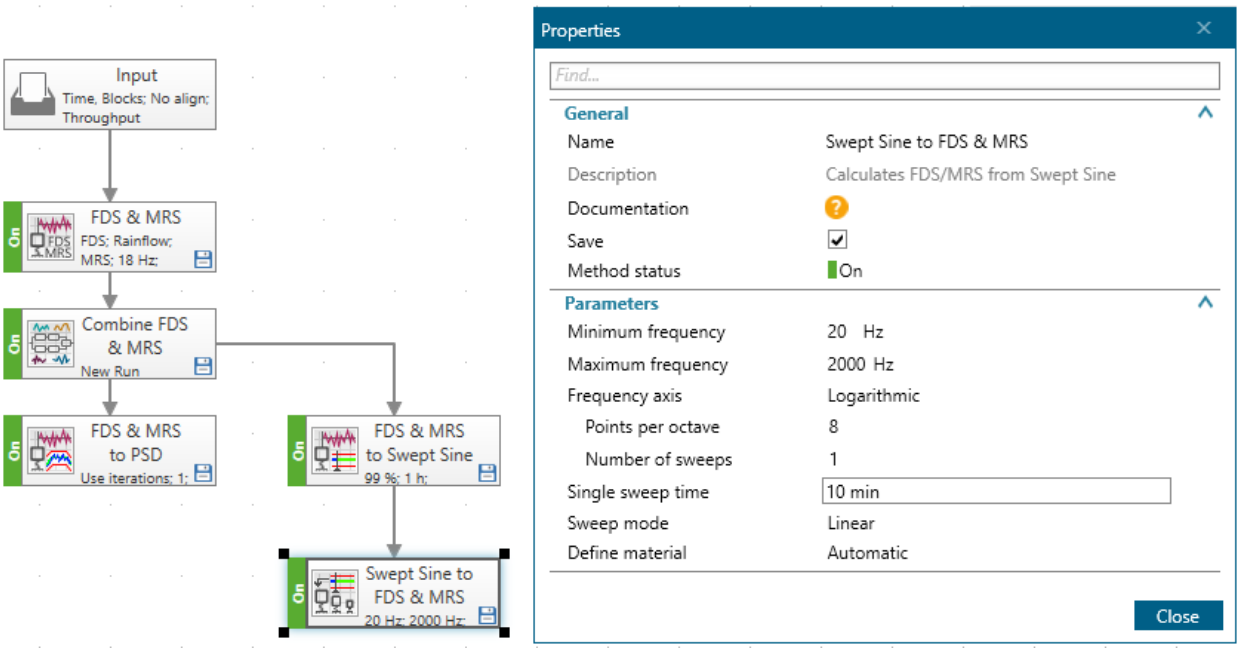
PSD to FDS & MRS

In Simcenter Testlab 2406, a PSD block and a specified exposure duration can be used to calculate a Fatigue Damage Spectrum (FDS) and a Maximum Response Spectrum (MRS).



Swept Sine to FDS and MRS

In Simcenter Testlab 2406, a Swept Sine spectrum block can be used in conjunction with the sweep characteristics (number of sweeps, single sweep time and sweep mode) to calculate a Fatigue Damage Spectrum (FDS) and a Maximum Response Spectrum (MRS).

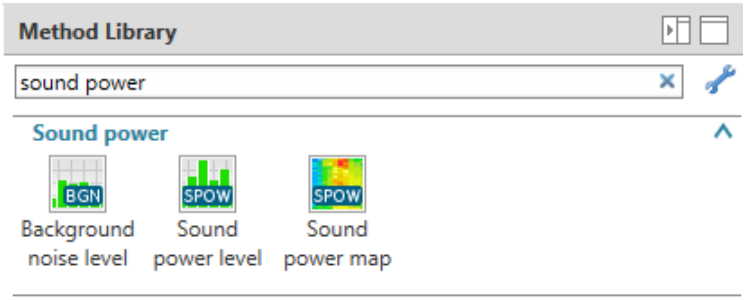


Sound Power

Sound Power based on Sound Pressure

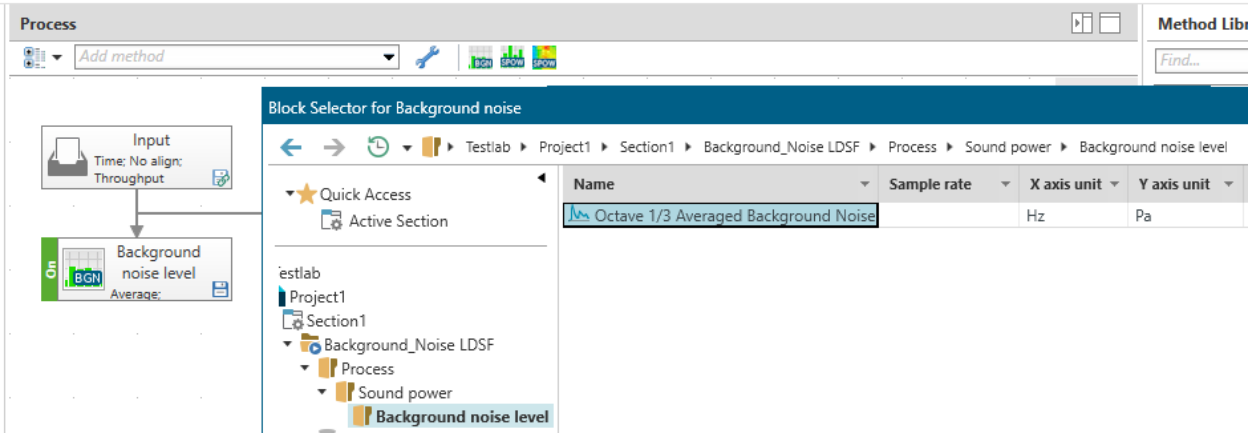
A new add-in was added in Simcenter Testlab Neo to support Sound Power calculations according to ISO3744:2010..

Sound Power can be calculated with 3 new functions in the Testlab Neo Process Designer.



Background noise level

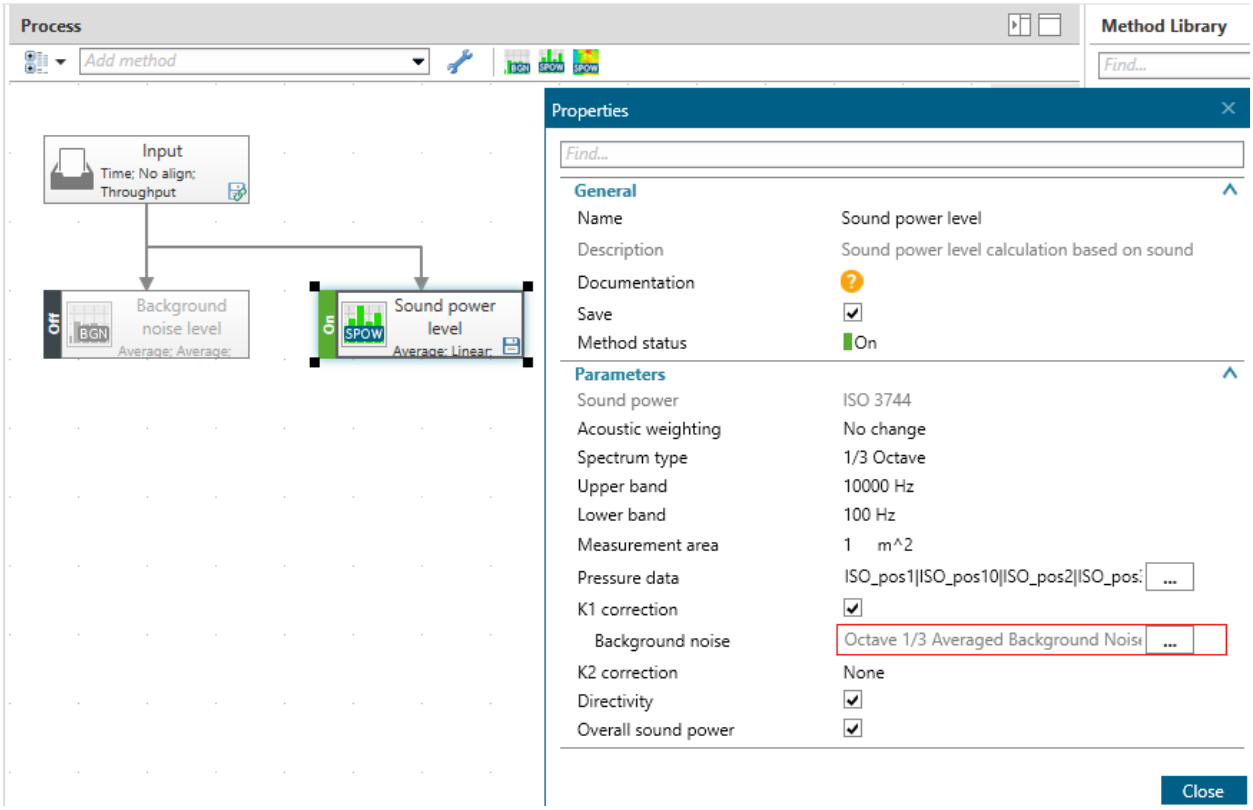
The Background noise level method requires selecting the measured background noise for all microphones. It then calculates the K1 correction block for background noise.



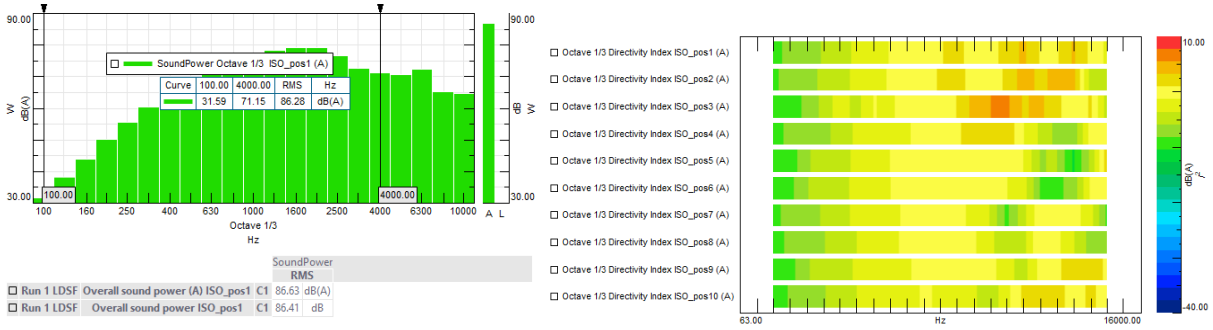
Sound Power level

The Sound Power level block allows then to calculate the Sound Power according to ISO3744. The background noise level block can be loaded for the K1 correction. For the K2 correction, one of 3 choices can be made: none, obtained from reference sound source, or based on reverberation time.

The spectrum type can be both 1/1 Octave and 1/3 Octaves.



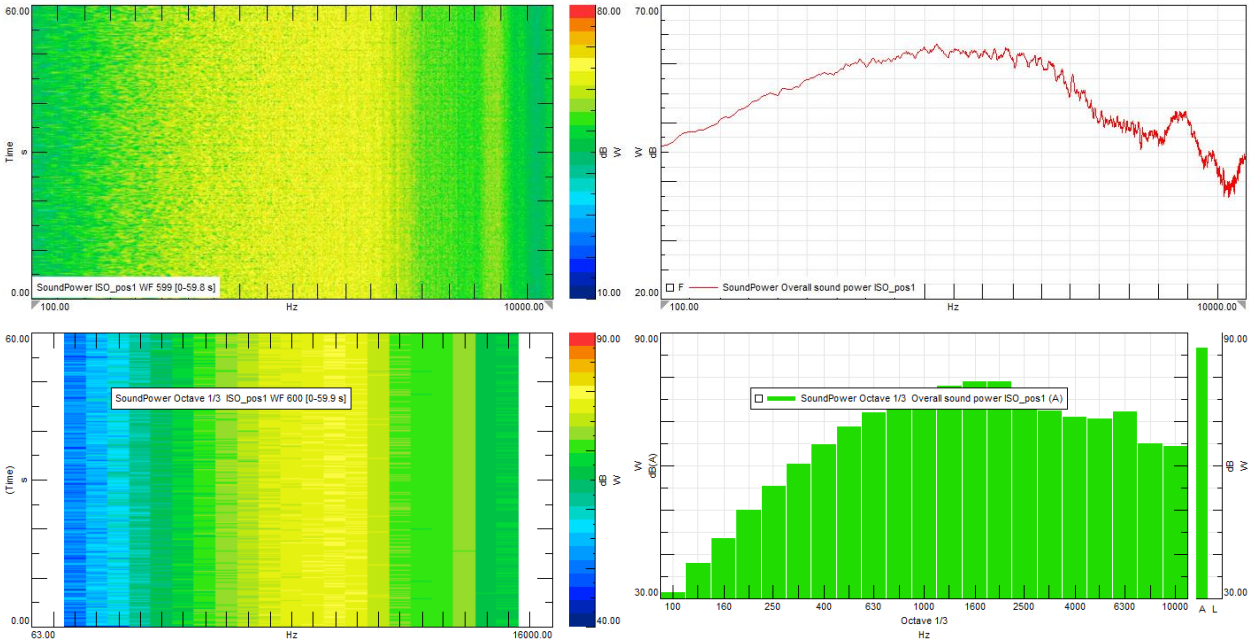
Results typically look like this, with on the left the Sound Power results, and on the right the directivity results in a function map.



Sound Power map

The Sound Power map is a new type of Sound Power function that tracks the sound power on time or another event. The resulting sound power can then be viewed in a map. To allow more accurate analysis it is also possible to calculate results in narrow band based on Autopowers, rather than on 1/1 or 1/3 octaves.

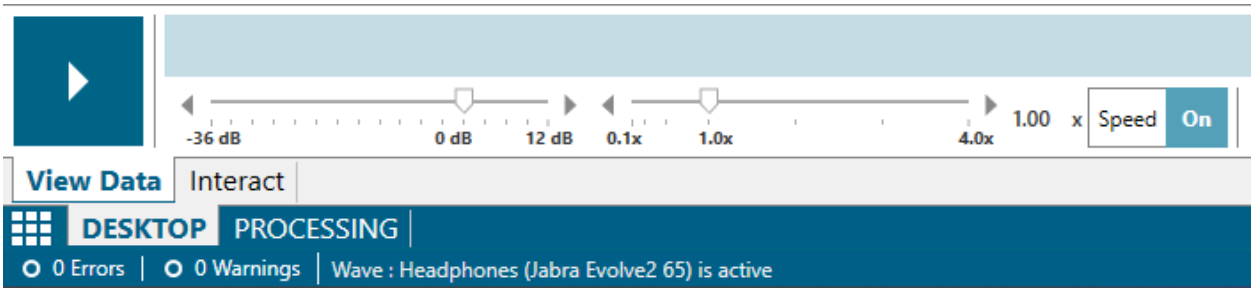
For narrowband sound power maps, the K1 correction will then be temporarily disabled. The user can set the frequency resolution of the Autopower calculation. K2 correction is also disabled – this relies on calibration curves provided by sound source suppliers and almost always comes in 1/1 or 1/3 octaves.


60.00
Time
s
0.00
SoundPower ISO_pos1 WF 599 [0-59.8 s]
100.00
Hz
10000.00
80.00
dB
W
10.00
70.00
W
dB
20.00
F
SoundPower Overall sound power ISO_pos1
100.00
Hz
10000.00
60.00
(Time)
s
0.00
SoundPower Octave 1/3 ISO_pos1 WF 600 [0-59.9 s]
63.00
Hz
16000.00
90.00
dB
W
40.00
90.00
W
dB(A)
30.00
SoundPower Octave 1/3 Overall sound power ISO_pos1 (A)
100
160
250
400
630
1000
1600
2500
4000
6300
10000
Octave 1/3
Hz
90.00
dB
W
30.00
A L

Sound Quality Engineering

Advanced Audio Replay

The audio replay of Simcenter Testlab Neo has been extended with an option to adjust the audio replay speed.



The audio replay speed can be adjusted with a step of 0.01 between x0.1 speed up to x4.0 speed. Slow replay can help to identify transient events in recordings.

When enabled with the Video Replay add-in, the audio and video replay speeds are coupled.

The replay speed can be quickly switched back to the original value with a toggle button.

Sound Quality Analysis

The hearing model Tonality methods have been updated with the latest ECMA-418-2:2022 standard. Additionally, a new method called *Tonality frequency map* has been included in the method library to support the electric vehicle pass-by noise development.

Octave Analysis

The time-domain octave calculation methods:

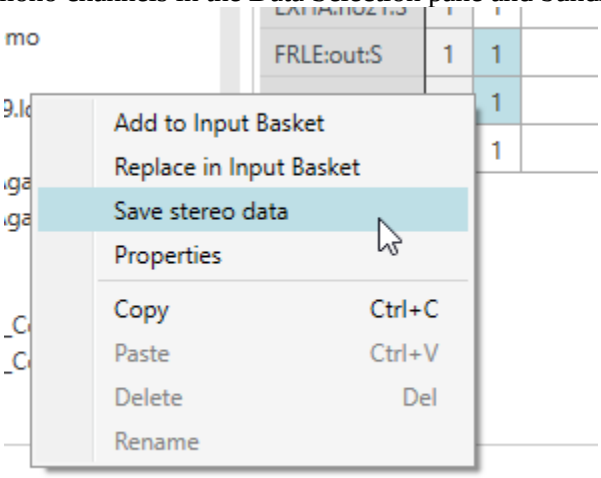
- Octave average (time)
- Octave map (time)
- Octave peak (time)

Have been extended with the support of calculation of finer bands:

- 1/1
- 1/3
- 1/6
- 1/12
- 1/24

Stereo multiplexing

You can now select two mono channels in the Data Selection pane and bundle them into a stereo trace

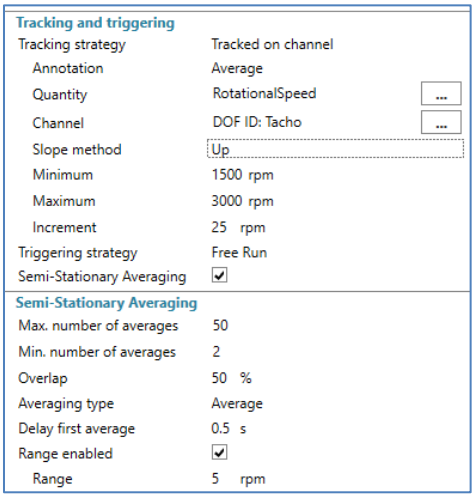


This action will result in a new LDSF file with the channels appearing as a stereo trace.

Rotating Machinery

Semi stationary averaging

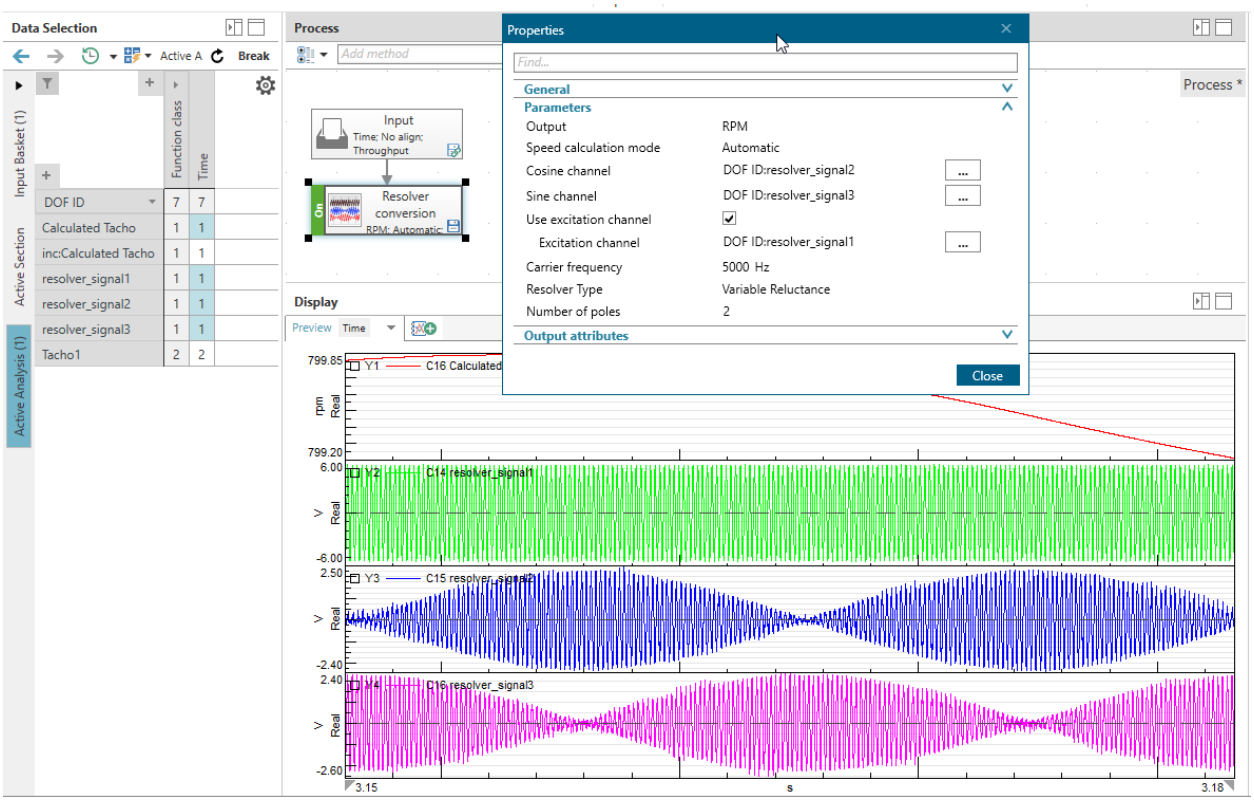
A new functionality has been added in the spectrum map calculation in Simcenter Testlab Process Designer : semi stationary averaging. This allows to calculate spectrum map with each single tracking point being the result of an average of multiple single spectrums. Semi stationary averaging is available for tracking strategy on time and channel. Minimum and maximum number of averages can be defined, together with overlapping parameters, averaging type (average, maximum or minimum). When tracking type is on channel, a delay can be enabled before taking the first average (to let the system stabilize) and a range can be defined to stop the semi stationary averaging process whenever the tracking channel gets out of stable condition.



The semi stationary averaging functionalities are part of the ”Signature Analysis” and “Sound Quality Analysis” licenses.

Rotational speed calculation from resolver signal

A resolver is an electric transformer used to measure the angle of rotation of a shaft. It is typically present in test benches and the electrical driving unit in vehicles. 3 signals are available on such device: A sine and a cosine functions, shifted with 90 degrees angle, and a modulating signal at the frequency of the excitation. These 3 signals can be measured and used as input to the new “resolver conversion” method in process designer. Note that the excitation signal measurement is not a requirement, if the frequency of the excitation is known it can be entered manually in the parameters.



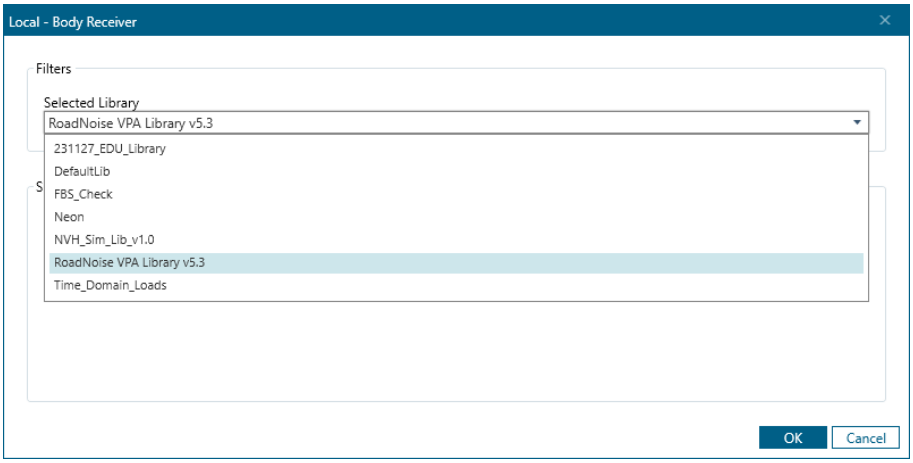
The user needs to know the type of resolver (variable reluctance or electromagnetic) and the number of poles to get the correct rotational speed. The output of the method can be an angle trace or an rpm trace. The tacho moment is saved together with the calculated result.

Virtual Prototype Assembly

VPA Assembler

Component Libraries

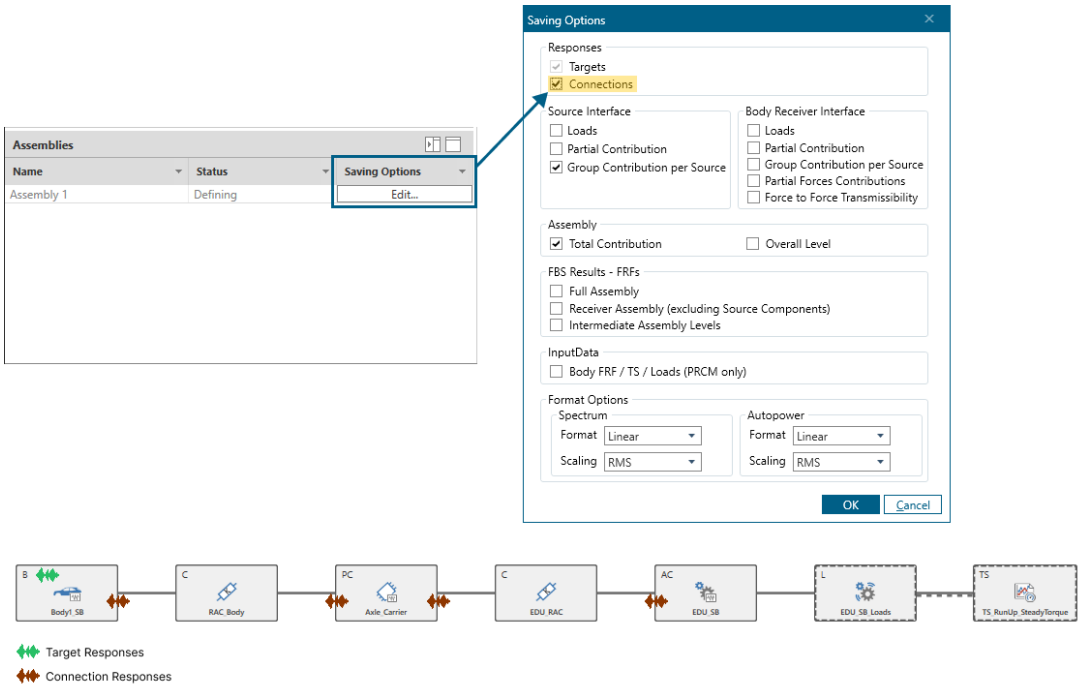
In Simcenter Testlab 2406, the library management of VPA components has been updated. The components are now grouped in libraries. One can have multiple libraries available and use the components from all of them to create assemblies. The libraries concept permits a better organization and management of the components. On VPA Assembler, the user can select which library to use when selecting a component.



Time domain loadsIn this release, we introduce the support for time data loads in Virtual Prototype Assembly. This feature enhances the Virtual Prototype environment by allowing users to accurately calculate responses at specific target points not only in frequency domain but also in time domain. By utilizing time data loads, users can easily post-process results and take advantage of the replay capabilities. Analyzing and manipulating time-based data provides a deeper understanding of virtual prototypes, empowering users to make informed decisions with greater precision.

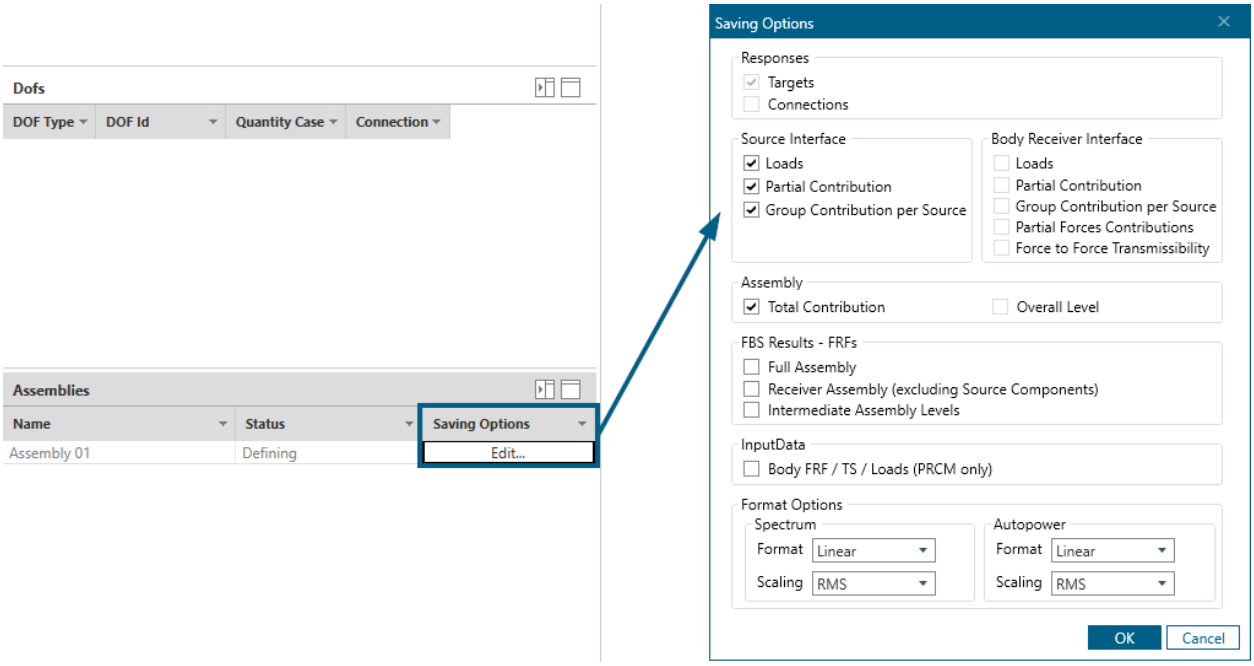
Connection Responses

To enhance the analysis capabilities of the assemblies, the VPA Assembly from this release allows for the expanded possibility of saving operational results at every interface connection. This enables users to assess the quality of filtration/attenuation provided by the connectors. By capturing and analyzing these results, users can gain valuable insights into the performance and effectiveness of the connectors, ultimately improving the overall assessment and understanding of the assembly.



Saving Options

Another enhancement introduced with this release is the possibility to select which datasets to save for each Assembly. This capability allows one to select exactly what datasets to save and avoids losing time and disk space saving unwanted results. For multi-level assemblies it is possible to save results based on the interface level desired, Source Interface (at Active Component Levels) and/or Body Receiver (at the Original Body).

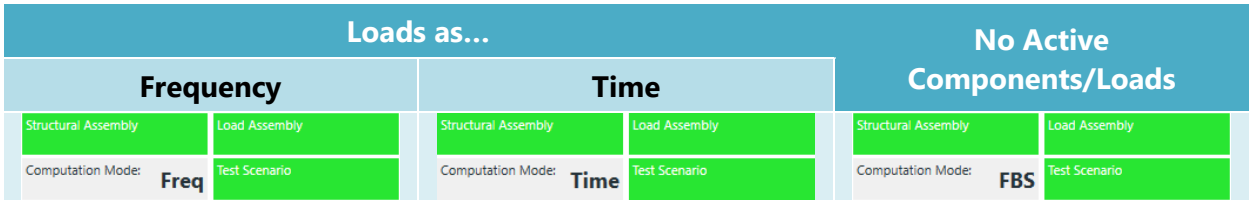


Multi-Level Mounts for Direct Loads Models

In the Simcenter Testlab 2406 release, a new capability was introduced for the Connectors components. It is now possible to define a connector for different pre-load conditions. The dynamic behavior of resilient mounts changes according to the pre-load conditions. To correctly model this behavior, it is possible to include the dynamic stiffness curves of the connectors per pre-load. In VPA Assembler, the Test Scenario should contain the pre-load trace which will be connected to the respective connector, to guide/dictate which pre-load condition to use.

Automatic Detection of the Computation Mode

In addition, by the Load component availability in the assembly, the application automatically recognizes the computation mode to use and facilitate the user experience and interaction with the application.



NVH Simulator

NVH Simulator Offline

With the Simcenter Testlab NVH Simulator, users can now leverage the power of Virtual Prototype Assembly (VPA) data as input, employing a bottom-up approach to accurately simulate real-world NVH scenarios. This allows for a highly realistic and dynamic representation of the system under test, enabling engineers to gain valuable insights into the behavior and performance of their designs.

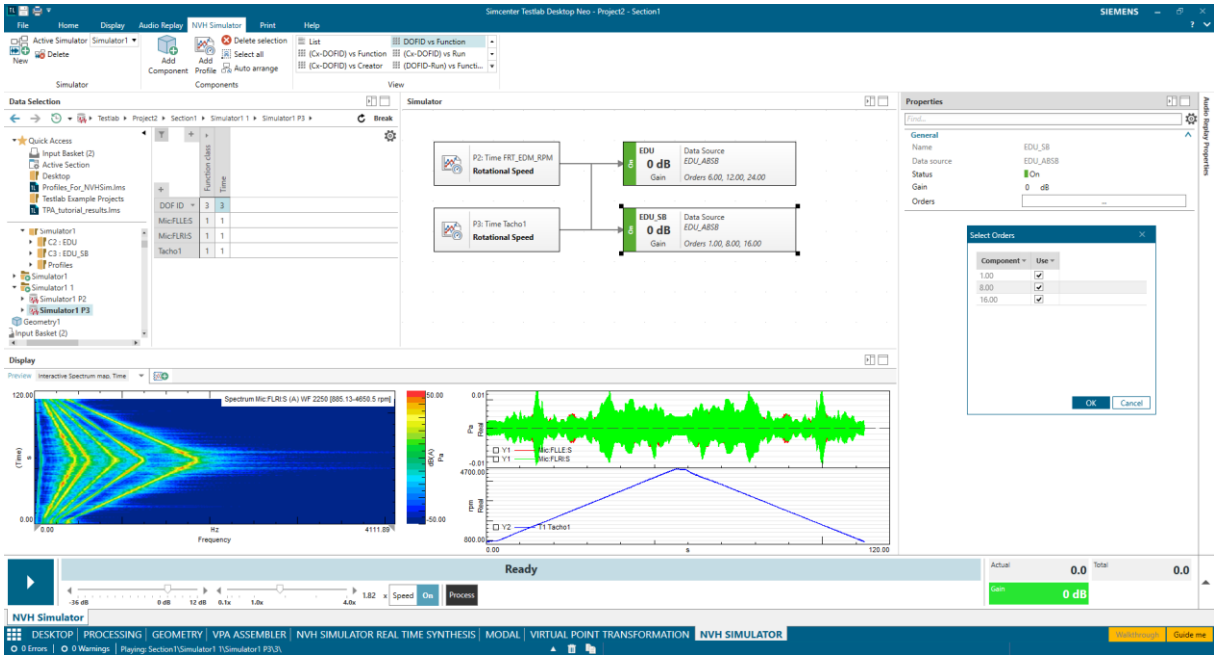
One of the key highlights of the Simcenter Testlab NVH Simulator is its offline synthesis capability, which allows users to combine VPA data with different driving profiles. This means that engineers can simulate a wide range of driving conditions, ensuring that their designs are robust and optimized for various real-world scenarios.

The product also offers component balancing functionality, enabling engineers to analyze and fine-tune the balance of individual sources within the system. By identifying and addressing any imbalances, users can optimize the overall NVH performance and ensure a smooth and reliable operation.

Furthermore, the Simcenter Testlab NVH Simulator incorporates calibrated audio replay and filtering capabilities through the Audio Replay & Filtering functionalities of Testlab Neo. This feature allows for accurate reproduction of sound, ensuring that engineers can evaluate the acoustic characteristics of their designs.

The A/B comparison functionality provides engineers with the ability to compare different design iterations or configurations side by side, making it easier to identify and understand the impact of design changes on NVH performance. This empowers engineers to make informed decisions and iterate quickly, reducing development time and costs.

The time domain output of the Simcenter Testlab NVH Simulator enables the user to post-process the signals, allowing advanced sound quality analysis. Engineers can delve into the details of the sound characteristics, identifying and quantifying various metrics related to sound quality.



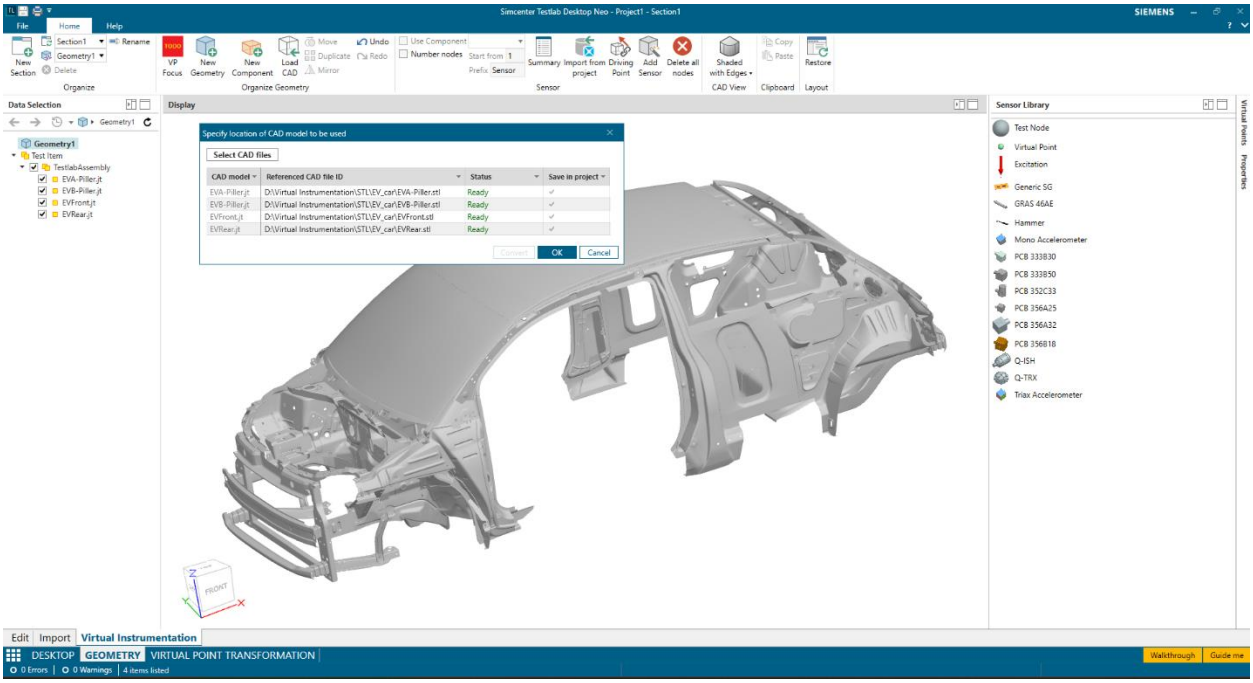
Structural Dynamics Analysis

Virtual Instrumentation

The Virtual Instrumentation task has received significant upgrades, including a new mechanism to store and manage multiple CAD files, an improved process to define and validate Virtual Points on the fly as well as several other usability and functionality enhancements.

Loading and saving multiple CAD models

First of all, the mechanism for loading and storing CAD files has been improved. While in the previous version only one file could be used (being it a simple part or an assembly) in the new version it is now possible to select multiple files. Additional files can also be added at any moment. In the example below, 4 different jt files have been selected. Multiple assemblies can of course be selected as well.



Another important feature is the possibility to save the CAD file into the project. The user has now 2 choices:

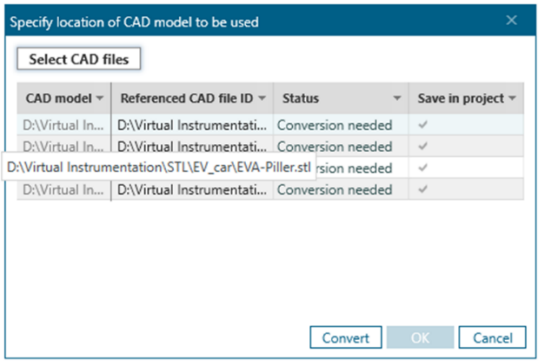
- Reference the files at their original locations, as was the case in 2306.
- Save a file into the project structure. A copy of the file will be then added to the project and will travel with it, making it easier to share information across the organization.

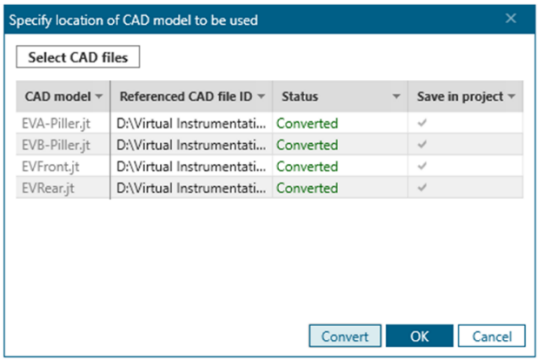
Be however aware that, in case of an assembly, only the assembly file will be stored, not files referenced in it. This means that, in case of assembly, the only possibility is to reference the files at their original location.

Support of several CAD formats

Another important enhancement of the new version is the possibility to convert several generic and 3rd party proprietary file format to ensure they can be used to create your virtual instrumentation.

The dialog to load CAD files now allows files in the selected format, will detect that a conversion is needed and will run the corresponding translator to convert the file in jt format, which is supported by the display.





Conversion to jt can be performed on the following file formats:

- STL file (.stl)
- Step files (.stp and .step)
- Iges files (.igs and .iges)
- Creo files (.prt and .asm)
- Solidworks files (.sldprt and .sldasm)
- IFC files (.ifc)

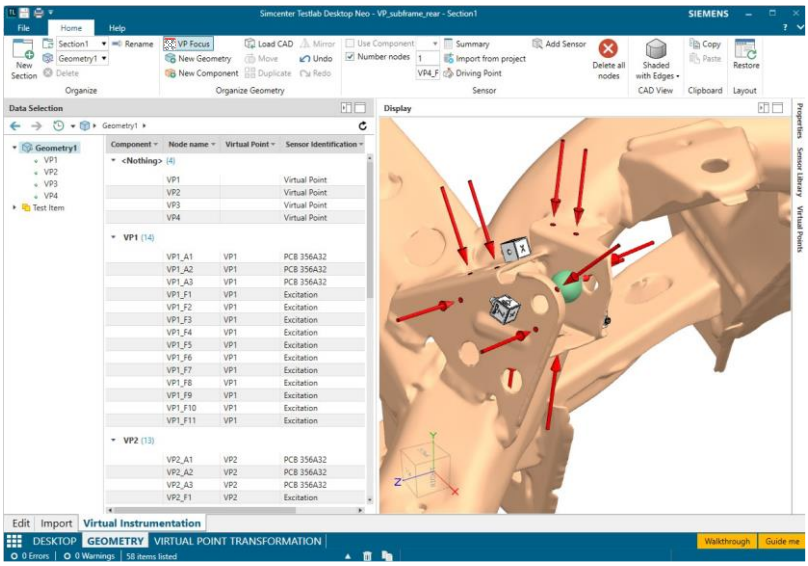
Converted files are automatically saved into the project and cannot be used outside of Simcenter Testlab.

Improved Virtual Point (VP) definition

Another aspect of Virtual Instrumentation that has been significantly improved is the VP definition process, which has now been made more interactive and insightful.

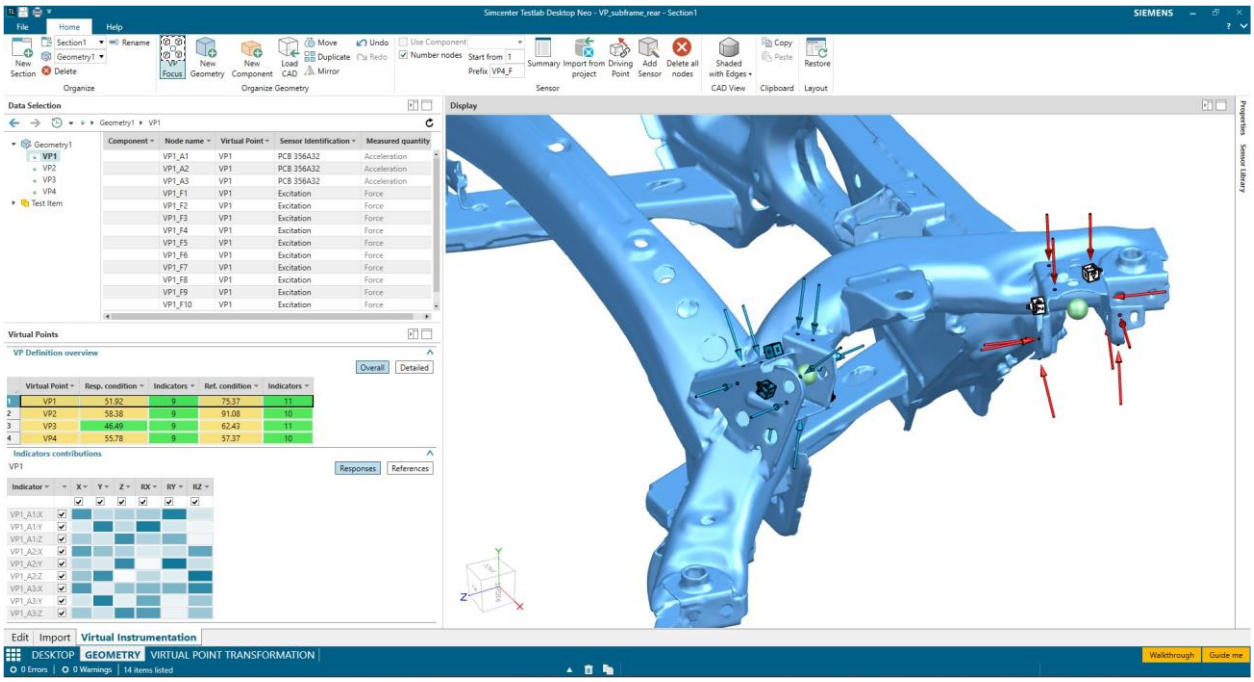
To start with, the geometry and instrumentation browser have been modified. Under the Geometry, the user can choose to visualize either a list of the defined components or of the virtual points. Selecting one of the two modes (which can be done by activating the VP focus command in the ribbon) will automatically filter only the sensor belonging to a component or assigned as indicator to a Virtual Point.

All sensors are now listed in a list view, together with some key properties. The grid is now editable so that changes can be done on the fly. Grouping, sorting and filtering can now be used to adjust the view to specific needs.



Assigning an indicator to a Virtual Point can now be done directly on the indicator itself. The user can either change the property and select the VP, or use a contextual menu on the node to assign the selected indicator(s) to a specific VP.

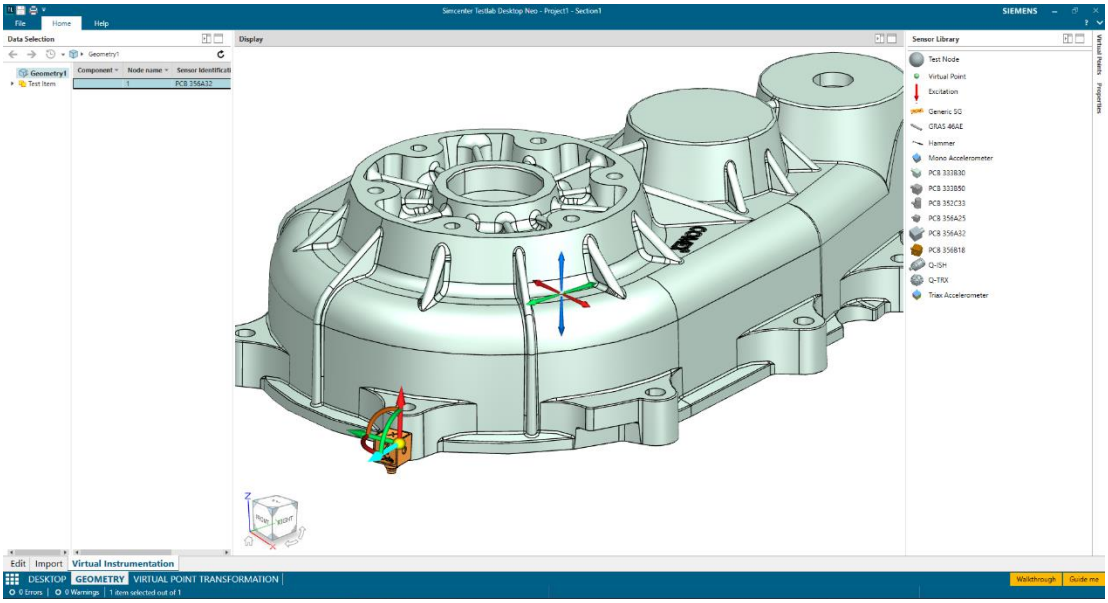
Finally, the Virtual Point definition dialog has now been moved to a pane. Thanks to this, users can immediately judge the quality of each VP, add or modify indicators, until satisfied with the indicator quality. On top of the existing condition number and relative condition number per VP DOF, the contribution of each indicator to the VP estimation has also been added. This contribution table can help detecting poorly excited DOF of the Virtual Point, or points not adding significant information to it and that can then be skipped, saving measurement time.



Sensor and instrumentation definition

Several features have been added to the application to improve the virtual instrumentation definition process.

An indication of the global axis system directions has been added to the display, and it is now possible to align a selected axis on a sensor to any of the global axis directions thanks to an interactive widget.



Several commands to manipulate and edit sensors have been added and being ported from the standard geometry. In particular, it is now possible to:

- Move or rotate one or more sensors along one of the global axes
- Duplicate one or more sensors

- Mirror one or more sensor with respect to one of the planes at the origin or a selected node (in that case the mirroring will be applied on the XY plane of the select node.

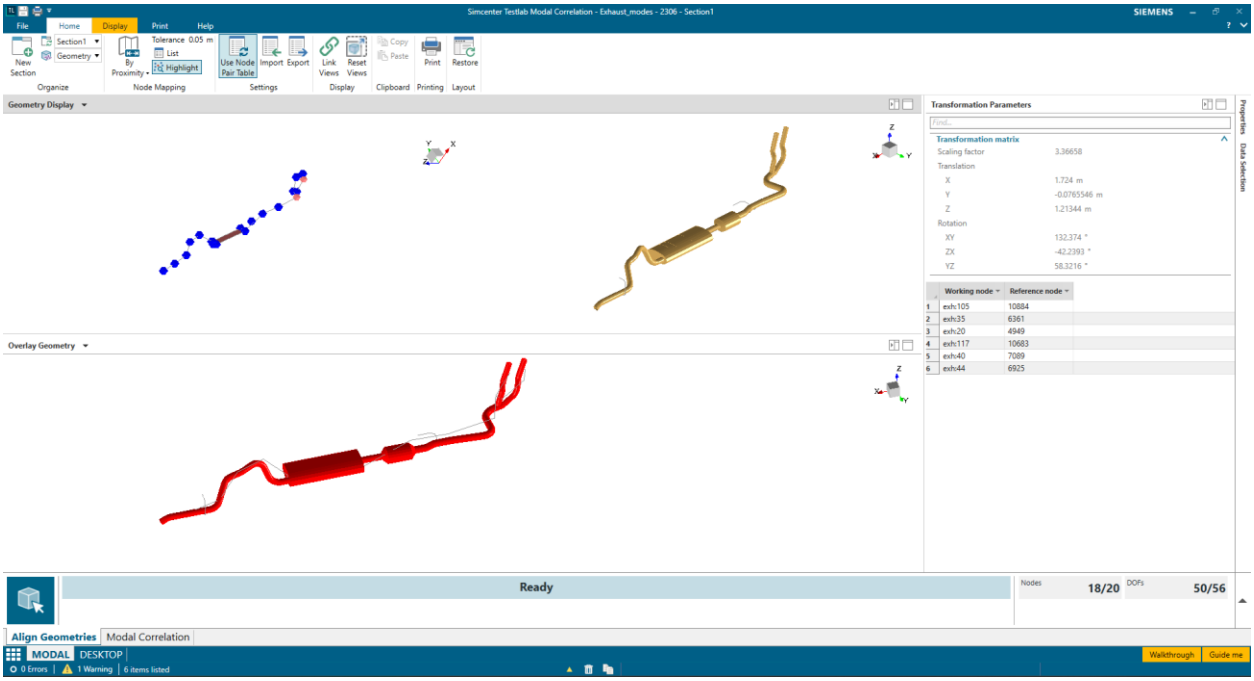
The management of the sensor library is also improved to allow the user to automatically create an editable copy of existing sensors. Thanks to this, existing sensors can be modified to allow easy creation of new sensors with a similar definition. All user-defined sensors, stored in the Local or Group Configuration folder, can also be deleted to keep the library clean.

Modal Correlation

Align Geometries

Mapping and aligning the Reference and Working geometries is a crucial step in the correlation process. For this reason, we decided to integrate and expand the previously available functionalities into a dedicated task.

The main highlight of the new task is to show the Reference and Working geometries overlaid in the display. This allows to immediately judge whether an alignment is required and how accurate the estimated transformation parameters are.



Another important improvement is the possibility to visualize on the Working geometry which of the nodes are being mapped, according to the selected mapping strategy. This is very helpful to choose the right tolerance for the proximity tolerance, or to immediately detect which nodes don't have a corresponding one in terms of their ID.

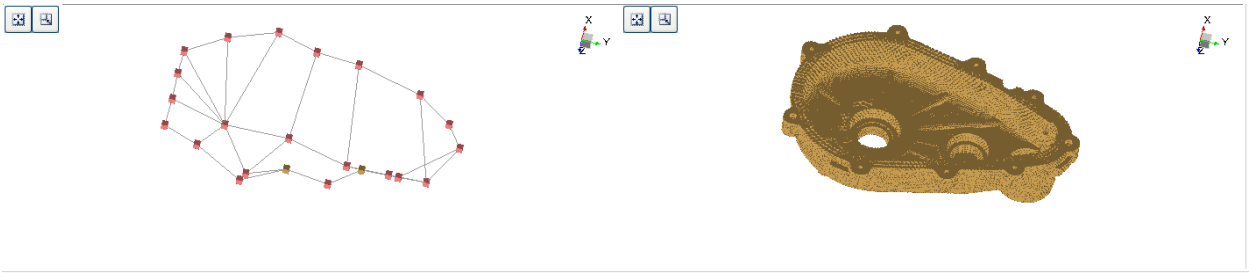
Compared to the previous version, the Transformation Parameters controls have also been improved. First of all, a table is now available showing the node pairs selected in the Node Pairs Picking state. It is now possible to manually edit the node names of a pair, or to delete existing pairs. Besides, the user can choose to compute the transformation parameters using the node pairs, or manually enter/modify them.

Finally, it is now possible to Import and Export the content of the Transformation Parameters pane completely, using either a json or xml format. The export will include the seven transformation

parameters as well as, if available, the node pairs. Users can also just import the node pairs and have the transformation parameters computed based on them.

Modal Correlation

When comparing test and FE models, the mesh of the model has far more nodes than the experimental wireframe.



Thanks to geometry alignment and DOF mapping, only the paired DOFs are compared in the correlation, and these are reported in the DOF Mapping list. With the new release, it is now also possible to save a reduced Reference model (modes and geometries), retaining only the mapped DOFs. These can then be used to report the results more efficiently and perform faster comparison without having to go through the correlation process again.

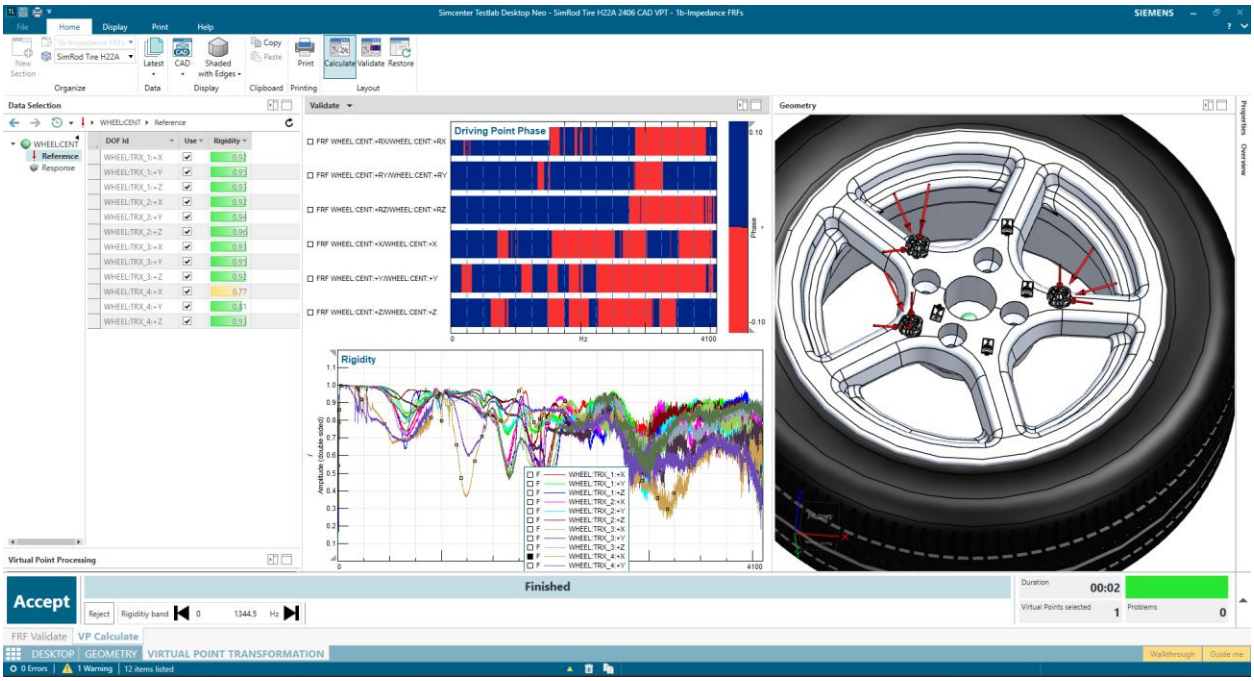
There are two options to save the reduced Reference modes:

- Use the original DOFs: a new geometry and mode set will be saved in the project, keeping only the information on the mapped nodes and with their original DOF Ids. Local axis system in the nodes of the models will also remain as originally defined.
- Mapped DOFs: in this case, the saved geometry is the working geometry, including local Euler Angle. The mode set will include the mapped DOFs of the Reference model, but now rotated onto the local axis system definition of the working set.

Virtual Point Transformation

The Virtual Point Transformation application, developed in the previous release, has been further improved to allow users to interactively select which indicators to include in the estimation of the Virtual Point.

Once a Virtual Point has been defined in the Virtual Instrumentation task and FRFs at the indicators have been measured, the results are computed using all available information. With the new release, while in the calculation state, the Data Selection pane is now changed to show the average rigidity over the frequency range of interest of the different indicators, with the possibility to exclude indicators with poor rigidity and check the effect on the results on the fly.


Simcenter Testlab Desktop Neo - SimRod Tire H22A 2406 CAD VPT - 1b-Impedance FRFs
SIEMENS
Data Selection
Validate
Geometry
Driving Point Phase
Rigidity
Virtual Point Processing
Accept
Finished
Duration
00:02
Virtual Points selected
1
Problems
0
DESKTOP
GEOMETRY
VIRTUAL POINT TRANSFORMATION

Structural Dynamics Acquisition

Impact Acquisition

With the previous release, we made it possible to measure FRFs using an impact hammer in Testlab Neo, but with this release we dramatically improved and enhanced the solution, supporting new and extended use cases, with particular focus on the interactive selection of impact during and after measurement, as well the automatic merging of FRFs acquired with multiple exciters. As a results, you can obtain single FRFs valid over a wider frequency range than what you would obtain with traditional impact testing techniques.

Channels

When accessing the Channels task from Impact Acquisition, some changes have been introduced:

- It is now possible to define multiple reference channels at the same time. This means it is possible to connect multiple hammers to the frontend with the objective of merging their FRFs to extend their validity range
- A new 'ICP Hammer' preset is added, which will turn the Reference for the selected channel ON as well as setting the Conditioning to ICP and the Measured quantity to Force.
- The Views have also been updated to include only those settings that are often used in the context of FRF acquisition.

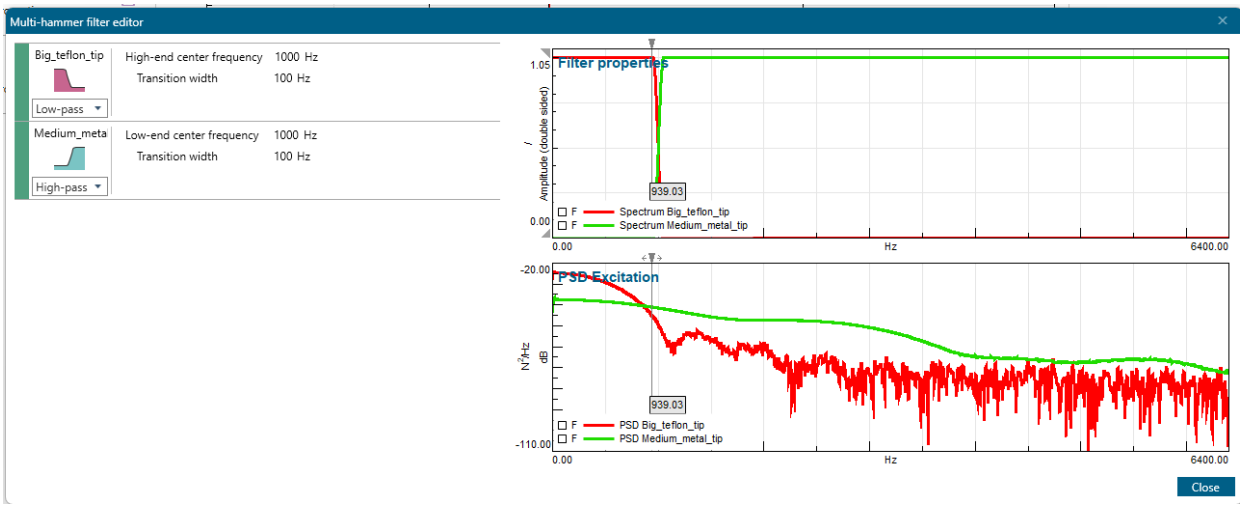
Hammer Setup

This task replaces the Impact Setup task and, as the name mentions, it is a dedicated task for setting up the basic acquisition settings (Spectral Processing, Windows, and Triggering) as well the hammer.

A new pane allows adding hammer profiles to the setup. For a standard measurement, where only a single hammer is used, the user will simply need to specify the Trigger level. In case the user intends to use

multiple hammers, properties of each hammer can be specified (e.g. the tip, the mass, the extender mass, etc.). Hammers can also be stored and retrieved from a library.

Depending on the hardware available, users can execute a parallel or sequential hammer measurement. In case of sequential setup, all hammers are connected sequentially to the same channel and the user will have to specify the hammer currently being used. In case of parallel setup, each hammer is connected to one channel (separate channels), the application will listen to a trigger from any of them and take care of using that hammer as the active one for that specific impact.

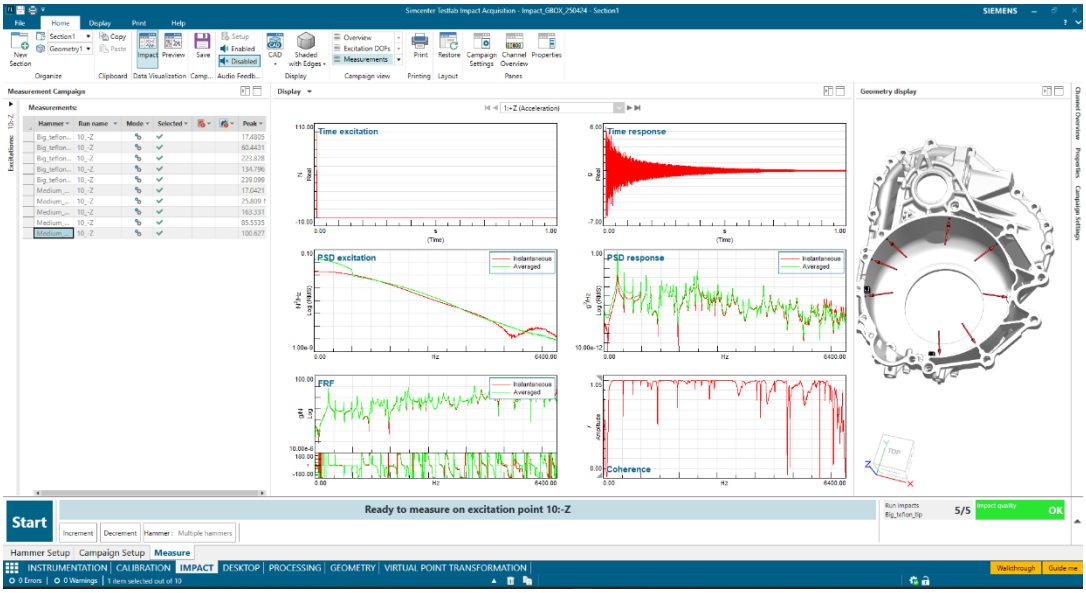


When using multiple hammers, it is important to specify the validity range of each hammer to properly perform the merging. For this, a dedicated dialog is available, where the PSD of each hammer (if already measured) is shown. The user can then specify the filter type of each hammer and its validity region. These filters will then be taken automatically into account when merging the data, and can be adapted at any time.

Campaign setup

The campaign is one of the main concepts introduced in this new version of Impact Acquisition. A campaign includes all the measurements required to collect the desired FRF on a unit under test. Consequently, it should include all the hits acquired with each hammer and at all desired excitation points. Defining the hammers that will be used is the first step of setting up the campaign, and the second is to specify on which points it is required to excite.

If a Virtual Instrumentation has been specified, it is possible with a single click to import the complete list of specified Excitation points.



Alternatively, it is possible to manually add points to the list or to select a node in the geometry or CAD display. The order of the excitation DOFs in the list can be adapted to match a desired testing sequence. In this case, the application will automatically move onto the next point once the measurement on a point is completed.

The campaign also offers a view on how many valid hits are available for each hammer and each excitation DOF, helps to complete a previously interrupted measurement or to quickly identify locations where additional hits needs to be acquired.

Measure

The Measure task was redesigned to accommodate the new campaign and multi hammer impact testing concepts. The measurement itself has not changed, except for the fact that now the averaged results (PSDs, FRF and coherence) also includes the merging based on the filters specified in the Hammer Setup task.

Moreover, the biggest improvement compared to the past is that all impacts performed on each Excitation DOF are now stored and available for review. At any moment, the user can select an Excitation DOF, get a list of the available impacts, include or exclude any of them from the average and merge process, and arm the system and get a few extra hits if needed.

With this new way of measuring, only the time blocks of each impact are stored in each run during a measurement. All the other calculations (the averaging and merging) are performed on the fly based on the averaging and merging settings. This means that it is now possible, at any moment, to add or remove impacts, but also change the filters used in merging, the windows to be applied to the time data and even add additional hammers if the current data doesn't satisfy the desired criteria. Only when you are really satisfied with the results, you can store the results of the campaign in a new run which will include all PSDs, FRFs and coherences.

Support of SCADAS RS in Simcenter Testlab Impact Acquisition

SCADAS RS systems can now be used in combination with Simcenter Testlab Impact Acquisition to easily and efficiently measure FRFs from impact tests. The software and hardware are seamlessly

integrated, although recording capabilities will not be available (the system must be used in frontend mode) and all channels must have the same Sample Rate.

Data Management

The Simcenter Testlab 2406 release has been further extended to support an improved efficiency and reporting. As in the previous release, you will find new features that extend the capabilities of local data management (Testlab project) and that also will be available for central data management (Testlab Data Management). Following enhancements have been introduced :

- Optimize the creation and usability of descriptive annotation.
- Batch reporting and audio replay of time data from Testlab Data Management.
- Support of statistical data and single value by Testlab Data Management
- Increased productivity with Testlab Workflow Automation combining process designer for processing and automated publishing of annotated and processed data described in Automatic publishing to Simcenter Testlab Data Management

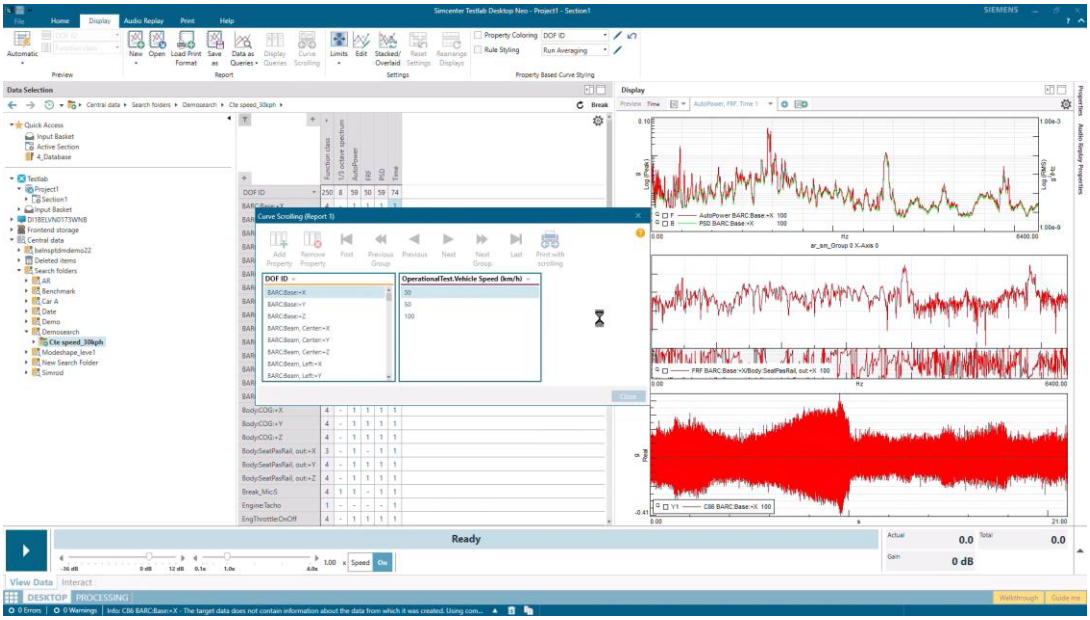
Batch Reporting with central data management

In Simcenter Testlab 2306, users could already easily scroll through their central data enabling a fast overview of the data at hand. Multiple properties, such as descriptive annotation can be used for this curve scrolling while the scrolling list can be filtered.

In Simcenter Testlab 2406, the curve scrolling functionality is extended with batch reporting as described in Batch reporting/printing. Both curve scrolling and batch reporting can thus be used on local data (Testlab project) and central data (Testlab Data Management server). For example, an easy way to define and scroll through DOFs for the needed functions for different runs with different vehicle speeds.

Next to scrolling through results saved in the central data base, Users can now also print them to Microsoft Office Word or PowerPoint.

During time critical test campaigns, it’s important to streamline the creation of reports to document test results right after the test campaign. As data are annotated and published to a central database by test engineers, analyst engineers can retrieve data from the cenral database using descriptive and/or engineering attributes, prepare and streamline Testlab Report creation and print to Microsoft Office Word or PowerPoint.

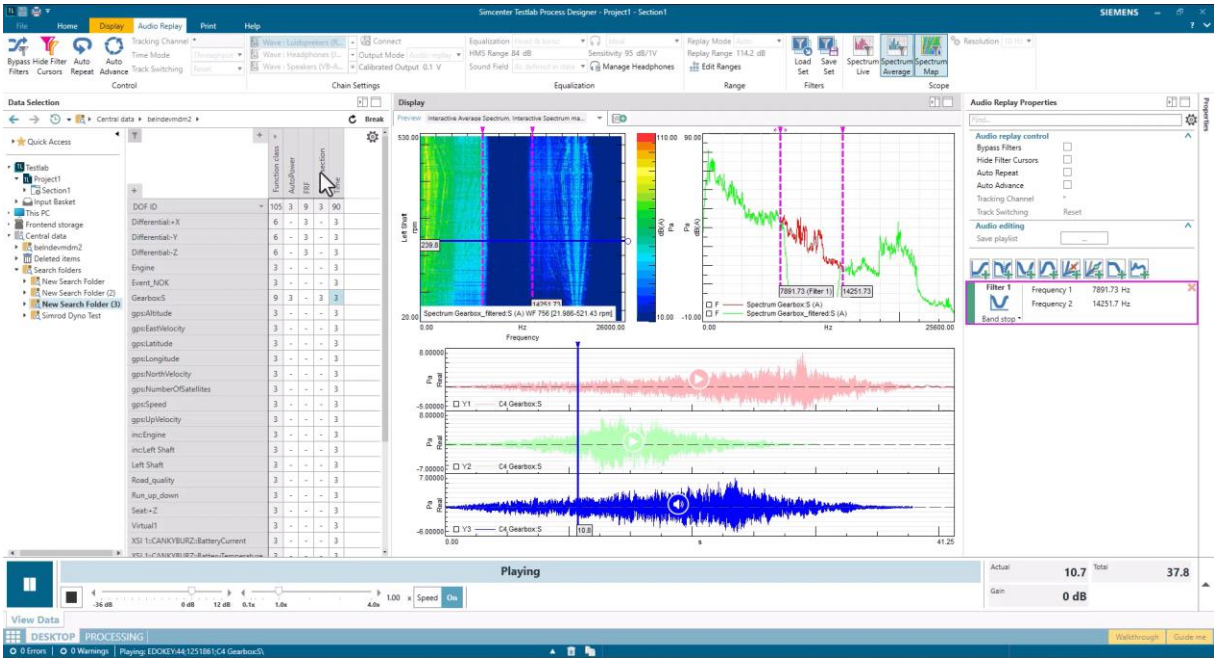


Audio replay time data in central data management

It’s typically a challenge to conduct subjective evaluation through audio replay of time data measured in different test conditions.

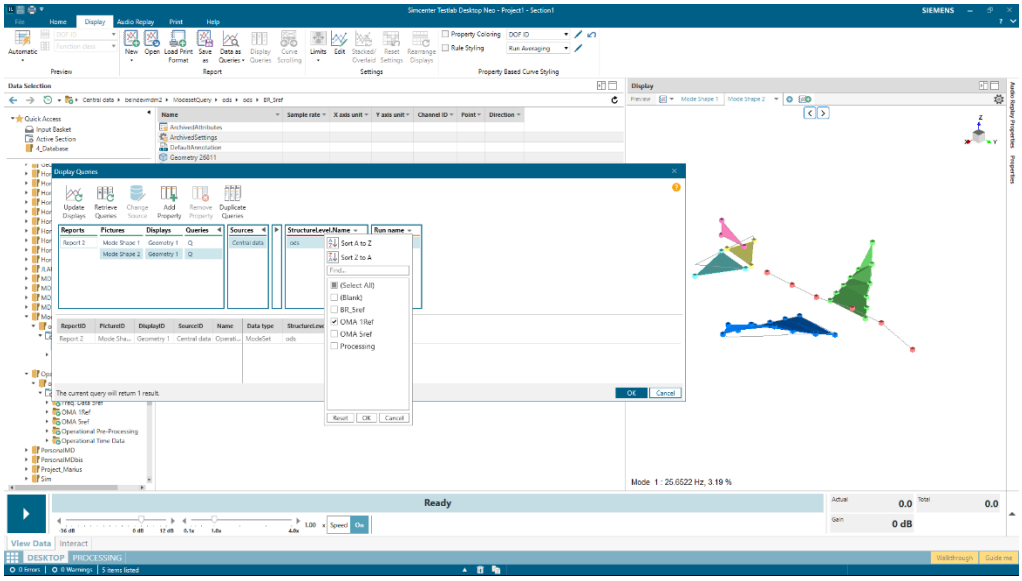
In Simcenter Testlab 2406, you will be able to replay time data stored in central data management. In central data, raw time data can be stored with consistent annotation making it very easy to retrieve data using e.g. different test conditions. The retrieved data can be replayed without the need to download the data first, while an instantaneously spectrum can be calculated. It also allows the interactive use of a wide range of audio filters, thus for a quick comparison using audio replay from both local data and central data.

Moreover, the user can benefit from audio replay of time data stored in the central server, for a quick comparison and/or for validation of the data.

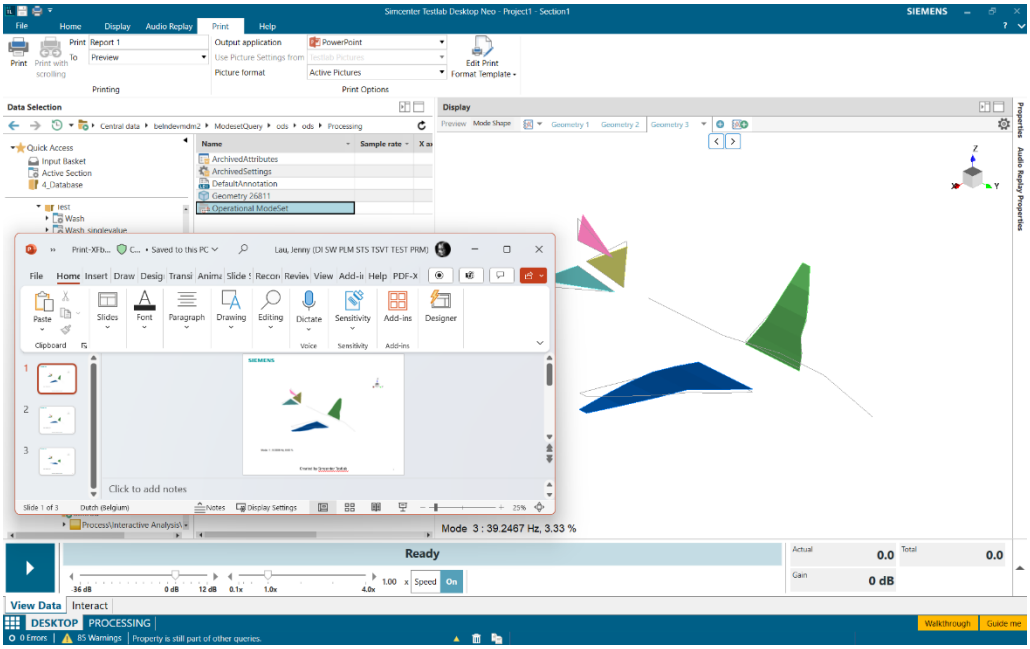


Modeset support with display query of central data

Please refer to the feature described in Query mechanism: Mode set support.



With the Testlab Report that retrieves the data directly from the central database, the consumer of the Testlab Report can easily scroll through the mode shapes for reporting.

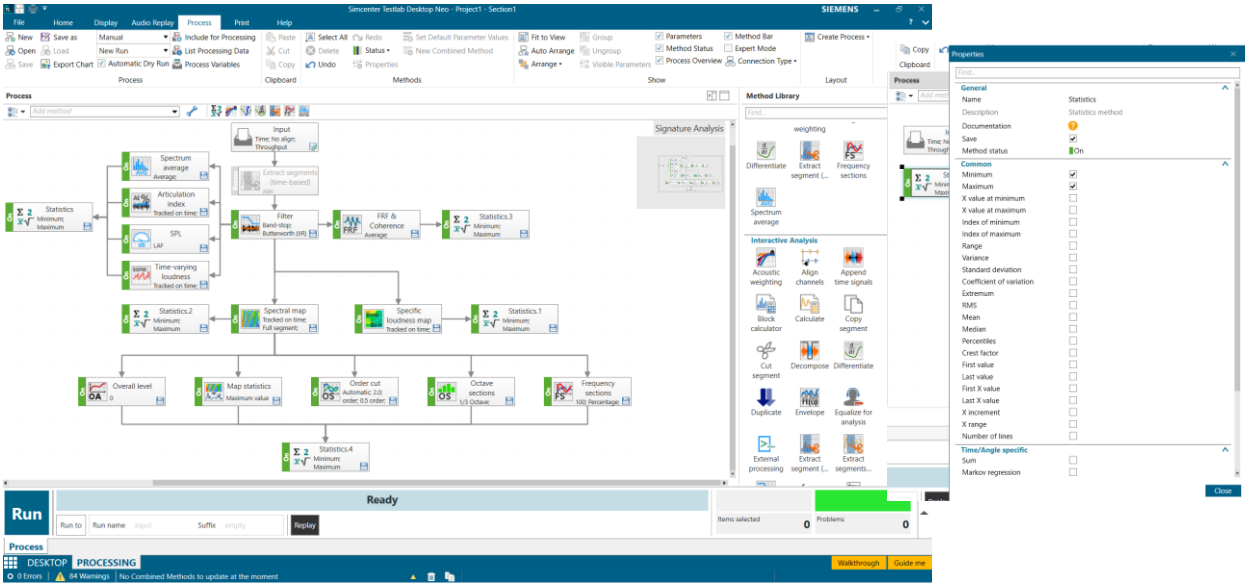


Single value and statistics support with central data management

You may find yourself in the following situation:

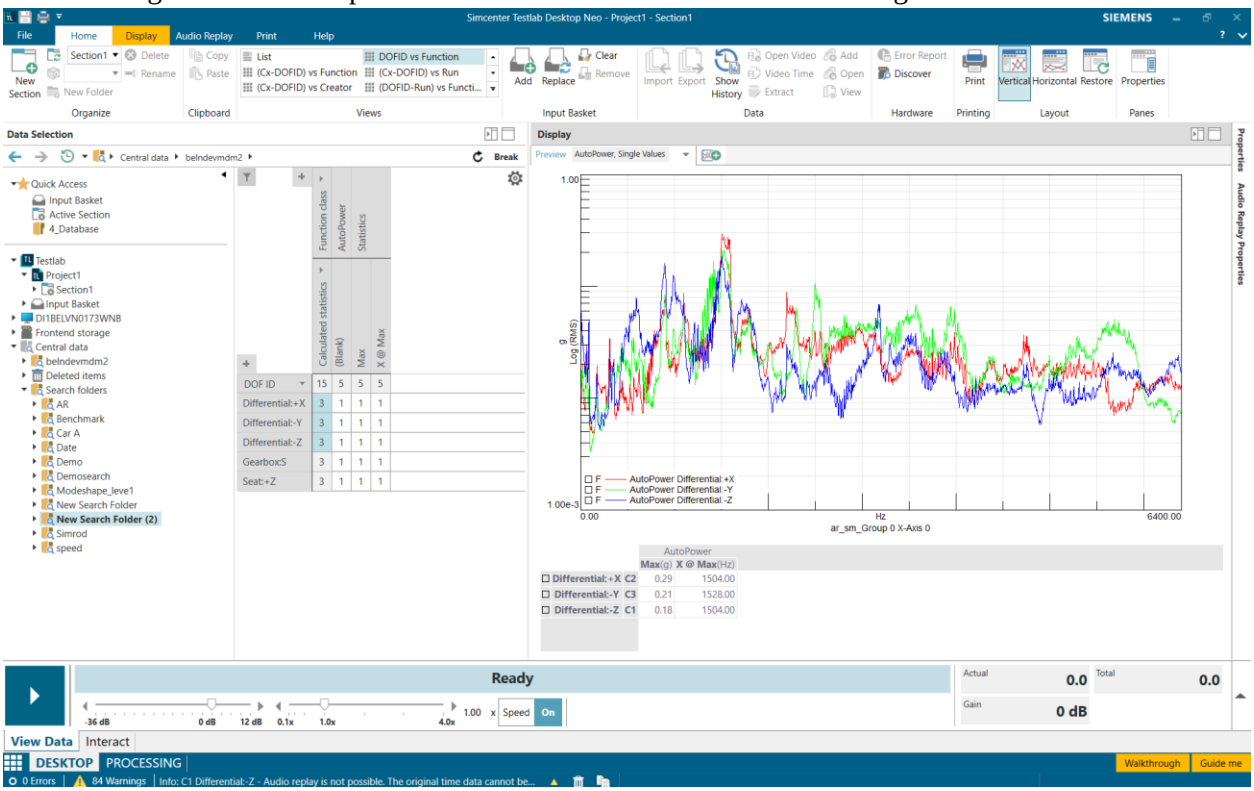
- EXCEL is still used to calculate statistical values
- Difficult to retrieve the original data that was used to calculate these statistics
- Los of context on how these statistics are calculated

please refer to the Testlab Neo for process designer and interactive analysis in the manual. Please check the Simcenter Testlab manual for offline processing in Neo (Process designer, Interactive analysis, etc) to learn more on the capabilities of these solutions for calculating Statistics (E.g. Max value of a block) or Single values (E.g. Loudness value).



For example, you can easily load a predefined process (methods) for signature analysis with some statistics.

In Simcenter Testlab 2406, in NVH context, single values and statistics which are calculated using Process designer will also be published to the Simcenter Testlab Data Management server as one set of



processed results. This data can later on be visualized in Testlab Neo in the same way as can be done when such results would be saved locally.

Usability improvements

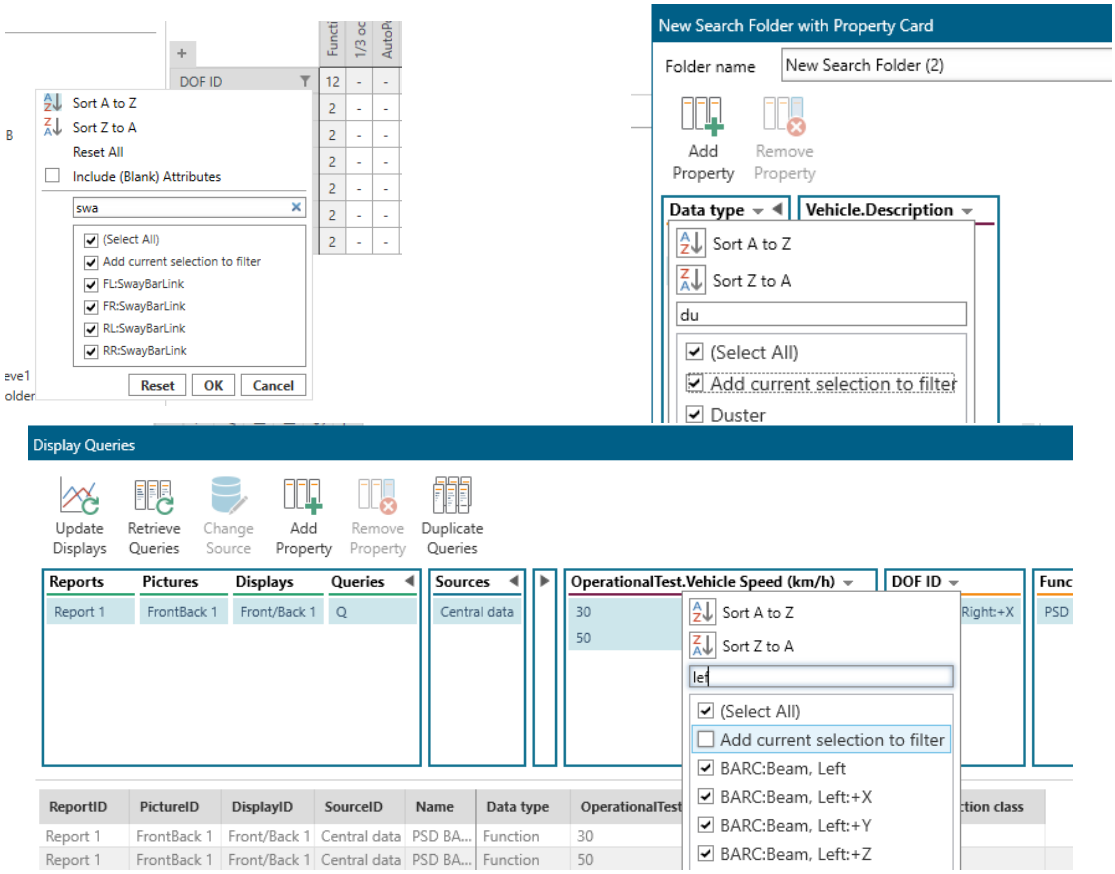
Descriptive Annotation

While previously explained the importance of describing data in a consistent way and how they are applicable with creating report in a batch way via query mechanism, in order to make this concept available and easy to user for test teams, new feature are introduced to optimize the creation and the usability of descriptive annotation. Please refer to the features described in Testlab Desktop Neo:

- Free value support in Value Lists
- Default values handling directly in Simcenter Testlab
- Improved Descriptive Template & Data Model creation
- Improved visibility on used Descriptive Template & Data Model

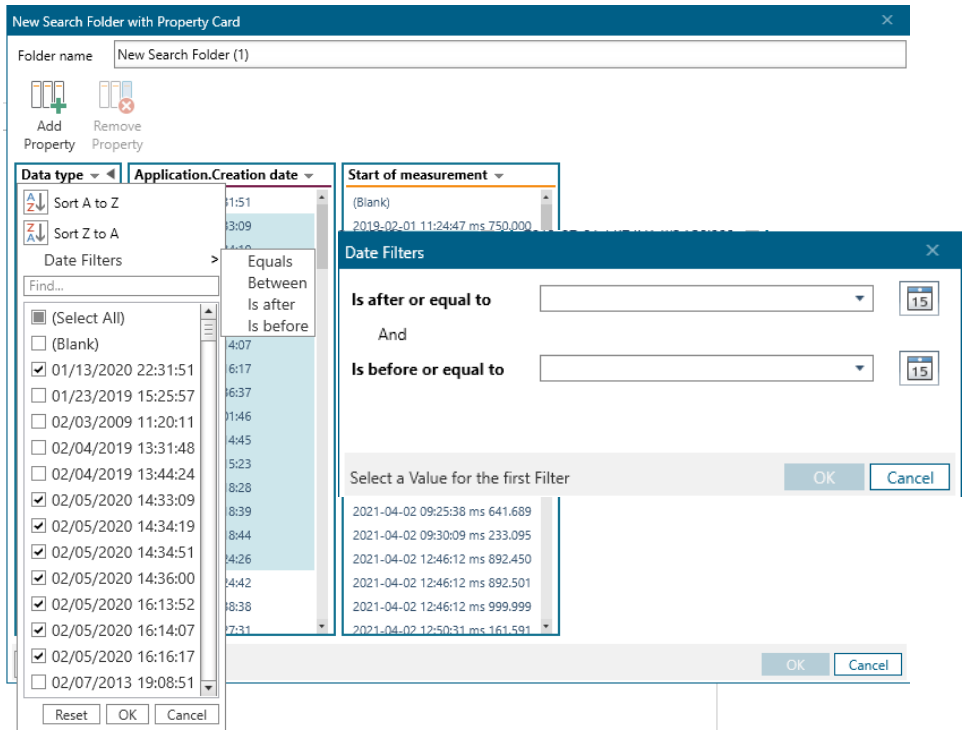
Cumulative filter

In the same ways as Excel, it is now possible in Simcenter testlab Neo to extend the list of items that were already selected, via the “Add current selection to filter”. This allows to very efficiently extend the selection list. The feature is available for Central data for the Pivot-functionality, for the Search folder using Property-cards, and in the Query-dialog in displays.



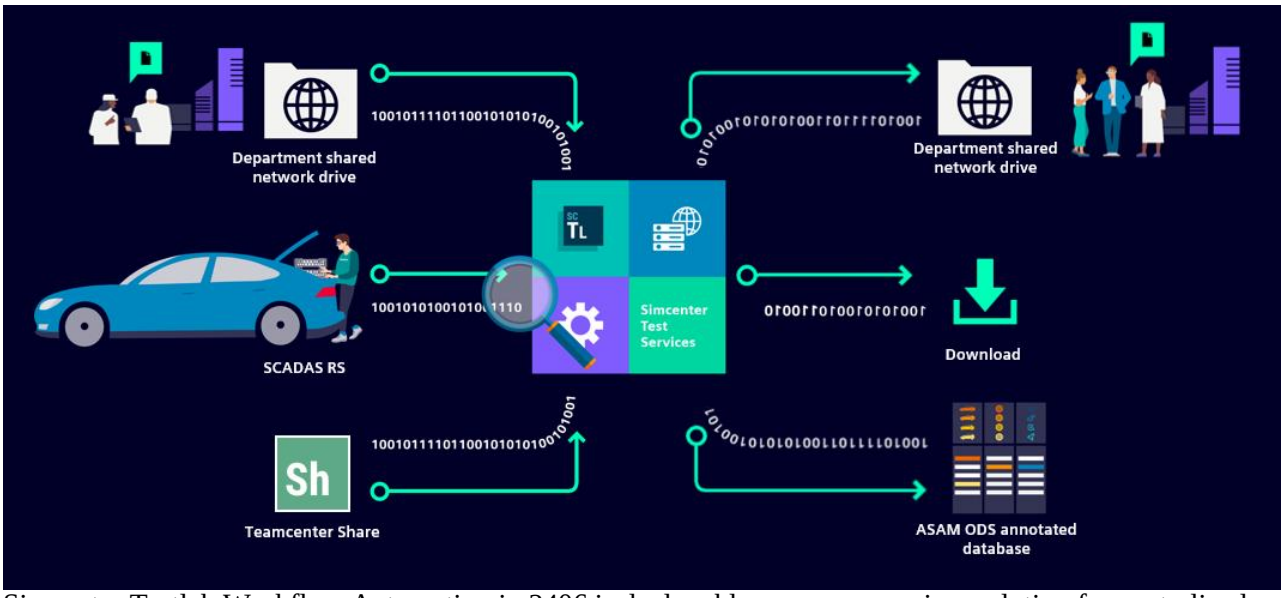
Search “Date” with “Date Filters”

In Simcenter Testlab 2306, the search for data based on a Date-value was limited to a search using the “Start of Measurement” or using the “Absolute Time Filters” Other search on Date was only possible via a search based on a string value. In Simcenter Testlab 2406, the user can now also search other “Date” attributes using the novel “Data Filters” feature.

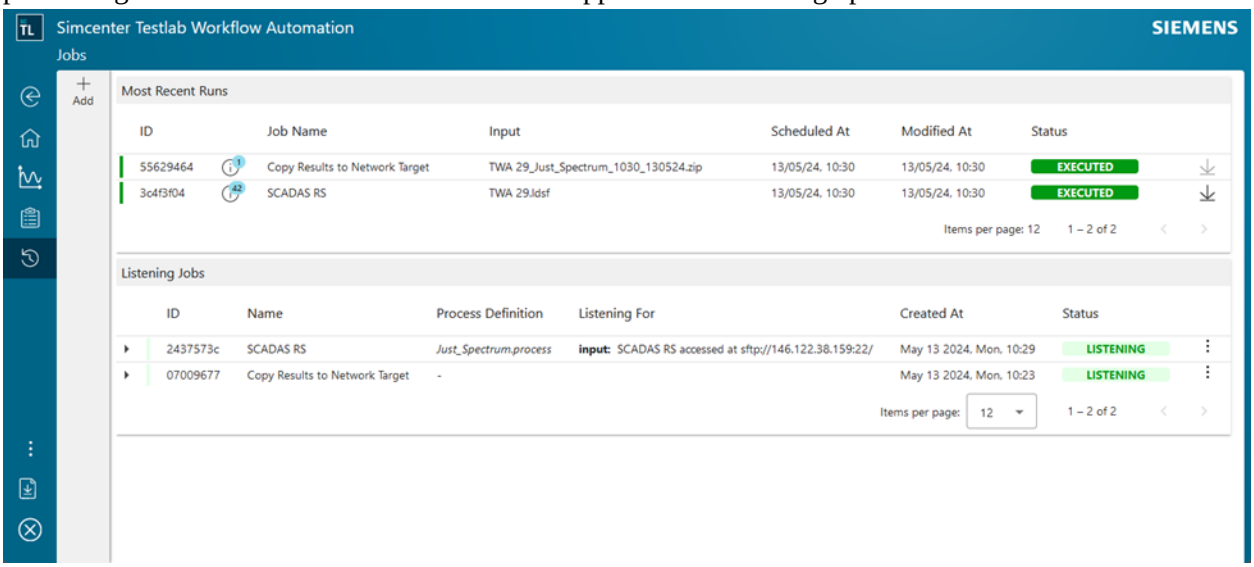


Testlab Workflow Automation

Pressure on reducing the number and availability of physical prototypes is a fact. Simcenter Testlab Workflow Automation (TWA) is a significant advancement in enhancing testing efficiency by centralizing and democratizing the processing capabilities of Simcenter Testlab. TWA is a service that is designed to improve the testing productivity. It allows to automate a number of the testing steps like e.g. automated retrieval of measured data, automated processing of data, automated publishing of data and more.



Simcenter Testlab Workflow Automation in 2406 is deployable as an on-premises solution for centralized processing. It comes with a web-based frontend application for setting up workflows.

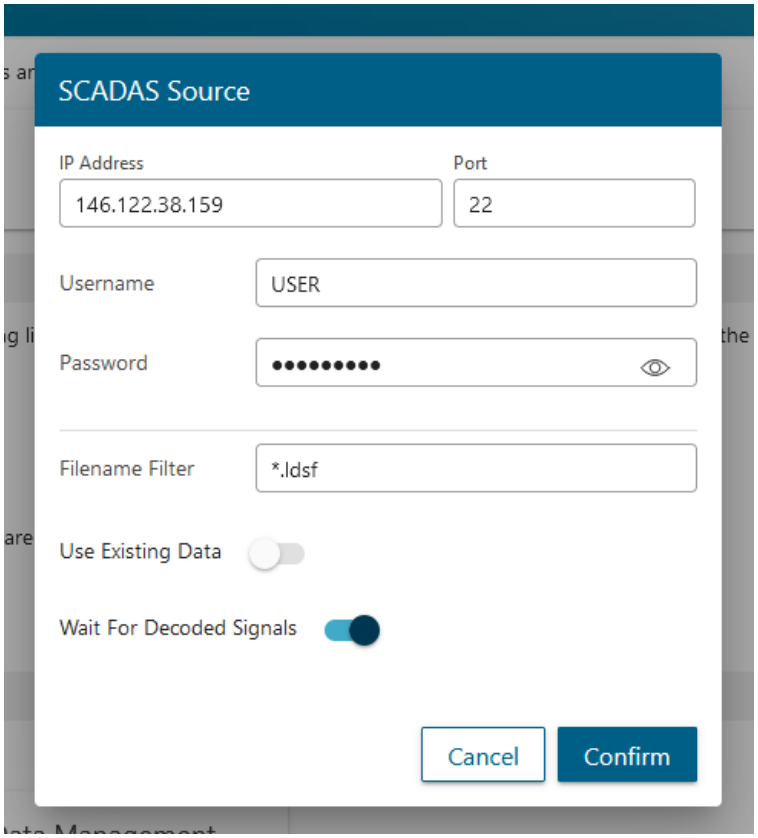


A designated PC or server that runs Simcenter Testlab with appropriate processing licenses can be turned into a TWA server.

TWA Administrator sets up the desired workflows as jobs, indicating where to fetch the data from, how it should be analyzed and where to either save or publish the resulting Simcenter Testlab projects.

SCADAS RS data offloading

When working with the SCADAS RS connected to a company network or private VPN, it's possible to offload the measured data right after acquisition, process it and save or publish the results.



The measured runs can be then automatically analyzed on a TWA server with a .process file created in Simcenter Testlab Neo Process Designer. From simple data cleanup and 3rd party export processes to advanced analysis flows with histograms, rainflows, synchronous order maps, fatigue damage spectra and hearing model tonality.

Batch processing of data

Next to monitoring a SCADAS RS, TWA can also retrieve results from Teamcenter Share projects and shared network drives. This provides an opportunity to centralize and unify the post-processing step of many in-house procedures. Different teams can store their input data on shared network drives and the TWA server will take care of the processing and result storage.

Automatic publishing to Simcenter Testlab Data Management

For companies that decided to centralize their data storage with a Simcenter Testlab Data Management solution, it’s possible to connect Simcenter Testlab Workflow Automation to a central server and make sure that the results are automatically published after processing.

Simcenter Testlab RT

Simcenter Testlab RT is the Siemens industrial real-time platform for Simulation and Testing. It connects simulation models in real-time to physical systems-under-tests and humans. It integrates with Simcenter Testing solutions such as SCADAS hardware and Testlab Neo software, to Simcenter Simulation solutions such as Amesim and 3D Smart Virtual Sensing, and to Siemens PLC solutions. This enables the creation of integrated Simulation, Test and Automation environments for x-in-the-loop testing in all industries (Electric Drive Unit-in-the-loop, brake system-in-the-loop, Driver-in-the-loop…)

Library

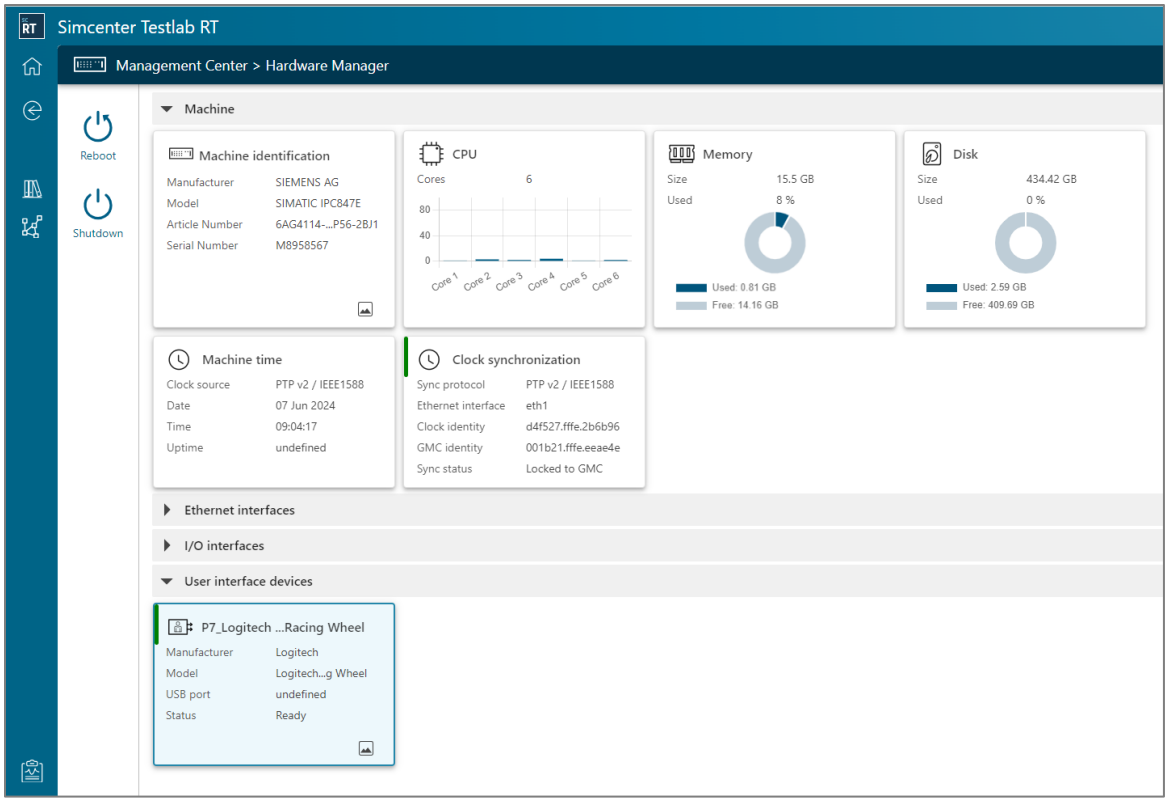
Support for real-time simulation models

Support for the following providers of real-time simulation models was added:

- Mathworks - Simulink - R2022b - FMI type: co-simulation - FMI version: 2.0
- Mathworks - Simulink - R2023a - FMI type: co-simulation - FMI version: 2.0
- Mathworks - Simulink - R2023b - FMI type: co-simulation - FMI version: 2.0
- Siemens Digital Industries Software - Simcenter Amesim - 2210 - FMI type: co-simulation - FMI version: 2.0
- Siemens Digital Industries Software - Simcenter Amesim - 2304 - FMI type: co-simulation - FMI version: 2.0
- Siemens Digital Industries Software - Simcenter Amesim - 2310 - FMI type: co-simulation - FMI version: 2.0
- Siemens Digital Industries Software - Simcenter 3D Smart Virtual Sensing - 2206.2 - FMI type: co-simulation - FMI version: 2.0
- Siemens Digital Industries Software - Simcenter 3D Smart Virtual Sensing - 2312 - FMI type: co-simulation - FMI version: 2.0

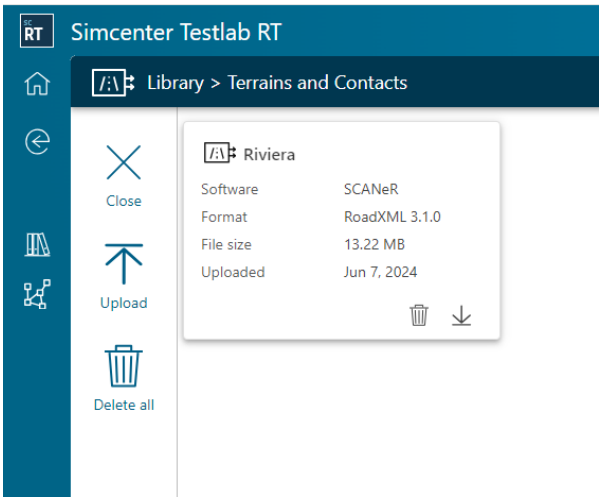
Support for user interface devices

User interface devices can now be added to the library based on the ones physically connected to the Testlab RT machine. This facilitates their identification and setup. Once used in a test, user interface devices also remain in the test even if they have been disconnected from the Testlab RT machine. This allows for offline test configuration, simpler commissioning and de-commissioning.



Support for terrains and contacts

Support for terrains and contacts was added. The first supported terrain format is RoadXML. This terrain format mainly originates from the software *SCANeR* from the company *AV Simulation*. Support for contacts between these terrains and vehicle dynamics models was also added. It consists in querying points on the terrain and getting its elevation and normal vector. Terrains and contacts must be used together. This support allows for driving real-time virtual vehicles on 3D terrains such as proving grounds, test tracks, circuits, etc.



Support for PROFINET RT device

PROFINET RT support was added to turn Testlab RT into a PROFINET RT device. This allows connecting Testab RT as a device into a PROFINET network and to be controlled from a PROFINET RT controller. Therefore, Testlab RT can easily be integrated into existing PROFINET-based bench control systems to provide real-time simulation and advanced control. Also bench commissioning is facilitated by the fact that Testlab RT is a PROFINET device that can easily be connected or disconnected.

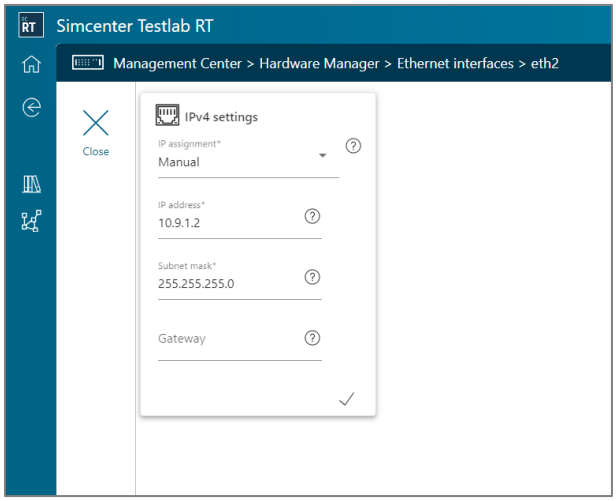
Support for streaming to SCANeR

Support for live streaming Testlab RT channels to the SCANeR software for 3D visualization was added. This enables for example the live visualization of vehicles in SCANeR 3D virtual environments such as virtual test tracks and circuits.

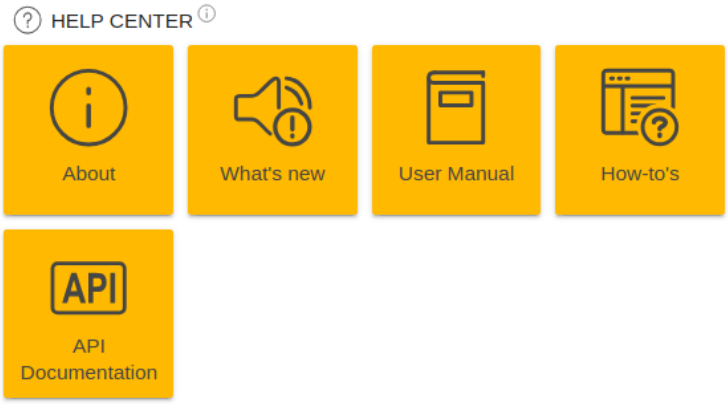
Hardware manager

Visualization of user interface devices in the hardware manager page was added. This facilitates the commissioning and identification of such devices.

Support for configuring network interfaces was added to the hardware manager. It allows configuring network interfaces (except the maintenance one) with a static IP address or to use DHCP to acquire an IP address.



Help center



The User Manual was extended with many pages covering the existing functionalities.

A section for How-to's was added to the Help Center and contains the first how-to's.

Usability improvements

Line graph titles and icons were improved for easier graph identification.

Additional navigation buttons were added throughout the user interface to make its use more efficient and intuitive.

Additional fields in cards and property panes were added to provide richer information to the user.

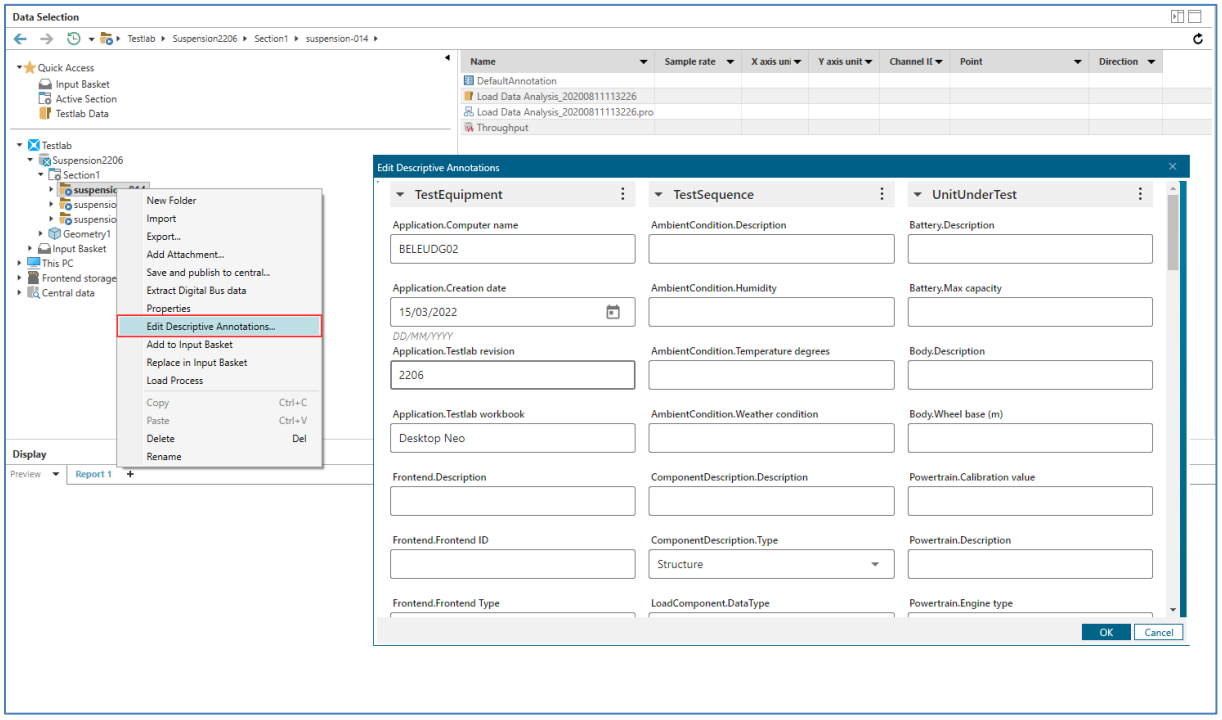
Simcenter Testlab (Classic)

Desktop

Consistent data annotation based on descriptive templates

In Simcenter Testlab 2206.0001, we introduced a new concept for contextual annotation, so called “Descriptive Annotation”. From then on, the user could and still can add context to his/her measured and/or processed data e.g. Test Engineer, Vehicle Type, Test Purpose.

This annotation mechanism is based on a fully customizable ASAM-ODS NVH application data model. This data model ensures consistent annotation across all Simcenter Testlab application- Neo & Classic - even in cooperation with Simcenter Testlab Data Management. Consistent annotation is critical for optimizing the re-use of data.



The admin creates the Descriptive data model which contains all contextual properties agreed upon in the company. Descriptive Templates can then be made which are fit for a certain test, unit under test, test team…. These Templates contain only subcollection of all the properties in the data model. Once a user loads this Descriptive Template in Simcenter Testlab, he/she can annotate his/her measured/processed data. The actual annotation is saved in the Descriptive instance on Run level.

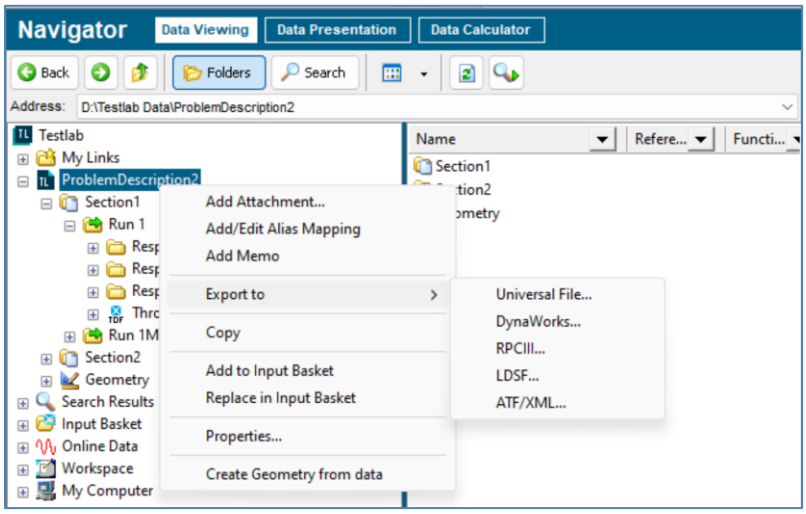
Export to ATFX includes Descriptive Annotations

When Descriptive Annotations is enabled the Export to ATFX will include all contextual information, as of Simcenter Testlab 2406. Other supplier can even read this context info when following the ASAM NVH application model.

Not only the Factory Model is supported but also customized Descriptive Data Models.

When Descriptive Annotations “On”, and exporting the complete lms projects, each run/folder will be exported as an ATFX file with its Descriptive Annotations

When Descriptive Annotations “On”, and exporting only the Throughput file of a run, this export will behave as an export of a standalone LDSF file, meaning it is not exported with its Descriptive Annotations.



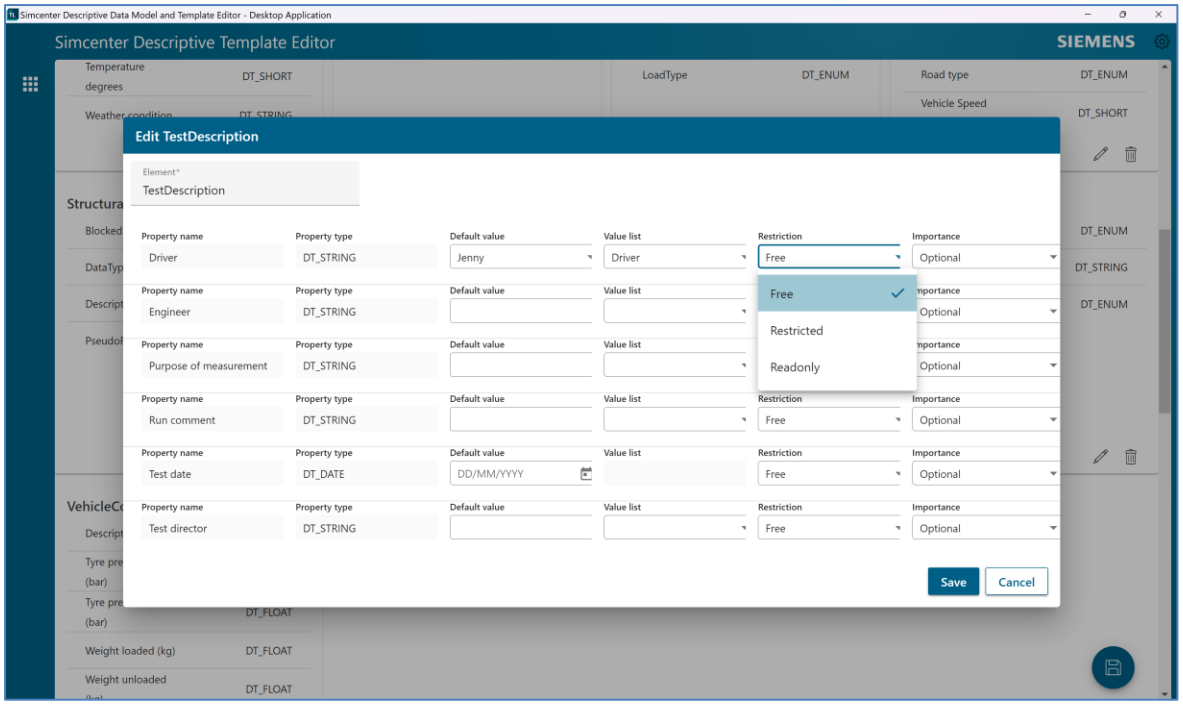
Free value support in Value Lists

Value Lists limit the possible values to a predefined list when filling in/editing some Descriptive Annotations, making the life of technician/engineer simpler and less error prone.

However – sometimes – the correct value is not present in the list.

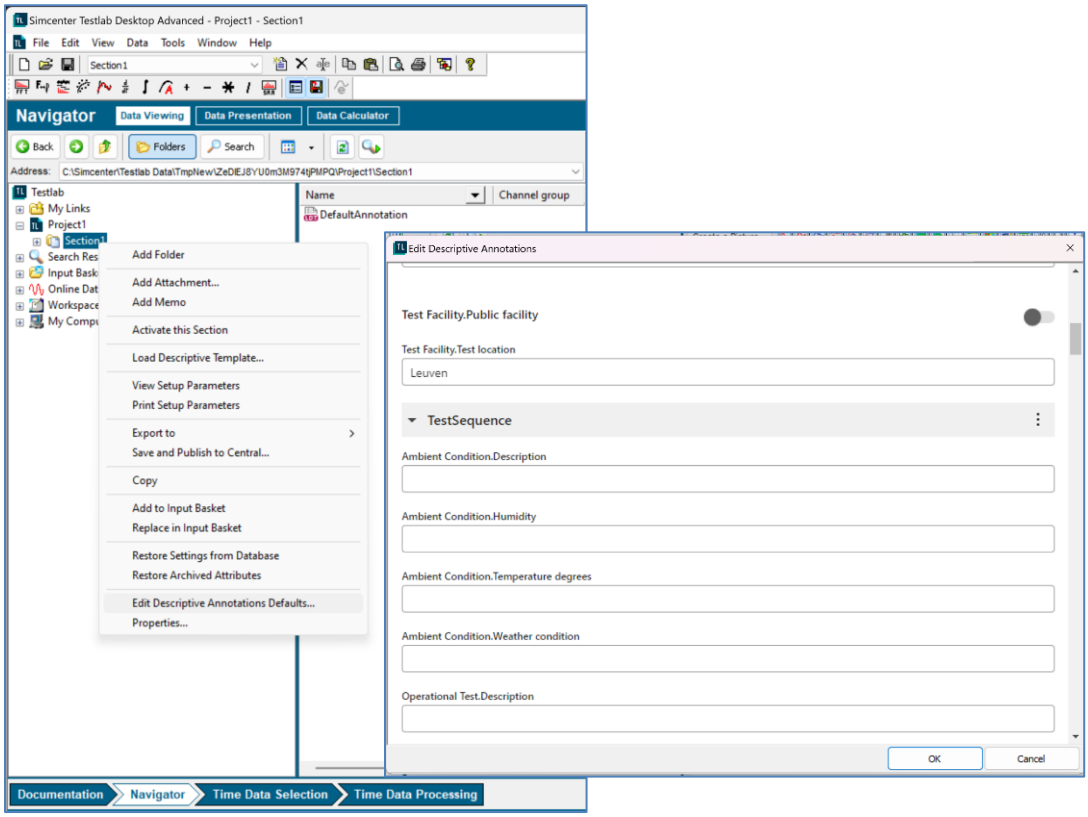
In the Simcenter Descriptive Data Model and Template Editor of Simcenter Testlab 2406, the admin assigns ‘Restriction’ ‘Free’ to a Descriptive property for which a Value List is defined.

In Simcenter Testlab 2406, the user can then choose one of the predefined values in the list for the Descriptive property or he/she can give the value he/she wants.



Default values handling directly in Simcenter Testlab

In Simcenter Testlab 2306, Defaults for the Descriptive Annotations could only by filled in in the Descriptive Template, via the Simcenter Descriptive Data Model and Template Editor, normally by an Administrator.
In Simcenter Testlab 2406, this is still possible. To further improve the usability of the solution, a user can now also edit or add extra Defaults for all or specific user selected properties inside Simcenter Testlab on Section level by choosing ‘Edit Descriptive Annotations Defaults’.



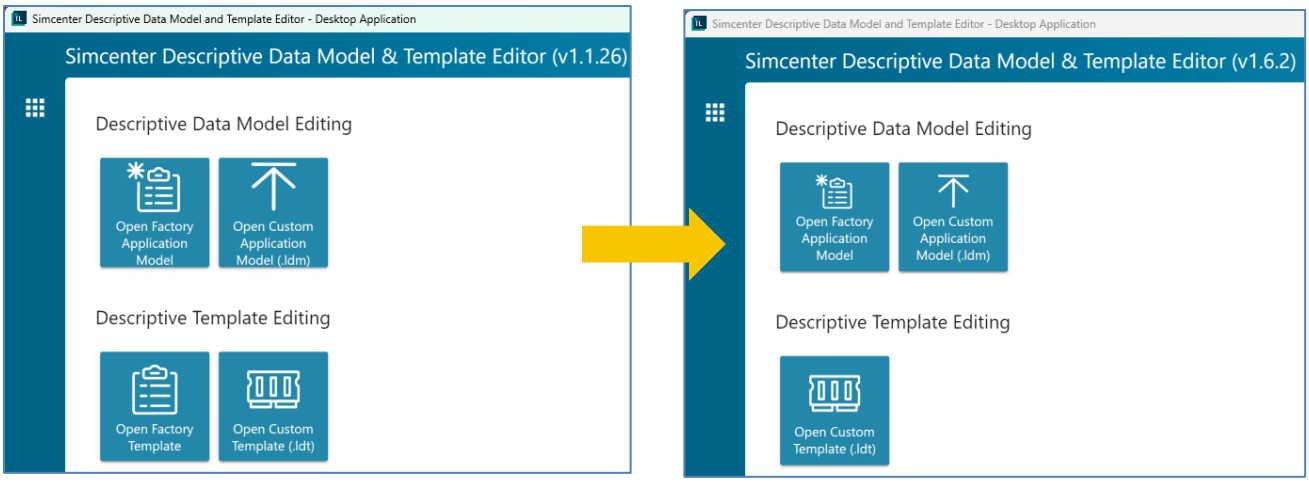
Improved Descriptive Template & Data Model creation

In Simcenter Testlab 2406, the Simcenter Descriptive Data Model And Template Editor is simplified,

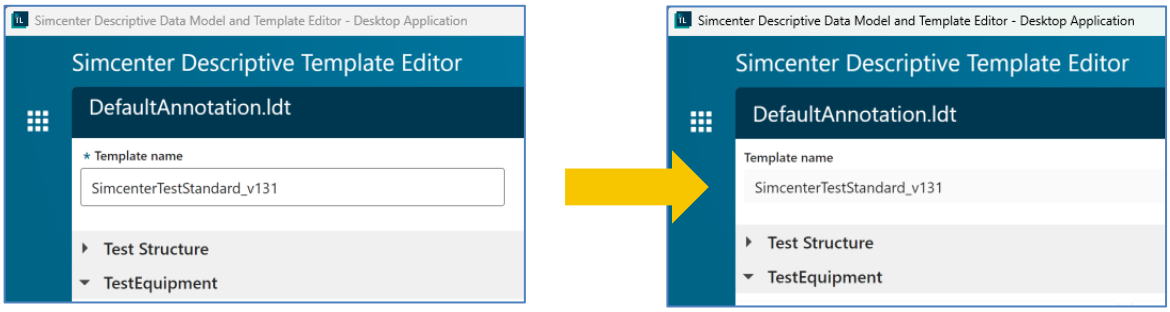
Out of the box, the admin just needs to setup his/her Descriptive Data Model and automatically a Descriptive Template is created with all available properties. While in previous releases, the Descriptive Template of new Data Model was not automatically generated, and the admin needed to perform extra clicks and thus extra steps to get the needed Descriptive Template.

This ‘Master’ Descriptive Template can then be used to create smaller Descriptive Template fit for purpose. Advanced options, like changing the Template name, are now disabled for general admins, so the synchronization with Central Data Servers is enforced.

Simplified UI to guide admin/users in a smoother way.

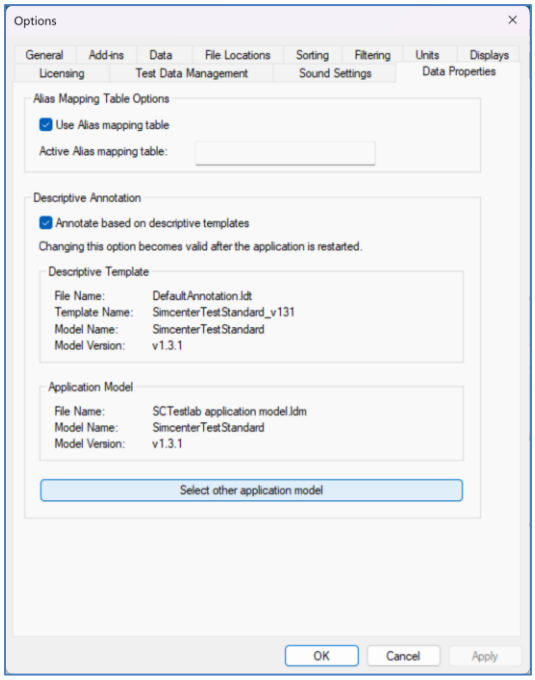


The Template name is automatically filled and blocked to protect the synchronization with the Server.



Improved visibility on used Descriptive Template & Data Model

In Simcenter Testlab 2406, extra info is added in the Data Property tab of the Options. This info tells the user which Model name and Model version is used, for the Default Descriptive Data Model. For the Default Descriptive Template, the Template name, Model name & version is mentioned.



Data Management

Usability improvements

Descriptive Annotation

While previously explained the important of describing data in a consistent way, in order to make the concept available and easy to test teams, new feature are introduced to optimize the creation and usability of descriptive annotation. Please refer to the features described in Testlab Desktop classic :

- Free value support in Value Lists
- Improved Descriptive Template & Data Model creation
- Improved visibility on used Descriptive Template & Data Model

Acoustic Testing

Sound Source Localization

Warning: For the 2406 release, the Sound Source Localization tools have been moved to a separate installation package. It can be installed on top of the standard Simcenter Testlab 2406.

Array Data Analysis

Array Data Analysis (ADA) has been further completed to match the existing functionality of the HDCAM classic analysis workbook.

Averaged Array Spectrum

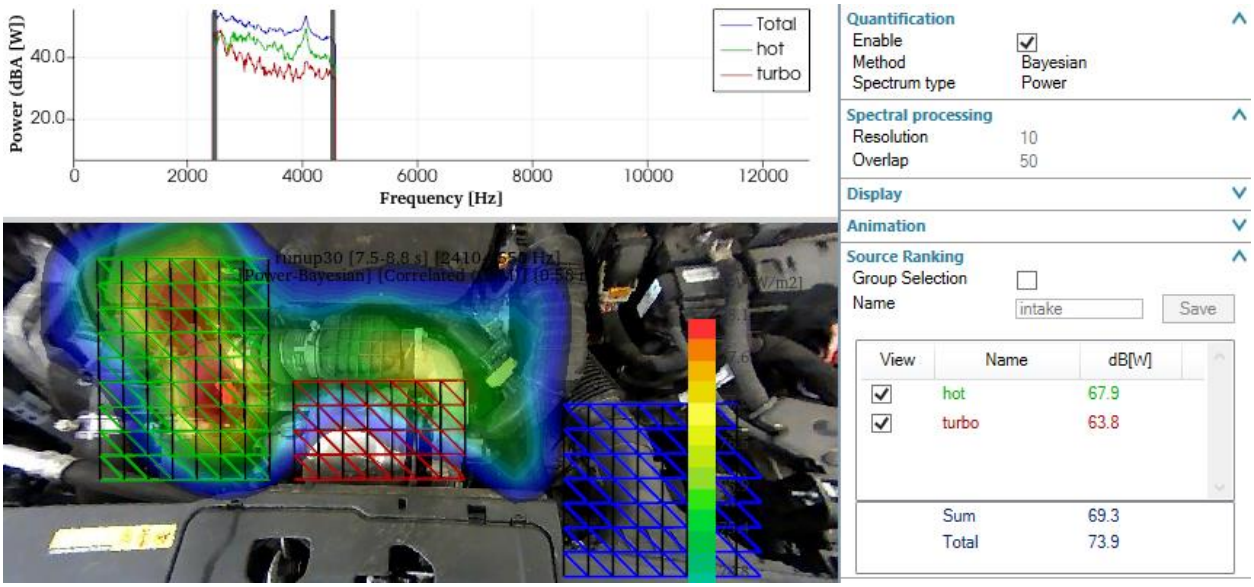
The averaged array spectrum is now also available in ADA. In the Spectrum selection box it is possible to select ‘Array’. It’s the averaged spectrum of all microphones in the array, and therefore shows what is captured by all microphones. It makes it clearer to identify sources in the spectrum, and suppresses noise.

Export to Testlab

All time data and spectral data can be stored in the Active Section of Testlab, so that it can be further analyzed and processed. Time data is also available for replay with standard Audio replay tools.

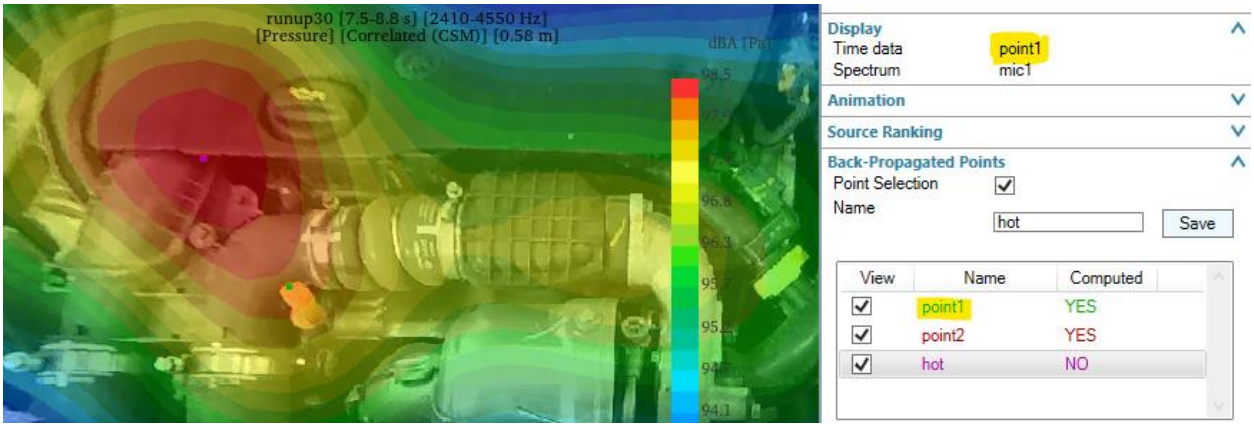
Group definition and Source ranking

Next, definition of groups has been added. Depending on using localization or quantification methods, for each group, also the partial pressure contribution or sound power contribution is listed in a table. The table can be sorted to get the highest contributing source on top.



Back-propagated time

It is now possible to click on a point on the hologram, and calculate the back-propagated time trace at that point. It will be added to the list of time signals, where it can be displayed. It can also be used as a reference signal for coherence-based processing. After storing the results in Active Section, from the Desktop users can use standard Testlab tools for Audio replay, filtering, and further Sound Quality analysis.

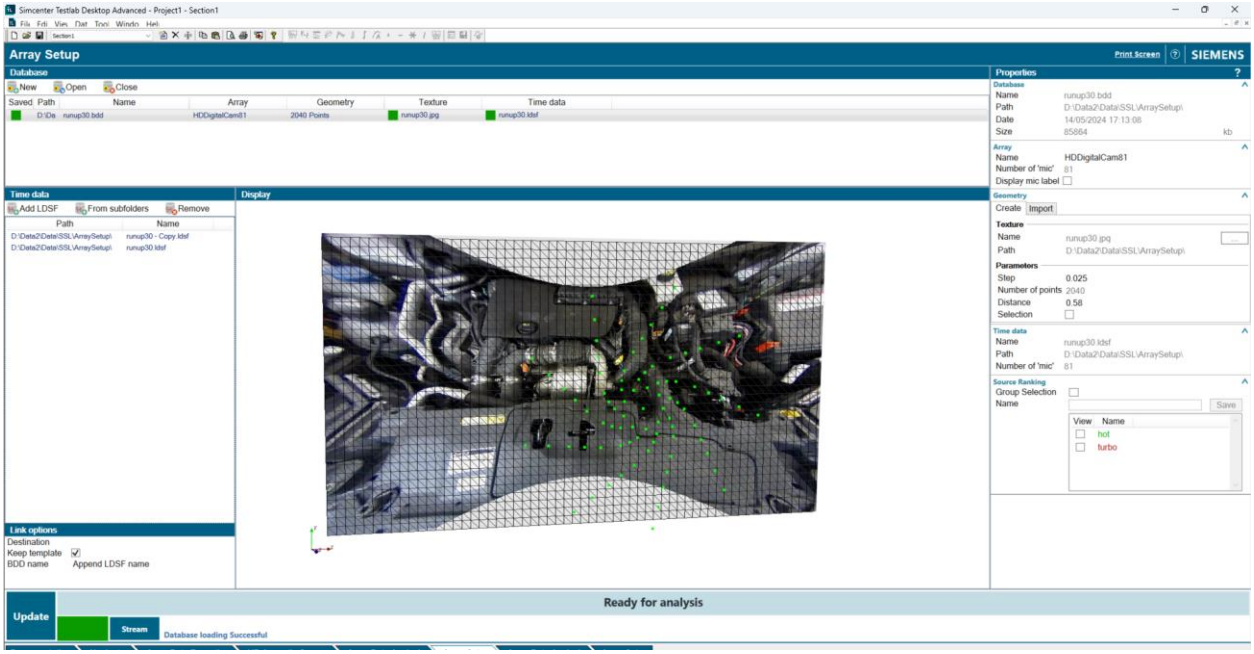


Order analysis

In Array Data Reporting it is now possible to do calculations with the Order Extension add-in. That results in calculation of source locations of orders tracked over a certain RPM range, or simply analyze a RPM range section instead of a time-range.

It requires that a tacho trace is stored in time data.

Array Setup



A new setup module was introduced with 2406 that replaces the functions of the existing setup step. It allows to select the used array type, take a picture, and position the array. Next it can already define groups on the hologram, that can be used later in the analysis.

The setup template can then be stored for future use. To finalize it for analysis, it needs to be combined with measured microphone data. Multiple LDSF datasets can be loaded from disk, either by adding them one by one, or selecting the option to add all results from a subfolder. That way the user can focus on the different measurements, and combine it with an array setup later.

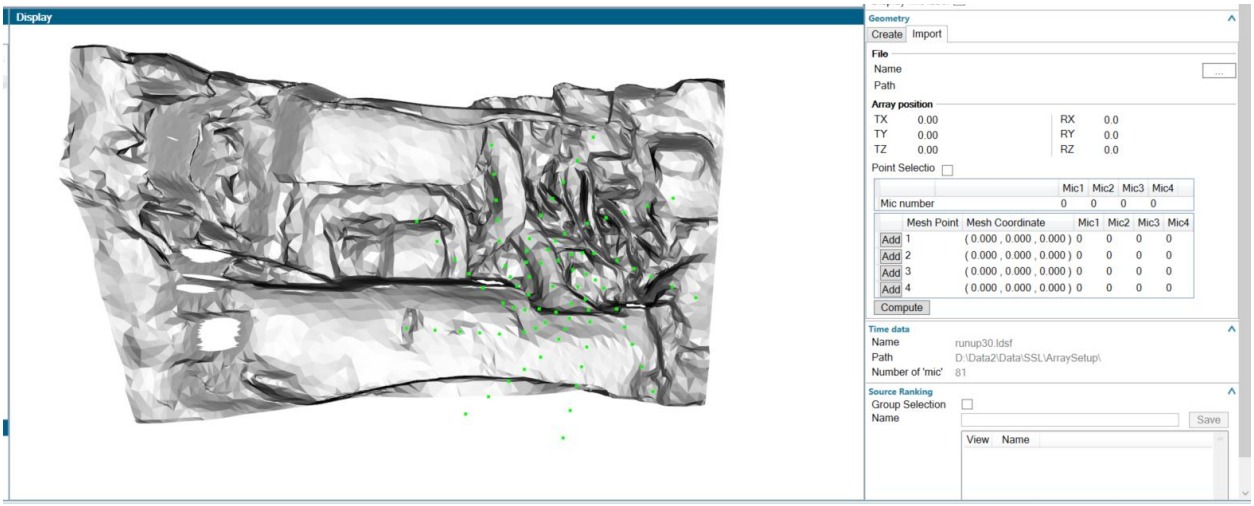
Once the combination is made and Applied, it's marked 'Ready for analysis' and the data can be analyzed in the Array Data Analysis sheet.

3D Geometry – creation of setup

Calculating sound source localization results on the 3D geometry of an object has quite some advantages: Real-world objects do not have flat planes so the exact distance to each point is taken into account for the sound source localization method; sound power estimations are much more accurate; and it becomes much more accurate to determine the sound power contribution of a full component.

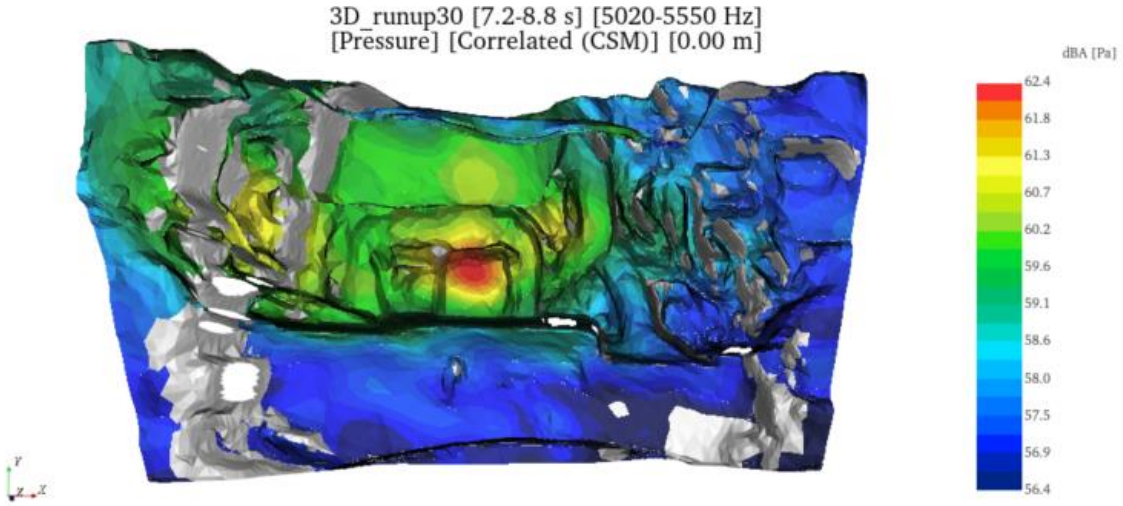
New in this version is also the possibility to define an array setup with a 3D geometry. That geometry has to be loaded as an .STL file. There are different ways to obtain such a geometry, ranging from converting CAD models to using scanners of all different sorts, to using AI techniques to extract 3D meshes from pictures.

When using a 3D geometry, it is very important to accurately position the array within the geometry. It should have the exact translation and rotation to the real object as it had during the measurement. To facilitate that, a method was added that takes measured distances from the array to the object as input, and then calculates the translation & rotation.



3D geometry processing

After the creation of the 3D geometry in Array Setup, the time data can be linked to it, making it ready for analysis in Array Data Analysis. In the standard way, result can be calculated and displayed. Low frequency results can be further processed with the quantification methods Bayesian Focusing.



Pass-by Noise

Updates in standards

Several standards have been added or updated:

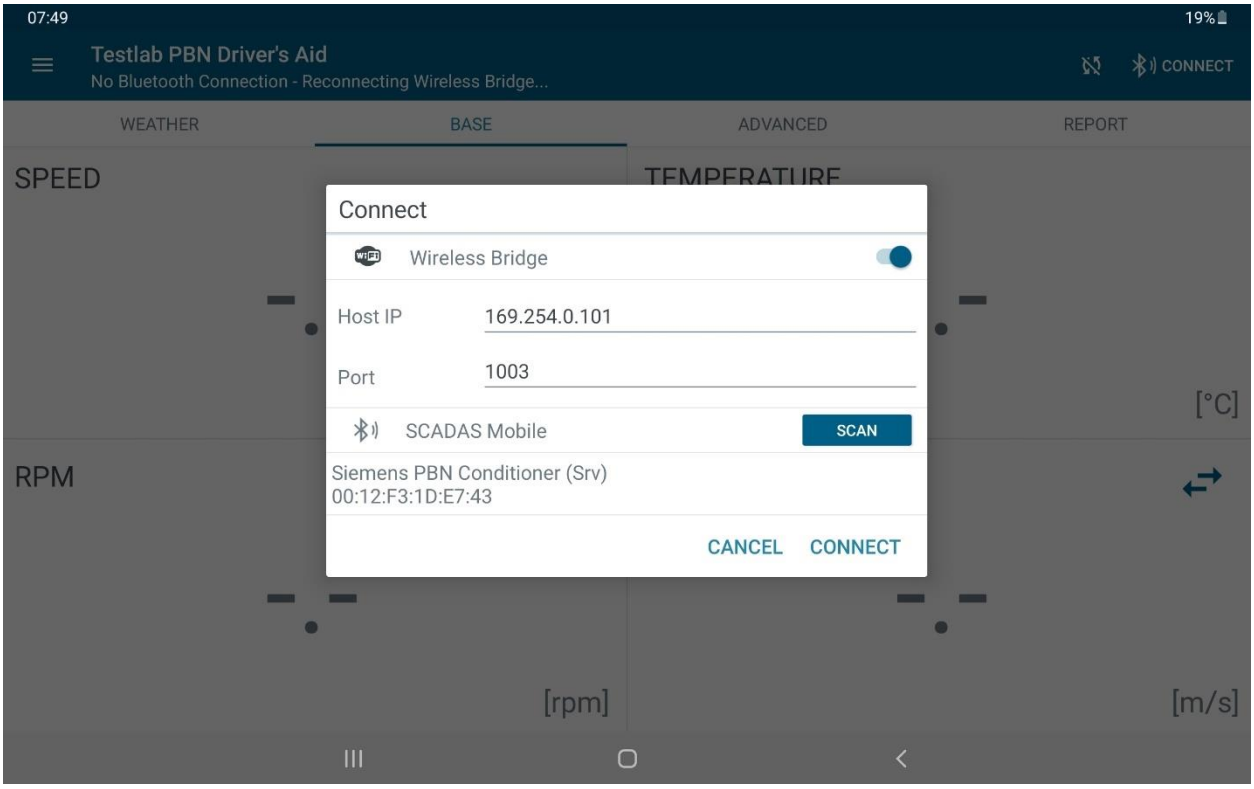
- ECE Regulation 51.03 has been updated to amendment 8. That includes the updated reporting template for Annex 9/RD-ASEP.
- For motorbikes, following standards have been added: ECE Regulation 41.05 (acceleration noise, constant speed and RD-ASEP), ECE Regulation 9.08 (acceleration noise, ASEP tests)
- For motorbikes, following standard has been updated: ECE Regulation 63.02

Main/Main support

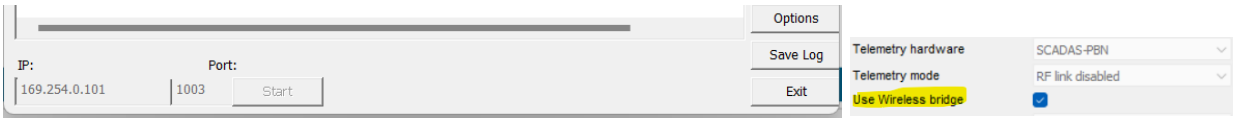
Testlab Exterior Pass-by Noise workbook 2406 further supports Main/Main (M/M) setups. M/M setups use two data acquisition frames, one in the vehicle and one on the track side. Both are connected to a network switch, from where the Testlab EPBN application can measure from both frontends. Data transmission for the remote unit is done using a wireless network bridge. Several extensions were made to support such setups.

Driver's Aid support over wireless network bridge

The Driver's Aid (DA) now supports transmission of weather data, setup data, and reports over the wireless network bridge. It also switches off the normal low-speed RF transmission channel on the PBN Conditioner modules. When connecting the DA to the PBN Conditioner module, the user now has the choice to select the wireless bridge IP connection to the track side.



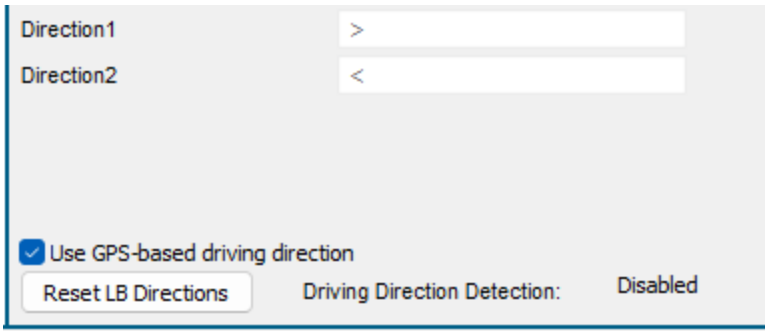
This is matched with new available settings on the Testlab side in the PbnServer tool and a setting in the Parameters→Track Layout minor worksheet.



The benefit is that transmission can benefit from TCP/IP network functions that increase quality of service. So reports and weather data can be transmitted over a longer range, with a larger bandwidth.

Driving direction detection using GPS position

M/M configuration benefit from using on-board light-barriers. This further reduces setup time on the test track. Reflectors can either be put on the side, or on the center of the track. The latter can also give an indication whether the driver drives over the CC' line. The driving detection can now be detected by enabling the GPS of the frontend. The first light barrier detected is considered direction 1. For the next light barrier trigger the system compares its GPS location with the location of Direction 1. That's how it can differentiate between the two directions. The settings can be found in the Parameters → Track layout minor worksheet.



Show Report Summary in the Driver's Aid

The Driver's Aid has been extended with a function that merges the Report with the Advanced tab. That way drivers can keep an eye on the results of the previous run while working to meet the driving targets of the current run. The reported attributes are always kept in the same sequence, so that drivers can easily look at the right place on the Driver's Aid. The options can be enabled or disabled in the settings menu.

Other improvements

Room extensions for In-Room PBN

Room extension for In-Room PBN is now also supported in the front of the vehicle, for rooms that are a bit too short in the front.

Virtual Channels for In-Room PBN

Virtual Channels are enabled for In-Room PBN. This allows e.g. trigger signals to be defined as a virtual channel based on signals from the Chassis Dyno.

CAN support for In-Room PBN

CAN support is activated for In-Room PBN just like in Exterior PBN. It supports RPM and Throttle to be mapped to a CAN parameter.

FMVSS141 update

FMVSS141, the US minimum noise standard tool, has been updated to make it easier to determine if the volume shift is correct. It is possible now to check the volume shift after each run, instead of having to wait all the way to the end. It's also possible to get intermediate results without having the final closing ambient noise measurement done.

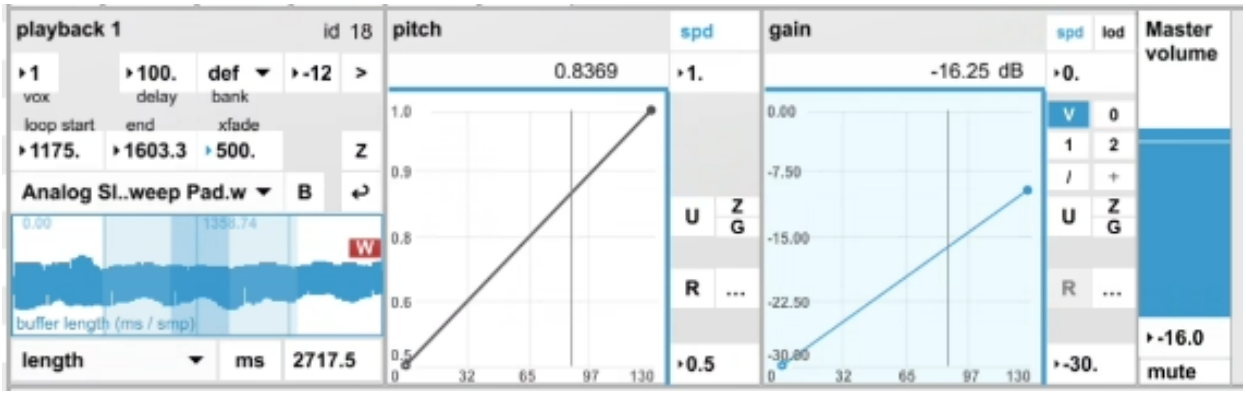
Sound Designer

Enhanced Pitched Playback

The pitched playback synthesis control has been extended with several features. First, several loop functions were added. It is now possible to cross-fade end of the sample to the beginning of the sample, use palindrome method where the sample plays from beginning to end and then in reverse to the beginning, or simply no treatment while looping. In the latter case the beginning and end of the sample should be matched.

Next to that, it's now possible to split the sample into a user-defined multiple number of voices, where each vox starts with an offset of a user-definable offset in msec.

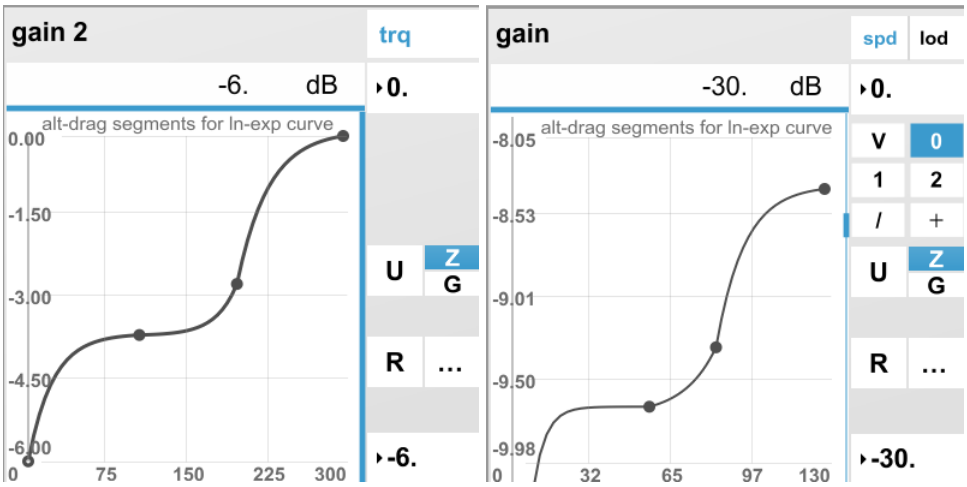
Finally, it's possible now to drag & drop sample on the GUI, and use several keyboard functions (CTRL, ALT, SHIFT) to select the segment of the sample that should be used for pitched playback.



Envelope Curves extensions

Envelope tiles now support curves with logarithmic transition from one breakpoint to the next. It's triggered with the ALT key. It's available in the signature template EV.pure.curve.24 (logarithmic curves only) and PP.multivoice.3D.pure.24, but could be applies to any custom sound signature.

In addition, not 1 but 3 curves are now available, where the interpolation between these 3 curves is determined by a second parameter, which is load by default. That way, for example, volume gain can be controlled by both speed and load with a single control tile. This makes the envelope tile a 3D function.

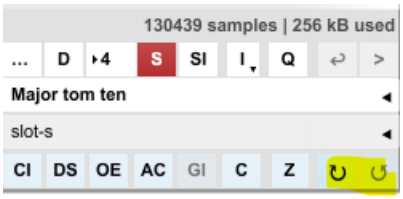


Quick mode: previewing Sound Signatures

A signature is often quite complex, and takes some time to load all of its components, most of which can also be changed in real-time. In Quick mode, it's possible to quickly load a signature without all the user interface components, but still listen to the sound synthesis. That allows to quickly check a couple of iterations of sound designs, without losing time to load the full user interface. That makes it a kind of Preview mode for sound signatures.

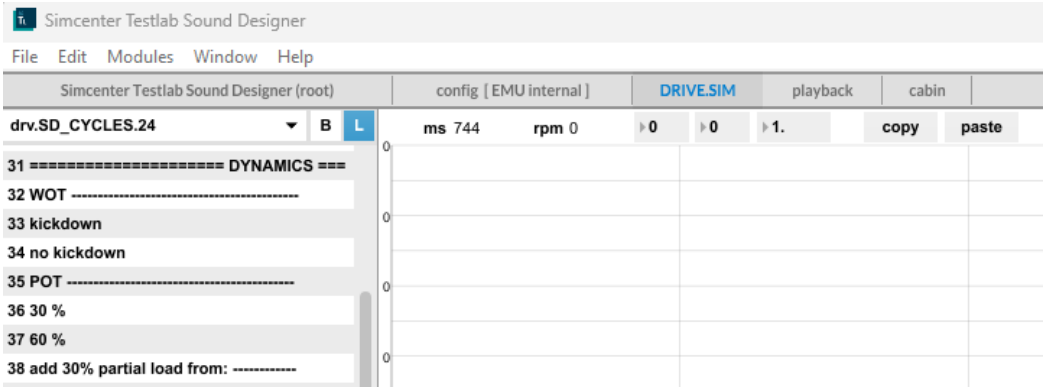
Undo/Redo function

In this version the functionality was added to undo/redo the last actions. The undo/redo buttons can be found in the root tab at the left below the preset list and just above the real-time signal viewer. The last 20 steps can be undone or redone. This function allows users to quickly try a different manipulation of changing sound, while making it easy to go back to the previous state.



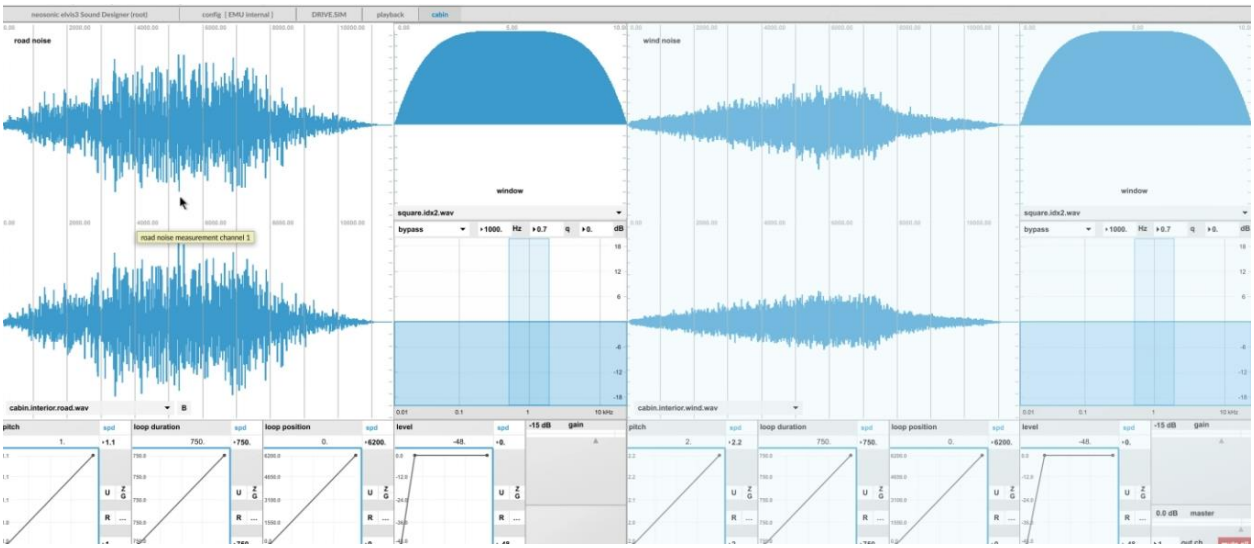
Predefined drive cycles

DRIVE.SIM has been extended with a predefined drive-cycle signature. It contains more than 180 commonly used drive conditions such as constant speed at various speeds, reverse driving, idling sound, and wide or partial open throttle conditions, run downs, virtual gears, and more.



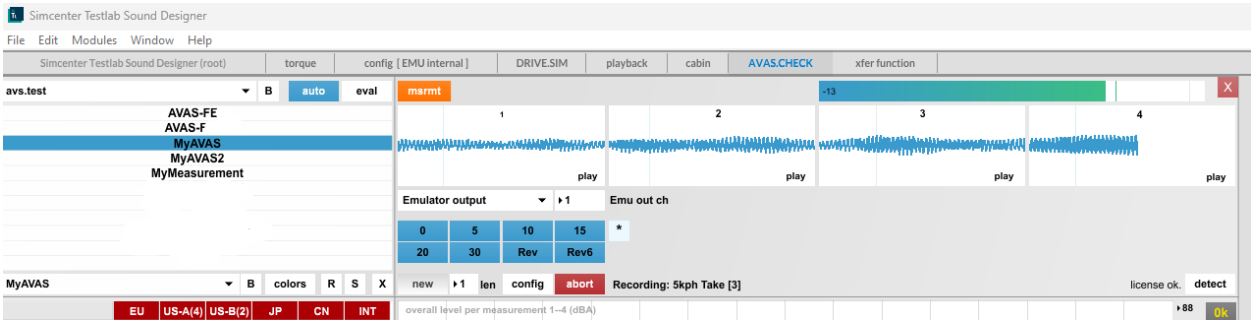
Cabin drive

DRIVE.SIM has been extended with a new tab that interpolates in-cabin recordings, and mixes them with the synthesized sound. It is based on granular synthesis using the recorded speed profile, and adapts gain and/or pitch. It allows free driving using realistic road noise and windnoise while evaluating a synthesized sound design.



Automatic creation of AVAS.CHECK signature

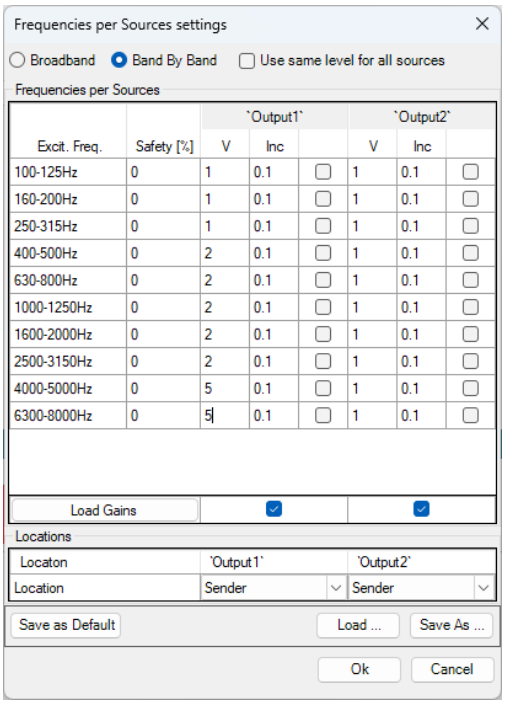
In 2406 it is now possible to start with an existing AVAS signature, and then automatically create the full AVAS.CHECK list of measurement so that it can be evaluated against the AVAS minimum noise standards. First a new name is created on the existing signature. Then by pressing a single Record button, all required conditions (10 kph, 20 kph, 30 kph, reverse, reverse 6 kph, and the frequency shift conditions 5 kph, 10 kph, 15 kph) are synthesized one by one, and all organized in the right structure. At the end of this, the result is evaluated for compliance.



Material Testing

Sound Transmission Loss using Rooms

Sound Transmission Loss (STL) using Rooms has been extended such that a specific Voltage level can be set per 1/3 octave band or per groups of bands. This allows users to obtain a valid Signal-to-Noise ratio over the full excitation band. The excitation will then change while cycling over the different 1/3 octave bands.


Frequencies per Sources settings
Broadband
Band By Band
Use same level for all sources
Frequencies per Sources
`Output1`
`Output2`
Excit. Freq.
Safety [%]
V
Inc
V
Inc
100-125Hz 0 1 0.1 1 0.1
160-200Hz 0 1 0.1 1 0.1
250-315Hz 0 1 0.1 1 0.1
400-500Hz 0 2 0.1 1 0.1
630-800Hz 0 2 0.1 1 0.1
1000-1250Hz 0 2 0.1 1 0.1
1600-2000Hz 0 2 0.1 1 0.1
2500-3150Hz 0 2 0.1 1 0.1
4000-5000Hz 0 5 0.1 1 0.1
6300-8000Hz 0 5 0.1 1 0.1
Load Gains
Locations
Locaton
'Output1`
'Output2`
Location
Sender
Sender
Save as Default
Load ...
Save As ...
Ok
Cancel

Virtual Prototype Assembly

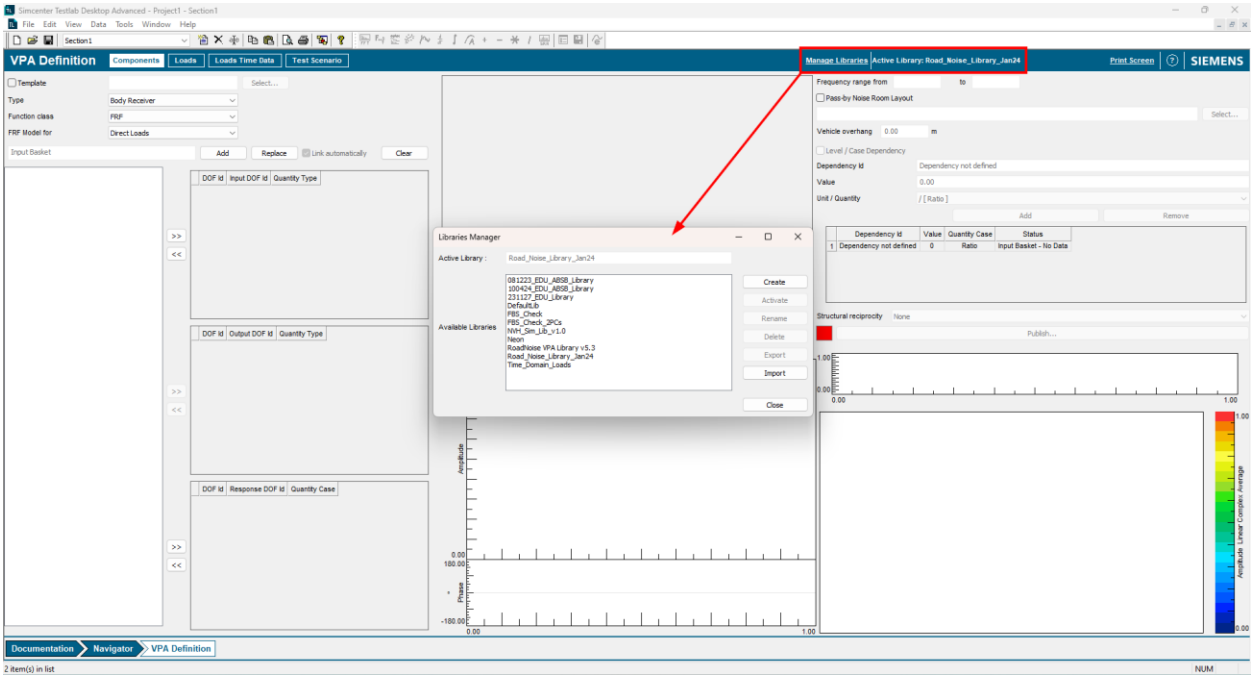
VPA Definition

Component Libraries

Introducing our new library concept, designed to enhance productivity and streamline component management. We provide you with powerful capabilities to efficiently organize and utilize your libraries.

The library management allows you to create, activate, rename, and delete libraries. Whether you need to organize components for different product lines or project phases, our library concept empowers you to efficiently manage your component collections, ensuring optimal organization and accessibility.

Furthermore, one can import and export functionality, enabling you to easily exchange components across different projects or collaborate with external partners.



Support Time Domain Loads

On this release, we introduce the support for Time Data Loads in Virtual Prototype Assembly. This feature enhances the Virtual Prototype environment by allowing users to accurately calculate responses at specific target points not only in frequency domain but also in time domain. By utilizing time data loads, users can easily post-process results and take advantage of the replay capabilities. Analyzing and manipulating time-based data provides a deeper understanding of virtual prototypes, empowering users to make informed decisions with greater precision.

Multi-Level Mounts for Direct Loads Models

Within Simcenter Testlab 2406 release, a new capability was introduced for the Connectors components. It is now possible to define a connector for different pre-load conditions. The dynamic behavior of resilient mounts changes accordingly to the pre-load conditions. To correct modeling this behavior, it is possible to include the dynamic stiffness curves of the connectors per pre-load. On VPA Assembler, the Test Scenario should contain the pre-load trace which will be connected to the respective connector, to guide/dictate which pre-load condition to use.

VPA Assembler

More information is available on the Simcenter Testlab Neo section of this document.

Environmental Testing

Random application enhancements

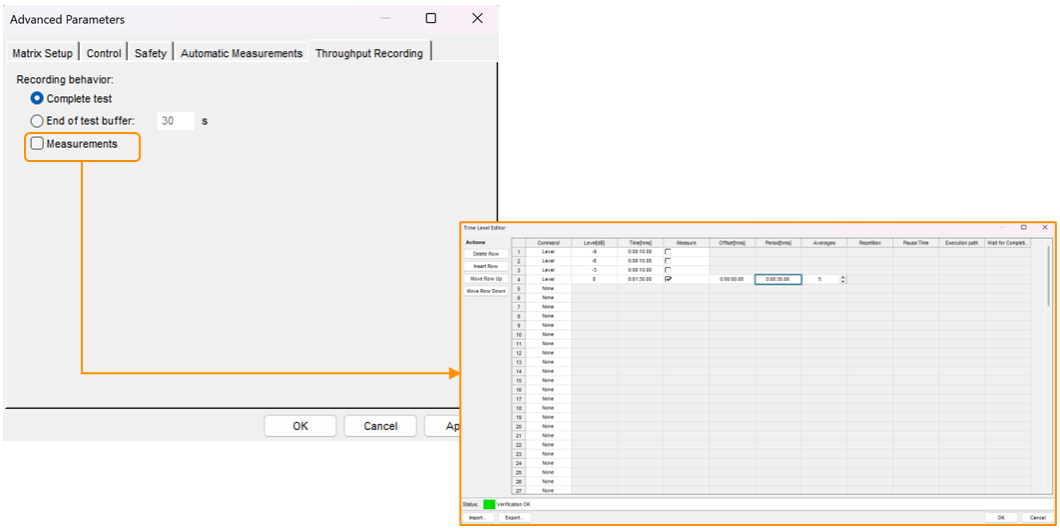
Simcenter Testlab 2406 introduces new features that enhance the current offer for Random applications. The following enhancements are included, without additional licenses, in the following workbooks

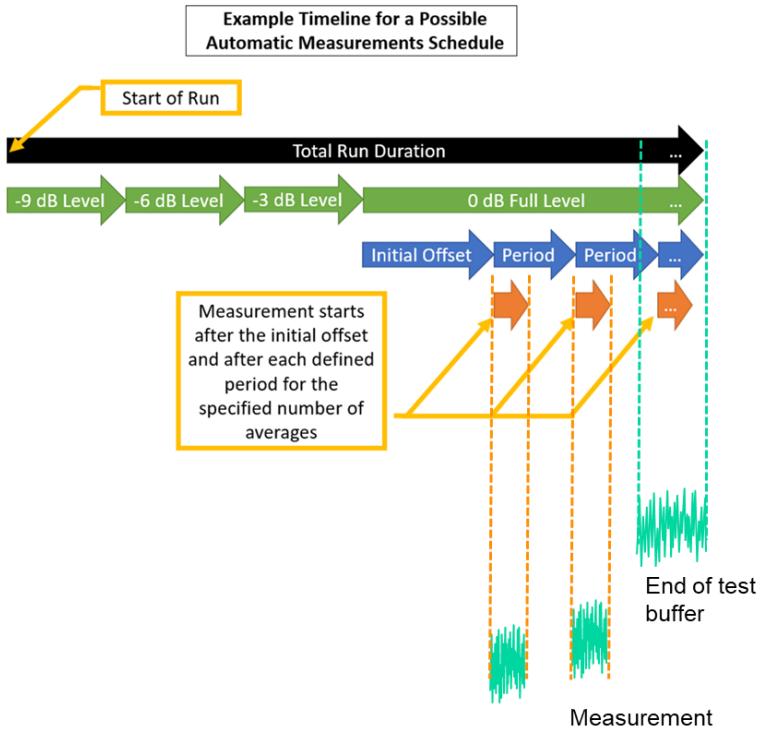
- Random Control
- MIMO Random Control
- Online Random and Acoustic Reduction

Segmented throughput

As of Simcenter Testlab 2406, it will be possible to store throughput together with a measurement (scheduled or manually triggered) only when the data corresponding to the measurement is stored (segmented throughput). This is particularly important for long duration tests where having a complete throughput is often considered unnecessary.

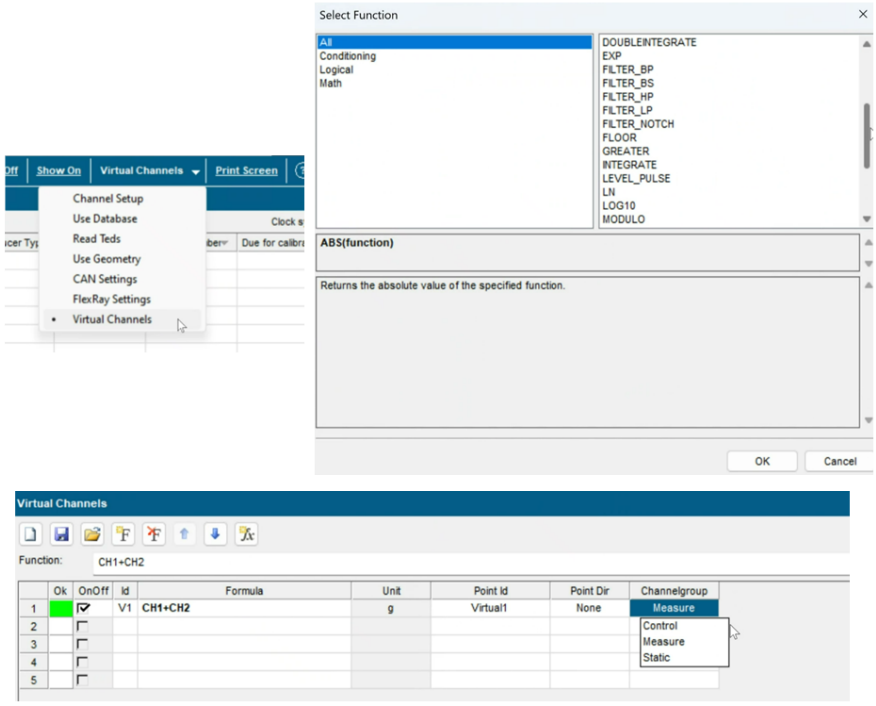
The recording of the segmented throughput can happen in parallel with the complete throughput. In case this is not needed, users will have the alternative option to only store a user-defined duration in seconds before the end-of-run (normal or abrupt).





Virtual Channels

As of Simcenter Testlab 2406, Virtual Channel will be available in all the random applications.

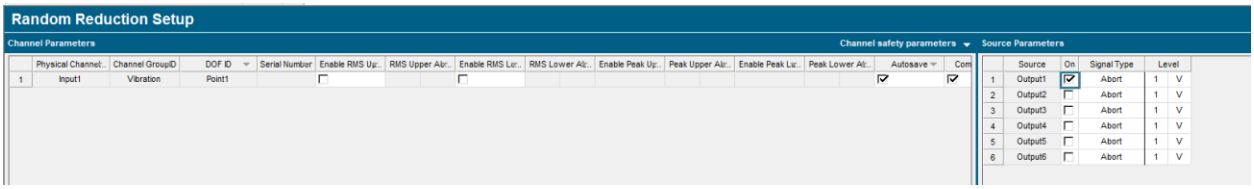


These channels can be defined in channel setup and can be assigned to Control, Measure or Static channel groups.

Virtual Channels can be defined applying formulas to existing physical channels and are treated no differently than regular channels. This means that all the properties and functionalities that can be defined for regular channels are available for a Virtual Channel as well. For example, throughput recordings, online data and system verification prediction are also available on Virtual Channels. Explicit safety action defined in the test setup worksheets will be also applicable to a Virtual Channel. Safety checks that are linked to limitations of the physical systems, like an overload and/or an open channel will not be triggered on a Virtual Channel.

Abort on reduction system

As of Simcenter Testlab 2406 sources in Online Random and Acoustic Reduction can be set to send a DC signal of a specified level as output. As soon as an abort condition is encountered or the user pushes the Abort Control button, the abort output starts sending out a DC signal at the defined abort output level. Once the abort output signal is active, it remains unchanged by any further abort conditions. The abort output signal remains unchanged until the user pushes the reset button, or the user stops the random acoustic reduction test.



This functionality is very useful to directly trigger an abort on the control system by connecting the abort output on the Online Random and Acoustic Reduction system to an input channel with an appropriate abort limit (RMS or peak) defined.

RMS in function of time

In Random Control, MIMO Random Control and online Random and Acoustic Reduction, the user can now visualize and store the RMS over time of the average control, the individual controls and the measure channels.

Shock Control enhancements

Bypass SI/SV in Replay mode

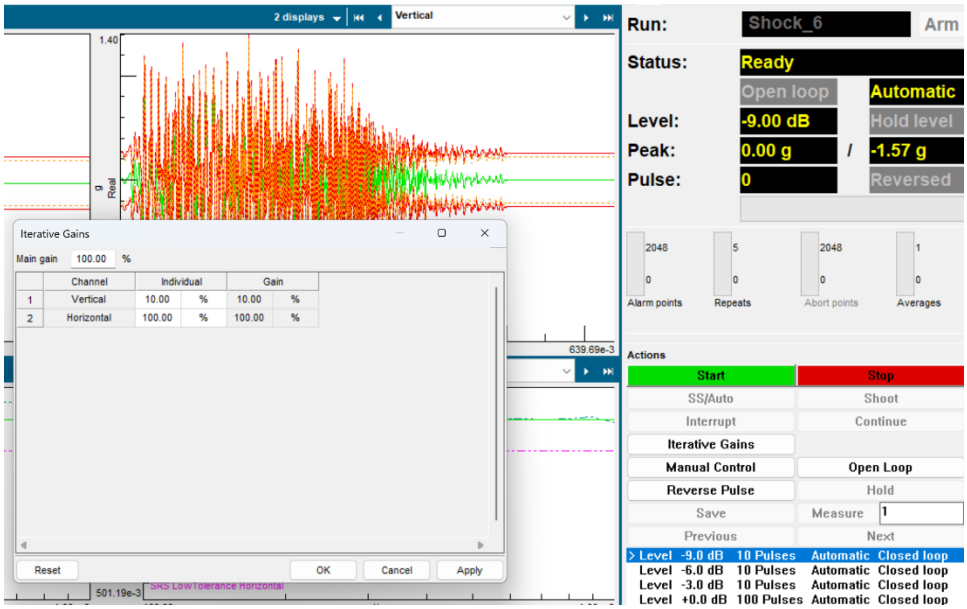
In Shock & MIMO Shock Control, the user can now skip SI/SV when using Replay mode in order to not introduce additional damage to the device under test.s SV

Override DAC overload

For users that master their non-linear excitation hardware, for example a slip table using a hydraulic actuator with large stroke, Simcenter Testlab 2406 Shock Control offers the possibility to bypass System Verification DAC overload predictions, which are based a low level System Identification.

Set iterative Gains in the UI

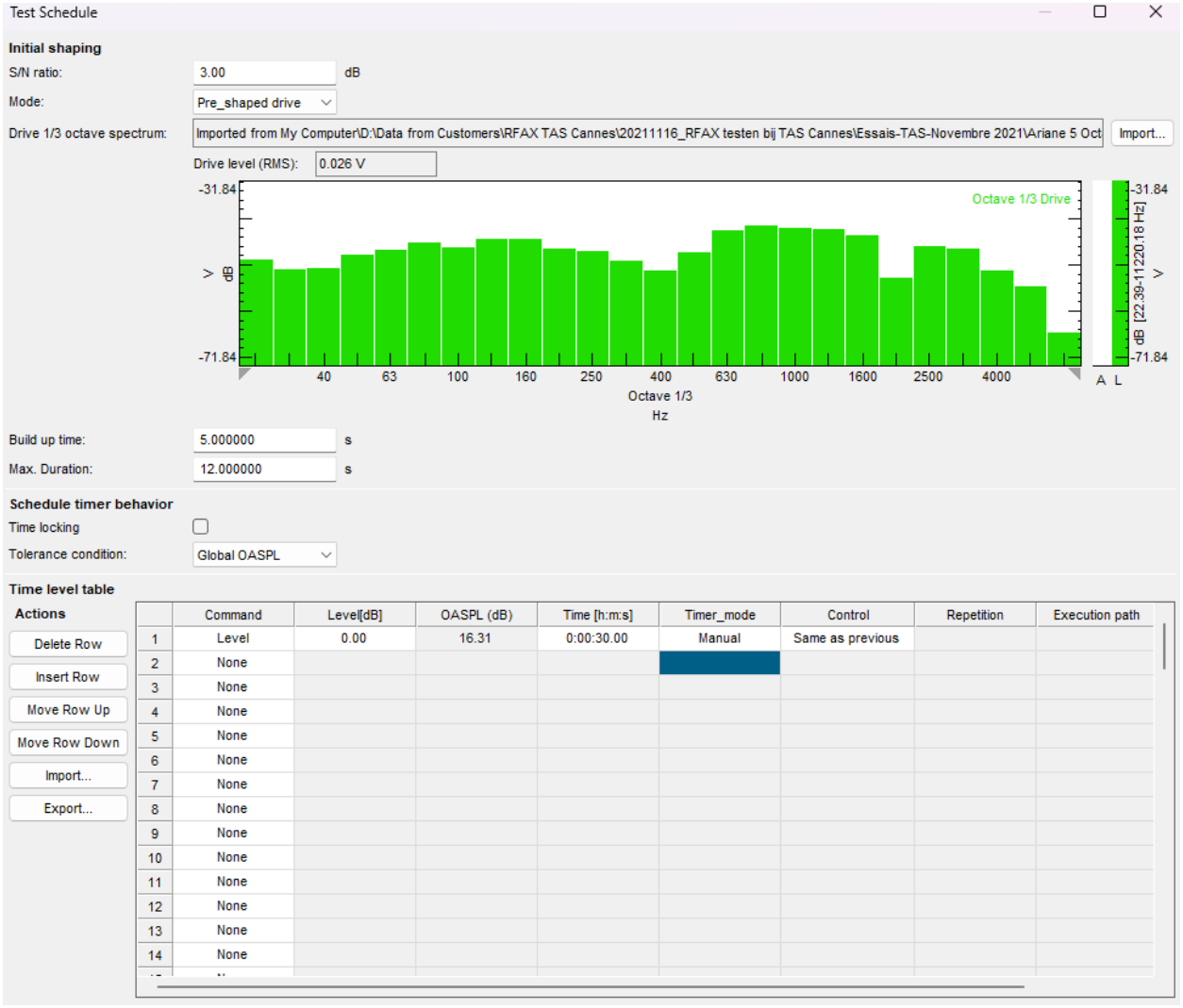
When adopting Iterative Control mode, as of Simcenter Testlab 2406, the iterative gains can be changed in between iterations (and levels) directly from the UI. The user is free to change the gains multiple times before shooting the next drive. Each time the next drive is recalculated and shown in the Next drive display.



Acoustic Control Enhancements

Pre-shaped drives

In Simcenter Testlab 2406 Acoustic Control, a drive spectrum/spectra from preceding runs or empty chamber runs can be applied to ensure fast ramp-up without any intermediate step.



IT Recommendation for Simcenter Testlab

Recommended PC Hardware

This is the configuration used by Siemens for benchmarking and quality testing:

• Dell Precision 7670

• Dell Precision T3620

Depending on the type of processing or measurement, it is recommended to have a fast disk or to have enough memory. As Suggestion:

Processor : Latest generation Intel® Core™ processors or Xeon Processors

Operating System : Windows

RAM : 32 GB RAM or better

Video Card : AMD or NVidia - 2 GB Graphics Card or better

Display : Full HD resolution 1920 x 1080 or better

Hard Drive : SATA 1 TB or better

Battery : [9-cell battery] Extended battery for additional power backup

Windows Operating System

Supported windows versions

Simcenter Testlab 2406 is supported on Windows 10 & Windows 11 Enterprise x64 and Windows 10 & Windows 11 Pro x64 versions.

Versions N or KN of the windows operating system are not supported. This includes Windows Enterprise N, Windows Enterprise KN, Windows Pro N and windows Pro KN. Those versions are missing crucial components to install and run the software. Also not supported are 32 bit versions of Windows.

Windows Pro Education and Windows Home version were not tested.

Note:

Software testing has been done on Windows 10 Enterprise version 1909 and on Windows 11 Enterprise version 22H2 and 23H2.

Simcenter Testlab 2406 is also supported on Windows Server 2016, Windows Server 2019 and Windows Server 2022 for the analysis applications, excluding the CAD display. When starting the Simcenter Testlab installation program on Windows Server 2016, Windows Server 2019 or on Windows Server 2022, the product selection tree will contain only the analysis applications.

Doing measurements with a frontend is not supported. Note that the installation on Windows Server 2016, Windows Server 2019 and Windows Server 2022 requires different prerequisites. To install those, several reboots might be needed.

Simcenter Testlab 2406 is only available in 64-bit version.

Which version of Windows operating system am I running?

To find out which version of Windows your device is running, press the Windows logo key + R, type winver in the Open box, and then select OK.

Here is how to learn more:

1. Select the Start button > Settings > System > About .

Open About settings

2. Under Device specifications > System type, see if you're running a 32-bit or 64-bit version of Windows.

3. Under Windows specifications, check which edition and version of Windows your device is running.

Note:

Calculations in Simcenter Testlab Process Designer make use of parallel processing by utilizing multiple CPUs or CPU cores. However, currently this is limited to one processor group, i.e. the calculations are using up to 64 logical processors (meaning CPUs or CPU cores). For more information see https://docs.microsoft.com/en-us/windows/win32/procthread/processor-groups .

Interoperability with Microsoft Office (Word and PowerPoint)

Testlab supports interoperability with Office 2016, Office 2019, Office 2021 and Office 365 ProPlus. Office Online, the web-based variant of Office is not supported.

Office Add-ins can be installed per user (user confirmation). The Office Add-ins are not automatically installed when installing Simcenter Testlab. With the Configure Office For Printing tool both Word and Powerpoint add-ins can be installed.

Note:

What to do when the Office add-ins cannot be installed? It may occur the operating system does not have software installed to run .vsto files, i.e. the .vsto file extension is not recognized by the operating system.

In that case a freely available version of a 'Visual Studio tools for Office execution engine' can be downloaded and installed, e.g. the 'Microsoft Visual Studio for Office Runtime 2010 Setup'.

Testlab 64bit can operate with Office 32bit. For the Office Add-ins to operate properly,

the 32bit version of a dedicated Testlab Office installation, Simcenter Testlab Office Add-Ins setup.exe (administrator rights required) needs to be installed. Then launch the Configure Office for Printing tool to install them.

Screen Resolution

A minimum screen resolution of 1280x1024 is required for:

- Simcenter Testlab Environmental Testing Products
- Simcenter Testlab MIMO Sweep & Stepped Sine and Normal Modes Testing
- Simcenter Testlab MIMO FRF Testing
- Simcenter Testlab Pass-by Noise Products
- Simcenter Testlab Sound Intensity Testing
- Simcenter Testlab Sound Diagnosis
- Simcenter Testlab Transfer Path Analysis
- Simcenter Testlab Turbine Test Recording Manager
- Simcenter Testlab Time Data Selection Sheet
- Simcenter Testlab Modal Validation Sheet
- Simcenter Testlab Virtual Car Sound
- Simcenter Testlab Signature Testing
- Simcenter Testlab Transmission Loss Testing using rooms
- Simcenter Testlab Transmission Loss using impedance tube

A minimum screen resolution of 1024x768 is required for all other products, but 1280x1024 is strongly advised.

Note:

Changing the general Windows display scaling option (part of Windows display settings) influences the appearance of an application. The higher the Windows display scaling, e.g. 250% on a 4K monitor, the bigger the fonts and icons will be. This scaling factor should be multiplied with the above-mentioned minimum screen resolution. If the result of this multiplication is higher than the currently used screen resolution, the minimal screen resolution requirement is not fulfilled. This might lead to parts of the user interface falling of the screen. The display scaling should be lowered in this case.

Note:

Custom Windows scaling is not supported.

Note:

Mixed screen usage, using different scaling factors can lead to scaling artifacts in the user interface. The advice is to use equal display scaling factors on all screens or to use the application, including Active Pictures, on the main screen only.