What's new in Simcenter Testlab 2306

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Overview & Licensing

Simcenter Testlab Neo map 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 2306.

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	New 2306	TL-GPR-0057	Simcenter Testlab RPM Extraction
	TL-STR.21.2	Simcenter Testlab Impact Testing	New 2306	TL-STR-0110	Simcenter Testlab Impact Acquisition
	TL-TPA.20.2	Simcenter Testlab Virtual Point Transformation	New 2306	TL-TPA-0220	Simcenter Testlab Virtual Point Transformation Tool
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

In order to reduce the number of available product codes, Simcenter Testlab is obsoleting some product codes from release 2306 on. It means that these product codes will be fully obsoleted in a few releases.

There are product codes which will be replaced by another product code providing similar features. Customers under maintenance contract can continue to use the obsoleting products for Simcenter Testlab 2306, meanwhile, with only limited support.

However, there are product codes for which the obsoleting features are integrated in another product codes as described in the tables below.

Please contact Siemens local office to support you towards a smooth transition.

Product Code	Product Name	Transition note
TL-GPR.58.3	Simcenter Testlab Human Body Vibration	The functionality is integrated in TL-GPR.60.2 Time Data Editor Standard, TL-GPR.61.2 Time Data Editor Advanced and TL-GPR.51.2 Time Signal Calculator from Testlab 2306 on
TL-GPR.52.3	Simcenter Testlab Harmonic Tracking (Kalman Filtering)	The functionality is integrated in TL-GPR.60.2 Time Data Editor Standard, TL-GPR.61.2 Time Data Editor Advanced and TL-GPR.51.2 Time Signal Calculator from Testlab 2306 on
TL-GPR.57.3	Simcenter Testlab Harmonic Removal	The functionality is integrated in TL-GPR.60.2 Time Data Editor Standard, TL-GPR.61.2 Time Data Editor Advanced and TL-GPR.51.2 Time Signal Calculator from Testlab 2306 on
TL-GPR.51.2	Simcenter Testlab Time Signal Calculator	Replacement product TL-GPR.61.2 Time Data Editor Advanced

Product Code	Product Name	Transition note
TL-ACT.58.2	Simcenter Testlab Sound Diagnosis	Replacement product TL-DTP-0011 Interactive Analysis, TL-ACT-0266 Sound Quality Analysis and TL-ACT-0210 Advanced Audio Replay

Product Code	Product Name	Transition note
TL-STR.25.2	Simcenter Testlab Spectral Testing	Replacement product TL-STR.26.2 MIMO FRF Testing
TL-STR.53.3	Simcenter Testlab Time recording MIMO Sine Testing	The functionality is integrated in TL-SIG.28.3 Time Recording add-in from Testlab 2306 on
TL-MOD.80.2	Simcenter Testlab Order based Modal Analysis	The functionality is integrated in TL-MOD.41.2 Operational Modal Analysis from Testlab 2306 on
TL-MOD.60.2	Simcenter Testlab Modal Lite	Replacement product TL-MOD.21.2 Modal Analysis and TL-ODS.52.2 ODS & Time Animation
TL-MOD.65.3	Simcenter Testlab PolyMAX for Modal Lite	Replacement product TL-MOD.25.3 PolyMAX
TL-MOD.66.3	Simcenter Testlab OMA for Modal Lite	Replacement product TL-MOD.42.3 Operational Modal Analysis

Product Code	Product Name	Transition note
TL-ENV.28.3	Simcenter Testlab Time recording Online Sine Reduction	The functionality is integrated in TL-SIG.28.3 Time Recording add-in from Testlab 2306 on
TL-ENV.34.3	Simcenter Testlab Time recording (MIMO) Random, Sine (Dwell)	The functionality is integrated in TL-SIG.28.3 Time Recording add-in from Testlab 2306 on
TL-ENV.95.2	Simcenter Testlab TWR SISO	Replacement product TL-ENV.14.2 SAWR
TL-ENV.96.2	Simcenter Testlab TWR – Limited channels	Replacement product TL-ENV.97.2 TWR
TL-ENV.92.2	Simcenter Testlab MIMO Random Control Limited channels	Replacement product TL-ENV.91.2 MIMO Random Control workbook
TL-ENV.35.3	Simcenter Testlab SRS Limiting	The functionality is integrated in TL-ENV.37.3 Shock Response Synthesis from Testlab 2306 on

RLM license server

Simcenter Testlab 2306 is released together with RLM license server 15.1. Although it is possible to use Simcenter Testlab 2306 together with older versions of the RLM License server, it is advised to use the version RLM 15.1. The RLM 15.1 installation is a 64bit version which makes upgrading your previous version impossible. Removing your previous version will not delete your license files and the new license server will take the same default location as license input.

- Security wise, a lot of improvements are made like the RLM embedded web server has been changed from GoAhead to Mongoose.
- RLM web server now requires login to access.
- Running RLM as root/administrator is no longer restricted.
- RLM web server now supports HTTPS.
- Added support for ISV_LICENSE (uppercase) in addition to isv_LICENSE in case-sensitive file systems.
- Removed option to edit any server files using 'Edit License File'.

More details can be found in the release notes : https://www.reprisesoftware.com/blog/2023/04/new-rlm-release-v15-1/

Flexlm licensing support

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

However, please beware that compared to the RLM license server, following functionalities are not yet supported with the new Flexlm Licensing in 2306 release:

Transfer of licenses: Transfer in the RLM license server has the ability to "transfer" a number of its licenses to another machine on the same network so they can be floated from there. Essentially the second machine checks out a number of licenses from the original server and then acts as another license server on the network.

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 off-site. In this scenario, the user can borrow product licenses, use a dongle or use a local license file.

Sum of tokens: When the customer has several token licenses like 100, 50, and 50 in the same license server or different license servers and/or dongles, the pool of tokens is NOT the total sum, i.e. 200. Ex. If a license needs 120 tokens, then the server will not have enough tokens because none of the token licenses has more than 100 tokens, though the customer purchased 200 tokens in total.

If you would like to know more about the new Flexlm licensing support, please contact our local customer service for more information

Please beware that the below products are not supported with Flexlm licensing :

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

Simcenter Testlab 64-bit support

As of the 2306 release, Simcenter Testlab will only be available as a 64-bit application. The move to a 64-bit installer will have a positive impact on the overall performance of the complete platform. Please note that both the 32-bit and the 64-bit version of Microsoft Office are still supported.

Simcenter SCADAS

Simcenter SCADAS RS

Simcenter Testlab 2306 supports two new SCADAS RS units extending the platform for microphones and thermocouples. SCRS-12 is a universal 12-channel unit for voltage, ICP, strain gauges and more. SCRS-T20 offers 20 inputs for thermocouples of J, K, N, R, S, T, E or B type.

SCRS-U12-E

Simcenter SCADAS RS 12 channel Universal Unit Extended Bandwidth

The SCRS-U12-E is part of the Simcenter SCADAS RS data acquisition units. It combines 12 channels of universal signal conditioning with extended bandwidth in a single unit. SCRS design had a strong focus on load data acquisition. U12-E is an extended bandwidth version of the U12 unit, and complements durability measurements with NVH-like applications requiring rugged or distributed systems U12 unit is a universal unit, with sample rate up to 48kHz, including channel-to-channel isolation. The U12-E is an U12 with a bandwidth extension to 20.7 kHz, and with an additional Sharp FIR filter that blocks any alias already at Nyquist, while having such an amazing passband of 20.7kHz.

Product Features

- 12 channel inputs with multiple conditioning options selectable per channel
- Channel to Unit supply isolation up to 100 V
- Inter-channel isolation up to 100 V
- 576 kSamples/s combined throughput

- Up to 48 kHz sample rate and 20.7 kHz bandwidth at 24 bits
- Wide temperature ranges from -40 °C (-40 °F) to +85 °C (185 °F)
- On-board Simcenter SCADAS RS Configuration App

Conditioning Options

- Piezo-electric ICP® sensors
- Voltage inputs up to 60 V
- Sensors with external supply
- Quarter bridge (3 and 4 wire) - internal 350 Ω and 120 Ω completion
- Half bridge (3 and 5 wire)
- Full bridge (4 and 6 wire)
- Piezo-resistive and capacitive sensors
- Potentiometers
- Inductive sensors (AC-supplied LVDT, RVDT)
- RTD sensors
- 0/4-20 mA transmitters (over shunt)
- Analog tacho (variable reluctance up to 400 Vpp)

SCRS-TC20

Simcenter SCADAS RS 20-channel Thermocouple Unit

TC20 is a universal and high-density channel unit for 20 thermocouple sensors, supporting types K, J, T, B, E, N, R and S including an on-bard linearization for each type. It's also equipped with an OUT connector for road-to-rig over EtherCAT the with ECAT unit. We have an accuracy better than 0.1% in most of the cases

Product Features

- 20 channel-to-channel isolated thermocouple channel inputs with selectable type per channel: J, K, N, R, S, T, E, B
- On-board ITS-90 linearization per type
- Inter-channel isolation up to 100 V
- 16 kSamples/s combined throughput
- Up to 800 Hz sample rate at 24 bits
- Wide temperature range from -40 °C (-40 °F) to +65 °C (149 °F). Full temperature range for all supported types
- Burnout detection
- OUT connector to ECAT unit
- Accuracy better than 0.1 % of all ranges of all types (except T: 0.2 %)
- On-board Simcenter SCADAS RS Configuration App

Conditioning Options

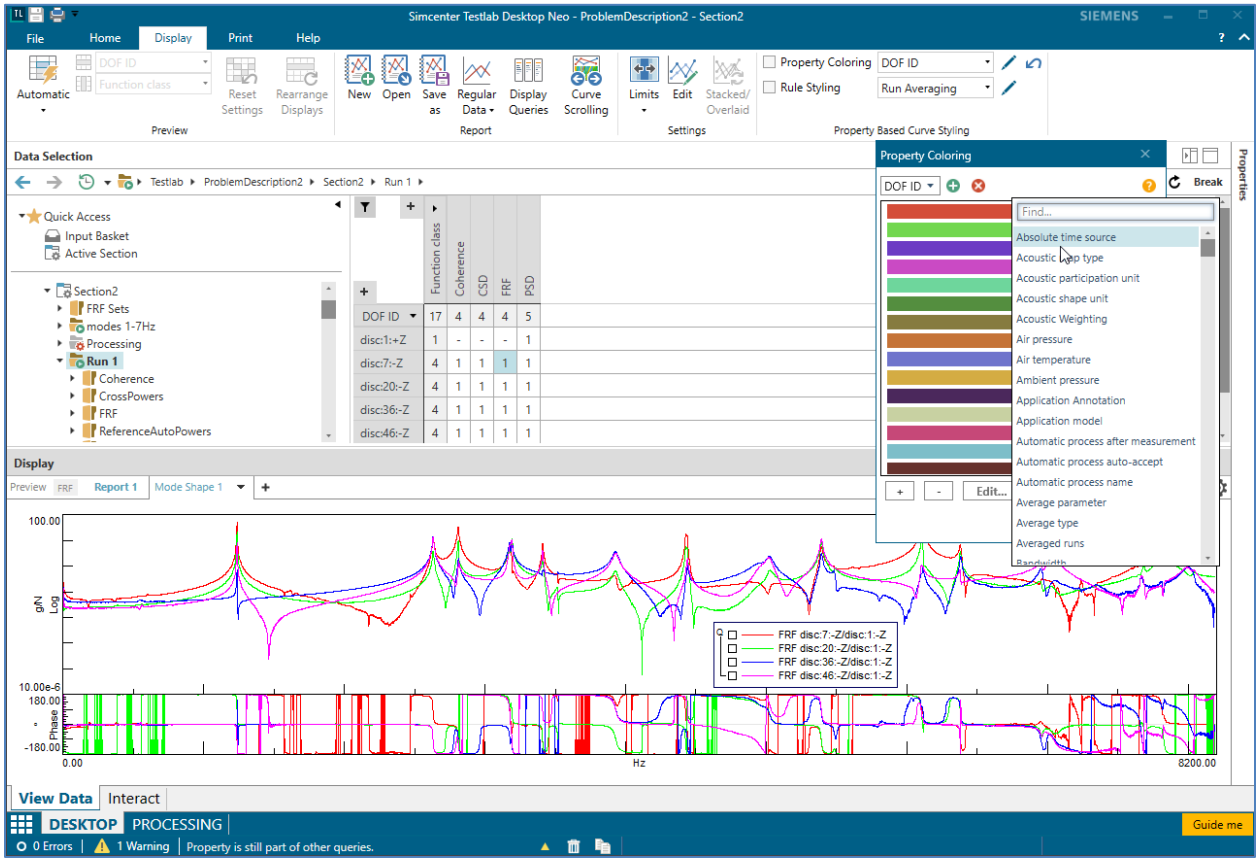
- Thermocouple types: J, K, N, R, S, T, E, B

Simcenter Testlab Neo

Desktop

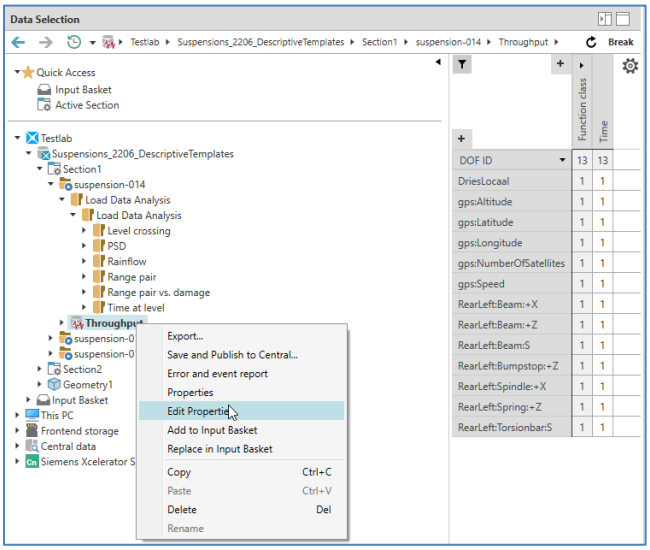
Property-based curve coloring & rule styling

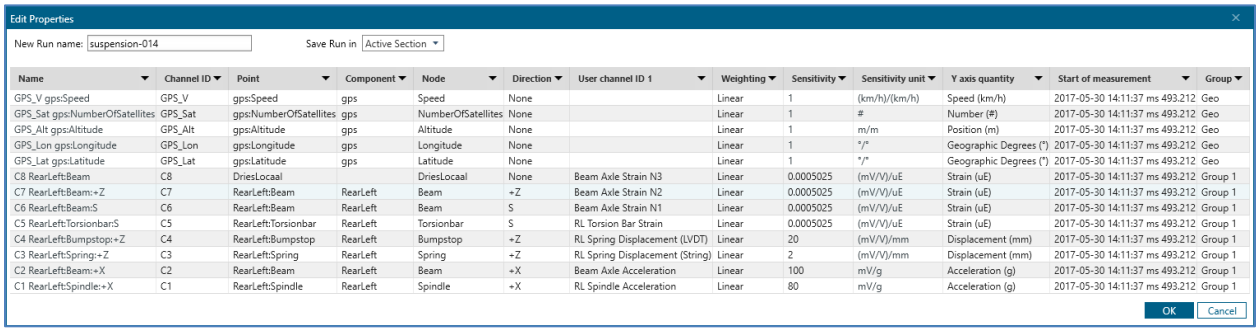
A user can quickly identify data based on property-based curve coloring and rule styling in Simcenter Testlab 2306. There are 2 setups possible. The user can ask that the curve for each separate run, DOF ID, function class,... etcetera can have a certain color. He/she can also create a curve styling 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. (Only engineering properties supported).



Metadata editor

Simcenter Testlab Neo 2306 introduces the metadata editor. A user can edit a fixed list of properties of throughput and block data in the Active Project. When the metadata of throughput data is edited, a new run will be made with the edited throughput data. For block data, editing the metadata will overwrite the original block data.

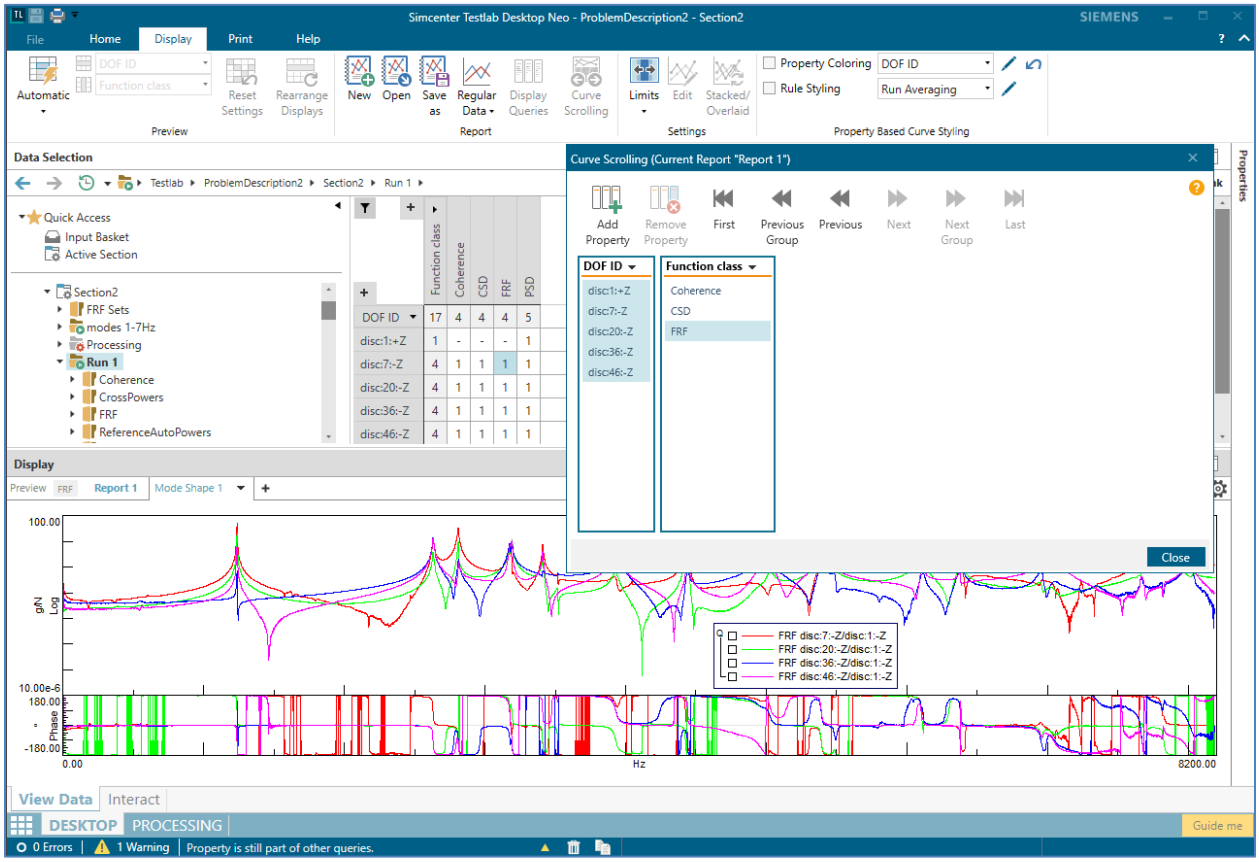




Name	Channel ID	Point	Component	Node	Direction	User channel ID 1	Weighting	Sensitivity	Sensitivity unit	Y axis quantity	Start of measurement	Group
GPS_V gps:Speed	GPS_V	gps:Speed	gps	Speed	None		Linear	1	(km/h)/(km/h)	Speed (km/h)	2017-05-30 14:11:37 ms 493.212	Geo
GPS_Sat gps:NumberOfSatellites	GPS_Sat	gps:NumberOfSatellites	gps	NumberOfSatellites	None		Linear	1	#	Number (#)	2017-05-30 14:11:37 ms 493.212	Geo
GPS_Alt gps:Altitude	GPS_Alt	gps:Altitude	gps	Altitude	None		Linear	1	m/m	Position (m)	2017-05-30 14:11:37 ms 493.212	Geo
GPS_Lon gps:Longitude	GPS_Lon	gps:Longitude	gps	Longitude	None		Linear	1	°/°	Geographic Degrees (°)	2017-05-30 14:11:37 ms 493.212	Geo
GPS_Lat gps:Latitude	GPS_Lat	gps:Latitude	gps	Latitude	None		Linear	1	°/°	Geographic Degrees (°)	2017-05-30 14:11:37 ms 493.212	Geo
C8 RearLeft:Beam	C8	DriesLocaal		DriesLocaal	None	Beam Axle Strain N3	Linear	0.0005025	(mV/V)/uE	Strain (uE)	2017-05-30 14:11:37 ms 493.212	Group 1
C7 RearLeft:Beam:+Z	C7	RearLeft:Beam	RearLeft	Beam	+Z	Beam Axle Strain N2	Linear	0.0005025	(mV/V)/uE	Strain (uE)	2017-05-30 14:11:37 ms 493.212	Group 1
C6 RearLeft:Beam:S	C6	RearLeft:Beam	RearLeft	Beam	S	Beam Axle Strain N1	Linear	0.0005025	(mV/V)/uE	Strain (uE)	2017-05-30 14:11:37 ms 493.212	Group 1
C5 RearLeft:Torsionbar:S	C5	RearLeft:Torsionbar	RearLeft	Torsionbar	S	RL Torsion Bar Strain	Linear	0.0005025	(mV/V)/uE	Strain (uE)	2017-05-30 14:11:37 ms 493.212	Group 1
C4 RearLeft:Bumpstop:+Z	C4	RearLeft:Bumpstop	RearLeft	Bumpstop	+Z	RL Spring Displacement (LVDT)	Linear	20	(mV/V)/mm	Displacement (mm)	2017-05-30 14:11:37 ms 493.212	Group 1
C3 RearLeft:Spring:+Z	C3	RearLeft:Spring	RearLeft	Spring	+Z	RL Spring Displacement (String)	Linear	2	(mV/V)/mm	Displacement (mm)	2017-05-30 14:11:37 ms 493.212	Group 1
C2 RearLeft:Beam:+X	C2	RearLeft:Beam	RearLeft	Beam	+X	Beam Axle Acceleration	Linear	100	mV/g	Acceleration (g)	2017-05-30 14:11:37 ms 493.212	Group 1
C1 RearLeft:Spindle:+X	C1	RearLeft:Spindle	RearLeft	Spindle	+X	RL Spindle Acceleration	Linear	80	mV/g	Acceleration (g)	2017-05-30 14:11:37 ms 493.212	Group 1

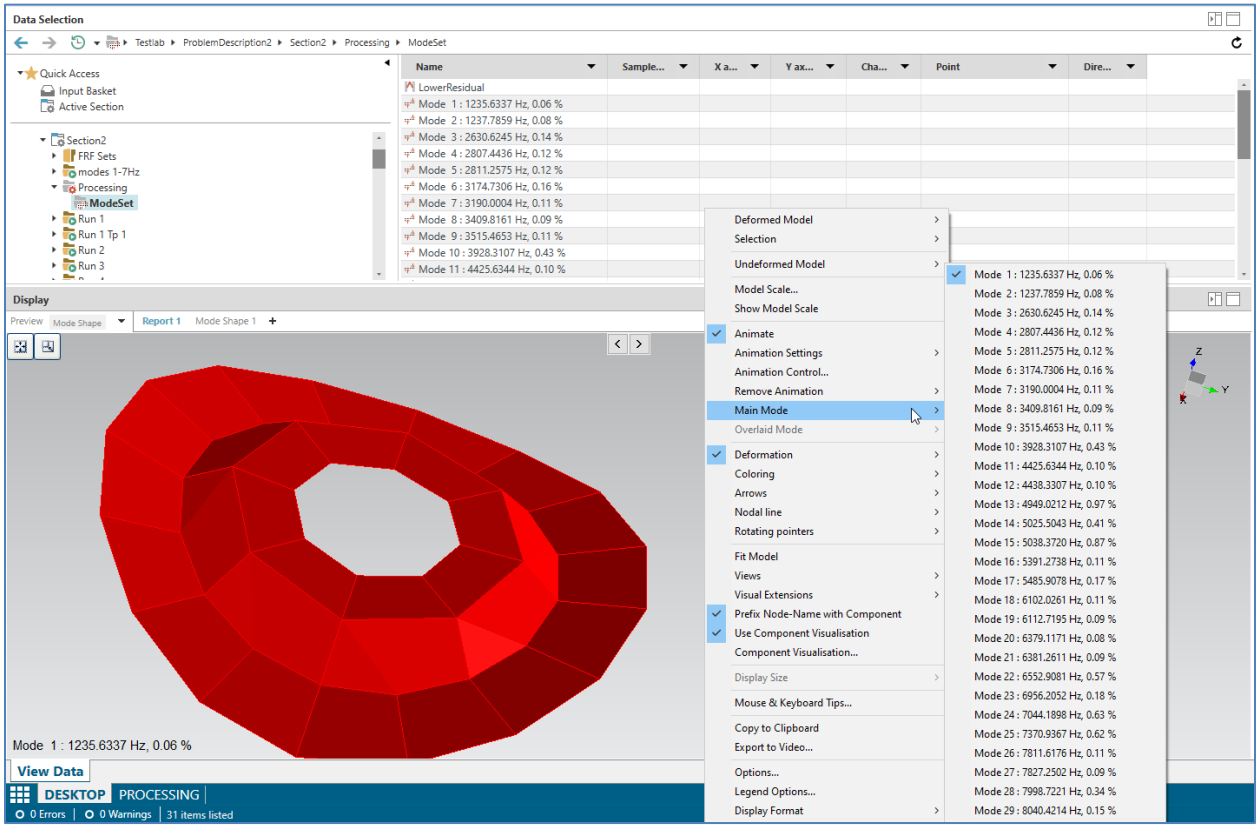
Curve Scrolling

In Simcenter Testlab 2306, users can scroll through their data. This will enable a fast overview of the data at hand. This mechanism is the first step to batch reporting. Scrolling is only possible over properties which are part of the query recipe. The curve scrolling properties are not persisted.



Mode set support in Geometry display

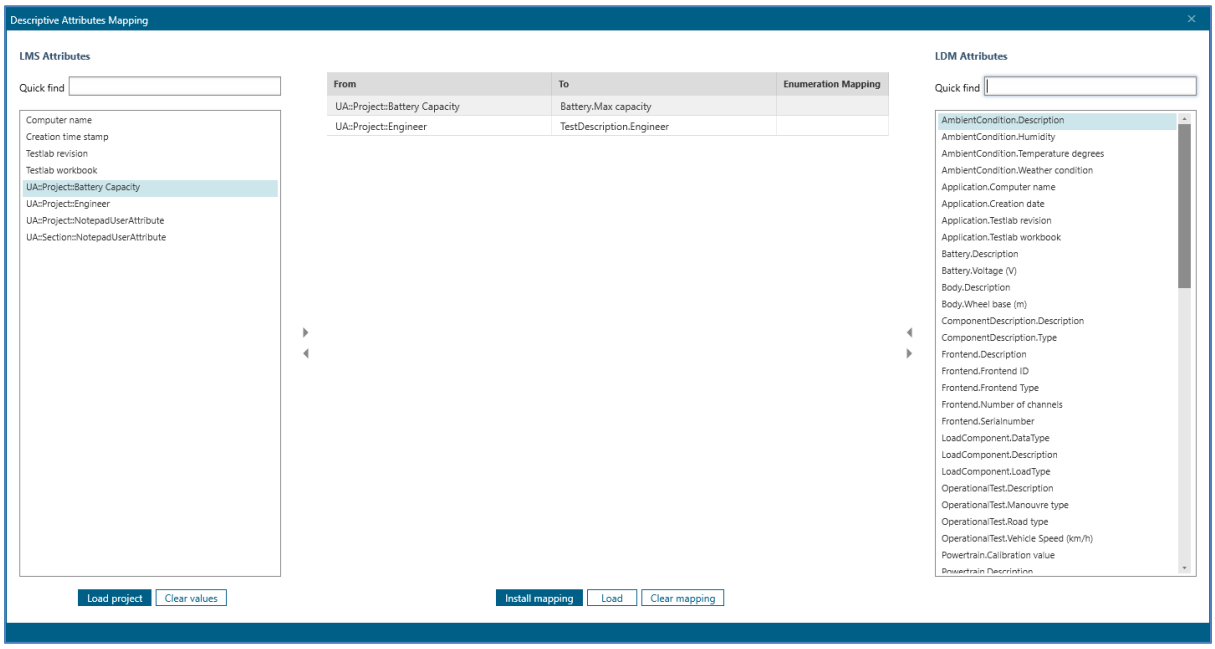
As of Simcenter Testlab 2306, mode sets are directly supported in the Geometry display. A user can drag and drop the mode set in the Geometry display and then scroll through all mode shapes of the mode set. Locally as well as centrally (in the Testlab Data Management ASAM-ODS server) saved mode sets are supported. With this new functionality, the user gets a fast overview of the dynamic behavior of the Unit under
Test.



Descriptive Attributes Mapping tool

In Simcenter 2206.0001, the new concept of Descriptive Annotation has been introduced.

When you open a project without this type of annotation or annotation based on a data model that is incompatible with your active data model, you are asked if you want to convert your project. When doing so, you can now use the Descriptive Attributes Mapping tool to map the values of the legacy or incompatible properties to the properties of your active Descriptive Annotation data model.



Reading and Export of nCode Glyphworks S3T Files

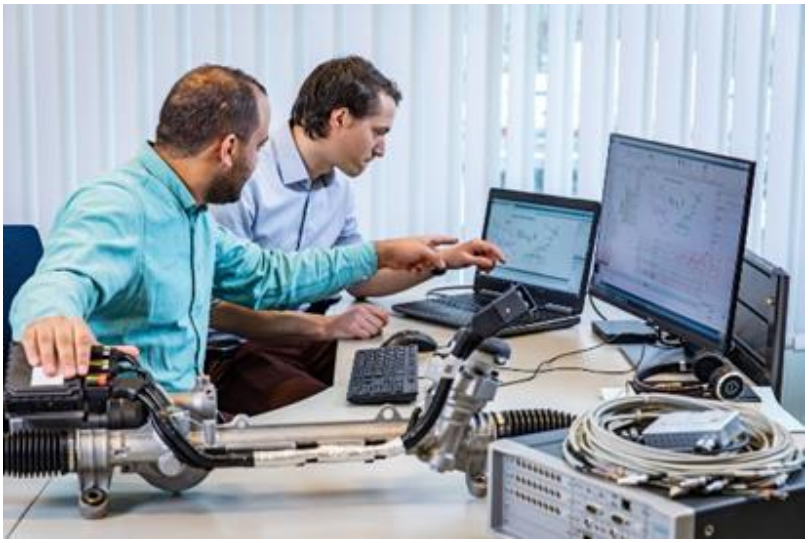
File exchange with nCode Glyphworks is now much easier. Time data files saved in the native nCode Glyphworks S3T format can be read directly into Simcenter Testlab Desktop and time data files measured or processed using Simcenter Testlab Neo can be exported into nCode Glyphworks S3T format.

Model-based System Testing

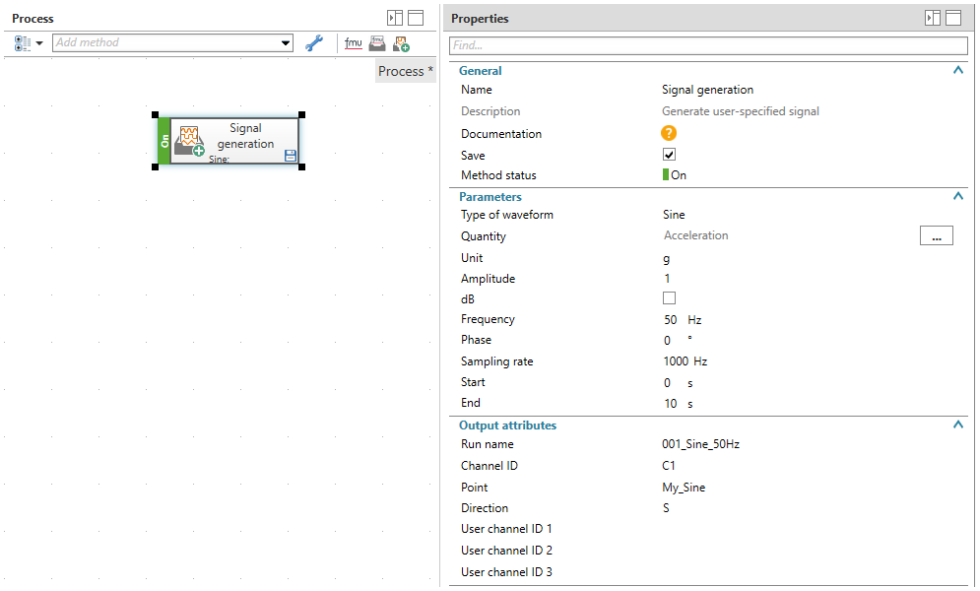
To cope with market demand for energy efficiency, active safety systems, mass customization and high performance, new generations of products are ever more mechatronic. The increased number of product variants challenges manufacturers to rethink and reshape the conventional development model and drives the transition to a Model Based Development process. Instead of leveraging engineering approaches with separate workflows for test and simulation, lacking flexibility and efficiency, MBST (Model Based System Testing), fuses these fundamentally different worlds of simulation and testing. and offers solutions to connect and accelerate the different product development stages.

Signal generation

Signal generation method has been added to the Interactive Analysis library. It allows a user to generate

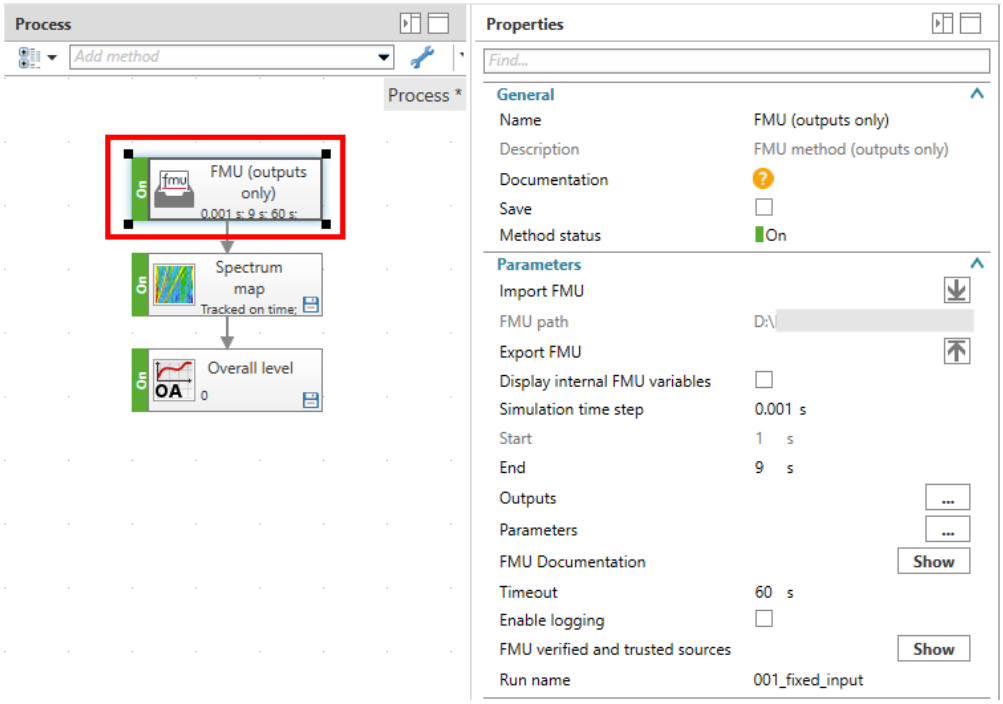


the following waveforms: Constant, Random, Sine, Square, Sweep, Triangle. You can have multiple instances of the 'Signal generation' method in one Process. Each instance will create one new channel.



FMU method for simulation models with only output ports

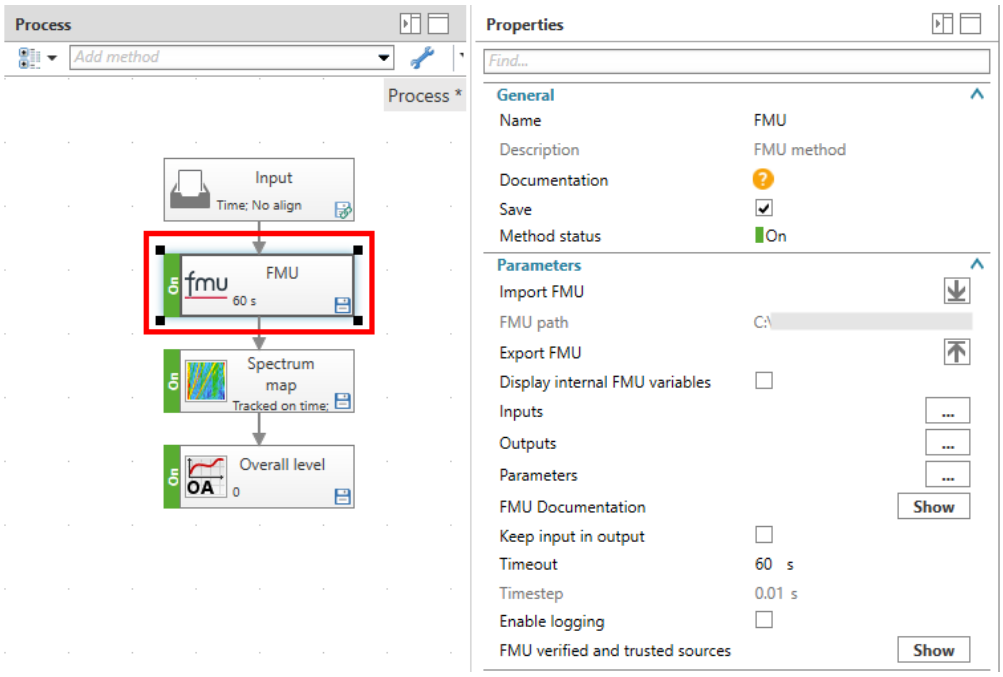
The new "FMU (outputs only)" method generates a new time history output signal without needing an input and can serve as a starting point for a process, similar to the "Signal generation" method.



The "FMU (outputs only)" method in Testlab Process Designer has been made specifically for FMUs with no input ports. The required input to the FMU should already be embedded in the FMU itself.

FMU method extensions for 2306

FMUs are simulation models using the FMI standard (Functional Mockup Interface). The “FMU” method allows importing and executing an FMU (Functional Mockup Unit) inside a Simcenter Testlab Process Designer process.



Following extensions have been made to the properties panel of the FMU method:

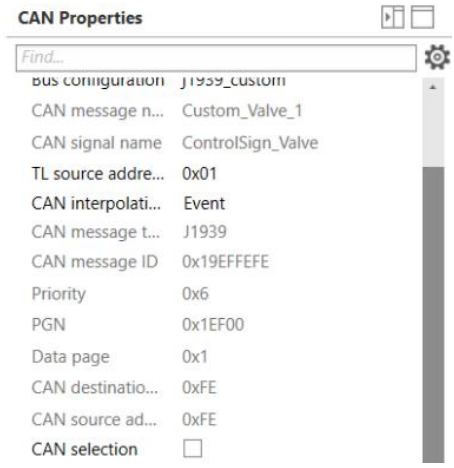
- 'FMU documentation' can show both Amesim and Simulink documentation.
- 'Timestep' displays the internal FMU timestep info which should serve as a guideline when selecting input data to feed the FMU. This should preferably have a corresponding sampling frequency to ensure correct results of the simulation model.
- 'FMU verified and trusted sources' lists the FMU generation tools which have been verified in Process Designer. Notable new tools are for example neural networks from Simcenter ROM builder, exported as an FMU or State-space modal models exported from Simcenter Testlab Modal Analysis.

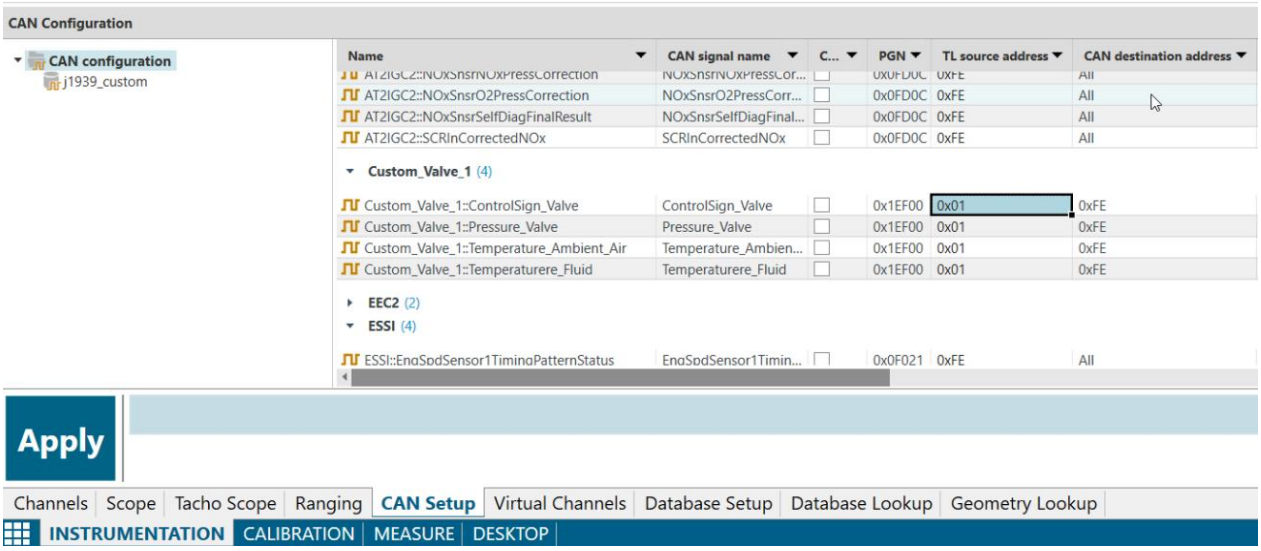
General Acquisition

Generic CAN Support

Improved visualization of J1939 CAN messages (PGN, Source Address, Destination address, etc.) in Simcenter Testlab Time Data Acquisition

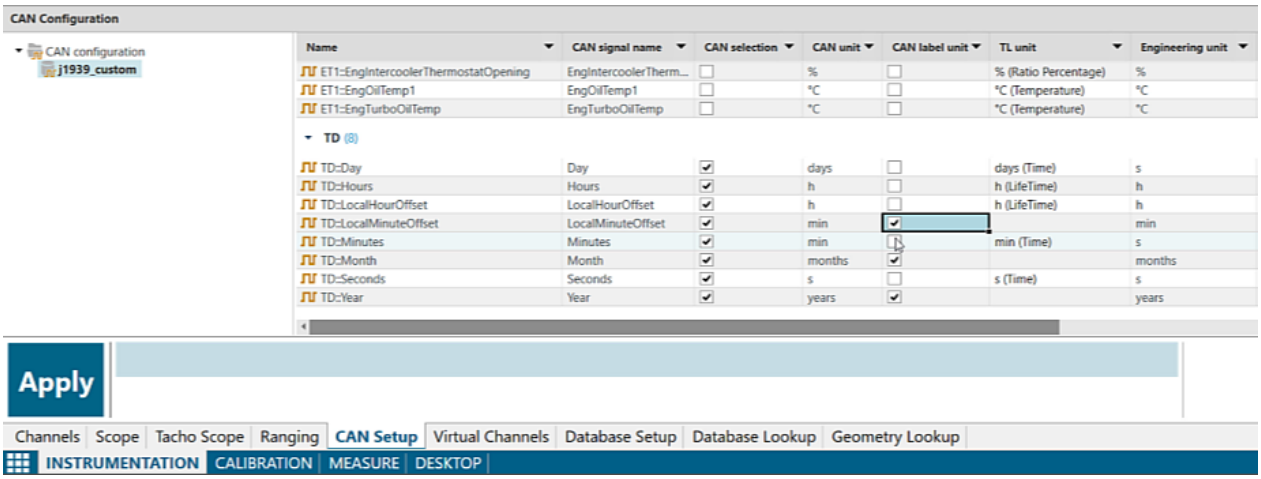
New dedicated properties for SAE J1939 CAN messages are now available, namely the PGN (parameter group number), the source address, and the destination address among others, which are useful to retrieve the required messages as well as understanding source and destination of the data.





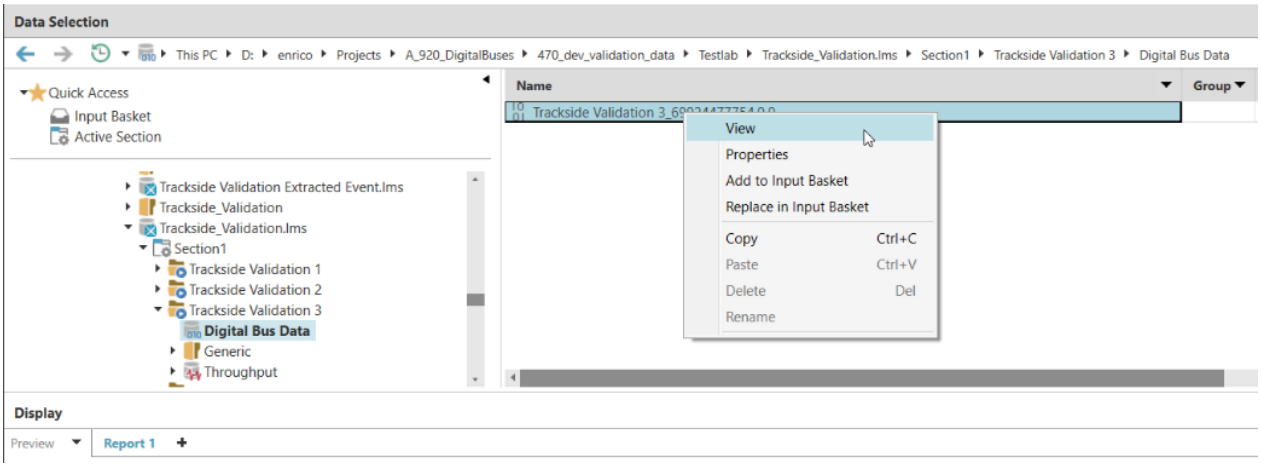
CAN Label Unit

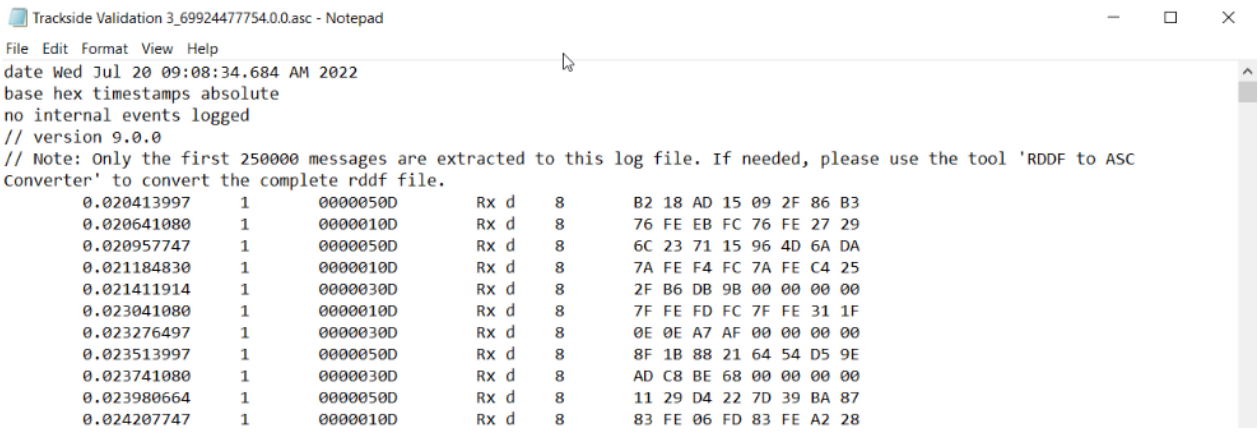
The new concept of CAN Label Unit is introduced. This can be activated for signals of which a Testlab unit might not be relevant or not easily matched with the Simcenter Testlab Unit System. No Testlab quantity is then assigned but the initial unit specified in the database file is tracked within this new property.



Rddf (raw CAN datafile) view in Simcenter Testlab

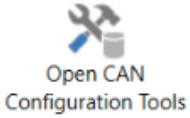
It is now possible to visualize a text converted version of the raw CAN data (.rddf file) we have just recorded to e.g. make sure we have recorded certain interesting CAN messages, through a dedicated context menu action within Simcenter Testlab. This is actually available within the Simcenter Testlab Desktop Neo application, however it is a very useful tool to troubleshoot a CAN configuration to e.g. check that certain messages (or any message at all) are present on the bus traffic and properly acquired and additionally spot any decoding issue. Therefore, this tool might be oftentimes used while setting up an acquisition with Simcenter Testlab Time Data Acquisition, hence accessed through the Desktop task within such application.

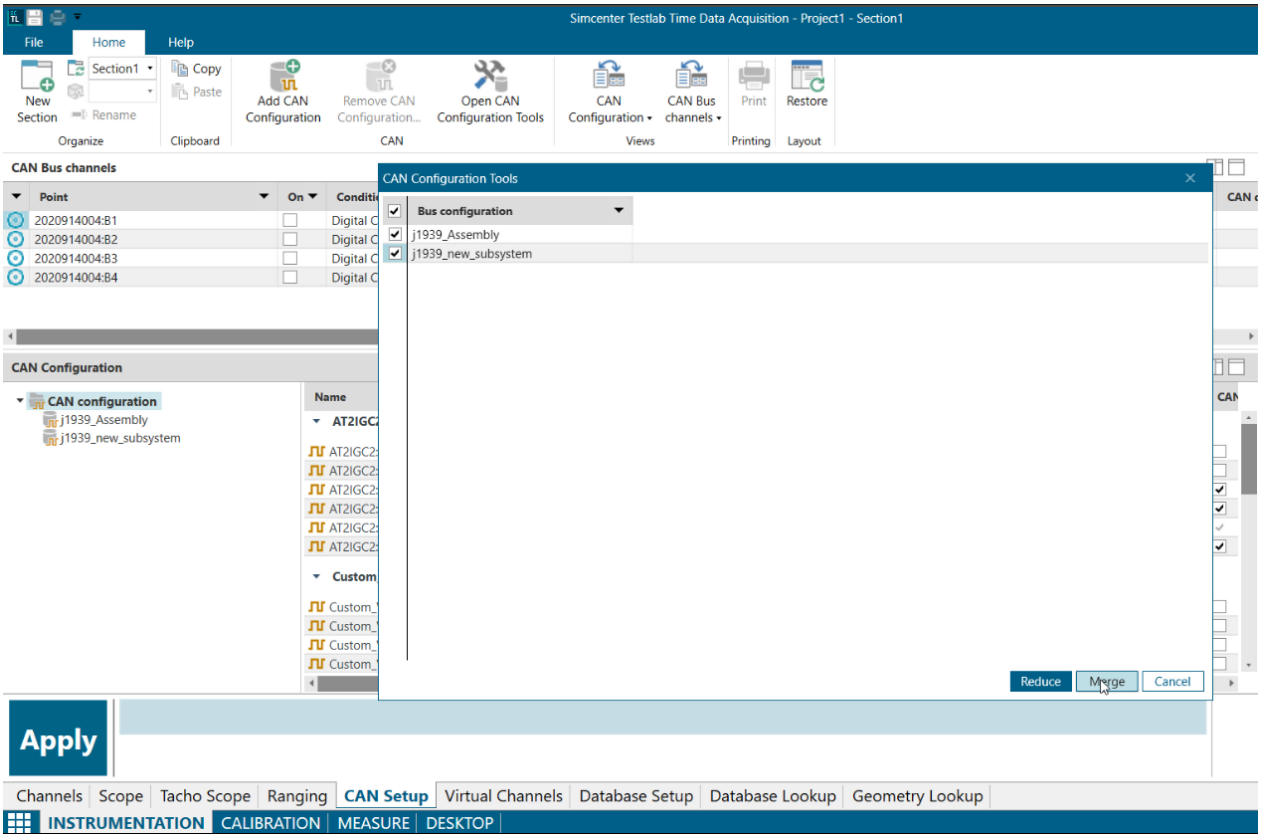


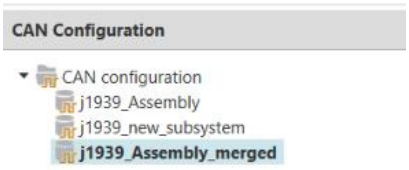


Reduce and Merge scdbd Digital Bus database configuration files

The new CAN Merge functionality can be used to combine two CAN configurations (and related database files), to e.g. incorporate signals from a new sub-system of the machine. This unique configuration can be assigned and measured on a single CAN bus.
The new Reduce functionality can instead be used to reduce the configuration to only the favorites signals selected through the CAN selection property.
The two functionalities are accessed through the dedicated button on the Home Ribbon within the CAN Setup task of Simcenter Testlab Time Data Acquisition.




Simcenter Testlab Time Data Acquisition - Project1 - Section1
File
Home
Help
New Section
Section1
Rename
Copy
Paste
Add CAN Configuration
Remove CAN Configuration...
Open CAN Configuration Tools
CAN Configuration
CAN Bus channels
Print
Restore
Organize
Clipboard
CAN
Views
Printing
Layout
CAN Bus channels
Point
On
2020914004:B1
2020914004:B2
2020914004:B3
2020914004:B4
CAN Configuration Tools
Bus configuration
j1939_Assembly
j1939_new_subsystem
Reduce
Merge
Cancel
CAN Configuration
CAN configuration
j1939_Assembly
j1939_new_subsystem
Name
Apply
Channels
Scope
Tacho Scope
Ranging
CAN Setup
Virtual Channels
Database Setup
Database Lookup
Geometry Lookup
INSTRUMENTATION
CALIBRATION
MEASURE
DESKTOP

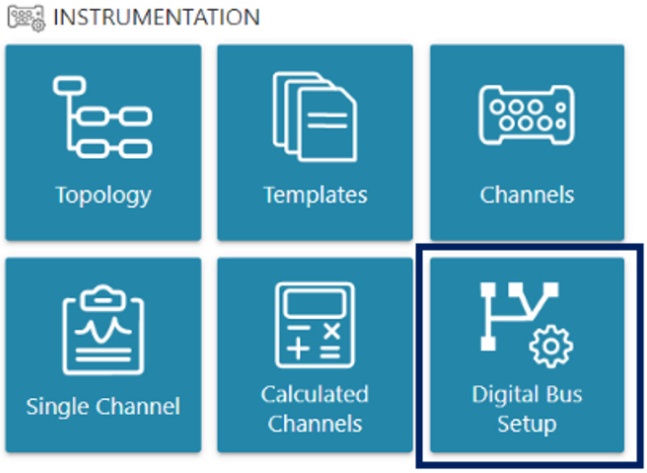

CAN Configuration
CAN configuration
j1939_Assembly
j1939_new_subsystem
j1939_Assembly_merged

Specific CAN Support on SCADAS RS

When it comes to specific CAN Support on Simcenter SCADAS RS, a set of new features which improve usability of the entire solution, especially in relation to standalone use of Simcenter SCADAS RS with Simcenter Recorder App, as well as completely new functionality (i.e. support of XCP over CAN – see further down in the list) have been introduced.

Digital Bus configuration and setup from the Simcenter Recorder App

A new Digital Bus Setup task is now available in the Instrumentation Section of the tasks overview within the Simcenter Recorder App

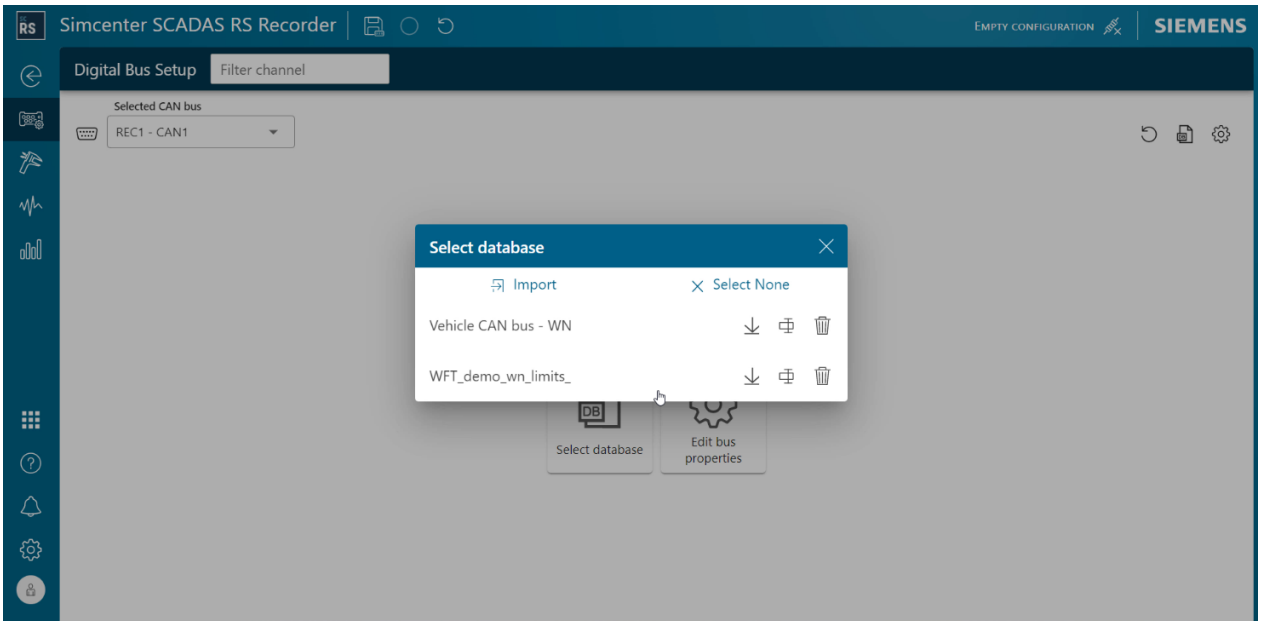


This can be used to configure e.g. a CAN bus acquisition directly from the Recorder App starting from an scdbd file previously generated (also offline) in Simcenter Testlab Time Data Acquisition or Simcenter Testlab Recording Workbook

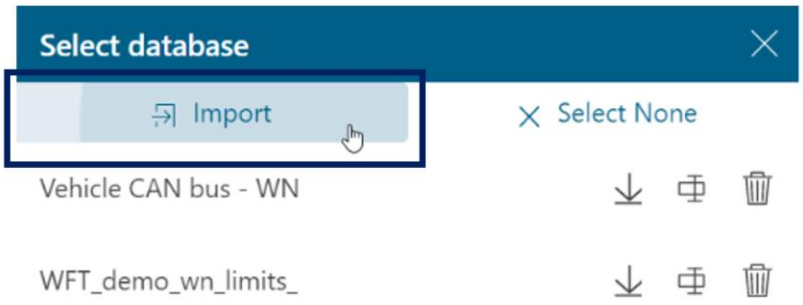
This is possible thanks to three new operations allowed within this new task

- Loading (Import) of scdbd files into the Simcenter SCADAS RS REC Unit
- Configuration of a specific CAN bus with an scdbd previously stored (imported) on the Simcenter SCADAS RS REC Unit memory
- Activation\Deactivation of Digital (CAN) channels

Configuration of a specific CAN bus with an scdbd previously stored on the Simcenter SCADAS RS REC Unit memory is possible through the Select Database function within the new Digital Bus Setup task

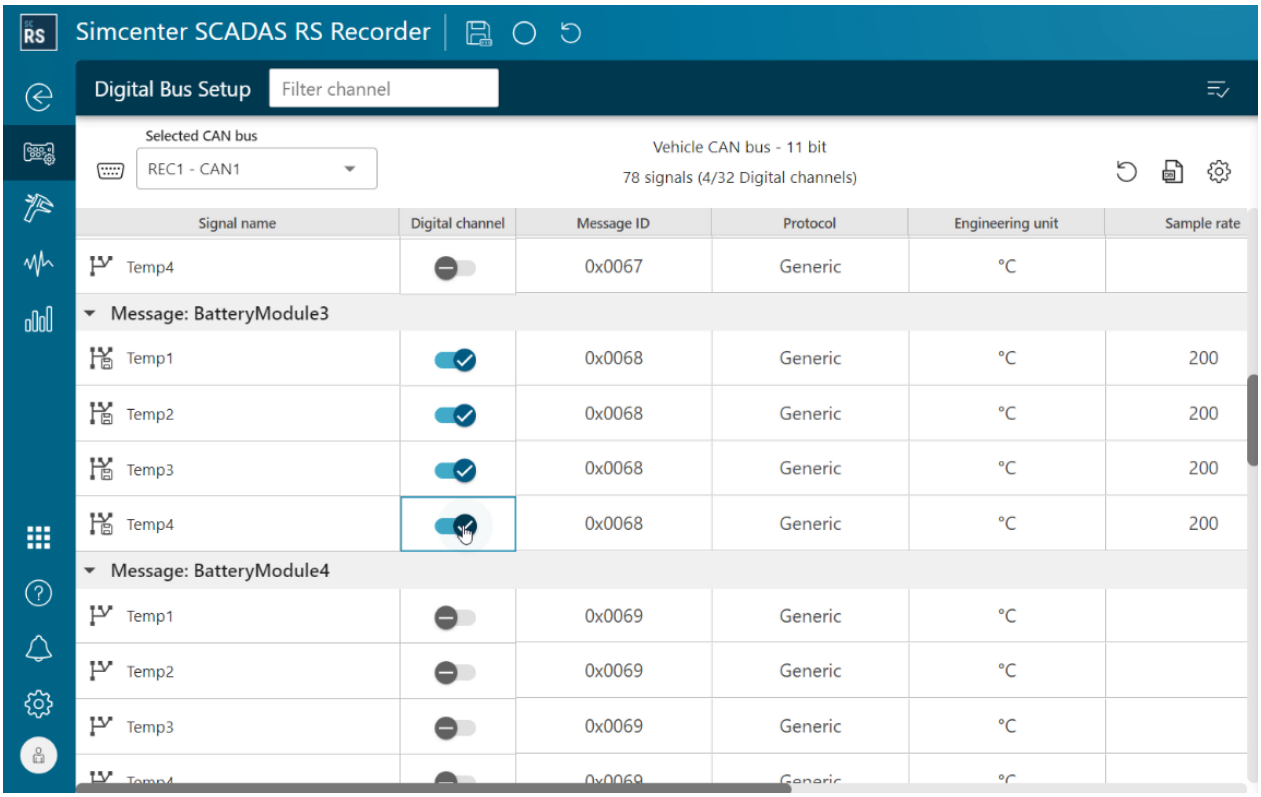


Loading (Import) of an existing scdbd file previously generated (e.g. with Simcenter Testlab Time Data Acquisition or Simcenter Testlab Recording Workbook) and stored on the PC into the Simcenter SCADAS RS REC Unit is then possible now through the “Import” functionality within the same new Digital Bus Setup task and within the Select database pane



This means that an scdbd file can be offline generated with Simcenter Testlab Time Data Acquisition or Simcenter Testlab Recording Workbook and later on loaded into the Simcenter SCADAS RS REC Unit through this function (and then selected to configure a specific CAN bus).

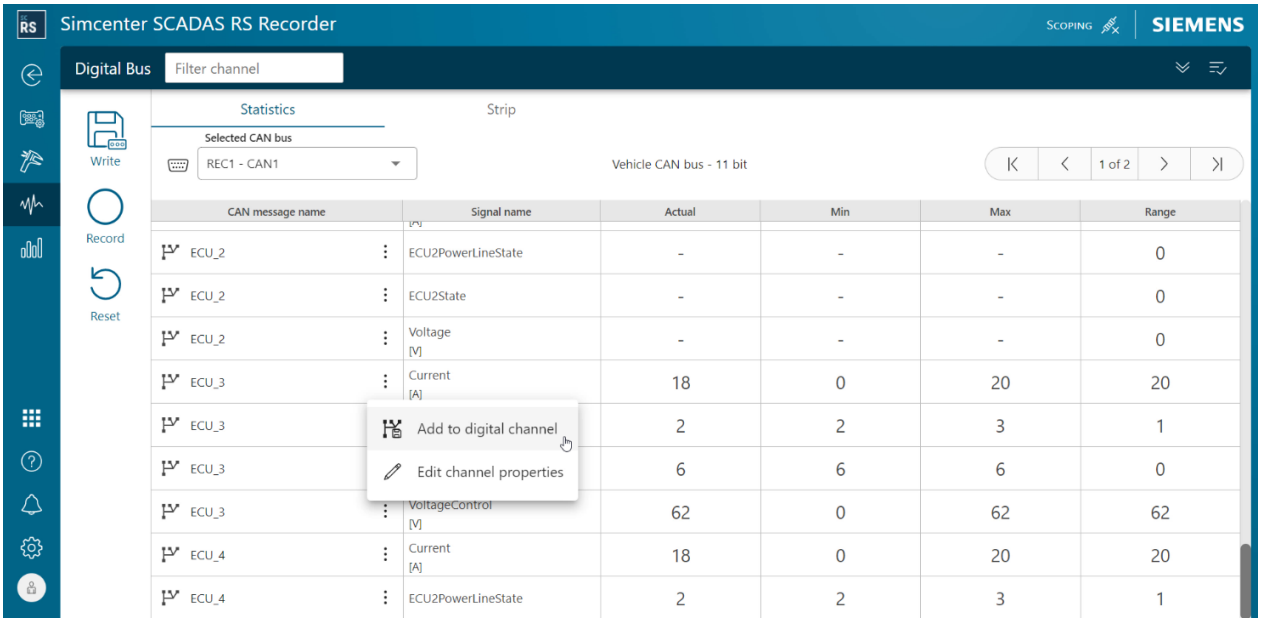
After having loaded (imported) an scdbd file into the Simcenter SCADAS RS REC Unit and assigned it to a specific CAN bus, we can then activate the necessary Digital channels through a dedicated new interface still within the new Digital Bus Setup task.



Enhanced view & forget visualization of Digital Bus signals for identification of active and interesting CAN signals

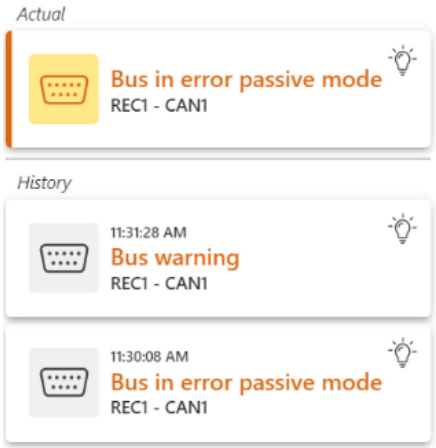
Oftentimes when working with large dbc (and scdbd) files corresponding to complex vehicle networks and buses, it becomes tricky to find the exact quantities and signals we are looking for among the hundreds (or more) of dbc entries available, and which are also active on the bus.

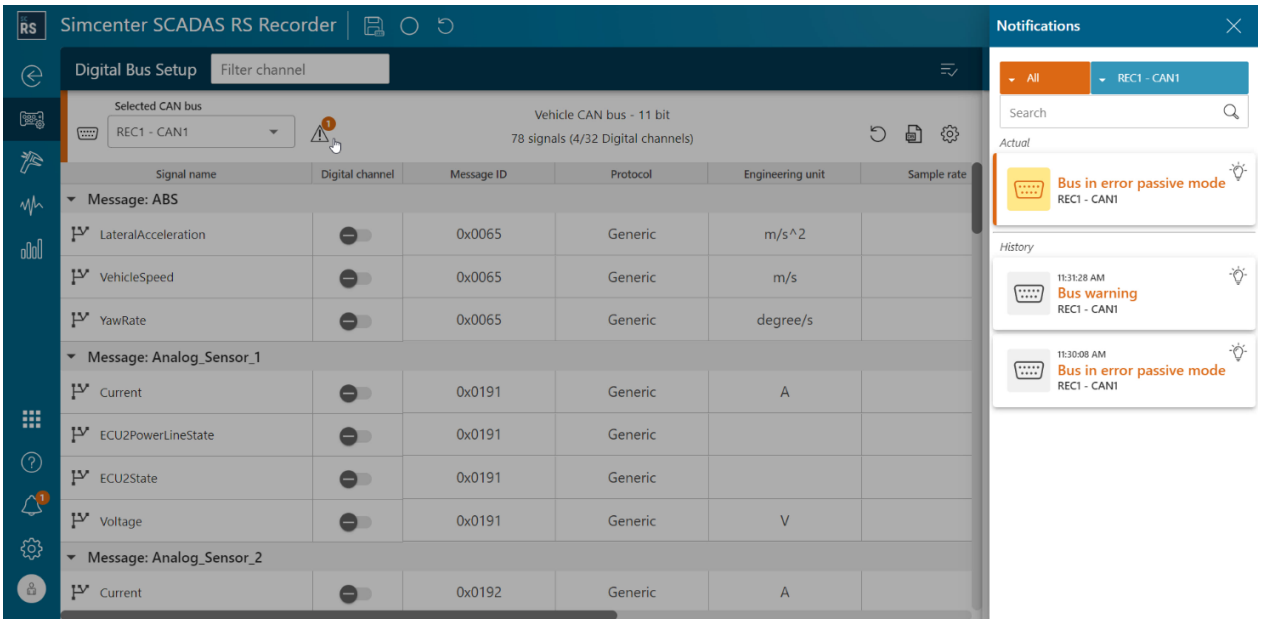
The enhancements done within the Digital Bus page can help in this case. Here indeed the data on the bus are monitored through their statistics in a view & forget mode in pages of 48 signals. While changing (going) through the pages, active signals (i.e. signals which show an Actual value – not a ”-“ symbol) can be identified and now even promoted directly to Digital Bus channels which will be then recorded with the rest of the ldsf throughput data.



Notification of CAN bus error states

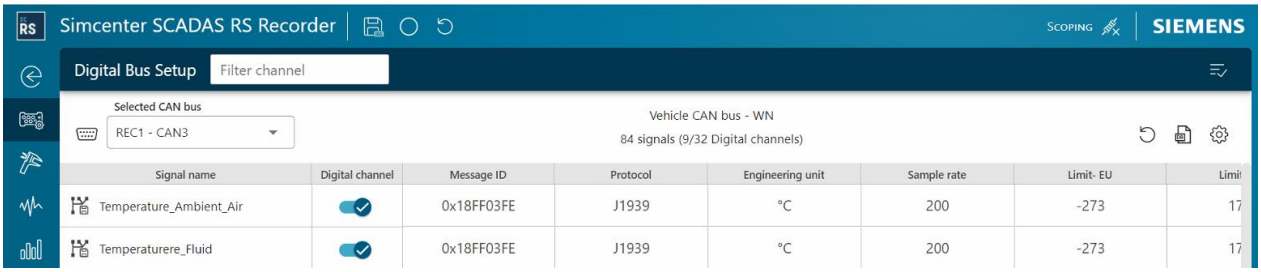
Whenever something does not happen correctly in the communication over a CAN bus, error frames are generated by the nodes or devices connected to the network. If those errors keep accumulating, then the CAN bus state might change to reflect this situation. Those CAN bus error states are now displayed within the Simcenter Recorder App interface, and this can help spotting mistakes done in the CAN setup configuration of the basic communication (e.g. wrong setting of Baud rate, Acknowledgement, missing termination, wrong pinning etc.) or other problems happening on other devices than the Simcenter SCADAS RS communicating on the network (e.g. malfunctioning sensor).

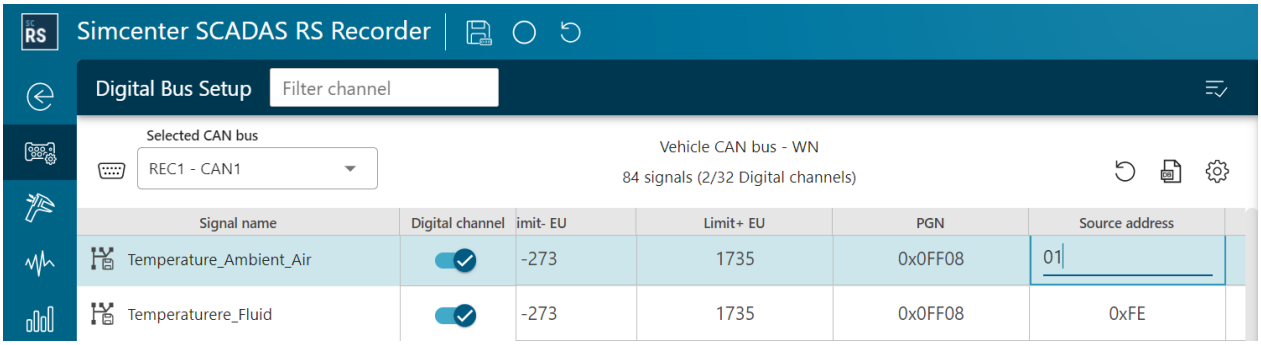




Dedicated visualization of J1939 specific properties (PGN, Source address) in Simcenter Recorder App

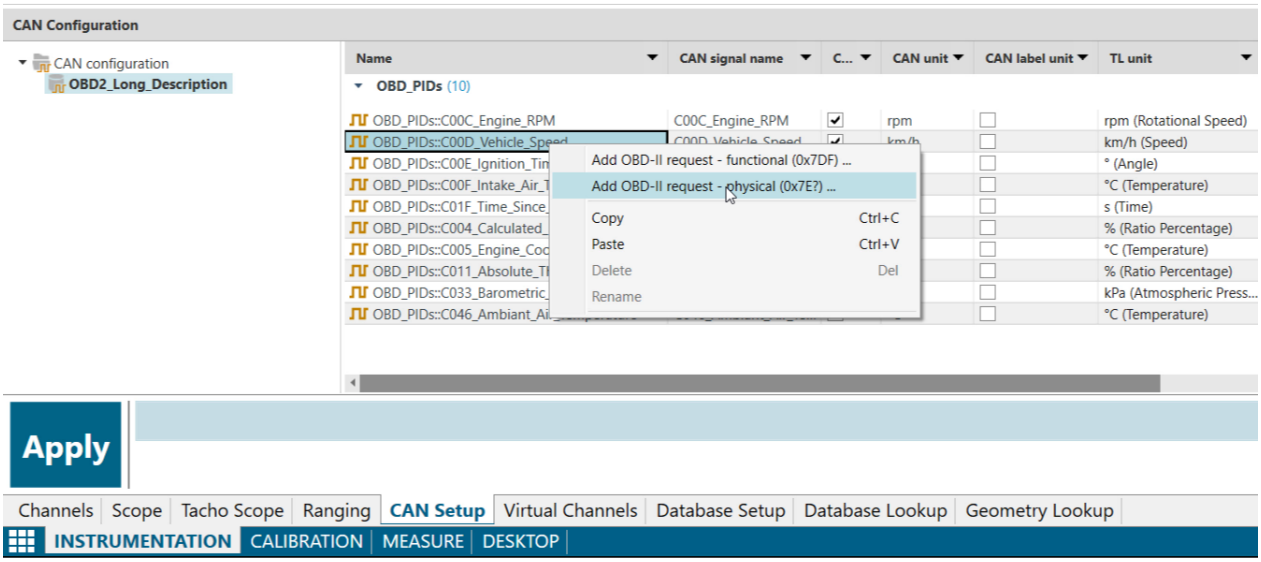
When dealing with SAE J1939 messages and buses it is relevant sometimes to look for a specific PGN (parameter group number) besides the traditional CAN ID (identifier) of the message. Also, it might be relevant to adapt the Source address of the message to the one of the actual ECU (computer or control unit on the vehicle bus) sending the message. These properties are available and by default now visualized whenever assigning a J1939 scdbd file to a CAN bus in the Digital Bus Setup pane. The source address can be changed to the required one on the table or from the property pane after the related Digital channel is activated.

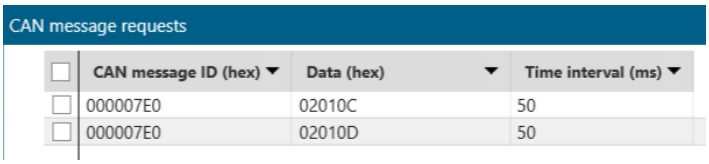




Auto-compiling of functional or physical OBD2 request for SCADAS RS

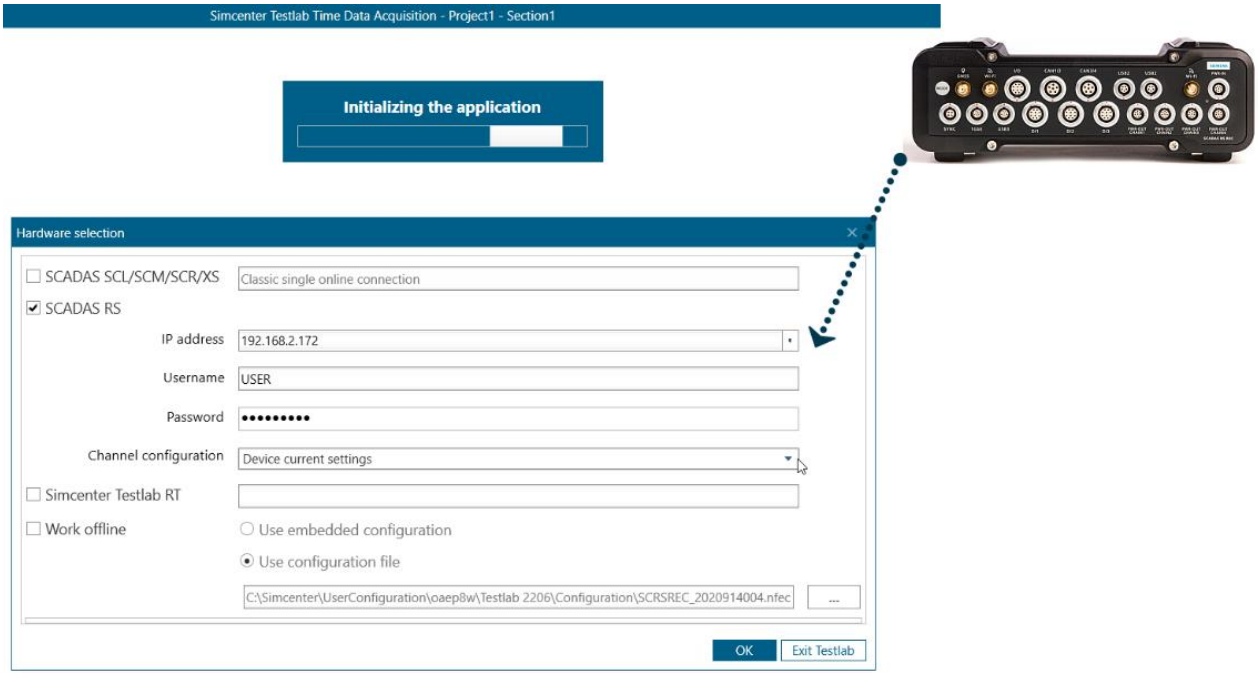
It is now possible in Simcenter Testlab Time Data Acquisition to automatically compile the proper OBD2 request for specifics signals, e.g. Engine RPM or Vehicle Speed, by using the related new context menu when preparing a SCADAS RS configuration. This is possible both for a functional as well as for a physical request, for which the generic CAN message request line item is compiled automatically and accordingly. The user might only need to adjust the Time Interval of the request.

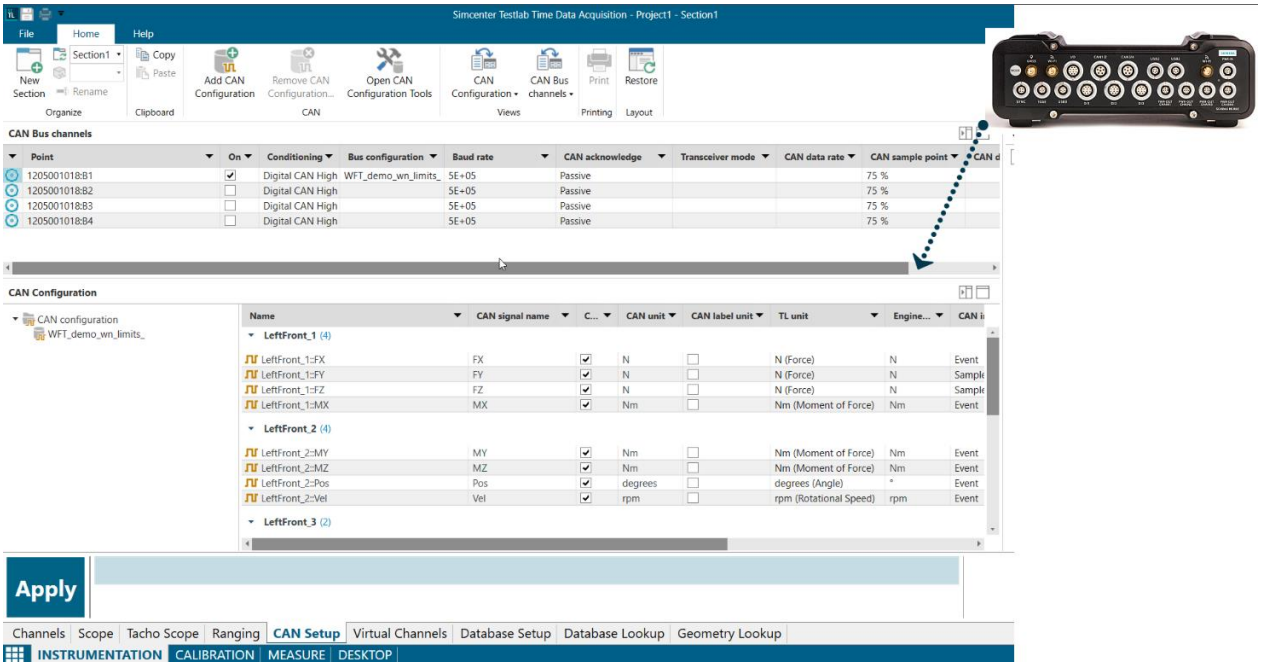




Download and synchronization of CAN configuration in Simcenter Testlab Time Data Acquisition

It is now possible to download a CAN configuration that was previously made and currently used on a Simcenter SCADAS RS REC or DI Unit. This is automatically done when creating a new blank project while being online connected to the frontend. From then on, any other change made from any other client application will also be automatically reflected within Simcenter Testlab.
This is useful whenever changes done on the Simcenter SCADAS RS system want to be persisted inside a new Simcenter Testlab project and\or measurements previously on the system want to be stored within the same new project and\or any new modifications to the configuration want to be reviewed and\or done within Simcenter Testlab Time Data Acquisition.
Note: that this is with the exception of the new XCP over CAN functionality which is only supported on the Simcenter Recorder App for configuration and use with this new Simcenter Testlab 2306 release.

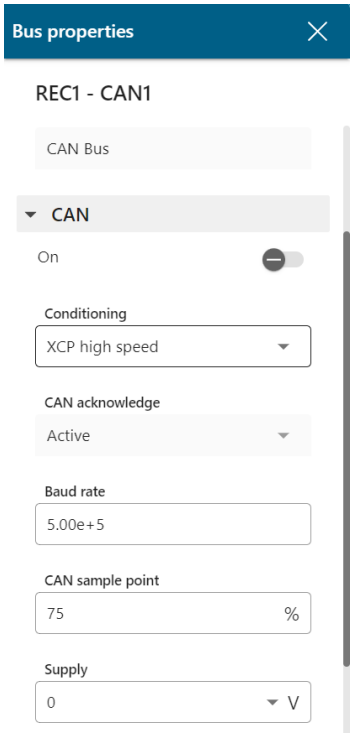




XCP over CAN support in Simcenter SCADAS RS Recorder App (new functionality)

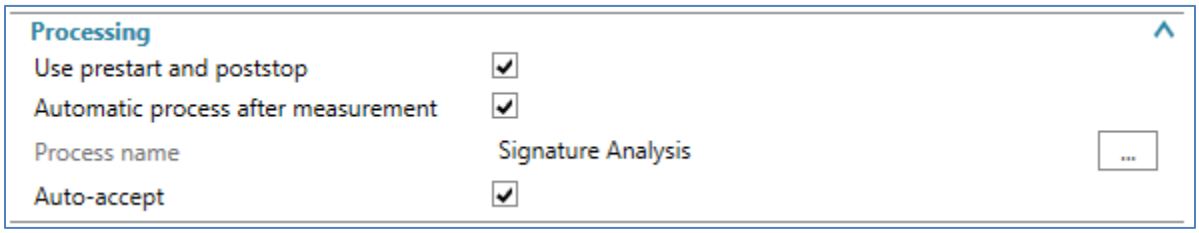
The XCP (Universal Measurement and Calibration Protocpl) protocol is a network protocol originating from ASAM which was born to calibrate electronic control units (ECUs) available on vehicle architectures. This higher layer protocol can be used on top of several physical layers (e.g. CAN, Ethernet, Flexray 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 available by default on a vehicle CAN bus.
In this new release of the Simcenter Recorder App and Simcenter SCADAS RS REC Unit we are now supporting communication through XCP over CAN for the measurement part of the protocol (no calibration). 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. A new specific conditioning mode is available for each of the CAN buses on the Simcenter SCADAS RS REC Unit – namely XCP high speed. The required channels can be activated directly from within the interface (within the Digital Bus Setup task), and the other parameters can also be configured such as the Update rate, i.e. the rate at which the data is requested to the ECU.



Automatic processing after run

It is now possible to select a predefined process file and execute it automatically after a measurement. Combined with the display query mechanism it allows to automatically build up processing results in a display from the measure worksheet.



It requires the Interactive Analysis add-in or the Process Designer add-in. Any process can be selected, as long as the required add-ins are loaded.

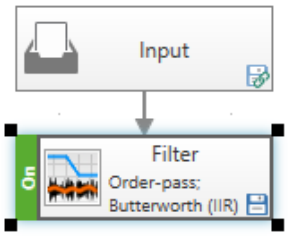
General Processing

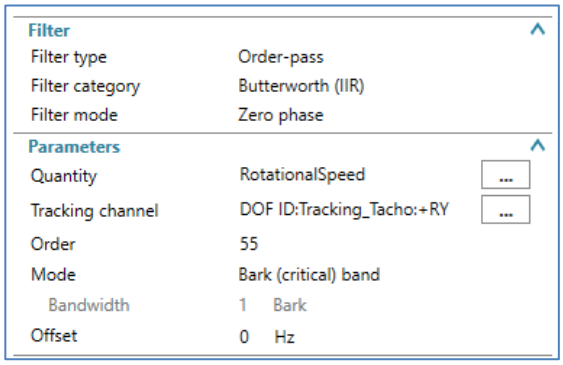
Interactive Analysis in Process Designer

Order filter extension

The filter method in process designer has been enhanced with multiple options.

- The existing order-stop filtering capability can now be done with zero-phase filtering. A notch filter is used with a choice of multiple mode: Order, fixed frequency width, and critical band (Bark)
- A new order-pass option is available, with a zero-phase option. As for the existing order-stop, 3 filter categories are available: LMS, Butterworth and Chebyshev. It also comes with multiple mode: Order, fixed frequency width, and critical band (Bark)





Extract segment on blocks

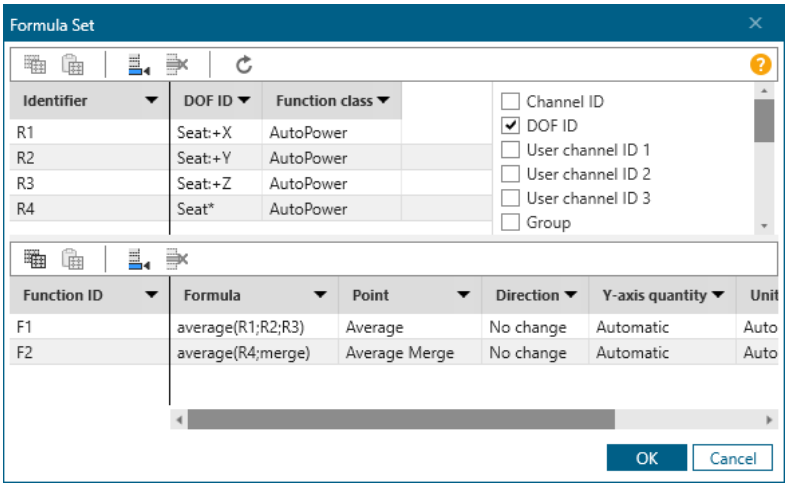
Any type of block can now be segmented by defining an upper and a lower X-axis value. The segment can be done in function of time for level or frequency for spectrum for example. The segmented block can be used further down in the process.

Block calculator

Some new operations/functionalities have been added to the block calculator:

- Reciprocal switch: Inverts the reference and response point information of a phase referenced block
- Inverse: Inverts the channel
- Amplitude: Takes the amplitude/phase/real/imaginary part of a complex block
- Negative/positive direction: forces the point direction to be positive or negative

Merging of multiple blocks through one single identifier: it is now possible to do operation on multiple inputs that are identified through one single identifier. This works for the following functions: vectorsum, average and envelope:



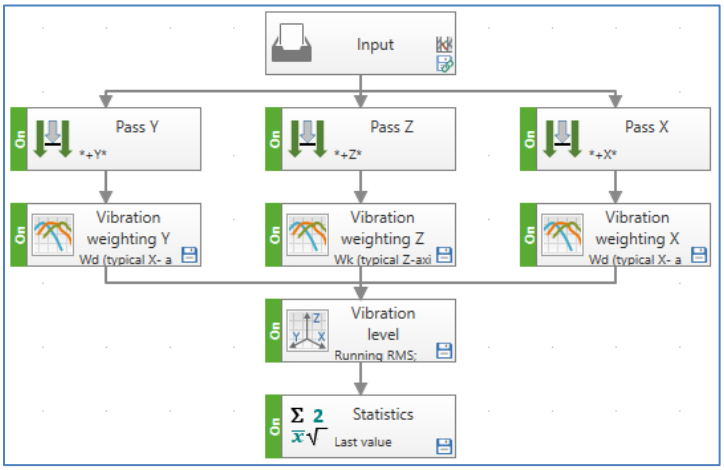
R4 identifier resolves to multiple blocks that are averaged in F2. Functions F1 and F2 will give the same result.

Vibration comfort analysis

A new library has been added in process designer as part of the interactive analysis add-in: the Vibration comfort analysis, available with the Interactive Analysis license. This library adds 2 methods: the "Vibration level" and the "Vibration weighting". Together they allow Human Body and Hand-Arm Vibration calculations according to ISO2631 and ISO5349.

The Vibration weighting method offers the following pre-defined sets of filters: Wd, Wk, Wf, Wc, We, Wj, Wh.

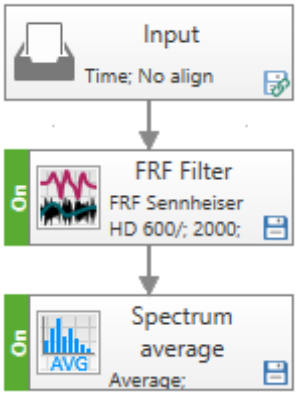
The "Vibration level" method allows to calculate the ISO levels: Rms, Running rms and Vibration Dose Value.



Example of human body vibration calculation in Process designer

FRF Filter

A new filtering method has been added to the Interactive Analysis license. You can select any FRF block with unit [/] (Ratio) and use it as a time data filter.

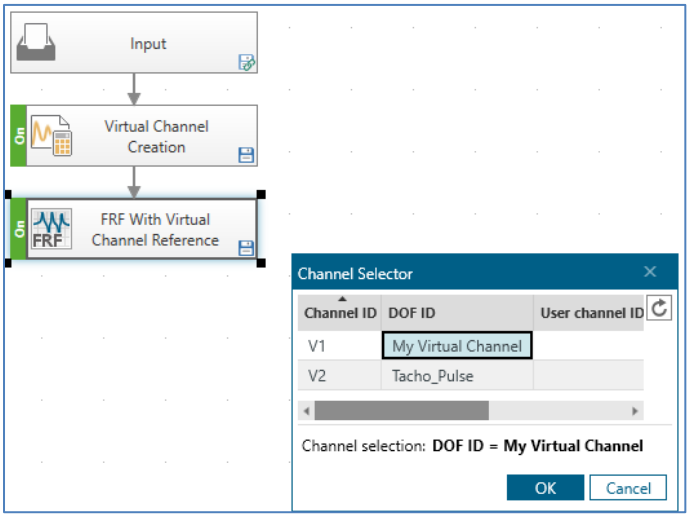


Process example which includes the FRF filter method.

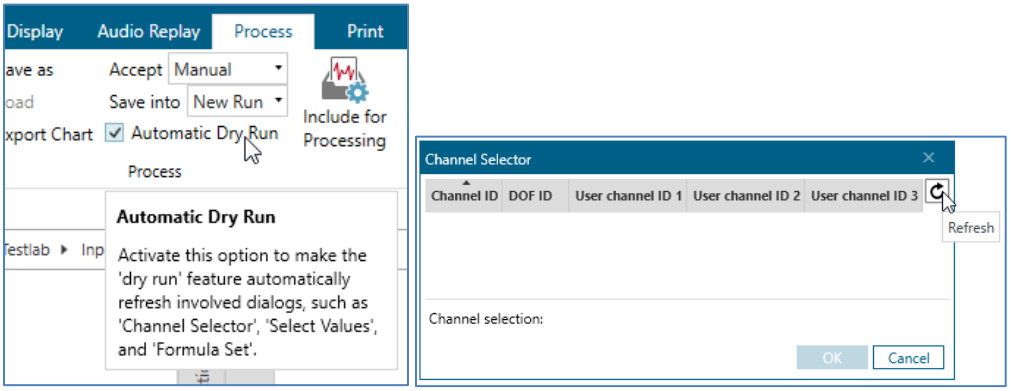
Process Designer

Dry run analysis

Any method from process designer is now aware of the complete process happening upstream, even channels or sections created during that process. It makes the creation of complex processes simpler. This dry run option is by default running automatically when creating process. In case of very high channel counts or a high number of runs loaded in the input it is possible to deactivate the automatic execution of the Dry run analysis and run it manually through a “refresh” button.



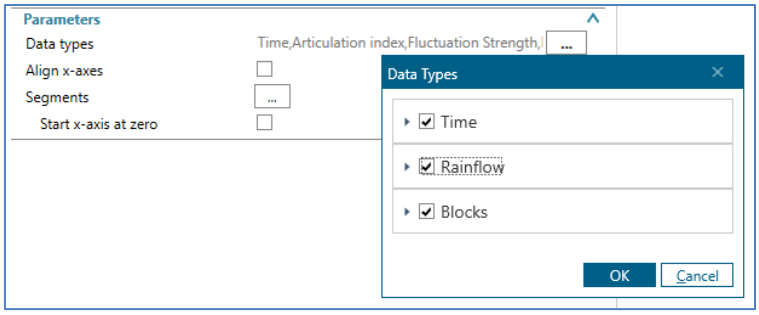
Virtual channel is recognized at the next method



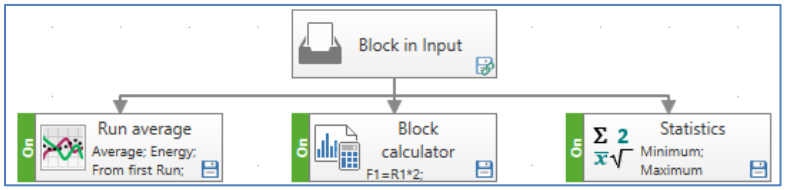
Automatic/manual dry run

Support block as input to process designer

It is now possible to start a process from any block data and not only from throughput data, rainflow, PSD or stationary spectrum. The typical scenarios are the connection of blocks to statistic method for single value calculation, run average over multiple runs, or dedicated metric calculation using the block calculator.



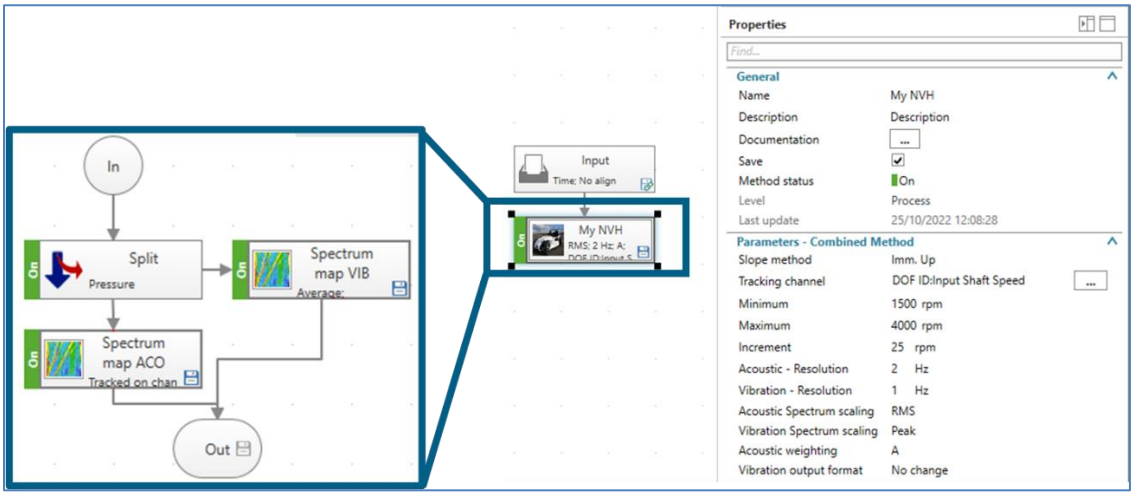
Time (throughput), Rainflow and Blocks as input data types



Run average, Block calculator and Statistics calculation from input blocks

Parameter linking in combined method

Parameters of the same type (examples: a frequency cutoff, an order value, an rpm range…) can be linked and exposed at a combined method. In that way the combined method user can enter a parameter that is used on multiple methods only once.



Combined method with 2 maps and tracking parameters linked

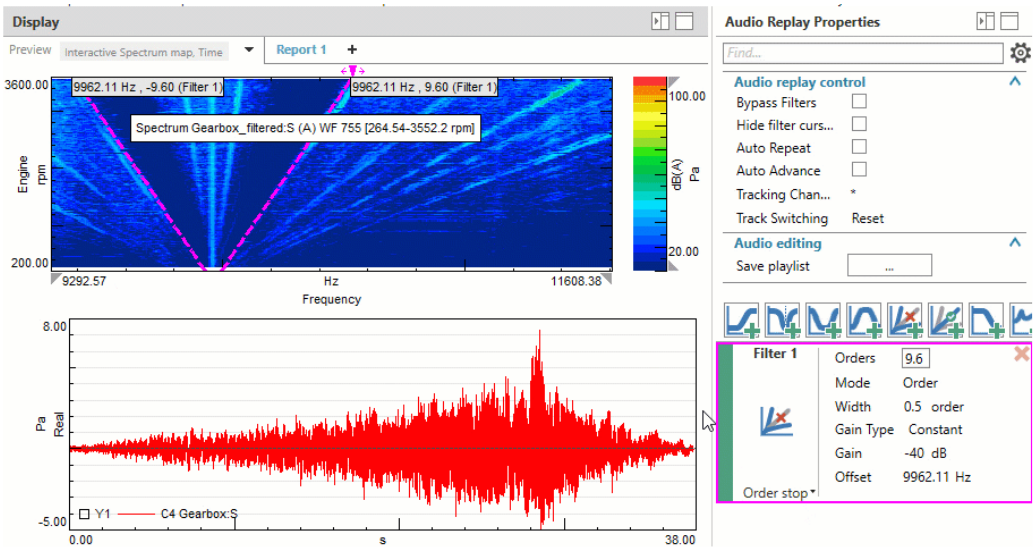
The icon from the combined method can also be changed from this release.

Sound Quality Engineering

Advanced **Audio Replay**

Off-zero order filtering

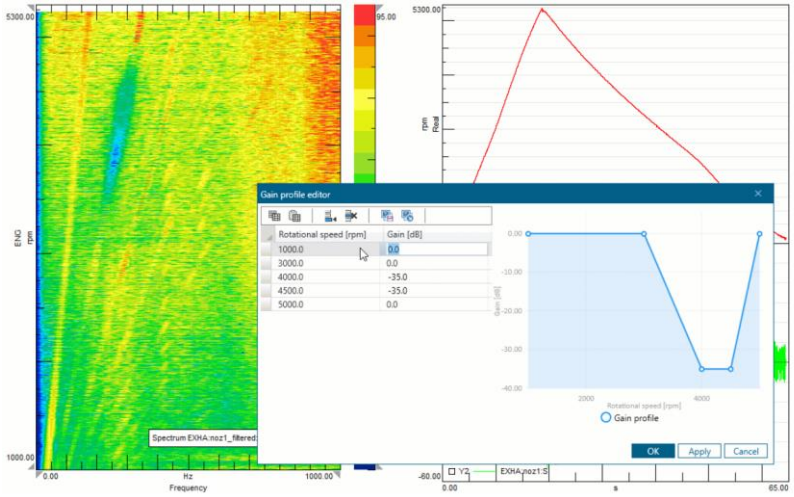
The Order pass and Order stop audio filters now also have an option to indicate the offset value. You can filter out the off-zero orders from your electric motor measurements.



Off-zero order audio filtering

RPM range-based order filtering

You can also specify the RPM range on which the order pass or order stop filter should be applied by using the new Gain Type setting.

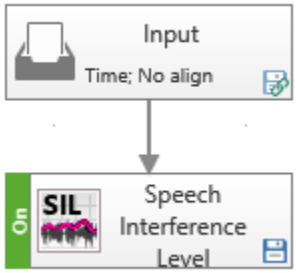


RPM range-based order filtering

Sound Quality Analysis

Speech Interference Level

Speech Interference Level (SIL) is a new method, which allows to calculate speech interference level according to ANSI S3.14, speech interference level (SIL3) and the preferred speech interference level (PSIL).



Example of a Speech Interference Level process.

L_{AeqT} L_{AE} added to the SPL method

The SPL method has been extended with an option to calculate L_{AeqT} and L_{AE}.

Rotating Machinery

Rpm extraction

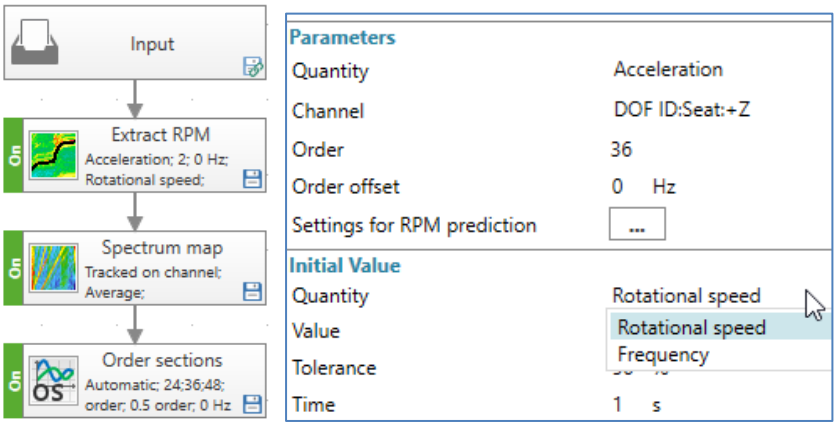
The Extract RPM method allows to calculate an rpm trace from a measured signal by tracking a specified dominant order. This allows to generate an rpm trace when rotational speed sensors cannot be instrumented.

The RPM curve is found by dividing the time signal in small overlapping time segments and tracking the highest dB value in a specified frequency bandwidth.

An initial estimate of the frequency of the order or rotational speed should be given by the user, that serves as start point for the algorithm. That value can approximate the exact rpm value, the algorithm looks automatically for a better estimate near this initial value.

The dominant order used for the detection can be centered around 0Hz or around a specified frequency (inverter frequency for example).

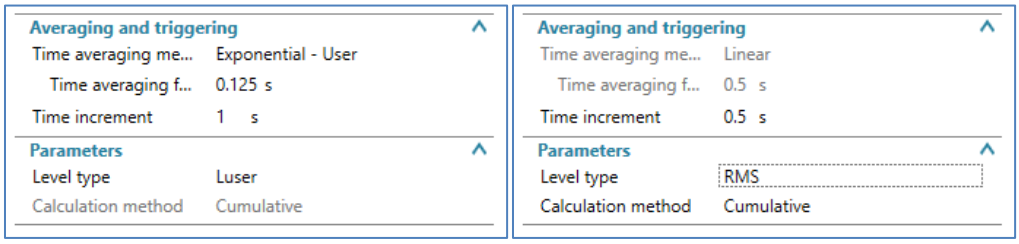
The Extract RPM method can be used streamlined in a standard process in process designer and run over multiple runs at once, providing similar starting conditions for all runs.



Extract rpm method with definition of initial parameters

Vibration level calculation

The Vibration level methods allows to calculate dedicated level on vibration data. Like the Sound Pressure Level method for acoustic data, the Vibration level allows to define specific averaging and time increment for level calculation, and it offers a cumulative or instantaneous result. Combined with the Vibration Weighting it enables ISO calculations for Human Vibration and Hand-arm Vibration.



User defined or predefined level calculation

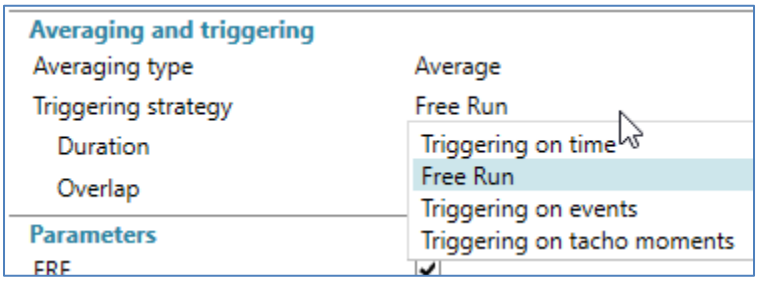
Tacho processing

The functions from the tacho processing library can now calculate an angle curve on top of the rpm curve. The angle curve can be wrapped around 0 or 180 degrees and used for further processing, like torsional deflection of a shaft for example.

The missing and double pulse functionalities, already available in previous release with the “Tacho moment correction” have been added into the “Tacho pulse conversion” method.

FRF triggering

It is now possible to define a triggering method when calculating an averaged FRF in the FRF method from process designer, thus allowing better block to block coherence for averaging.



Multiple triggering methods available

Map input to run averaging

The run average method now supports maps as input. Providing that the tracking points of each map do not deviate by more than 50% of the tracking step, the waterfalls will be averaged within the union of all inputs.

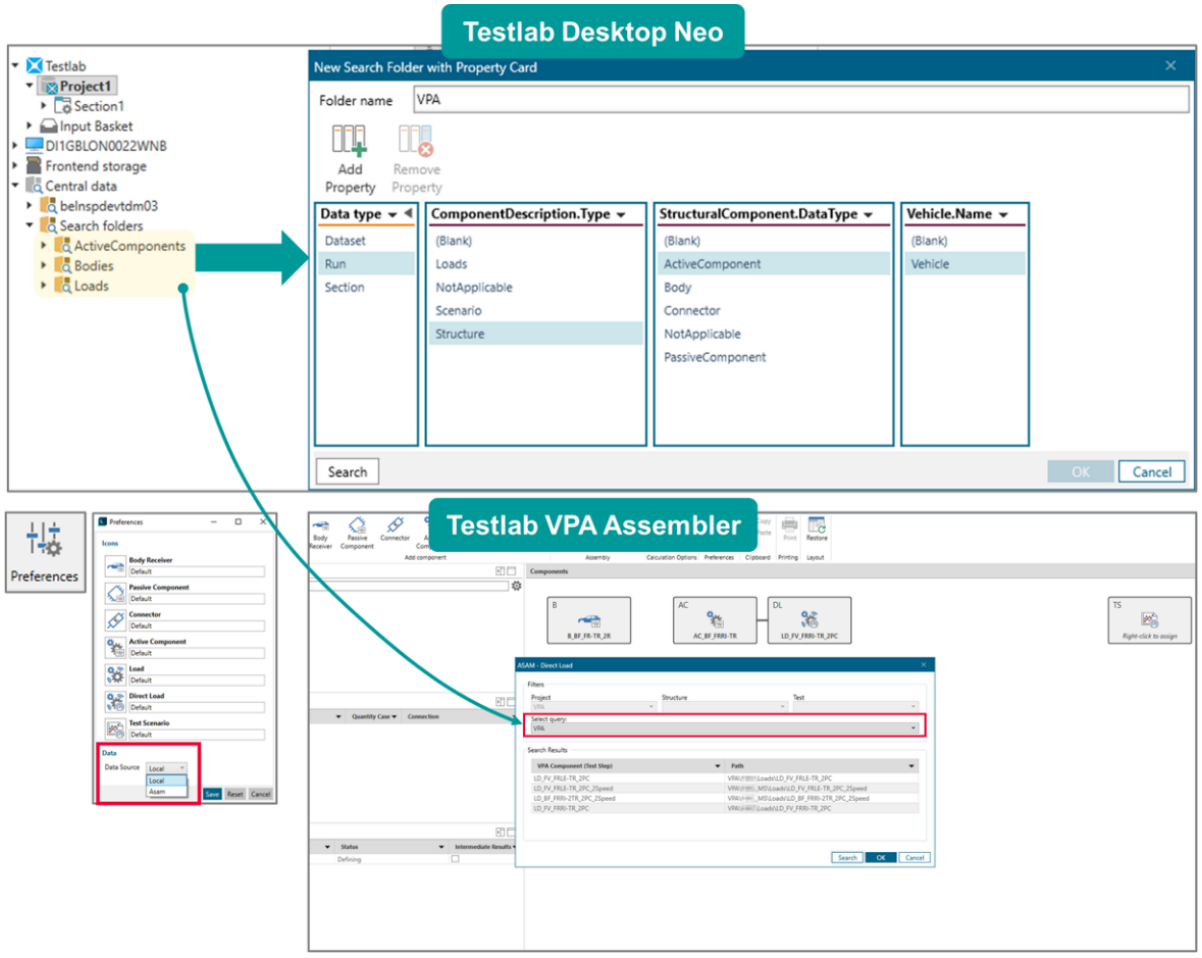
Virtual Prototype Assembly VPA

VPA Assembler Tool

Use Simcenter Testlab Data Management together with VPA to improve Collaboration

It is possible to use the Search Folders defined in Desktop to refine the search criteria on the components libraries based on the descriptive annotations of the server. The Search folders are defined based on the Properties Cards annotated on the descriptive model, and will contain precise details of the components, being simulation or test based.

The central ASAM-ODS server will permit a large collaboration across teams (Test and Simulation), ensuring the traceability with the correct annotations and allowing an unique and standard file format across systems and applications.

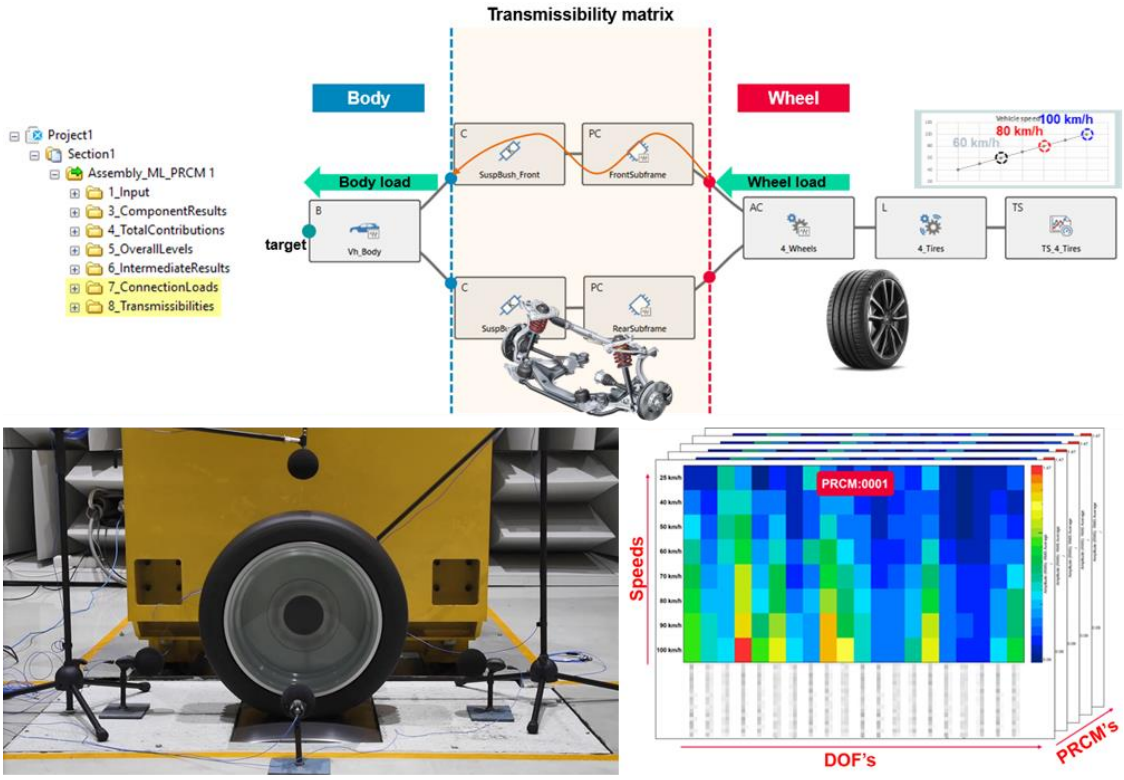


Improved support for Road Noise prediction

During the last years, with the increase of the Electrification, the pressure on the Road Noise attribute has grown a lot inside the automotive industry. Hence, with this release some features were implemented to support the accurate modeling of the components linked to the Road Noise.

The first introduced feature is the support of the Loads as Principal components for multi-speed conditions to archive the loads produced for the Wheels/Tires.

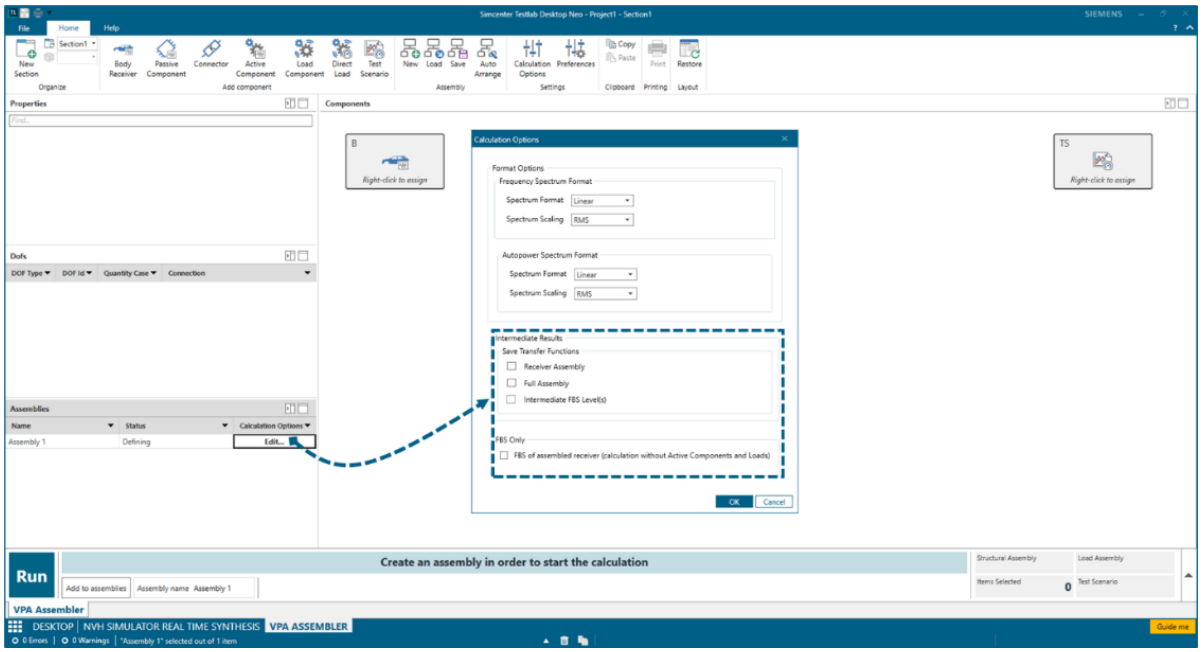
The second feature is the possibility to calculate the loads at the original body receiver level, also known as Multi-Level TPA. Originally, the loads are available between the interface of Passive and Active Side of the Assembly, but now this was extended, and the loads will also be available at the original body receiver Level. Next to the Loads at the original body receiver, the contribution of each path are stored for further and detailed analysis.



Model precisely complex assemblies

While defining the assembly on the VPA Assembler, it is possible to select the interface where the assembled substructures will be saved and stored. The possibilities to save the Intermediate results would be Receiver Assembly (not including the Active Components), Full Assembly (including the Active Components) and/or store every FBS level.

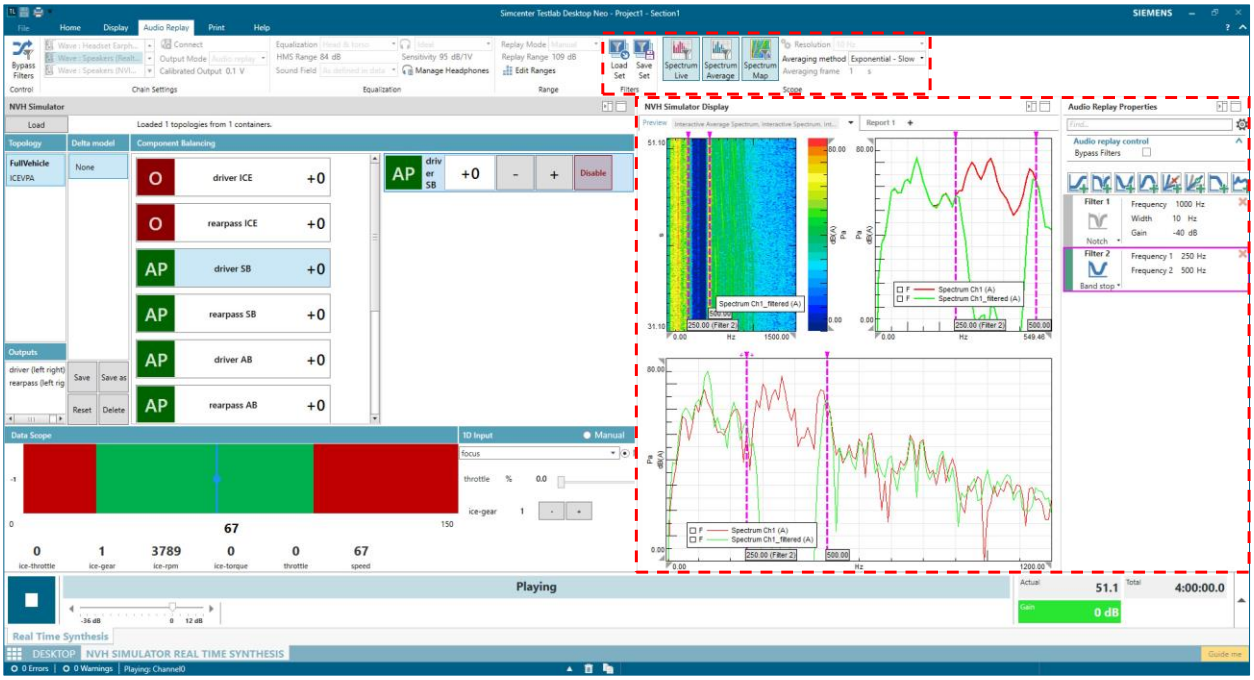
Furthermore, it is possible to calculate and store substructuring results only, or in other words, assemblies without Active Components, Loads and Test Scenario. This is important since the receiver assembly can be calculated once and publish as a new Body Receiver, allowing the user to make modifications only on the Active side of the assembly, calculating faster results since the substructuring calculation becomes simpler.



NVH Simulator

Live Spectrum

The Simcenter Testlab Real Time Synthesis application can be combined with the Advanced Audio Replay add-in allowing the representation of the instant, averaged, and map spectrum. Additionally, the filters available on the Audio replay add-in can also be applied during the Live Synthesis of the NVH model. These features assist the NVH engineer to objectively assess the spectral content of the NVH Model and its variants, combining on top of it the usage of audio filters for analysis and troubleshooting.



Integration VPA and NVH Simulator

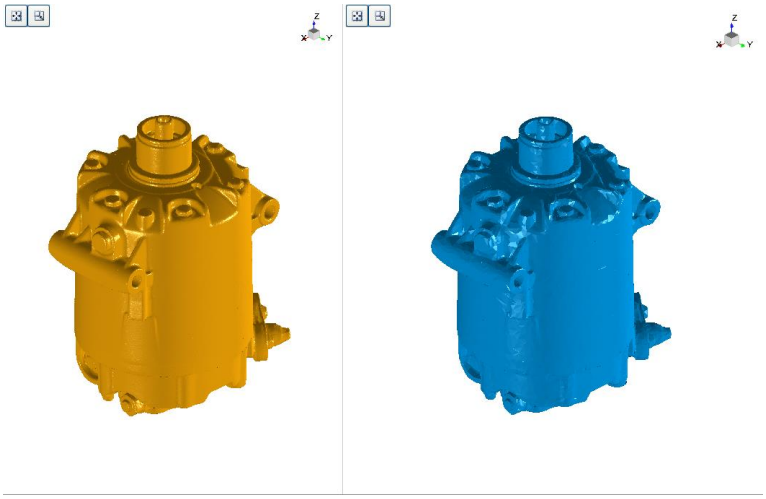
With this release of Simcenter Testlab, a smooth integration between Virtual Prototype Assembly and the NVH simulator is promoted. This allows the user to quickly, while creating the NVH model, import data from VPA. More information is available on the Simcenter Testlab Classic section of this document.

Structural Dynamics Analysis

Geometry Creation

Automatic Reduction – Surface Approximation

When using the traditional Automatic Reduction functionality to reduce the size of a geometry before importing it, only the nodes are retained. With this new algorithm, the user can opt for a reduction strategy that tries to reduce the size of the surface mesh, while still preserving the shape of the object. The final geometry will then not only have nodes, but also triangles connecting them.



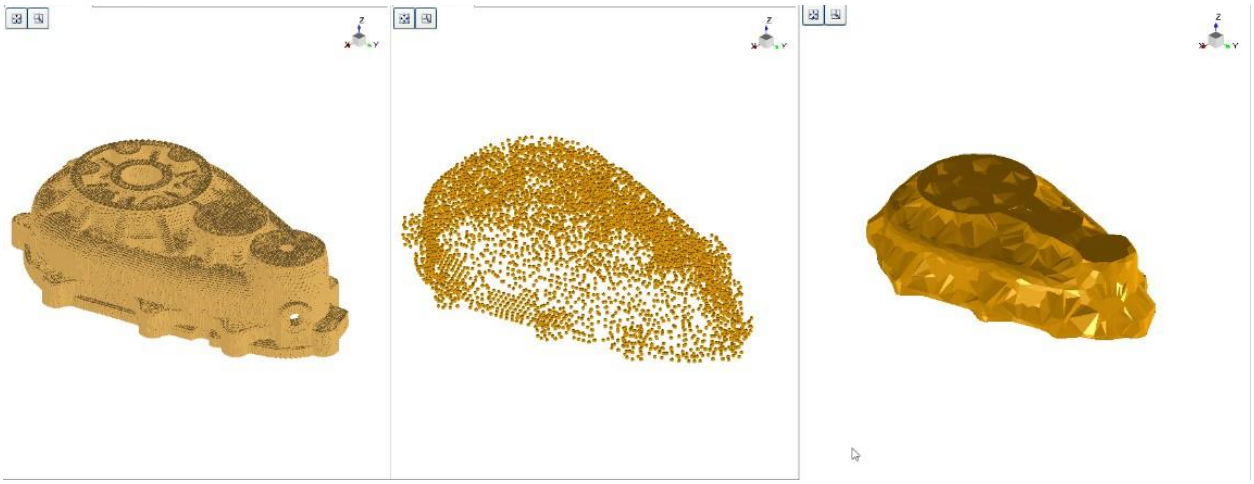
The Surface Approximation strategy will only work if the original model has a mesh. This is the case, for example, of stl file and Finite Element model with meshes with 2D elements. When reading a model with 3D meshes, only the nodes are read so this new approach cannot be used.

Automatic Reduction – Use node list

The standard node reduction strategy has been extended by allowing the user to select a list of nodes that need to be retained in the final reduced model. These can be critical locations for model validation and in general to compare test and Finite Element results. The user can specify the list in a csv file or use the FEPointMap.xml file available with the Simcenter Testlab 3D Driver.

Automatic triangular mesh creation

Surface meshes connecting the nodes in geometry can significantly help understanding the shape of the object and improve its visualization when animating its response. Currently, however, the creation of this mesh is completely manual. While the Surface Approximation strategy can help reducing an existing mesh, no solution was available when starting from a point cloud. A new Autoshape command is now available in the Geometry Edit task to automatically create a surface mesh starting from a point cloud. The command offers two methods: the AlphaVolume one, which works best on solids and volumes (gearboxes, pumps, shafts, etc) and the AlphaSurface method, which should be used for object better approximated by thin surfaces (aircraft wings, plates, panels, etc…).

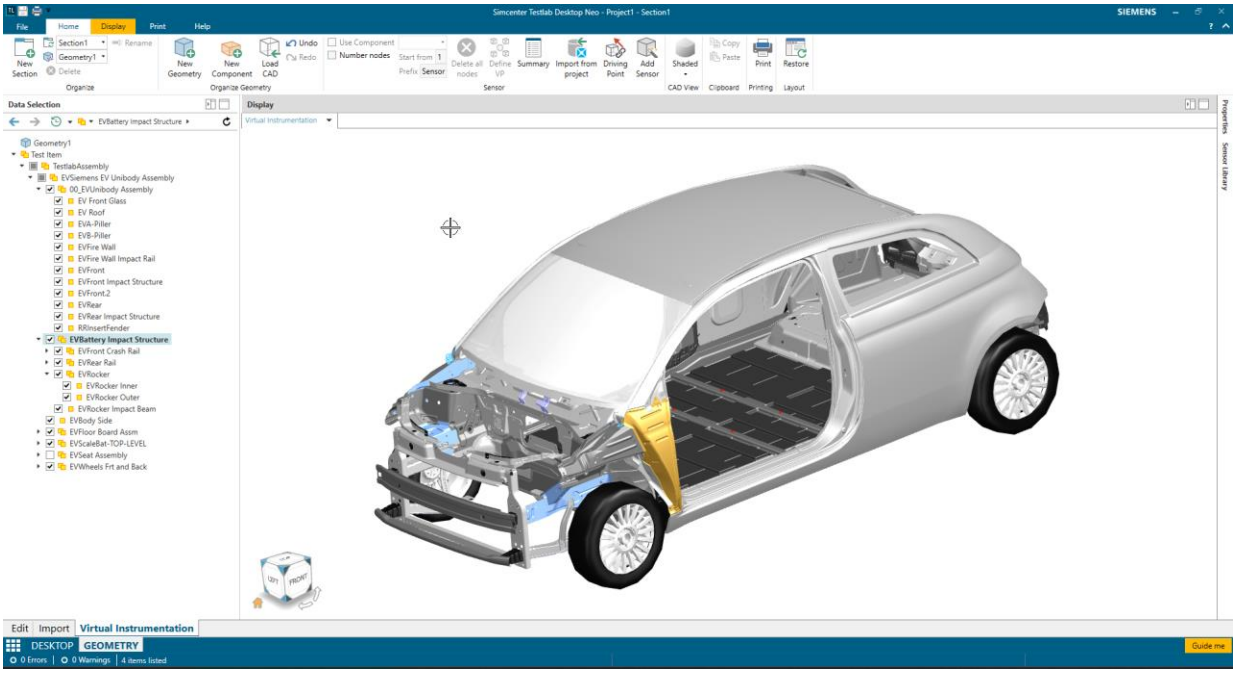


Virtual Instrumentation

Creating an accurate geometry model is still one of the most time-consuming steps in a measurement campaign. Getting precise sensor coordinates and orientation is critical when validating Finite Element models or when characterizing components with Virtual Point Transformation. To simplify this task, a brand-new application has been introduced. The Virtual Instrumentation task allows to import a CAD model of the component or structure, position sensors on it and automatically derive their positions and orientation. The task can also be used to specify what should be measured at a specific location and with which transducer.

Loading CAD model

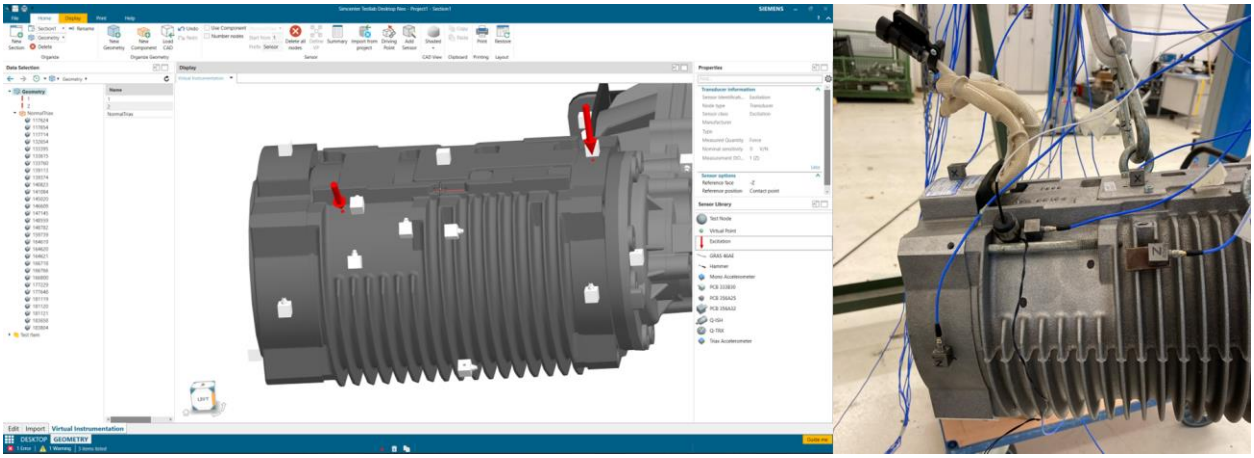
The application supports CAD files in .prt and .jt format. The user can select an individual file or an assembly. In case of an assembly, all linked files will be imported, and the Test Item tree will show the model hierarchy. The loaded CAD models are read-only, no modification to the original file will be made by the application



Creating a Virtual Instrumentation

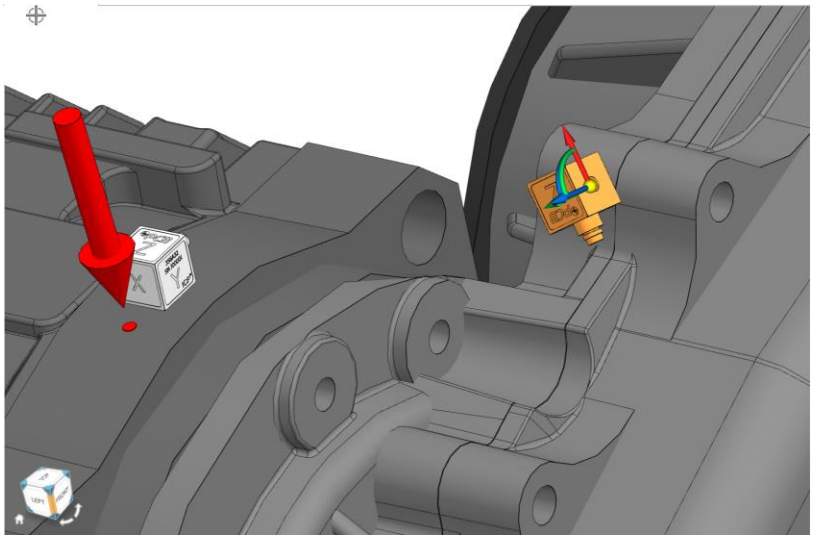
The main purpose of using CAD model is to have a high-fidelity visual representation of the 3D object and use it to specify the measurement location and the sensor to be used. Once a sensor is selected in the library, clicking on the surface of the model will automatically position the sensor on it. Sensors have a local axis system attached to them, so the correct orientations are automatically updated; in other words, you do not have to bother anymore about euler angle, polarity or local vs global coordinates as these are setup automatically. User can add generic nodes, excitation locations and generic or specific accelerometers and microphones.

The virtual instrumentation is tightly linked with the traditional geometry model in Testlab. Adding a sensor to the CAD will add a node to the geometry and viceversa. This also means that existing geometries can be used as starting point for creating instrumentations with the new tools.



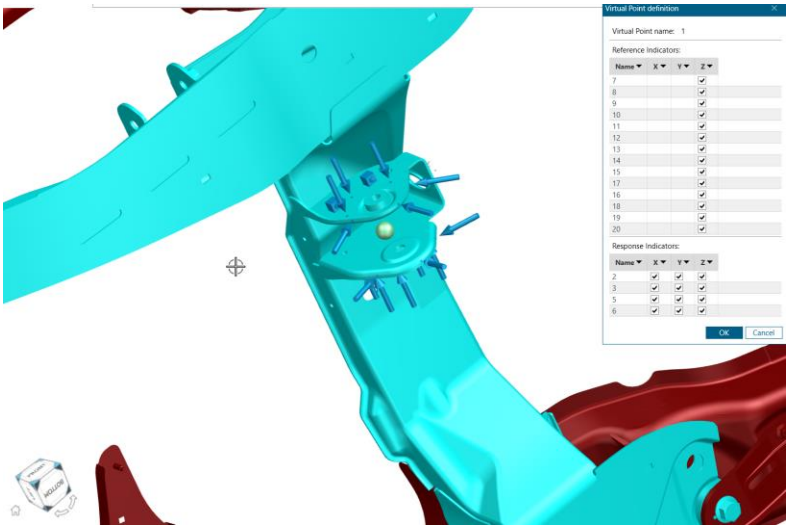
Manipulating sensors

Sensors can very easily be manipulated directly in the CAD display. Selecting a sensor will visualize some handles, that can be used to fine tune the sensor position and orientation. Grabbing the center of the handles (the yellow point) will move the sensor over the surface of the test item, keeping the reference direction normal to the surface. Moving the individual arrows or the arcs will respectively allow translating or rotating the sensor without any constraint. Selecting an arrow and a line in the model will orient the selecting axis with the line.



Defining Virtual Points

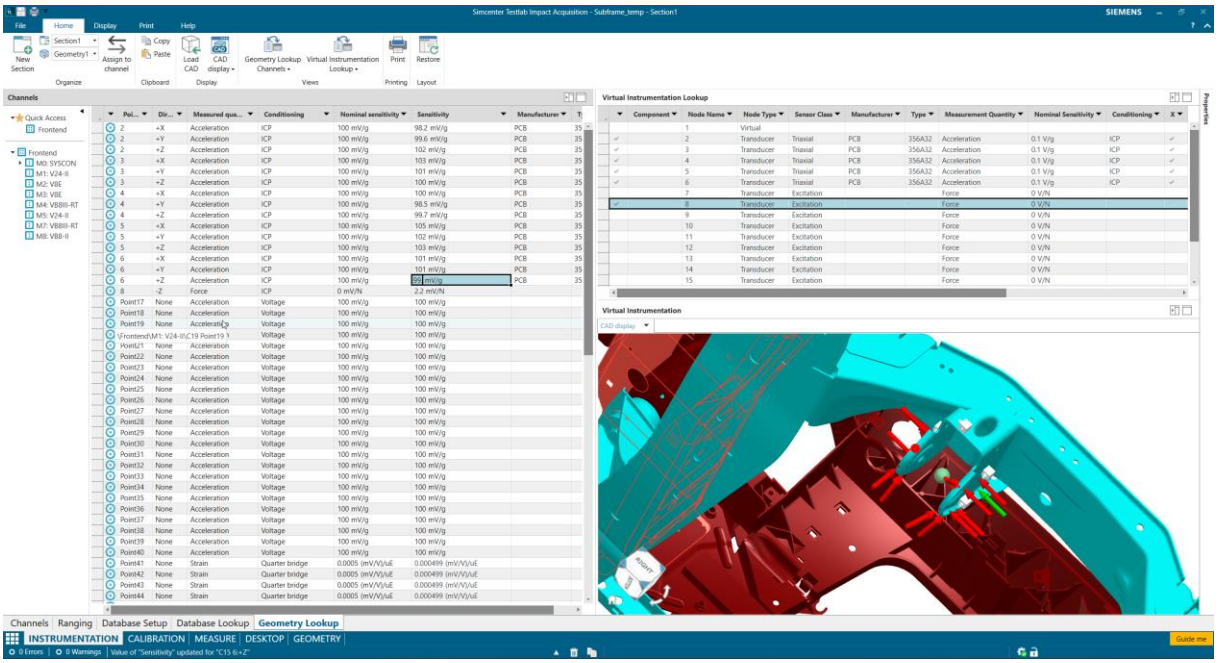
Virtual Points represent locations that cannot be physically measured, but that are needed for Frequency Based Substructuring, Transfer Path analysis and assembling component models. The FRFs at these locations are estimated by measuring and exciting at several locations around them, and then perform a Virtual Point Transformation. This transformation will generate translational and rotational DOFs at the chosen location. Using a CAD model to specify these locations, and obtain their positions and orientations automatically, significantly improves the quality of the estimation. The Virtual Instrumentation task allows to add virtual points and then interactively assigning reference and response indicators to them. The definition is then used in the VP Calculate task to collect the measured FRF and compute those at the virtual point.



Using the CAD model and the virtual instrumentation in other application

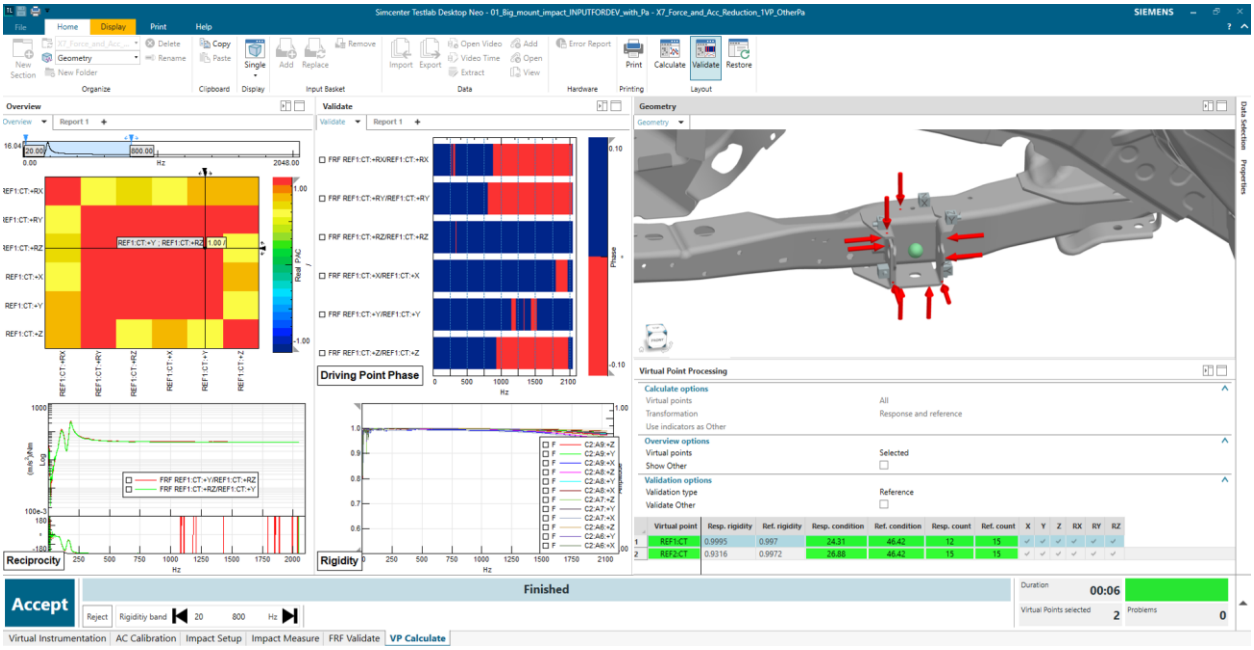
The Virtual Instrumentation task is the location where a CAD model can be loaded and the instrumentation defined. But these tools are then used also in other Testlab application to improve processes, and their interaction will keep on growing in the future. Currently, the user can use the CAD Display with the instrumentation in the FRF Validate and VP Calculate in combination with data selection to highlight where the DOF Id is of the currently visualized FRF, or which Virtual Point we are looking at. In Impact Acquisition, the display also links to the data selection and can be used, for example, to select which response channel to visualize or what is the actual impact location.

But most importantly, the Virtual Instrumentation and geometry information can be used in the new Geometry Lookup task which has been added to the Instrumentation group in Simcenter Testlab Neo and can be used with all acquisition applications. In this task, the user can interactively select a sensor in the display and assign it to a channel of the front end. All compatible settings (DOF Id, Measured quantity, conditioning, manufacturer, type and nominal sensitivity), when available, will be assigned to the channel. The application also tracks the virtual transducers which are currently assigned to a channel.



Virtual Point Transformation

Virtual Point Transformation (VPT) allows engineers to obtain Frequency Response Functions (FRFs) at precisely chosen locations and potentially otherwise unmeasurable positions. It not only generates the translational but also rotational DOFs for these chosen Virtual Points.



Additionally, it allows assessing the quality of computed Virtual Point FRFs. The calculation process is fully integrated in the Simcenter Testlab Neo FRF acquisition solution:

1. Define the virtual points using the new CAD-based virtual instrumentation task.

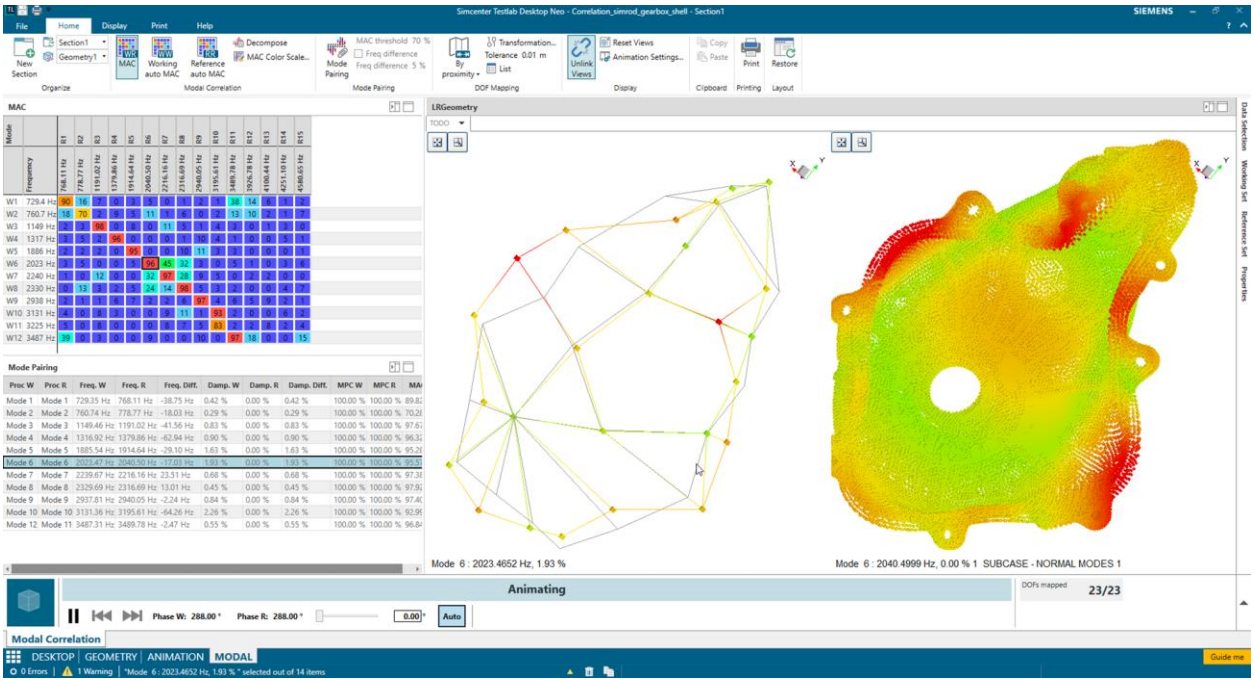
2. Perform the FRF measurements or gather available FRF data.
3. Automatically the FRF data is assigned to the correct Virtual Points and transformed in a new FRF set.

This process is complemented by the inclusion of intuitive quality indicators: these provide a means to validate the accurate frequency range and reliability of the computed Virtual Point FRFs. By assessing the quality indicators, potential testing errors can be identified, enabling immediate corrective measures to be taken. The driving point behavior check (passivity), response and reference rigidity/consistency index, reciprocity verification are automatically verified.

The new capability streamlines the measurement process, enhances result reliability / confidence, and facilitates swift corrective actions. The resulting FRF's can be immediately used for Virtual Prototype Assembly, Transfer Path Analysis, Modal analysis and/or CAE correlation.

Modal Correlation

The new Modal Correlation task in Testlab Neo offers test users a practical solution to easily compare any type of mode shapes, even when the DOF Ids are not mapped. The application can deal with mode shapes estimated with any of the available methods (Experimental, Operational and Order-based Modal Analysis, as well as Operational Deflection shapes), coming from either a Testlab analysis or any external supported file format, including Finite Element Analysis.

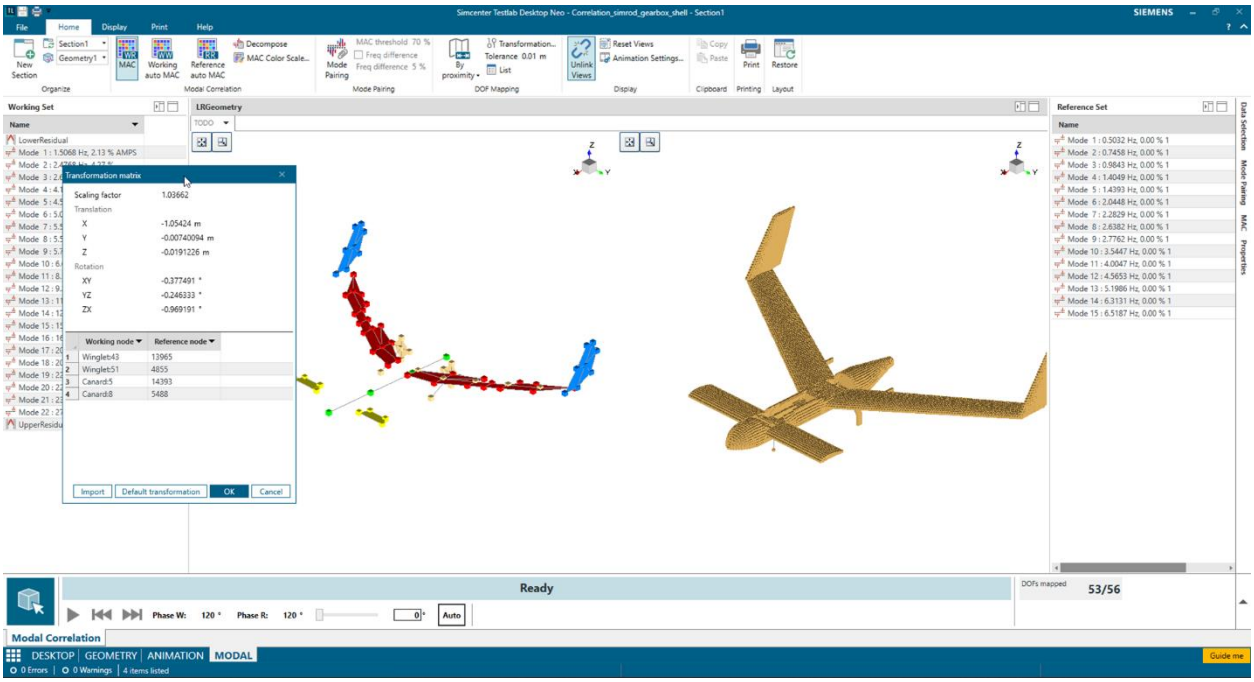


The user will assign the desired Mode Set and the associated geometries to a Working Set and a Reference Set. The DOF Ids of the Working Set will then be mapped onto DOF Ids of the Reference Set depending on the mapping criterion chosen and the Modal Assurance Criterion will be computed and displayed in a dedicated pane.

Selecting a cell in the MAC table will automatically trigger the animation of the two modes on their respective geometry. Dedicated animation controls in the ribbon allows to adjust the relative phase between the two modes, with an Auto button added to try to perform the alignment on an automatic way.

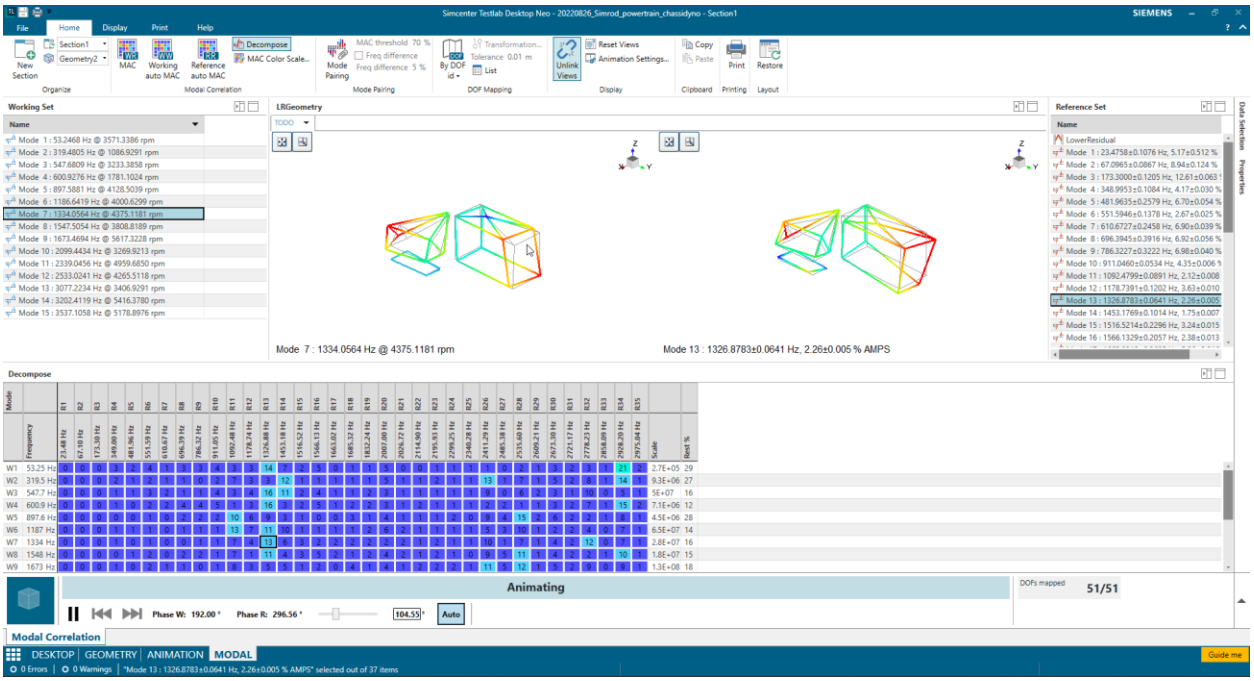
Another major enhancement is the fact that now any type of modes can be compared, irrespective of the application where the comparison is done. It means that now any combination is possible, including the

comparison of Operational Deflection Shapes obtained from different analysis (for example, the response of a machine at a critical frequency but at different loading conditions).



The DOF Mapping based on proximity significantly simplifies the comparison of mode shapes when the DOF Ids are not the same. This is typically the case when comparing test and FE models, but also for experimental modes extracted by different teams at different times, and when naming conventions are not necessarily aligned. The mapping based on proximity assumes that the global origin, position and orientation of the two models is the same. If that is not the case, it is possible to enter a state to specify mapping node pairs between the two geometry (minimum 3 pairs), from which the application will calculate the transformation matrix to align them. Also, in case local axis system are present, the Reference Set modes will be rotated to match the orientations on the Working Set modes. This assumes that in the Reference Set all three directions have been measured or computed.

Once a valid MAC has been computed, the user can create a Mode Pairing table, where only the correlating mode pairs are listed and the frequency and damping differences are shown.



Finally, the user can choose to visualize the autoMAC for the Reference and the Working Set, or decompose the Working Set modes using the Reference Set modes and understand how each of them contributes to the observed response.

Structural Dynamics Acquisition

Impact Acquisition

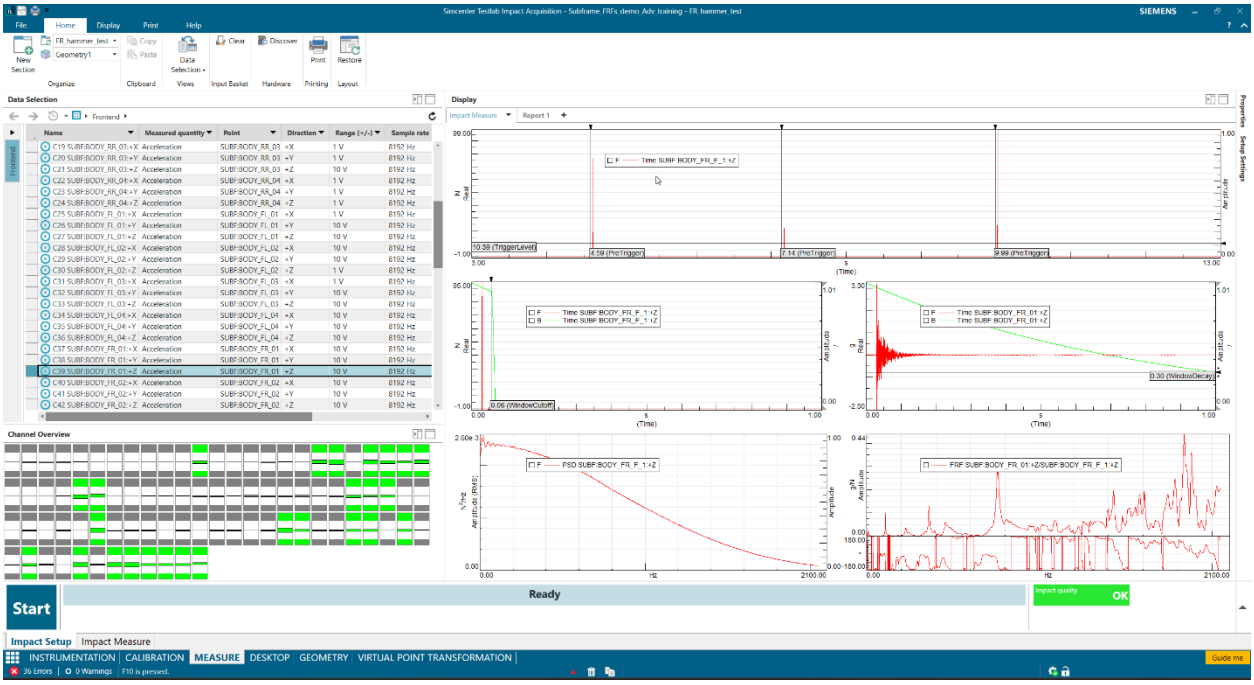
With this release, measuring FRF with impact hammer is now possible in Testlab Neo as well. The solution comes with two dedicated tasks, Impact Setup and Impact Measure.

Impact Setup

The Impact Setup task is designed to optimally support the user in specifying the settings of an impact acquisition campaign. These include spectral settings (pre-trigger, trigger, Bandwidth, number of spectral lines), windows and scaling and format settings.

When the system is armed, the time trace of the hammer is shown in a stripchart display. As impacts are detected, the reference and response time blocks, input autopower and FRF are shown. Cursors are available to adapt the trigger level directly on the display as well as the windows parameters for the reference and response channels).

Finally, the user is now able to freely specify the number of spectral lines to obtain the desired frequency resolution for any bandwidth.



Impact Measure

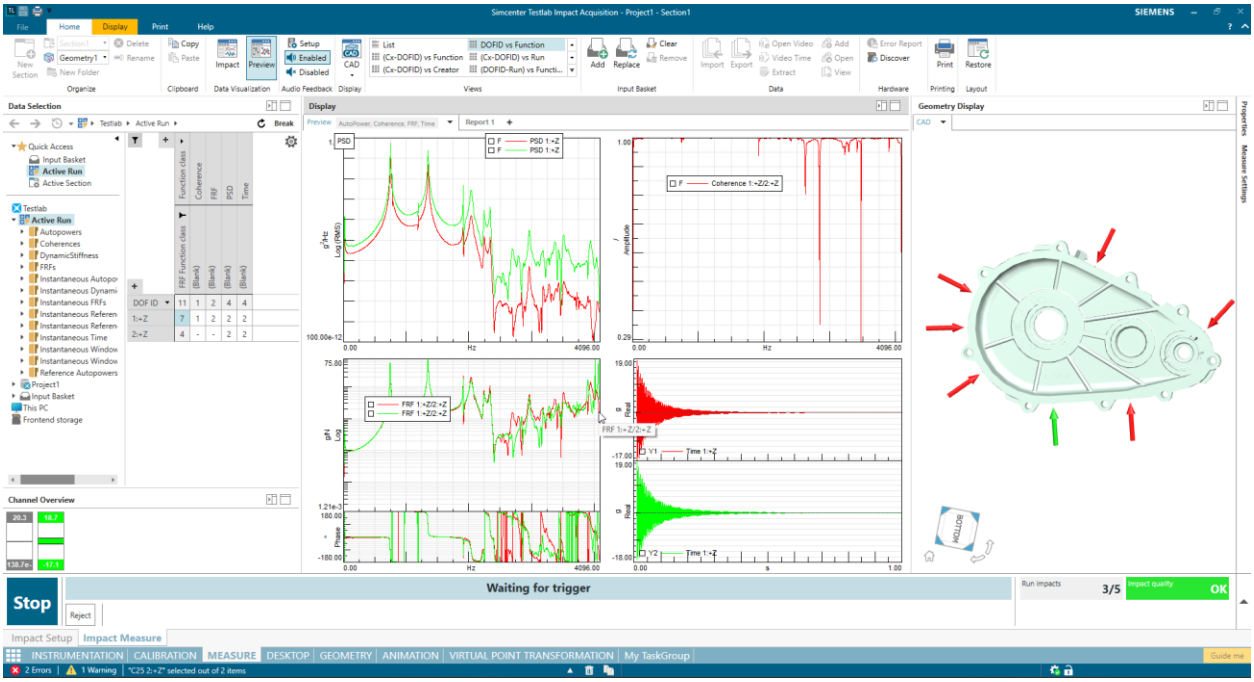
The Impact Measure task is dedicated to the actual measurement using the specified settings.

User can implicitly or explicitly accept impacts, specify the target number of averages per point, and choose which quantities to store in the run. It is also possible to specify annotation attributes and automatically annotated data as soon as they are stored.

Impact Data Visualization

The user can choose between two Data Visualization modes:

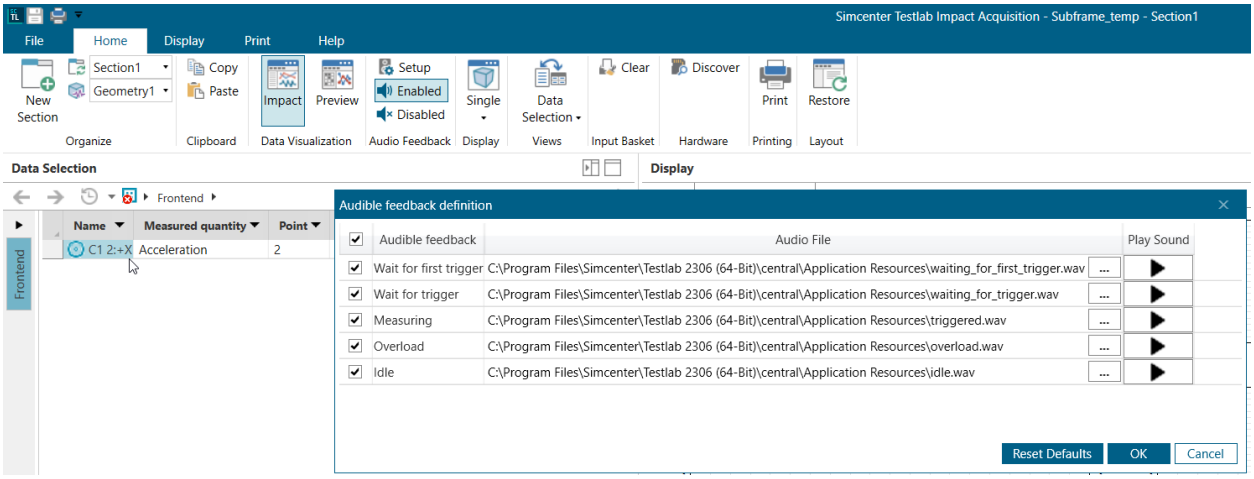
- The Impact mode, which offers a fixed layout where the most useful instantaneous and averaged quantities are shown.
- A Preview mode, which give access to the online data via the Pivot Table and allows using previewing or to create user-defined views.



Online quality checks

As a new impact is detected, some automatic checks are run to verify its quality. Traditionally, only checks on overload and double impacts were performed. Now, the user can enable also a check on the consistency of the excitation by setting a target value for the impact force and a tolerance around it. Only impacts within this range are stored, ensuring the consistency and linearity of the results. For the peak force level, the user has the option to automatically reject the impact or to simply detect it, leaving the option to the operator to accept it or not

Audible feedbacks



Audible feedbacks are a very useful support in single-operator measurement campaigns as they guide the user through the different steps and provide feedbacks on the quality and consistency of the impact. Beside switching all feedbacks on or off, it is also now possible to selectively exclude individual sounds and even replace the default one with user defined ones.

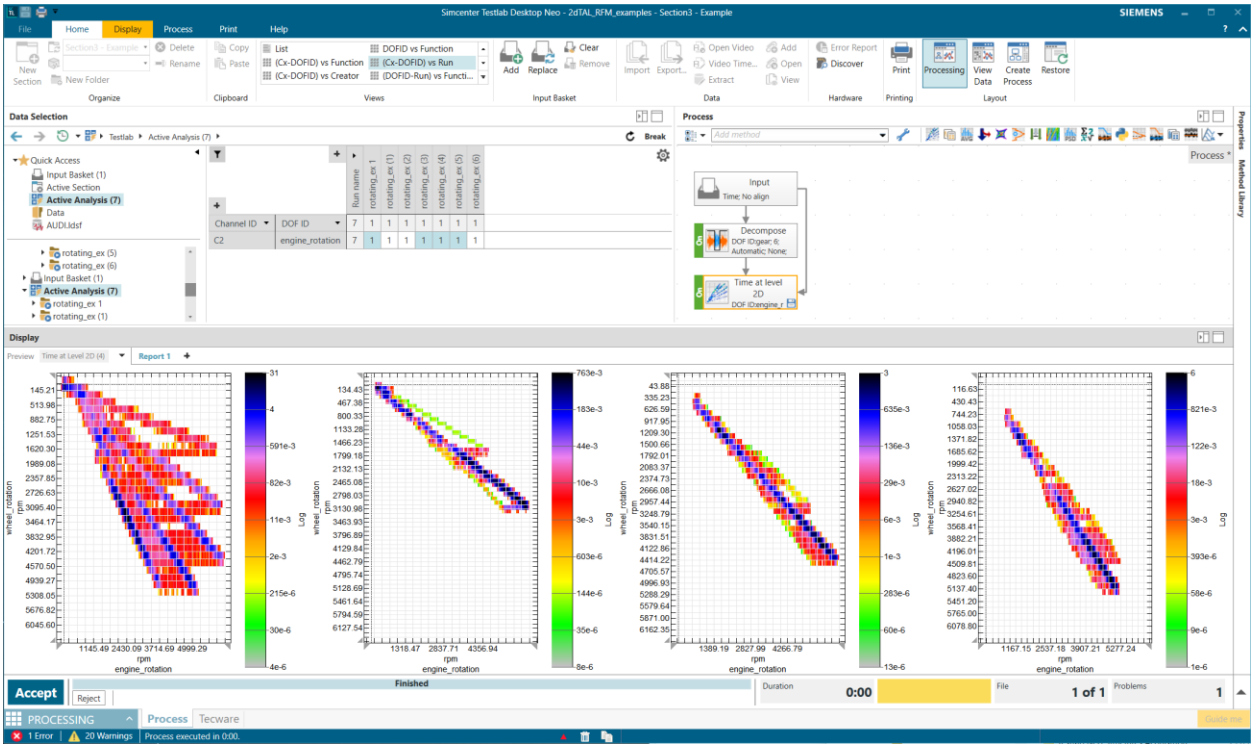
Geometry Display

During a measurement campaign, visualizing the setup in a geometry (wireframe or CAD) can provide guidance on the current impact location, or review the response of a specific location without having to look for the name in a list. It can also be used to know where a specific sensor (that for example triggers an overload) is on the structure to support troubleshooting.

Durability

Time At Level 2D

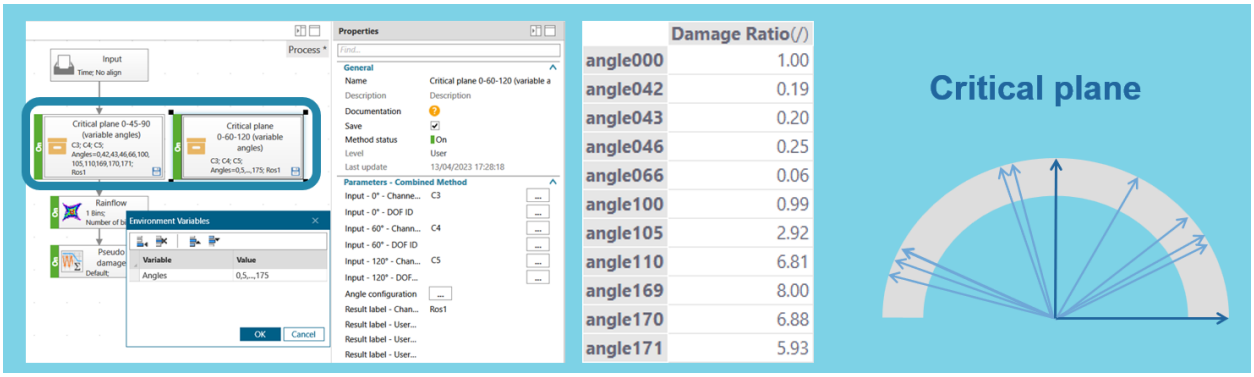
Next to the existing Time At Level calculation using one channel as input, a new method Time At Level 2D allows to select pairs of channels and visualize the distribution of value combinations. Usually, the time spent in each combination of values is cumulated, but alternatively the occurrence count or, with a given RPM channel, the number of revolutions can be totaled.



Using this new method, dependencies between e.g. wheel rotation and engine rotation can be visualized. Other examples would be the loading in z-direction vs. the speed of the vehicle or the number of revolutions with a given combination of torque and speed. Multiple of those combinations can be analyzed by adding more instances of the method.

Critical Plane with Variable Angles

A new Combined Method allows to calculate different planes not only as a fixed set of 18 directions from 0° to 170°, but allows the user to freely define a single angle or a list of angles:

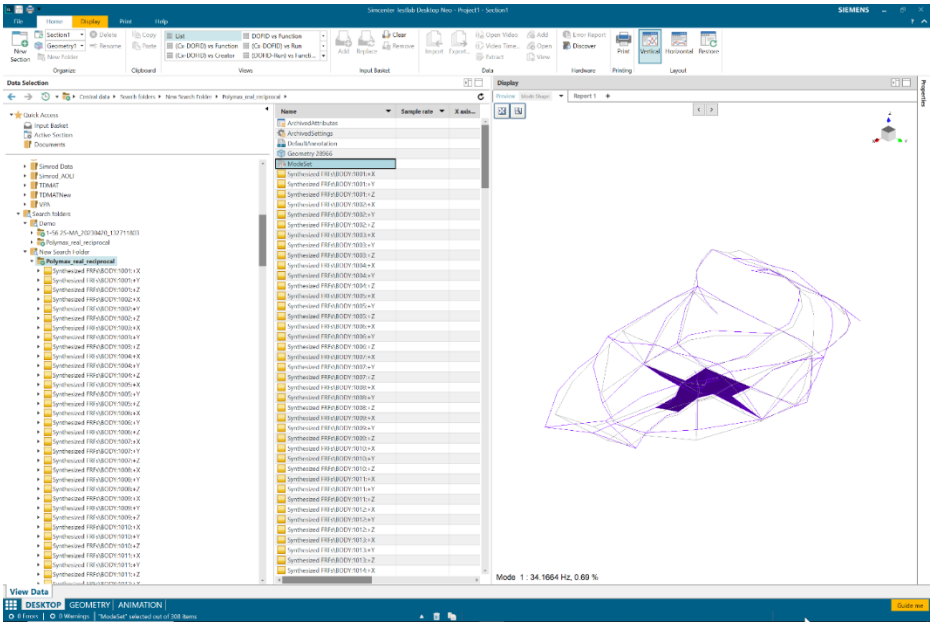


The method calculates the time data corresponding to each angle, which then can be used to do a Fatigue assessment to determine the most damaging plane.

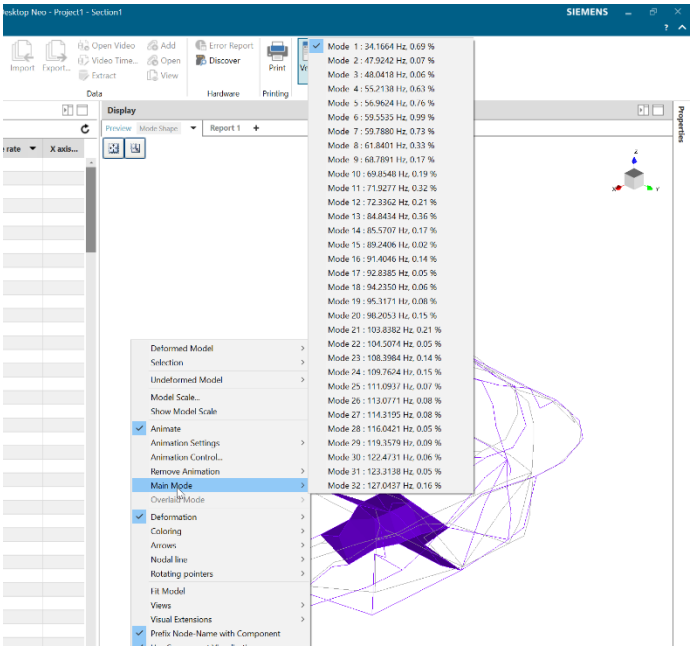
Data Management

Animate modes in central server

With Testlab 2306 release, user will be able to animate modes from the Testlab Data Management server (central server) without having to download the modes upfront. When selecting a modeset from the central server, the preview display will automatically animate the first mode.



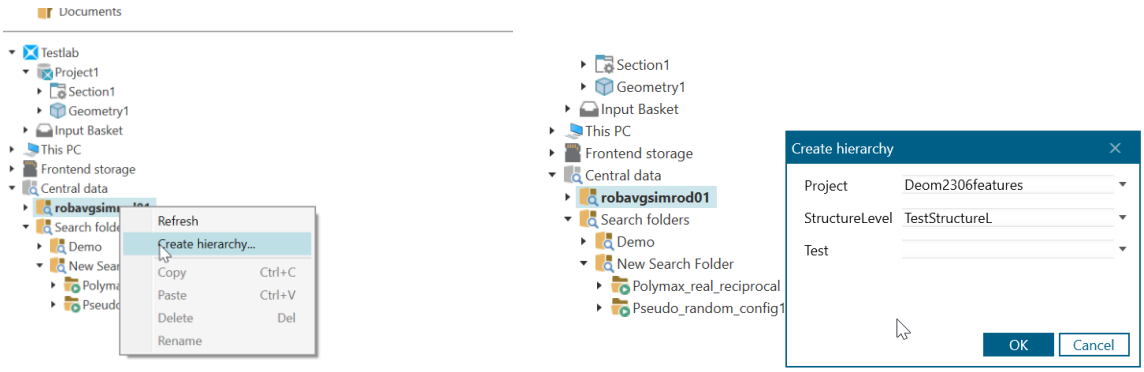
In addition, the 3D display is extended such that user only needs to select a mode set from the central server, then the user can switch from within the 3D display from one mode to another. While using Testlab report, user can also drag and drop a modeset and benefit from the same way to scroll to another mode for animation



Create Hierarchy

Occasionally, creating a new hierarchy by a Team lead might reduce the error of publishing data at the wrong “Path”. Now, Team lead or test engineer can now create a new hierarchy in the central server before publishing any data. User can create:

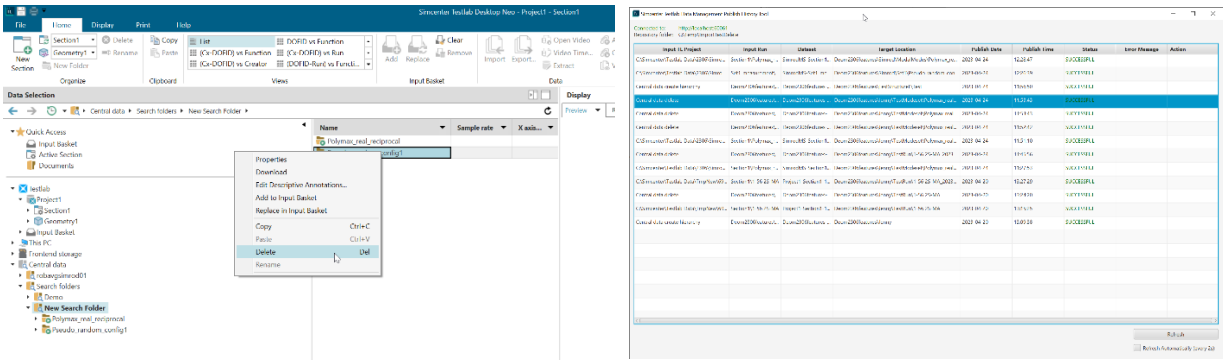
- a new “Project”
- a new “StructureLevel” and/or new “Test” on an existing “Project”



A new task will be created in the “Publish history tool”, when the status is successful, the new hierarchy is then available.

Delete a run (“Teststep”) from the central server

User can now select a “Teststep” from the central server and “delete”.



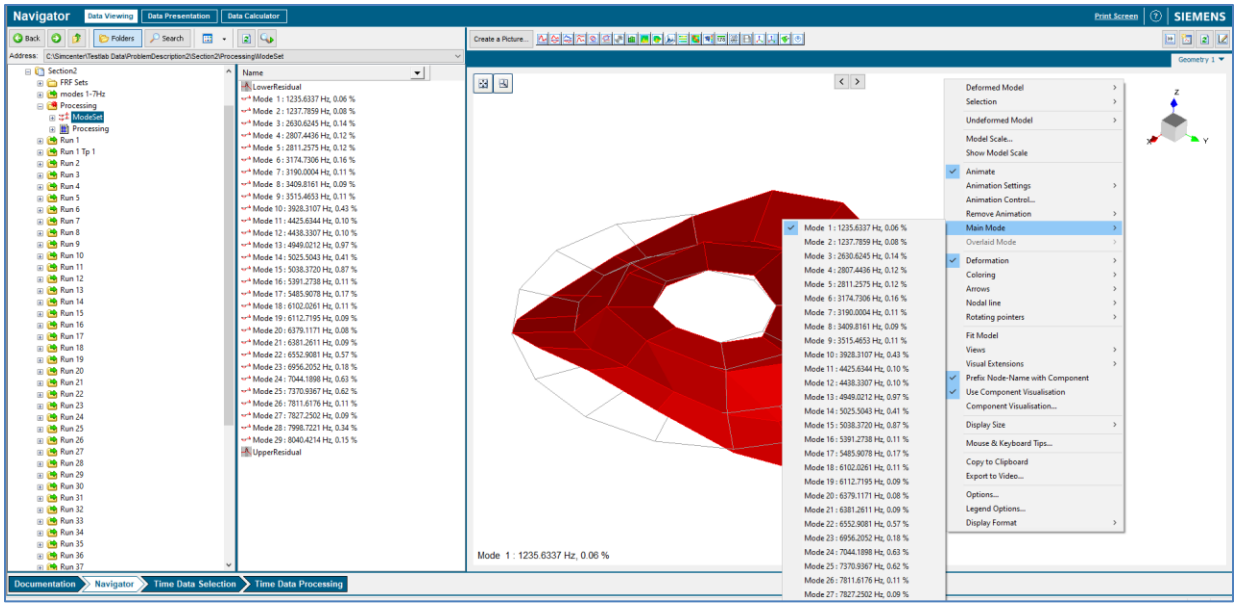
A new task is added in the “Publish history tool”. Once the task is successful, the selected “Teststep” will not be accessible by user anymore. Further cleanup action can be executed by Administrator of the central server.

Simcenter Testlab (Classic)

Desktop

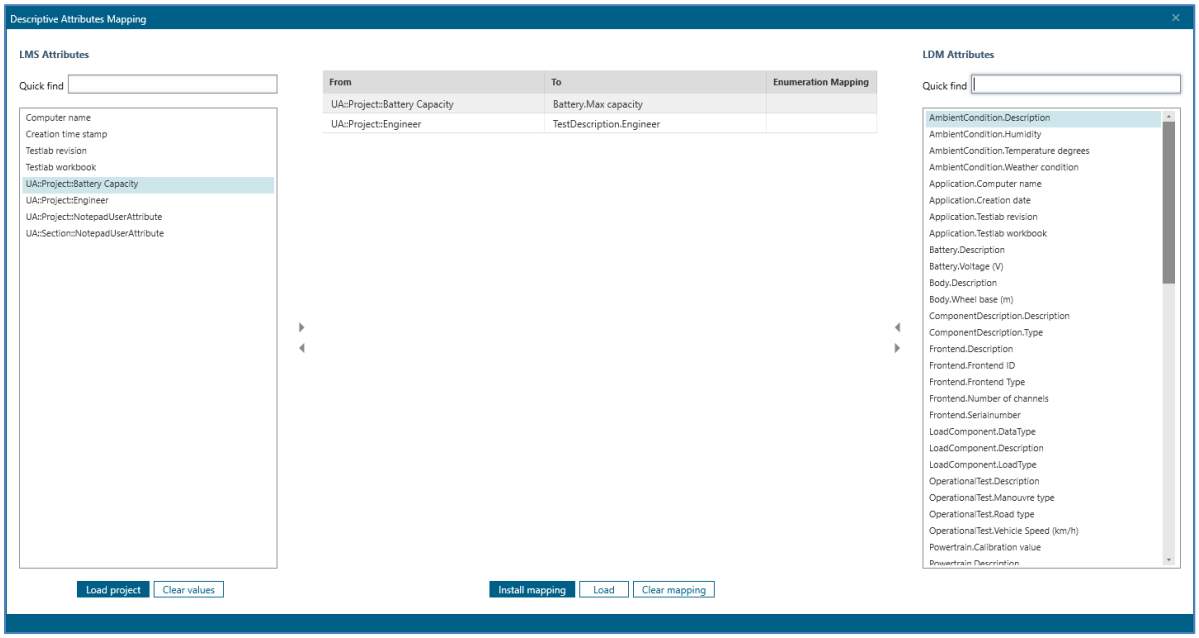
Mode set support in Geometry display

As of Simcenter Testlab 2306, mode sets are directly supported in the Geometry display. A user can drag and drop the mode set in the Geometry display and then scroll to all mode shapes of the mode set. Locally as well as centrally saved mode sets are supported. With this new functionality, the user gets a fast overview of the dynamic behavior of the Unit under Test.



Descriptive Attributes Mapping tool

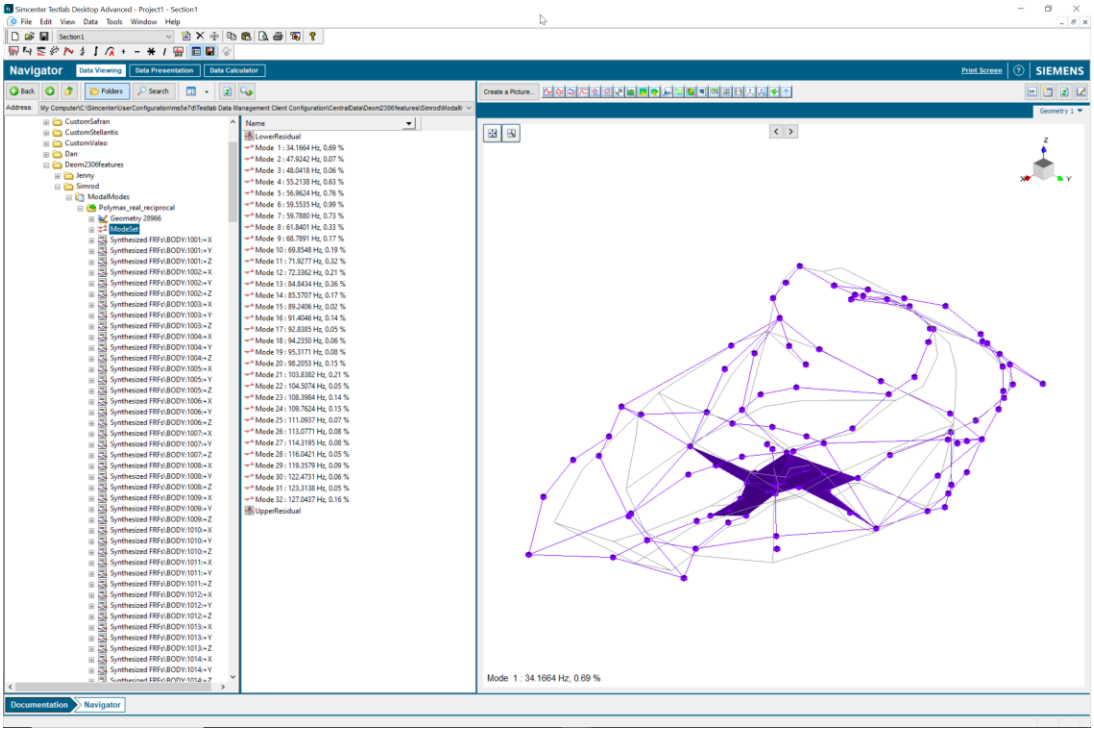
In Simcenter 2206.0001, the new concept of Descriptive Annotation is introduced. When you open a project without this type of annotation or annotation based on an incompatible data model, you are asked if you want to convert your project. When doing so, you can now use the Descriptive Attributes Mapping tool to map the values of the legacy or incompatible properties to the properties of your present Descriptive Annotation data model.



Data Management

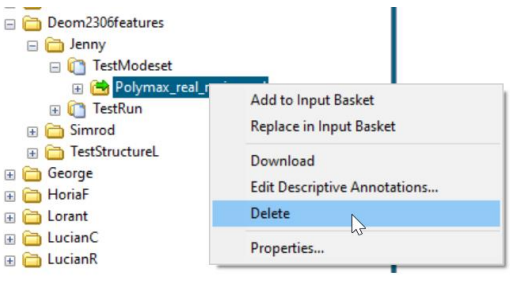
Animate modes in central server

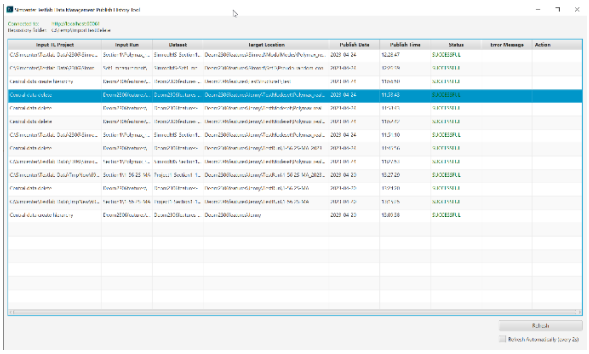
With Testlab 2306 release, user will be able to animate modes of the Testlab Data Management server (central server) without having to download the modes upfront. User can drag and drop a modeset from central server to in the 3D display. In addition, 3D display is extended such that user can switch from one mode to another using previous/next button or popup manual in the display.



Delete a run (“Teststep”) from the central server

User can now select a “Teststep” from the central server and “delete”. A new task is added in the “Publish history tool”. Once the task is successful, the selected “Teststep” will not be accessible by user anymore. Further cleanup action can be executed by Administrator of the central server.





A new task is added in the “Publish history tool”. Once the task is successful, the selected “Teststep” will not be accessible by user anymore. Further cleanup action can be executed by Administrator of the central server.

Acoustic Testing

Sound Source Localization

Enhanced Resolution – new add-in

The former add-ins Irregular Nearfield Holography (iNAH) and Farfield Deconvolution have been merged into 1 single add-in called Enhanced Resolution.

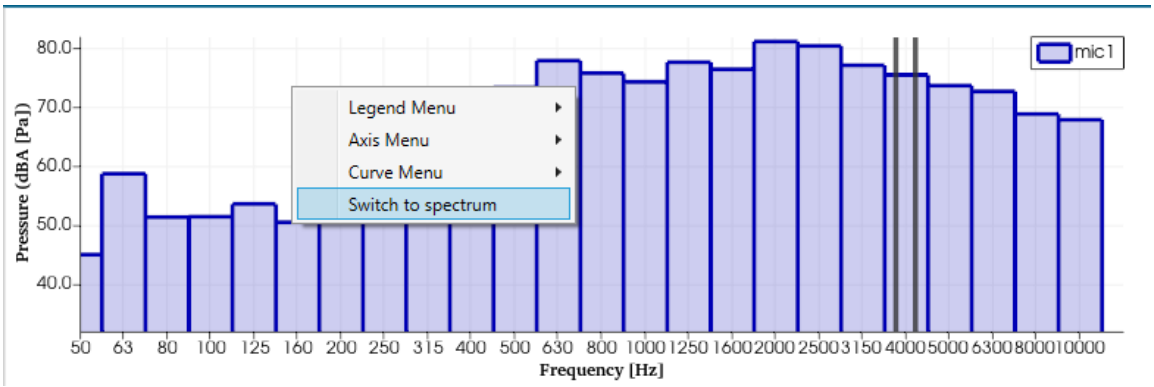
With this new add in, users will now have access to 2 nearfield methods (iNAH and Bayesian Focusing) as well as 2 farfield deconvolution methods (CIRA and Clean-SC).

The new add-in has the same product code as the iNAH add in, therefore no trade-in of licenses will be necessary. The Farfield Deconvolution add-in has been decommissioned, but users with that old Deconvolution add-in will now also have access to the iNAH methods.

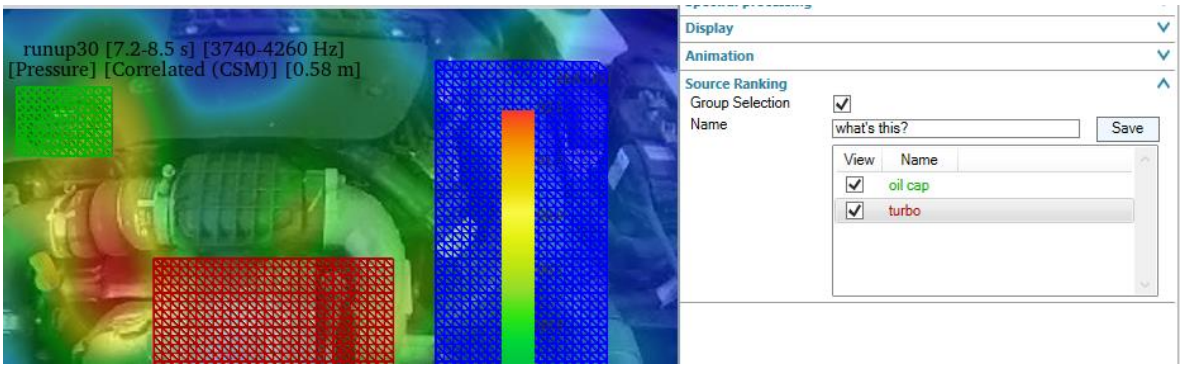
Array Data Analysis

Quick Analysis has been renamed to Array Data Analysis. For 2306 this still comes in a separate installer. For the 2306, this application has been extended with more features from the existing HD Acoustic Camera analysis sheet, as well as the 3D Acoustic Camera worksheet.

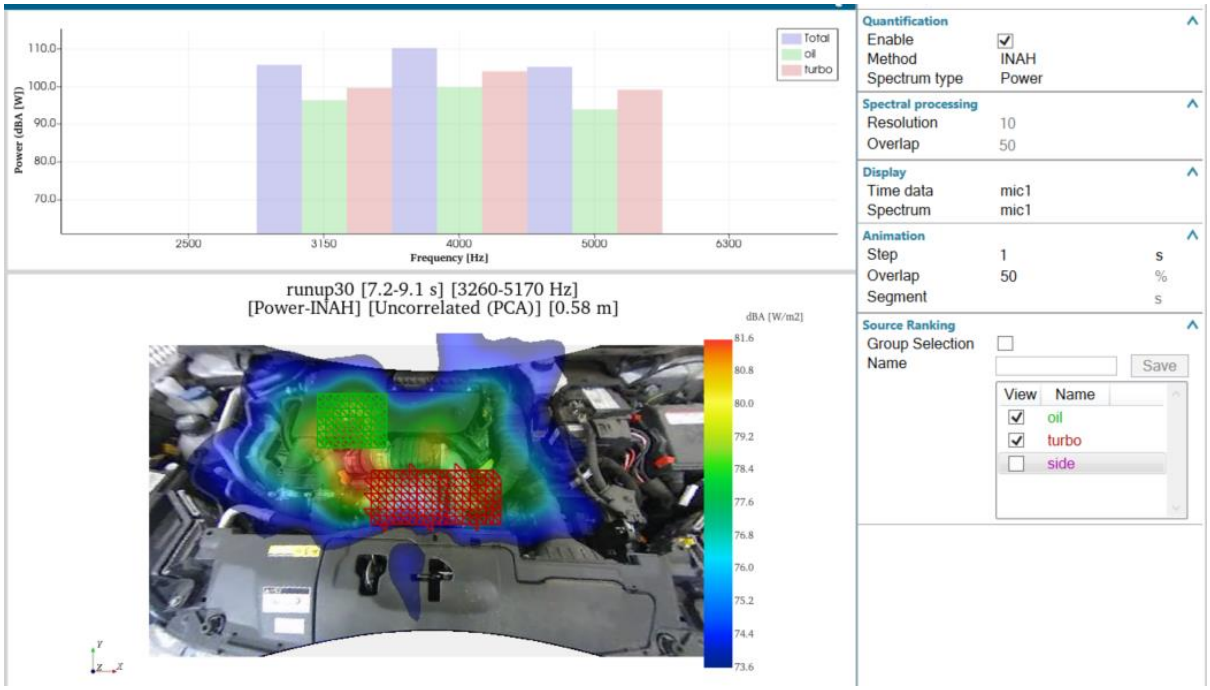
Users can now switch the spectrum display to 1/3 octaves:



Users can now define groups:

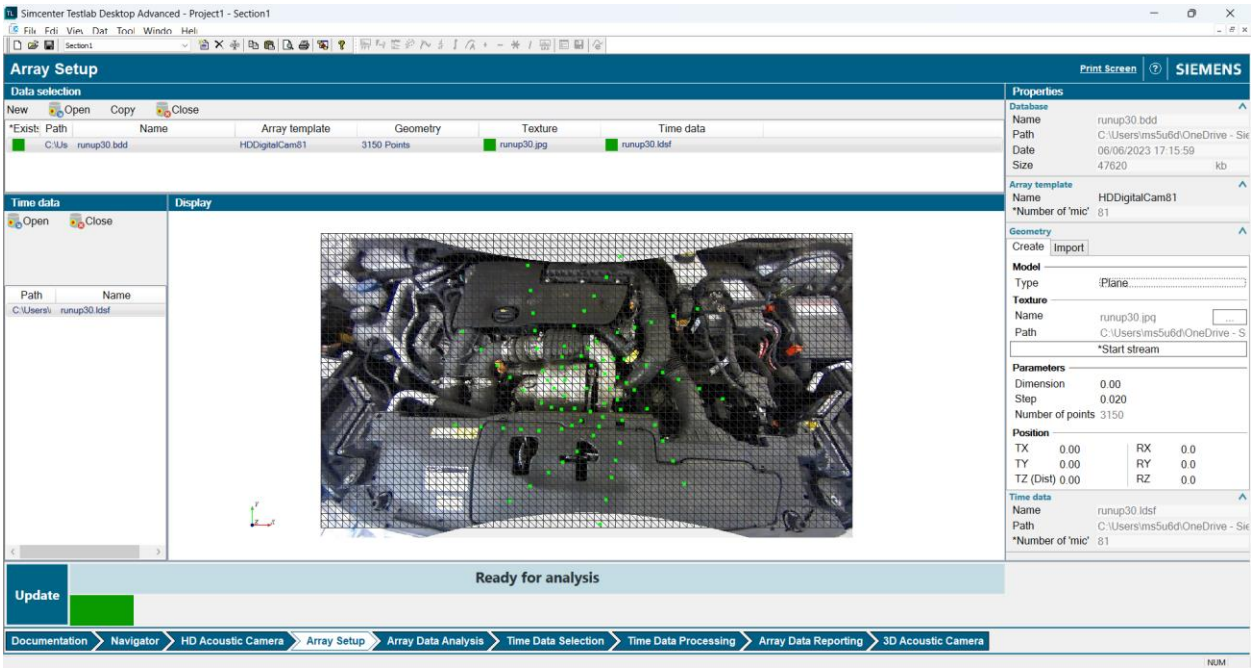


When these groups are defined, the spectral display will show the contribution of the groups to the overall map level. Depending on the used method, this will either be a partial contribution spectrum (using beamforming localization), or a power spectrum (using one the of quantification methods from the Enhanced Resolution add in).



Array Setup

A new module called Array Setup has been added to the HD Acoustic Camera workbook.



With this module a new array setup sheet is introduced that can do array setup for a range of different arrays (2D and 3D) as well different geometries (2D and 3D).

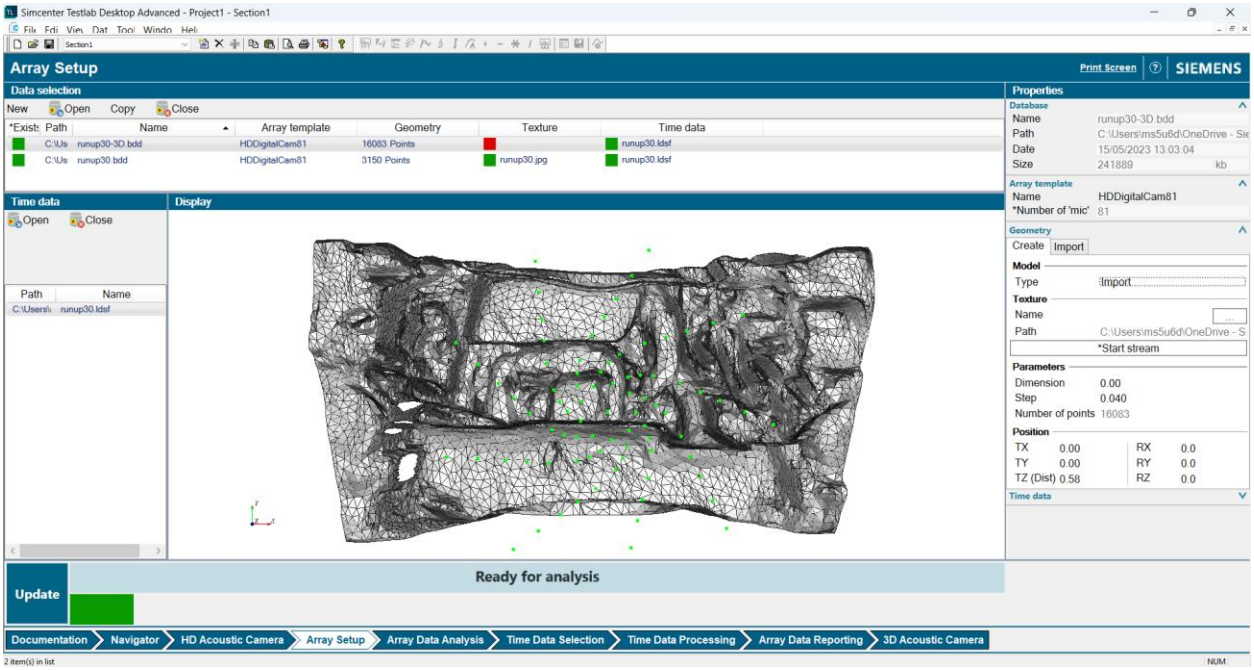
Microphone data is recorded with a standard data acquisition application: on Testlab Classic that can be HD Acoustic Camera or Signature Testing, by using a template. But it can also be done with Testlab Neo (Time Data Acquisition) or Sound Camera Digital Array Software.

The Array Setup defines the grid on which to backpropagate the measured sound. It also allows to take a picture with the connected acoustic camera.

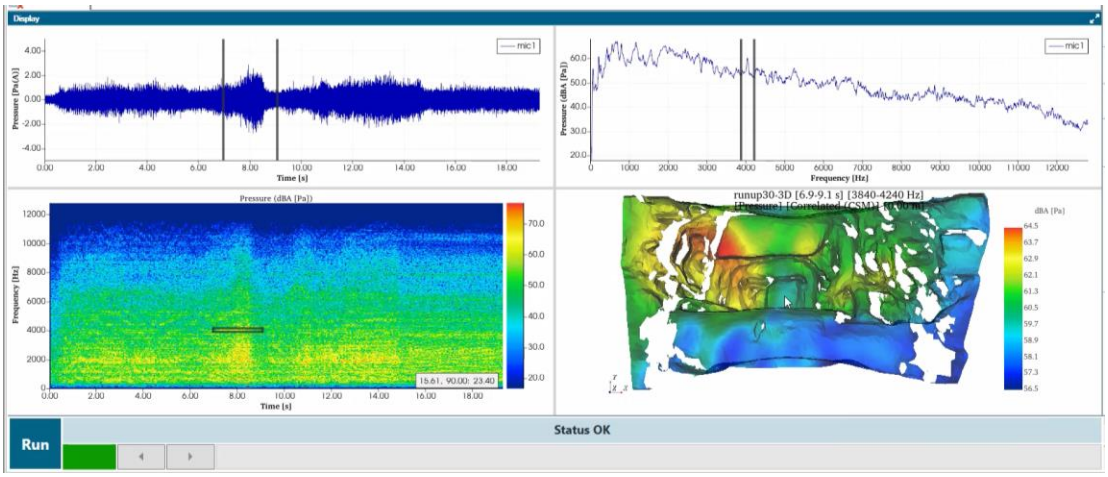
Afterwards, the array setup can be linked with multiple LDSF time data files. When ready for analysis, proceed to Array Data Analysis.

3D geometry support

It is also possible for the user to load a 3D geometry of the object under test.



For 3D geometries, in 2306 source localization can only be done with the beamforming method, and not yet with the quantification methods.



Support Tokens and Subscription

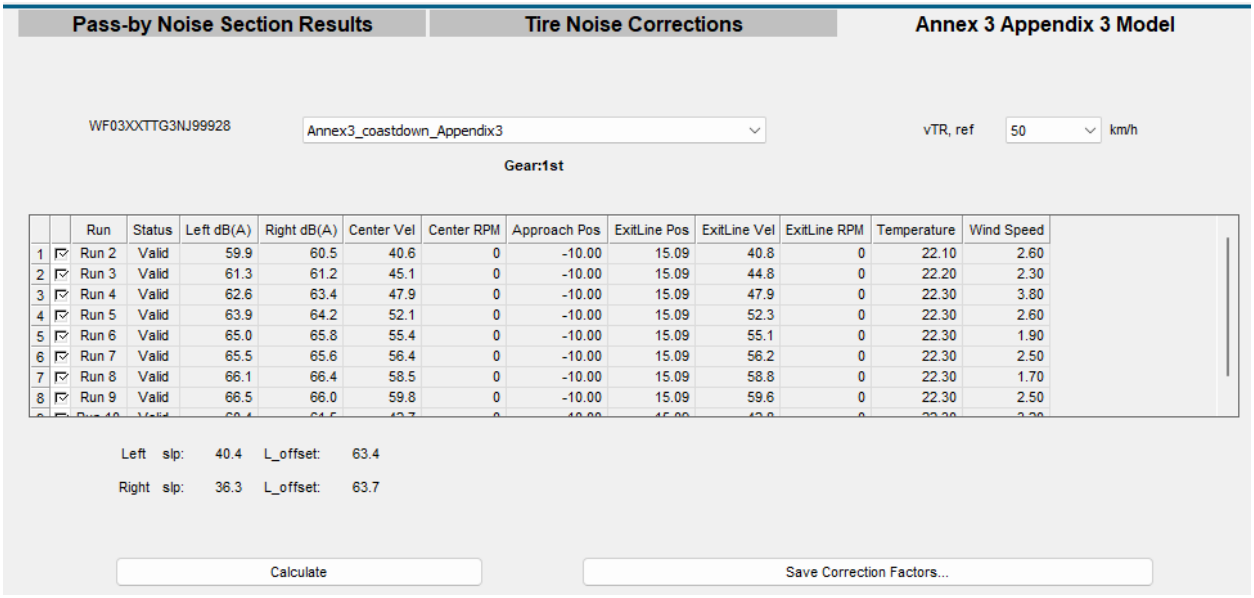
From version 2206.0002 on, all SSL applications are tokenable and support subscription models. That includes the HD Acoustic Camera and its add-ins, 3D Acoustic Camera and its add-ins, and Sound Camera Digital Array Software.

Pass-by Noise

Support Supplement 7 of UN ECE Regulation 51.3

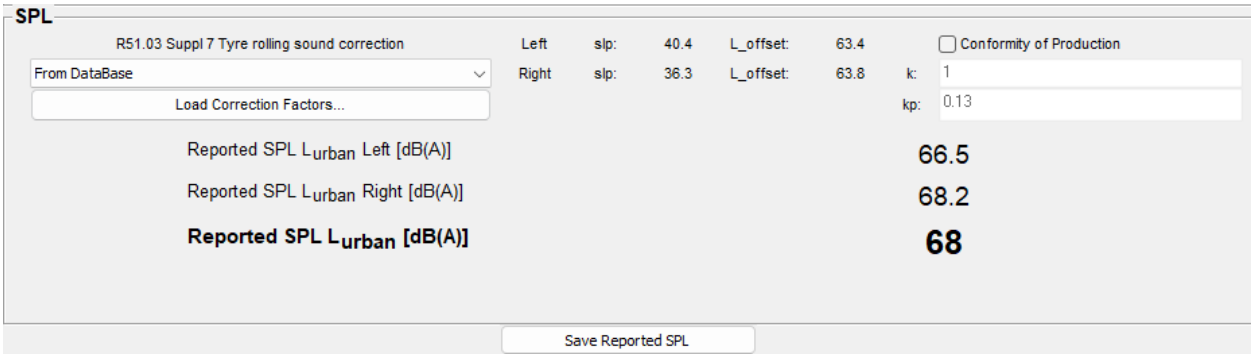
Version 2306 has been extended with support for UN ECE Regulation 51.03 supplement 7. For PBN testers that results in two major changes:

- Annex 3 appendix 2/3: requirement to correct for temperature and track by applying the Sound Rolling Sound Emission model. In 2306 the model can be both derived as well as applied on the normal Annex 3 results. The model requires at least 6 valid coast down measurements.

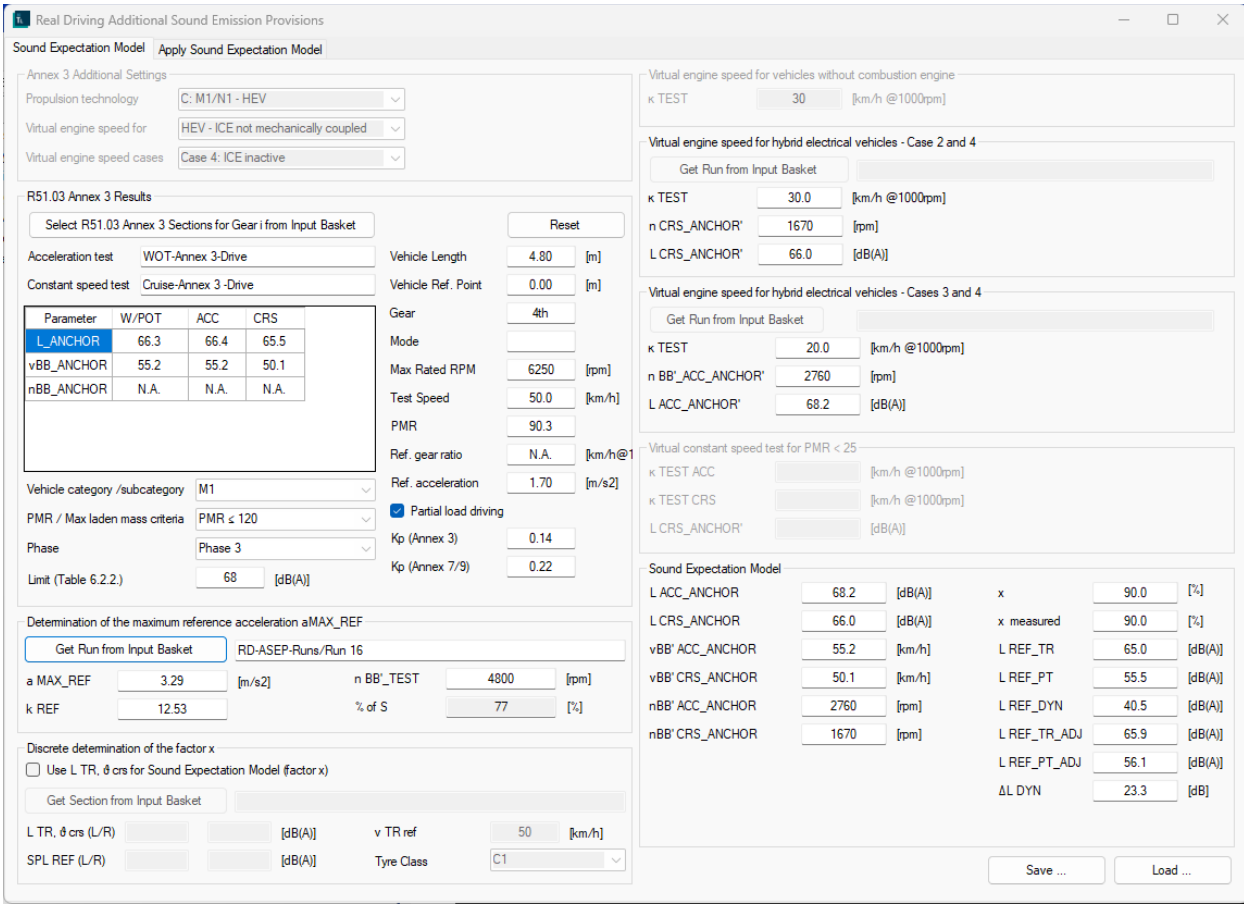


		Run	Status	Left dB(A)	Right dB(A)	Center Vel	Center RPM	Approach Pos	ExitLine Pos	ExitLine Vel	ExitLine RPM	Temperature	Wind Speed
1	☑	Run 2	Valid	59.9	60.5	40.6	0	-10.00	15.09	40.8	0	22.10	2.60
2	☑	Run 3	Valid	61.3	61.2	45.1	0	-10.00	15.09	44.8	0	22.20	2.30
3	☑	Run 4	Valid	62.6	63.4	47.9	0	-10.00	15.09	47.9	0	22.30	3.80
4	☑	Run 5	Valid	63.9	64.2	52.1	0	-10.00	15.09	52.3	0	22.30	2.60
5	☑	Run 6	Valid	65.0	65.8	55.4	0	-10.00	15.09	55.1	0	22.30	1.90
6	☑	Run 7	Valid	65.5	65.6	56.4	0	-10.00	15.09	56.2	0	22.30	2.50
7	☑	Run 8	Valid	66.1	66.4	58.5	0	-10.00	15.09	58.8	0	22.30	1.70
8	☑	Run 9	Valid	66.5	66.0	59.8	0	-10.00	15.09	59.6	0	22.30	2.50

When applying the model, it can be opted to load it from an existing database, or simply take the values that were just calculated. The database is a simple Excel definition file, that could also be exchanged with suppliers.



- Real-Driving ASEP (RD-ASEP): is a complex extension that aims to replace the existing Annex 7 Additional Sound Emission Provisions (ASEP). This RD-ASEP enters into force 1-July-2023. It is mandatory to conduct for type approvals, but under a monitoring phase of 1 year that ends 30-June-2024. After that, an analysis will take place to evaluate the results and tune the many parameters of the model. The goal of RD-ASEP is to ensure that vehicles in operation produce a PBN level that is within limits of an expected sound level. The Sound Expectation model is derived used the standard Annex 3 tests and some additional input. Special cases exist for hybrids that sometimes have their ICE engines on and sometimes not.

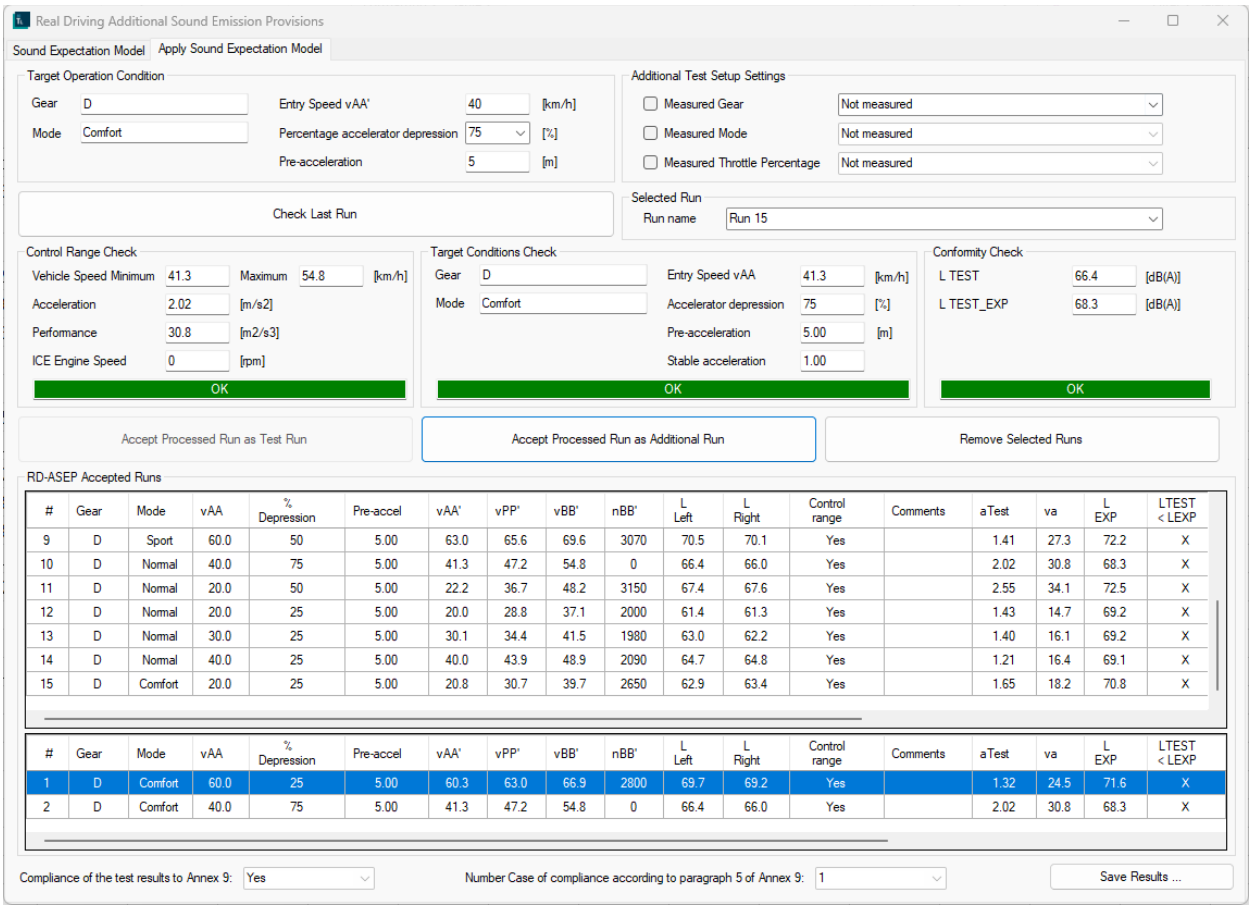


For the application of the model, the Technical Service or type approval authority gets to select 15 target conditions, and up to 3 additional runs. These are selected within a wide operational range: test speed up to 100km/h, including all gears, all vehicle modes, accelerations up to 4 m/s2, and partial throttle conditions.

The expected sound level is then compared against the measured PBN level. Two exceptions within 2dB are allowed, otherwise the vehicle fails RD-ASEP.

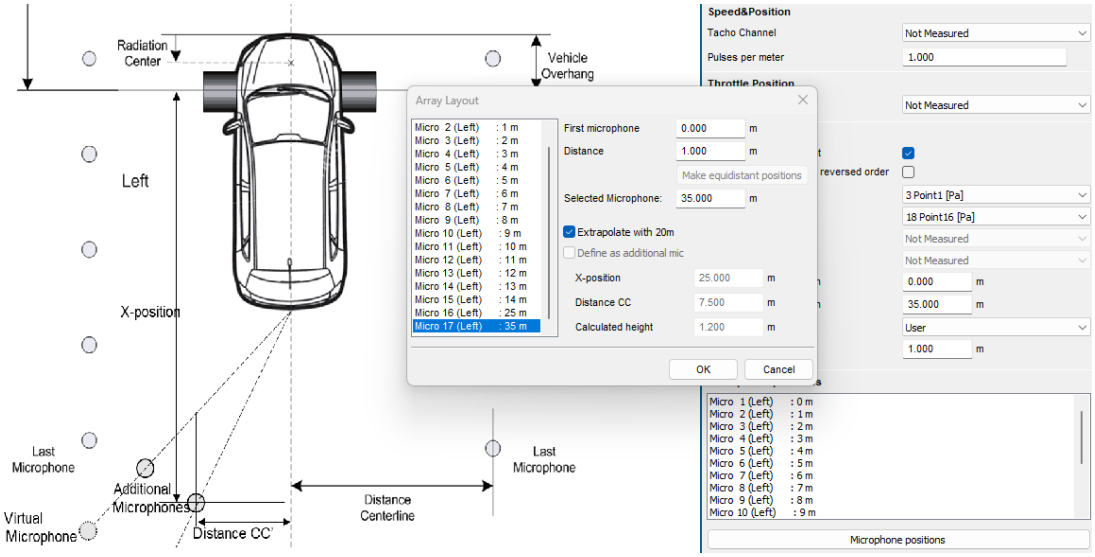
The RD-ASEP application allows to create the Sound Expectation Model, save it for future use, and allows the Technical Service to easily enter the conditions of the test runs.

Afterwards, the results can be exported to an Excel file in the format required by the standard.



In-room PBN support for room extensions: ISO 362-3:2022

ISO 362-3:2022 has further defined requirements to deal with the extensions of the measurement zone. For exterior PBN, the measurement zone has been extended until the rear of the vehicle reaches BB' line plus 20m. The aim is to catch backfire events that occur after the throttle release.



However, for in-room PBN facilities, it is very rare to have a room big enough to cover a total virtual track of 45m (10m before, and 35m after the PP' line). Therefore, two methods are proposed in ISO362-3:2022, both of which are implemented in version 2306:

- Extrapolation of the last microphone: for the last microphone that may be at e.g., +15m, will have its level extrapolated as if it is at +35m.
- Considering it as an additional microphone which is moved closer to vehicle and at a lower height. A virtual microphone location will be calculated with the center rear of the vehicle as the radiation center. User can define for multiple microphones the distance to the center and the X position of the microphone.

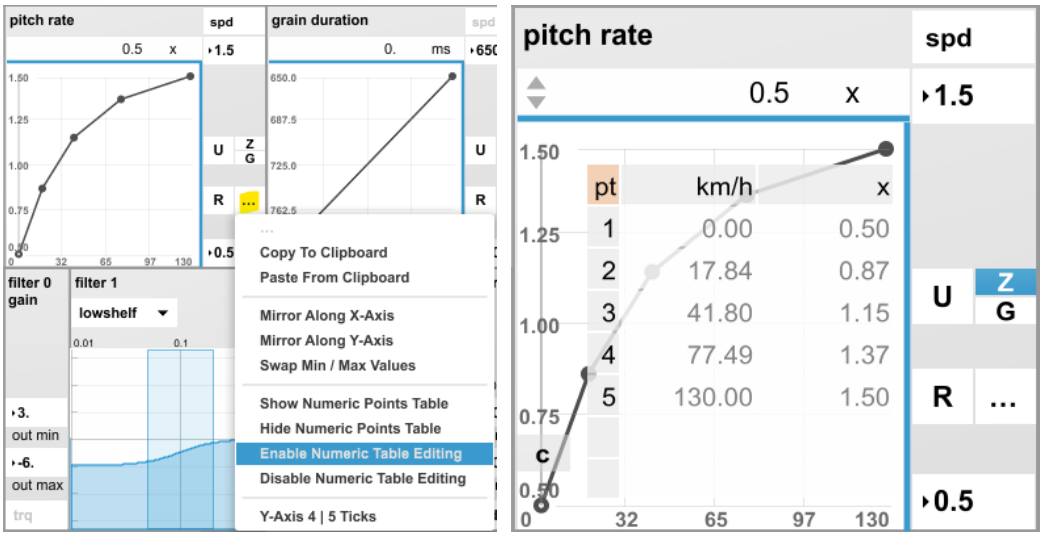
Minor updates standards

- ECE R41.02 standards have been renamed R41.04 and updated to the latest supplements. Hereby we refer to 04 series of amendments which is more common then referring to the R41.2 as the 2nd version. Both of which are correct.
- The F76A standard for motorbikes, has been renamed to EPA 40 CFR Part 205 D. This American motorbike standard was often informally referred to as F76A but has now been changed to its official name.

Sound Designer

For version 2306, Sound Designer has been updated with several smaller features. To highlight 2 of them:

Usability of envelope tiles



The envelope tiles have been extended with functionality to edit the breakpoints in a table, and an option to zoom the tile. The button […] opens up a pop-up menu allowing various operations and modes on the envelope tile: the Numeric Table view allows to exactly show or edit break points; the copy/paste option will copy the set break points from one tile to the other; mirror functions allow convenient edits.

The Z button zooms the envelope with a factor 2, allowing more detailed editing.

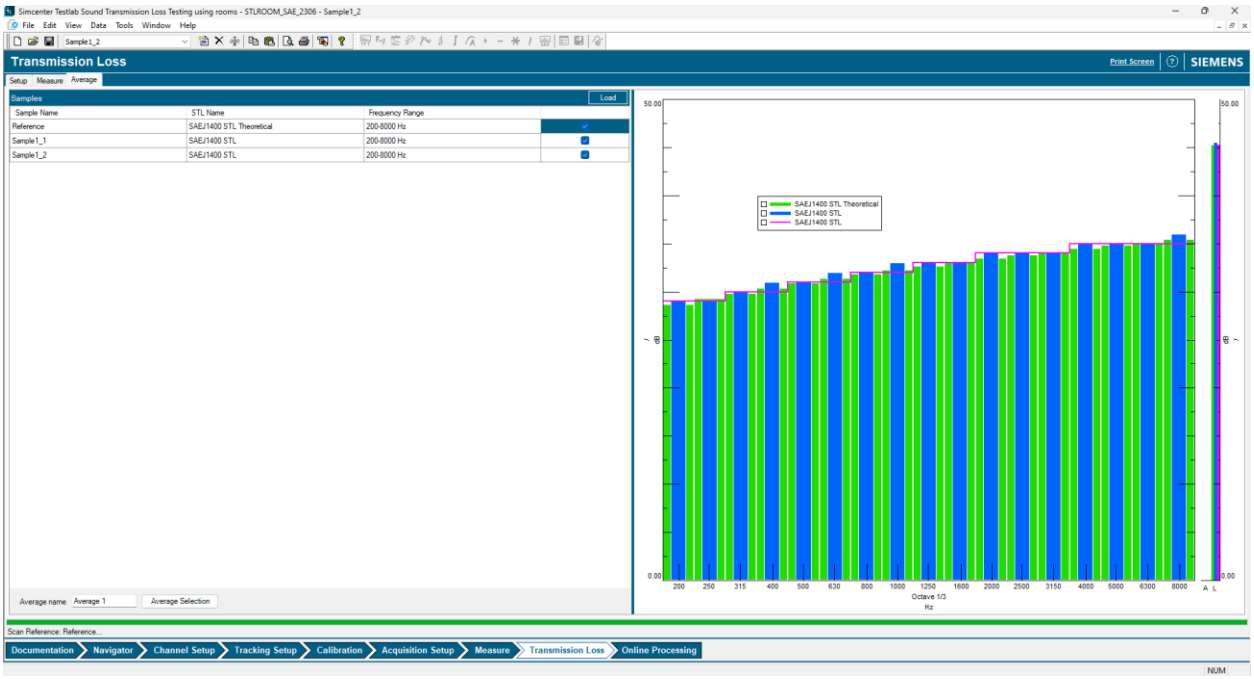
Management of slots

Several extensions were made to improve the ease of use of managing slots. That includes bulk deletion of slots, renumbering slots.

Material Testing

Sound Transmission Loss using Rooms

Has been extended with a minor sheet to calculate averages between different runs.



Also, the application has been extended with the option to reset measurement parameters before every run to a set of default parameters. If the user wishes, this can be overruled by disabling this option.

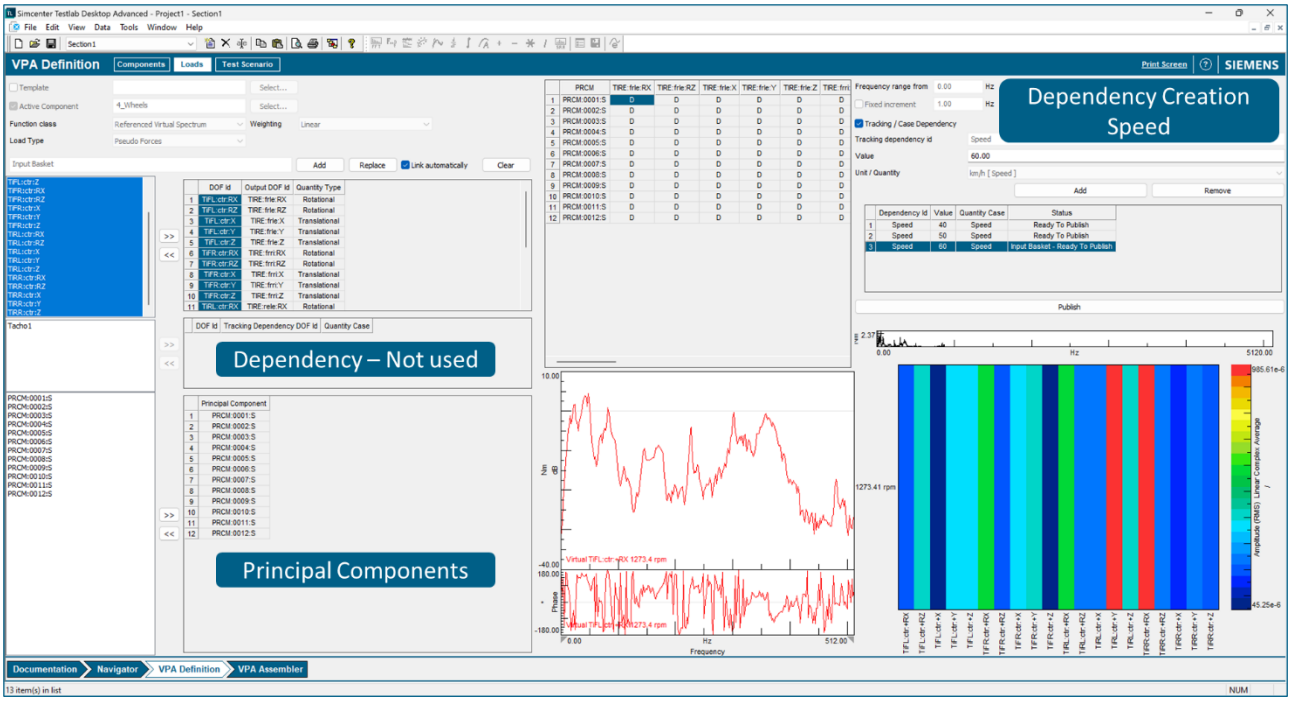
Sound Transmission Loss using Impedance Tube

Has been extended with a minor sheet to calculate averages between different runs over different samples.

Virtual Prototype Assembly

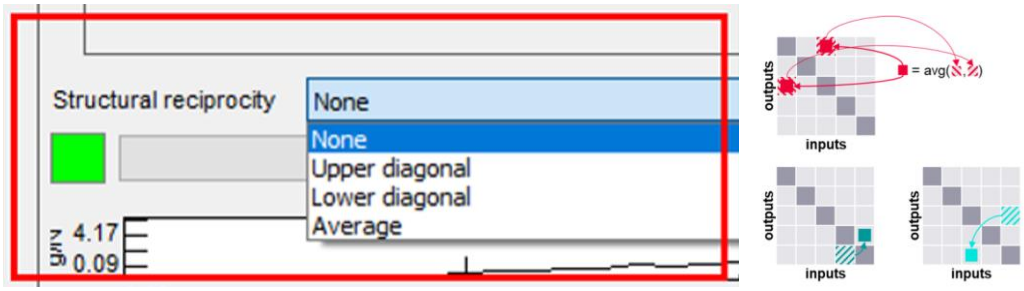
Improved support for Road Noise prediction

It is now possible to create Load components using Referenced Virtual Spectrum (based on Principal Components). Furthermore, it is possible to store multiples speeds loads in the same component. This allows the user to have a single component containing all the information related to the Tire/Wheel Loads.



Model precisely complex assemblies

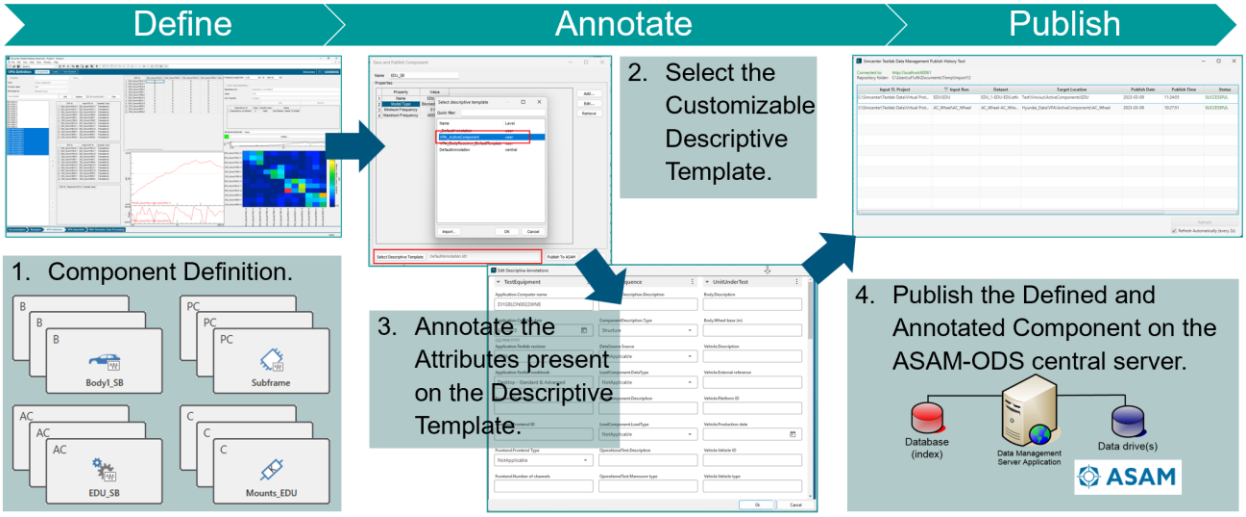
It is possible to enforce the Component Linearization/Reciprocity by selecting which FRFs to be used on the structural component. The options are Upper Diagonal, Lower Diagonal and Average.



Furthermore, it is possible to publish incomplete structural components, with missing FRFs.

Publishing VPA Components on the ASAM-ODS server

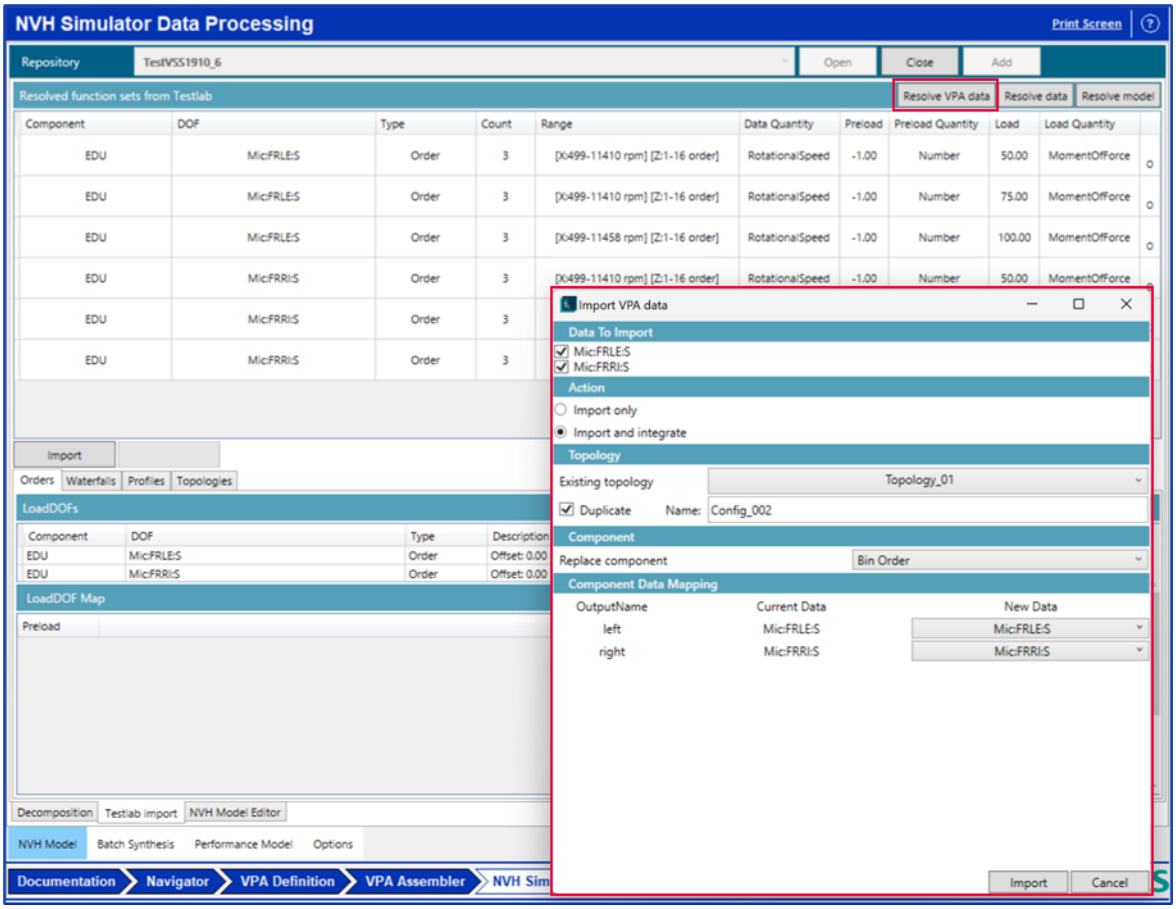
The process to publish VPA Components on the Central Server is simplified. After defining the VPA component on the traditional way and pushing the Publish button, it is now possible to select the Descriptive Template to be applied. After giving the component a name, selecting the template and start the publishing process the Descriptive Annotation window opens, with the relevant VPA attributes already linked, and extra annotations can be performed. Once this is done, the component is ready to be published.



NVH Simulator

Integration VPA and NVH Simulator

Within this release of Simcenter Testlab, the creation of NVH models was improved, allowing a smooth integration with Virtual Prototype Assembly data. A dedicated button and interface support the user to correct import the results of the VPA processing. This allows the user to subjectively evaluate several assemblies and components combinations together with or without the masking noise decomposed from test campaigns. Furthermore, it allows a convincing demonstration of noise predictions to (non-expert) decision makers in early phase of the product development.



Live Spectrum

The Simcenter Testlab Real Time Synthesis application can be combined with the Advanced Audio Replay add-in allowing the representation of the instant, averaged, and map spectrum and the usage of audio filters. More information is available on the Simcenter Testlab Neo section of this document.

Environmental Testing

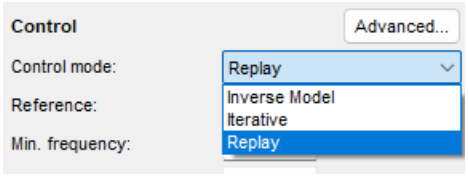
Support of high-density V24 modules in ENV products

As of Simcenter Testlab 2306 the high-density V24 modules are supported in Vibration Control modules with the limitations of maximum 10 kHz bandwidth for all the control workbooks and sine reduction. The limitation does not apply to random and acoustic reduction.

Multiple control modes in Shock & MIMO Shock Control

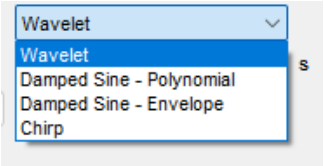
As of Simcenter Testlab 2306, multiple control modes are introduced in Shock & MIMO Shock Control. A control mode can be selected via a dedicated dropdown between these options:

- Inverse Model: it is the legacy control mode for Shock Control
- Iterative: it is a new time-domain iterative control mode based on a unique inverse convolution algorithm. Optimal for large stroke-hydraulic shakers or applications where linearity of the system at high levels is not guaranteed.
- Replay: open loop replay of pre-stored drives. It allows to replay without control shocks achieved in a previous run.



New damped sine formulation

The use of the legacy damped sine waveforms implemented in TL up to release 2206.0002 can lead to large displacements that may be limiting for the test-rig. This formulation is still available in Simcenter Testlab Shock & MIMO shock Control 2306 by selecting the shock component type “Damped Sine – Envelope”

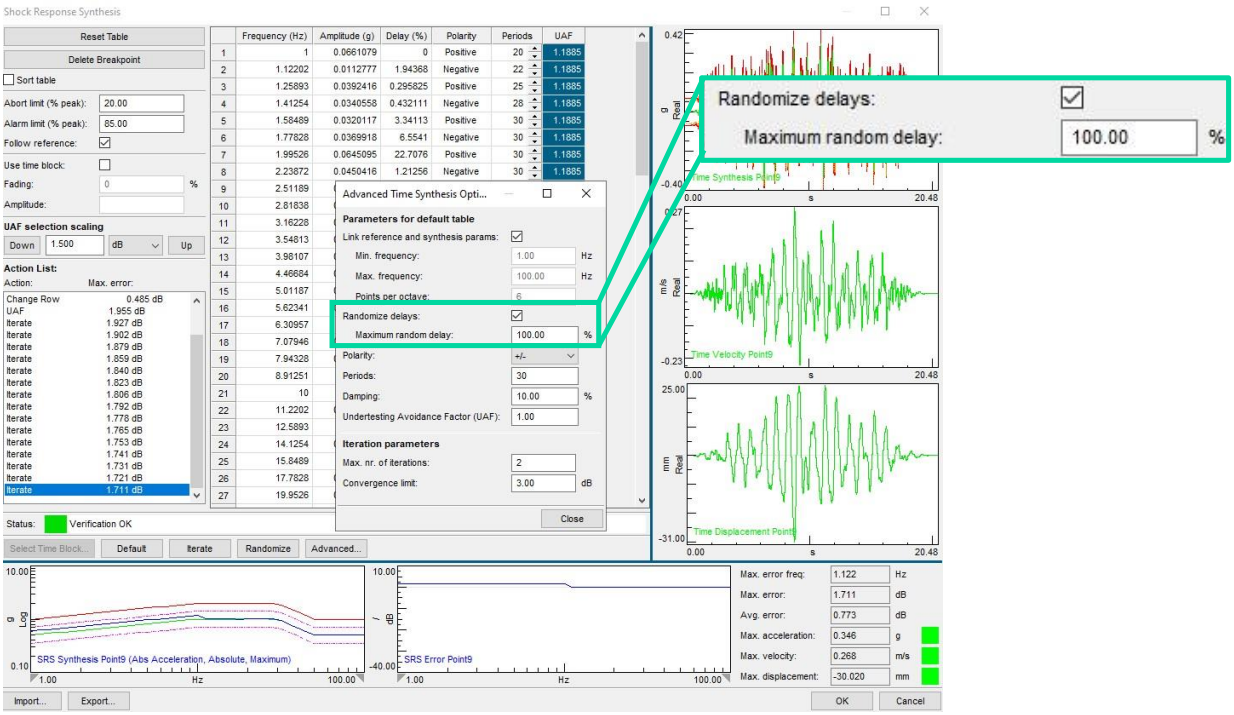


As of Testlab 2306, a different formulation for the damped sine waveform, the “Damped Sine – Polynomial”, is implemented. This formulation guarantees minimum velocity and displacement at the end of the shock and reduces the required stroke of the shaker during the shock.

Random delays for Shock Synthesis

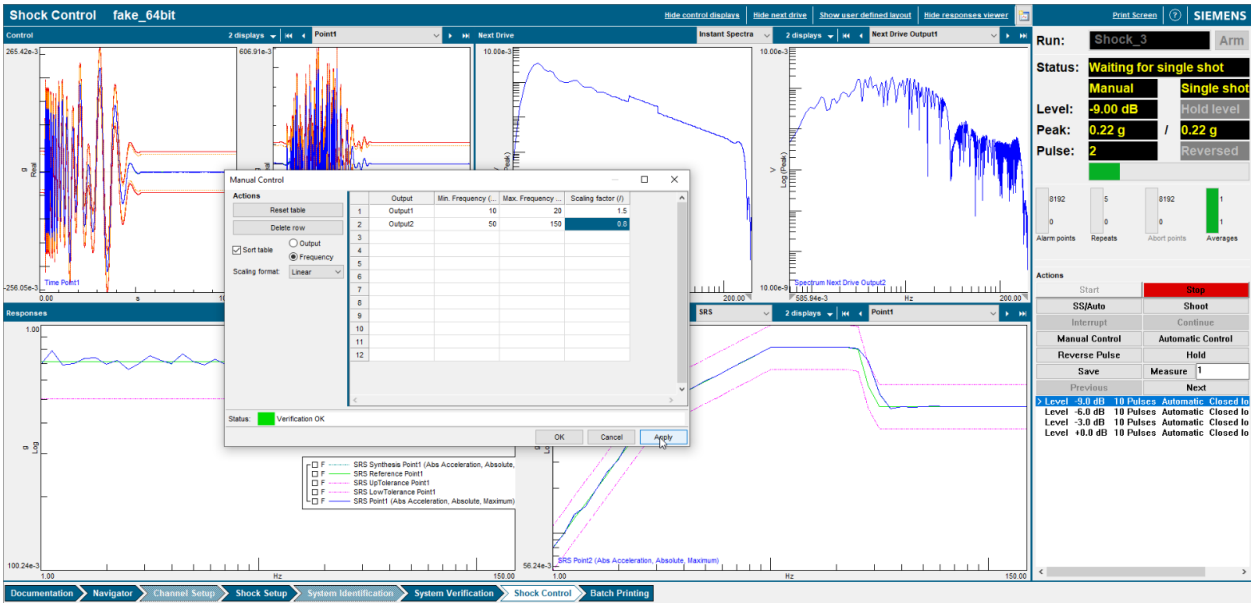
As of Simcenter Testlab 2306 it is possible to define random delays in shock synthesis. The randomization, which can be set between the start of the pulse and a % defined in the numeric field, allows to introduce a certain degree of control over the energy distribution of the shock. This is critical for

tests where the waveform synthetized from a reference SRS cannot have a concentration of energy in a limited time window, for example seismic tests that need to comply with IEC/IEEE standard.



SRS Manual Control

As of Simcenter Testlab 2306 a manual control mode is available as online interaction when running an SRS shock (SISO or MIMO) control test. A manual control dialog allows the user to select the drives to modify, define the modifications to be applied, visualize and apply the modifications. This feature is extremely useful in case of additional manual fine tuning needed in cases where the controller reaches convergence.



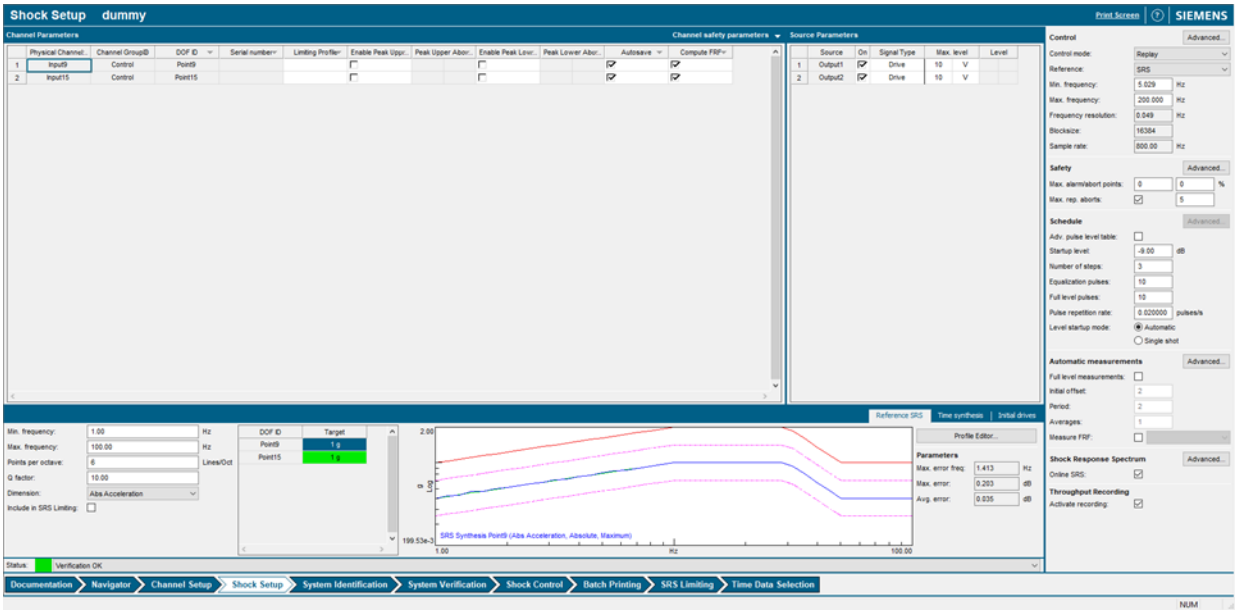
MIMO Shock Control

As of Simcenter Testlab 2306, MIMO Shock Control is introduced as add-in on the Shock Control Workbook. It allows for the simultaneous iterative control of up to 4 controls and 4 drives for MIMO SRS-based shock control tests. The add-in is the ideal solution for SRS closed loop shock testing with bi-axial and tri-axial exciters, for example

- multi-axis seismic tables,
- multi-axis shock machines,
- multi-axis electrodynamic shakers,
- multi-axis electro-mechanic exciters.

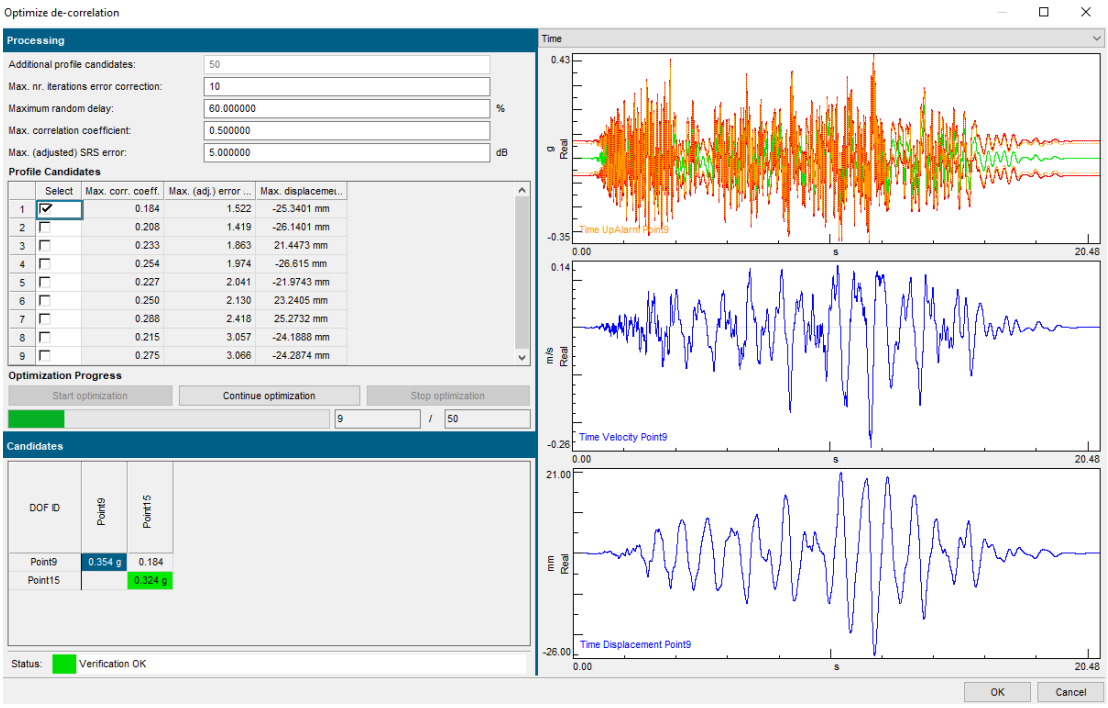
It also allows for control of multiple independent exciters simultaneously.

The system implements a safe, easy, fast, accurate and reliable MIMO control iterative algorithm.



The functionalities of Shock Control are extended to cover the use case of multiple controls and drives with the MIMO shock control add-in.

A unique cross-correlation optimization tool allows to derive shocks that are maximally decorrelated from multiple SRSs, in accordance with the IEC/IEEE standard 60980 for seismic testing.



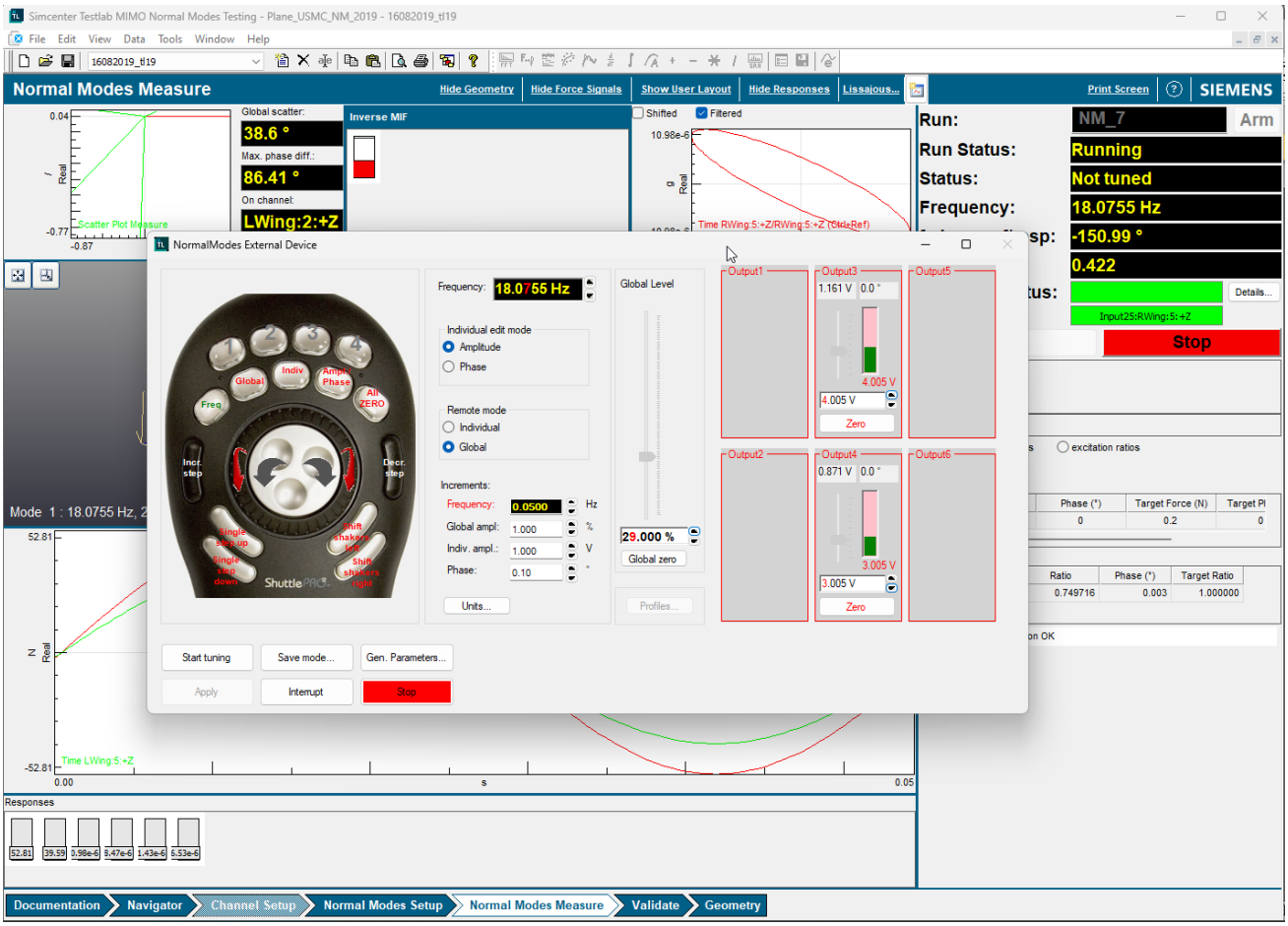
Structures Testing & Analysis

MIMO Normal Mode Testing

With this release, the traditional measurement flow in Normal Mode Testing has been modified, to minimize the number of steps needed to tune and save mode, thus increasing the testing efficiency.

New drive control interface and measurement flow

In particular, the way the user interact with the drives has no changed. When arming the frontend and starting the measurement, the application immediately go into manual tuning mode and a control interface is launched.



This new interface allows to interactively control the frequency, the global level as well as the amplitude and phase of each individual active drive.

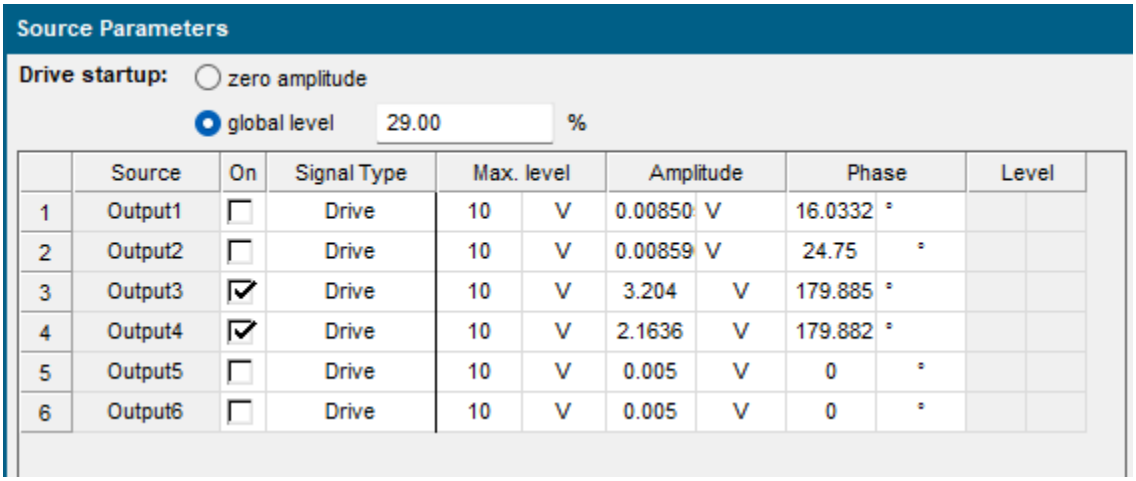
This UI is now also the new dashboard giving access to the commands to control the measurement. Without having to stop and restart the measurement, the user can now:

- start an Automatic Tuning
- Save the current mode
- Proceed to Generalized Parameters calculation step to obtain the damping and generalized mass for the current mode.

The right portion of the Normal Modes Measure worksheet, that was traditionally hosting these control, now shows the excitation and force ratios. From here, the user can switch to excitation ratios control mode to adapt the forces to match the specified target force ratios.

Drive definition at startup

Traditionally, when the measurement was started, the specified amplitudes and phases as specified in the Source Parameter tab of the Normal Modes Setup sheet ere applied. This however could have cause transients and even risked damaging the structure.



	Source	On	Signal Type	Max. level		Amplitude		Phase		Level	
1	Output1	☐	Drive	10	V	0.00850	V	16.0332	°		
2	Output2	☐	Drive	10	V	0.00859	V	24.75	°		
3	Output3	☑	Drive	10	V	3.204	V	179.885	°		
4	Output4	☑	Drive	10	V	2.1636	V	179.882	°		
5	Output5	☐	Drive	10	V	0.005	V	0	°		
6	Output6	☐	Drive	10	V	0.005	V	0	°		

To avoid this, the amplitude and phase values in the table are considered the “target” one. The user can now choose to start the measurement with zero amplitude or at a percentage of the global (target) level.

During the build up time after the measurement has started, the drive will progressively reach the specified level. If the user decide to start at zero amplitude, the Startup time can now be set to 0.

Finally, when the application asks to reuse tuning condition, if the users chooses yes the individual drive level, as well as the global level percentage, will be stored so that the user will be able to restart at the exact same conditions.

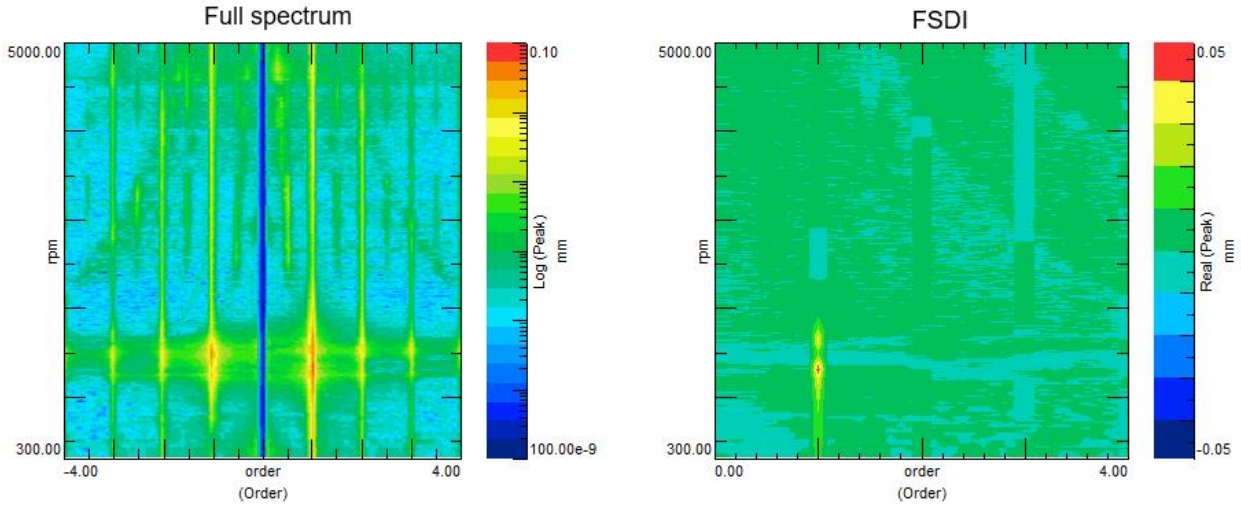
Transient delay time

In the past, the user could specify the transient delay during tuning iterations in the Setup worksheet, and the first iteration delay when performing a SDOF or Complex Power calculation in the generalized parameter dialog. However, to change the regular iteration delay it was necessary to Disarm the frontend, go back to setup, return to measure and rearm again.

Now both settings are available in the Setup as well as the Generalized Parameter dialog and can be changed without having to Disarm. What’s more, the settings are linked so changing them in one dialog will automatically persist them globally.

Rotor Dynamics Processing

It is now possible to calculate the amplitude difference between the positive and the negative part of a full spectrum through a feature called FSDI calculation. It allows to enhance the positive or negative precession of the shaft motion.



FSDI enhances the positive or negative precession content

Full Spectrum can also be calculated for any probe pair position, not only for the typical orthogonal case.

Recommended PC Hardware

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

• Dell Precision 7550

• 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 2306 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.

Simcenter Testlab 2306 is also supported on Windows Server 2012, Windows Server 2016 and Windows Server 2019 for the analysis applications. When starting the Simcenter Testlab installation program on Windows Server 2012. Windows Server 2016 or on Windows Server 2019, 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

2012, Windows Server 2016 and Windows Server 2019 required different prerequisites. To install those, several reboots might be needed.

Simcenter Testlab 2306 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.