

How To Setup Dewesoft X DAQ Software



How to enter the Settings?

Dewesoft has been developing leading data acquisition software for more than 20 years. <u>Dewesoft X</u> is the world's best data acquisition, recording, and data analysis software. Software received multiple international awards, is innovative, very easy to use, and requires no programming to acquire, store and analyze data from analog, digital, CAN, GPS, video, serial, and many other data sources.

After you have successfully <u>downloaded</u> and installed the Dewesoft software it is time to set it up according to your needs. To access the settings in <u>Dewesoft X</u>, go to the top right corner of the program.



Image 1: Entering settings button

When you open the Settings, the following screen will appear, which shows us the basic structure:

Settings						
Q	DEVICES					
Devices	Operation mode		Real measurement			~
Extensions	$\mathbf{\hat{C}} \boldsymbol{\otimes} \boldsymbol{\hat{C}} = \mathbf{\hat{C}}$	⊗ Synchronization				_
Global variables	✓ ☆ Local system	Time source		Dewesoft DAQ Devices	~	r
Data header	V · A DEWESoft Devices	Dewesoft DAQ Devices Clock provider Standalone		Automatic	~ Ø)
U Startup		⊘ Settings				_
Performance		Channel setup sample rate		20000	s/s/d	h
User interface		Enable DSI adapters, TEDS se	ensors		0	<u>;</u>
Files and folders		⊘ Dewesoft NET				
Storing		Allow remote connections to t	his system		0	,
Reports						
Security						
Update						
X Advanced						
Licensing						
					OK Ca	ncel

Image 2: Dewesoft settings structure

• Devices - view the connected DAQ devices (Real measurement mode) or simulate channels (Offline mode) to make an offline setup.

Off	fline mode	~
Rea	al measurement line mode	
OII	Image 3: Dewesoft settings operation mode	

- Real measurement (DAQ devices (SIRIUS, DEWE-43, KRYPTON) are used to acquire data.)
- Simulation (Offline mode can be used when we don't have any DAQ devices connected to our system and we want to simulate different types of channels to make an offline setup.)
- Extensions Add a plugin or extension according to your needs.
- Global variables Define the channels, that can be used in a sequencer, math section, or in displays.
- Data header Define the input fields for different operators.
- Startup Allow multiple instances of <u>Dewesoft X</u> or load a setup or a sequence as soon as <u>Dewesoft X</u> starts.
- Performance Select the application process priority, use multiple CPU cores, and define other performance characteristics.
- User interface Adjust <u>Dewesoft X</u> according to your wishes change the language, font size, background color, and many other settings.
- Files and folders Define the starting folder where the setups, data files, and other database files are stored.
- Storing Create a zipped data file to reduce the file size or use the video compression.
- Reports Use your own company logo in reports when printing the data file.
- Security Lock the settings with a password. A password can also be used to change the setup, editing sensors, stopping the measurement, changing the sequence, or leaving the full screen.
- Advanced Set an advanced option for different areas, like hardware, visuals, math, diagnostics, and analysis.
- Licensing Enter license number and register software. You can choose between online or offline registration. To receive a fully functional 30-day evaluation license for <u>Dewesoft X</u> software fill and submit the <u>form</u> on our <u>web page</u>.

How to setup the Real measurement?

In the Real measurement mode, we can see all the devices that are connected to our system.

All Dewesoft devices (SIRIUS, DEWE-43, KRYPTON, SBOX, ECAT-SYNC JUNCTION) are automatically recognized, but there are some devices, that can't be connected automatically.

SBOX System (Local)	Serial number		D00C9BCC6
DEWESoft Devices	Hardware version		2.4.0.
	Firmware version		3.
▲ -ላሎ EtherCAT ላሎ SYNC JUNCTION 	Remote mode To power on/off the system on remote external pin	Disabled	
	⊗ Synchronization		
	Time source	Dewesoft DAQ Devices	
	Dewesoft DAQ Devices Clock provider IRIG-B DC	Automatic	• @
	⊗ Settings		
	Settings Channel setup sample rate	20000	s/s/c
	 ⊘ Settings Channel setup sample rate Enable MSI adapters, TEDS sensors 	20000	s/s/d
	Settings Channel setup sample rate Enable MSI adapters, TEDS sensors O Dewesoft NET	20000	s/s/d

Image 4: Dewesoft settings

On the left side of the window, the structure of the system is shown. On the <u>SBOX</u> system, we connected USB devices (<u>SIRIUS</u>, <u>DEWE-43</u>) and EtherCAT devices (<u>KRYPTON</u>, <u>ECAT-SYNC JUNCTION</u>).



With the plus button, we add devices that are not recognized automatically and with the minus button, we can remove them.

$\mathbf{O} \mathbf{O} \mathbf{O} \mathbf{O}$
✓ ☆ SBOXe System (Local)
Dewesoft Devices
····-w SIRIUSi
w- EtherCAT
Image 6: Dewesoft settings add

device

When adding a new device, we can select many different devices (Camera, Automotive bus, Dewesoft NET...).

	Add multiple 😯 Refresh		
Detected devices	Automotive bus	ADMA Ethernet	Sensor
🚥 my device isn't listed	Vector CAN	S DS-IMU	S DS-GYRO
Dewesoft NET	Test CAN (replay mode)	Navion	KiRoad
LEFINATOR-CAL	010001 CMP	👏 NMEA GNSS	K RoaDyn2000
A SERVIS-20190348	FlexRay	🚫 OxTS	Scanivalve
NEJC-UCM-P		Aerospace	(()) Velodyne
S-WEB-TV	XCP master	ARINC_MIL 1553	
QC-20230920	Camera	CHIO Chapter 10	
🔔 manually add measurement unit	GigE	CH10 Chapter 10 (Secondary)	
show all (95)	IPCamera	PCM	
	Photron FastCam	PCM (Secondary)	
	Telemetry	Other	
	Optris	DS NET	
	Navigation	Ethernet receiver	
	🔊 GPS replay	Gantner	
	🔊 NMEA compatible GPS	🔆 LGS FBG	
	🔊 Dewesoft RS232 (Topcon/Javad/N	MonoDAQ-U	
	👏, Virtual GPS	Moog	

If we have multiple slices, we can rearrange their sort order with the up and down buttons.



Image 8: Changing order of the devices

With the refresh button, we scan the whole structure of a system again.



Image 9: Refreshing device list

On the right side of the window, the properties of devices are shown and some settings can also be changed.

SBOX system

We can see the devices information (serial number, hardware, and firmware version).

SBOX system	
Serial number	D00C9BCC6B
Hardware version	2.4.0.0
Firmware version	3.7
Remote mode To power on/off the system on remote external pin	Disabled 💌

Image 10: Sbox system information

If the S-BOX system is used, the remote mode can be used to turn the <u>SBOX</u> on or off from the remote distance.

Remote mode To power on/off the system on remote external pin	Disabled
	Disabled
	Remote power on on external pin
	Remote power on and off on external pin

Image 11: Sbox remote mode settings

The connector for power supply on <u>SBOX</u> has three pins, one is for voltage, one for a ground connection and one is a remote signal.



Image 12: Sbox power supply connector pinout

- Disabled: if the remote mode is disabled, SBOX can only be turned on or off by pressing the power button on the device.
- Remote power ON on external pin: The <u>SBOX</u> can be remotely turned on. When the voltage signal comes to pin for remote, the <u>SBOX</u> is turned on.
- Remote power ON and OFF on external pin: The <u>SBOX</u> can be remotely turned on or off. If the <u>SBOX</u> is off and the signal comes, it will be turned on. If the <u>SBOX</u> is on and the signal comes, it will be turned off.

<u>SIRIUS</u>

In this case, we have connected multiple Dewesoft DAQ devices. If we select the DAQ device and click on it, we see the devices information (device number, serial number, hardware, and firmware version, temperature).

SBOXE System (Local) SBOXE System (Local) SBOXE System (Local) Dewesoft Devices Mr Dewe-43 SBOXE SIRUSI Survey Ether (AT	SIRIUSi ⊙ Info		
	Device name	SIRIUSi	
	Serial number		D0B8D919
	Hardware version		1.0
	Firmware version		5.3.30.16
	Device temperature		0.0 °C
	⊗ Settings	Mariana	
	Fan speed	Maximum	~
	IA 📀		
	AI resolution		24 bits
	Max sample rate		200000 Hz
	⊗ CAN		
	CAN B-1 Transceiver: SN65HVD235 Op. mode: R	Read only Def. baud rate: 500k	*

Image 13: Sirius system information

Bridge amplifier offset shows us the initial amplifier offset. Sirius connects the input short on and the offset is measured.

		🔗 Bridge amplifier offset 🛛 🚽 🗕		×	
DEVICES Operation mode $$ \bigcirc \bigcirc \bigcirc \bigcirc $\checkmark \cdot \ (\bigcirc$ SBOXe System (Local)	SIRIUSi	Adjust date: 5/21/2020 Adjust temp Tave: 0°C (T1: 0°C, T2: 0°C, T3: 0°C) Slot6 DSAmplModule offsets Range0 HG: 0.013 mV LG: -1.986 mV Range1 HG: 0.024 mV LG: -0.166 mV Range2 HG: 0.020 mV LG: 0.001 mV Range3 HG: 0.020 mV LG: 0.010 mV		^	
	Device name Serial number Hardware version Firmware version Device temperature Settings Fan speed AI	Slot7 DSAmplModule offsets Range0 HG: -0.486 mV LG: -0.527 mV Range1 HG: -0.010 mV LG: -0.016 mV Range2 HG: 0.034 mV LG: 0.031 mV Range3 HG: 0.036 mV LG: 0.034 mV		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	D088D919 1.0 5.3.30.16 0.0 °C
	AI resolution Max sample rate Bridge amplifier offs	Reset offsets	Cla	ose	24 bits 200000 Hz

Image 14: Sirius bridge amplifier offset

With the button Reset offsets, we clear the initial amplifier bridge offsets.

8 Bridge amplifier offset		×
Amplifier bridge offsets cleared.		^
		\sim
Reset offsets	Close	:

Image 15: Cleared Sirius bridge adapter offset

Fan speed can be set only to <u>Sirius</u> devices. We can choose from default, minimum or maximum. The custom speed is defined with the percentage of the maximum fan speed.

Fan speed	Default 🗸
	Minimum Default
	Maximum Custom

Image 16: Sirius fan speed settings

We can change the CAN baud rate and CAN operation mode (Read only or Read/Write/Acknowledge).

⊗ CAN			
CAN B-0		٩.	
Transceiver: SN65HVD235 Op. mode: Read only Def. baud rate: 500k		Default baud rate	►
CAN B-1 Transceiver: SN65HVD235 Op. mode:	✓ Read only	Operation mode	×
	Read/write/acknowledge	CAN Plugin	×
	Image 17: CAN operation mode	-	

Watchdog timer

Dewesoft X is quite often used in a much critical application where the control system depends on the data acquisition system or the data acquisition system outputs alarms used to warn the user or switch off the test. In such cases, it is important to know the operation state of the data acquisition system. Watchdog is a safety feature to switch on the digital output when the system is in operation and switches off if the data acquisition system becomes unresponsive. A timeout can be set to delay switching of the watchdog. This feature can be used with any Sirius slice having Digital output. For <u>SIRIUS</u> 8xSTGM DB special watchdog hardware (DS-WDT) is available which has four relay outputs for directly switching on and off. Relays can be programmed as the watchdog or standard alarm/manual outputs.

The Watchdog functionality enables an external way to monitor the behavior of the <u>Dewesoft X</u> software. To be able to use the watchdog a <u>Sirius</u> slice with a Digital out is needed or when using a single slice, the Sync signals can also be used. The slice must be connected in order to set up the watchdog.

Ena	ble watchdog timer		${\boldsymbol{ \oslash}}$
	Digital output	Ctrl DO Clk	\sim
	Operation mode	Active in measure mode	\sim
	Timeout	2	sec

Image 18: Dewesoft watchdog timer

Once enabled, the output selection can be made. Default settings are:

- Digital output: Ctrl DO Clk
- Timeout: 2 sec
- Operation mode: Active in measure mode

Digital output menu selects on which digital output the watchdog functionality is enabled. When using the Watchdog module, which is connected to the Sirius slice via a 25 pin cable, this selector should be set to Ctrl DO 1.

The watchdog can be only mapped to one digital output!

The timeout value specifies the time in which the Dewesoft must reset the watchdog.

Operation mode can be selected from:

- Always active in measure mode watchdog functionality is active while Dewesoft X is in measure mode
- Active in setup and measure mode watchdog functionality is active while <u>Dewesoft X</u> is in channel setup and while in measure mode.
- Always active watchdog is always active.

Operation mode	Always active \checkmark
	Active in measure mode
Timeout	Active in setup and measure mode
	Always active

Image 19: Watchdog timer operation mode

Digital output menu selects on which digital output the watchdog functionality is enabled. When using the Watchdog module, which is connected to the <u>Sirius</u> slice via a 25 pin cable, this selector should be set to Ctrl DO 1. The watchdog can be only mapped to one digital output!

The watchdog is not active while in Analysis mode!

The watchdog behavior is as follows:

- When the slice is powered up, the module is in the Alarm state (Watchdog LED is RED). The slice does not retain any information about watchdog after power loss!
- When Dewesoft X is started and no watchdog functionality was set for the slice in a previous session the LED light is RED
- When the watchdog functionality is set, the following occurs:
 - Active in Ch. Setup is not set: The watchdog LED light is RED until the user switches to Measure mode; then the watchdog LED is GREEN. When switching back to channel setup mode the LED turns back to RED.
 - Active in Ch. Setup is set: The watchdog LED light is GREEN in both Channel setup and in Measure mode.
- When disconnecting the slice from USB or turning off <u>Dewesoft X</u> software the watchdog will trigger (after the preset time in case of disconnect or computer/software freeze or immediately when exiting Dewesoft). The LED light will turn RED

The watchdog module itself has 3 additional outputs that are user-controlled via the A/D module. The respective A/D outputs are CTRL DO 2, CTRL DO 3 and CTRL DO 4.

All four outputs are relay-based with a possibility to connect with a NO (Normally open) or NC (Normally closed) position.

When the watchdog has triggered or upon power up the watchdog relay is not energized meaning that the NO position is OPEN and the NC position is SHORTED.

<u>DEWE-43</u>

In <u>DEWE-43</u> settings, we can change the CAN baud rate and CAN operation mode (Read only or Read/Write/Acknowledge). We can also see its name of the device, serial number, hardware version, and firmware version.



Image 20: DEWE-43

ECAT-SYNC-JUNCTION

ECAT-SYNC-JUNCTION works in the same way as other Dewesoft USB devices. It is automatically recognized within <u>Dewesoft X</u> software. By default, <u>ECAT-SYNC-JUNCTION</u> will be set up to synchronize <u>KRYPTON</u> EtherCATÃ,® and <u>SIRIUS</u> USB. The serial number and the firmware version can be seen and also updated.

SYNC JUNCTION	
© Info	
Serial number	00000000
Firmware version	0.21
⊗ Settings	
Upgrade firmware	\odot
	SYNC JUNCTION Info Serial number Firmware version Settings Upgrade firmware

Image 21: Sync junction system information

<u>KRYPTON</u>

Under the KRYPTON section, serial number, hardware, and firmware versions are seen. Also, the firmware upgrade can be done.

⊕ ⊘⊘ ⊖€	KR
SBOX System (Local)	⊚ 1
DEWESoft Devices	Seri
	Han
	Firm
	⊚ 9
	Upg

KRYPTONI LV

⊗ Info	
Serial number	D05A17FAEC
Hardware version	2.8.2.2
Firmware version	2.01
⊗ Settings	
Upgrade firmware	\odot

Image 22: Krypton system information

Channel setup sample rate

Channel setup sample rate defines the sample rate of channel setup. Channel setup sample rate does not run with the full acquisition sample rate but with the reduced one.

Settings				
20000	s/s/ch			
	Ø			
	20000			

Image 23: Dewesoft channel setup sample rate

Let's take a look at a signal from a function generator (simple sine wave with 100 Hz). First, we let the channel setup sample rate at the default value, 20.000 s/s/ch.

When we enter the setup of the selected channel, we see the preview of the scope nicely.



Image 24: Scope preview 20ks/s/ch

Then we change the channel setup sample rate to 10 s/s/ch.

Now, the preview of the channel does not show the proper form of the signal, because it is sampled with a lower frequency than it should be.



Image 25: Scope preview 10s/s/ch

Which Synchronization types can be used?

The basic idea of synchronization is to provide a clock signal from a time source. Clock slave receives the signal from the clock provider and the devices are synchronized.

Devices can be synchronized in two different ways:

- Software synchronization The software synchronization accuracy is around 2-10 ms, which is enough for simple temperature measurement. This synchronization solution requires no additional hardware.
- Hardware synchronization It is a hardware solution that can synchronize all USB devices (<u>SIRIUS</u>, <u>DEWE-43</u>, ...) and <u>EtherCAT</u> devices.

We have connected one SIRIUS, one DEWE-43 and one KRYPTON measurement unit to the SBOX



Time source

⊗ Synchronization					
Time source	Dewesoft RS232 (Topcon/Javad/NVS)	~			
Dewesoft RS232 (Topcon/Javad/NVS) Clock provider GPS PPS	External Dewesoft DAQ Devices Dewesoft RS232 (Topcon/Javad/NVS)				
Dewesoft DAQ Devices Clock slave	GPS PPS	~ Ø			

Image 28: Synchronization time source options

The time source provides a clock for synchronization. It can be selected from:

- · Dewesoft DAQ devices (when we have a Dewesoft measurement device connected to our computer),
- External (Clock/Trigger, IRIG-B DC, NTP, GPS PPS),
- PC clock (when we have only a computer, without a measurement device),
- GPS devices (Dewesoft RS232 (Topcon/Javad/NVS), NMEA compatible GPS, ...).

Synchronization types are dependent and automatically adjusted from the DAQ devices connected to our system.

Type of synchronization

If Dewesoft DAQ device is selected as a time source, a clock provider must be selected from:

⊗ Synchronization					
Time source	Dewesoft DAQ Devices	~			
Dewesoft DAQ Devices	IRIG-B DC	~ Ø			
Clock provider	Standalone Clock/Trigger				
	IN O D D C				

Image 29: Synchronization clock provider options

- Automatic this option automatically selects the best option for synchronization regarding the hardware connected to the system.
- Standalone only one device, there is no synchronization between devices needed.
- SoftSync this synchronization solution requires no additional hardware. The accuracy is > 10 ms.
- Clock/Trigger the clock of the device gives a trigger signal.
- IRIG-B DC It contains time-of-year and year information in a BCD format (it contains the information about the absolute time). This is the best way to synchronize the devices because it is the most exact one.
- GPS PPS Since the satellites are transmitting exact absolute time and better receivers usually output this pulse with high precision (below one microsecond), we can use this technology to synchronize remote systems and there is no distance limit.
- NTP Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems. It is less accurate than other methods.

External Clock provider	NTP	~ 📀

Image 30: External NTP clock provider

To enter the addresses of the NTP server click the edit button near the drop-down menu. If you want to have more devices synchronized via NTP protocol, the same server address must be entered in all of them.

goodtime.ijs.si	
Number of retries befo	ore switching to next NTP server
1	
Check NTP servers	

When you check NTP servers, the time and date of the server will show. If the server address is wrong, the check will fail.

aoodtime.iis.s	i 6.10.20	15 14:13:54	1		
umber of retr	es before s	witching to r	next NTP se	erver	

Image 32: NTP server response

If the synchronization via NTP is successful, you will see a green clock next to the time in measure mode.



Synchronization between Dewesoft USB devices

	Accuracy	When to use	Device
Clock/trigger	< 1 µs	stationary	Dewesoft, RoaDyn
IRIG-B DC	< 1 µs	stationary	Dewesoft, Meinberg
GPS PPS	< 1 µs	mobile	GPS receiver
NTP	< 10 ms	ethernet	NTP server
SoftSync	< 10 ms	when there is no external time source	/

Any Dewesoft device can be precisely synchronized by hardware (SIRIUS, DEWE-43, MINITAURS, DS-CAN2).

When using the NET system, there are several possibilities that can be used for synchronization:

- Clock/trigger relative time
- IRIG-B DC Master / IRIG-B DC Slave absolute time
- GPS absolute time
- NTP absolute time

Clock/trigger connection example



Image 34: Clock trigger connection example

IRIG-B DC connection example of one unit

a) The Dewesoft device as IRIG-B DC generator



Image 35: IRIG-B DC connection example

b) External IRIG-B DC provider



Image 36: IRIG-B DC external provider

GPS PPS connection example of one unit

a) The Dewesoft device has a GPS receiver



Image 37: GPS PPS connection example from Dewesoft device

b) External GPS receiver



Image 38: GPS PPS connection example from GPS receiver

NTP connection example of one unit



Image 39: NTP connection example

Synchronization with ECAT-SYNC-JUNCTION

<u>ECAT-SYNC-JUNCTION</u> works in the same way as other Dewesoft devices. It is automatically recognized within the <u>Dewesoft X</u> software (supported in version X2 SP4). By default, <u>ECAT-SYNC-JUNCTION</u> will be set up to synchronize between <u>KRYPTON EtherCATÃ,®</u> and <u>SIRIUS USB</u>.

With **ECAT-SYNC-JUNCTION** several connection options are possible:

Synchronization of <u>SIRIUS/DEWE-43 USB</u> with <u>KRYPTON/SIRIUSiwe EtherCATÃ,®</u> devices, where the accuracy of synchronization is
 microsecond



Image 40: USB and EtherCAT device synchronization

• Synchronization of <u>KRYPTON</u>module with external IRIG B DC triggering source



Image 41: EtherCAT external IRIG-B DC synchronization

• Synchronization of KRYPTON and SIRIUS USB with external IRIG B DC triggering source



Image 42: EtherCAT and USB devices external IRIG-B DC synchronization

• Synchronization of KRYPTON/SIRIUSiwe with triggered cameras



Image 43: EtherCAT chain triggering the camera

• Synchronization of <u>SIRIUS/DEWE-43 USB</u> with <u>KRYPTON/SIRIUSiwe</u>and triggered cameras



Image 44: EtherCAT and USB synchronization with the camera trigger

What is a Setup file and what is a Project file?

In DewesoftX, we work with three types of files: the datafile, the setup file, and the project file. In this section, we will take a closer look at the setup file and the project file.

The Setup file

When we are using the DewesoftX software, we are also working with Setup files. The purpose of a Setup file is very simple: it is there so we have somewhere to store the setup.

In other words, this is where all the settings from the *Channel setup tab in Measure mode* and *Measure tab* are saved. These include the *Channels* we are using and all their settings, the *Channel Names*, their *Ranges* and *Sample rates*, and whether or not they are *stored* and *used* in the measurements. We also use the Setup file to store the information from each Channelâ€[™]s setup tab, such as the *Amplifier* and *Sensor info*. Additionally, the Setup is the place where we store all the *Storing conditions*, *Math formulas* we would like to use, and the *Modules* we are using, as well as the settings for each used Module. Lastly, this is where we save the configuration of our *Display screen* from the Measure tab, such as the types and the position of the used *Widgets*, all the *Widget settings*, and the types of *Displays* we want to use when running data acquisition.



Image 45: In a setup file, we can save the Channel setup settings ...



Image 46: ... as well as the Displays screen configuration

When we open DewesoftX, we get directed to the *Setup files* tab, which is where we can find all of our saved (pre-existing) setup files. It is also where we can find additional important information regarding each setup, such as its name, setup info, size, and the time the file was modified.



The **default folder** is the *Setup folder* that is created when we first download DewesoftX, and is therefore by default located in the **Dewesoft folder**. If our setup file is located anywhere else on our computer, there is an additional option of looking through the files on our computer.



Image 48: Different folder options in the Setup files tab

If we want to create a new setup file or modify a loaded Setup file, we can simply press the Channel setup tab and modify whatever parameter, module, and part of the Measurement screen we would like to change. Once we are content with the changes, we can re-enter the Channel setup and save the setup by pressing one of the buttons in the upper right corner. Pressing the Save button will overwrite the Setup file we have initially opened, and pressing the Save as button will create a new Setup file. If we have gone directly to the channel setup, we will create a new Setup file, regardless of which save button we choose to press.

		Q	Dewe	esoftX - Se	tup: A	_Setup_File.c	xs
	Measure	Analyze	Setup	p files Ch.	setup	Measure	
0		F		N	+ : π :	ż 🕂	-
Store	Save	Save as	Storing	Analog in	Mat	th More	Remove
Dynamic a	acquisition r	ate	Channel ac	tions			
5000	~ I	Bandwidth: 1953 Hz	Ze	ro all Rese	et zero a	a	

Image 49: The location of the Save and Save as buttons

Projects are an important part of the DewesoftX software because they include the Hardware setup and the Program settings. In other words, the Project is where we save the *starting setup*, *Security*, *Global variables*, *Data headers*, *Performance settings*, and *Advanced settings*. It is also a place where we store general information regarding the *devices*, such as which devices are connected to the computer and other information directly connected to the devices themselves, and the *Operation mode*.

Settings for project: default						_		×
<u>। </u>	DEVICES							
Devices	•	\odot	\odot	Operation mode	Simulation mode			~
Extensions	V 🔓 Loca	l system		⊗ Settings				
Global variables	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Simulated devices		Channel setup sample rate	20000		s/s/ch	
Data header				Enable DSI adapters, TEDS sensors	5		Ø	
U Startup								
Performance								
User interface								
Files and folders								
Storing								
Reports								
Security								
Update								
X Advanced								
Licensing								
								_
						ОК	Cano	cel

Image 50: The Settings tab for the selected Project

If we take a look at the Settings, we can see an **Extensions** tab and opening the tab displays all the Extensions we have available to use for Data acquisition. All the extensions are neatly organized in folders based on their main functionality: Export, Import, Math, Math application, Plugin, RT module, Visual control.



Image 51: An overview of the Extensions tab

Pressing the + button gives us an option to manage these extensions; we get an overview of all the **enabled** and **disabled extensions** and have the option to enable or disable any available extension we want. If you take a look at the extensions, you might notice that some options are permanently enabled, while others can also be disabled. You might also notice that these extensions were referred to as Modules when we were talking about the Setup files.

The distinction between a Setup and a Project is now clearly visible; within a Project, we get to select all the Extensions/Modules we want to be able to use. Within a setup, we choose which modules we are going to use and set them up for data acquisition.

We can manage our projects directly from DewesoftX by pressing the **Options** button and then going to *Project entry*. The project entry will give us a list of all available projects created so far. When we first start using DewesoftX, we only have one project file, named default. Once we have more projects, project entry allows us to switch between them simply by selecting a project we would like to use from the project list.

				Options
			Settings	
√ defa	ault		Project	>
Add	l project	>	Editors	>
Ren	ame project		Tools	>
Ren	nove project		Manuals	F1
Imp	ort project from file	_	Pro training	
			Check for updates	
Max	Physical quantity	Units	Add or remove extension	ns
10.00		V	Installed extensions	
10.00		V	About DewesoftX	
40.00			Zena Cabus	

Image 52: An overview of the Project entry

The other options we have available are:

- Add project This will create a new project and open the dialogue to name the project. The new project will not be created from scratch, but it will take all the settings of the currently selected project.
- Rename project This menu item will open the dialogue box to rename the currently selected project.
- Remove project This menu item will delete the currently selected project after user confirmation. Please note that this operation cannot be undone.
- Import project from file This menu item allows the user to to import the project from a setup file (.dxs), a data file (.dxd) or an XML setup (*.xml). In order to move a project from one system to another, a project file (found in the system folder) can simply be copied. This option goes one step further and allows the project (added to every setup and data file) to be extracted from any file in the source system.

To sum up, inside a **Project**, we can save the *general Software settings* and the *main Hardware settings*, while the **Setup** enables us to save the **Chanel setups** and the **Display designs**.

The Project file is also an integral part of the Setup file; if we have a Setup file, we can use it to extract the Project file from it.

To import a project from a datafile, we have two options. If we would like to work with a set Setup but also need to use the project the setup is tied to (this is most common if we are using Global variables and/or Data Headers), we can do so from the Setup files tab, where we simply use the Load special button or right-click the desired Setup file, then choose the option to Import project and load the setup.



Image 53: The location of the Load special button



Image 54: The location of the Import project and load setup option

The other way to import a project is to press the **Options** button and go to the **project entry**. This will allow us to extract the project from any file in the source system, but unlike the first option, this does not automatically open the corresponding setup file; DewesoftX simply returns to the Setup files tab.



Image 55: Steps for importing a project from a file

Take caution when using these options, as in both cases, the currently opened project will be overwritten with the project file imported from the setup file.

How to use Offline mode?

<u>Offline mode</u> can be used when we don't have any DAQ devices connected to our system and we want to simulate different types of channels to make an offline setup. It is especially useful when we want to modify or create a setup while no devices are connected, i.e. while we are in the office instead of the proving ground, and we want to make sure that the setup will not be corrupted in the process.

When we are operating in <u>Offline mode</u>, we can choose between three different modes of Simulated channels:

Simulated channels mode Simulated channels					
Simulated channels mode	Simulated channels	~			
	Simulated channels File replay Sound card				

Image 56: Simulated channels mode selection

• Simulated channels - we define the number of analog in channels, counter channels, digital in channels, asynchronous analog out channels, and asynchronous digital out channels.

⊗ Simulated channels		
Number of analog in channels	8	~
Number of counter channels	0	~
Number of digital in channels	0	~
Number of asynchronous analog out channels	0	~
Number of asynchronous digital out channels	0	~

Image 57: Simulated channels

• File replay - we can replay files, that have already been recorded.

	File replay	~
	v4.0	
File details:	Channels: 9	
	Length: 0.070s	
\sim		
	File details:	File replay v4.0 File details: Channels: 9 SampleRate: 100000 Length: 0.070s

Image 58: File replay example

• Sound card - we can use the sound card in our computer to collect the data and make a measurement.

\odot Simulation mode		
Simulated channels mode	Sound card	~
⊗ DAQ settings		
Audio devices		
Microphone (HD Pro Webcam C920)	✓ V3.0	

Image 59: Sound card example

Creating a Setup file and a Project file

We will now demonstrate how DewesoftX behaves while in <u>Offline mode</u> with the help of <u>Real measurement mode</u>. Specifically, we will show you how to use <u>Offline mode</u> to load a setup and to import a <u>project</u>.

Let us first start by connecting a Dewesoft Data acquisition device to our computer. In our case, the connected device is a Sirius-XHS.

🝐 Settings for project: blank						-		\times
Search C	DEVICES							
Devices	⊕⊝	\odot	\odot	Operation mode	Real measurement			~
Extensions	✓ ▲ Loca	al system		⊗ Synchronization				
Global variables	- · · A	Dewesoft Devices SIRIUS-XHS		Time source	Dewesoft DAQ Devices		~	
Data header		T		Dewesoft DAQ Devices Clock provider	Standalone	~	Ø	
U Startup		*0		⊗ Settings				
Performance				Channel setup sample rate	20000		s/s/ch	
User interface				Enable DSI adapters, TEDS sens	ors		${\boldsymbol{ \oslash}}$	
Files and folders				O Dewesoft NET				
Storing				Allow remote connections to this	system		Ø	-
Reports								
Security								
(D) Update								
X Advanced								
P Licensing	_							
						ОК	Can	cel

Image 60: Overview of connected devices

Then, open DewesoftX. Once the software loads, we will enter *Measure mode* and the *Setup files* tab. Navigate to the *upper-right corner*, where we can find an **Options** button. Press the button, go to the *Project tab*, and then add a new empty project. For the purpose of this demonstration, we named our new project $\hat{a} \in \hat{a} \in \mathbb{P}$ project_with_device $\hat{a} \in \hat{a} \in \mathbb{P}$. Press **OK**.

t	~	blank Blank1 can_decoder default New_project New_project1	2	Devices	Coptions Options
8		Add project	>	Empty project	4
		Rename project Remove project Import project from file		Duplicate current project Installed extensions About DewesoftX	

Image 61: Steps for making a new project

Enter the name of new pro	ject		×
New project will be blank	Project_with_device		
		ОК	Cancel

Image 62: Name of the new created project

After confirming the new Project, we will return to the Setup files tab in Measure mode. If we once again navigate to the Project options, we can see that we are now using the project we have just created.

		Devices 🗘 —	\Box \times
			Options
		Settings	
blank		Project	>
Blank1 can_decoder default		Editors Tools	>
New_project New_project1		Manuals Pro training	F1
 Project_with_device 		Check for updates	
Add project Rename project Remove project	>	Add or remove extension Installed extensions About DewesoftX	15

Image 63: Name of the new created project

We can now go ahead and create a new setup file. To do so, we can navigate to the upper-left corner and press the New Setup button.



Since we are using DewesoftX in <u>Real measurement mode</u>, and have a device connected, the Analog in tab will display all the channels that can be found on the device.

R		Q	Dew	esoftX - Setup: s	etup_device.dxs								
	Measure	Analyze	Setu	p files Ch. setup	Measure								
0		F		₩ #	÷ + ·	-							
Store	Save	Save as	Storing	Analog in Ma	th More Re	move							
Dynamic	acquisition r	rate	Channel a	ctions									
20000	~	Bandwidth: 7812 Hz	Sł	hort on Zero all	Reset zero all								
(Hz)	•												
Search		9 T	~										
ID	Used	C. Na	me	Ampl. name	Range	Measure	nent 🔳 Min	Values	Max	Physical quantity	Units	Zero 🔳	Setup
1	Used	A	1	DEMO-XHS-HV	200 V	Volt	age -200,00	P/-25832,00 / 26777,00	200,00		v	Zero	Setup
2	Unused	A	2	DEMO-XHS-HV	200 V	Volt	age -200,00	P/P -1375,00 / 2199,00	200,00		v	Zero	Setup
3	Unused	A	3	DEMO-XHS-HV	200 V	Volt	age -200,00	P/P -6270,00 / 7065,00	200,00		v	Zero	Setup
4	Unused	A	4	DEMO-XHS-HV	200 V	Volt	age -200,00	P/P -1683,00 / 2454,00 OVERLOAD	200,00		V	Zero	Setup
5	Unused	A	5	DEMO-XHS-LV	5 V	Volt	age -5,00	-24409,000 / 25251,000 overload	5,00		V	Zero	Setup
6	Unused	A	6	DEMO-XHS-LV	5 V	Volt	age -5,00	P/I-6204,000 / 6956,000 OVERLOAD	5,00		V	Zero	Setup
-	Unused	A	7	DEMO-XHS-LV	5 V	Volt	age -5,00	P/I-6269,000 / 7077,000 OVERLOAD	5,00		V	Zero	Setup
1								1 47765 000 1 40566 000					

Image 65: View of the channels when the device is connected to a computer

To save a Setup, we can simply press the Save or Save as button. Let's save the setup as " Setup_deviceâ€.

1 - Q	DewesoftX - Setup: setup_device.dxs				
Measure Analyze	Setup files Ch. setup Measure				
% <u>A</u> <u>A</u>					
New setup New sequence Edit	Load Load special Rename Delete Cop	y Cut Paste			
olders 💙 🗄	setup_de 🛞 Al files	~			
💼 Setups		File name	Setup info	Size	Modified
▶ 📩 General					
	Conviof ration device dvr.		AI: 1	18 kB 28.1	12.2023 12:10:19
	CODY OF SCHOOL OCTOC: 0X8				

Image 66: Overview of the Setup files tab

With this step we have created a project file that we can modify to our needs, even if we do not have any DAQ devices connected.

Let us now exit DewesoftX and disconnect the device. If we try to re-enter DewesoftX, we will be greeted by a message: *unable to load project*. We get this error because the project has the device properties saved, and we currently do not have it connected to our system. We now have two options: we can choose to **ignore the warning**, which will change the project file, or choose/**select another project**.



proper device is not connected

If we choose to **ignore the warnings**, DewesoftX will open a modified version of the current project (in our case, *Project_with_device*). This means that we will still have all of our saved Security settings, Global variables, and Data headers. We will also retain the Security settings, Performance settings, and Advanced settings we saved to the project file. We will, however, notice a difference when we enter the **Device settings**. The operation mode of DewesoftX will still be set to **Real measurement**, but we will not have any devices connected, which means that we will have no channels available once we enter the Channel setup in Measure mode.



Image 68: The Devices tab, after choosing theignore the warnings option



Image 69: The Ch. setup tab, after choosing theignore the warnings option

We also have the option to Select a different project, where we have the option to choose between creating a new project or choosing a different pre-made one.

lessa	ages				
Searc	ch •	٩		Errors: 1 / Warnings: 0 / Hints:	• *
+			Message	Lev	el
4 0	Device 1: SIRIUS-XHS	(000000000000000)			
• [Device stored in projec	t is not connected		Erro	br
esor	ve				
		Ignore wa	arnings (this will change your curre	nt project)	
			Colort another anniat		
	L		select another project	Create new project	
				blank	
				Blank1	
				can_decoder	
			The share the state	default	-
N			and the second second	New_project	
	V /mene			ivew_projecti	COLUMN ST

Image 70: When we press the Select another project button, we get to choose between a new project and a pre-made project

Loading a pre-made project will do just that-it will load different Hardware and Program settings from the ones we set previously in our project $\hat{a} \in \mathbb{P}^{n}$ project_with_device $\hat{a} \in \mathbb{P}^{n}$. We should also keep in mind that if we were using this pre-made project with a device, we would get the warning in the image above.

If we choose to **create a new project**, our Operation mode will be set to **Real measurement** with no devices connected and our program settings will be set to default. This means that we will have to re-make all the Global variables, Data Headers, change our Advanced options and enabled/disabled Extensions list, ...

Modifying a Setup file

Let's Ignore the warnings and load a modified version of â€~a€™Project_with_device''

We are now still in **Real measurement mode**, but no devices are connected. It is therefore best if we change the operation mode to Offline mode. In the Setup files tab, choose the Setup we created earlier- $\hat{a} \in ceSetup_device\hat{a} \in .$ Let $\hat{a} \in m$'s make a copy of it, then load the original. For now, let $\hat{a} \in m$'s load just the setup and ignore the project file.

Since we are in **Offline mode**, we can Change the Amplifiers to whatever we want. But letâ€[™]s leave them as they are, and just change the other properties, such as their ranges, descriptions, ...

		Q DewesoftX - Setup: setup_device.dxs													
	Measure	Analyze	$reg = 0.0 + \pm 1$												
0	E	Ħ	Q 'VU	πΣ	+ -										
Store	Store Save Save as Storing Analog in Math More Kemove														
Dynamic	Dynamic acquisition rate Channel actions T														
(Hz)															
Carach							Bellene		JUCUL	gee					
search	Used C	Q T ♥	News	Description	مسعا نمقه	Col And some Co	-	Maaa maaraa 🕞	Ma	Volume	Maria	Discriminal association	Unite	7	Cabur
10	Used	20000	Name	Description	Ampi, into	DEMO YES HV	E Range E	Measurement	Min 200.00	P/P -8496,00 / 9263,00	Max 200.00	Physical quantity	Units	Zero 🔳	Setup
2	Upused	20000	AL 1		Voltage: 200 V;	DEMO-XHS-HV	200 V	Voltage	-200,00	OVERLOAD P/I-30733,00 / 31552,00	200,00		v	Zero	Setup
3	Unused	20000	AL 3		Voltage; 200 V;	DEMO-XHS-HV	200 V	Voltage	-200.00	OVERLOAD 9/-13134,00 / 13954,00	200,00		v	Zero	Setup
4	Unused	20000	AI 4	-	Voltage: 200 V:	DEMO-XHS-HV	200 V	Voltage	-200.00	overLOAD 9/1-27939,00 / 28796,00	200.00		v	Zero	Setup
5	Unused	20000	AI 5		Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	OVERLOAD -13529,000 / 14159,000	5,00		v	Zero	Setup
6	Unused	20000	AI 6	-	Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	-21131,000 / 21921,000	5,00		v	Zero	Setup
7	Unused	20000	AI 7		Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	-16447,000 / 17286,000	5,00		v	Zero	Setup
8	Unused	20000	AI 8	-	Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	P/I-9095,000 / 9876,000 OVERLOAD	5,00		V	Zero	Setup
		Q	DewesoftX - S	etup: setup_de	vice.dxs										
	Measure	Analyze	Setup files C	n. setup Measure	e										
0		F		+÷	+										
Store	Save	Save as	Storing Analog in	Math M	lore Remove										
Dynamio	acquisition ra	te (Channel actions												
20000	✓ Ba 78	andwidth: 812 Hz	Short on Z	ero all Reset zer	o all		0.00	40							
(Hz)	•						Alite	r the c	ana	nges					
Search		Q Y ~								Ŭ					
ID	Used 0	Sample	Name	Description	Ampl. info	Ampl. name	Range	Measurement	Min	Values	Max	Physical quantity	Units	Zero 🔳	Setup
1	Used	4000	Channel 1		Voltage; 400 V;	DEMO-XHS-HV	400 V	Voltage	-400,00	P/P -3836,0 / 4663,0	400,00		v	Zero	Setup
2	Unused	4000	AI 2	-	Voltage; 400 V;	DEMO-XHS-HV	400 V	Voltage	-400,00	P/P -10314,0 / 11103,0 OVERLOAD	400,00		v	Zero	Setup
3	Unused	4000	AI 3	-	Voltage; 200 V;	DEMO-XHS-HV	200 V	Voltage	-200,00	P/-19330,00 / 20114,00 OVERLOAD	200,00		v	Zero	Setup
4	Unused	4000	AI 4	-	Voltage; 200 V;	DEMO-XHS-HV	200 V	Voltage	-200,00	P/-19318,00 / 20082,00 OVERLOAD	200,00		v	Zero	Setup
5	Unused	20000	AI 5	-	Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	-10916,000 / 11722,000 OVERLOAD	5,00		V	Zero	Setup
6	Unused	20000	AI 6	-	Voltage; 5 V; DC; Exc 2	2,5 V; DEMO-XHS-LV	5 V	Voltage	-5,00	-19319,000 / 20061,000 overload	5,00		V	Zero	Setup
		20000	AT 7							P-5673.0000 / 6505.0000	4.00		1		
/	Unused	20000	A1 7	-	Voltage; 1V; DC; Exc 2	2,5 V; DEMO-XHS-LV	1V	Voltage	-1,00	OVERLOAD	1,00		V	Zero	Setup

Image 71: Analog in Channels before and after modifying their properties

After changing the analog in Channel properties, we should save the setup. (if weâ€[™]d like, we can change other modules as well, add Math channels, and change the displays in measure mode.

If we now return to the Setup files tab, we can see that there are two options when loading a setup: the first one is the Classical Load option, which we have already done, and the second option is to import a project and load the setup. Importing the project then does just that-it imports the project and, with that, all the information that was stored on it. We must be careful when importing projects, since this action means that our currently open project will be overwritten with the project file imported from the setup file.



Image 72: There are two ways of loading a Setup file; one way is to load just the Setup file, with the other way we can import a project and load a setup

We can now exit DewesoftX, reconnect the device, and re-enter DewesoftX and switch back to Real measurement mode. Find the setup file we have adjusted, and open it. Let $\hat{a} \in \mathbb{N}$ s now load the Setup file and enter Ch. Setup. We can now see that we retained all the settings we set in <u>Offline mode</u>.



Image 73: All the settings we set in Offline mode get retained when we open the setup in Real measurement mode while the device is connected

There is one clear distinction, though: once we are using Real measurement mode, we can no longer change the amplifiers of the channels, since we are directly influenced by the connected device.

			Q Y Y				Simulation mode					
ID	Used	C.	Name	Ampl. name	Range 🔳	Measuremer	Simulation mode	Max	Physical quantity	Units	Zero 🔳	Setup
1	Used		Channel 1	DEMO-XHS-HV	400 V	Volta	-400,00 P/P -25630,0 / 26427,0	400,00		V	Zero	Setup
2	Used		AI 2	DEMO-XHS-HV	Сору	oltage	-400,00 P/P -28539,0 / 29325,0	400,00		V	Zero	Setup
3	Used		AI 3	DEMO-XHS-HV	Paste	> oltage	-200,00 P/-24397,00 / 25213,00 OVERLOAD	200,00		v	Zero	Setup
4	Used		AI 4	DEMO-XHS-HV	Offline setup	oltage	-200,00 P/L11125,00 / 11935,00 OVERLOAD	200,00		v	Zero	Setup
5	Used		AI 5	DEMO-XHS-LV	5 V	Voltage	-5,00 P/-1422,000 / 2246,000 OVERLOAD	5,00		v	Zero	Setup
6	Used		AI 6	DEMO-XHS-LV	5 V	Voltage	-5,00 -5,00	5,00		V	Zero	Setup
7	Used		AI 7	DEMO-XHS-LV	1 V	Voltage	-1,00 -22885,0 / 23677,000 OVERLOAD	0 1,00		v	Zero	Setup
8	Used		Channel8	DEMO-XHS-LV	1 V	Voltage	-1,00 -22392,0 / 23191,000	0 1,00		V	Zero	Setup
			Q Y ~									
			Q Y ~			Real	measurement mo	de wi	th connec	ted	devid	e
ID	Used	C.	Q ▼ ~ Name	Ampl. name	Range [Real	measurement mo	de wi	th connec	ted	devid	ce,
ID 1	Used Used	C.	Q Y V Name Channel1	Ampl. name	Range [Copy	Real Voltage	measurement mo	de wi	th connec	ted v	devic _{Zero}	CC p Setup
ID 1 2	Used Used Used	c	Q ▼ ∨ Name Channel1 AI 2	Ampl. name	Range [] Copy Paste >	Real Voltage	measurement mo	de wi	th connec	ted v	devic ^{Zero} Zero	Setup Setup
ID 1 2 3	Used Used Used Used	c	Q ▼ ✓ Name Channel1 AI 2 AI 3	Ampl. name	Range Copy Paste > 200 v	Real Voltage Voltage	measurement mo	de wi	th connec	v v v	Zero Zero Zero	Setup Setup Setup
ID 1 2 3 4	Used Used Used Used	C	Q Y V Name Channel1 AI 2 AI 3 AI 4	Ampl. name	Range C Copy Paste > 200 V 200 V	Real Voltage Voltage	Homeasurement Mod 0,0 -200,00 Avid -0,01 -200,00 Avid -0,01 -200,00 Avid 0,01	de wi 400,00 400,00 200,00 200,00	th connec	v v v v	Zero Zero Zero Zero Zero	Setup Setup Setup Setup
ID 1 2 3 4 5	Used Used Used Used Used Used	с.	Q Y V Name Channel1 AI 2 AI 3 AI 4 AI 5	Ampl. name	Range () Copy Paste > 200 V 200 V 5 V	Voltage Voltage Voltage Voltage		de wi 400,00 400,00 200,00 200,00 5,00	th connec	v v v v v	Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup
ID 1 2 3 4 5 6	Used Used Used Used Used Used Used	C	Q Y V Name Channel1 AI 2 AI 3 AI 4 AI 5 AI 6	Ampl. name	Range C Copy Paste > 200 V 200 V 5 V 5 V	Real Voltage Voltage Voltage Voltage Voltage	400,00 MV 0,0 -200,00 MV 0,01 -200,00 MV 0,01 -200,00 MV 0,01 -5,00 MV 0,000	de wi 400,00 200,00 200,00 5,00 5,00	th connec	v v v v v v v v v v v v v v v	Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup
ID 1 2 3 4 5 6 7	Used Used Used Used Used Used Used	C	Q Y V Name Channel1 AI 2 AI 3 AI 4 AI 5 AI 6 AI 7	Ampl. name	Range C Copy Paste > 200 V 200 V 5 V 5 V 1 V	Real Voltage Voltage Voltage Voltage Voltage Voltage	-400,00 Mr 0,0 -280,00 Mr 0,01 -280,00 Mr 0,01 -280,00 Mr 0,01 -5,00 Mr 0,000 -5,00 Mr 0,000 -1,00 Mr 0,000	400,00 400,00 200,00 200,00 5,00 5,00 1,00	th connec	v v v v v v v v v v v v v v v v v v v	devic Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup

Image 74: It is possible to change amplifiers while in Offline mode, but not while in Real measurement mode

We should now also take a look at what would happen if we loaded a setup file

- that has too many channels compared to the project file (offline mode)
- where one channel's amplifier differed from the amplifier on the corresponding channel on the device.

If we have more channels than the device, the extra channels will simply be erased once the device is connected.

	Measure	Analyze Se	wesoftX - Setup: se tup files Ch. setup	tup_3.dxs									Simulation	mode 🗘 —	□ ×
0	日	F .	N #:	+	-										
Store	Save	Save as Storing	Analog in Mat	h More F	Remove										
Dynamic	acquisition r	ate Channel	actions												
20000 (Hz)		7812 Hz	Short on Zero all	Reset zero all											
Search		Q Y ~													
ID	Used	C. Name	Ampl. name 🔳	Range	🔳 Mea:	isurement 🔳	Min	Values	Max	Physical quantity	Units	Zero 🔳	Setup		
1	Unused	AI 1	DEMO-XHS-HV	400 V		Voltage	-400,00	OVERLOAD P/P -25472.0 / 26278.0	400,00		mA	Zero	Setup		
2	Unused	AI 2	DEMO-XHS-HV	400 V		Voltage	-400,00	overLoad PIP -20193,0 / 20956,0	400,00		mA	Zero	Setup		
4	Unused	AI 5	DEMO-XHS-HV	400 V		Voltage	-400,00	OVERLOAD PIP -14304,0 / 15119,0	400,00		mA	Zero	Setup		
5	Unused	AI 5	DEMO-XHS-LV	-100 V		Voltage	-5.00	overLoad -13171,000 / 13859,000	5.00		mA	Zero	Setup		
6	Unused	AI 6	DEMO-XHS-LV	5 V		Voltage	-5,00	-32768,000 / 32767,000	5,00		mA	Zero	Setup		
7	Unused	AI 7	DEMO-XHS-LV	5 V	_	Voltage	-5,00	PL-2473,000 / 3245,000	5,00		mA	Zero	Setup		
8	Unused	AI 8	DEMO-XHS-LV	5 V		Voltage	-5,00	-21889,000 / 22780,000	5,00		mA	Zero	Setup		
9	Unused	AI 9	DEMO-SIRIUS-AC	0,5 V		Voltage	-0,50	PIP -2,9193 / 3,1488	0,50		v	Zero	Setup		
10	Unused	AI 10	DEMO-SIRIUS-AC	0,5 V		Voltage	-0,50	PIP -3,8007 / 4,0530 overtoxo	0,50		v	Zero	Setup		
						How w	'e se	et the chann	۱els ۱	while no d	evic	es w	/ere c	onnected	
•		Q De	wesoftX - Setup: se	tup_3.dxs						Statuses	Device	is	RT not running	• • • -	
	Measure	Analyze Se	tup files Ch. setup	Measure											_
0			00 +-	- 1											Options
			- υυ π												Options
Jure	Jave	Save as Storing	Analog in Mat	E T											Options
Dynamic	acquisition r		Analog in Mat	E T h More F	Remove										Options
(Hz)		rate Channel Bandwidth:	Analog in Mat	E T More F	Remove		_						_		Options
		Bandwidth: 7812 Hz	Analog in Mat actions Short on Zero all	E T h More F Reset zero al	Remove		Ch	annels, afte	er th	e device is	5 CO	nneo	ted		Coptions
Search		Bandwidth:	actions Short on Zero al	E More F	Remove		Ch	annels, afte	er th	e device is	s co	nneo	ted		Coptions
ID		Bandwidth:	Analog in Mat actions Short on Zero all	E More F	Remove		Ch	annels, afte	er the	e device is	6 CO	nneo	ted		Coptions
	Used	C Name	Analog in Mat actions Short on Zero all Ampl. name	E More F Reset zero all Range	Remove	isurement 🔳	Ch	annels, afte	er the	e device is	CO Units	nneo ^{Zero}	setup		Coptions
1	Used Unused	C Name C Name C Name	Analog in Mat actions Short on Zero all Ampl. name E XrIS-HV	E More F Reset zero all Range 400 V	Remove	isurement 📳 Voltage	Ch Min -400,00	values	er the _{Max}	e device is	Units	Zero E Zero	Setup Setup		E Options
1 2	Used Unused Unused	C Name AI 1 AI 2	Analog in Mat actions Short on Zero all Ampl. name E XHS-HV XHS-HV	E More F Reset zero all Range 400 V 400 V	Remove	surement 🔳 Voltage Voltage	Min -400,00	vaues	er the Max 400,00 400,00	e device is	Units MA MA	Zero I	Setup Setup		E Options
1 2 3	Used Unused Unused Unused	C Name Al 1 Al 2 Al 3 Al 4	Analog in Mat actions Short on Zero al Ampl. name E XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV	Reset zero al Range 400 V 400 V 400 V	Remove	surement 📳 Voltage Voltage Voltage	Min -400,00 -400,00	Values Values Arie 0,0 Arie 0,0 Arie 0,0 Arie 0,0	Max 400,00 400,00 400,00	e device is	Units MA MA MA	Zero E Zero Zero Zero Zero	Setup Setup Setup Setup		E Options
1 2 3 .1 4	Used Unused Unused Unused Unused	C Name AI 1 AI 2 AI 3 AI 4 AI 5	Analog in Mat actions Short on Zero all Ampl. name I XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV	E More F Reset zero al Range 400 V 400 V 400 V 400 V	Remove	surement E Voltage Voltage Voltage Voltage	Min -400,00 -400,00 -400,00 -400,00	Values Avis 0,0 Avis 0,0 Avis 0,0 Avis 0,0 Avis 0,0 Avis 0,0 Avis 0,000	Max 400,00 400,00 400,00	e device is	Units MA MA MA MA	Zero E Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup		Coptions
1 2 3 4 5	Used Unused Unused Unused Unused Unused	C Name C Name C Name C Name AI 1 AI 2 AI 3 AI 4 AI 5 AI 6	Analog in Mat actions Short on Zero al Ampl. name XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV XHS-4V	E More F Reset zero all Range 400 V 400 V 400 V 400 V 5 V 5 V	Remove	surement 📳 Voltage Voltage Voltage Voltage Voltage	Min -400,00 -400,00 -400,00 -400,00 -5,00	values values	Max 400,00 400,00 400,00 5,00 5,00	Physical quantity	Units MA MA MA MA MA	Zero E Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup		Coptions
1 2 3 4 5 6 7	Used Unused Unused Unused Unused Unused Unused	All All All All	Analog in Mat actions Short on Zero all Ampli, name XHS HV XHS HV XHS HV XHS HV XHS HV XHS HV XHS 4V XHS 4V XHS 4V XHS 4V XHS 4V XHS 4V	E More F Reset zero all Range 400 V 400 V 400 V 400 V 5 V 5 V 5 V	Remove	surement i Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min -400,00 -400,00 -400,00 -400,00 -5,00 -5,00 -5,00	values values vars 0,0 vars 0,0 vars 0,0 vars 0,0 vars 0,00 vars 0,000 vars 0,000 vars 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00	Physical quantity	Units MA MA MA MA MA MA	Zero E Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup		Cotors
1 2 3 .4 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused Unused	C Name C Name C Name C Name C Name C Name AI 1 AI 2 AI 3 AI 4 AI 5 AI 7 AI 8	Analog in Mat actions Short on Zero all Ampl. name II XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV	Reset zero all Range 400 V 400 V 400 V 5 V 5 V	Remove	surement surement voltage	Min -400,00 -400,00 -400,00 -400,00 -5,00 -5,00 -5,00 -5,00	values Nrd 0,0 Ard 0,0 Ard 0,0 Ard 0,0 Ard 0,0 Ard 0,0 Ard 0,00 Ard 0,000 Ard 0,000 Ard 0,000 Ard 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA	Zero E Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 -1 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused Unused	C Name C Name C Name C Name C Name AI 1 AI 2 AI 3 AI 4 AI 5 AI 6 AI 7 AI 8	Analog in Mat actions Short on Zero all Ampl. name III XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV XHS-LV XHS-LV	Reset zero all Range 400 V 400 V 400 V 400 V 5 V 5 V 5 V	Remove	surement Voltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min -400,00 -400,00 -400,00 -400,00 -5,00 -5,00 -5,00	Values Avid 0,0 Avid 0,0 Avid 0,0 Avid 0,0 Avid 0,0 Avid 0,00 Avid 0,000 Avid 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA MA	Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused	C Name C Name C Name C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampl. name E XHS-HV XHS-HV	E More F Reset zero al 400 V 400 V 400 V 5 V 5 V 5 V	Remove	surement e Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min -400,000 -400,000 -400,000 -400,000 -5,000 -5,000 -5,000	Values M ^{2G} 0,0 A ^{2G} 0,00 A ^{2G} 0,000 A ^{2G} 0,000 A ^{2G} 0,000 A ^{2G} 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units mA mA mA mA mA mA mA mA	Zero Ero Zero Zero Zero Zero Zero Zero Zero Ze	Setup Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 . ₁ 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused	C Name Al C Name C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions actions Short on Zero all Ampl. name II 2455-HV XHS-HV XHS-HV XHS-HV	E More F Reset zero al Reset zero al Range 400 V 400 V 400 V 5 V 5 V 5 V	Remove	surement s Voltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min 400,00 400,00 -5,00 -5,00 -5,00	vaues va	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units mA mA mA mA mA mA mA	Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 .4 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused	C Name Al 2 C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampli, name XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV XHS-LV XHS-LV	E More F Reset zero al Range 400 V 400 V 400 V 5 V 5 V 5 V 5 V	Remove	surement I Voltage	Min 4400,00 4400,00 4400,00 5,00 -5,00 -5,00 -5,00	values va	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA	Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 .4 4 5 6 7 8	Used Unused Unused Unused Unused Unused	C Name C Name C Name C Name C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampl. name I XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV XHS-LV	E More F Reset zero al Range 400 V 400 V 400 V 50 V 5 V 5 V 5 V 5 V 5 V 5 V	Remove	surement i Voltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min 4400,00 4400,00 4400,00 5,00 5,00 5,00	values Ard 0,0 Ard 0,00 Ard 0,000 Ard 0,000 Ard 0,000 Ard 0,000	Max 400,00 400,00 5,00 5,00 5,00	Physical quantity	Units MA MA MA MA MA MA MA MA	Zero E Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup		
1 2 3 .4 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused	C Name C Name C Name C Name C Name C Name C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampl. name II XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV XHS-LV	E More F Reset zero al 400 V 400 V 400 V 5 V 5 V 5 V 5 V	Remove	surement surement voltage	Mn -400,00 -400,00 -400,00 -5,00 -5,00 -5,00	values Avid 0,0 Avid 0,00 Avid 0,000 Avid 0,000 Avid 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA	Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3 4 5 6 7 8	Used Unused Unused Unused Unused Unused Unused	CC Name Al 1 Al 2 Al 3 Al 4 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampl. name E XHSHV XHSHV XHSHV XHSHV XHSLV XHSLV XHSLV XHSLV	E Range Reset zero al 400 V 400 V 400 V 5 V 5 V 5 V	Remove	surement i voltage	Mn -400,00 -400,00 -5,00 -5,00 -5,00	Values Mrd 0,0 Ards 0,000 Ards 0,000 Ards 0,000 Ards 0,000 Ards 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA	Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup		
1 2 3	Used Unused Unused Unused Unused Unused Unused	C Name Al Al C Name Al 1 Al 2 Al 3 Al 4 Al 5 Al 6 Al 7 Al 8	Analog in Mat actions Short on Zero all Ampli, name XHS-HV XHS-HV XHS-HV XHS-HV XHS-HV XHS-LV XHS-LV XHS-LV	E More F Reset zero al Reset zero al 400 V 400 V 400 V 5 V 5 V 5 V 5 V	Meanove	eurement Uoltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage Voltage	Min -400,00 -400,00 -5,00 -5,00 -5,00	vaues va	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units MA MA MA MA MA MA MA MA	Zero Tero Zero Zero Zero Zero Zero Zero Zero Z	Setup Setup Setup Setup Setup Setup Setup Setup		
1 2 3	Used Unused Unused Unused Unused Unused Unused	C Name C Name C Name C Name C Name AI I AI	Analog in Mat actions Short on Zero all Ampl. name I XHSHV XHSHV XHSHV XHSHV XHSLV XHSLV XHSLV XHSLV	E More F Reset zero al Reset zero al 400 V 400 V 400 V 5 V 5 V 5 V 5 V	Meason and a second sec	surement I Voltage	Min -400,00 -400,00 -5,00 -5,00 -5,00	values Arie 0,0 Arie 0,0 Arie 0,0 Arie 0,000 Arie 0,000 Arie 0,000 Arie 0,000 Arie 0,000	Max 400,00 400,00 400,00 5,00 5,00 5,00 5,0	Physical quantity	Units mA mA mA mA mA mA mA	Zero I Zero Zero Zero Zero Zero Zero Zero Zero Zero	Setup Setup Setup Setup Setup Setup Setup Setup		

Image 75: How the channels were set in Offline mode and how they appeared in Real measurement mode

If a channel has been set with a **different amplifier** in the Setup file than it is set on the device, the settings from the Setup will be overwritten by the default settings of the amplifier from the device that corresponds to said channel.

We also get a warning that the set amplifier is not supported on the device and that the set properties are therefore ignored.

	Measure	Analyze S	ewesoftX - Setup: s	etup_3.dxs								Simulation n	node 🔅 –	- 🗆 ×
0		-	M #	; +	_									
Store	Save	Save as Storin	g Analog in Ma	th More	Remove									
Dynamie	acquisition ra	ate Chann	el actions	Y										
20000 (Hz)		812 Hz	Balance amplifiers SI	nort on Zero all	Reset zero all					w	Ho hen th	w we se e device	t the chann was discor	els nnected
Search		Q Y ~												
ID	Used	C. Name	Ampl. name	Range	Measuremen	nt 🔳 Min	Values	Мах	Physical quantity	Units	Zero 🔳	Setup		
1	Unused	AI 1	DEMO-SIRIUS-STG	10 V	Voltage	-10,00	P/P -2,266 / 2,510	10,00		mA	Zero	Setup		
2	Unused	AI 2	DEMO-XHS-HV	400 V	Voltage	-400,00	-9034,0 / 9800,0 overload	400,00		mA	Zero	Setup		
3	Unused	AI 3	DEMO-XHS-HV	400 V	Voltage	-400,00	OVERLOAD 0VERLOAD PIP -12374.0 / 13055.0	400,00		mA	Zero	Setup		
4	Unused	AI 4	DEMO-XHS-HV	400 V	Voltage	-400,00	OVERLOAD PI-3571.000 / 4445.000	400,00		mA	Zero	Setup		
5	Unused	AI 5	DEMO-XHS-LV	57	Voltage	-5,00	OVERLOAD PT-1638,000 / 2429,000	5,00		mA mA	Zero	Setup		
7	Unused	AL 7	DEMO-XHS-LV	57	Voltage	-5,00	OVERLOAD PI-3009,000 / 3723,000	5,00		mA	Zero	Setup		
8	Unused	AI 8	DEMO-XHS-LV	5 V	Voltage	-5,00	OVERLOAD PI-5161,000 / 5928,000	5,00		mA	Zero	Setup		
9	Unused	AI 9	DEMO-SIRIUS-AC	10 V	Voltage	-10,00	P/P -1,887 / 2,152	10,00		v	Zero	Setup		
10	Unused	AI 10	DEMO-SIRIUS-AC	10 V	Voltage	-10,00	P/P -8,731/8,999	10,00		v	Zero	Setup		
Store	Measure	Analyze S	evvesoftX - Setup: se etup files Ch. setup	Measure	Remove		The channe	els afte	statuses	ed th	e devi	T not running	Setup messa	ages Coptions
Durante		ta Channa	Lasting			Messages								
20000		andwidth:	Short on Zero all	Reset zero all		Messages								
(Hz)	- /8	512 Hz				Search		Q				Errors: 0 / \	Warnings: 2 / Hints:	4 🗙
Fourth						+			Message				Leve	4
Bearch			And some III	Deser		 A XHS-HV on Ioaded Inp 	AL I utType (SE) not supported,	property ign	ored.				Hint	
10	Used C	AT 1	Ampi. name	200 V	Voltage	- loaded Exc	itation (0 V) not supported,	property ign	ored.				Hint	
2	Unused	AI 2	XHS-HV	400 V	Voltage	- could not s	et exact loaded Range (10)	(), set to 200) V.				Warnin	ng
3	Unused	AI 3	XHS-HV	400 V	Voltage	 loaded LPF could not s 	et exact loaded LPFilter Hz	(ALIASFREE)	ignorea.), set to Off.				Hint Warnir	ng
4	Unused	AI 4	XHS-HV	400 V	Voltage	 loaded LPF 	liter_Order (2) not supporte	d, property i	gnored.				Hint	
5	Unused	AI 5	XHS-LV	5 V	Voltage	1								
6	Unused	AI 6	XHS-LV	5 V	Voltage									
7	Unused	AI 7	XHS-LV	5 V	Voltage									
8 -1	Unused	AI 8	XHS-LV	5 V	Voltage									
														_
						Resolve								
									Remap channels					
													-	
													Clo	ise

Image 76: If we set the wrong amplifier, we get a warning

What is Dewesoft NET and how to use it?

Dewesoft NET

With <u>Dewesoft NET</u>, your measurement system can be controlled remotely with the ease of use you couldn't imagine before. <u>Dewesoft</u> <u>NET</u> also serves as the center for Distributed Data Acquisition systems where you have multiple systems located either together or scattered across an entire continent. By enabling this option, you allow the remote connections to your system.

⊙ Dewesoft NET	
Allow remote connections to this system	0

Image 77: Enable Dewesoft NET

Once the remote connections to your system are allowed, the system can be added as a measurement unit on the client.

Operation mode			Real measurement			
$\bullet \ominus \land \diamond \diamond$	Ð	⊗ SBOXe system				
> 🟠 SBOXe System (Local)		Synchronization				
		Time source	PC Clock	~		

Image 78: Open add device window

Measurement units connected through the <u>Dewesoft NET</u> system can be found under Standard devices.

Standard devices	Legacy devices					
⊗ Camera		^				
DirectX		Ð				
⊗ can						
Test CAN (replay m	ode)	Ð				
Virtual CAN		()				
⊘ Dewesoft NET						
Measurement unit		\odot				
⊗ GPS						
Dewesoft RS232 (T	opcon/Javad/NVS)	÷				
GPS replay		\odot				
NMEA compatible G	PS	\oplus				
Virtual GPS	Virtual GPS					
⊗ Plugin						
ADMA Ethernet		÷				

Image 79: Add Dewesoft NET measurement window

For more informations about the <u>Dewesoft NET</u> system, visit out <u>Dewesoft NET PRO training course</u>.

How to add Extensions?

If you want to enable plugins or extensions, please go to the Extensions section. Extensions are divided into five different sections:

- Export (export the datafiles to different formats, like ATI(.ati), Google earth(.kml), Broadcast wave format(.bwf), Standard data file.dat, Wave.wav, Technical data management(.tdm), ...)
- Import (DS NET USB log files or text files.)
- Math application (set additional settings to several additional math applications like balancing, CA, fatigue analysis, FFT analyzer, FRF, Power, ...)
- Plugin (enable several additional plugins like Polygon, Sound Power, Weather station, DS NET, Chapter 10, AutoExport, Control channels, Ethernet receiver, ...)
- Visual controls (information about different visual controls inside Dewesoft like FRF geometry, Modal circle, Polygon, Rotor balancer, Altitude indicator.)



To add a new extension, click the plus button. Here you can see plugins, that are disabled. To enable them, select the plugin and click on the Enable button.
Show disabled Show enabled Show all				
LIN bus decoder	0	•	OPC UA server Plugin	Enable
LORDMicroStrain LORDMicroStrain	0		Version: 3.0.1 Vendor: Dewesoft	
OBDII Plugin for reading data from OBDII interfaces	0			
OPC UA Client Client for OPC UA	0			
OPC UA server OPC UA server	0			
Polygon Vehicle dynamics too	0			
Serial Com plugin for serial communication (RS232, RS485,)	0			
Siemens S7 Siemens S7	0			
Sound intensity Measurement of sound intensity in accordance with ISO 9614-1 and ISO 9614-2.	0			
Sound power Sound power	0			
TestBed Combustion Analyzer Interface	0			

Image 81: Enable the extension in Dewesoft settings

When selecting all the needed Extensions, we can see some specific settings related to the selected plugin. To learn more about their meaning, please go to courses that are describing the specific section.

	 Power analysis Math application, Electrical measureme Version: 1.0.0 Settings 	ents	
Combustion analysis (deprecation of the second seco	Default frequency	50	∨ Hz
Cursor	Default voltage	230	٧
·····X Fatigue analysis ·····X FFT analysis	Vector-scope orientation	Upper, CW	~
Human vibration Modal test Navigation	⊘ Advanced		
Notifier Order tracking	Frequency threshold (%)	10	
Power analysis	power module at which the data will still be	10	
	calculated		
	Power resampler		\odot
SENT	Resample data to angular domain for more exact cal	Iculation of power parameters	

Image 82: Extensions specific settings

HINT: After enabling all the needed plugin, you have to refresh the list by clicking on the icon. After doing that, Dewesoft needs to be restarted.



What are Global Variables?

Global variables define the channels which can be used in a sequencer, math section, and displays. New variables can be added with a plus button.

Search Q	GLOB	AL VARIABLES									
Devices	\odot	Э					×	Delete all	Export to file	Impo	ort from file
Extensions	Index	Unique ID	Name	C	Unit	Data type	Ch. type	Start value	Default value	Decimal	Exported
Clobal variables	1	VARIABLE0	Channel 0		-	Floating point	Single value	Last value	12,65000000	Auto	True
	2	VARIABLE1	Channel 1		-	Text	Single value	Last value	Text from globa	1	True
Data header	3	VARIABLE2	Channel 2		-	Integer	Async	Last value	1991	1	True

Image 84: Global variables set-up

The Unique ID must be defined, which is used as a reference for all other places where internal variables are used. Channel name can be freely defined, we can define the color and the unit.

Data type can be:

- Floating point (floating decimal point, we can also define the number of decimal numbers)
- Integer (whole number)
- Text (text written by the user)

Channel Type can be:

- Single value (storing only one value per entire measurement)
- Async (adding value each time the channel changes from sequencer or math)

Start value can be selected from:

- Last value (variable will remember the last value)
- Default value (it will always start with the defined default number)

Default value describes what value the channel has when starting up.

What is a Data Header?

Data header allows you to define input fields in which operators can enter additional not measured parameters at the start or end of the measurement.

Search Q	DATA HEADER				
Devices	🗐 Info 💽 Input 💮	Selection	🛇 Up 🚫 Down	🛞 Delete	e 🛞 Delete all
Extensions	Data header entries				Properties
Global variables					
Data header					
U Startup					
Performance					
User interface					
Files and folders					
Storing					
Reports					
Security					
① Update					
X Advanced	Data header settings				
🔎 Licensing	Ask for header on start	Ask for hea	ader at end		Export header to file 💽 Import from setup file
		Ir	nage 85: Data head	er settings	

In data header, we can define:

• Info field- The Info button adds a new line in the right section of the window. Just click in the new line and enter the desired text, for example 'File header information'.

🗐 Info 🕢 Input (• Selection	🚫 Up 🚫 Down	🗴 Delete 🗴 Delete all		
Data header entries				Properties	
Info				Data type Text	~
				Color	
				- Unit -	
				Unique ID VARIABLE3	
				Save last value	Ø
				Reset value on start	0
				Input required	0
				Exported	Ø

• Input field- The Input field can be used for any single line values or comments (you can use it for example for location information...). Let's create a new field with the press on the Input icon and rename it (for example to 'Location'). To rename the field, just click on the name and overwrite it:

DATA HEADER						
🗐 Info 💽 Inpu	It 💮 Selection	🚫 Up 🚫 Down	🗙 Delete 🗴 Delete al	I		
Data header entries					Properties	
Input					Data type Text	~
					Color	
					Unit -	
					Unique ID VARIABLE3	
					Save last value	Ø
					Reset value on start	0
					Input required	0
					Exported	Ø
		Image	87: Data header input fie	ld		

• Selection field -The Selection field can be used for creating a list of 'value' and is very useful when you have to use the same 'value' very often. This can be for example a list of user names or also a list of departments within your company. Let's create a new list with the press on the Selection icon and label it (for example 'User' - click on 'Selection' and overwrite it).

DATA HEADER					
🗐 Info 💽 Input 💮 Selection	🚫 Up 🚫 Down	🗙 Delete 🗴 Delete all			
Data header entries					
Selection			~		
Image 88: Data header selection					

Now you have to define the content of your list. To do that, press the three dots button on the right side and Create Selection. When the list window appears, enter the desired names in the New item field and press the Add item button.



Image 89: Add item to the selection list

The name will appear in the list on the left side, in our example labeled User 1.



Image 90: List of items in the selection list

Enter as many names as required. You can also edit values directly on the list by selecting an item. To remove an item, just select it from the list on the left side and press the Remove item button. When all names are entered, press the OK button or press Cancel to reject all entries. The result of upper entries is the following drop-down list in the global header window:



Image 91: Selection list dropdown

- Position up/down- With both buttons up and down, you can now change the position of the:
 - File name field
 - Comments field
 - Input field
 - Selection field
 - Info field (like created above)
- You can change the position of fields at any time. Just select it (the red box will appear) and move it up or down using the appropriate button.
- Delete field To remove unused or non-required fields, select the field and press the Delete icon. The only field you can't delete is the File name entry field.

Under header settings, you can select whether to ask for the header on the start of the storing or at the end:

- Ask for header on start option will pop up a window with all entries before the start of storing.
- Ask for header at the end will open the same window when the measurement is stopped.

Data header settings		
Ask for header on start	Ask for header at end	Export header to file 🕞 Import from setup file
		Image 92: Data header settings

You can also export the header to .xml file or import the header from the setup file.

If we have selected the option Ask for the header at the end, we get the window like in the picture below after we stop storing the data. We

Data header(AFTER sto	ring)	×
Global header entries		
Global header entries Selection	User 1 User 2 User 3 User 4	
		Discard data file OK

Image 93: Data header after storing

How to Startup the Dewesoft X?

Startup option allows you to select what do you want Dewesoft X to do when you start it.

Multiple instances of <u>Dewesoft X</u> can be selected to allow that <u>Dewesoft X</u> is started multiple times on the same computer for special applications (running different devices, analysing old data while measurement process is running...).

⊗ Multiple instances	
Allow multiple instances of Dewesoft	Ø

Image 94: Enable multiple instances option

If you have a measurement device connected to the computer, you cannot have multiple instances of Dewesoft X!

Dewesoft		•	– – ×		Dewesoft	•	– – ×
Measure Analyse Data files	Setup Review		Coptions	Measure Analyse	Data files Setup Review		Options
	.√¢/,	Abc. T					
Import Multifile export Apply action Use for meas	ure Revert to orig AVI compress Post-sync. video	Load Rename Delete Copy	Cut Paste	Import Multifile export Apply action	Use for measure Revert to orig AVI compress Post-sync. video	Load Rename Delete Copy	Cut Paste
Folders 🖌 🔛 Search	۹			Folders 💙 🎬 🛛	Search Q		8
Data +	File name	Size Start store time	Version !	Data	+ File name	Size Start store time	Version :
Example except except Fev46_P Test.dxd Test.dxd	drive.dxd t.dxd 10_April Valve_ 5_02April2020.dxd 30.dxd 31.dxd 51.dxd HileTransmt.dxd	2.1 MB 09/10/2003 23:27:46 K3 SP1 32746 1505/2020 11:06:504 X3 SP1 1,7 MB 05/04/2020 12:13:20 X3 SP1 5,2 MB 14/05/2020 09:56:00 X3 SP1 47448 30/03/2020 11:22:14 X3 SP1 47448 30/03/2020 11:22:14 X3 SP1 459 kB 30/03/2020 11:22:44 X3 SP1 2,5 MB 14/05/2020 09:52:39 X3 SP1	((RELEASE-200416) (64-bit) 11 (RELEASE-200416) (64-bit) 51 (REC-200416) (64-bit) 51 ((RELEASE-200416) (64-bit) 51 ((RELEASE-200310) (64-bit) 51 ((RELEASE-200310) (64-bit) 51 ((RELEASE-200310) (64-bit) 51 ((RELEASE-200310) (64-bit) 51 ((RELEASE-200316) (64-bit) 51		Example drive.dxd exxxd; Jest-dxd exxxd; Jest-dxd Fiv48, P10_April Valve_5_020, pril2020.dxd Test.dxd Test_0000.dxd Test_0000.dxd Test_0000.dxd Test_ConFile(Transmit.dxd	2.1MB 09/10/2003 23:27:46 X3 59 32:1KB 155/2202 11:06:04 X3 59 1,7MB 06/04/2020 12:15:20 X3 59 5,2 MB 14/05/2020 09:55:00 X3 59 474 KB 30/03/2020 11:26:59 X3 59 474 KB 30/03/2020 11:26:59 X3 59 459 KB 30/03/2020 11:27:34 X3 59 2,5 MB 14/05/2020 09:52:39 X3 59	11 (RELEASE: 200416) (64-bit) 11 12 (RELEASE: 200416) (64-bit) 51 12 (RE-200416) (64-bit) 51 12 (RELEASE: 200416) (64-bit) 51 11 (RELEASE: 200416) (64-bit) 51 10 (RELEASE: 200310) (64-bit) 51 11 (RELEASE: 200310) (64-bit) 51 12 (RELEASE: 200310) (64-bit) 51 13 (RELEASE: 200310) (64-bit) 51 14 (RELEASE: 200310) (64-bit) 52
<			>		<		>
Settings Events Data header File locking F	Yeview			Settings Events Data header File	e locking Preview		
Sample rate Store	date and time Number of d	channels Show CAN me	essages	Sample rate	Store date and time Number	of channels Show CAN r	tessages
Reduced rate Durat	ton Trigger cond	ditions		- nz Reduced rate	- U Duration Trigger of	conditions	
Search O				- Search O			
t Chro	Name Color Pate	Channel info	Sensor	t Chan	Name Color Pate	Channel info	Sensor
4			>	٤			>



Under Starting setup options you select what to do when <u>Dewesoft X</u> starts.

• Nothing (<u>Dewesoft X</u>opens normally, no action is performed.)

⊙ Starting setup	
When Dewesoft starts do	Nothing

Image 96: Default startup option

 Load setup (<u>Dewesoft X</u> automatically loads a defined setup. We can also tell the program to go straight to Acquisition mode or to start <u>Dewesoft X</u> in full-screen mode.)

⊙ Starting setup					
When Dewesoft starts do	Load setup	~			
Setup filename C:\DEWESoft\Setups	hesh_sideband_energy.dxs				
Automatically start acquisition		0			
Start in full screen mode		0			

Image 97: Load setup when Dewesoft starts

• Load sequence (Load sequence at start will load the sequence defined in the file name and run when <u>Dewesoft X</u>starts.)

⊘ Starting setup						
When Dewesoft starts do	Load sequence \checkmark					
Sequence filename C:\DEWESoft\Setups	\$QFirstTry.dxt ⊙					

Image 98: Load sequence when Dewesoft starts

How to set Performance settings?

Search	Q PERFORMANCE	
Devices	⊗ General	
Extensions	Application process priority	Normal ~
	Use multiple CPU cores if available	Ø
Giobal Variables Data header	Acquisition update rate Prefered rate of acquisition loop	50 Hz
ن د) Startup	Display update rate Prefered refresh rate of displays	50 Hz
Performance	Decoupled acquisition and UI Use dedicated thread for acquisition	Ø
User interface	⊗ Memory	
Files and folders	Sync DB buffer length Direct buffer for synchronous channels	2 seconds
Reports	Async DB buffer length Direct buffer for asynchronous channels	50 seconds
Security	Dynamically increase async DB buffer	0
(Update	Maximum async DB buffer size	256 MB
	Video memory	128 MB
	Freeze buffer mode Freeze buffers require additional memory	Enabled V
Licensing	Store IB buffers for vector channels	Ø
	Maximum vector size for IB buffer Warning: Increasing this value can lead to large memory usage	512
	⊗ Analog out	
	AO buffer length Buffer for "analog out" channels	1 seconds
	Fill samples when buffer is more than	50 % full.

Image 99: Dewesoft X performance settings

General

Application process priority defines the process priority of <u>Dewesoft X</u>.

Application process

priority	Normal ~
	Normal
	High
	Real time

Image 100: Application process priority

- Usually, <u>Dewesoft X</u> should run on its own in the OS and, therefore Normal priority is enough.
- High priority allows Dewesoft X to increase its performance if other processes are also running on the system.
- Real-time is useful only in special applications. Even though thinking that real-time priority would be the best, but in reality, it
 might stall acquisition low-level drivers which must have enough CPU time. Setting <u>Dewesoft X</u> to real-time would mean that
 tasks like displaying data on the screen would have to high priority.
- Use multiple cores is a very important function to split the data acquisition and math processing between different CPU cores.
- Acquisition update rate defines the preferred rate of acquisition loop. The graphic part was always a part of acquisition loop (data acquisition, calculation, storing, graphics). The graphics were drawn at the same time and that did not allow us to run a faster acquisition. Now, the graphics can be done in parallel. As a result, we could lower the priority of graphic part and have faster

acquisition times. Average acquisition loop was running with about 50 Hz and now it can run up to 1000 Hz. Set the acquisition update rate higher if you want to have the faster reaction times.



Image 101: Acquisition update rate

- Display update rate option defines the preferred refresh rate of displays. With defining lower display update rates, we can reduce CPU load of Displays. If we change the update rate from 50 Hz to 1 Hz, the CPU load of displays dropped from 30 % to 1 %. This is very useful when we are on the limit with our computer CPU.
- Decoupled acquisition and UI option are enabled by default. This option will use a dedicated thread for acquisition. One core will be used for acquisition and one core will be used for the user interface.

Memory

Memory sizes are important to run the software correctly for a different application. There are sizes which need to be defined for:

- Sync DB This is the memory size in seconds for all synchronous channels (analog, counters, ...). The value should be larger than maximum refresh time 2 seconds is the default.
- Async DB This is the memory size for all asynchronous channels (CAN, GPS, and many others...). The default value is 50 seconds.
- Video memory Size of the video buffer; with lots of cameras the default 64 MB value should be reduced to half, for example not to run out of system memory.

Enable Freeze buffers should be enabled if we plan to use Freeze mode (to see data during the measurement).

Freeze buffers require additional memory	Enabled		
Image 102: Fre	eze buffer mode		

When we enable it, the Freeze button is seen during the Measure mode.



Image 103: Freeze button in measurement

user to review stored data from the start of measurement without interrupting data acquisition and storing process. User is able to zoom into any region of data already stored on disk during the measurement and review any type of signal including video, which makes (long term) measurements easier to manage.



Image 104: Pressed store button

Analog out

⊗ Analog out		
AO buffer length Buffer for "analog out" channels	1	seconds
Fill samples when buffer is more than	50	% full.

Image 105: Analog out settings

• AO buffer length - when you use the Function generator function in <u>Dewesoft X</u>, the software sends the data to Sirius. Sirius waits for the amount of AO buffer length (in our case, this is 1 second) before it starts to output the signal. This has to be done, to prevent data loss. By default, the buffer length is set to 1 second.



• Fill samples when the buffer is more that __ % full. Let's say that we have a buffer of 2 seconds. The samples will be sent when the buffer will be filled with the defined amount of percentage (at 2-second buffer, 50 % means, that it will wait for 1 second). By default, the value is set to 50 %.



Image 107: Analog out buffer 2

How to customize the User Interface?

Under the user interface section, we define the language of the program, display characteristics, sound card selection, and keyboard shortcuts.

Devices	⊗ Language			
xtensions	Language	English (default)		~
	-	2 、 /		
iables	⊘ Displays			
	Font size	8		
	Background color	Dark		~
	Show channel description			0
	When checked, visual controls will show	description next to channel name		0
	Auto generate displays	de		0
;	If enabled, setup modules will automatical	ly generate displays for the first time		Ø
	Relative time format	Day, HH:MM:SS		~
	Absolute time format	Local time		~
	© Sounds			
	Enable recording of voice events			0
	Sound card driver			
	 Sound format Select samplerate and bit depth 			\sim
	Beep at start trigger			0
	Beep at stop trigger			0
	Shortcut mapping	Legacy	F1	~ Ø
	Help Full among			0
	Chappel set in		E2	0
	Measure mode		F3	0
	Start storing		F5	Ø
	Trigger		F6	Ø
	Stop acquisition		F7	$\overline{\mathcal{O}}$
	Keyboard event		SPACE	Ø
	Notice event		N	Ø
	Voice event		V	Ø
	Cursor event		С	Ø
	Switch freeze mode		CTRL + ALT + F	Ø
	Show performance monitor		CTRL + SHIFT + P	Ø
	Pause storing		F8	Ø
	Show settings		F12	0
	Design mode		CTRL + D	\odot
	Undo		CTRL + Z	\odot
	Redo		CTRL + Y	Ø
	⊙ User manual			
	Offline user manual resources only			0
			OK	Cape
				- Starre

Image 108: User interface settings

Language

The language file can be selected from the drop-down list.

⊗ Language					
Language	English (default)	~			
	English (default)				
	Czech				
	German				
	Spanish				
	French				
	Italian				
	Japanese				
	Korean				
	Dutch				
	Portuguese				
	Russian				
	Slovenian				
	Thai				
	Chinese				

Image 109: Dewesoft language selection

The language files can be found in a folder locale located in <u>Dewesoft X</u> installation folder. Here, you can also add your own language files if they are written with the appropriate tool.

<mark> </mark> 🛃 📙 -	ocale					_	o ×
File Home	Share View						^ (
Pin to Quick Copy access	Paste Paste shortcut	Move Copy to * Copy	New folder ■ New item ■ Easy access New folder	Properties	Select all Select none Invert selection		
C	lipboard	Organize	New	Open	Select		
$\leftarrow \rightarrow \cdot \uparrow$	→ This PC → Local Disk	(C:) > DEWESoft > Bin > X2 >	> locale		✓ [™] Search loca	ile	Q
👌 Music	↑ Name	^ Da	ate modified Type	Size			
Pictures	de 🔒	5.0	6.2015 17:17 File fold	der			
Videos	fr	5.0	6.2015 17:17 File fold	der			
🏪 Local Disk (C:) sl	5.0	6.2015 17:17 File fold	der			
DEWESoft							
		Imag	e 110: Language files				

Displays

Font size defines the size of the font in measure mode (example: in the left picture, the font size is 8 and in the right picture the font size is 16).



Image 111: Image font size

If we change the background color to white, the background of the measure mode will change.



Image 112: Dewesoft light background

Show channel description sets that the channel description is shown in the name of the channels in visual controls (like recorder, for example). When switched off, only names are shown.

Dynan	ic acquisition	rate	Chai	nnel actions										
5000	~	Band 1953	lwidth:	Balance amplifiers	Short on Zero all	Reset zero al	I							
[Hz]	•													
			_											
Seard	1		Q											
ID	Used	C.	Name	Description	Ampl. name 🔲	Range 🔳	Measure	Min	Values	Max	Physical	Units	Zero 🔳	Setup
1	Used		AI 1	First sensor	DEMO-SIRIUS-ACC	10 V	Voltage	-10,00	-6,424 / 6,634	10,00		V	Zero	Setup
2	Unused		AI 2	Second sensor	DEMO-SIRIUS-ACC+	10 V	Voltage	-10,00	-3,273 / 3,540	10,00		V	Zero	Setup
3	Unused		AI 3	Third sensor	DEMO-SIRIUS-ACC+	10 V	Voltage	-10,00	-10,000 / 10,000	10,00		v	Zero	Setup

Image 113: Channel description



Image 114: Disabled/enabled channel description option

Show instrument toolbar in full-screen displays instruments button in full-screen mode; full screen (available with Ctrl-F) usually shows only instruments, but in this case, also a toolbar with standard displays are shown. In the left picture, this option is disabled, and in the right picture, this option is enabled. We can see the toolbar with different screens.



Image 115: Show the main toolbar

For the Time axis display Local time, UTC and Telemetry (UTC) can be selected from the drop-down list:

Time format	Local time ~
	Local time
	UTC
	Telemetry (UTC)
	Telemetry (UTC)

Image 116: Time format options

This selection will affect the absolute axis of the recorder, time display in the multimeter, and other displays showing absolute time. <u>Dewesoft X</u> always stores the data in UTC format (without the local time bias).

- Local time display will show with data in local time based on OS settings, therefore the same data file will have different absolute times if viewed in the USA than if it is opened in China.
- UTC will show the universal coordinated time (without bias) and will be displayed the same around the globe.
- Telemetry UTC will not display the day, month and the year, but will display the day of the year instead.

Sounds

Sound sections allow you to tell <u>Dewesoft X</u> which capable sound card in this computer you want to use for making voice annotations when storing data.

⊗ Sounds	
Enable recording of voice events	Ø
Sound card driver	rimary Sound Capture Driver 🗸 🗸
Sound format Select samplerate and bit depth	1025Hz 16bit Mono 🗸
Beep at start trigger	0
Beep at stop trigger	0



Sound format can be chosen from the drop-down menu:

Enable recording of voice events		${\boldsymbol{ \oslash}}$
Sound card driver	Primary Sound Capture Driver	~
Sound format Select camplerate and hit denth	11025Hz 16bit Mono	~
ep at start trigger	11025Hz 16bit Mono 11025Hz 16bit Stereo	^
Beep at stop trigger	11025Hz 24bit Mono 11025Hz 24bit Stereo 11025Hz 32bit Mono 11025Hz 32bit Stereo 2005Hz 3bit Mono	
	22050Hz 8bit Stereo	~

Image 118: Sound format

The voice events can be entered by pressing V during recording, but only if the sound card is defined. The sound at the start and stop triggers allows us to have a sound indication for triggering.

Let's make an example of voice recording. I have chosen my Microphone as a sound card driver.

⊗ Sounds		
Enable recording of voice events		0
Sound card driver	Primary Sound Capture Driver	~
Sound format Select samplerate and bit depth	11025Hz 16bit Mono	~
Beep at start trigger		Ø
Beep at stop trigger		9



When I go to Measure mode, click the Store button to start storing the data.

While measuring, press the V button on the keyboard and the program will record the voice with the selected sound card.

		Q	Dew	esoft X -	Datafile:	Test.dxd							
	Measure	Analyse	Setu	up files C	h. setup	Measure	Amplifier						
0	11		۲	¢	+		**	>_		Voice event record	ling		73 kb
Store	Pause	Stop	Freeze	Design	Widgets	Displays	Recorder	Custom	<u></u>				
			C:\Users\	Dewesoft	Download	s\Test.dxd						20000	
⊘ Record	der											Recorder	
Controls	7 Θ	€⊘	000'0										
Columns	1 Θ	€⊘	22										
Transpare	ncy Of	∓ ⊘											
Unified pro	operties	0	-10,000										
⊗ Intera	ction		000'0										
Mode	Normal	~											

Image 120: Voice event recording

In Analysis mode, when we open the data file, we can see a voice event under the events section.





In the events window, you can see when we started and stopped the storing and when we made a voice event. If you want to replay the voice event, double click on it.

The following window will appear and the voice will be replayed.



Image 122: Voice event progress

Shortcuts

Under the shortcuts section, you can see all the available keyboard shortcuts in Dewesoft X.

Shortcut mapping	Legacy	~
Help	F1	Ø
Full screen	CTRL + F	Ø
Channel setup	F2	Ø
Measure mode	F3	Ø
Start storing	F5	Ø
Trigger	F6	Ø
Stop acquisition	F7	Ø
Keyboard event	SPACE	Ø
Notice event	Ν	Ø
Voice event	v	\oslash
Cursor event	с	Ø
Switch freeze mode	CTRL + ALT + F	\oslash
Show performance monitor	CTRL + SHIFT + P	Ø
Pause storing	F8	Ø
Show settings	F12	\oslash
Design mode	CTRL + D	Ø
Undo	CTRL + Z	Ø
Redo	CTRL + Y	Ø

Image 123: Shortcut list

You can change the buttons that will lead you to the wanted shortcut. Select the Custom Shortcut mapping.

⊗ Shortcuts

Shortcut mapping	Custom	~
	Default	
	Legacy	
	Custom	

Image 124: Shortcut mapping

After that, a pen icon will show at every shortcut. To change the shortcut button, click on the pen icon.

⊘ Shortcuts					
Sh	ortcut mapping	Custom ~			
	Help	F1 🕗			
	Full screen	F11 🖉			
	Channel setup	F2 ⊘			

Image 125: Change of the shortcut key

The following window will appear. After assigning a new shortcut, click the OK button.

Channel setup	\times		Channel setup	×
Press buttons to assign new shortcut.		~	Press buttons to assign new shortcut.	
F2		5	F8	
ОК	Cancel		ОК	Cancel

Image 126: Change keyboard shortcut

The new button for the shortcut is assigned.

0	Shortcuts						
Sho	prtcut mapping	Custom	\sim				
	Help	F1	\oslash				
	Full screen	F11	\oslash				
	Channel setup	F8	\oslash				

Image 127: New shortcut button

User manual

\otimes User manual

Offline user manual resources only

Image 128: User manual resources

If the checkbox is checked, Dewesoft will not attempt to get manual sources from the webserver. It will only use the sources installed with Dewesoft installation.

0

How Files and Folders are structured?

Section Files and folder defines a starting point within the folder structure.

n c	FILES AND FOLDERS		
Devices	⊗ System folder		
Extensions	Open system folder in explorer C:\Dewesoft\Release\System\X3\		(
Global variables	⊙ Default folders		
Data header	Default folder for setup files	C:\Dewesoft\Release\Setups\	(
tartup	Default folder for data files	C:\Users\Dewesoft\Downloads\	
erformance	Default folder for exports	C:\Dewesoft\Release\Exports\	
Jser interface	⊙ GPS maps		
Files and folders	GPS maps folder(s)		
toring			
Reports			(•
Security			
Jpdate	⊙ Database files		
Advanced	Analog sensors	C:\Dewesoft\Release\System\X3\AnalogSensors.dxb	
icensing	Bearings	C:\Dewesoft\Release\System\X3\Bearings.dxb	
	S-N curves	C:\Dewesoft\Release\System\X3\S-NCurves.dxb	
	Counter sensors	C:\Dewesoft\Release\System\X3\CounterSensors.dxb	
	Kinematic cursors	C:\Dewesoft\Release\System\X3\KinematicCursors.dxb	
	Math templates	C:\Dewesoft\Release\System\X3\MathTemplates.dxb	
	⊗ Data files		

Image 129: Files and folders overview

Default folders

- Default folder for setup files Defines the starting folder where the setups will be loaded from. This default folder can be changed also from the Folders menu in Measure Setup files with setting Set as the default project folder.
- Default folder for data files Defines the folder where to store the data files by default. This can be also changed as above, but inside Measure Ch. setup Storing or Analysis Data files.
- Default folder for exports Defines the default place where the files are exported. If we select Remember the last selected folder, then the folder which was last selected when exporting data will be set as default and remembered for the next export.

GPS maps

We have to define the path to GPS folder(s), which will be shown in the GPS plugin in Dewesoft X.

GPS maps folder(s)

C:\DEWESoft\GPS maps

⊕⊝

Image 130: GPS maps folder

Database files

Under Database files, we define the path to different files:

- Analog sensors
- Bearings
- S-N curve
- Counter sensors
- Kinematic cursors
- Math templates

How to set up Storing?

STORING		
⊗ Data files		
Always overwrite data files When this option is enabled, user will never be prompt	ed for overwriting data files	0
Create zipped data files (.dxz) at the end of measu	rement	0
Minimum disk space Storing will be stopped when minimum disk space is rea	ached	MB
─		
Online video file format	DVI (best performance)	~
Online compression settings		×
direct / raw / uncompressed		
direct / raw / uncompressed		*
Auto compress (offline) after measurement	be even to	0
	Q STORING Image: Description of the second state of the second sta	Q STORING Image: Description of the second state of the second sta

Data files

Always overwrite data fields is an option that allows you to automatically overwrite the files without additional confirmation.

<u>Dewesoft X</u> can create a zipped data files (.dxz) at the end of the measurement. The advantage of this function is, that the data file is compressed and, therefore, takes less space.

Let's make a 30-second data file with 4 channels and a sample rate of 20000 samples/second. With a normal storing, the size of the data file is 5 MB. Then we select to have a zipped data file. The size of the datafile got reduced to 105kB.

+	File name	Size	Start store time	Version	Sample rate	Channels	Store mode		
	Test_normal.dxd	5,0 MB	02/06/2020 13:03:26	X3 SP11 (RELEASE-200417) (64-bit)	20000 Hz	AI: 4	always fast		
	Test_zipped.dxz	105 kB	02/06/2020 12:59:34	X3 SP11 (RELEASE-200417) (64-bit)	20000 Hz	AI: 4	always fast		
	Image 132: Data file compression test								

We can also define the Minimum disk space, that is required to make a data file. If we reach this limit during the measurement, storing will be stopped and the data file will be saved.



If there is not enough space from the beginning of the measurement, you will get a warning.



Default video settings

Online video file format can be selected between DVI or AVI format.

Online video file format	DVI (best performance)	~
	DVI (best performance) AVI (video standard)	
Image 135: Vide	eo format options	

Online video compressions settings (We can compress the video during the measurement and make the datafiles smaller. Our computer has to have good performance characteristics to perform online video compression):

⊘ Default video settings		
Online video file format		AVI (video standard) \sim
Online compression settings direct / raw / uncompressed		*
Offline compression settings direct / raw / uncompressed	Video compression setup	
Auto compress (offline) after For lower CPU usage, enable th	Compression direct / raw / uncompressed direct / raw / uncompressed H.264 / MPEG-4 AVC MPEG4 / DivX / XviD MJPEG	

Image 136: Video compression options

Offline video compression settings (with offline video compression we can reduce the size of the data file):



Image 137: Offline video compression options

For lower CPU usage, we can enable the option Auto compress (offline) after measurement. By enabling this option, we also disable online compression.

Auto compress (offline) after measurement For lower CPU usage, enable this option and disable online compression	5

Image 138: Auto compress video

How to create Reports and add a Logo?

Use your own company logo on printouts. After selecting the three dots button, the standard window explorer window appears to simply select an image file (*.jpg type).

Under Print margins, we define printer border in millimeters.

Search Q	REPORTS								
Devices	⊗ Report header								
Extensions	Report header text	DS-report							
Global variables	Logo filename	C:\Users\Dewesoft\Pictures\DW_logo.jpg	\odot						
Data header									
U Startup									
Performance									
User interface									
Files and folders									
E Storing	⊗ Print margins								
Reports	Borders in mm								
Security	10								
(Update	10 10								
X Advanced									
Licensing									
		Image 139: Report header							

Report header is seen when we want to print the document. Go to Analysis mode, select print and on the top of the document is our report header (with text and logo).

		Q	Dewesoft	X - Data	ifile: Test	.dxd	-	D X
	Measure	Analyse	Data files	Setup	Review	Print	Export	Options
_	1							
Prie	at a							
	ic .							
Printer	t Print to PDF		~					
Baner			_	_				- I
A5			\sim			S-test	File name: Test.dxc Date: 14/05/2020; Time: 09:56:00; Show time = 30,353 s f= 0,0329 H;	d z
Orientati	on			-0-0	and the st		► 40	-
Landsca	pe		\sim		-		Recorder	
Copies				2				
1								
							Image 140: Report header example	

How to set Security?

Under security options, you can lock access to settings and prevent access to Dewesoft X procedures.

⊘ Lock settings		
Use admin password for entering settings This password is needed in order to enable use	r access locking	Ø
	Image 141: Password for entering settings	

If we select this option, you will have to enter the password the next time you enter the Settings.

Security		x
Password	l	
Never ask again Don't ask for this code	until Dewesoft is restarted	0
	ОК	Cancel

Image 142: Enter password for settings

You can also select the option Never ask again. It will not ask you for a password until Dewesoft X is restarted.

⊗ Lock user access

User access password	0
Use for stopping measurement	0
Use for changing the setup	0
Use for changing the sequence	0
Use for leaving full screen	0
Use for editing sensors	0
Allow user to select different project	0

Image 143: Lock user access

If we select to use User access password, we can use it:

- for stopping measurement,
- for changing the setup,
- for changing the sequence,
- for leaving the full screen,
- for editing sensors and
- for allowing users to select different projects.

We can also define that the files being stored will be locked. We have three options:

⊗ File locking		
Automatically lock data files after storing	Disabled	~
Prevent modilitying of data files in analyse mode	Disabled	
	With password	
	Permanent	

Image 144: File locking options

- Disabled file locking will be disabled and the files can be post-processed.
- With password file locking will be enabled and a password will be defined to unlock the file in analysing.
- Permanent the file will be permanently locked and we can be sure it will not be modified in analysis.

How to Update firmware?

The firmware for <u>Dewesoft X</u> hardware can now be upgraded directly in <u>Dewesoft X</u> software (firmware upgrade tool is no longer required).

Required equipment

- Dewesoft instrument (SIRIUS, DEWE43, KRYPTON, ...):
- Dewesoft X (version X2 SP7 or above)
- Dewesoft firmware upgrade package (.dxu file)

Search Q	UP	DATE						
Devices	Se	elect firmware p	ackage file	NewesoftFWDack dyu				Θ
Extensions		(peneson prese	and a second and a second and a second					
Global variables	+	Select	Device name	Serial number	FW version	FW new version	Status	Change log
	4	Reprogram	SIRIUSi-HS	D0191FC729	7.4.0.75	7.4.0.75	Up to date	•••
		Upgrade	1 - SIRIUS-HS-HV	D010C7807C	1.3	2.0	New version avaiable	
(1) Sharking		Upgrade	2 - SIRIUS-HS-HV	D010C65F8E	1.3	2.0	New version avaiable	
O startup		Upgrade	3 - SIRIUS-HS-HV	D010C7807E	1.3	2.0	New version avaiable	
Performance		Reprogram	4 - SIRIUS-HS-CHG+	D01328E852	2.7	2.7	Up to date	
		Reprogram	5 - SIRIUS-HS-ACC+	D00D34052B	2.4	2.4	Up to date	
		Reprogram	7 - SIRIUS-HS-STG	D0102EE227	1.13	1.13	Up to date	
Files and folders		Reprogram	8 - SIRIUS-HS-LV	D012914BC1	2.4	2.4	Up to date	
Storing	٩.	Reprogram	9 - SIRIUS-AO	D00B6A3DC2	1.1	1.1	Up to date	
Reports								
Security								
(Update								
X Advanced								
Licensing								
	5	Selected device	s for upgrade: 3				۲	Upgrade
							ОК	Cancel

Image 145: Firmware upgrade

Upgrade process

Download the Dewesoft upgrade package (.dxu file) from the Dewesoft downloads page under section drivers.

Copy the file into the Firmware folder of your <u>Dewesoft X</u> installation (D:\DewesoftX\System\X\Firmwares).

Connect the Dewesoft instrument to PC and run Dewesoft X software.

Go to Settings and the Update menu. If the firmware package isn't selected, select it by pressing the "three-dot button" and find the folder

		Image 146: Fi	rmware upgrade pack		
select firmware pack	age file				
$\leftarrow \rightarrow \cdot \wedge \square$	→ This PC →	Local Disk (D:) > DEWESoft	> Firmware		
Organise 🔻 New	folder				
Organise New	folder Name	-	Date modified	Туре	Size
Organise ▼ New Quick access	folder Name	a pdatePackagę,dxu	Date modified 26/08/2016 20:34	Type DXU File	Size 6,610 KB

Select the device you want to upgrade and start the firmware upgrade by pressing the Upgrade button. The window should appear indicating that the upgrade has begun:

Firmware upgrade	
1 - SIRIUS-HS-HV (D010C7807C) Uploading	12%
2 - SIRIUS-HS-HV (D010C65F8E) Uploading	0%
3 - SIRIUS-HS-HV (D010C7807E) Uploading	0%
Please wait	 Close

Image 148: Firmware upgrade progress

Wait until the software finishes the upgrade and close the window. After the upgrade, the device status should turn green and say 'Up to date'.

+	Select	Device name	Serial number	FW version	FW new version	Status	Change log
4	Reprogram	SIRIUSi-HS	D0191FC729	7.4.0.75	7.4.0.75	Up to date	
	Reprogram	1 - SIRIUS-HS-HV	D010C7807C	2.0	2.0	Up to date	
	Reprogram	2 - SIRIUS-HS-HV	D010C65F8E	2.0	2.0	Up to date	
	Reprogram	3 - SIRIUS-HS-HV	D010C7807E	2.0	2.0	Up to date	
	Reprogram	4 - SIRIUS-HS-CHG+	D01328E852	2.7	2.7	Up to date	
	Reprogram	5 - SIRIUS-HS-ACC+	D00D34052B	2.4	2.4	Up to date	
	Reprogram	7 - SIRIUS-HS-STG	D0102EE227	1.13	1.13	Up to date	
	Reprogram	8 - SIRIUS-HS-LV	D012914BC1	2.4	2.4	Up to date	
	Reprogram	9 - SIRIUS-AO	D00B6A3DC2	1.1	1.1	Up to date	

Image 149: Firmware up to date

Warning: Do not disconnect the device while upgrading the firmware!

Hardware

ADVANCED							
Hardware	⊖ Dewesoft devices						
Visuals	USB speed limit warning (per slice) If speed is exceeded, warning will be shown in channel	26	MB/s				
Math	USB buffer size	2	s				
Diagnostics	CAN buffer size	20000	messages				
Analysis	SoftSvnc sample rate limit	100					
NET	Always enable USB system driver						
Experimental	If Dewesoft USB system driver is disabled in Device Manager,	it will be enabled automatically	۲				
Performance	Disable EtherCAT interface Check this option if you do not want Dewesoft to scan for or	use EtherCAT devices	0				
Warnings	Use WinPCAP driver for EtherCAT device When checked, Dewesoft will use old driver		0				
Export	Set Sirius sample rate limit to 204.8 kHz Set maximum sample rate to 204.8 kHz for DW-43, Sirius, Siriu	us-CD and Sirius-CD	0				
	Decode 2nd part of IRIG time frame Create system channel to decode 2nd part of IRIG frame		0				
	Not resetting acquisition while timing is lost		0				
	Available sample rates Choose reduced set if combination of all channel sample	Full set	~				
	rates causes low update rate Channel sample rate behaviour						
	If global sample rate is changed, channel sample rate will be changed to selected option	Set to global sample rate	\sim				
	Disable HW sample rate dividers Check this option if you want to disable hardware sample rate	e dividers (only for Dewesoft USB Devices)	0				
	⊗ Amplifiers						
	Scan TEDS only once If checked, TEDS scan will be performed only once instead o	f continuos scanning	0				
	Write Dewesoft TEDS templates only If checked, only Dewesoft TEDS templates will be written. Normally TEDS write tries to write standard templates for better compatibility.						
	Shunt calibration error limit	2	%				
	Capacity check error limit	10	%				
	Disable additional software high pass filter if below calcula	ation limit	0				
	Enable calibration by shunt		0				
	Disable reading of external TEDS on DSI adapters Some DSI adapters (DSI-ACC) are able to read external TED!	5	0				
	Always keep TEDS header serial number If checked, TEDS header serial number will always stay the sa template will be updated	ame and only serial number inside Dewesoft sensor	0				
	Allow changing offset when scaling is disabled If checked, and analog input channel scaling is set to "RAW",	user will still be allowed to change offset	0				
	⊗ CAN						
	CAN default to acknowledge mode When new device is found, acknowledge mode will be selected	ed by default.	0				
	⊘ Digital filters						
	Default LP filter	A IN IN THE ONE OTHER					
	Default low pass filter setting. If wanted filter is not available on connected device, first filter will be selected	And-aliasing fitter (IIR)	~				
	AAF (zero-phase distortion) transition width "Auto adjust" will set AAF to 16% transition width (up to 1:100 of sr. ratio). When "user defined" is selected transition width will be always achived, but computational	Auto adjust	~				
	load can become heavy. Enable alias free filtering on Sirius-HS Enable alias free filtering on Sirius-HS when selecting manual :	0					

Dewesoft devices

• USB speed limit warning (per slice) - here you can define the USB speed limit per slice. If the speed is exceeded, the warning will be shown in the channel setup.



Image 151: USB speed limit exceeded

- Softsync sample rate limit we can define the maximum sample rate limit if two devices are synced with soft sync (e.g. <u>KRYPTON</u>). The software synchronization accuracy is around 2-10 ms, which is enough for simple temperature measurement. This synchronization solution requires no additional hardware.
- Always enable USB system driver if Dewesoft USB system driver is disabled in device manager, it will be enabled automatically
- Disable EtherCAT interface check this option if you do not want Dewesoft to scan or use EtherCAT devices
- Set SIRIUS sample rate limit to 204.8 kHz set maximum sample rate to 204.8 kHz for DW-43, Sirius, Sirius-CD and Sirius-HD
- Decode 2nd part of the IRIG time frame DS-Clock can now decode also 2nd part of the IRIG signal. Once this option is enabled, a
 new channel is shown in the system monitor.

4		DS-CLOCKv2 (D02FD233)			
	• Used	SyncTimeTracking	Sync Lost		
	• Used	AbsTime	-1,0000		
	• Used	SecPartOfIRIGFrame	1,000		

Image 152: Enable 2nd part of IRIG

- Not resetting acquisition while timing is lost with this option enabled, Dewesoft will continue recording even if the timing is lost.
- Available sample rates

	Measure		Analyse Dewest	oft les Ch. setup	Measure		measure		Q Analyse	Deweso Setup fil	oft les	Ch. setup	1	Measure
O Store	E Save	5	Save as Storing	Math	More.	O Store	E Save	5	Gave as Str	oring A	M Analog	j <mark>1</mark> in M	i ÷ ΓΣ΄ 1ath	More.
Device p	preview			Dynamic acquisition	n rate	Device	preview				Dyna	mic acquis	ition	rate
58705÷ 	<mark>0</mark> ,0,0		0,0	1000000 ~ (Hz) ~	Bandwidth: 390625 Hz	58905÷	<mark></mark>		e <i>i</i> ,	<u>0</u>	1000 (Hz)	000	~ •	Bandwidth: 390625 Hz
Search			Q			Search			۹					
ID	Used	C.	Sample rate	Name	Ampl. n	ID	Used	C.	Sample r	ate		Name		Ampl. n
1	Used		1000000 🔻	AI 1	SIRIUS	1	Used		100000	0 🔻		AI 1		SIRIUS
2	Unused		✓ 1000000	AI 2	SIRIUS	2	Unused		✓ 1000000		L	AI 2		SIRIUS
3	Unused		500000	AI 3	SIRIUS	3	Unused		200000		L	AI 3		SIRIUS
4	Unused		250000	AI 4	SIRIUSH	4	Unused		100000		L	AI 4		SIRIUS-
5	Unused		200000	AI 5	SIRIUSH	5	Unused		50000	L	AI 5		SIRIUS-	
6	Unused		125000	AI 6		6	Unused		25000			AI 6		
7	Unused		62500	AI 7	DSI-AC(7	Unused		25000		AI 7		DSI-ACC	
8	Unused		50000	AI 8	SIRIUS	8	Unused		20000			AI 8		SIRIUS
			40000						8000					
			31250						5000					
			25000						4000					
			20000						2500					
			15625						2000					
			12500						1000					
			10000						800					
			8000						500					
			6250						400					
			5000						200					
			4000						100					
			3125						50					
			2500								_			
			2000											
			1600											
			1250											

Image 153: Full and reduced sample rate divider set

• Channel sample rate behavior -allows you to choose the behavior of the channel sample rate in relation to the global sample rate.

Channel sample rate behaviour	
If global sample rate is changed, channel sample rate will	Set to global sample rate $$
be changed to selected option	Set to global sample rate
Diazhla HW azmala rata dividara	Keep channel sample rate dividers
Disable Hwy sample rate dividers	Keep channel sample rate
Check this option if you want to disable hardware sample rate of	Keep channel sample rate (RoundUp)

Image 154: Channel sample rate behavior

• Disable HW sample rate dividers - disables HW drivers and uses software sample rate dividers instead

Amplifiers

• When we have sensors with TEDS chip, we have to scan it. If we enable this option, we scan for TEDS chip only once or we can continuously scan for TEDS sensors and leave this option disabled.

Used	AI 1	Accelerometer	SIRIUS-ACC	IEPE	10000 mV	Acceleration	m/s2	-981,74	0,01	981,74	Setup

When the sensor is read, we can see the serial number, settings of the amplifier, and the sensitivity of the sensor.

- Write Dewesoft TEDS templates only
- Shunt calibration error limit (works on STG, STGM modules) The shunt calibration can be used to measure and correct the
 resistance of strain gages. Shunt calibration takes a while since it has to set several configurations and measure back the results.
 With the Shunt calibration error limit, we define the maximum allowed deviation from the Shunt cal target value. If the value is more
 than 2%, the results are not ok and if the result is under 2%, the result is accepted.

Used sensor	123	456	Q,	 Used ser 	nsor	123456		Q,v
Physical quant	ity Stra	n	``````````````````````````````````````	Physical	quantity	Strain		~
Unit	um/r	n	``````````````````````````````````````	/ Unit		um/m		~
Shunt cal targ	et 3005	i um/	ím Check	Shunt ca	l target	2965	um/m	Check
Use custon shunt resis	tor 59,8	8 kOh	m Result -3,0 %	Use of shunt	ustom t resistor	59,88	kOhm	Result -1,7 %
Lead wire compensation	1,00	1 Re	set Compensate	Lead wire compens	e ation	1,001	Reset	Compensate

Image 156: Shunt calibration error limit

• Capacity check error limit (works on CHG modules) - if we have connected charge sensors, we can perform the Capacity check. We have to enter the known value for the capacity target. After the value is input, we press check. Dewesoft will generate a sine wave and check what is the actual capacity. After this procedure is finished, Dewesoft will give us the actual capacity and the error. If the value is bigger than our defined value, it will be written in red color.

Used sensor	<no senso<="" th=""><th>r></th><th>Q,¥</th></no>	r>	Q,¥
Physical quantity	<custom></custom>		~
Unit	m/s2		
Capacity target	0,011	nF	Check
	Result 0,0	1 nF (-15	,1 %)

Image 157: Capacity check error limit

Option Enable calibration by the shunt enables you to trust your shunt calculation result and use it for further measurement.

Used sensor	123456			Qv
Physical quantity	Strain			
Unit	um/m			\sim
Shunt cal target	2965	um/m	Check	Cal
Use custom shunt resistor	59,88	kOhm	Result -1	,8 %
Lead wire compensation	1	nsate		

Image 158: Enable calibration by shunt

- Disable additional software high pass filter if below calculation limit If this checkbox is checked and the SW-HPFilter limit is reached, no additional SW-HPFilter will be calculated. The SWHPFilter is needed for slow accelerometers to see also very low frequencies, and offset is ignored. If this checkbox is not checked and the limit of SW-HPFilter is reached, the SW-HPFilter is calculated based on the limit possible (offset can bother customers more than the very low frequencies missing). In the end, it depends on the sensor used and what the users want to see from it. This option is special for some customers who have MSI-ACC (or DSI-ACC). Also, some accelerometers in the IEPE mode might still have some offset even if the amplifier has an HW-HPFilter. To remove this offset, we calculate a HPFilter frequency based on this formula: Frequency(SW-HPFilter) = Frequency(HW-HPFilter) / 10. In most cases, this does not make any problems, but there are MSI-ACC which have an HW-HPFilter at 0.08 Hz. Depending on the sample rate, we can easily run into the limit of SW-HPFilter calculation where it is simply not possible to calculate it anymore.
- Always keep TEDS header serial number
- · Allow changing offset when scaling is disabled

CAN

CAN can be set to acknowledge mode by default when a new device is found.

CAN default to acknowledge mode When new device is found, acknowledge mode will be selected by default.	Ø

Image 159: CAN acknowledge mode

We can see the CAN operation mode when selecting the settings of a measurement device. In read-only mode, the DAQ device can only read messages from CAN data.

CAN 1																		
Operation	Operation mode: read only.																	
Bus setting					Bus tra	ffic												
Bus type		Bus s	speed		Err. ms) (/0											
J1939		500	√ kBau	d	Stor	e all m	essage	s										
					Scar	n												
Messages																		
			Rx Tx		View			Filter			1 messages							
Search		Q	\odot	Θ	Mess	age	~	Rx / Tx 🗸 🗸	Import	Export	1 channels							
+ ARB.	. E	lits	Frequency	Use	d [C .	R/T	Name			Description		Unit	Min	Value		Max	Setup
4	0h DL	2 = 8	0,0 Hz	Us	ed		Rx	Message			-							Setup
	0h 0	(16)	0,0 Hz	U	ed		Rx	Channel			-		-	0	0	(-)	65535	Setup

Image 160: CAN read-only operation mode

In Read/write/acknowledge mode, the DAQ device can read and send CAN data. To add a new transmit channel, click the icon in a red square.

CAN 1														
Operation mo	Operation mode: read acknowledge/write only once.													
Bus settings					File transmit									
Bus type	speed	Err. msg	16 / 0	Transmit delay [ms] Fi	e									
J1939 500 ∨ kBaud				l messag	jes 0	0								
Scan Transmit on start measure														
Messages	Nessages													
		Rx Tx	View		Filter	2 messages (Rx:1/Tx:								
Search	Q	\odot	Message	•	✓ Rx/Tx ✓ Imp	ort Export 2 channels (Rx: 1/Tx:	l)							
+ ARB.	Bits	Frequency	Used 🔳 C	R/T	Name	Description	Unit	Min	Value	Max	Setup			
⊿ 0h	DLC = 8	0,0 Hz	Used	Rx	Message	-					Setup			
• 0h	0 (16)	0,0 Hz	Used	Rx	Channel	-	-	0	0 (-)	65535	Setup			
⊿ ^T × 1h	DLC = 8	10,4 Hz	Transmit	Tx	Message	-					Setup			
• ^{Tx} 1h	0 (16)	10,4 Hz	Transmit	Тх	Channel	-	-	0	0 (-)	65535	Setup			

Image 161: CAN read-write acknowledge operation mode

Digital filters

- Default LP filter setting- if the wanted filter is not available on a connected device, the first filter will be selected
 - OFF
 - Anti-aliasing (IIR)
 - AAF (zero-phase distortion)
 - Ring free
- AAF (zero-phase distortion) transition width
 - Auto adjust will set the AAF to 16% transition width (up to 1:100 of sample rate ratio)
- · User-defined the transition band will always be achieved, but the computational load can become heavy
- Enable alias-free filtering on Sirius-HS This option enables additional AAF has a cut-off frequency at 80 kHz, when the sample rate is equal or above 160kHz or a cut-off frequency of s/2 when the sample rate is under 160 kHz.

Visuals

ADVANCED			
Hardware	⊗ Graphics		
Visuals	Use asynchronous buffer for GDI calls		Ø
Math	Asynchronous buffer size	4096	kB
Diagnostics	⊗ XY graph		
Analysis	Delta cursor angle offset	0	deg.
NET	Delta cursor decimal places	5	
Experimental	Show auto scale Show auto scale option in measure mode		0
Performance	Auto scale period	5	s
Sequencer	seconds.		
Warnings	⊗ 3D graph		
Export	Show miss distance calculation		0
	Max vertex count	300000	
	⊗ GPS map		
	Max samples shown Maximum number of GPS samples shown on GPS map.	1000000	
	⊙ Scope		
	Memory size Scope trigger memory size per channel	100000	samples
	Maximum picture size Maximum scope trigger picture size	20000	samples
	Maximum number of pictures Maximum number of scope trigger pictures per channel	1000	

Image 162: Advanced visuals

• Graphics

Use asynchronous buffer for GDI calls option allows you to use a dedicated thread for the graphics.

⊗ Graphics			
Use asynchronous bu	Iffer for GDI calls		0
Asynchronous buff	fer size	4096	kВ

Image 163: Graphics device interface

• In the XY graph, we define delta cursor angle offset and delta cursor decimal places.

In image 145, the delta cursor offset is set to 0, and the delta cursor decimal places are set to 5. We can see that the dX and dY have 5 decimal places and the angle is 60Ű. In image 146, we can see that the decimal places of the dX and dY have increased to 10 places, and the offset of the angle for 5Ű and is now 65Ű.

⊗ XY graph

Delta cursor angle offset	0	deg.
Delta cursor decimal places	5	
Show auto scale Show auto scale option in measure mode		0
Auto scale period Auto scale on X and Y axis will be performed every x seconds.	5	s

Image 164:XY graph settings



Image 165: Default cursor options



Image 166: Modified cursor options

- 3D graph
 - Show missed distance calculation
 - Max vertex count (The number of points generated for the 3D graph widget. The points can be limited if you are running out of memory.)
- GPS map
 - Max samples shown (This is the maximum number of samples which will be still shown in the GPS map)
- Scope
 - Memory size (Scope trigger memory size per channel.)
 - Maximum picture size
 - Maximum number of pictures

Math

Under the math section, we can enable sharper anti-aliasing filter in the order tracking.

ADVANCED		
Hardware	⊗ Order tracking	
Visuals	Sharper anti-aliasing filter Better filtering of higher harmonic components for the cost of less exact phase calculation. In case of deselecting	9
Math	this option, user should filter input data to order tracking with low-pass filter (FIR) when a lot of higher frequency components are present in the signal.	۲
Diagnostics		

Diagnostics

ADVANCED					
Hardware	⊗ System monitor				
Visuals	Show performance monitor on startup Show system info (CPU load, disk space, buffe	Show performance monitor on startup Show system info (CPU load, disk space, buffers, task manager,) in measurement screen			
Math	System info default page	Performance	~		
Diagnostics	Hardware debug channels		0		
Analysis	Show debug system channels (sync error, IRIC	3 time, VCXO values etc.)			
NET					
	Image 168: Advan	ced diagnostics			

When we are in the measure screen we can access the system performance by pressing a shortcut CTRL+SHITF+P. Here, we can set that as the default part of the screen.



Image 169: Performance monitor

The default system info page can be selected as Performance or Details.

	Measure Analyse Setup files Ch. setup Measure							
	Measure		setup measure		_			
C)目	💾 🔍 🗠	M Tž	-	+			
Store	e Save	Save as Storing Sys. mon.	Analog in Math	Mo	re Remove			
	Shutdown on c	ritical limit						
+	Used	Name	Values		Check limits	Warning limit	Critical limit	
4		System						
	Used	CPU 1	8	(%)				
	Used	CPU 2	2	(%)				
•	Used	CPU 3	4	(%)				
	Used	CPU 4	18	(%)				
•	Used	CPU 5	6	(%)				
	Used	CPU 6	0	(%)				
	Used	CPU 7	0	(%)				
	Used	CPU 8	4	(%)				
	Used	CPU (AVE)	5	(%)	Check if above (>)	90,00 %	100,00 %	
	Used	MemTotal	6923,0	(MB)				
	Used	MemFree	6786,0	(MB)	Check if below (<)	90,00 MB	100,00 MB	
	Used	MemUsed	137,0	(MB)				
	Used	AcqRefreshTime	0,0607	(s)				
	Used	DiskTotal	228390	(MB)				
	Used	DiskFree	123809	(MB)	Check if below (<)	90,00 MB	100,00 MB	
	Used	StoreMemUsed	0,0	(MB)				
	Used	AcqDisplayTime	0,0006	(s)				
	Used	AcqAcquireDataTime	0,0002	(s)				
•	Used	AcqStoreTime	0,0000	(s)				
	Used	DataFileSize	0,0	(MB)				
4		Synchronization						
	Used	SyncTimeTracking	Sync Lost					
4		SIRIUSi-HS (D017F1AF61)						
	Used	Temperature	35	(C)	Check if above (>)	81,00 C	90,00 C	
	Used	FanSpeed	0	(%)				
	Used	USBMemUsed	0	(%)				
	Used	SyncTimeTracking	Tracking					
	Used	AbsTime	-1,0000					
	Used	VCXOValue	8848					
	Used	SyncPhaseError	0,0000000	(us)				

Image 170: Dewesoft system monitor

Analysis

ADVANCED				
Hardware	⊗ Analysis			
Visuals	Automatically select output channel on sound card			
Math	Select synchronous channel as output for sound 0 replaying in analysis mode (0None, 1first sync channel,)			
Diagnostics	Use relative event time by default for new setups O			
Analysis				
NET				
Image 171: Advanced analysis				

Here, you can select the synchronous channel as output for sound replaying in analysis mode (0 - none, 1 - first sync channel, ...).

Let's say we measure the signal from 5 channels and want to use the third one (AI 3) as the default channel for sound replay.

ID	Used	C.	Name	Ampl. name	Range 🔳	Measurement	Min	Values	Max	Units	Zero 🔳	Setup
1	Used		AI 1	SIRIUS-HS-ACC	10 V	Voltage	-10,00	0,000	10,00	V	Zero	Setup
2	Used		AI 2	SIRIUS-HS-ACC+	10 V	Voltage	-10,00	0,000	10,00	٧	Zero	Setup
3	Used		AI 3	SIRIUS-HS-CHG+	10 V	Voltage	-10,00	0,000	10,00	v	Zero	Setup
4	Used		AI 4	SIRIUS-HS-HVv2	20 V	Voltage	-20,00	0,000	20,00	V	Zero	Setup
5	Used		AI 5	SIRIUS-HS-STG	10 V	Voltage	-10,00	-0,001	10,00	v	Zero	Setup
6	Used		AI 6	SIRIUS-HS-STG	50 V	Voltage	-50,00	0,00	50,00	v	Zero	Setup
7	Used		AI 7	SIRIUS-HS-LVv2	50 V	Voltage	-50,00	0,00	50,00	V	Zero	Setup
8	Used		AI 8	SIRIUS-HS-LVv2	100 V	Voltage	-100,00	0,06	100,00	V	Zero	Setup

Image 172: Default channel for sound output

To set the third channel (AI 3) as the channel for sound replaying, just enter the number 3 in a checkbox.

Automatically select output channel on sound card	
Select synchronous channel as output for sound	3
channel,)	

Image 173: Automatically select the output channel on the sound card

After storing and replaying the data file, we can see the third channel (AI 3) as the default sound replay output channel.

		Q	Dev	vesoft	X - Data	file: Test	.dxd		
	Measure	Analyse	Dat	a files	Setup	Review	Print	Export	
	•	→	(()	2					¢
Play	Speed 1x	Normal	Sound	Out	put chan	nel	>	None	
			a na da a	Sca	ling		>	AI 1	
Pecor	dar		12/08/2020	10.69.01				AI 2	
O RECOI			C:\De	ewe	soft\R	elease	•	AI 3	
Controls	1 😔	$\oplus \odot$						AI 4	
Columns	1 Θ	\odot	0					AI 5	
Transpare	ncy O	FF 😔	0.0					AI 6	
Unified pro	operties	Ø	=					AI 7	
								AI 8	

Image 174: Default output channel example

Use relative event time by default for new setups - with the new setup all the events will have the event time in relative time. If this option is disabled, the default time will be absolute. The time type can be also changed during measurement by right-clicking on the event and change time display.



Image 175: Relative time events

NET

ADVANCED			
Hardware	⊘ Connection		
Visuals	Starting TCP/IP port for MU data connection		
Math	Hist NET measurement unit connects to this port on client when data transfer is initiated. Subsequent MUs connect to the next port counting downwards. Port 8999 is	8998	
Diagnostics	reserved as command port on MUs and slave clients.		
Analysis	Allow NET connection in master mode Allow NET client connection to this unit if it is in master client or master measurement unit mode	None	~
NET	Send display from slave measurement units		0
Experimental	⊙ Cross trigger		
Performance	Selected network interface for cross trigger	Bluetooth Device (Personal Area Network)	~
Sequencer	Multicast group		
Warnings	Measurement units inside same multicast group will share trigger conditions when cross trigger is enabled	224.3.4.1	
Export	Cross trigger delay Maximum delay for received cross trigger event	0,5	
	⊗ Setup screen connection		
	Keep client connection on view change (needs Dewesoft 6	54-bit version)	0
	Default protocol for connection	VNC	\sim
	Default password		
	⊗ Events		
	Accept events from dients	Disabled	\sim

Image 176: Advanced NET settings

• Connection

Starting TCP/IP port for MU data connection. (It is possible to define the starting port on the master measurement unit.)

For example, if the starting port is 8998, this port will be used by the first measurement unit. The second measurement unit will use port 8997. The port 8999 is fixed and can't be changed. This port needs to be opened on both master and slave units.

The port 1999 is used for Dewesoft launcher and also needs to be opened.

Allow NET connection in the master mode (If Dewesoft is Master client or Master measurement unit, it is possible to define which clients are allowed to connect.)

- None
- · View client only
- · Master or view client
- Cross trigger
 - Selected network interface for the cross trigger Select the network card which is used for the NET system.
 - Multicast group Set-up the same IP multicast address on both master and slave units for the cross trigger to work correctly.
 - Cross trigger delay Maximum allowed network delay for the cross trigger.
- Setup screen connection

Keep client connection on view change (needs Dewesoft 64-bit connection. The master PC stays connected to the slave units even when they aren't selected. This allows a smoother transition between the slave units.)

Default protocol for connection:

• VNC (ultra VNC) - Default password - by default, the password is set to a but for better security Dewesoft allows you to

change the password.

- RDP (Windows Remote Desktop) The remote desktop offers two types of authentication:
 - Use Windows credentials If the master unit was already connected to a slave unit via remote desktop, and if the connection is saved, this option can be used.
 - $\circ~$ User name and password If the master unit is connecting to the slave unit for the first time.

• Events

It is possible to define which events will be shown on the master client or master measurement unit.

How to import License?

The license for measuring with <u>Dewesoft X</u> is included in the device (usually PROF version). Once it is connected to the USB port, it acts as a dongle.

The license for *analyzing* is *free*! <u>Dewesoft X</u> can be installed on any computer and the stored data files can be opened, recalculated, and exported.

Additional licenses can be required for plugins, these can then also be written into the Dewesoft® device. To test plugins, you can request a 30-days-Evaluation license.

Search Q	LICENSING	
Devices	Trial	
Extensions	Details Expires: 06-Jul-20	\odot
Global variables	⊘ Active licenses	
Data header	DWL-PBVN-YLW8-2111	*
U Startup		
Performance	⊘ Create new license	
User interface	Warning: License will be valid only for the measurement hardware (or computer MAC) and options which are chosen at this moment. Please may you choose all the devices, options and plugins which you will use.	ke sure that
Files and folders	Software will be registered to the following hardware MAC address (5 kevs) A/D (1 kev)	
Storing	License number /	\odot
	⊙ Import license	
Update		
X Advanced		
🔊 Licensing		
	ок	Cancel

Image 177: Licensing

Under the licensing section, you see your Active licenses, Create a new license, or Import offline license (*.lic file format).

Make sure that all the hardware which you intend to use is connected and switched on. Only in this case, the registration will be fully done for all measurement hardware being used. The license is then generated to hardware keys of the hardware OR to computer MAC address. So you can use the same hardware with the license file on any computer and you can also exchange the measurement hardware on the same computer with a need that MAC addresses are the same.

Offline registration

If your measurement PC has access to an internet connection, you can register directly from within <u>Dewesoft X</u> software. If not <u>Dewesoft X</u> will automatically offer offline registration.

⊘ Active licenses		
⊗ Create new license		
Warning: License will be valid only for the measur you choose all the devices, options and plugins w	ement hardware (or computer MAC) and options which are chosen at this moment. Please make sur- hich you will use.	e that
Software will be registered to the following h MAC address (4 keys) A/D (1 key)	ardware	
License number	XXX-XXXX-XXXX-XXXX	Ø
⊙ Import license		
	Imone 179: Enter your licence key	

If there are no DAQ devices connected to the computer, the license is generated only for MAC addresses of the PC.



<u>Dewesoft X</u> will connect to the internet and will register automatically (online). If there is no internet connection, <u>Dewesoft X</u> will offer offline registration.



Dewesoft X will create a *.lic file and you have to save it to the computer.

Copy the created ".lic" license file from the measurement computer, and transfer it to a computer with internet access. Visit Dewesoft home page, and select <u>registration</u>.

Offline registration

Evaluation license



Drag and drop files or click to browse (allowed files: lic)

Image 181: Drop created license file on Dewesot's registration page

When you drop your license, the following window will appear. Please, download the generated file.

Save and overwrite the new ".lic" file over the ".lic" file on the measurement computer.

Image 182: Save and overwrite the new .lic file over the old .lic file

Restart Dewesoft X software and select the option Import license. Import the *.lic file that was downloaded from the web page.

⊗ Import license

Import offline license...

Image 183: Restart Dewesoft X software and select Import license

 \odot

Evaluation license

To receive a fully functional 30-day evaluation license for <u>Dewesoft X</u> software, fill and submit the form below. Data marked with * is required. Please provide a valid email address to which we can send the evaluation license.

📥 DEWESoft®	Products Ap	plications Support	About us	Careers	Training	EN V D 🖯	
Contact us	ー こうしょう しょう しょう しょう しょう しょう しょう しょう しょう しょう		E RMA service	Forum discussions	FAQ) Helpdesk	> Developers	
	Online registration	Offline regi	stration	Evalua	ation licence]	
	To receive a fully functiona below. Data marked with (* evaluation license.	30-day evaluation license fo) are required. Please provide	or DEWESoft X soft e a valid email addr	tware fill out and sub ress to which we car	omit the form In send the		
	LICENSE*	3 SP6 and later)			•		
	FIRST NAME*						
	LAST NAME*						We're here to help!
	COMPANY*	est for a 30-day	evaluation	license for	Dewesoft 3	x	

Write license to Dewesoft devices

When we have a software license on our PC, we can also write the license to Dewesoft measurement devices. This can be done, so the devices can be used also with another computer.

⊘ Active licenses		
DWX-H5I2-5Q6E-IJH1		
TRIAL	SIRIUSi (D0060B515F)	Write license to >
	DEWE-43-A (D07C0FC5)	
⊘ Create new license		
⊗ Import license		
© Create new license ⊙ Import license	DEWE-43-A (D07C0FC5)	<u> </u>

Image 185: You can write licenses on measurement devices

If the license is already written on the measurement device, a warning will appear. We can overwrite the existing license with a new one.



Image 186: If the license is already written on the measurement device, we get a warning