Exporting Stored Data In Dewesoft X

Exporting data

With Dewesoft X used as an acquisition package, we can use other post processing packages for advanced analysis. **Data export** is easy, fast, flexible and dynamic with Dewesoft X, supporting a wide variety of popular formats that make data files highly transportable and can be imported into virtually any analysis program.

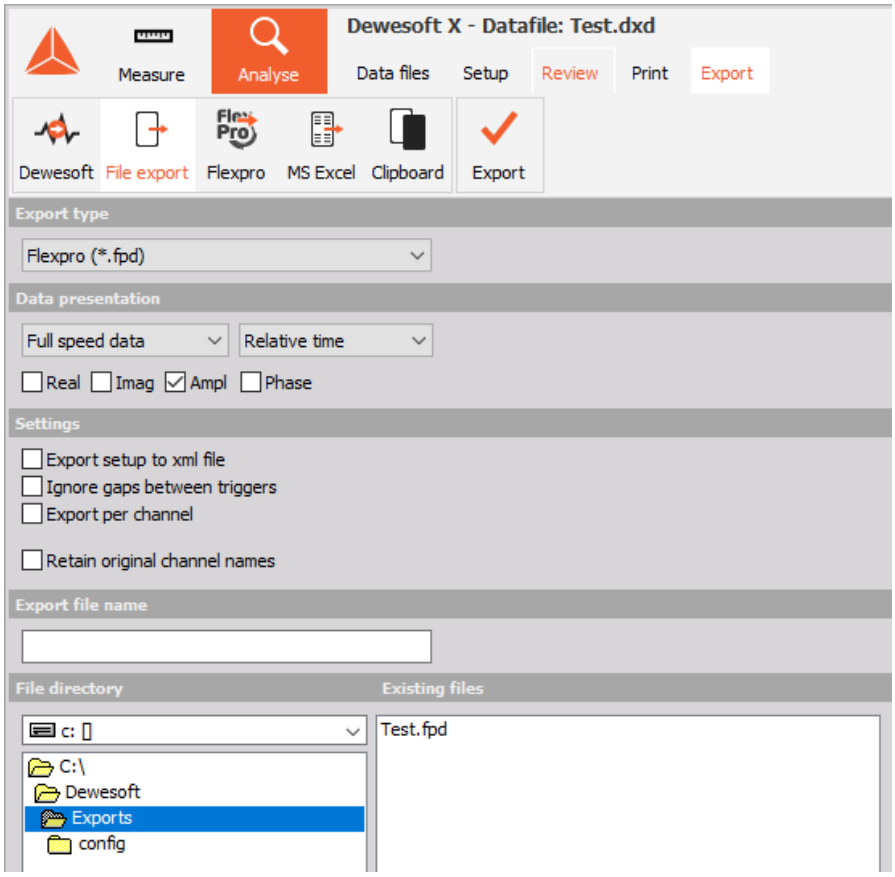


Image 1: Export tab in Dewesoft

To enable efficient export data process to perform the following procedure:

1. **Set export data properties** - define the type of data with data export and determine time axis (time range of data for export can be defined)
2. **Exported channels** - select the channels to export from channel list
3. **Export option** - select another software application as target for data export and offline analysis (MS Excel, FlexPro, Dewesoft, File export, Clipboard, ...)
4. **Template management** - create and edit templates (scripts) which are listed on central post-processing in FlexPro and MS Excel part of the screen
5. **Perform export data** - after all settings are done, select Export data button to export data

We have also two special procedures to:

- Export multiple files
- Export instrument display to video

Time range of data

Sometimes our data file contains a lot of acquired data and we don't need the whole range of data for analysis. We can select only one part of the data and perform analysis and export only on the selected part.

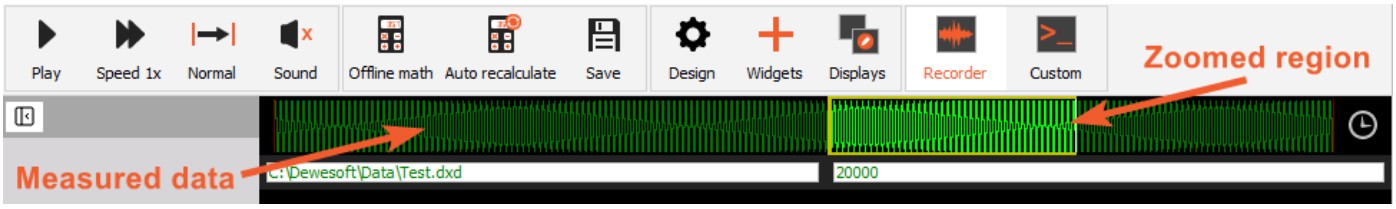


Image 2: Preview of the zoomed region

To export only a part of acquired data, select the time range on the recorder (or vertical recorder) with zooming in the portion of data.

NOTE: Only the selected portion of data will be exported. To export the full range of data, first zoom out to the entire length of data.

To export the selected data, press the **Export** button on the main Dewesoft X toolbar. The Export button is available only in Analyse mode.

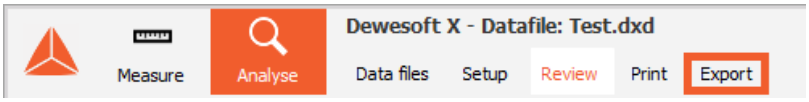


Image 3: Export tab

Once you press the Export button, the following window will appear:

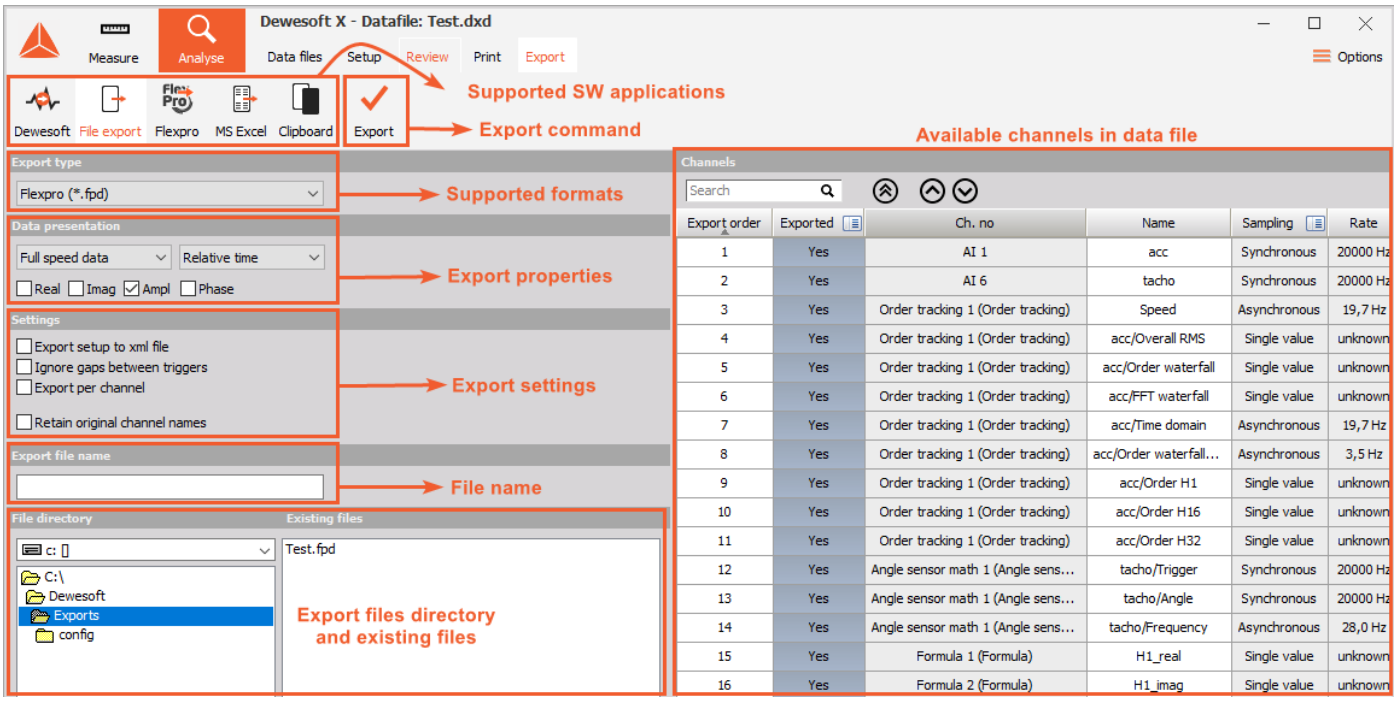


Image 4: File export window

Set export data properties

Data export

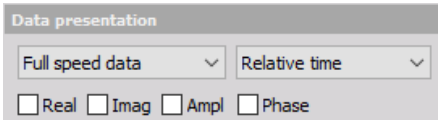


Image 5: Data presentation

Type of data

Select the type of data from the data export drop-down list.

- **Full speed data**, real data exported with full speed
  - **Real**, export the real part of the values
  - **Imag**, export the imaginary part of the values
  - **Ampl**, export the amplitude of the data
  - **Phase**, export the phase
- **Reduced data**, for this type of data we can select several different calculations
  - **Min**, export the minimum values
  - **Max**, export the maximum values
  - **RMS**, export the RMS of the data
  - **Average**, export the average from the data

Time axis

Select the type of time scale from time axis drop-down list:

- **Relative time** axis will start with time when the data storing started. If storing started at the beginning of the measurement the relative time is zero, otherwise it is the relative time when data storing started after the beginning of the measurement.
- **Absolute time** axis will export absolute date and time of measurement as the time axis.
- **Trigger time** axis will start with time 0 at the trigger point (pretrigger will show negative time values).
- **Pre Trigger time** axis will start with time 0 at the beginning of the measurement.

Exported channels

The next step is to select the channels to export from the displayed channels list:

Channels

Search

Export order	Exported	Ch. no	Name	Sampling	Rate	Data str...	Data type	Unit	Min value	Max va...	Export rate (Hz)	Resampler type
1	Yes	AI 1	acc	Synchronous	20000 Hz	Scalar	Integer	m/s2	-131,70	132,72	Default	Disabled
2	Yes	AI 6	tacho	Synchronous	20000 Hz	Scalar	Integer	V	-0,90	11,05	Default	Disabled
3	Yes	Order tracking 1 (Order tracking)	Speed	Asynchronous	19,7 Hz	Scalar	Single precision	rpm	170,91	3367,94	Default	Disabled
4	Yes	Order tracking 1 (Order tracking)	acc/Overall RMS	Single value	unknown	Vector (351)	Single precision	m/s2	0,00	0,00	Default	Disabled
5	Yes	Order tracking 1 (Order tracking)	acc/Order waterfall	Single value	unknown	Matrix (512x...	Single precision	m/s2	0,00	0,00	Default	Disabled
6	Yes	Order tracking 1 (Order tracking)	acc/FFT waterfall	Single value	unknown	Matrix (2048...	Single precision	m/s2	0,00	0,00	Default	Disabled
7	Yes	Order tracking 1 (Order tracking)	acc/Time domain	Asynchronous	19,7 Hz	Vector (3)	Complex (single)	m/s2	0,00	0,00	Default	Disabled
8	Yes	Order tracking 1 (Order tracking)	acc/Order waterfall...	Asynchronous	3,5 Hz	Vector (512)	Single precision	m/s2	0,00	0,00	Default	Disabled
9	Yes	Order tracking 1 (Order tracking)	acc/Order H1	Single value	unknown	Vector (351)	Complex (single)	m/s2	0,00	0,00	Default	Disabled
10	Yes	Order tracking 1 (Order tracking)	acc/Order H16	Single value	unknown	Vector (351)	Complex (single)	m/s2	0,00	0,00	Default	Disabled
11	Yes	Order tracking 1 (Order tracking)	acc/Order H32	Single value	unknown	Vector (351)	Complex (single)	m/s2	0,00	0,00	Default	Disabled
12	No	Angle sensor math 1 (Angle sensor math)	tacho/Trigger	Synchronous	20000 Hz	Scalar	Single precision		0,00	1,00	Default	Disabled
13	No	Angle sensor math 1 (Angle sensor math)	tacho/Angle	Synchronous	20000 Hz	Scalar	Single precision	deg	0,00	360,00	Default	Disabled
14	No	Angle sensor math 1 (Angle sensor math)	tacho/Frequency	Asynchronous	28,0 Hz	Scalar	Single precision	Hz	0,00	56,33	Default	Disabled
15	No	Formula 1 (Formula)	H1_real	Single value	unknown	Vector (351)	Double precision		0,00	0,00	Default	Disabled
16	No	Formula 2 (Formula)	H1_imag	Single value	unknown	Vector (351)	Double precision		0,00	0,00	Default	Disabled
17	No	Integral, derivative 1 (Time integration, derivation)	vel	Synchronous	20000 Hz	Scalar	Single precision	mm/s	-0,79	0,48	Default	Disabled

Image 6: Preview of the exported channels grid

Selection can be made in two ways:

- Click on the

  icon in the **Exported**column to select from displayed menu:
  - **Select all channels** - all the channels will be selected for export.
  - **Deselect all channels** - this will deselect all the channels. None of the channels will be exported.
  - **Invert selection** - this will invert you selection. The channels that were selected for export, will not be selected anymore and the channels that were not selected, will be selected for export.

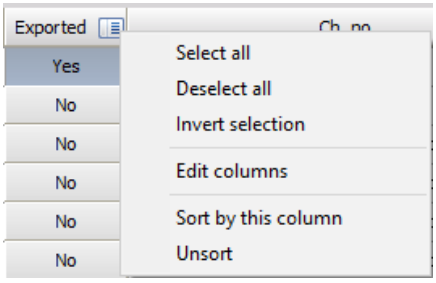


Image 7: Options of choosing the channels

- In the **Exported** column toggle between these choices to export/do not export particular channels. If the rectangular is in dark grey color, the channel will be exported and if the rectangular is in light gray color, it will not be selected for export.

Image 8: Exported column

NOTE: As a standard, all channels will be exported.

Channels can be moved up with the click on

button and down with the click on the

button. This will change the export order.

With the click on the

button, your selected channel will be moved on the top.

The export list options will be stored when we choose **Store settings and events** from main data manu,

Dewesoft X "online" export options

In Dewesoft X you can define which channel will be exported, in which order export the channel and the exported rate before starting the measurement.

Go to **Global channel view**, which can be found under More / General / Channels.

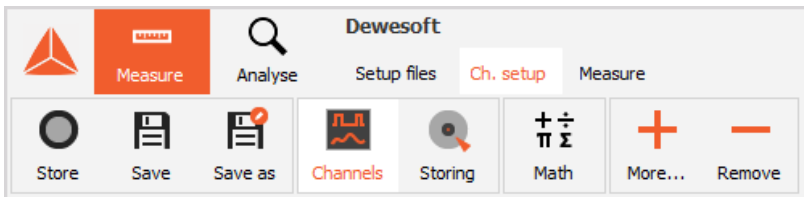


Image 9: Preview of all used channels in the measurement setup

Right click on the main column and select **Edit columns** option.

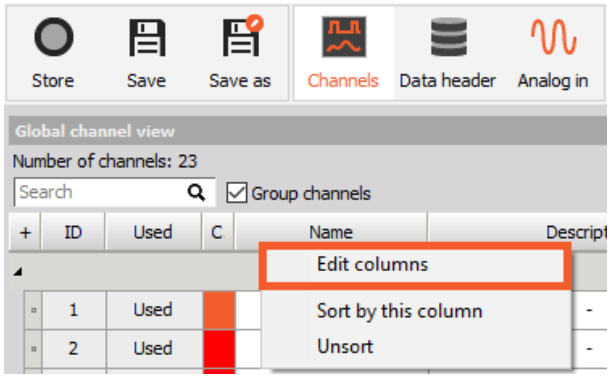


Image 10: How to change the columns in the grid

- Exported - in the Analysis mode, when exporting data, the channel will be selected for export.
- Export order - define the export order, channel with number 1 will be exported first, ...
- Export rate (Hz) - for each individual channel define the export rate.

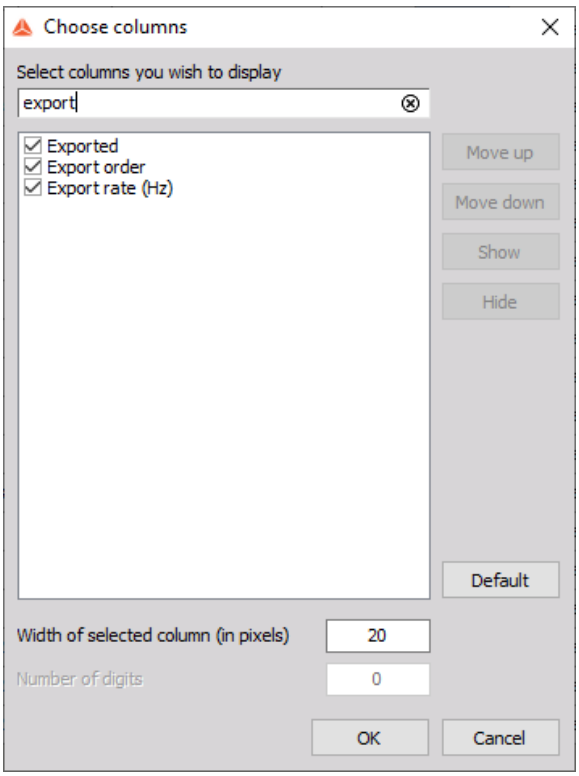


Image 11: Selected columns you wish to display

Export options - different formats

Dewesoft X supports the following data export possibilities. Simply click on the preferred application to select it.

Image 12: File export tab

- **Dewesoft** - stores selected area in new Dewesoft data file (used to cut files)
- **File export** - several file formats (txt, unv, uff, mat, dat, wav, ...)
- **FlexPro** - direct data transfer via ActiveX
- **MS Excel** - direct data transfer via ActiveX
- **Clipboard** - copy the data to Window's clipboard, it allows pasting the data into another running application

We strongly recommend FlexPro, a third-party application that is easy to learn and use, and yet extremely powerful. Dewesoft X offers easy export to this format and advanced automation when data is exported to this program, including the ability to run custom macro scripts inside.

The other file formats (except FlexPro and MS Excel) just prompt you for a filename, which you supply using s standard Windows file dialog box. Click **Export** and the software will do the rest. Be sure to supply a proper filename extension.

File export

The supported data file formats are:

- FlexPro [*.fpd] - Powerful, easy-to-use data analysis software
- Microsoft Excel [*.xls] - Standard spreadsheet software (not useful for large amounts of data)
- DIAdem [*.dat] - Powerful data analysis package for the automotive industry
- Matlab [*.mat] - Common analysis and mathematics package
- **Universal file format 58** [*.unv] - For import to 3D modeling and structural analysis software from different vendors
- FAMOS [*.dat] - FAMOS file format export
- **NSoft time series** [*.dac] NSoft file format
- Text File [*.txt] - Delimited ASCII text file
- **Sony** [*.log] - Sony DAT recorder data format
- RPC III [*.rsp] - RPC III data format used for road load data analysis
- **Comtrade** [*.cfg] - Comtrade data format for power analysis
- **Technical data management** [*.tdm] - LabVIEW compatible data format
- **JSON** [*.json] - JavaScript Object Notation format is an open-standard file format that uses human-readable text to transmit data objects
- **ASAM MDF4** [*.mf4] - Standard file format in the automotive industry
- **ASAM ODS** [*.atfx] - Standard file format in the automotive industry
- **S3** [*.s3t] - nCode S3 Time Series data type
- **ATI** [*.ati] - For direct import in iDEAS analysis package (available as custom export)
- **HDF5** [*.h5] - H5 files are commonly used in aerospace, physics, engineering, academic research, electronics

instruments, and medical fields

- **DynaWorks neutral file** [*.nt] - DynaWorks compatible data format
- **Standard data file (SDF)** [*.dat/sdf] - For direct import in Prosig analysis package (available as custom export)
- **WFT** [*.wft] Nicolet file format (available as custom export)
- **Replay** [*.rpl] - Used to simulate data readings from Dewesoft data acquisition devices
- **Wave** [*.wav] - Wave audio data format (available as custom export)
- **Google earth** [*.kml] Export of GPS path to Google earth (available as custom export)
- **BWF** [*.dat] - Multi channel audio data format (available as custom export)
- **CAN messages** [*.csv] - tab delimited export of CAN messages for replay in demo mode
- **CAN messages** [*.asc] - tab delimited export of CAN messages for replay in demo mode
- **IFile CA** [*.ifl] - Export of combustion data to AVL Concerto compatible
- **TAFFmat** [*.hdr] - Teac Data Acquisition File Format
- **Winplot** [*.sun] - Data format compatible with Winplot, a powerful desktop graphical analysis tool that allows the user to generate displays of unrestrictive amounts of data.

File export

If you select the **File export** option, the following display appears:

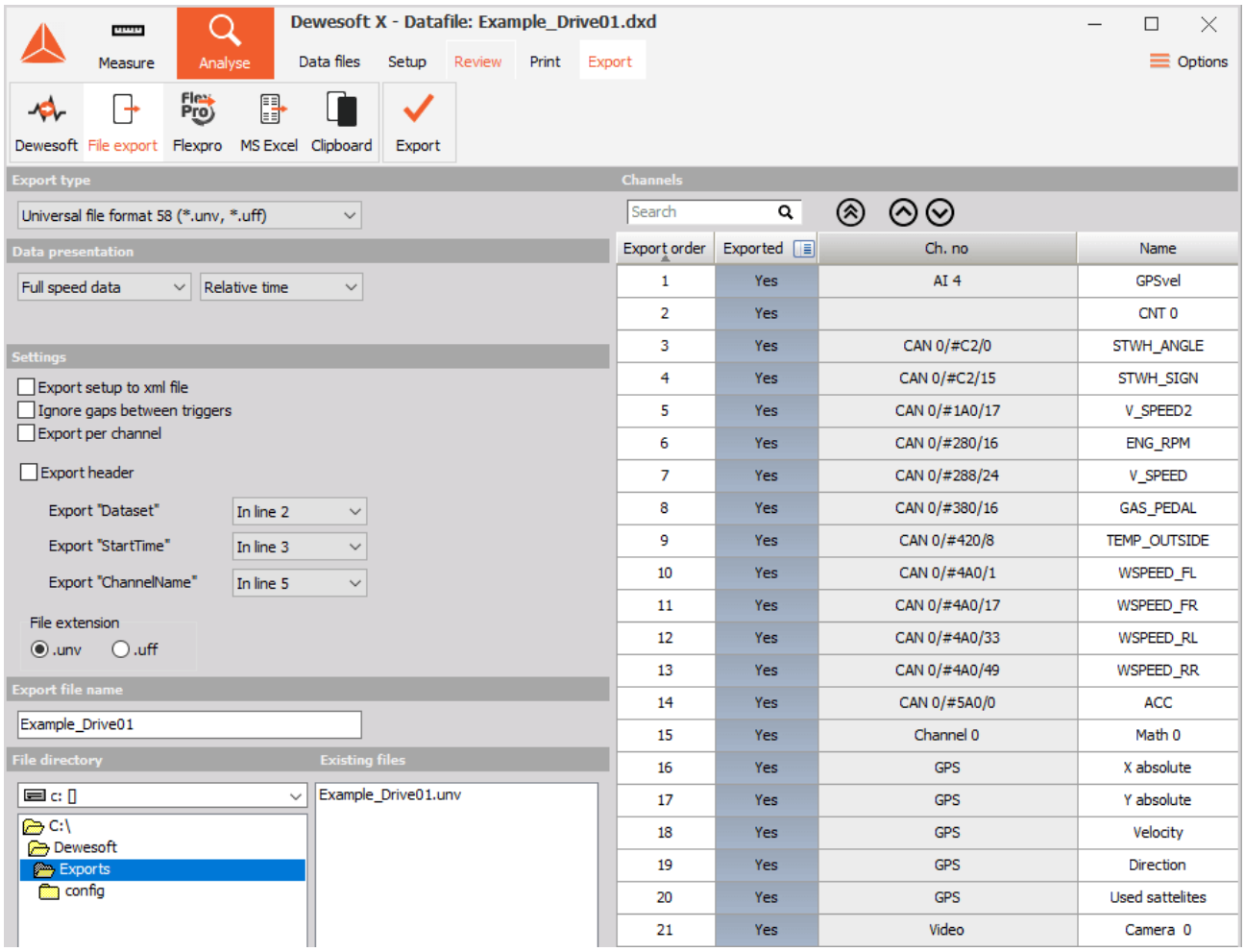


Image 13: File export tab

- **Export file name** - name of exported file
- **File directory** - name of directory where the exported files are saved; select it with double click from drop down list
- **Existing files** - list of existing files in selected directory that are the same type
- **Export file type** - list of available exported file type

The supported data file formats are:

Build-in formats

FlexPro (*.fpd) - powerful, easy to use data analysis software

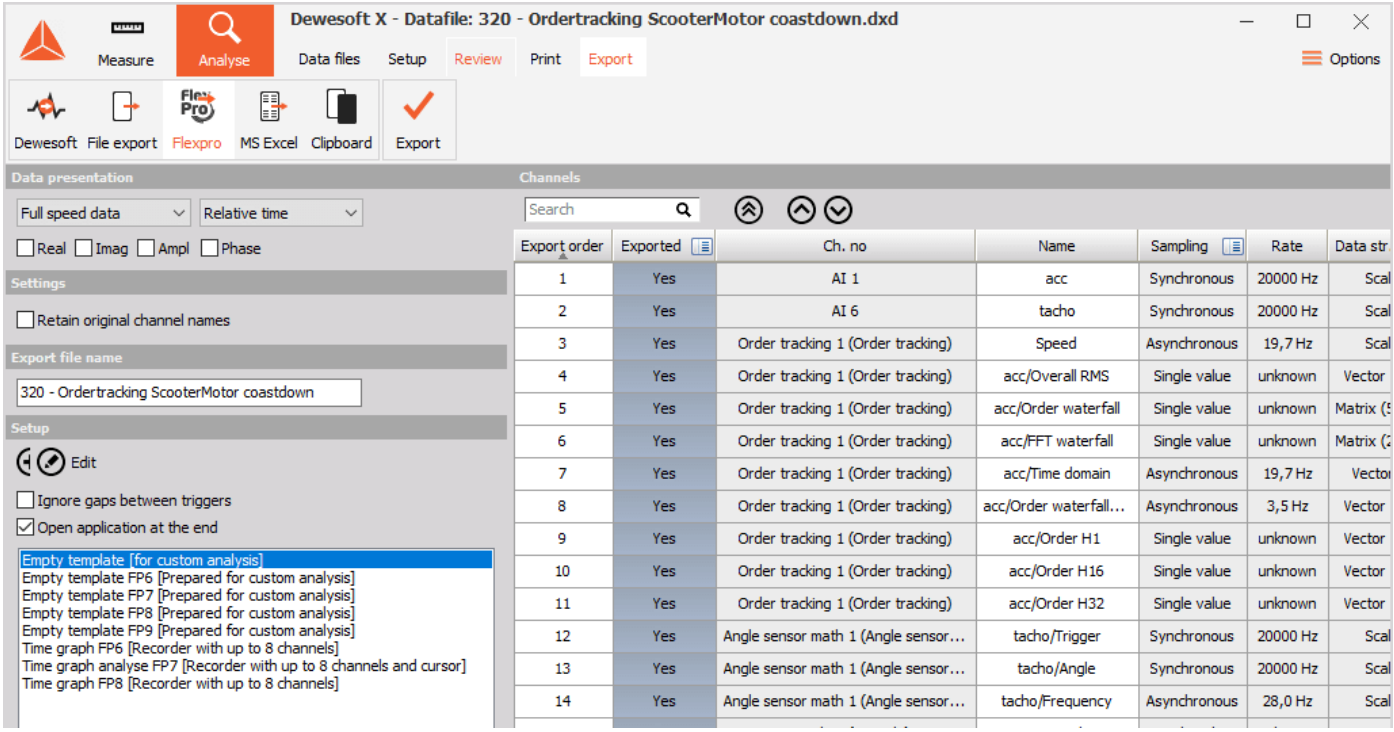


Image 14: Flexpro export tab

Excel (*.xls) - standard spreadsheet software (not useful for large amounts of data)

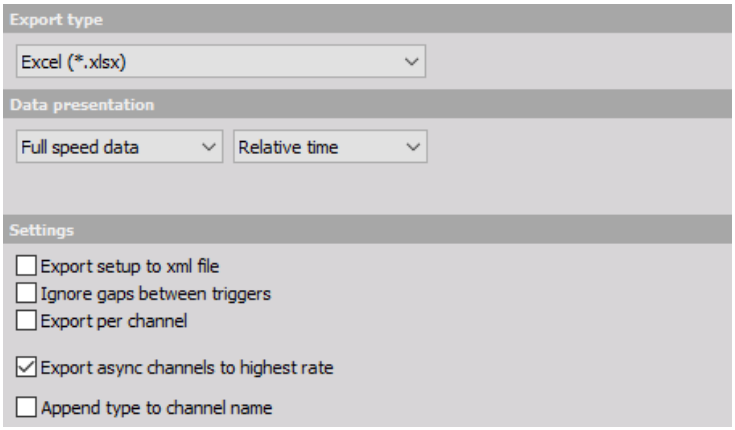


Image 15: Excel export tab

DIAdem (*.dat) - Powerful data analysis package for automotive industry. Diadem has an option to export certain groups of channels at specific sample rate, so the resulting data file is shorter. We can achieve this by de-selecting *Export all channel groups with full rate* and defining the rate for each channel group (PAD, CAN, GPS, Plugin and Math). If -1 is entered, the data will be exported at a full rate.

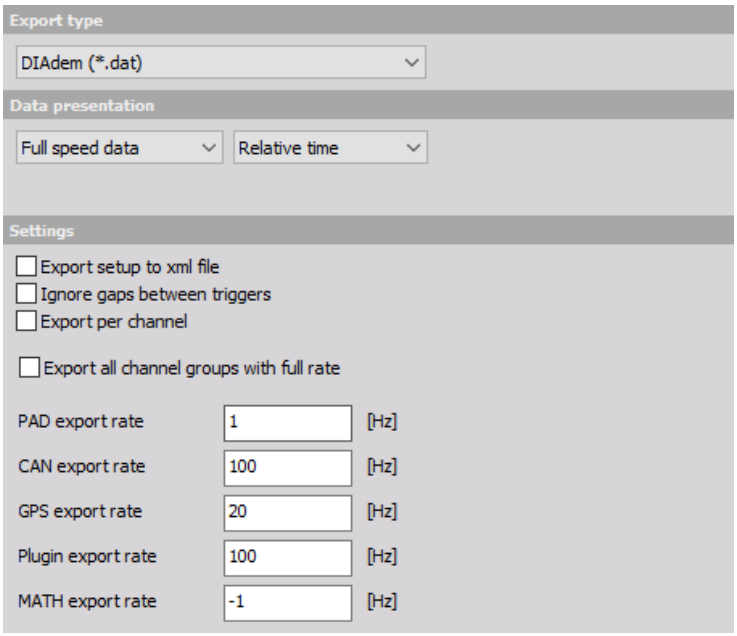


Image 16: DIAdem format

Matlab (*.mat) - Common analysis and mathematics package.

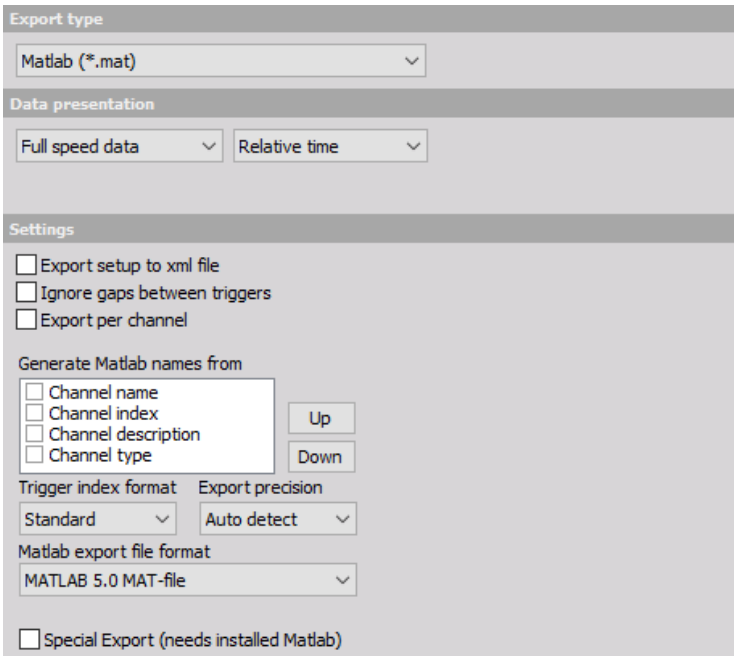


Image 17: Matlab format

Export precision can be selected from drop down list between Single and Double. Usually single precision is enough, but sometimes Matlab functions expect data in double precision. Please be aware that the amount of exported data will be doubled if this option is chosen and Matlab files can't axceed 2 GB. Matlab can also export each channel with separate time channel or exports all data with full speed if you manually set the export rate (Hz) to the maximum value. Resampler does the job of linear interpolation, hold or alias-free when exporting to Custom sample rate.

Universal file format 58 (*.unv, *.uff) - For import to 3D modeling and structural analysis software from different vendors.

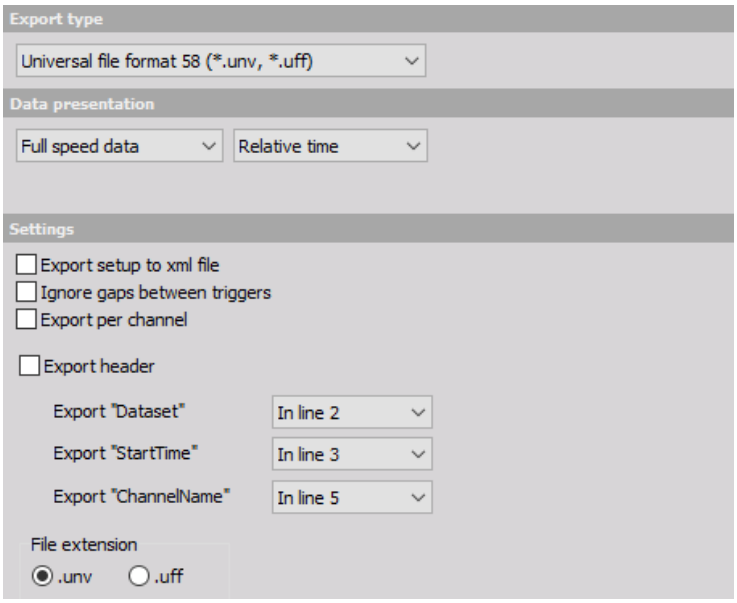


Image 18: Universal file format

Famos (*.dat) - Famos file format export. Use channel colors can be checked to use Dewesoft X channel colors, otherwise default Famos color is chosen.

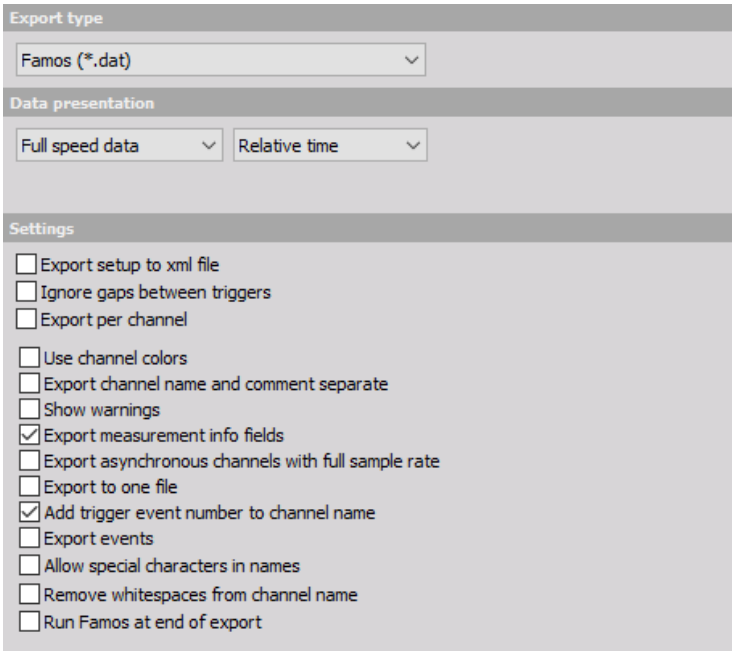


Image 19: Famos file format

NSoft (*.dac, *.mdf) - NSoft file format

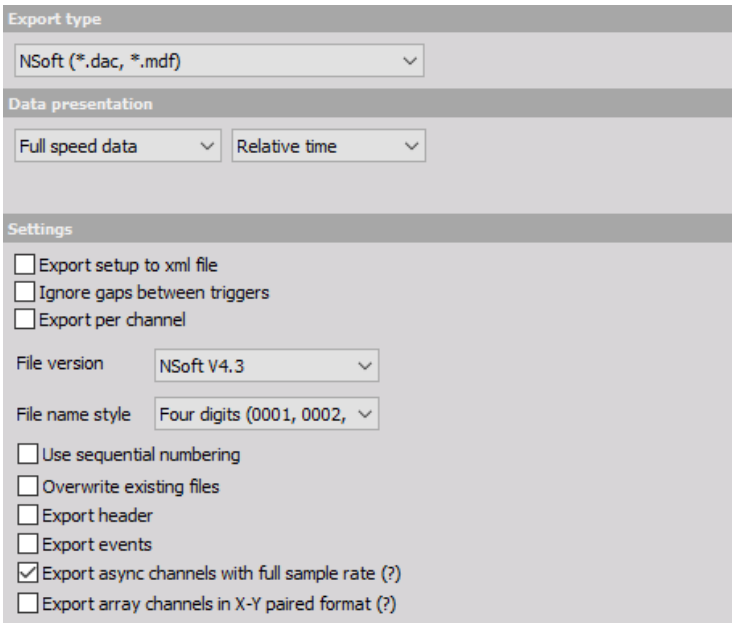


Image 20: NSoft file format

Text/CSV (*.txt, *.csv)- Delimited ASCII text file. With checked Export events also events will be exported in the text file.

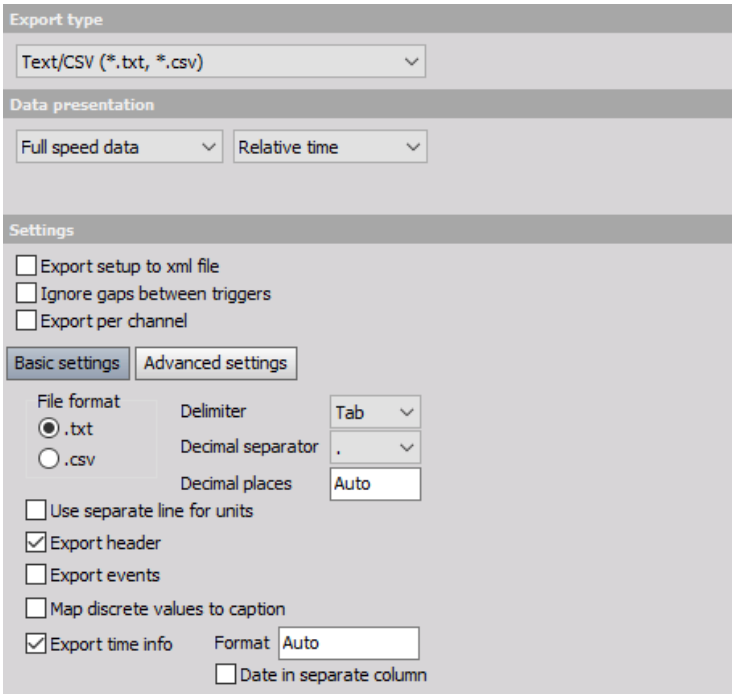


Image 21: Text and CSV file format

Sony (*.log) - Sony DAT recorder data format

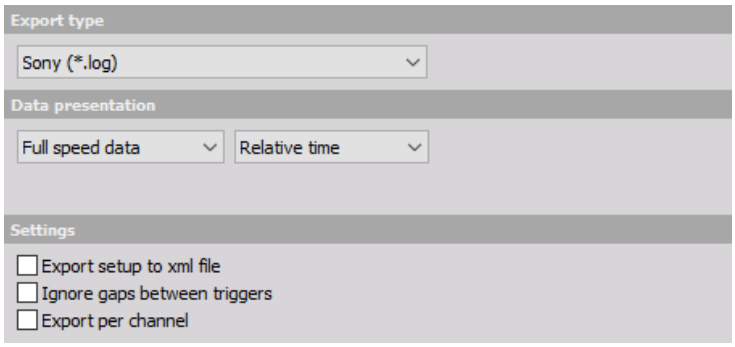


Image 22: Sony file format

RPCIII (*.rsp) - RCP III data format used for road load data analysis. Bufferlength field can be set to match the analysis capabilities. With large files larger buffer length is recommended. The buffer length should be multiple of 2, i.e. 256, 512, 1024 and so on.

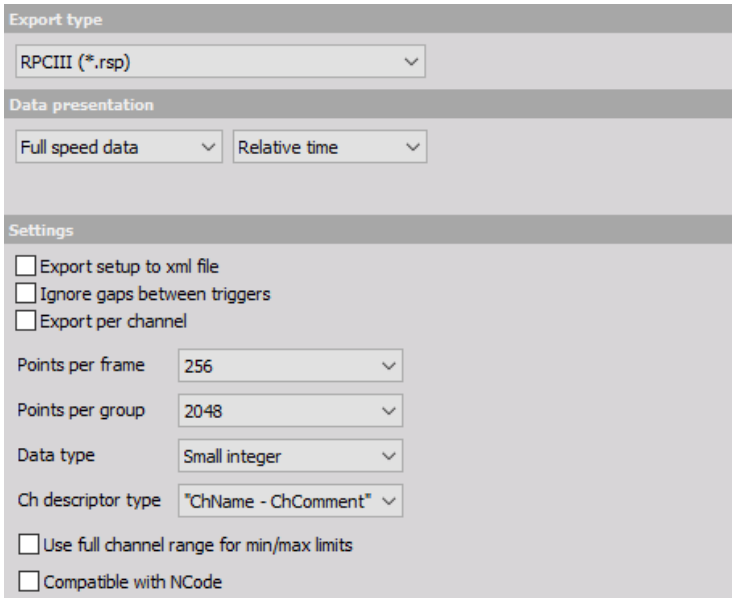


Image 23: RCP II file format

Comtrade (*.cfg) - Comtrade data format for power analysis

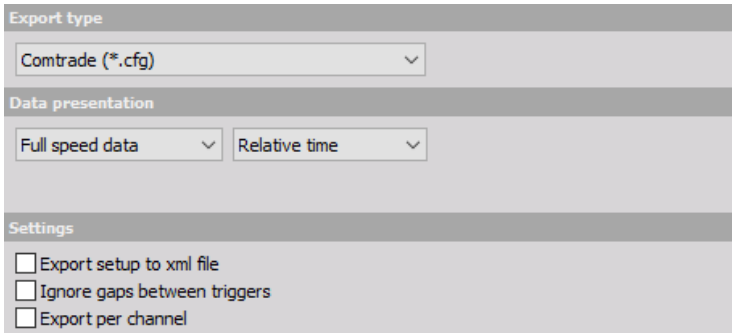


Image 24: Comtrade file format

CAN messages (*.csv, *.asc) - Tab delimited export of CAN messages for replay in demo mode.

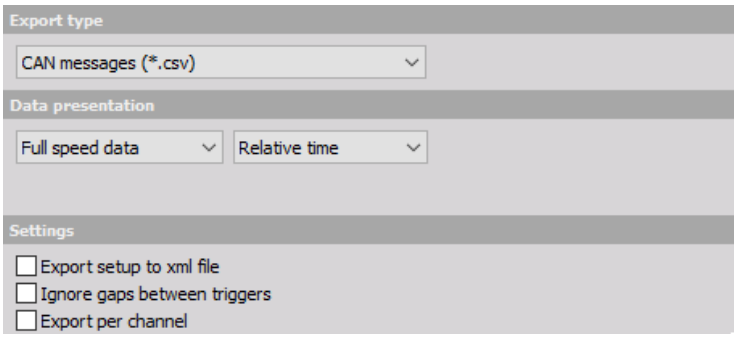


Image 25: CAN messages file formats

ASAM MDF4 (*.mf4) -

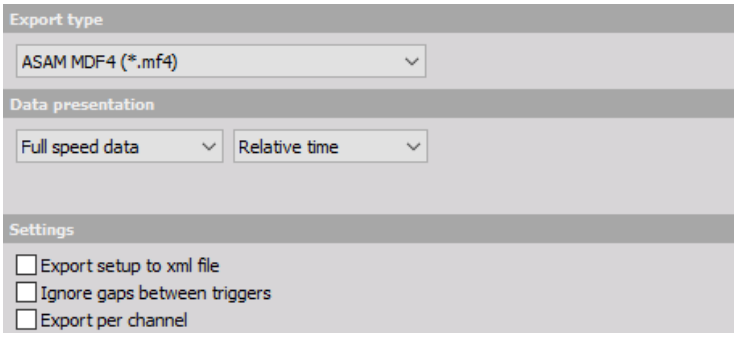


Image 26: MDF4 file format

Broadcast Wave Format (*.bwf) - Multi channel audio data format (available as custom export)

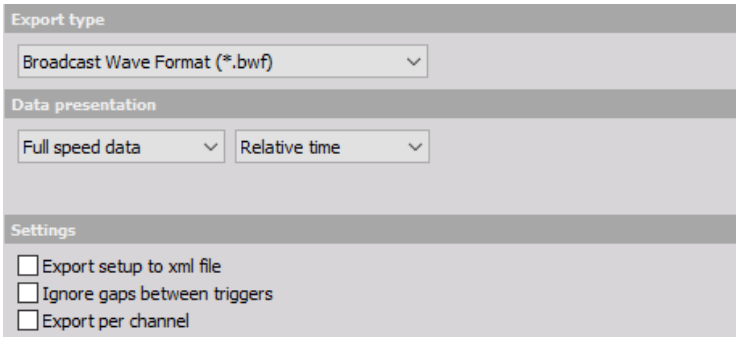


Image 27: Broadcast Wave Format file format

EthDump (*.txt) -

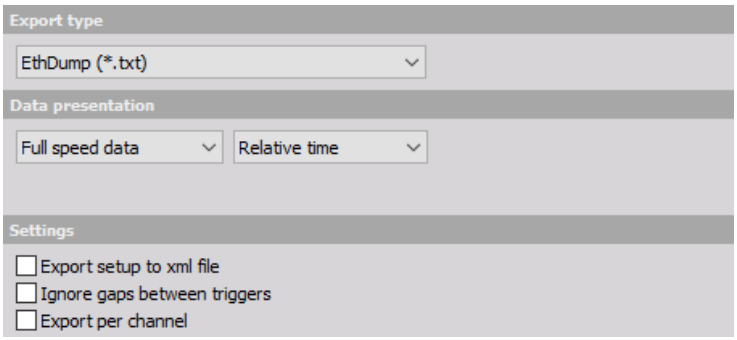


Image 28: EthDump file format

Google earth KML (*.kml) - Export of GPS path to Google earth (available as custom export)

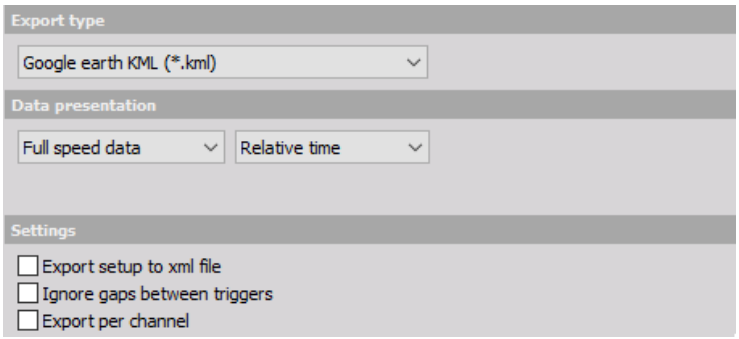


Image 30: Google earth file format

HDF5 (*.hdf) -

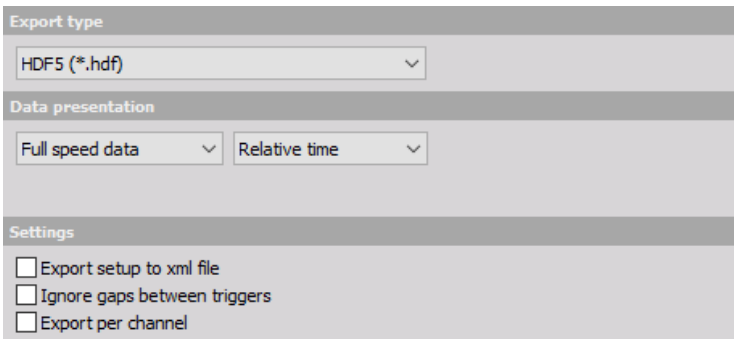


Image 31: HDF5 file format

JSON Export (*.json)

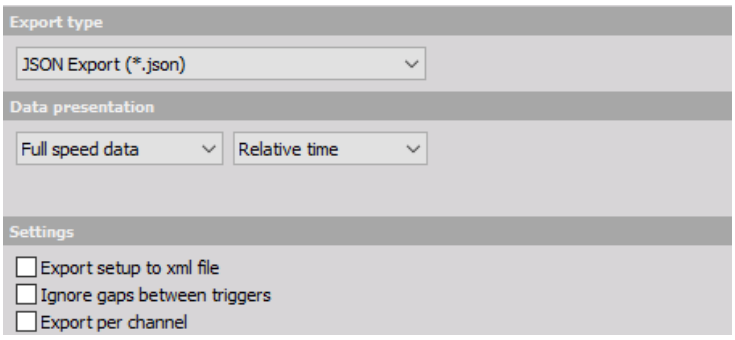


Image 32: JSON file format

S3 (*.s3t) -

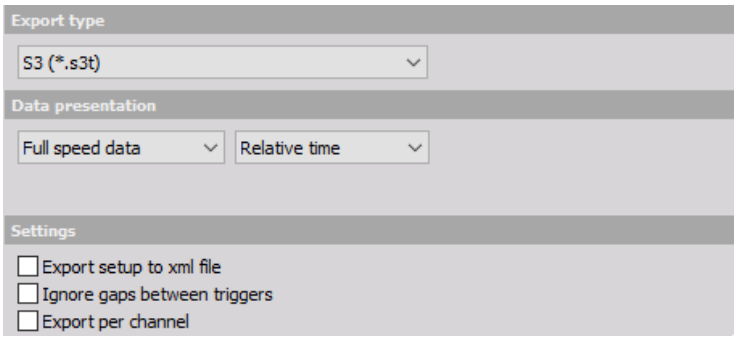


Image 33: S3 file format

Standard data file (*.dat) -

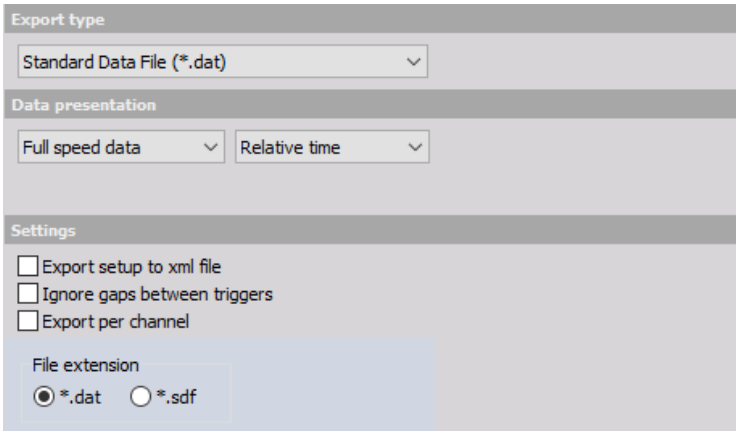


Image 34: Standard data file format

Technical Data Management (*.tdm) -

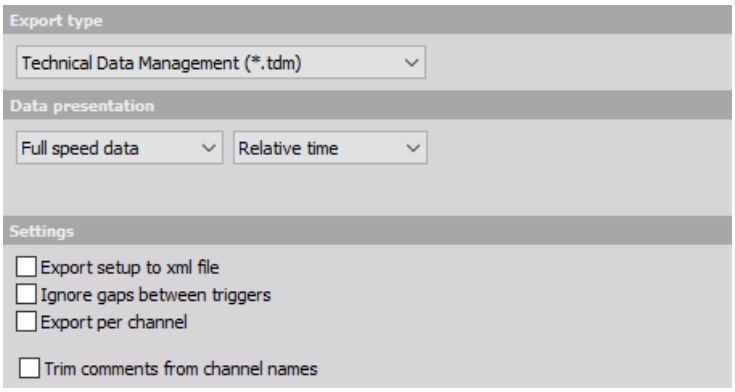


Image 35: Technical data management file format

UNV Export (*.unv) -

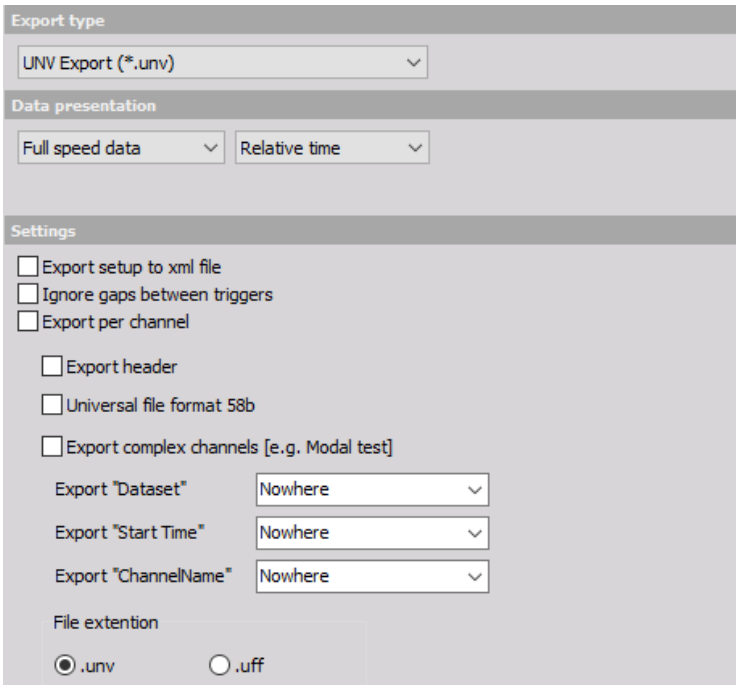


Image 36: UNV file format

Wave (*.wav) - wave audio data format (available as custom export

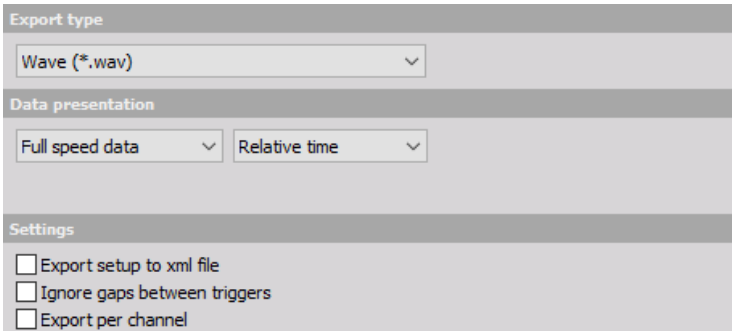


Image 37: Wave audio data format

WFT (*.wft) - Nicolet file format (available as custom export)

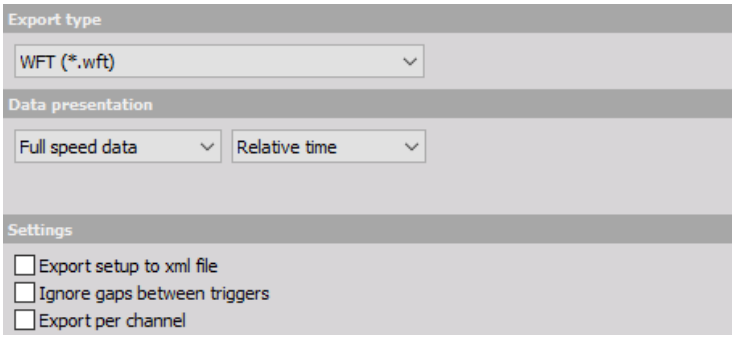


Image 38: Nicolet file format

FileReplay - Export channels and use them as a replay file in a new Dewesoft X setup.

Dewesoft export

The procedure to export data file to new Dewesoft data files and select the exported time range was primary used to cut the files.

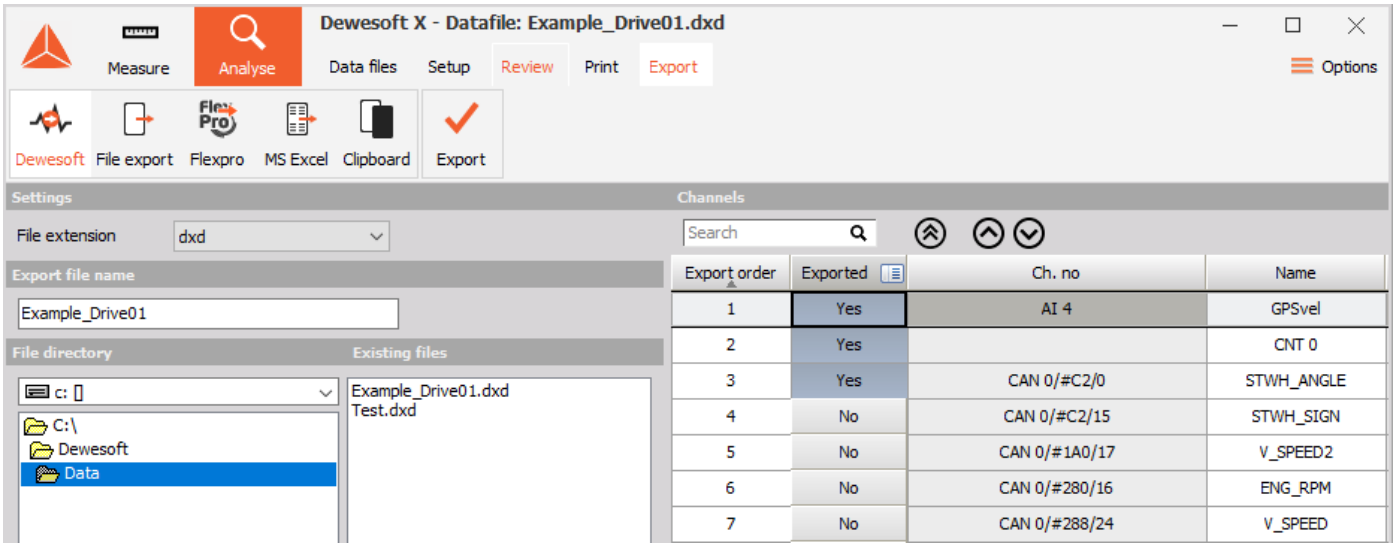


Image 39: Dewesoft export

File extension - choose between *.dxd and *.dxz

Export file name - name of the exported file

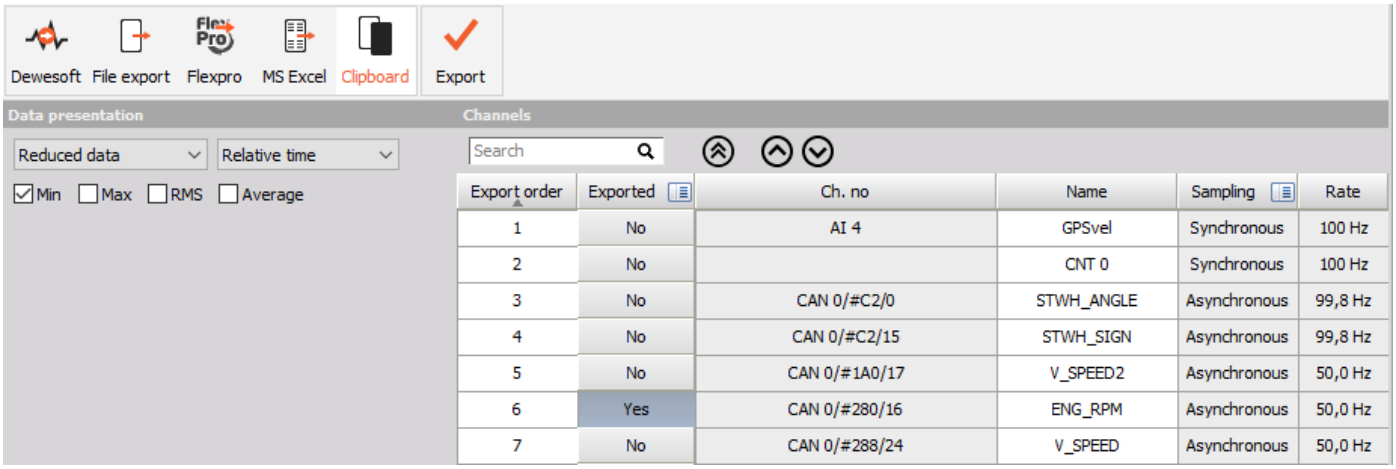
File directory - name of the directory where the exported file to be saved; select with a double click from the drop-down list

Existing files - list of existing files that are the same type in the selected category

NOTE: After selecting the time range on the recorder display, entering export file name and selecting Export data button, only the acquired data for the selected range (and for all channels) will be exported to a new file.

Export to clipboard

Export data to Windows clipboard (or copy data to clipboard) allows pasting the data into another running application.



Export order	Exported	Ch. no	Name	Sampling	Rate
1	No	AI 4	GPSvel	Synchronous	100 Hz
2	No		CNT 0	Synchronous	100 Hz
3	No	CAN 0/#C2/0	STWH_ANGLE	Asynchronous	99,8 Hz
4	No	CAN 0/#C2/15	STWH_SIGN	Asynchronous	99,8 Hz
5	No	CAN 0/#1A0/17	V_SPEED2	Asynchronous	50,0 Hz
6	Yes	CAN 0/#280/16	ENG_RPM	Asynchronous	50,0 Hz
7	No	CAN 0/#288/24	V_SPEED	Asynchronous	50,0 Hz

Image 40: Export a channel to the clipboard

With this option the channels to export can be selected from displayed Channel list (at the bottom of the window).

Time (s)	ENG_RPM; MIN (rpm)
0	3483
0,5	3357
1	3247
1,5	3162
2	3098
2,5	3039
3	3009
3,5	3005
4	3019
4,5	3071

Image 41: Paste the data to another program

Export to FlexPro and MS Excel

To enhance export data to Microsoft Excel and FlexPro, following procedures can be used:

1. **Select application** - click on either FlexPro (ActiveX) or MS Excel (ActiveX) on Export option
2. **Template management** - Template Management controls are only available for Microsoft Excel and FlexPro export option to manage template - scripts, which are listed on central Postprocessing in FlexPro / MS Excel part of screen; templates can be created and changed or deleted
3. **Select template (script)** - appropriate script should be selected from the list of available scripts
4. **Import Flexpro (databases)** - MergeDB script allows the user to import existing FlexPro-Databases to the exported measurement data

If you click on either FlexPro (ActiveX) or MS Excel (ActiveX) on Export option, additional Template management controls in left bottom part of screen and list of available templates - scripts on central Postprocessing in FlexPro / MS Excelpart of screen are displayed:

MS Excel

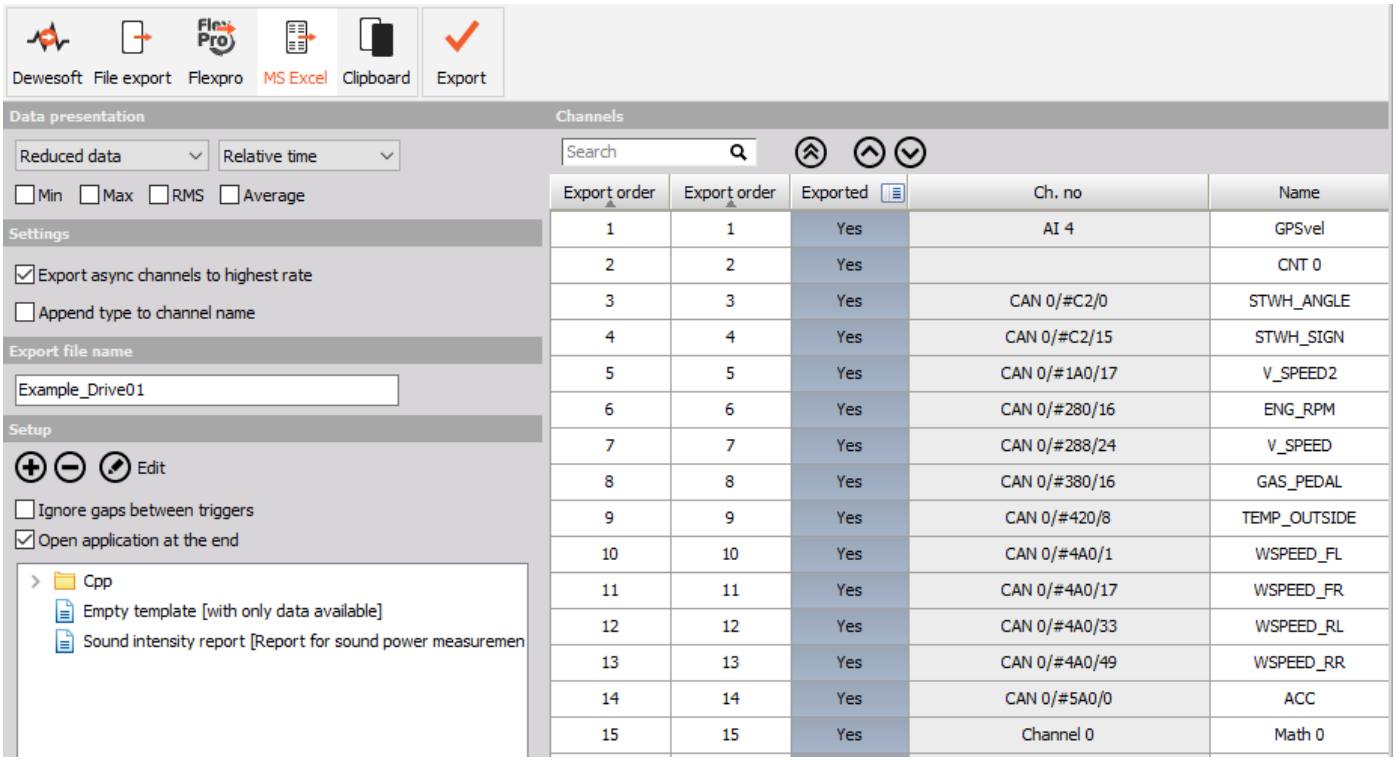


Image 42: MS Excel export

FlexPro

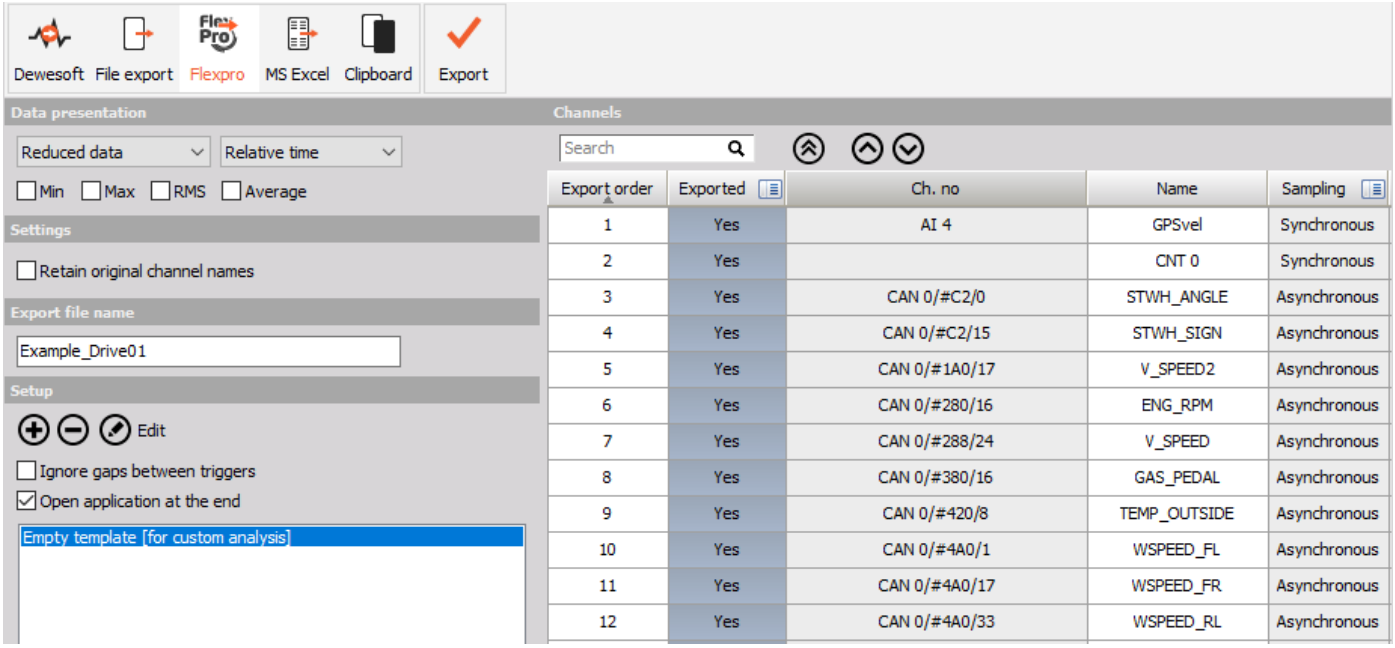


Image 43: Flexpro export

For both, Microsoft Excel and FlexPro export option you will see that a list of preformatted scripts appears in the center of the screen with two columns **Setup name** and **Description** of script. Now you should select from the list of available scripts. You can select any one of them and then click the Export data button below the format icons to perform the exporting. Don't forget to select the channels to be exported before you press the Export data button.

Template management - FlexPro and Excel scripts for data export

User of MS Excel and FlexPro can examine the preformatted scripts and macros that are loaded in the \Dewesoft\System\X2\Scripts subdirectory and learn how to create their own scripts for export.

NOTE: Please note that FlexPro and Excel export requires that these applications are already properly installed on the computer, or else the exporting will fail.

The concept is very simple: once the script is created, just load any data file and run the script. What happens next is a big time-saver. Dewesoft X runs this script:

- automatically starting the other application (you will see a notice on the screen that it is starting the other application, and there will be a slight delay as it does so and establishes communication)
- creates the dataset
- runs the script

Let's say that you have a script that takes four incoming signals, runs 3rd octave analysis on them, creates a polished looking report, complete with your company's title bar and logo, automatically puts in the data and other variables from the data file, and formats it for your color printer. After you click the Export button and this process runs, you will see your final report on the screen, and just need to click print to complete your report!

This is the power of "hot script" ActiveX data exporting from Dewesoft X to either MS Excel or FlexPro.

Typical FlexPro screen

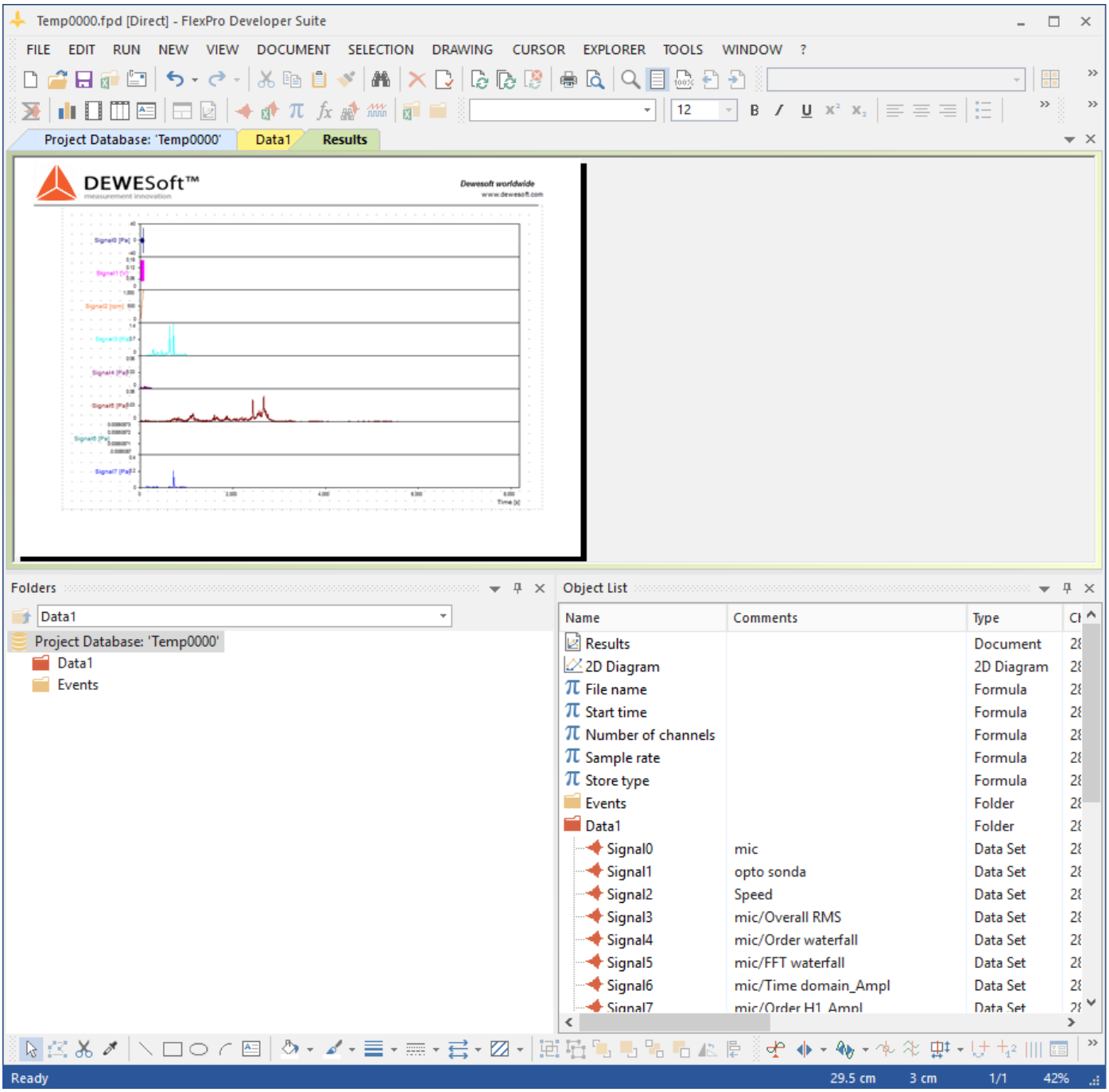


Image 44: Typical Flexpro screen

Typical MS Excel screen

	A	B	C	D	E
1	Frequency [Hz]	AlphaSab (overall	AlphaSab (overal	AlphaSab (overall) []	AlphaSab (overall) []
2	250	0.14	0.04	0.08	0.38
3	315	-0.13	0.06	0.19	0.09
4	400	0.24	0.19	0.14	0.05
5	500	0.36	0.27	0.23	0.19
6	630	0.20	0.26	0.28	0.36
7	800	0.56	0.48	0.42	0.46
8	1000	0.63	0.72	0.74	0.70
9	1250	0.89	0.93	0.83	0.85
10	1600	0.76	0.79	0.78	0.95
11	2000	0.97	0.98	0.94	0.90
12	2500	0.95	0.92	0.97	0.92
13	3150	1.02	1.06	1.13	1.01
14	4000	1.08	1.08	1.00	0.89
15	5000	0.92	0.92	1.03	1.05
16	6300	1.16	1.12	1.08	1.19
17	8000	1.00	1.00	1.24	0.95
18	10000	0.71	1.00	0.88	1.18
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					

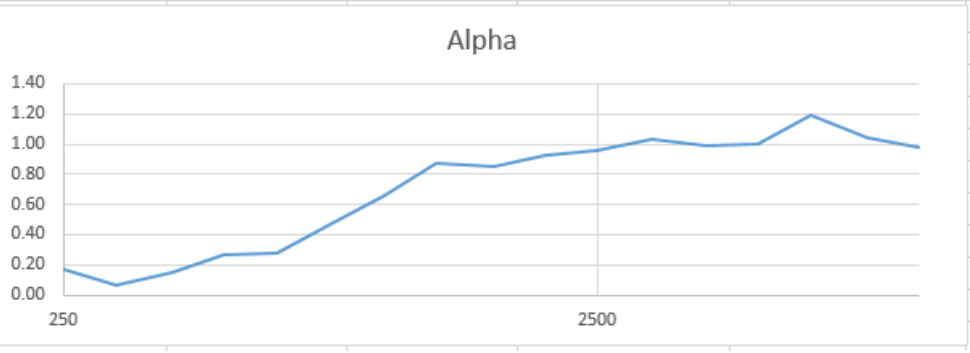


Image 45: Typical MS Excel screen

MS Excel export function knows about Excel's built-in limitation of 65536 rows per worksheet. If your data is longer than that, it simply creates multiple-worksheets within the workbook. It also makes a simple chart with the first several thousand data points for each input channel shown. You can use all of MS Excel built-in tools to change the chart format and make additional calculations and graphical outputs. But please be aware that MS Excel is not intended to handle million of data points.

Template management controls

You can easily create your own scripts in MS Excel or FlexPro, or edit the existing ones.

Just press the **New template** button to create a new one or **Edit template** to change an existing script.

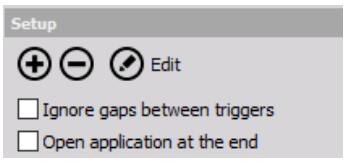


Image 46: Manage template buttons

To delete an existing script simply select it and press **Delete template** button.

When you press **New template** button, you have to enter a setup name, a description and a comment for the new script.

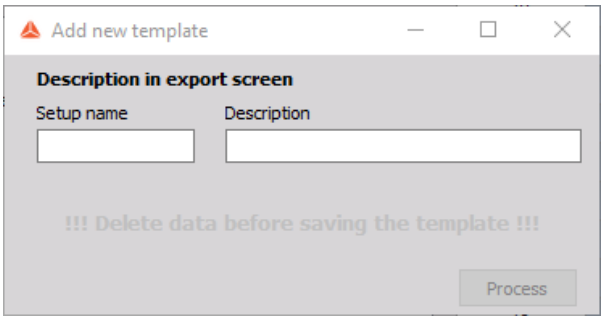


Image 47: Add new template

When you confirm your entries click on **Process** button or selct **Edit** button to change an existing script; MS Excel or FlexPro will automatically start with currently selected template.

NOTE: For more details about creating scripts please refer to the original MS Excel or FlexPro documentation.

Export multiple files

If you want to export several files at once, there is a nice function available. Press the Analyse button to enter the file explorer. Select all files you want to export.

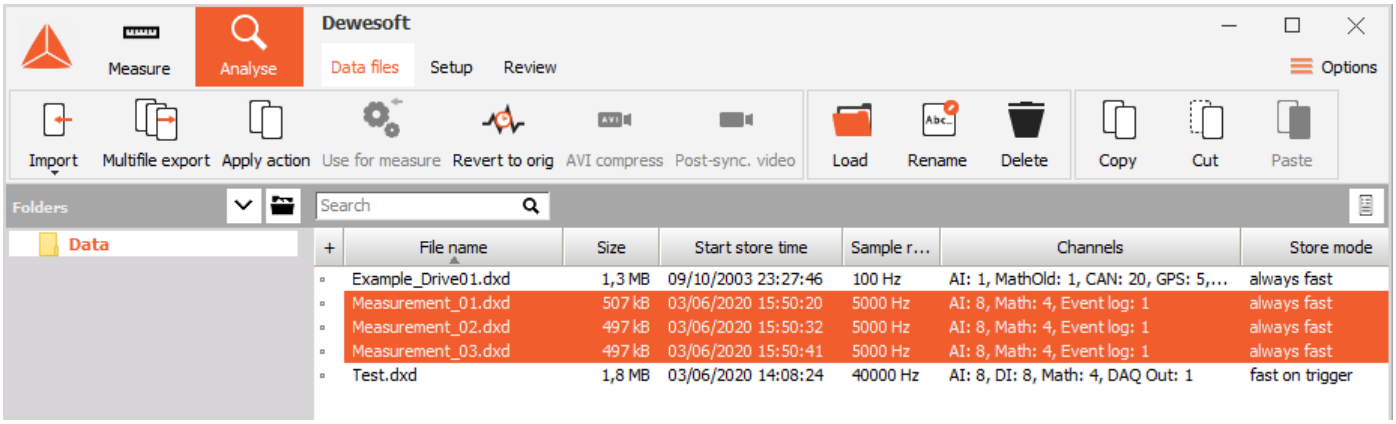


Image 48: Multifile export

There are two possibilities to mark several datafiles (similar to Windows Explorer):

- to mark several files which are listed near to each other, keep the **Shift** button pressed during selection,
- to mark several files picked out of the list, keep the **Ctrl** button pressed during selection.

After all files to export are marked, select **Multifile export** from the menu.

NOTE: Only the files that were created with exactly the same setup file can be exported as multi file.

Now the **Export multi file** window appears:

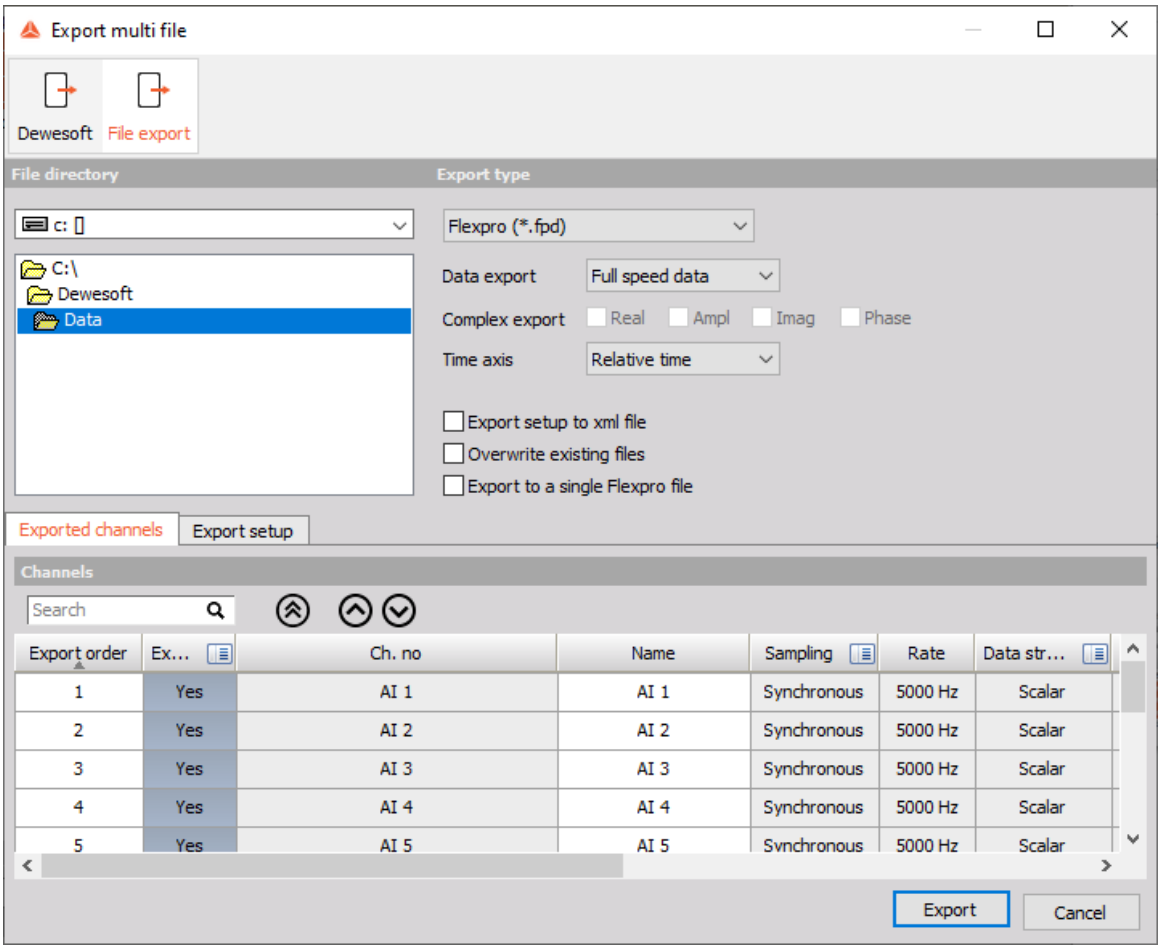


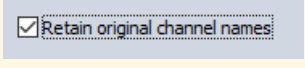
Image 49: Export multi file

This window allows you to select:

- Dewesoft export type or File export type
- File directory part of windows select destination of exported data
- Export file type, described in the chapter above.
- Data export - Full speed data, Reduced data: Min, Max, RMS and/or Average type can be selected by checking the appropriate box
- Time axis - relative, absolute or trigger time type

Press the Export button to start the export process or Cancel to leave without exporting the files.

Note: the export keeps the original file names for the exported files is the checkbox is marked.



Dewesoft multifile export

Multi files can also be exported to Dewesoft data file format.

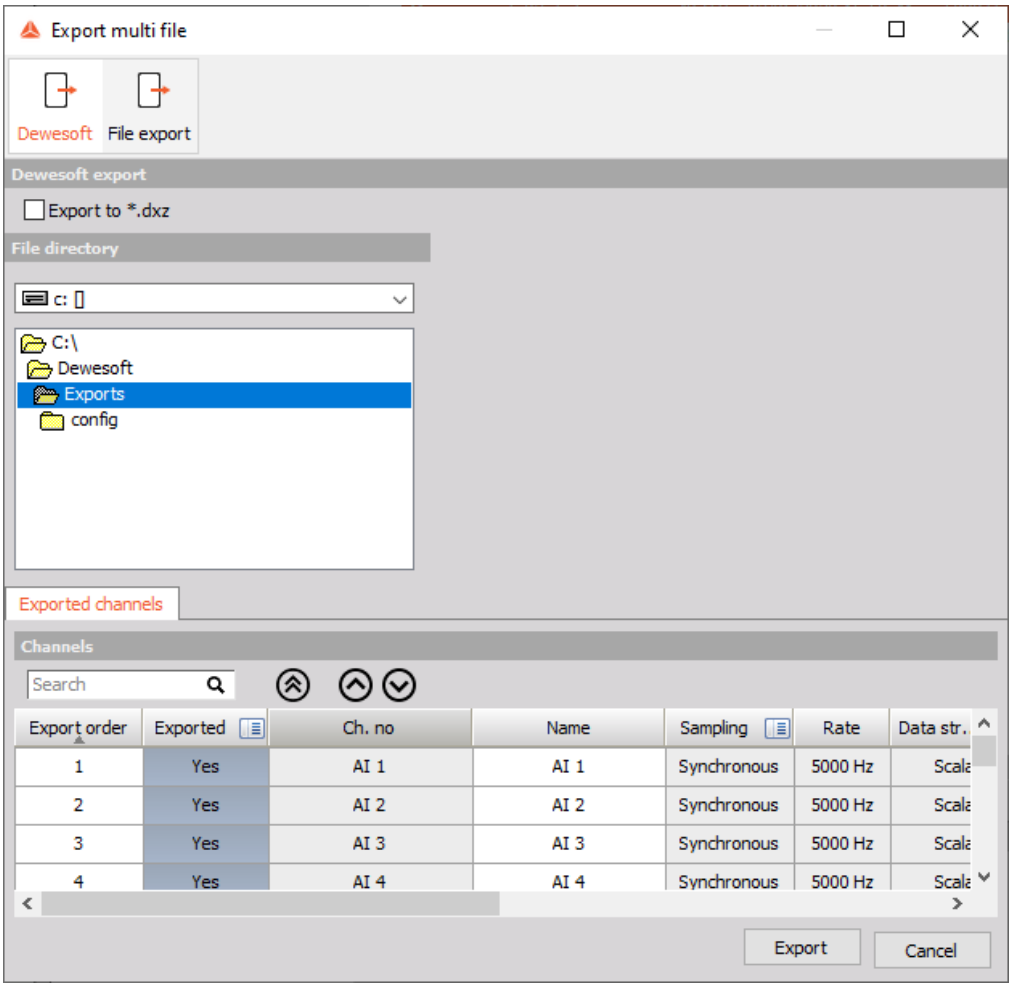


Image 51: Dewesoft multi export

Export instrument display to video

A new way of presenting data is the multimedia documentation. Dewesoft X offers the possibility to export any widget like scope, recorder, 2D graph... to a video, which can be replayed in any video player.

Select **Export screen to AVI** from the **Edit** menu and the following **Export screen to AVI** file window will appear:

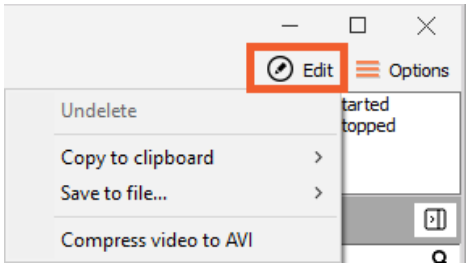


Image 52: Edit button

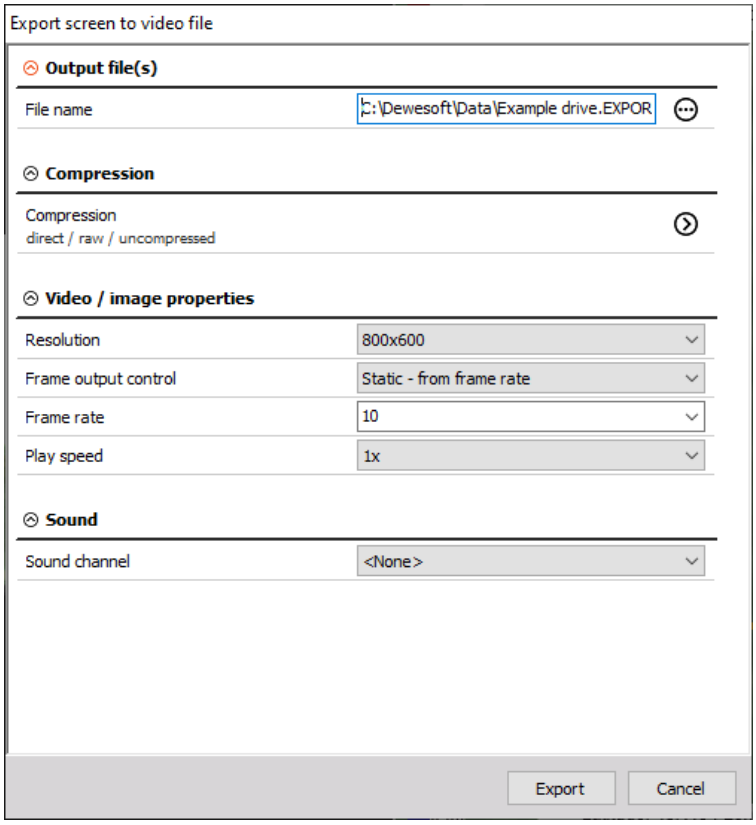


Image 53: An export screen to video file

According to your requirements, you can change the export settings on this window. The following settings can be changed:

- **File name** and storage path - select folder and file name
- **Compression** - DivX codec or similar is recommended. Press the Change button and the window will appear for

selecting standard compression codec from the drop-down list and for configuring them.

- **Resolution** from 640x480 to 1920x1080 selectable from drop down list - high resolution will create larger files!
- **Frame output control**
- **Frame rate** from 1 to 60 - standard video player can not handle faster data; select from drop down list:
- **Play speed** perfect for slowmotion (from 1/2x to 1/10000x real time) or fast overview (from 1x to 5000x real time); select from drop down list
- **Sound channel** - select from drop down list one of the available analog channels to be your audio channel

When you have done all the needed changes press the **Export** button to start the export or **Cancel** to leave without exporting the video.

The export progress will be displayed in an Export screen to AVI file window.

When Dewesoft X has completed the export (depending on data and compression, this can take several minutes) you can open the exported file in a standard video player.

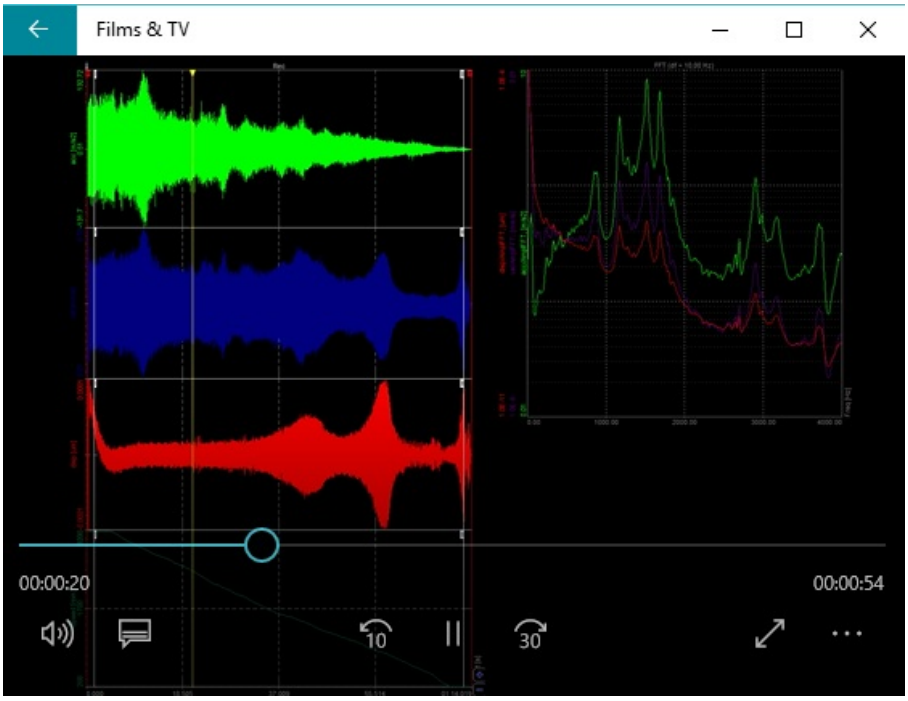


Image 54: Replay the measurement in the third-party video player

Automatic export of data

Dewesoft X offers a possibility to automatically export the data into a selected file format.

> If you don't have the AutoExport plugin under Extensions it can be downloaded from the download webpage. For adding or updating the extensions in Dewesoft follow this webpage.

Under **Extensions** (Settings -> Extensions) first, click the **+** button to add the AutoExport plugin.

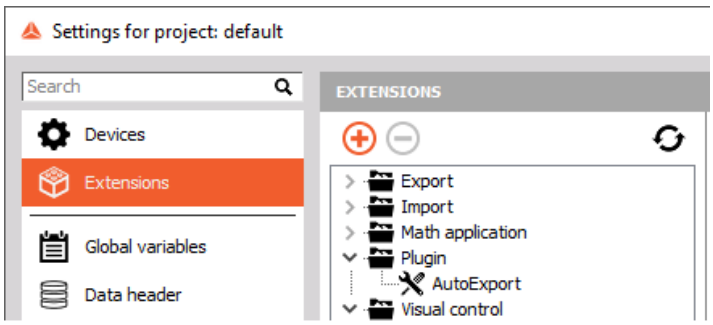


Image 55: Add Auto Export plugin

Search for AutoExport and enable it:

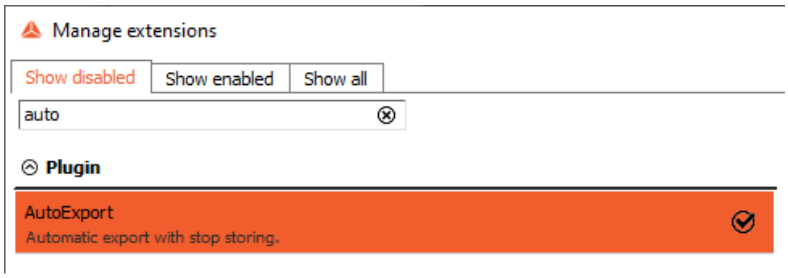


Image 56: Enable Auto Export plugin

After that, the plugin icon will be seen in the channel setup. In the plugin, you select to which format the data are exported and where to:

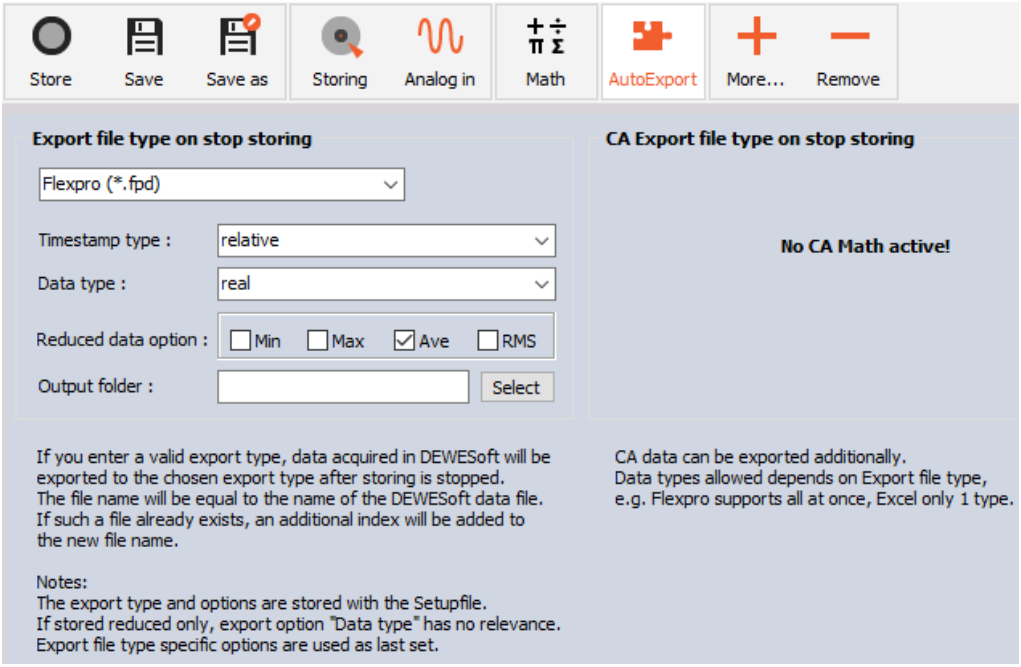


Image 57: Auto export settings

NOTE: If the auto export option is enabled, the export type and options are stored in the setup file.