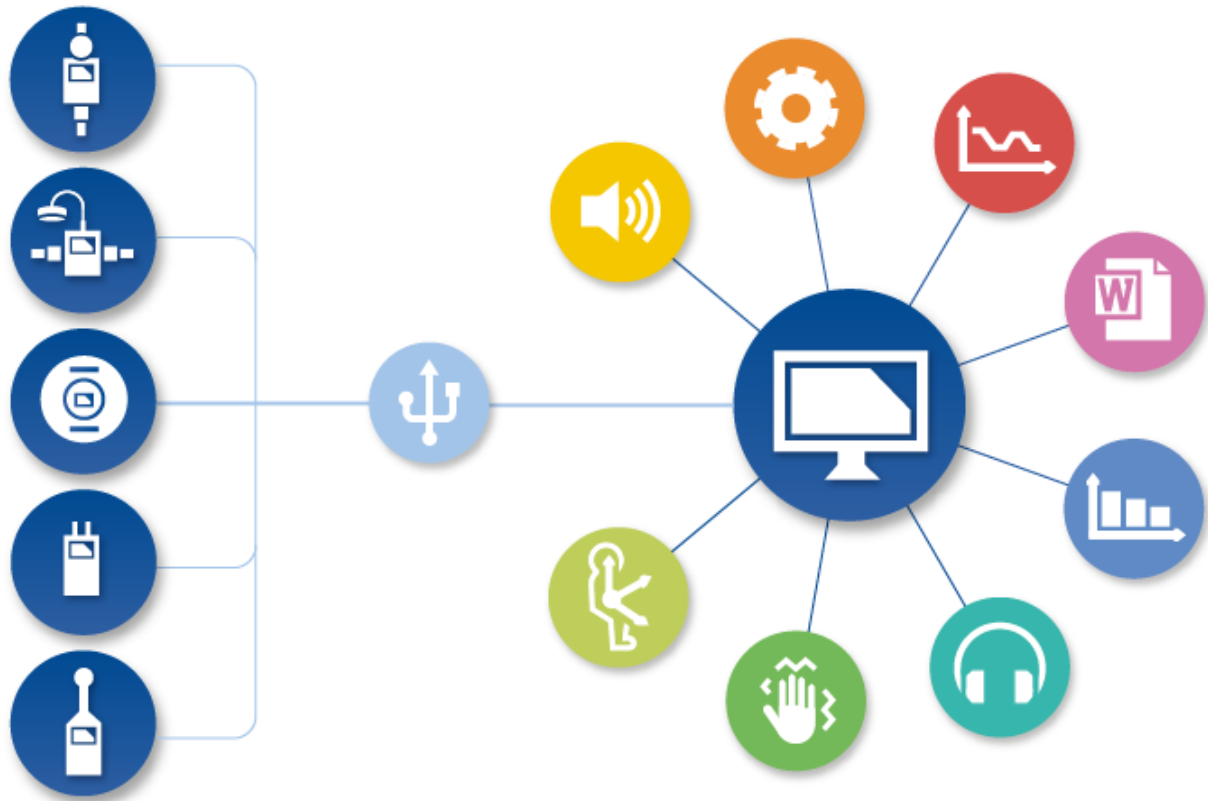


# SUPERVISOR



## User's Manual

version: 1.5

Supervisor version: 1.7.2



**SVANTEK**

August 2015

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# 1 INTRODUCTION

The Supervisor software is designed to extend the functionality of the Svantek instruments for Health and Safety professionals. The Supervisor base module is available for all users free of charge.

## 1.1. ABOUT SUPERVISOR

### General characteristics:

- Easy to use, intuitive interface
- Easy measurement database management and browsing
- Very convenient and fast generation of reports with templates and by free hand
- Powerful tools for data analysis
- Easy installation including sample measurement files
- Available in English, German, Spanish, French, Hungarian, Italian, Polish, Russian, Chinese (Traditional / Simplified), Portuguese (Brazilian)
- Contextual help

### Main applications:

- Noise dosimetry
  - Exceedance data presentation from measurement files
  - Noise exposure recalculations in accordance with ISO 9612
  - Hearing protection adjustment in accordance with ISO 4869-2
  - *What-if* analysis to simulate effects of noise source insulation
- Sound level meters
  - Time history logger-based recalculations with possibility of break-time and disturbance removal
  - 1/1 and 1/3 octave band sound analysis
- Vibration dosimetry
  - Hand-Arm dose recalculations in accordance with ISO 5349-2
  - Whole-Body dose recalculations in accordance with ISO 2631-1

### Measurement instruments management:

- Easy access to instrument configuration and data
- Quick measurement data download
- Clear setup editor with presets for compliance with health & safety legislation
- Inventory management with calibration certificate validity notifications

### Analysis tools:

- Wide range of available charts for adjustable data presentation in plot and table
- Quick in-blocks recalculations on time history data
- Time history data shifting, clipping and cutting
- 1/1 octave and 1/3 octave bar and spectrogram plots
- Statistical levels presentation

#### Additional features:

- Easy maintenance with assigning measurement data to locations, users and tasks
- Summary reports across wide ranges of measurement data
- Widely used intuitive drag-and-drop convention
- Audio events, voice comments and WAVE files support

## 1.2. SYSTEM REQUIREMENTS

- 1.6 GHz CPU
- 1 GB RAM
- 1280×768 pixels color display
- 100 MB free disk space (more disk space may be necessary in the case of large databases)
- MS Windows XP SP3, Vista, 7, 8 or 10; 32- or 64-bit
- (*recommended*) MS Word 2003 or newer for extended reporting capabilities

Supervisor supports all Svantek instruments for Health and Safety professionals: SVAN 971, SV 104, SV 106, SVAN 977, SV 102, SV 101, SV 100.

## 1.3. SOFTWARE INSTALLATION

### USB Drivers

The USB drivers installation package can be found on the CD received on purchase of a Svantek instrument, or it can be downloaded from the [Svantek website](#). Open the installation file and follow the installation instructions. To complete the installation of the USB drivers it is necessary to connect the instrument after system reboot and to select automatic USB driver installation. It may be necessary to repeat this last step for all USB ports.

**Note:** Installation of USB drivers requires the user to have administrator privileges.

### Supervisor

In order to install Supervisor, open the installation file which can be found on the CD provided with a Svantek instrument. You can also download the installation file from the [Svantek website](#). After opening it, follow the installation instructions.

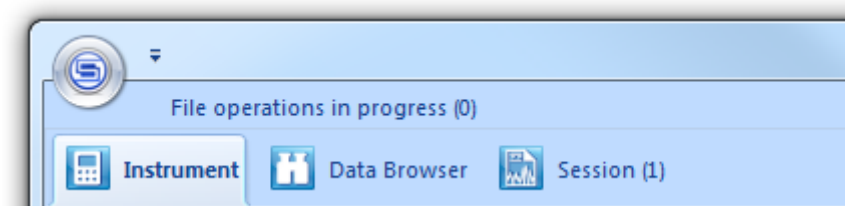
You will be asked whether to install Supervisor for yourself, or for anyone who uses the computer on which Supervisor is being installed. This choice determines the area in which Supervisor settings and shortcuts are stored and hence its availability to users sharing the workstation.

## 1.4. HOW TO USE SUPERVISOR

Supervisor can be used in three modes:

- Instrument,
- Data Browser,
- Sessions.

You can select the mode using the tabs located below the title bar (Fig.1-1). There can be multiple Sessions opened simultaneously, and a tab is created for each opened Session.



**Fig.1-1** Buttons for the selection of modes in which Supervisor can be used.

The Instrument mode allows for:

- Managing the Svantek instruments used with Supervisor,
- Exchanging data (measurement results as well as the instruments' settings) between Svantek instruments and PC.

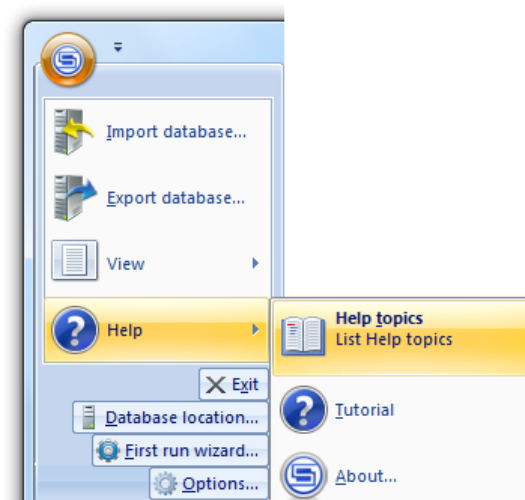
The Data Browser allows for:

- Viewing and organizing the database of measurement results downloaded from Svantek instruments,
- Creating Sessions.

The Sessions allow for:

- Displaying the measurement results downloaded from Svantek instruments,
- Analyzing data and performing calculations,
- Generating reports.

More details on using Supervisor for each of these tasks can be found in subsequent sections of this manual, as well as in the contextual HTML help, which can be accessed by pressing F1 when using Supervisor, or using the "Help topics" command in the main menu.



**Fig.1-2** Opening the HTML Help using the main menu.

The contents of the HTML Help are the same as of this manual. The HTML help also features several mechanisms useful for finding information on a particular subject, such as the Help Context Tool: in order to open the help topic related to a particular element of the Supervisor application's graphical user interface, press SHIFT+F1 and click on that element.

## 2 COMMUNICATION WITH SVANTEK INSTRUMENTS

### 2.1. ESTABLISHING CONNECTION

Supervisor supports the USB interface for direct communication. It requires appropriate drivers being installed, as described in Section 1.3. Supervisor will automatically detect a Svantek instrument when it is connected to the PC by USB.

### 2.2. MANAGING SVANTEK INSTRUMENTS

#### 2.2.1. INSTRUMENT INVENTORY

When a connected Svantek instrument is detected by Supervisor, it is added to the **Inventory**—a database of all Svantek instruments you use with Supervisor. The Inventory is displayed at the top of the Instrument window (Fig.2-1).

Instruments in the Inventory are grouped according to their types (SV 106, SV 104 etc.). To select an instrument type, use the list located on the left side of the window (Fig.2-1). The currently selected instrument is highlighted in orange. The list can be ordered in a custom way; to change the position of an instrument type on the list, drag-and-drop it to another position.

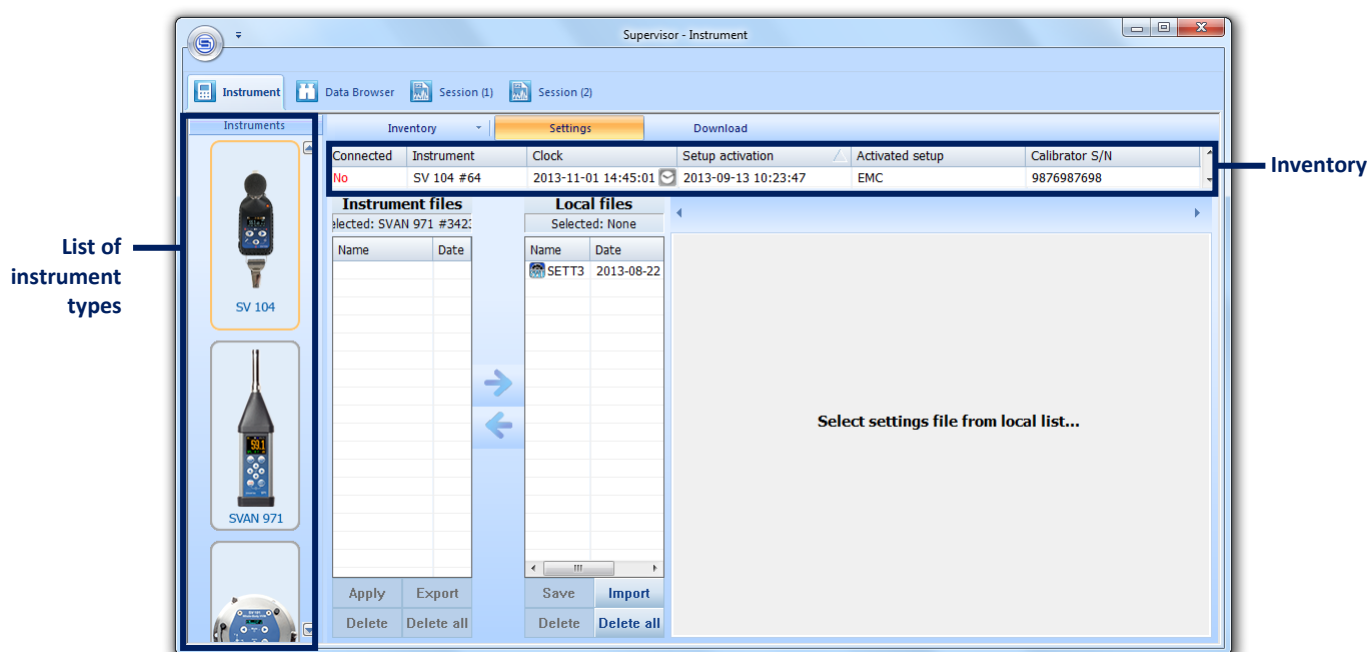
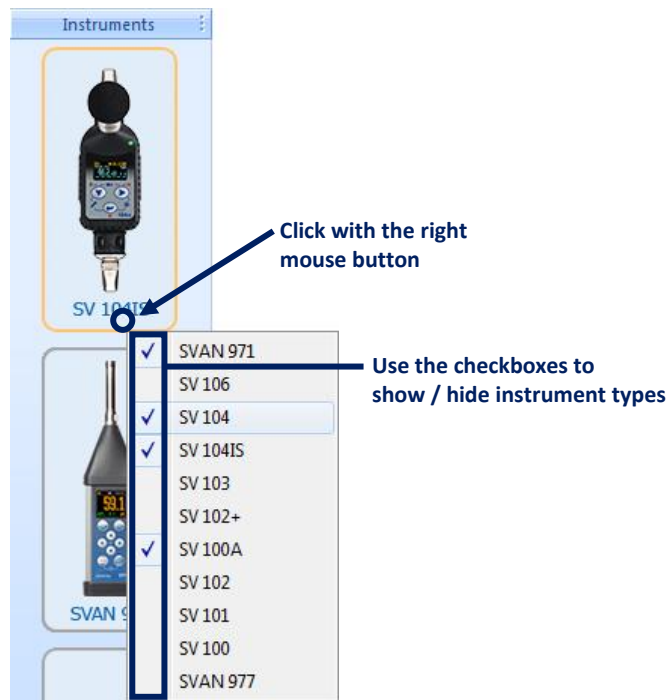


Fig.2-1 The Inventory and the list of instrument types in the Instrument window.

You can decide which instrument types are shown in the filter list. In order to customize the list, use the pulldown menu opened by clicking with the right mouse button in the Instruments pane.





**Fig.2-2** Customizing the list of instrument types.

Every time an instrument of a hidden type is connected to the PC, that instrument type will automatically be shown.

By default, the Inventory is displayed in reduced mode, containing only one row of the table. It can be expanded by clicking on the *Inventory* button in order to display five rows (Fig.2-3). In both modes all the instruments of the selected type are accessible using the scrollbar, located at the right hand side of the Inventory panel.

Press this button to expand the Inventory.

Connected	Instrument	Clock	Setup activation
Yes	SV 104 #64	2013-11-01 14:51:54	2013-09-13 10:23:47
No	SV 104 #40	2013-11-01 14:51:55	N/A

**Fig.2-3** The Inventory in expanded mode.

The columns of the Inventory table contain information about the Svantek instruments. You can customize the table in order to display only selected information. To do so, click with the right mouse button on the header to display the context menu, then check the options you want to show in the Inventory and uncheck the ones you want to hide. The available columns are:

- *Name* – the instrument's name; only available for SV 104 instruments.
- *Clock* – the date and time set in the real-time clock of the Svantek instrument; you can adjust it to match the PC's date and time by pressing the button. You can also click

with the right mouse button on the row corresponding to the selected instrument in order to open a context menu, allowing to specify the date and time manually.

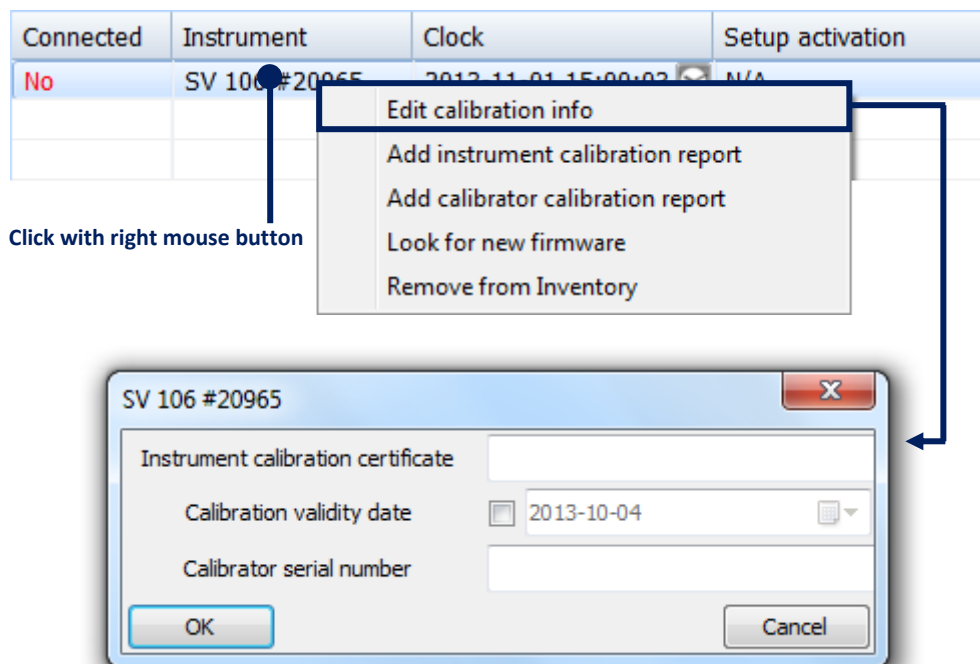
- *Free memory* – the amount of free space on the instrument's SD card in percent. This option is available only for selected types of Svantek instruments.
- *Firmware version* – the version number of firmware installed on the instrument.
- *Last setup upload date* – the date and time when the last setup file was uploaded from Supervisor to the Svantek instrument.
- *Last uploaded setup name* – the name of the last setup file uploaded from Supervisor to the Svantek instrument.
- *Last setup activation date* – the date and time when the last setup file was activated (applied) in the Svantek instrument using Supervisor.
- *Last activated setup name* – the name of the last setup file activated (applied) in the the Svantek instrument using Supervisor.

**Note:** The information about the last uploaded / activated setup files concerns only the setup files uploaded from Supervisor installed on the particular PC, so the setup file in the Svantek instrument can be different (newer) than displayed if it was modified in any other way.

- *Instrument calibration certificate* – the title of the calibration certificate.
- *Calibration validity date* – date of calibration certificate's validity.
- *Calibrator Serial Number* – serial number of the instrument's calibrator.

**Note:** The information about calibration can be specified by clicking with the right mouse button on the table row containing a particular Svantek instrument and, in the context menu, selecting the *Edit calibration info* command (Fig.2-4).

- *Instrument Calibration Report* and *Calibrator Calibration Report* – for details, see Section 2.2.2 below.



**Fig.2-4** Editing calibration information.

The calibration validity date in the Inventory panel is colored according to the time remaining until the validity period is exceeded. By default, the colors mean the following:

- Black means that there are at least 90 days left;
- Yellow means that there are at least 14, but less than 90 days left;
- Orange means that there are less than 14 days left;
- Red means that the calibration validity period is already exceeded.

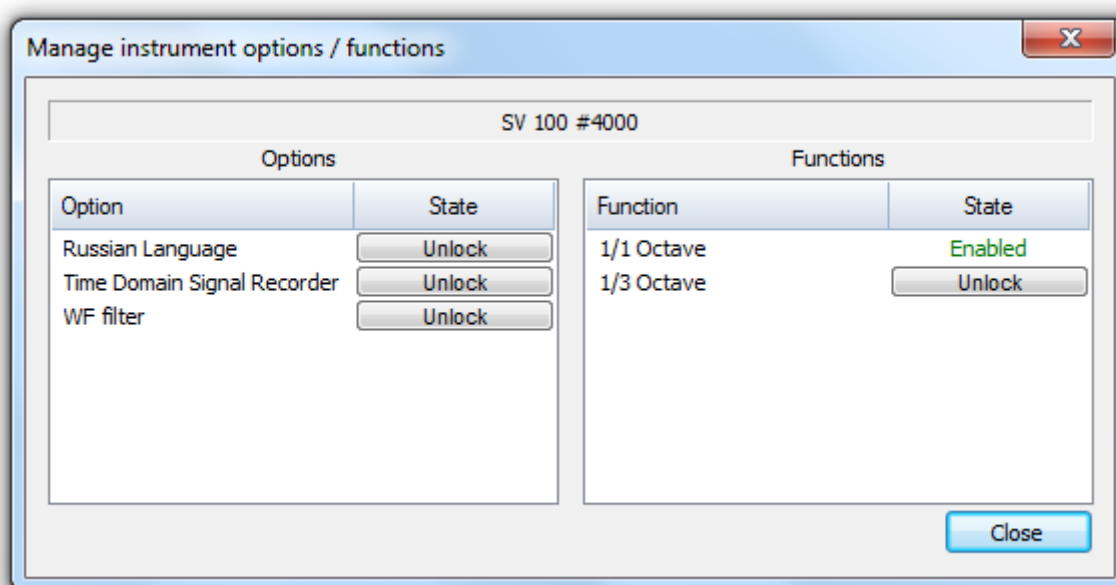
These periods can be modified in the General settings in the Main Options dialog box.

Connected	Instrument	Cal. validity date
No	SV 104 #64	2013-11-03
No	SV 104 #40	2014-01-01

**Fig.2-5** The calibration validity date is colored according to the proximity of the end of the validity period.

In order to search for the latest firmware for your Svantek instrument in the Internet, click on the instrument's name in the Inventory table with the right mouse button and, in the context menu, select the *Look for new firmware* command. In order to remove the device from the Inventory database, select the *Remove from Inventory* command in the same context menu.

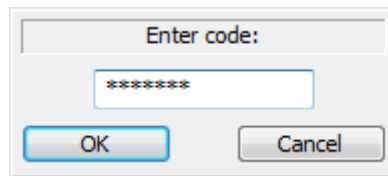
In order to unlock additional options or measurement functions of a SV 100, SV 101 or SV 104 instrument that are available on purchase, use the 'Manage options/functions' command in the instrument's context menu. When you click on this command, Supervisor downloads a list of available functionalities from the connected instrument and displays it in the form of two lists: one for options and one for measurement functions (Fig.2-6).



**Fig.2-6** The Manage instrument options / functions dialog box.

The *State* column, located at the right hand side of each option / function, contains the 'Enabled' label for unlocked options / functions, and the 'Unlock' button for the ones that have not yet been unlocked. If you wish to unlock an option or function that you purchased, press the 'Unlock' button and enter the unlocking code in the window that appears.

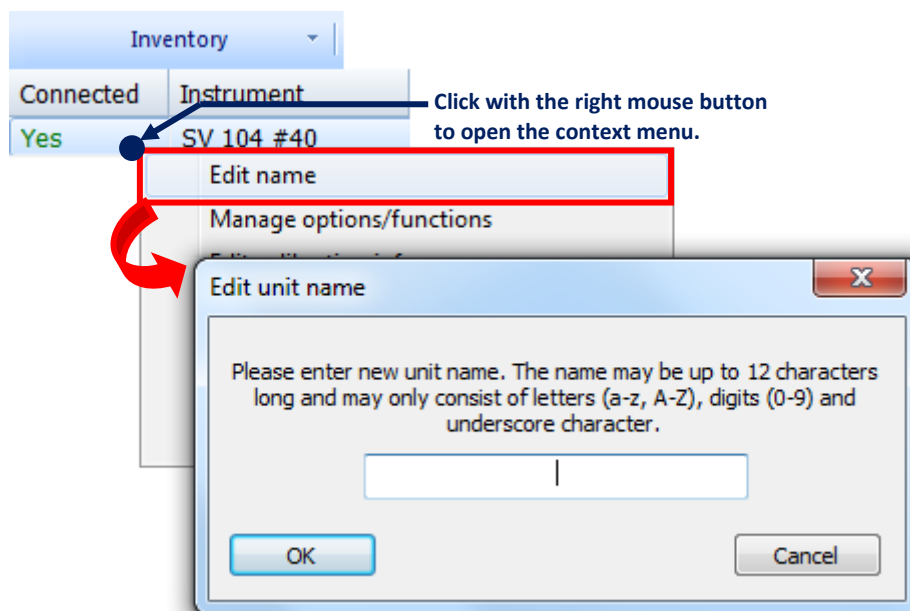
**Note:** If wrong code is entered three times since the instrument was last turned on, any later attempt to lock or unlock an option will fail (regardless on whether the entered code is correct or not) until the instrument is restarted.



**Fig.2-7** Window allowing to enter code for unlocking an additional option or measurement function.

You can also lock again an unlocked option / function by clicking on its name with the right mouse button, selecting 'Lock' and entering the same code that was used for unlocking.

In case of SV 104 instruments, the instrument's name can be specified using the Edit name command, available in the menu opened by clicking with the right mouse button on the row of the Inventory table corresponding to the selected instrument (Fig.2-8).



**Fig.2-8** Editing the name of a SV 104 instrument.

In case of SV 104 instruments connected to the PC via an SA 104-5 Docking Station, an additional column is displayed, showing the serial number of the Docking Station and the number of the slot occupied by each SV 104 instrument, as illustrated in the figure below.

Inventory		Settings	Download		
Connected	Instrument	Dock, slot	Clock		Firmware ver.
Yes	SV 104IS #8	#3500, 4	08/07/2015 10:26:40		1.03.7
Yes	SV 104IS #4	#3500, 1	08/07/2015 10:26:42		1.03.7

Fig.2-9 The Inventory in case of SV 104 instruments connected via an SA 104-5 Docking Station.

## 2.2.2. CALIBRATION REPORTS

Word documents and PDF documents, representative of the Svantek instrument's calibration report and its calibrator's calibration report, can be assigned to each instrument in the Inventory database.

To add a calibration report, click with the right mouse button somewhere in the row of the Inventory table corresponding to the given Svantek instrument and, in the context menu, select the *Add instrument calibration report* or *Add calibrator calibration report* command. If the *Instrument Calibration report* or *Calibrator calibration report* columns are shown in the Inventory table, you can also use the corresponding buttons (Fig.2-10). A dialog box will appear, allowing for the selection of file to be used as the calibration report.

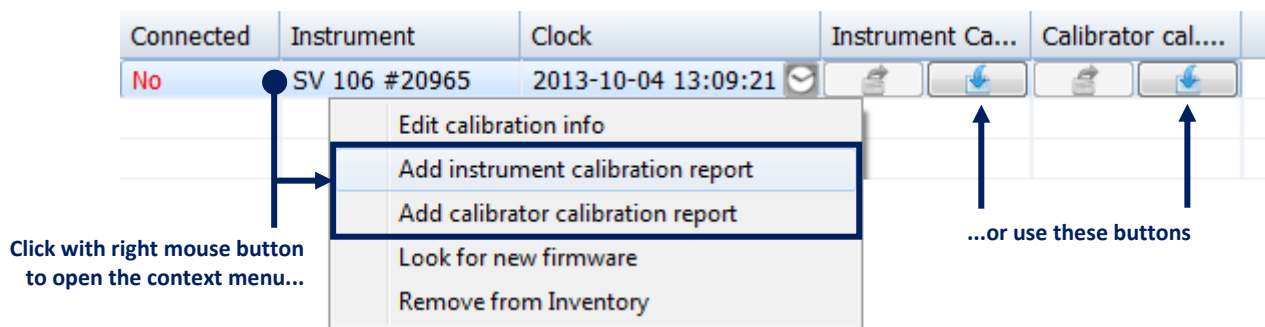


Fig.2-10 Assigning calibration reports to a Svantek instrument.

Once a calibration report is added, you can:

- open the assigned file—using the context menu or the button,
- select another file to be assigned as the report—using the context menu or the button,
- remove the report—using the context menu.

**Note:** In order for the described buttons to be available, you have to enable showing the columns corresponding to the calibration reports in the Inventory table. To do so, check the *Instrument Calibration Report* or *Calibrator Calibration Report* option in the context menu opened by clicking with the right mouse button on the header of one of the Inventory table's columns.

## 2.3. EDITING THE INSTRUMENTS' SETTINGS

The Setup Editor tool available in the Supervisor application enables one to acquire settings from a connected device and modify them using a clear graphical interface, as well as to store the setup on the PC for later use. In order to use the Setup Editor, open the Settings tab in the Instrument window (Fig.2-11).

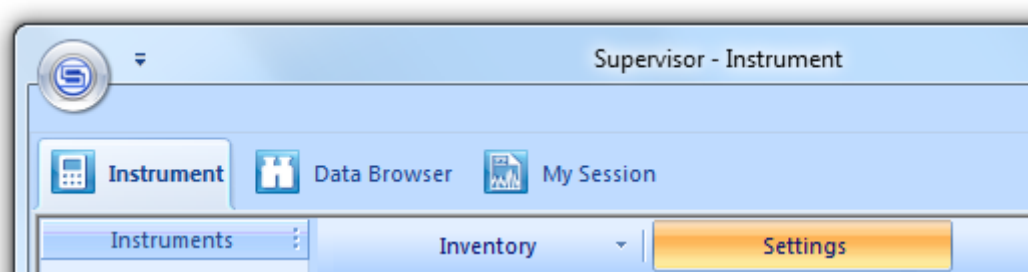


Fig.2-11 The Settings tab in the Instrument window.

Svantek instruments' settings can be edited in Supervisor only in the form of setup files (.svt), stored on the PC. That is, in order to modify the settings of a connected Svantek instrument, you first need to download the setup file. This can be done using the *Instrument files / Local files* panels. Once a setup file is stored on the PC, it can be opened in order to edit it using the Setup Editor, located on the right side of the screen, and then applied in a connected instrument. It is illustrated in Fig.2-12 and described in detail in the following subsections.

**Note (for SV 106):** Most Svantek instruments store their settings in the form setup (text) files of the same structure as the ones used by Supervisor, but the SV 106 instruments do not. In the latter case, when acquiring settings, Supervisor actually sends a series of inquiries to the SV 106 and generates a setup file according to the provided data. Analogously, when "uploading" a setup file to a SV 106 instrument, in fact Supervisor sends it a series of commands, according to all the specified settings. Therefore, in case of SV 106 instruments, unlike other instruments, it is only possible to modify the current settings of the instrument, not to store multiple setups with different names in the instrument's memory.

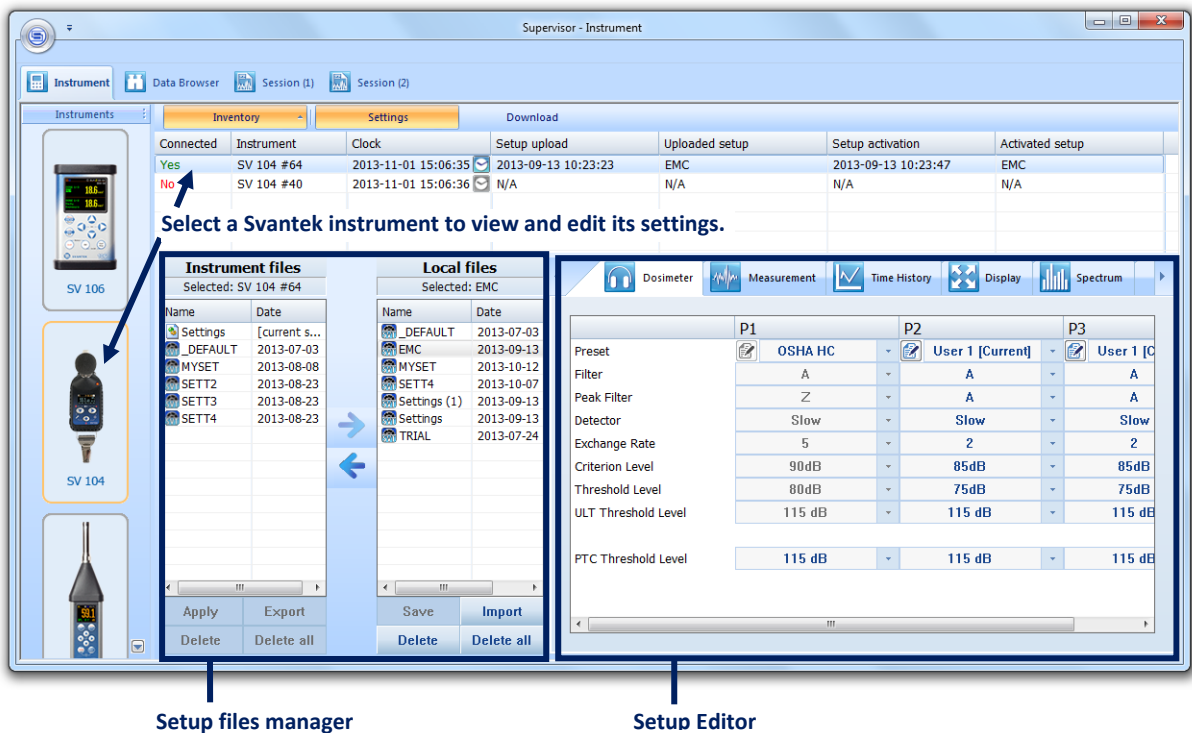




Fig.2-12 Using Supervisor to edit Svantek instruments' settings.

### 2.3.1. DOWNLOADING SETTINGS

First, the type of Svantek instrument has to be selected in the *Instruments* list on the left side of the screen, and the particular Svantek instrument has to be selected in the *Inventory*. The list of setup files stored on the selected instrument will be displayed in the *Instrument files* panel. You can then select a setup file on the list and download it to the PC using the  button. All the downloaded files are displayed in the *Local files* panel.

Except of setup files stored on the instrument, the *Instrument files* list also contains the  **Settings** entry which represents the current settings of the device. When you choose to download it, a setup file is generated according to the current settings.

If you wish to import setup files stored on the PC to the Supervisor *Local files* list (*i.e.* files which you downloaded not using Supervisor, *e.g.* using the SvanPC++ software, or acquired in any other way, *e.g.* copied from another PC), you can use the *Import* button, located below the *Local files* panel. On the other hand, by pressing the *Export* button after selecting setup a file in the *Instrument files* panel, you can store it in a selected location on the PC.

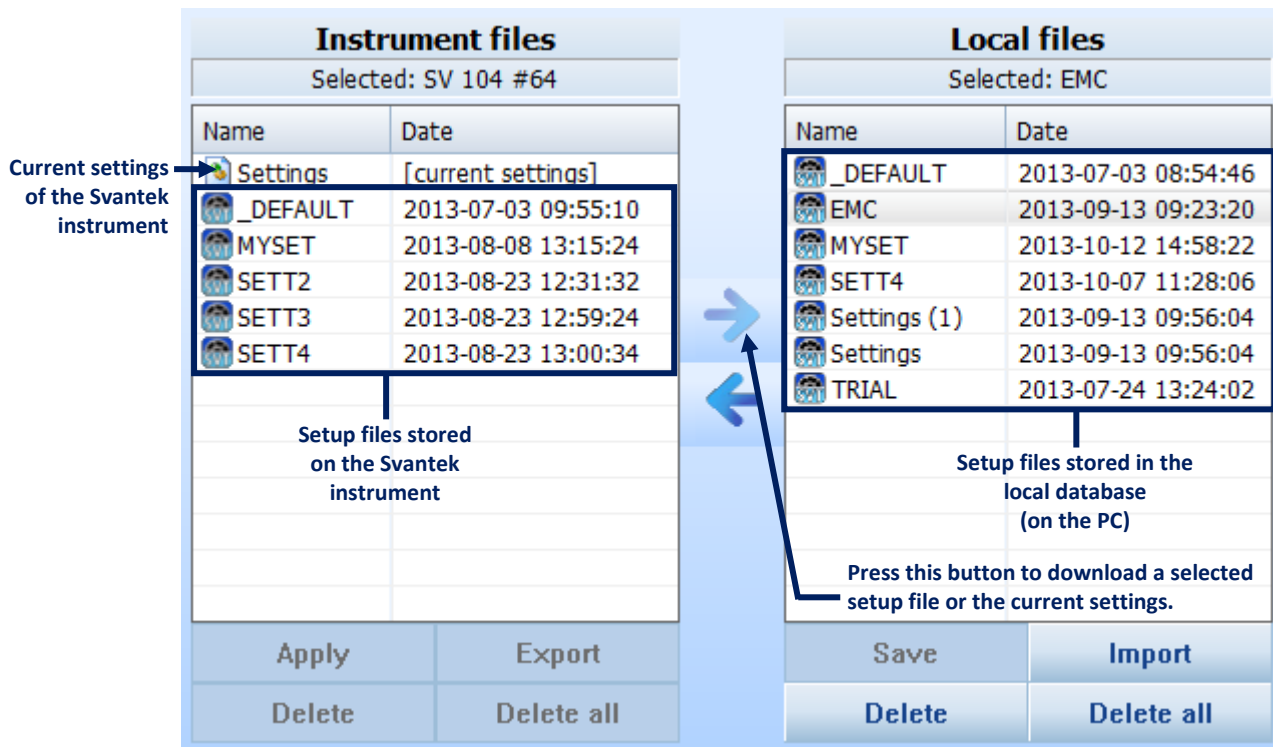


Fig.2-13 Setup files manager.

The 'Delete' buttons located below both of the lists enable one to delete files selected on one of the lists from the connected instrument's memory or from the local database. The 'Delete all' buttons enable one to delete all the files from the connected instrument's memory or from the local database.

By clicking with the right mouse button on a setup file in the Instrument files list you can open a context menu, allowing to perform several actions that are also accessible using the panel's buttons (described in this and the subsequent sections), viz.: apply settings, download a setup file to the local database, export the settings to a selected location on the PC, and delete selected or all setup files (Fig.2-14).

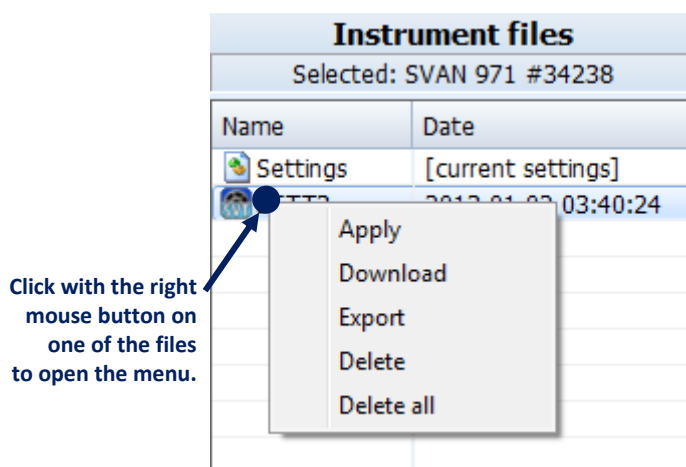


Fig.2-14 The Instrument files context menu.



### 2.3.2. EDITING SETTINGS

**Note:** Supervisor does not allow for modifying the settings directly in the connected Svantek instrument. Therefore, prior to editing, the settings have to be saved in a SVT file on the PC as described in the previous section.

In order to edit a setup file, select its name on the *Local files* list. All the available settings will be displayed in the Setup Editor panel at the right side of the screen (Fig.2-12).

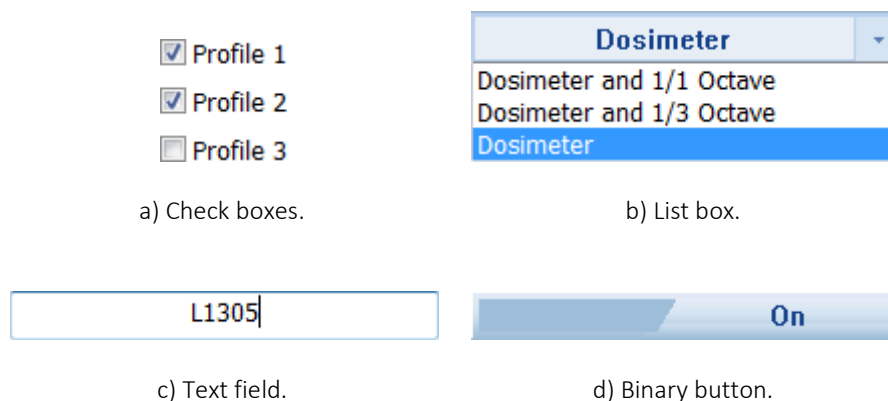
The settings are divided into several categories, such as *General*, *Measurement*, *Spectrum*, etc. They can be accessed using the tabs located on the bar at the top of the Setup Editor panel. The availability of particular categories depends on the type of instrument the edited setup file is compatible with. In case there are too many categories to display all the tabs simultaneously, you can use the ◀ and ▶ buttons to scroll the bar.

The settings available in the Setup Editor correspond to those available via the Svantek instrument's interface. For details on the meaning of the available settings, please refer to the manual of your particular Svantek instrument.

The settings can be easily edited using the following elements of the Setup Editor's graphical interface:

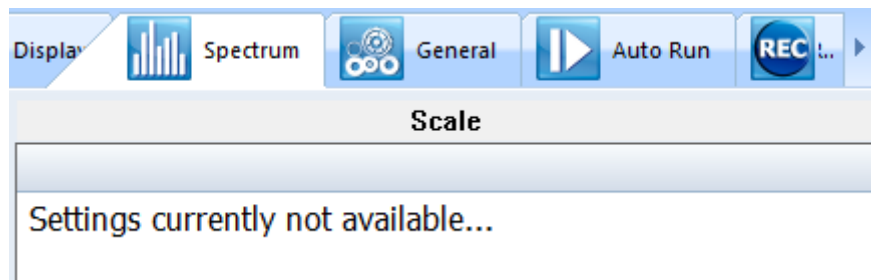
- check boxes – allowing to select some out of several possibilities,
- list boxes – allowing to select one out of several possibilities,
- text fields – allowing to specify a text value (e.g. a file name),
- binary buttons – allowing to enable or disable an option.

These elements are shown in Fig.2-15.



**Fig.2-15** Elements of the Setup Editor's graphical interface.

In some cases, the 'Settings currently not available' message may appear, all settings in a particular category being unavailable for modification (Fig.2-16). It only occurs if the particular category of settings is triggered by enabling an option from another category in the same setup file. For example, the *Spectrum* settings will be available only if a spectral measurement function (e.g. 1/1 Octave) is selected in the *Measurement* category of settings.



**Fig.2-16** An example of a category of settings unavailable due to some other options in the same setup file being disabled.

Changes that are made in setup files using the Setup editor are not automatically saved. You can save the changes by pressing the *Save* button, located below the *Local files* panel. Supervisor also automatically proposes to save the changes every time you perform an action that remove the focus from the currently edited setup file, such as uploading the setup file, opening another one, etc.


You can also perform several operations on a setup file, such as *e.g.* renaming or deleting, by clicking with the right mouse button on its name. The *Export* command can be used to save a copy of the setup file in a selected location or with a different file name.

If you want to create a setup similar to one already stored in a file, but do not want to lose the original setup, you can use the *Duplicate* command available in the context menu (accessed by clicking with the right mouse button on the name of a selected setup file).

**Note:** The asterisk (\*) added at the beginning of a file name in the *Local Files* list indicates that the settings displayed in the Setup Editor differ from those stored in the file, *i.e.* changes have been made in the loaded settings but not yet saved. However, if you try to leave the Setup Editor without saving the changes, you will be asked for confirmation.

**Note:** The list of setup files displayed in the *Local files* panel contains only the setup files compatible with the instrument type currently selected in the Inventory.

### 2.3.3. APPLYING SETTINGS

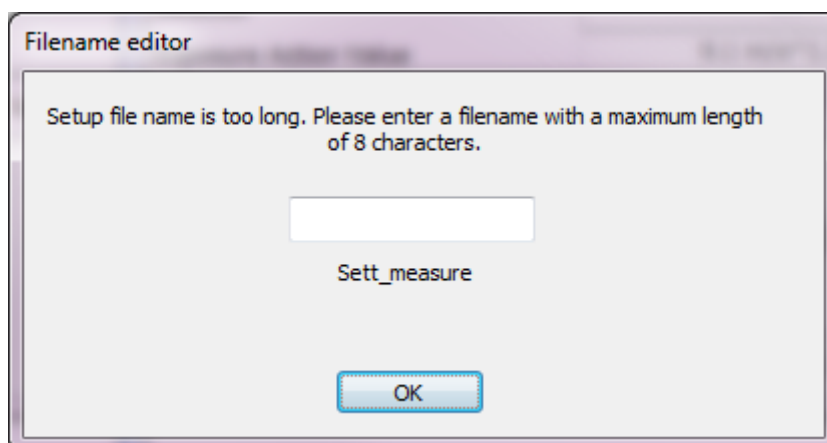
You can upload a setup file, selected in the *Local files* list, to a connected Svantek instrument by pressing the  button in the Setup files manager panel. The uploaded file will be stored in the instrument's memory, but the settings will not be automatically applied. In order to apply a setup file (causing the instrument's settings to become same as specified in the file), press the *Apply* button located below the *Instrument files* list (see Fig.2-18), or use the *Apply* command in the menu opened by clicking with the right mouse button on a file in the *Instrument files* list.

**Note:** Setup files named 'Settings' are automatically applied after they are uploaded.

**Note (for SV 106):** As mentioned in the *Note for SV 106* at the beginning of Section 2.3, uploading any setup files to a connected SV 106 instrument is always equivalent to configuring the instrument's settings by sending a series of commands. Therefore, each setup

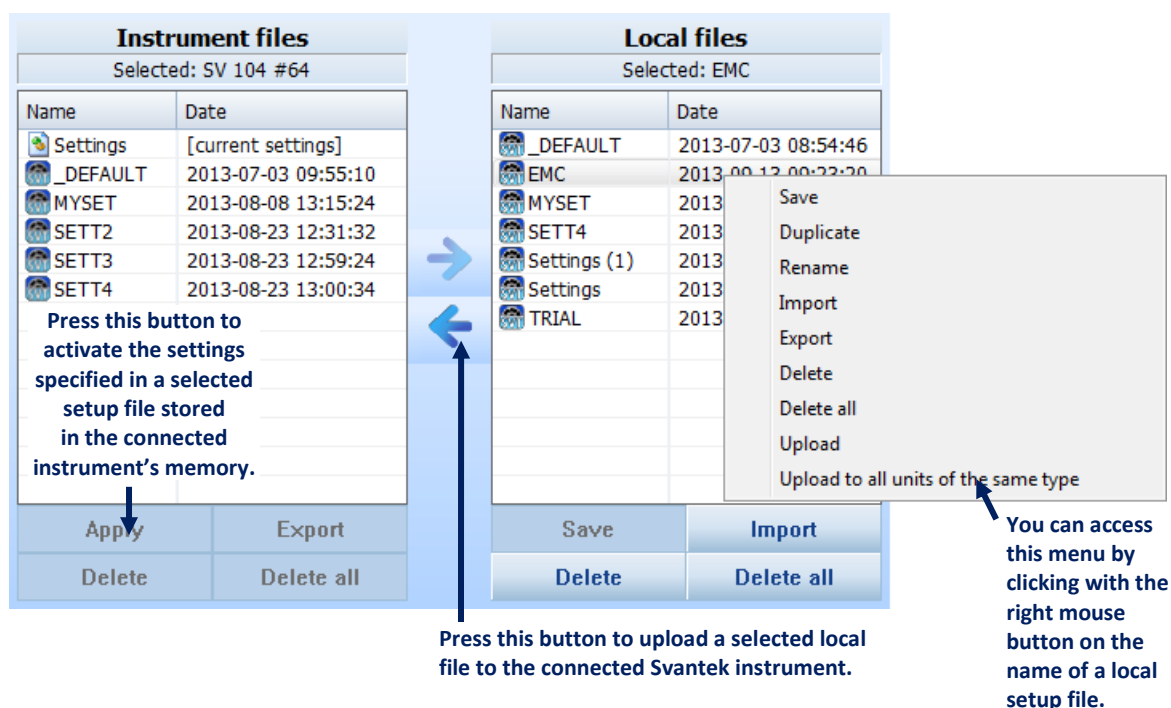
file is automatically “applied” at the moment of the upload. This is why the *Instrument files* list for SV 106 contains only one file called Settings.

The maximum length of filename for files stored in the instrument’s internal memory is 8 characters (plus 3 characters of the file extension). Therefore, when you try to upload a file of name longer than 8 characters, a dialog box will appear, requesting to specify a shorter filename.



**Fig.2-17** The Filename editor window, appearing when a file of name longer than 8 characters is uploaded.

**Note:** Uploading a setup file with a name equal to the name of a file already stored in the Svantek instrument’s internal memory will overwrite the existing setup file, so renaming the files after editing is advisable. A file can be renamed using the *Rename* command in the context menu, opened by clicking the file’s name with the right mouse button (see Fig.2-18).



**Fig.2-18** Uploading and applying settings to a connected Svantek instrument.

A selected setup file can be also uploaded to all connected instruments of a given type using the *Upload to all units of the same type* command, available in the pulldown menu.

During the upload, Supervisor automatically checks the compatibility of the Svantek instrument's firmware version and the firmware version for which the uploaded setup file was created. If the versions differ, the settings that are incompatible will be converted to match the instrument's firmware. You can choose whether or not you want to be asked to confirm the upload every time the setup file is incompatible with the instrument's firmware. To do so, use the *Ask to confirm uploading setups with different firmware versions* checkbox in the Data Exchange tab in the Main Options.

## 2.3.4. USING PRESETS

In case of some types of Svantek instruments, the dosimetric profiles (available in the *Dosimeter* category of settings in the Setup editor) can be configured using so-called *presets*. A presets is a set of values of parameters related to the dosimetric profile, such as *e.g.* Filter or Detector. There are two types of presets: predefined and user-defined. The six predefined presets are provided with Supervisor by default and are compliant with the following health and safety norms:

- OSHA HC – Occupational Safety and Health Administration Hearing Conservation,
- OSHA PEL – Occupational Safety and Health Administration Permissible Exposure Level,
- MSHA HC – Mine Safety and Health Administration Hearing Conservation,
- MSHA PEL – Mine Safety and Health Administration Permissible Exposure Level,
- ACGIH – American Conference of Governmental Industrial Hygienists,
- Nordic – standards specific for the Nordic countries.

Except of these predefined presets, you can create up to three user-defined presets, consisting of custom parameters values.

Press this button to change the name of the selected preset.

Parameters whose values are specified in presets

A parameter unaffected by presets

Use these buttons to select presets.

Current profile settings

Predefined presets


User-defined presets

	P1	P2	P3
Preset	OSHA HC	MyPreset	User 2
Filter	A	MyPreset [Current]	A
Peak Filter	Z	OSHA HC	A
Detector	Slow	OSHA PEL	Slow
Exchange Rate	5	MSHA HC	3
Criterion Level	90dB	MSHA PEL	85dB
Threshold Level	80dB	ACGIH	75dB
ULT Threshold Level	115 dB	Nordic	115 dB
		MyPreset	
		User 2	
		User 3	
PTC Threshold Level	115 dB	115 dB	115 dB

Fig.2-19 Configuration of dosimetric profiles using presets.

Different presets can be selected for each profile independently. In order to configure one of the profiles according to a preset, use the *Preset* list-box (see Fig.2-19). The first preset on the list, marked as *[Current]*, represents the profile configuration currently saved in the edited setup file. It is provided so you can reset the changes you made in Setup Editor by selecting it. If you make any changes in the Current preset, its name will be cleared (the currently selected preset will be called *None*).

When you select one of the predefined presets, the elements of the interface related to the parameters whose values are specified by the preset will be disabled. In order to change the values of those parameters, you need to select the current preset or a user-defined preset. Note that the presets do not specify the values of all parameters; the parameters whose modification remains possible after selecting a predefined preset do not belong to the presets. These parameters are separated from the ones belonging to presets with a blank row.

You can create a user-defined preset by selecting one of the three last presets on the list and configuring the profile in a way you want it to be stored in the preset. The changes are automatically remembered by Supervisor. You can change the name of the preset using the  button.

**Note:** The three user-defined presets correspond only to the currently selected type of Svantek instrument. Different three presets are stored for each instrument type.

## 3 MANAGING MEASUREMENT DATA

### 3.1. DOWNLOADING FILES

In order to download files from a connected Svantek instrument, open the Download tab in the Instrument window (Fig.3-1).



Fig.3-1 The Download tab in the Instrument window.

The Download panel contains a list of files stored in the connected Svantek instrument's memory in the form of a table. Various types of files are displayed there, *e.g.* measurement files, voice comment files, etc. The first three columns of the table contain basic information about the files: name, size in bytes and date of creation. The last three columns contain additional information (concerning location, users and tasks) assigned to the files; it is described in detail in Section 3.3.1. Files that have not yet been downloaded are displayed with bold font.

**Note:** Only files stored on the instrument selected in the Inventory are displayed. For details on using the Inventory, see Section 2.2.1.

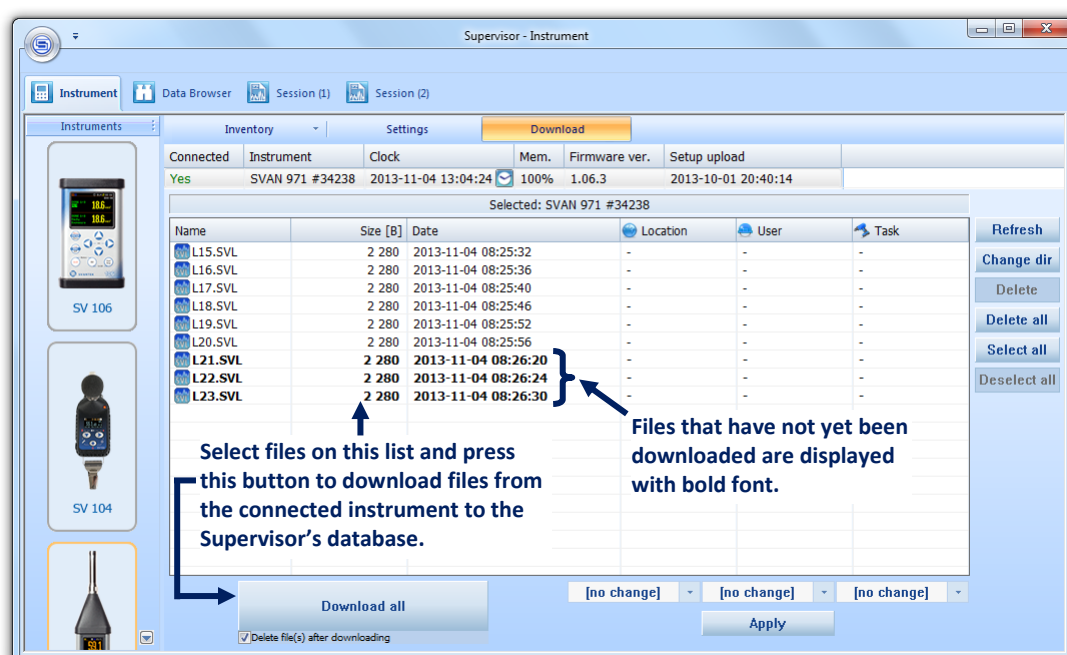


Fig.3-2 Downloading files from a Svantek instrument using Supervisor.

To download files, use the *Download* button located below the files table on the left side of the Download panel. If one or more files are selected in the table, pressing the *Download* button will cause the download of the selected files. Otherwise, pressing this button will cause the download of all of the files stored on the connected instrument.

**Note:** You can select files by clicking the a row of the table. Clicking with the CTRL or SHIFT button pressed allows to select multiple files.

If you check the *Delete file(s) after downloading* box, located under the *Download* button (see Fig.3-3), all the downloaded files will automatically be deleted from the instrument's memory after downloading to Supervisor.



Fig.3-3 The *Delete file(s) after downloading* checkbox.

After the downloading procedure is completed, a Download summary window, containing information about success or failure of downloading, is shown. You can disable showing these windows in cases when no errors occur in the downloading procedure; in order to do so, check the *Don't display Download Summary if no errors* checkbox in the Data Exchange settings in the Main Options. The same can also be done in the Download result window by checking the *don't show this message if all files were downloaded correctly* checkbox (Fig.3-4).

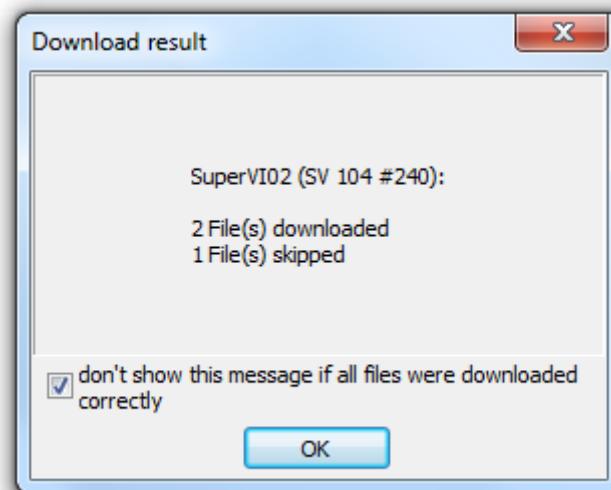


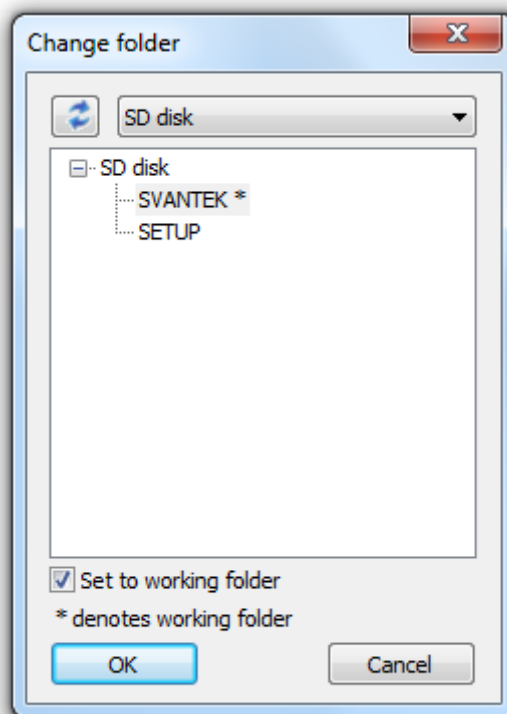
Fig.3-4 The Download result window.

The buttons located at the right side of the Download panel enable one to perform some basic operations concerning the files stored on the connected instrument:

- *Refresh* – updates the list of files, so that all the files created after you entered the Download panel will also be shown.
- *Change dir* – opens the *Change folder* dialog box, allowing to select a directory in the Svantek instrument's memory from which files are displayed in the Download panel (Fig.3-5). **Note:** It is not available for some types of Svantek instruments.
- *Delete* – deletes a selected file from the Svantek instrument's memory.

- *Delete all* – deletes all result, logger, and WAVE files in the instrument’s current working directory.
- *Select all* – selects all files in the table.
- *Deselect all* – clears the selection.

**Note:** In case of the SV 100, SV 101, SV 102 and SV 106 instruments, it is not possible to delete a single logger file. In this case, when only logger files are selected on the list, the Delete button is disabled; pressing Delete when results files and logger files are selected will only delete the results files; downloading logger files with the *Delete file(s) after downloading* option enabled will not cause the deletion of the logger files.

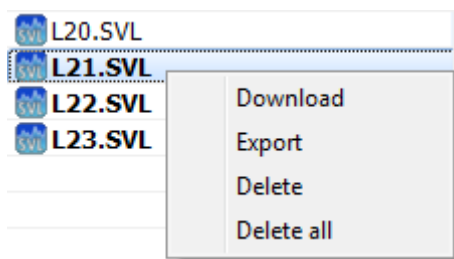


**Fig.3-5** The dialog box allowing to select the directory in the Svantek instrument’s memory from which files are displayed in the Download panel.

**Note:** Every time the list of files is refreshed, a new “downloading session” begins, *i.e.* a new subdirectory is created for the downloaded files. This is why sometimes the overwrite warning does not appear even though two files of the same name are downloaded—after beginning a new downloading session, the file will be stored in a different location, thus eliminating the possibility of overwriting.

By clicking with the right mouse button in the list of files stored on the connected Svantek instrument, you can open a context menu allowing to perform several actions on the selected files: download them to the local database, export to a selected location on the PC, or delete them from the instrument’s memory, as well as delete all the files stored on the connected Svantek instrument.





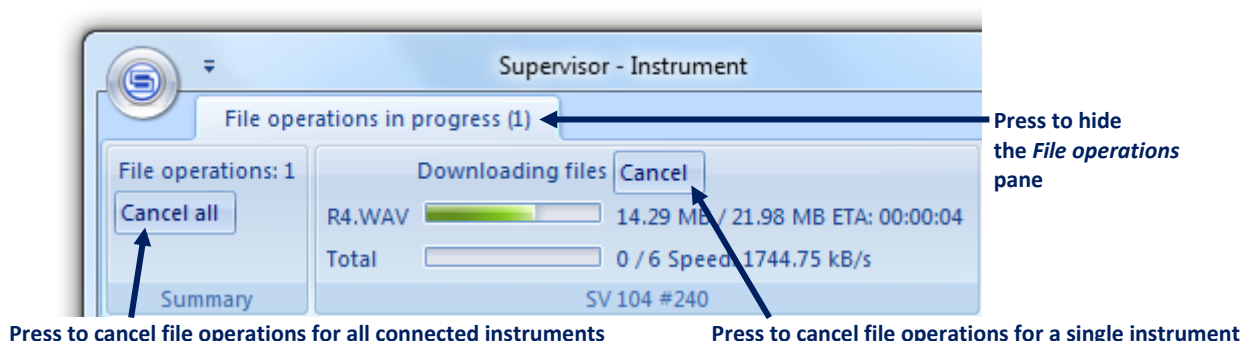
**Fig.3-6** The context menu available for the list of files in the Download panel.

All the downloaded files are stored in the Supervisor's database and they can be viewed and processed using the Data Browser, which is described in the following section. The Data Browser is automatically opened each time files are downloaded from a connected Svantek instrument.

Downloading Result files will also cause the associated logger files to be downloaded as well. This feature can be disabled by unchecking the *Automatically download associated logger files when downloading Result files* option in the Data Exchange settings in the Main Options.

**Note:** Details on downloading audio comment files are presented in Section 6.2.4.

Whenever you download / upload files from / to a connected instrument, Supervisor displays the progress in the *File operations* pane, located at the top-left corner of the application window.



**Fig.3-7** The *File operations* pane.

Each instrument can perform one operation at a time. If multiple instruments are connected and performing file operations at the same time, you can cancel them all by pressing the *Cancel all* button.

You can show/hide the File operations pane by clicking on the *File operations in progress* tab.

## 3.2. DATA BROWSER

In order to view all the files downloaded from Svantek instruments and stored in the Supervisor's database, open the Data Browser using the button located in the top-left corner of the Supervisor window.

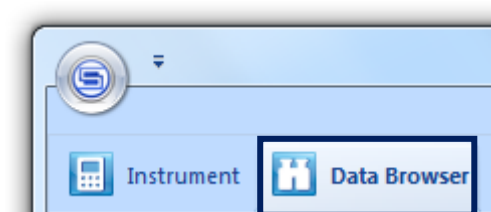


Fig.3-8 Button for opening the Data Browser.

The Data Browser is composed of three panels:

- on the left side of the window, the *File manager* panel contains a list of all files stored in Supervisor's database and allows to select a group of files to be displayed in detail.
- on the right side of the window, the *File details* panel contains a more detailed list of files belonging to a selected group and allows to open a file for further processing.
- below the File details panel, the *Preview* panel enables to preview data contained in a selected file.

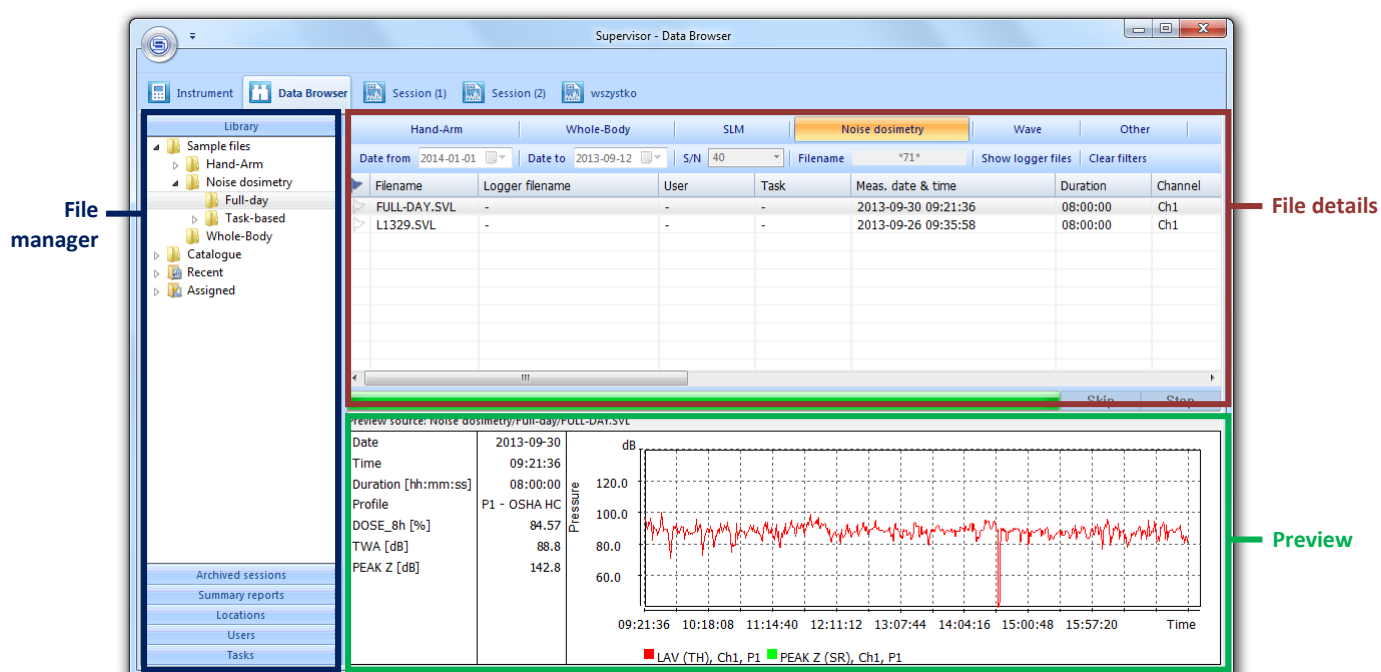


Fig.3-9 The Data Browser window.

### 3.2.1. FILE MANAGER

The File manager panel can be used to select a group of files to be displayed in detail. It is divided into six sub-panels: *Library*, *Archived sessions*, *Summary reports*, *Locations*, *Users*, and *Tasks*. Each of them can be accessed by pressing the horizontal bar with the respective name (see Fig.3-10).

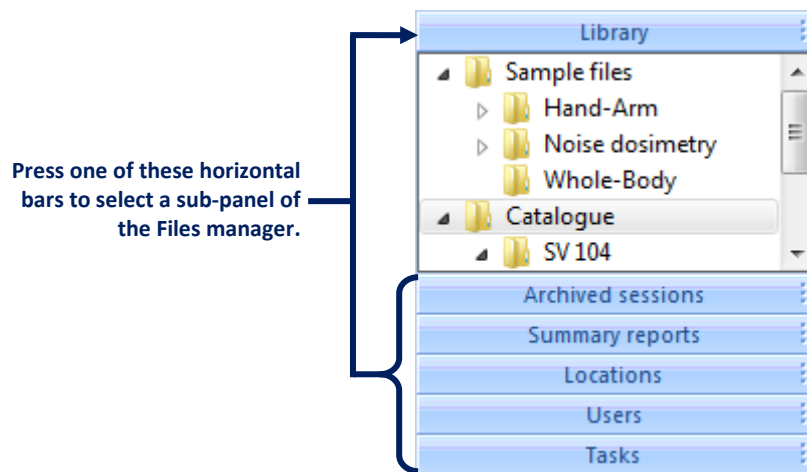


Fig.3-10 The File manager.

## Library

The *Library* sub-panel lists all the files stored in the database using a tree view. It contains four base items:

- The *Sample files* item contain some sample files provided with Supervisor, grouped further according to the type of measurement they refer to.
- The *Catalogue* item contains all the files downloaded from instruments. You can arrange the Catalogue in any way by adding, deleting, moving and renaming files and folders. You can easily move files and folders, as well as add them to the database from any location on the PC, using the drag & drop technique. You can also use the context menu, opened by clicking with the right mouse button, for various operations on files and folders.  
**Note:** It is also possible to export files from the Supervisor's database using the drag & drop technique outside the application window (dropping files into Windows Explorer).
- The *Recent* item contains two sub-items: *Flagged*, which is a folder for grouping a number of selected files—in order to add a file to this group, you have to set its *flag*, which can be done in the File details panel; and *Last downloaded*, which contains a list of files downloaded since the last launch of Supervisor.
- The *Assigned* item contains all files to which additional information about location, user, and task performed during measurement have been assigned. For details on assigning additional information to files, see Section 3.3.

You can export selected folders and files as a Supervisor's database by clicking on an item in the Library with the right mouse button and selecting the "Export database" command (Fig.3-11). It opens the Database export wizard, automatically configured according to the selection made in the Library. For details on the Supervisor's databases, see Section 6.1.

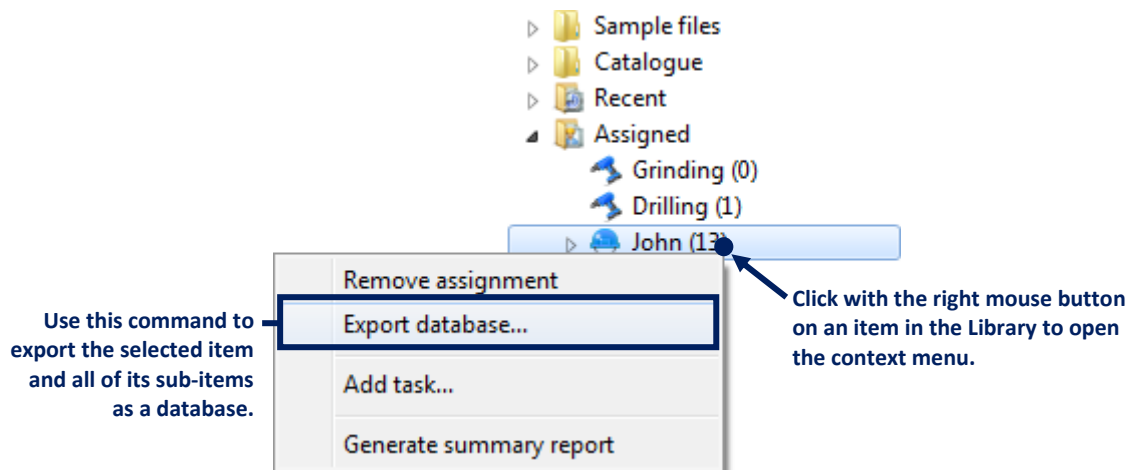


Fig.3-11 Exporting a selected part of the database using the Library.

### Archived sessions

The *Archived sessions* sub-panel contains a list of all the sessions that have been moved to archive. You can use this list to restore an archived session for viewing and processing it again, or to use files which have been used to create that session. In case many sessions are archived, you can use filters to display only some of them (see Fig.3-12). Sessions are described in detail in Section 4.

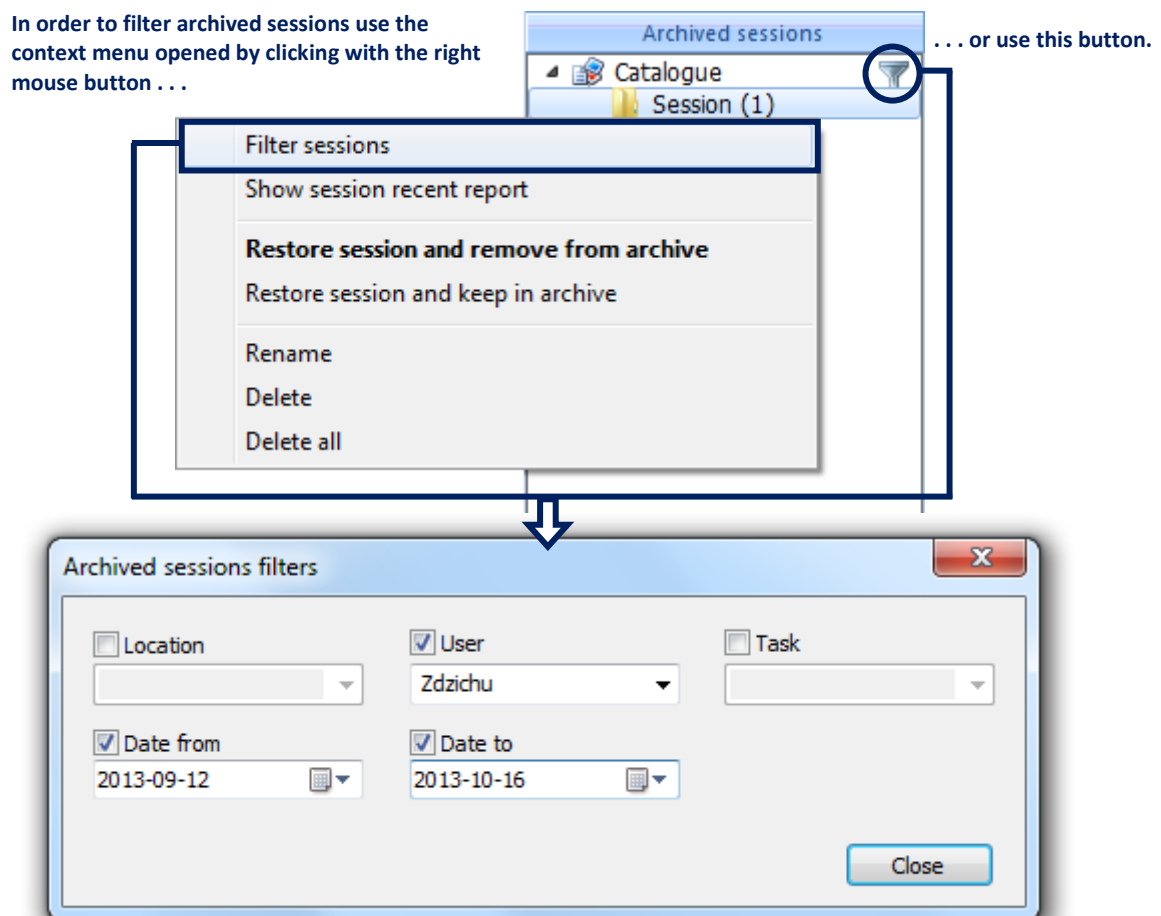


Fig.3-12 Filtering archived sessions.

## Summary reports

The *Summary reports* sub-panel contains a list of Summary reports that you have created. The Summary reports can be used to gather selected measurement results according to additional information that has been assigned to them. It is treated in more detail in Section 3.3.4.

## Locations, Users and Tasks

The last three sub-panels of the File manager contain files listed according to additional information assigned to them. Such assignments are treated in more detail in Section 3.3.

### 3.2.2. FILE DETAILS

The *File details* panel contains a table in which files corresponding to the selected item of the File manager are described. The files corresponding to all sub-items of the selected item are also shown in the Files details panel. The files can be further processed by using them to create a session. In order to create a session, select one or more files, open the context menu by clicking with the right mouse button and select *New session*. If you want to create a session starting with only one file, you can do it by double-clicking with the left mouse button the row of the table corresponding to that file. Sessions are described in Section 4.

**Note:** You cannot create a session using files shown by the Other filter.

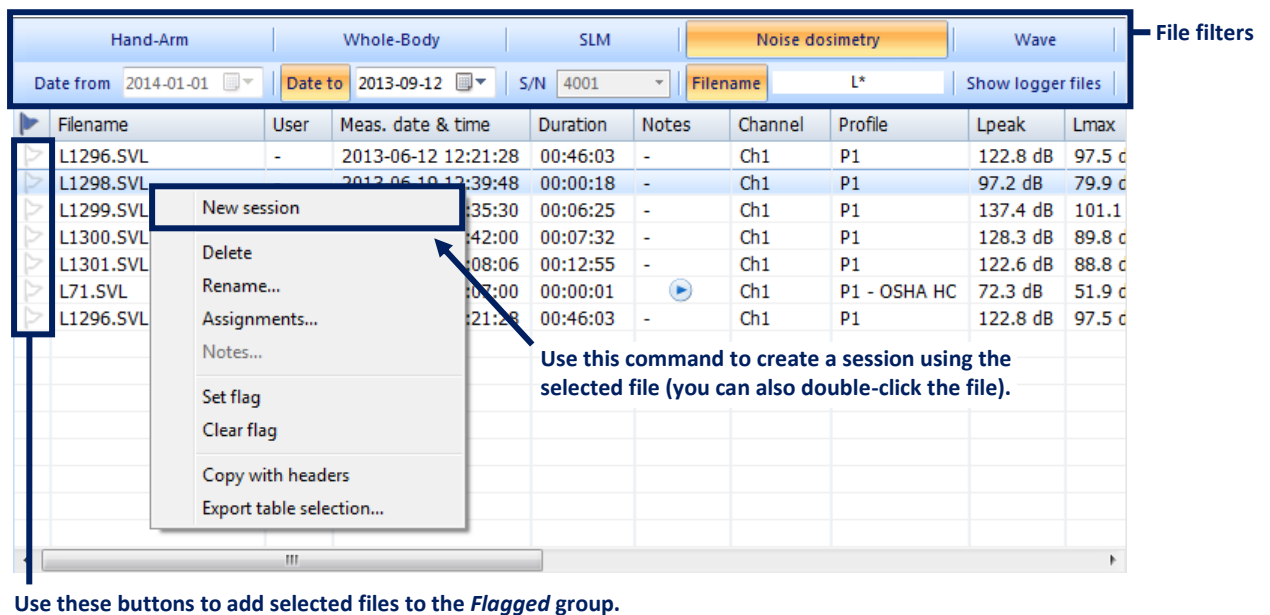
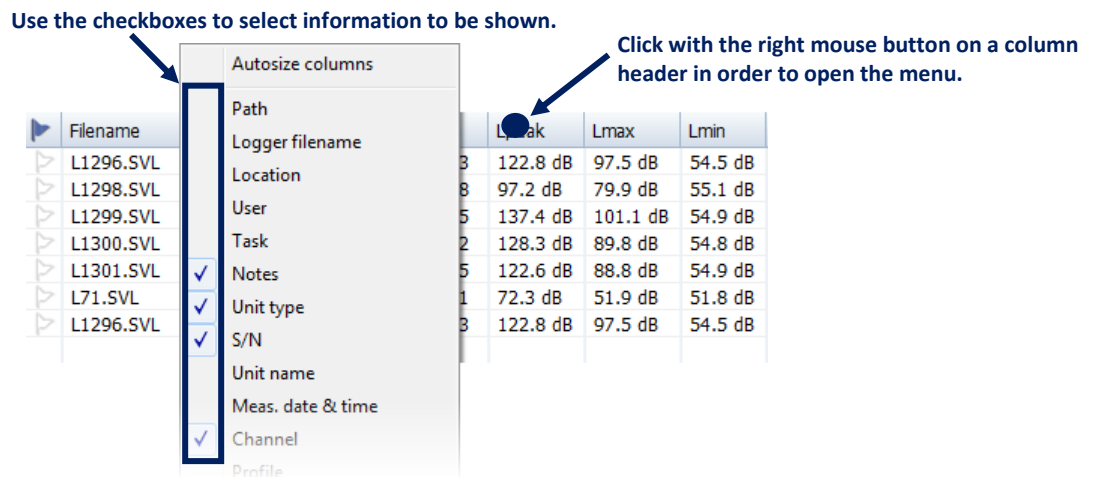


Fig.3-13. The File details panel.

## Customizing the table

The table in the center of the File details panel contains some information about the displayed files. The contents of this table can be customized by selecting columns to be shown. In order to do so, click with the right mouse button on one of the columns' headers, and use the checkboxes in the context menu to show or hide particular columns (Fig.3-14).



**Fig.3-14** Customizing the File details table.

**Note:** Every column that you add is automatically displayed at the end of the table and it might not be visible until you scroll the panel to the right. Its location can then be changed.

Clicking on the “Autosize columns” command resizes the columns of the File details table so that their width is equal to the width of the contained text. You can also rearrange the order of the columns by clicking on a column’s header and dragging it to another place, or manually resize them by dragging their limits. The order and widths of columns are saved by Supervisor (separately for each type of measurement, such as Hand-Arm or Whole-body) and restored after reopening the application.

The *Path* column provides the locations of files relative to the database location.

### ***Filtering the list of files***

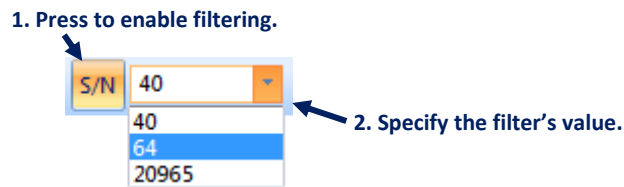
Buttons at the top of the File details panel serve for filtering the list of files. Buttons in the first row correspond to different file types (such as WAVE files) or types of measurement (such as hand-arm vibration dosimetry or noise dosimetry). After clicking one of these buttons, only the files of the selected type or related to the selected type of measurement are displayed on the list.

The *Other* filter serves for accessing files other than measurement files coming from Svantek instruments supported by Supervisor, *e.g.* \*.jpeg or \*.doc files.

**Note:** Files which are hidden because of different filters being enabled (such as S/N, date, filename) will remain hidden when the Other filter is enabled.

Buttons in the second row correspond to different types of filters, related with the date of measurement, serial number of the instrument used for measurement, and filename. To set such filter, enable it by clicking on its name and set its value in the field next to the name. You can also use the *Show logger files* button to enable / disable showing logger files on the list (which is applicable for instruments that store main results and time history buffer separately). All these filters can be disabled by pressing the *Clear filters* button (all files will be shown after doing it).

**Note:** The Filename filter supports the MS-DOS wildcard characters, *i.e.* the question mark (“?”) can be used to substitute for any single character, and the asterisk (“\*”) can be used to substitute for any sequence of characters.



**Fig.3-15** Using a filter to show only the results of measurement performed using an instrument of specified serial number. Other filters can be used in a similar way.

### Exporting file details

The contents of the *File Details* table can be used outside Supervisor by means of two different tools, accessible using the following commands available in the popup menu (opened by clicking with the right mouse button):

- *Copy with headers* - copies the selected rows of the table, together with the column headers, to the clipboard.

*Example:*

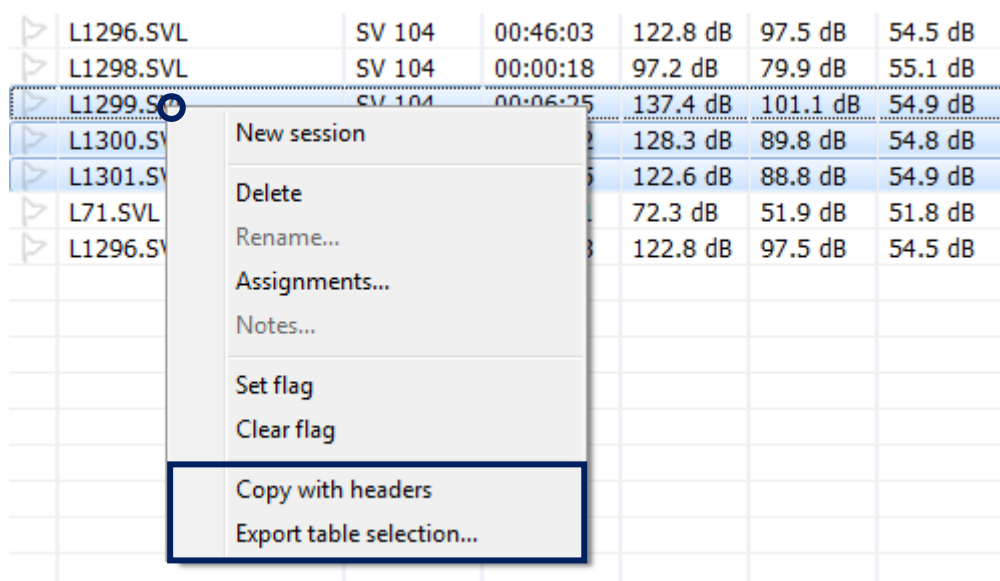
Flag	Filename	Unit type	Duration	Lpeak	Lmax	Lmin
0	L1299.SVL	SV 104	00:06:25	137.4 dB	101.1 dB	54.9 dB
0	L1300.SVL	SV 104	00:07:32	128.3 dB	89.8 dB	54.8 dB
0	L1301.SVL	SV 104	00:12:55	122.6 dB	88.8 dB	54.9 dB

- *Export table selection...* - enables one to save the selected rows of the table, together with the column headers, in CSV (comma-separated values) format, in an external file. In this case, the CSV export parameters, as set in the Values formatting tab in the Main Options, are taken into account.

*Example:*


```
Flag;Filename;Unit type;Duration;Lpeak;Lmax;Lmin
0;L1299.SVL;SV 104;00:06:25;137.4 dB;101.1 dB;54.9 dB
0;L1300.SVL;SV 104;00:07:32;128.3 dB;89.8 dB;54.8 dB
0;L1301.SVL;SV 104;00:12:55;122.6 dB;88.8 dB;54.9 dB
```

**Note:** Only the columns selected for displaying (as described in the subsection *Customizing the table*, above) are exported.



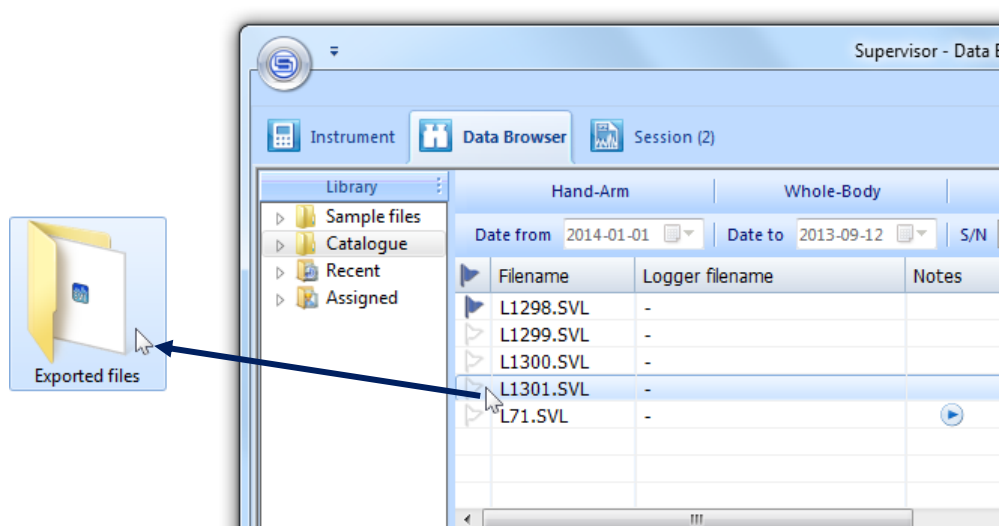
**Fig.3-16** Commands for exporting the contents of the File Details table.

### Setting flags

By pressing the  button located in the first column at the left side of the File details table you can set a flag for a selected file. As a result, the file will be accessible in the File manager in the *Recent* → *Flagged* group. You can flag several files in order to get a quick and easy access to them.

### Dragging files outside Supervisor

You can easily export files from the Supervisor's database to a selected location on the PC using the drag & drop technique outside of the application window.



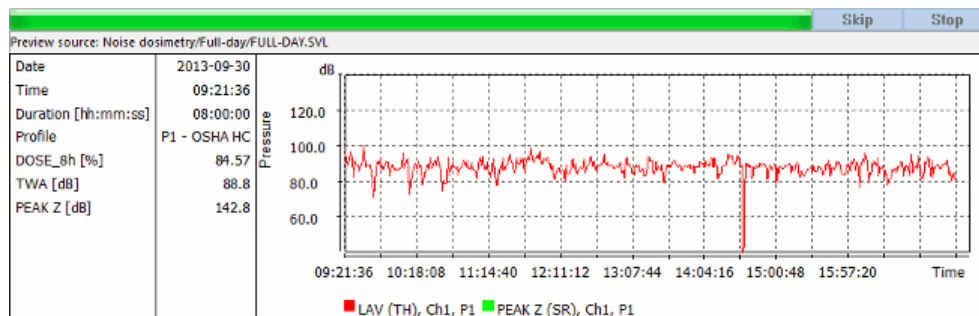
**Fig.3-17** Using the drag & drop technique to export files outside the Supervisor's database.



**Note:** Exporting measurement files with comments (*e.g.* WAVE files) attached to them automatically exports the comment files too. In order to export a single file without the attached comments, use the drag & drop technique with the CTRL button pressed.

### 3.2.3. PREVIEW

The panel below the File details table provides a short preview of the data stored in the selected file, giving an initial idea of the time history of the measurement results (Fig.3-9). In case multiple files are selected, the file which is actually used as source of displayed data is specified in the top left corner of the preview panel.



**Fig.3-18** The Preview panel.

It is possible to copy the contents of the Preview panel by clicking in its area with the right mouse button and activating the “Copy” command. It can then be pasted as an image in another application, such as *e.g.* MS Word.

You can specify the kind of data (and the order of their priority) to be displayed in the Preview panel using the Preview settings in the Main Options dialog box. Different kinds of data are available for different applications, such as Hand-arm vibration dosimetry, Whole-body vibration dosimetry, SLM and Noise dosimetry. To choose the application, use the list box at the top of the Preview settings panel. It is possible to select different kinds of data for the Parameters & results panel (on the left hand side of the Preview panel, displaying data in numerical form) and for the Plot panel (on the right hand side of the Preview panel, displaying data in graphical form).

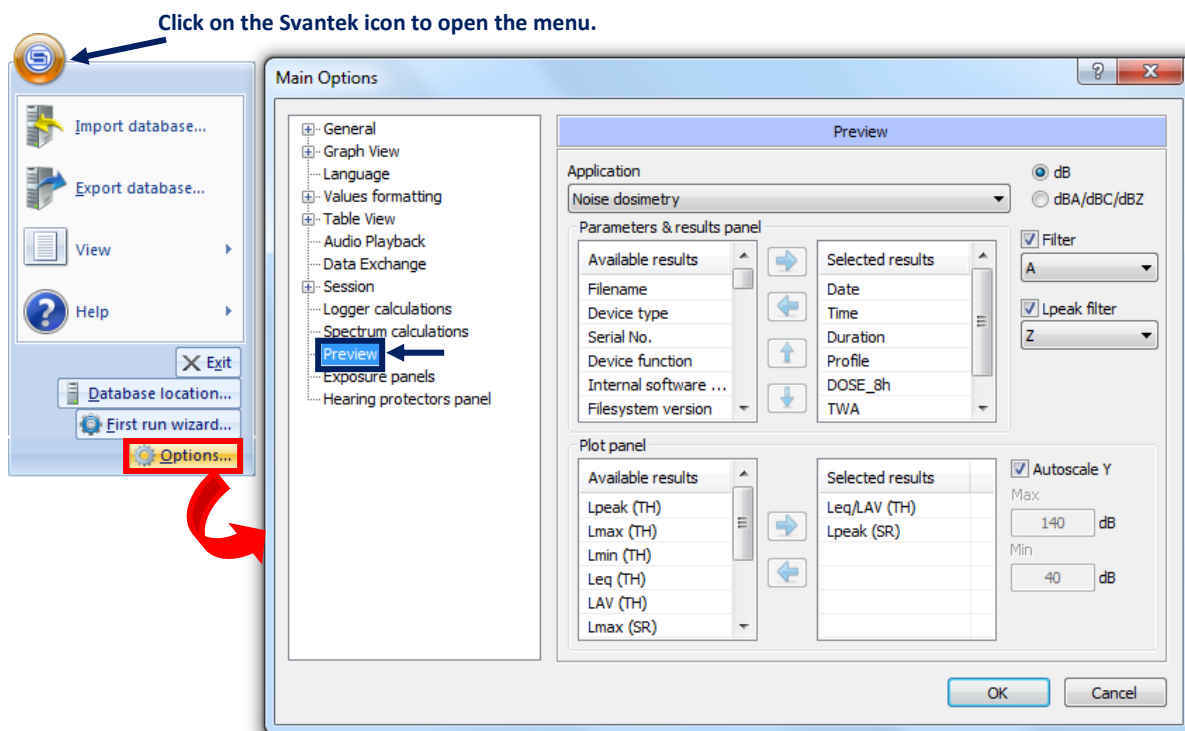


Fig.3-19 The Preview settings in the Main Options dialog box.

In case a .WAV file is selected in the File Details list, the Preview will also contain a minimized version of the Audio Navigator, which is described in more detail in Section 6.2.1.

Preview source: 4 channel.wav

Date	1899-12-30	
Time	09:54:04	
Device type	SVAN 958	
Serial No.	99999	
Sampling rate [Hz]	48000.0	
Active channels	1, 2, 3, 4	
Bits per sample	16	

Fig.3-20 The Preview of a .WAV file.

### 3.3. USING ASSIGNMENTS

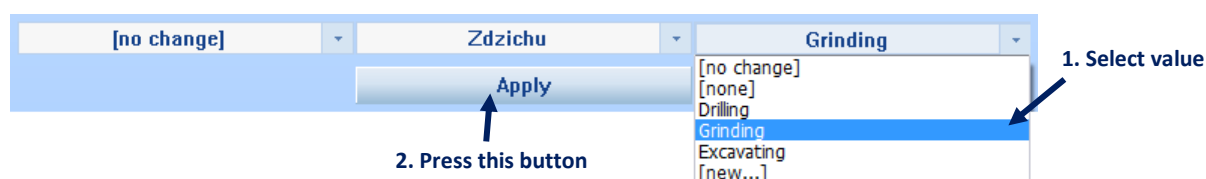
Three types of additional information can be assigned to each file downloaded from a Svantek instrument:

- Location (where the measurement was carried out),
- User (whom the measurement concerned),
- Task (which was being performed by the user during the measurement).

This information can then be used to facilitate searching for particular measurement results and to generate summary reports.

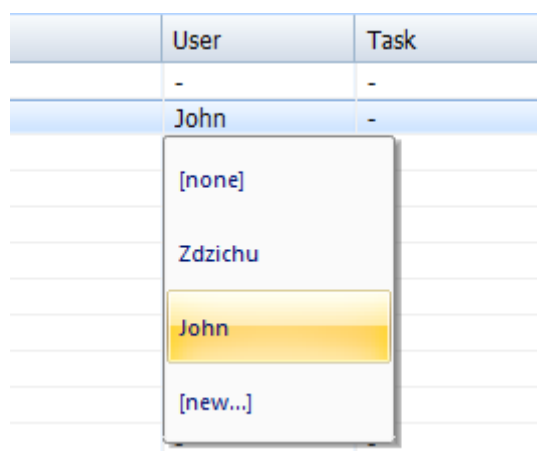
### 3.3.1. ASSIGNING INFORMATION TO FILES

You can assign this additional information to the files when you download them from the connected instrument. In order to do so, in the *Instrument* → *Download* panel (described in Section 3.1), select one or more files, select the location / user / task in the respective list-box located at the bottom-right corner of the window and press *Apply* (Fig.3-21). If you want to add a new location, user or task, in the list-box select *[new...]*. If you want to erase information already assigned, select *[none]*. Chosen values will be assigned upon downloading files to the Supervisor's database.



**Fig.3-21** Assigning additional information to downloaded files in the *Instrument* → *Download* panel.

You can also assign additional information to files in several ways using the Data Browser. In the File details table, click with the left mouse button on the Location / User / Task field corresponding to a selected file, and select a value from the menu.



**Fig.3-22** Assigning User information to a file in the File details table.

You can also use the *Assignments...* command from the menu opened by clicking with the right mouse button on a row of the table corresponding to a selected file. It allows to assign information, as well as to edit the information already assigned, using a dialog box (Fig.3-23).

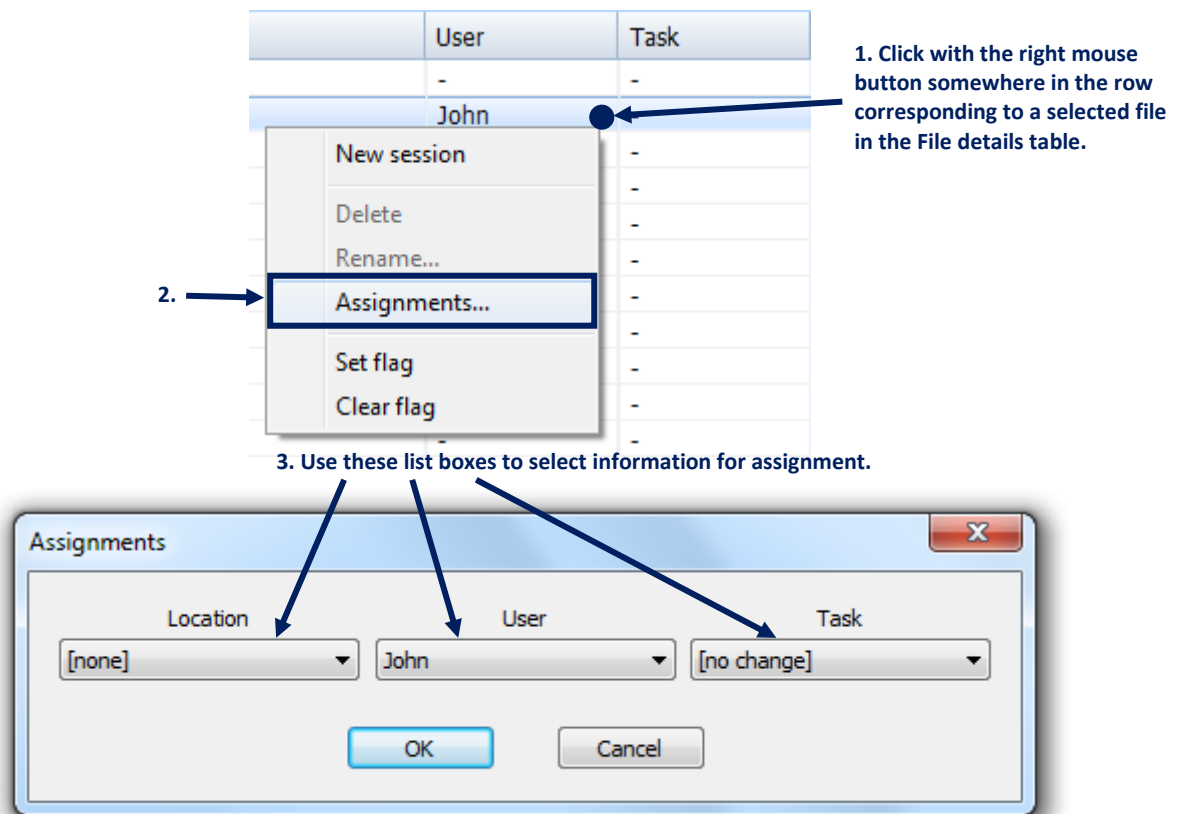


Fig.3-23 Assigning additional information to files using the *Assignments* dialog box.

Another method for assigning information to files is to drag & drop a file from the File details table to a particular item in the *Assigned* sub-tree in the Library (Fig.3-24). Notice that if you, for example, drop a file to a sub-sub-item corresponding to both a User and a Task, both these values will be assigned to that file.

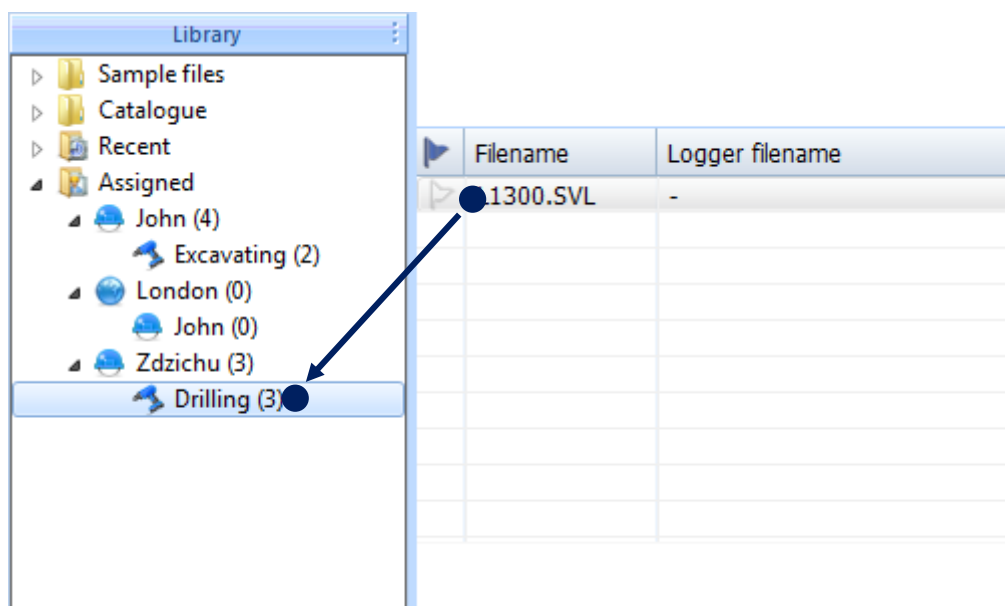


Fig.3-24 Assigning additional information to files using the drag & drop technique.

### 3.3.2. MANAGING ASSIGNMENTS

You can add a new value of Location, User or Task any time you assign this type of information to a file, by selecting *[new...]* from the list. A dialog box will appear, allowing you to specify the new value. Notes can also be added to each value.

In order to manage the values of assignments, use the *Locations*, *Users* and *Tasks* sub-panels in the File Manager. In each of these panels, all the values of the corresponding type of assignment are listed. Using the context menu, opened by clicking with the right mouse button, you can add a new value or delete existing ones.

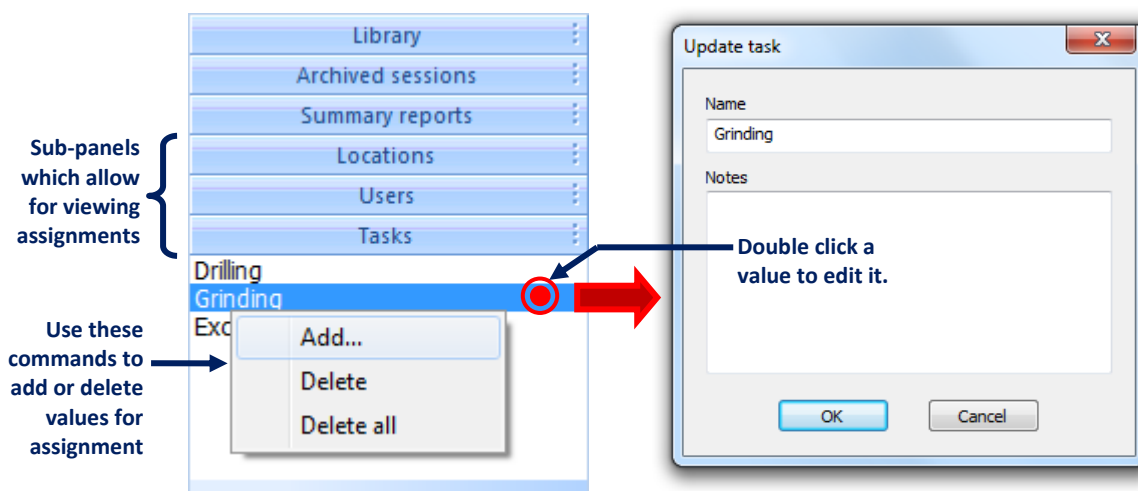


Fig.3-25 Sub-panels of the File Manager allowing for viewing and editing assignments.

You can also edit a location, user or task by double-clicking it and making the changes in the *Update location / user / task* dialog box.

Notice that only in these sub-panels of the File Manager you can permanently delete a value of Location, User or Task. Deleting an item in the *Assigned* sub-tree in the Library sub-panel will only remove the assignment from the files, but the value will remain available.

### 3.3.3. USING ASSIGNED INFORMATION TO SEARCH FILES

You can use the assigned information to filter the list of files in two ways: using the Library and using the assignment-related sub-panels.

In the Library sub-panel of the File Manager, you can select an item in the *Assigned* sub-tree corresponding to a Location, User or Task in order to display in the File detail panel only the files to which the selected value has been assigned. Notice that each file appears in exactly one item of the tree, which means that files with multiple types of information assigned will be displayed in lower branches of the tree, while files with only one type of information assigned will be displayed separately. The numbers in brackets denote the number of files corresponding to the particular items. The hierarchy of the types of information that can be assigned is as follows: Location → User → Task.

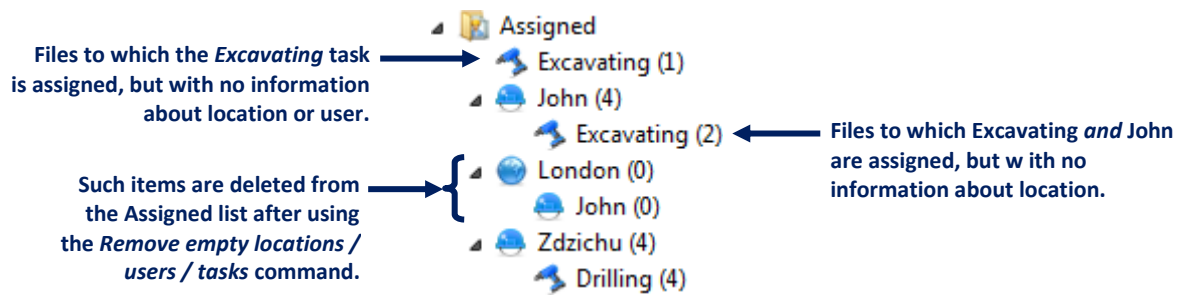


Fig.3-26 The Assigned sub-tree in the Library.

On the contrary, in the *Locations*, *Users* and *Tasks* sub-panels, the lists of files with the respective types of information assigned are generated independently of the other types of information, *i.e.* when the *Excavating* task is selected in the *Tasks* sub-panel, all the files with this task assigned will be shown, regardless of whether they do or not have an assigned Location or User.

The *Remove empty locations/users/tasks* command deletes all items that do not contain any files from the list. It can be accessed by clicking with the right mouse button on the 'Assigned' item.

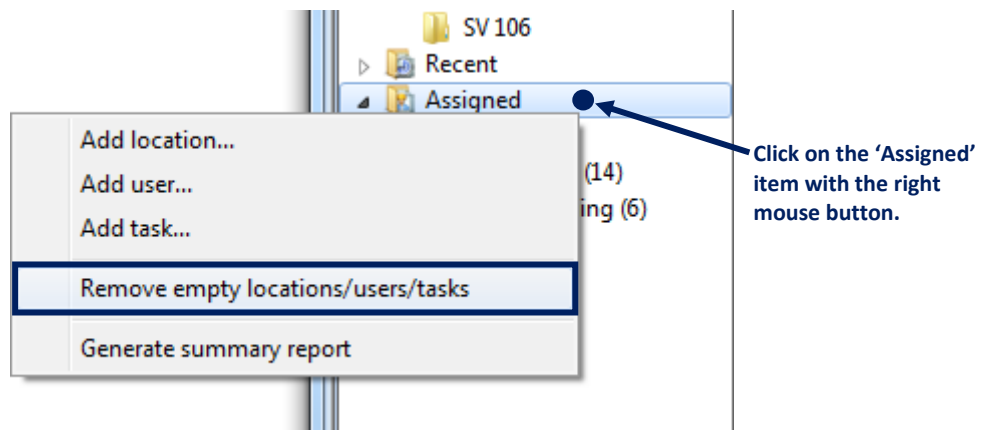
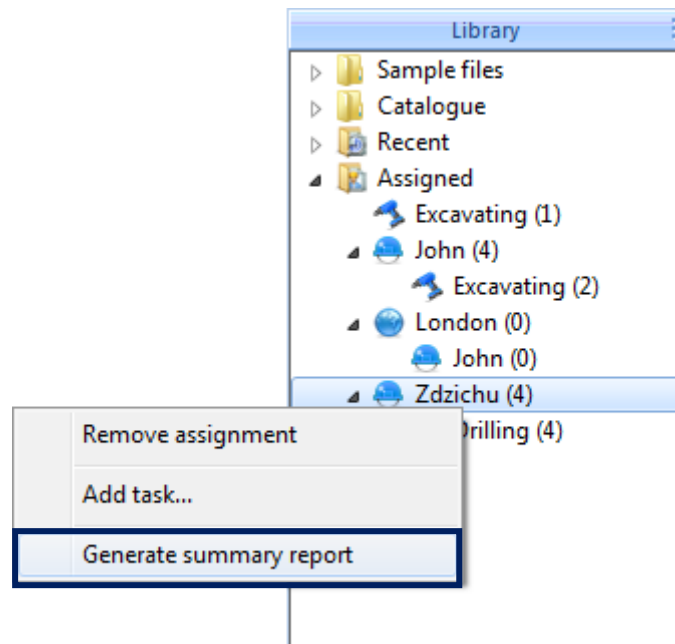


Fig.3-27 The *Remove empty locations/users/tasks* command.

### 3.3.4. SUMMARY REPORTS

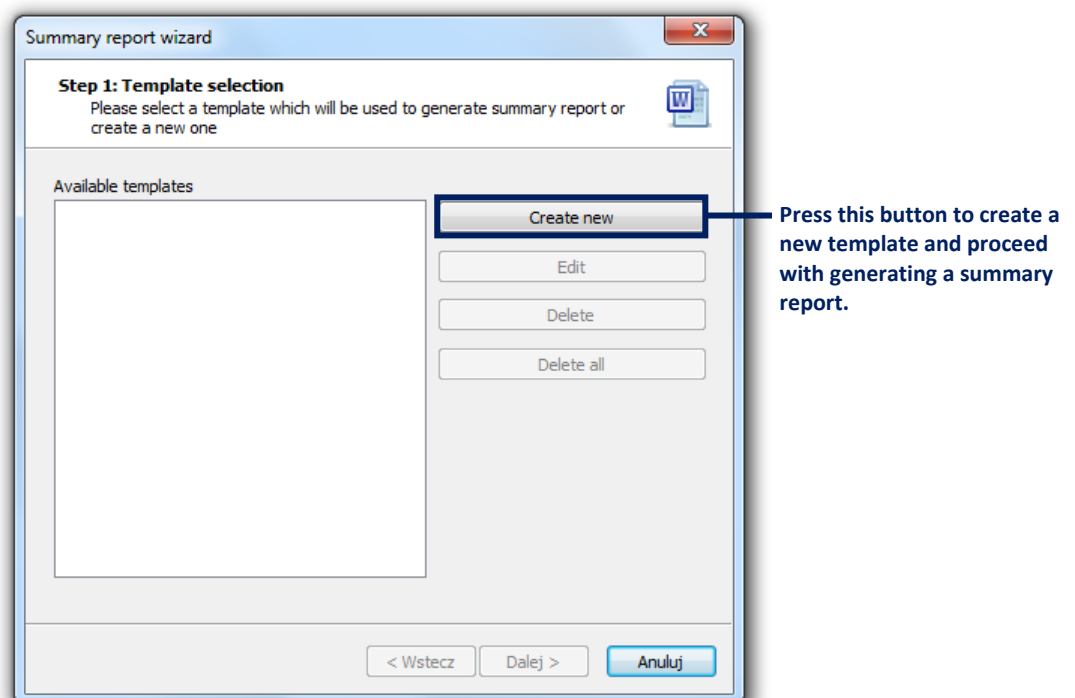
The summary reports can be used to gather measurement results related to selected locations, users, or tasks, in the form of MS Word documents. In order to create a summary report, click with the right mouse button on an item corresponding to an object in the *Assigned* sub-tree in the Library sub-panel of the File Manager and select *Generate summary report* (Fig.3-28). This command opens the Summary report wizard. You can also use the "Assigned" root item to create a summary report for all the files that have a location, user and/or task value assigned to them.



**Fig.3-28** Using the Library to generate a summary report.

A summary report must be created according to a template. The first window which appears when the Summary report wizard is opened allows to select a template for the report. When you generate your first summary report, you need to create a new template, but the template will be saved and you can use it later for generating more reports. In order to create a template, press the *Create new* button. The Summary report template editor window will appear.

**Note:** You can also create multiple templates; later you will be able to select one of them each time you generate a summary report.



**Fig.3-29** The Summary report wizard initial window.

A template of the summary report consists of a set of parameters (*i.e.* the parameters of the Svantek instrument, parameters of the measurement, and measured quantities) to be displayed in numerical form, and another set of parameters to be displayed on a plot. In order to create a template, first specify the application you intend to use it for, since it determines the availability of particular parameters. The application can be specified using the list box in the top-right corner of the window. Next, select the parameters to be included in the report using the template editor, as presented in Fig.3-30.

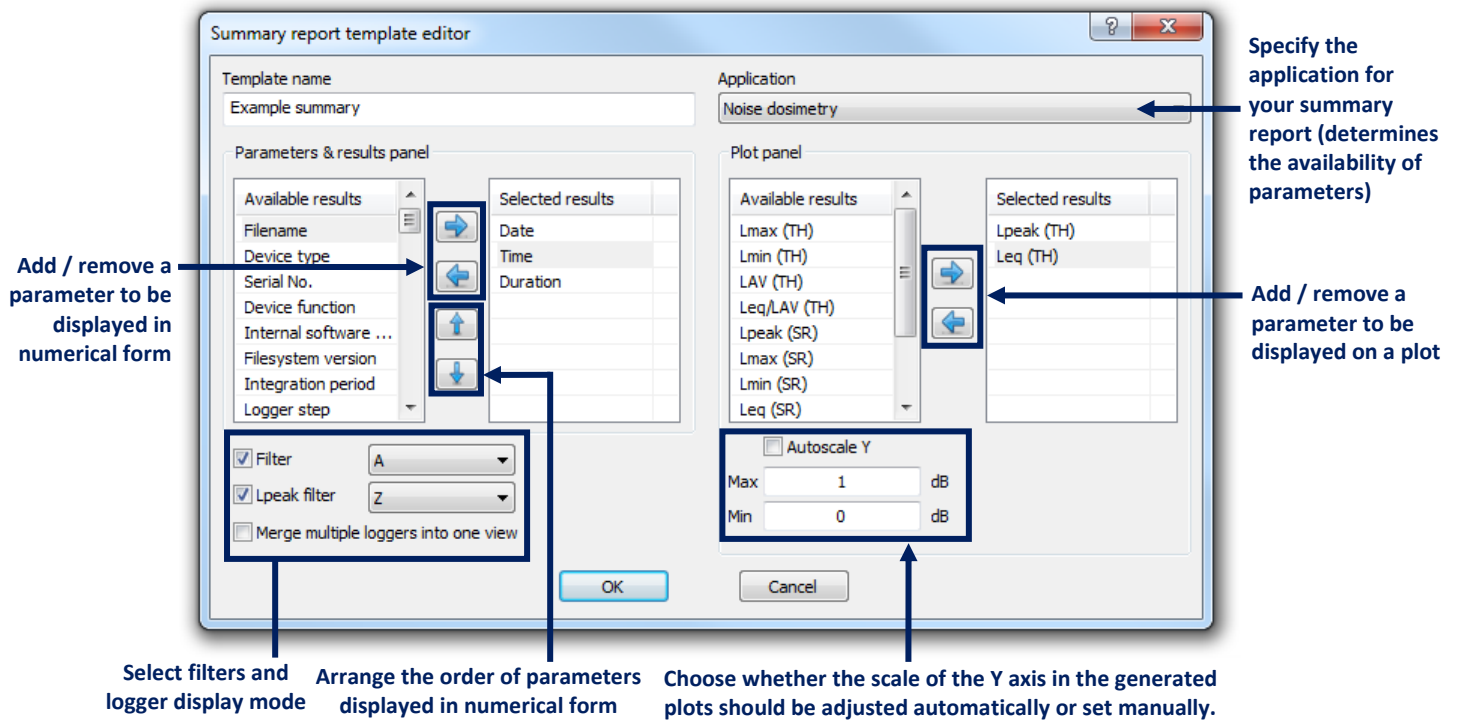


Fig.3-30 The summary report template editor dialog box.

After you have created a report template, you can select it on the list of the Summary report wizard and press the *Continue* button to proceed. In the second step of generating the summary report, you can select the time interval from which results will be included. After specifying the minimum and maximum date, press *Finish* to generate the report.



## 4 SESSIONS AND REPORTING

In Supervisor, the *sessions* can be used to work with data downloaded from Svantek instruments and to create reports containing these data.

**Note:** An interactive guide showing how to use Supervisor as a tool for quick reporting is available on the [Svantek website](#).

### 4.1. SESSIONS

#### 4.1.1. CREATING AND MANAGING SESSIONS

To create a session, go to Data Browser. In the File Details table, select the files which contain the data you wish to work with, click with the right mouse button and select *New session*. You can create a session with one or multiple files.

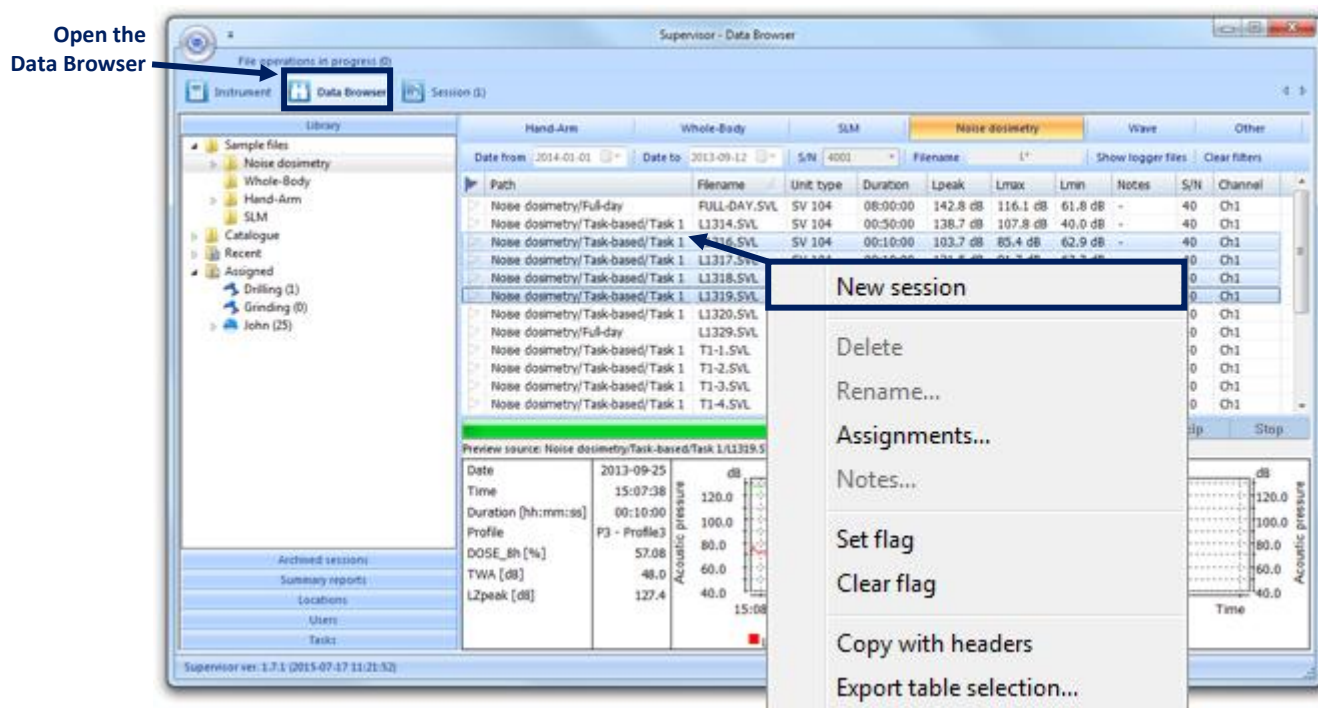


Fig.4-1 Creating a new session using the Data Browser.

For each new session a tab is created on the bar at the top of the application window (Fig.4-2). To open a session, click on the tab with the left mouse button. By clicking on a tab with the right mouse button you can open a context menu, allowing to specify a custom name for a session or to close it. You can close a session in two ways: by deleting it (permanently), or by moving it to the archive, which will allow you to later work with that session again. Deleting a session does not cause measurement files to be deleted. The archived sessions are available in the Data Browser, in the *Archived sessions* sub-panel of the File Manager (see Section 3.2.1). Using the Delete all sessions command it is possible to delete all the currently opened sessions at once.

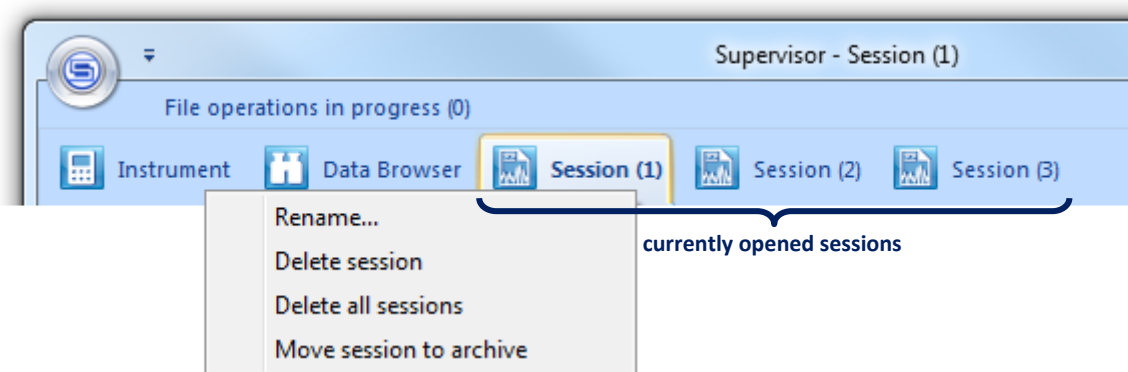


Fig.4-2 Tabs corresponding to the opened sessions.

You can also close a session using the *Move to archive* and *Delete session* buttons, located at the bottom-left corner of the window.

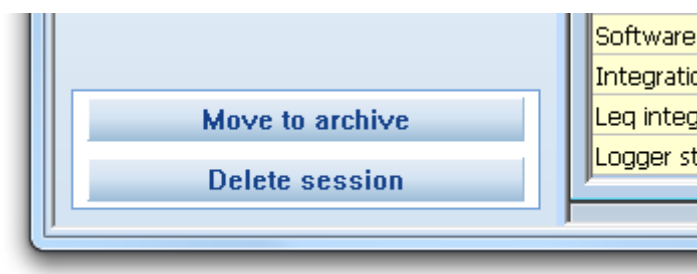


Fig.4-3 Buttons for closing a session.

When there are multiple sessions opened simultaneously, you can use the Windows dialog box to jump to a selected session or to delete some sessions in a quick way.

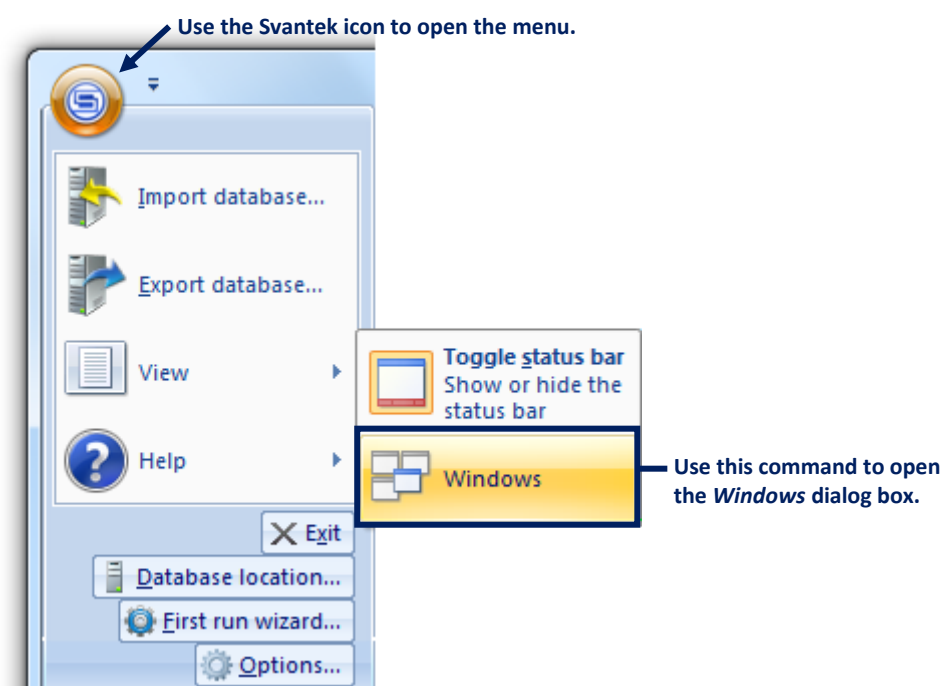


Fig.4-4 Opening the Windows dialog box.

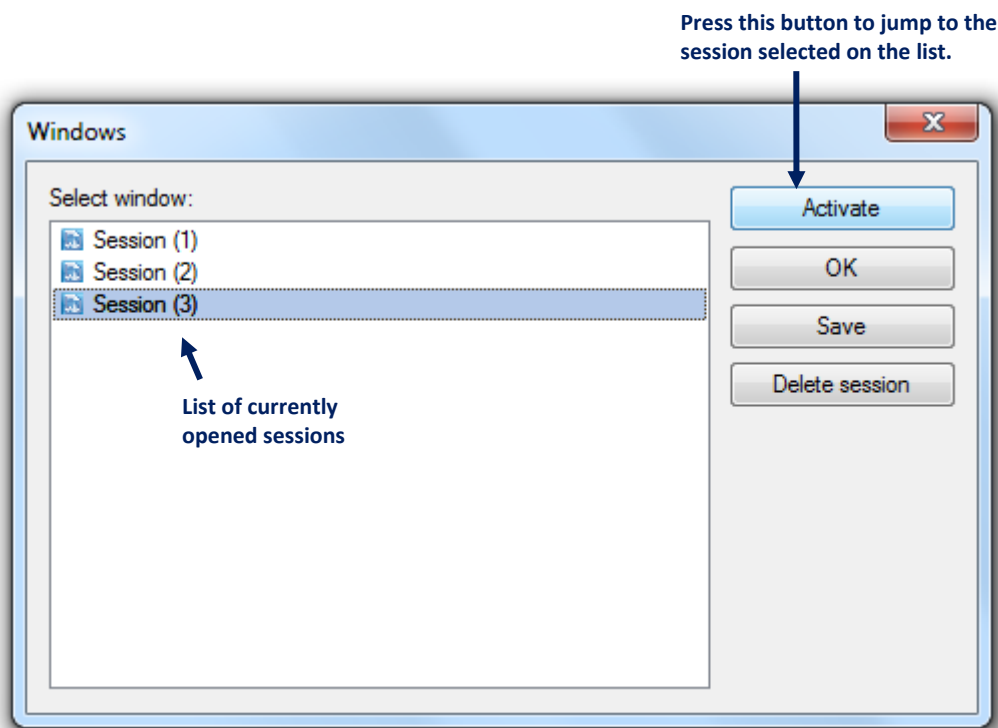


Fig.4-5 The *Windows* dialog box which allows to manage sessions.

#### 4.1.2. SESSION DATA

The measurement data used to create sessions are contained in files, stored in Supervisor's local database (more details about downloading and storing measurement data can be found in Section 3). Several files can be used to create a single session. A list of files which have been used to create the currently opened session is displayed in the *Session data* panel at the top-left corner of the window.

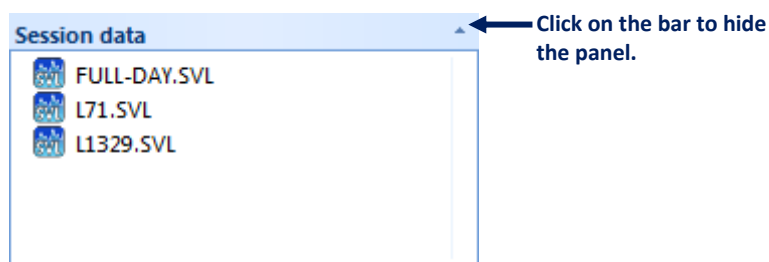


Fig.4-6 The *Session data* panel, containing a list of files which have been used to create the current session.

Once a session is created, you cannot modify its data source. If you want to use different files in a session, you must create a new session with these files.

You can configure the way data will be displayed in the report using the so-called *panels*. Various types of panels are available, each of which serves for displaying different type of data. More details about the panels can be found in Section 4.2.












### 4.1.3. TOOLBAR

The *Toolbar* consists of a set of useful buttons, located at the top of the panels area (see Fig.4-14). The effect of each of the Toolbar buttons is described in Table 4-1.




Fig.4-7 The Toolbar.

Table 4-1 Toolbar buttons.

Icon	Effect
	Generates a new report according to the configuration of panels in the current session and opens it in Microsoft Word.
	Generates a report preview.
	Opens the <i>Report options</i> dialog box (see Section 4.1.4).
	Opens the <i>Manage templates</i> dialog box (see Section 4.1.6).
	Increases the zoom.
	Decreases the zoom.
	Enables to select the sound unit.
	Enables to select the vibration unit.
	Increases the font size for panels displayed in Table mode.
	Decreases the font size for panels displayed in Table mode.
	Sets the default font size for panels displayed in Table mode.

#### 4.1.4. GENERATING REPORTS FROM SESSIONS

You can easily generate a report containing measurement data displayed in the same way as in the current session by clicking the  button, located on the Toolbar.

The report can be created in one of the following formats:

- DOC (if Microsoft Word 2003 or newer is installed),
- PDF (if Microsoft Word 2007 or newer is installed),
- RTF.

You can select the format, as well as the paper size, using the First run wizard dialog box, opened via the main menu (see Fig.4-8).

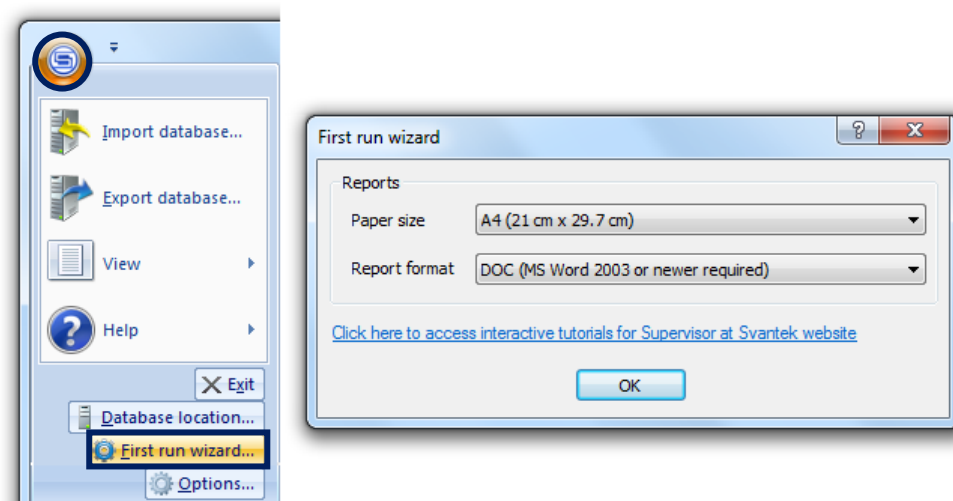


Fig.4-8 The First run wizard dialog box.

The generated file will contain a start page and all the contents of the panels (in the same order and with the same graphical settings).

All the reports created in the current session are listed in the *Reports* panel, located at the bottom-left corner of the window. By double-clicking a report's name you can open it in MS Word. By clicking with the right mouse button you can open a context menu allowing for opening, renaming and deleting reports.

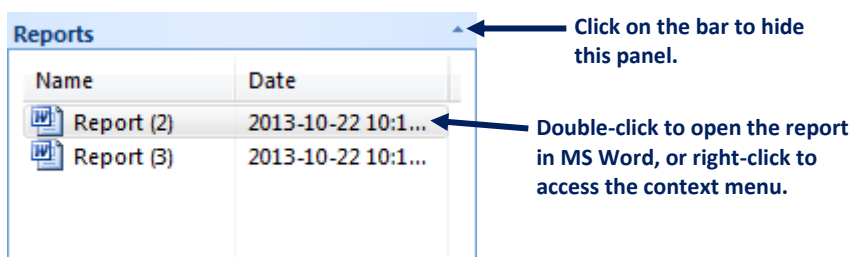



Fig.4-9 The Reports panel.

The start page and the style of the report can be customized using the *Report options* dialog box, opened by clicking the  button. Instead of customizing the start page, you can also disable adding it to the reports at all.

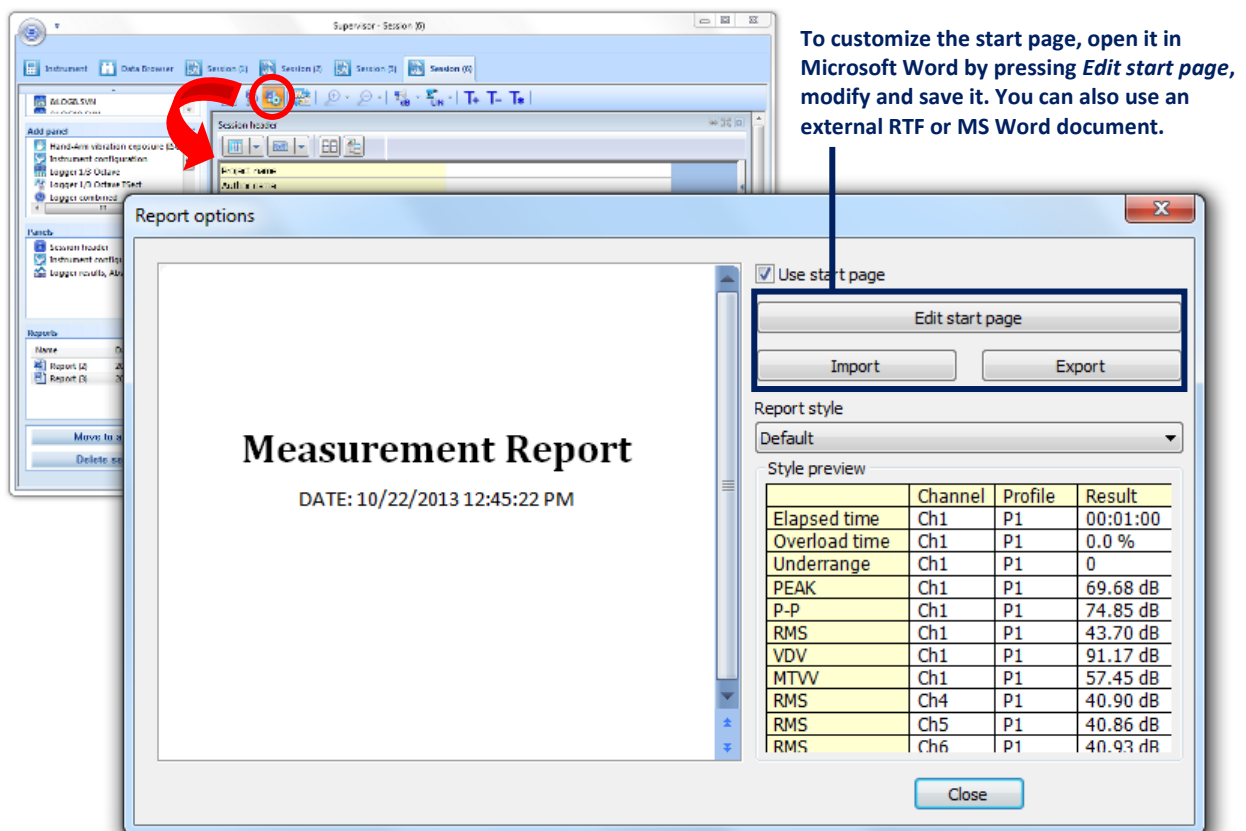


Fig.4-10 The *Report options* dialog box.

#### 4.1.5. EXPORTING DATA TO MS EXCEL

In Supervisor it is also possible to export the contents of a panel directly to a Microsoft Excel worksheet:

1. Switch to Table mode using the  button.
2. Select the table cells you wish to be exported.
3. Press the *Send current view to MS Excel* (/ ) button, located on the panel's toolbar.  
**Note:** If the panel is too narrow, the *Send current view to MS Excel* button may be hidden. In such case you have to resize the panel (or the entire application window) by dragging its borders until it is wide enough.

If a single cell is selected, the whole table will be exported (otherwise, only the selected fragment).

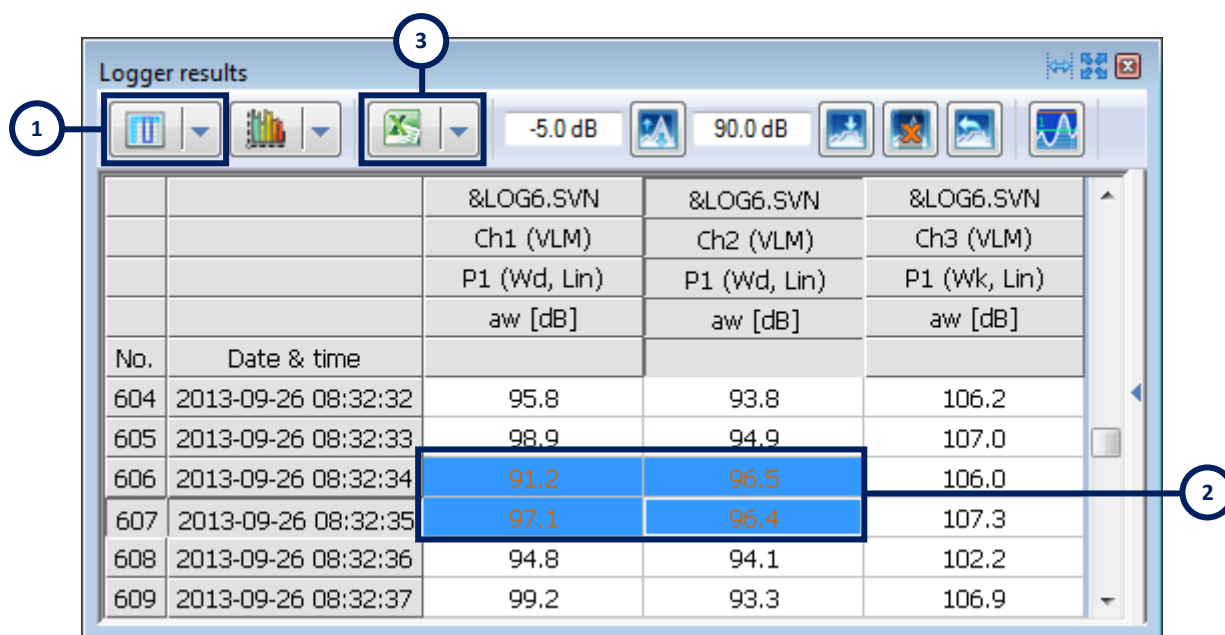


Fig.4-11 Exporting data from a panel in Table mode to Microsoft Excel.

When you export data to MS Excel for the first time, the *Send to Microsoft Excel* dialog box will appear, allowing for the configuration of export settings.

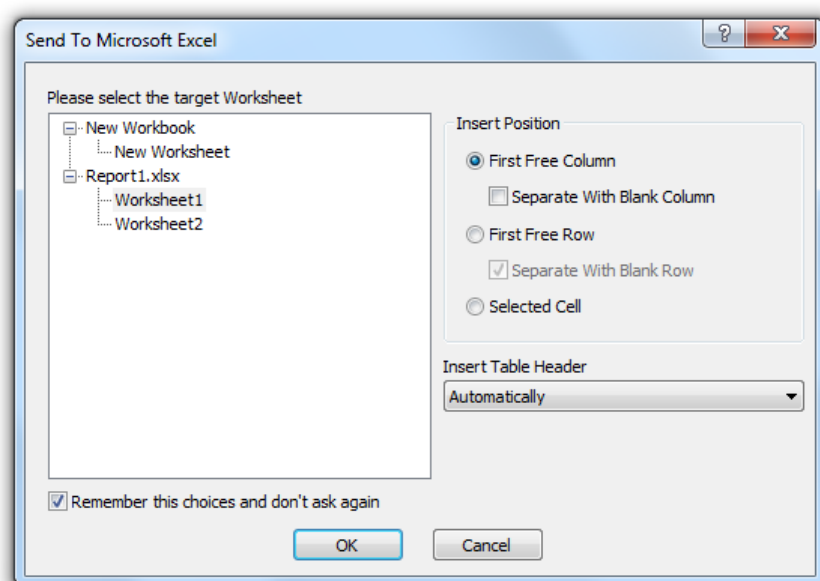

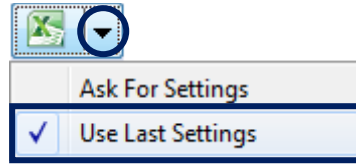




Fig.4-12 Configuration of MS Excel export settings.

In the panel on the left hand side of the *Send To Microsoft Excel* dialog box you can select the target Microsoft Excel worksheet. All currently opened worksheets are displayed on the list. The *New Worksheet* option enables to create a new Microsoft Excel worksheet for the exported data.

Using the controls located on the right hand side you can decide whether the data should be inserted beginning from the first free column in the worksheet, from the first free row or from the currently selected cell. You can also decide whether table headers or the *Header information* should also be copied.

If you enable the *Remember this choices and don't ask again* option, the next export will be done with the same settings and the *Send To Microsoft Excel* dialog box will not appear. The same can be obtained using the *Use Last Settings* command from the pull-down menu, opened next to the  icon.




- The  icon means that the export settings have to be configured.
- The  icon means that the last export settings are stored and the *Send To Microsoft Excel* dialog box will not appear.

After the export, Microsoft Excel will be automatically opened with selected data pasted to the worksheet. In case the amount of data exceeds Microsoft Excel's rows or columns number limit, it will be split to more than one worksheet.

#### 4.1.6. LAYOUT TEMPLATES

The configuration of a session can be stored in the form of a *template*. This possibility enables to later easily use all the custom settings, concerning the way measurement results are displayed, with different data. The following information is saved in a template:

- Types of panels and their sequence,
- Most of the panels' specific settings, such as plot colors and data configurator options,
- Contents of the Text panels, including images.

In order to save or use a template, press the  button, located on the Toolbar. You can also set a template as the default one, *i.e.* it will be used every time a new session is created.

You can also save the template in a selected location on the PC (rather than in the Supervisor's database), making it possible to later transfer it to another computer. To do so, use the *Export* button in the *Manage templates* dialog box. Similarly, you can import a template from a selected location on the PC if you acquired the template file in a different way than creating it in Supervisor (*e.g.* by e-mail).



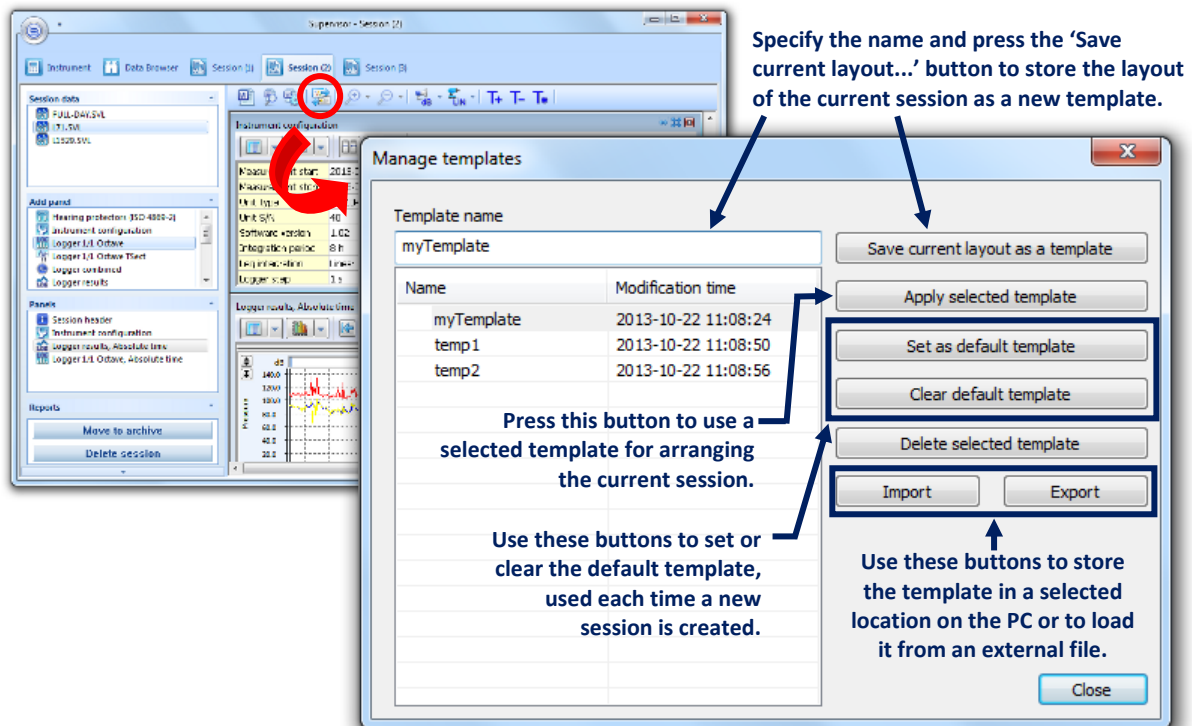


Fig.4-13 The *Manage templates* dialog box.

The *default layout template* is used always when a new session is created. You can select one of the already saved templates and set it as the default template using the *Set as default template* button. When you clear the default template, sessions will be created using a basic layout, containing only the header, instrument configuration and a panel for the presentation of raw measurement results.

## 4.2. BASIC PANELS

Panels are the basic building blocks of the reports created using Supervisor's sessions. They can be used to configure the way data will be displayed in the report.

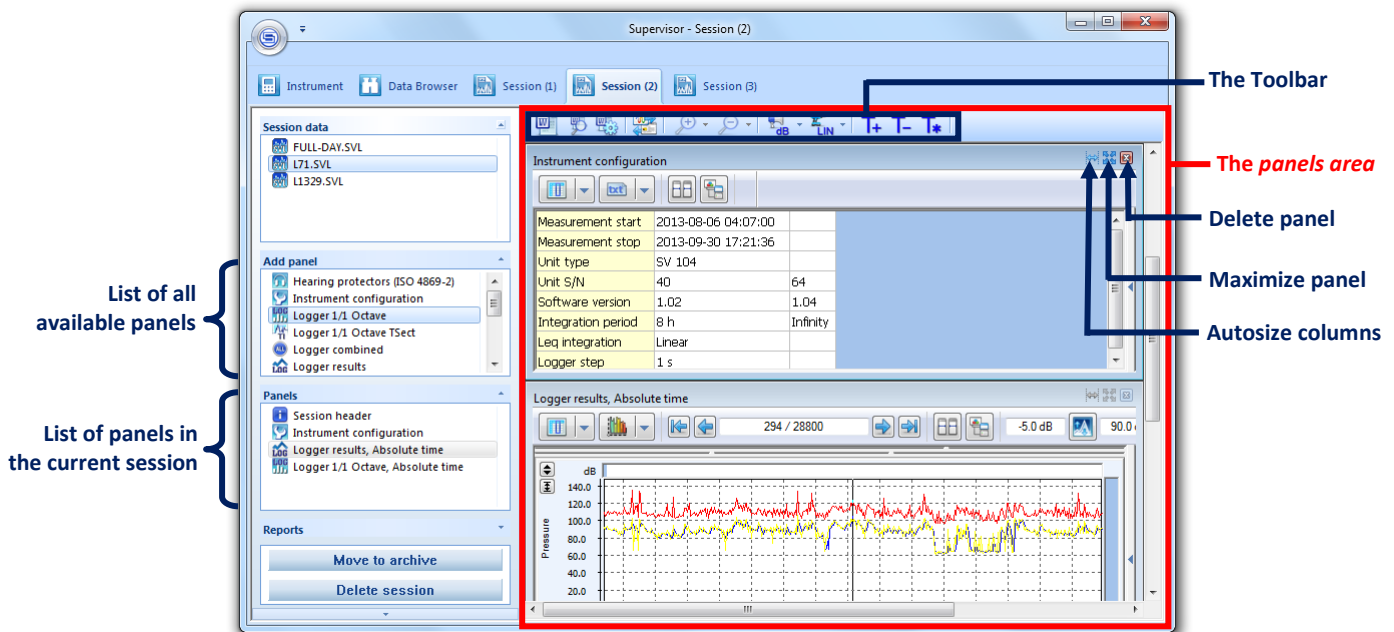


Fig.4-14 Panels in the Session window.

The *Add panel* list (at the left side of the window) shows all the types of panels available for the current data. You can add a panel to the current session by clicking twice on its name in this list.

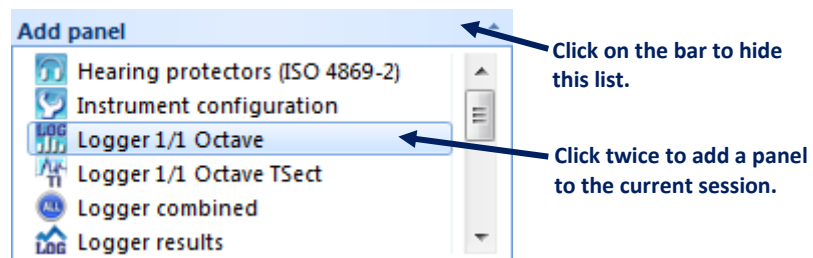



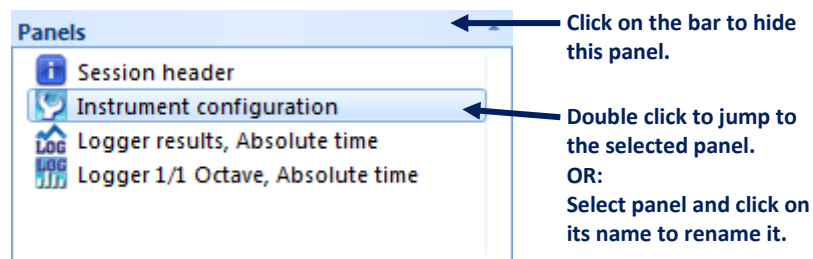


Fig.4-15 The *Add panel* list of all panels available for the current data.

You can add any number of panels you want, including multiple panels of the same types. All the panels added to the current session are listed in the *Panels* list, located at the left side of the window. You can use this list to jump to a selected panel by double-clicking it. You can also rename a panel by selecting it and clicking its name, or by pressing the F2 key when a panel is selected.

To delete a panel, use the  button located at its top-right corner. To make it fill the whole panels area, use the  button. By hitting the  button once again you can shrink the panel to its previous size.


















Panels are automatically scaled to fit the size of the panels area in horizontal direction. Their order in the vertical direction specifies the order in which data will be contained in the report. You can change the position of a panel using the drag & drop technique.



**Fig.4-16** The *Panels* panel, containing a list of panels added to the current session.

The available types of panels are listed in Table 4-2. The following subsections are devoted to the description of several basic types of panels. Sections 5.5 and 5.4 are devoted to some special panels that constitute useful tools for the analysis of dosimetric data. The Wave panel is described in Section 6.2.6.

**Table 4-2** Types of panels available in the Supervisor's sessions.

Icon	Name
	Session header
	Instrument configuration
	Logger results
	Total results
	Logger statistics
	Statistical results
	Logger spectrum results
	Time Intersection
	Spectrum results
	Text
	Hearing protectors
	Noise exposure
	Hand-arm vibration exposure
	Whole-body vibration exposure
	'What if'
	Map
	Wave

#### 4.2.1. SESSION HEADER

This type of panel contains general information about the report, such as project's and author's name. It can be viewed in Table and Text modes.

**Note:** The *Session header* panel is editable only in the Table mode.

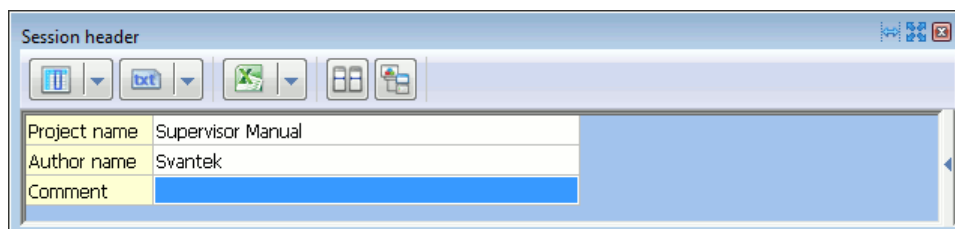


Fig.4-17 The *Session header* panel.

#### 4.2.2. INSTRUMENT CONFIGURATION

This type of panel contains basic information about the measurement data used for creating the session, such as the device used for measurement, the instrument settings, measurement date and time. It can be viewed in Table or Text mode.

**Note:** In case more than one file has been used to create the session and the instrument configuration differs in different files, the information is shown in several columns, one for each file; information that is identical in the files is shown only in the first column.

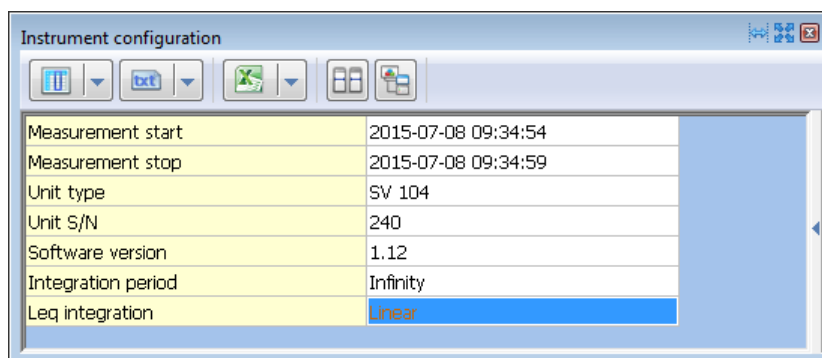


Fig.4-18 The *Instrument configuration* panel.




#### 4.2.3. LOGGER RESULTS

This type of panel serves for displaying measurement results as a function of time. It can be displayed in Plot or Table mode.


Functions that cannot be plotted may also be added to a Logger results panel; however, such data will only be presented in Table mode.

In the Logger results panel it is possible to modify the measurement data in three ways: deleting, clipping and shifting. The modifications concern all the data if no block selection has been made. If there is a block selection, the modifications only concern the selected data. The

Delete tool affects all the functions in the selected time range, while the Clip and Shift tools only affect the visible functions (the ones selected in the View Configurator).

- To delete data, select a range of time and press the  button, or click with the right mouse button and select the *Delete data* command. There are two methods of deleting data: compressing the time domain to keep the signal continuous, or leaving an empty region, marked with the so-called *Deleted data marker*.
- *Clipping* means truncating all data above a specified threshold; the truncated values are replaced with the threshold value. To clip data, enter the threshold in the field to the left of the  button and press this button. You can also click with the right mouse button, select the *Clip data* command and enter the threshold value in the dialog box which will appear.
- *Shifting* means adding a constant positive or negative value to a range of data. To do so, first select a point or a range of data to be shifted using the main cursor or blocks of selection. You can then enter the value to be added in the field to the left of the  button and press this button, or you can click with the right mouse button, select the *Shift data* command and enter the value to be added in the dialog box which will appear.

A marker, called *Changed data*, is generated for all the ranges in which the data has been clipped or shifted.

All the modifications can be undone by pressing the  button or selecting the *Restore data to original* command in the context menu.

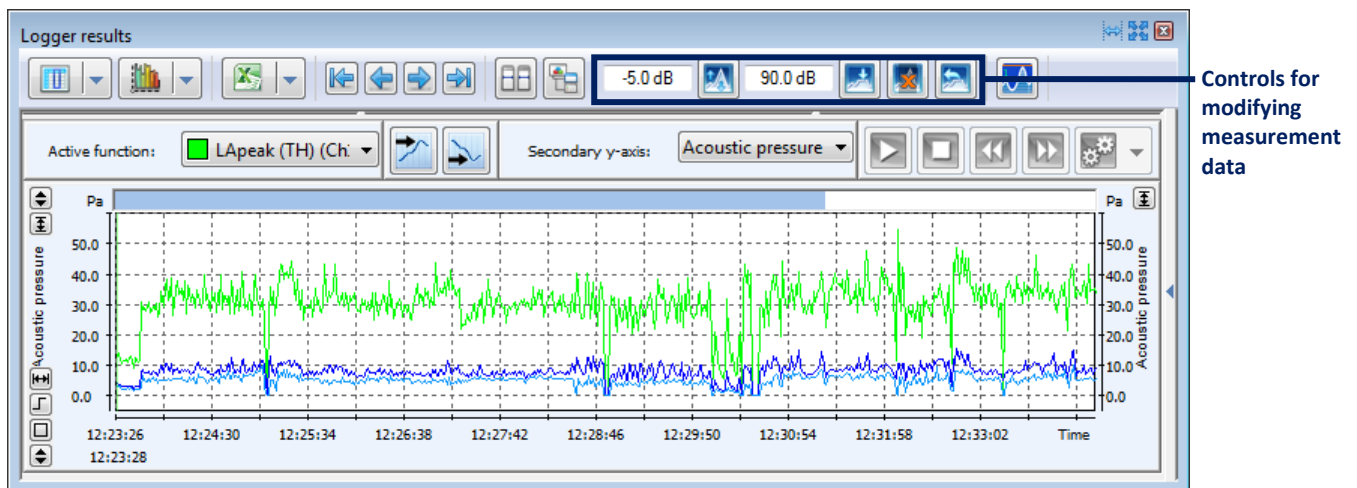




Fig.4-19 A *Logger results* panel displayed in the Plot mode.

**Note:** The  button serves for opening the *Limit lines* window; for details, see Section 4.3.2.

#### 4.2.4. TOTAL RESULTS

This type of panel contains the summary results of measurement. It can be displayed in Table or Text mode. In case when many results are to be displayed simultaneously, it is advisable to

display the Total results panel in transposed view; in the Table mode, the transposition can be easily done by clicking on the  button. For details, see Section 4.3.1: *Table mode*.

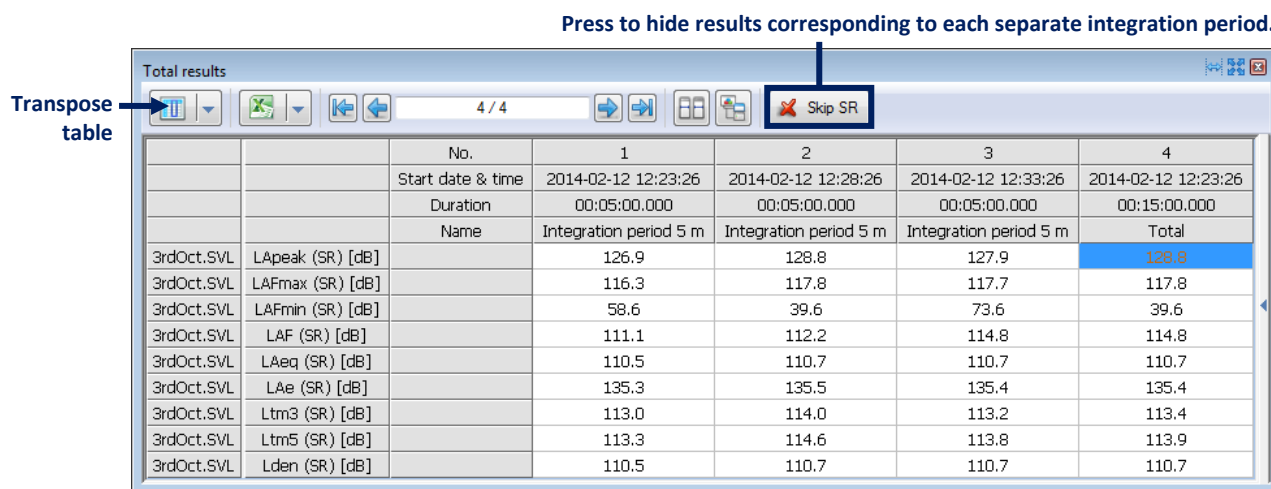


Fig.4-20 The *Total results* panel.

The “Summary results”, corresponding to each separate integration period, are displayed together with the “Total results”, corresponding to the whole measurement period. To hide the Summary results, press the *Skip SR* button.

**Note:** The *Total results* panel allows for sorting the displayed periods by start time or by name. To do so, click with the right mouse button and in the pulldown menu choose the *Sort by start time* or *Sort by name* command.

You can hide the column representative of the data source, as well as the column representative of the measurement channel, in case all rows contain the same value, by using the options available in *Main Options » Table view » Total results*.

#### 4.2.5. LOGGER STATISTICS

The statistical data can be presented in two different modes: *Histogram* or *LN*. By default, *Histogram* is initially presented. To switch the presentation mode, the selector located on the panel’s toolbar can be used (Fig.4-21).

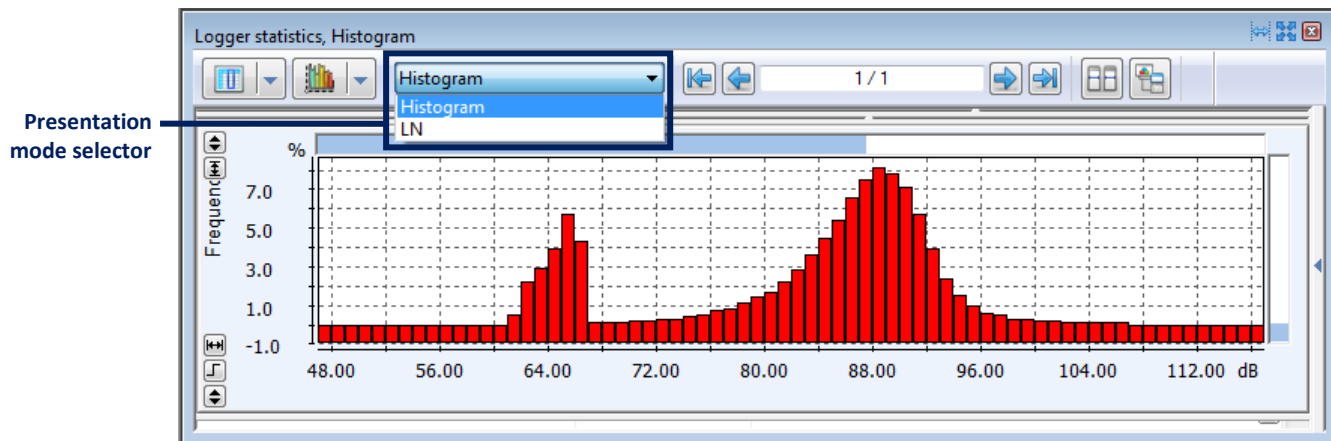


Fig.4-21 The *Logger statistics* panel.

#### 4.2.6. LN SPECTRA

This type of panel allows for displaying the results of measurement in the form of LN spectra. It can be displayed in Table or Text mode.

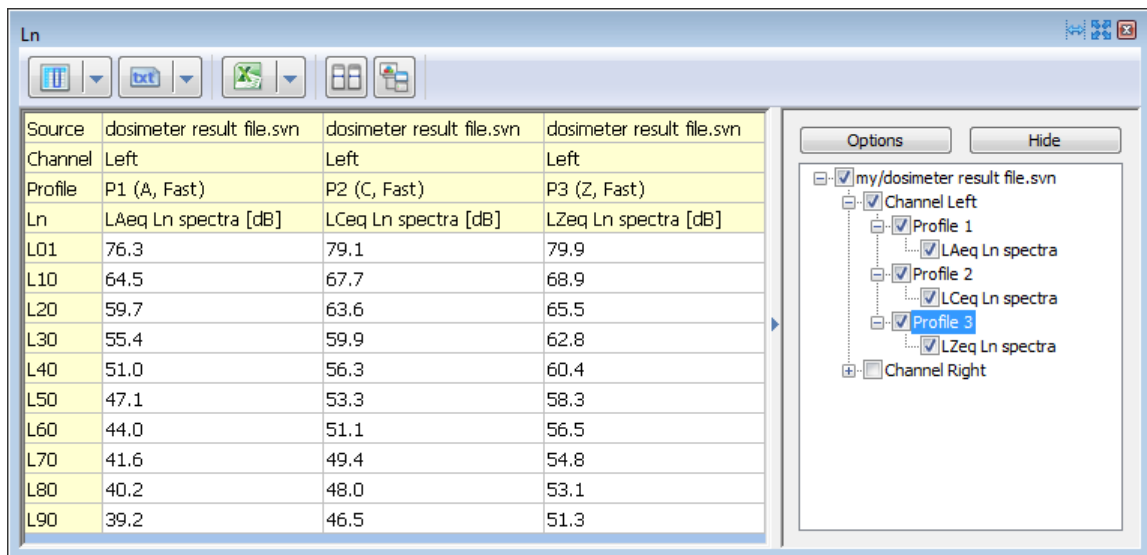


Fig.4-22 The *LN spectra* panel.

#### 4.2.7. LOGGER SPECTRUM RESULTS

The name of each *Logger spectrum results* panel contains the type of spectrum (1/1 Octave, 1/3 Octave or FFT), e.g. *Logger 1/1 Octave* panel. This panel can be displayed in Table mode, Plot mode, and Spectrogram mode.

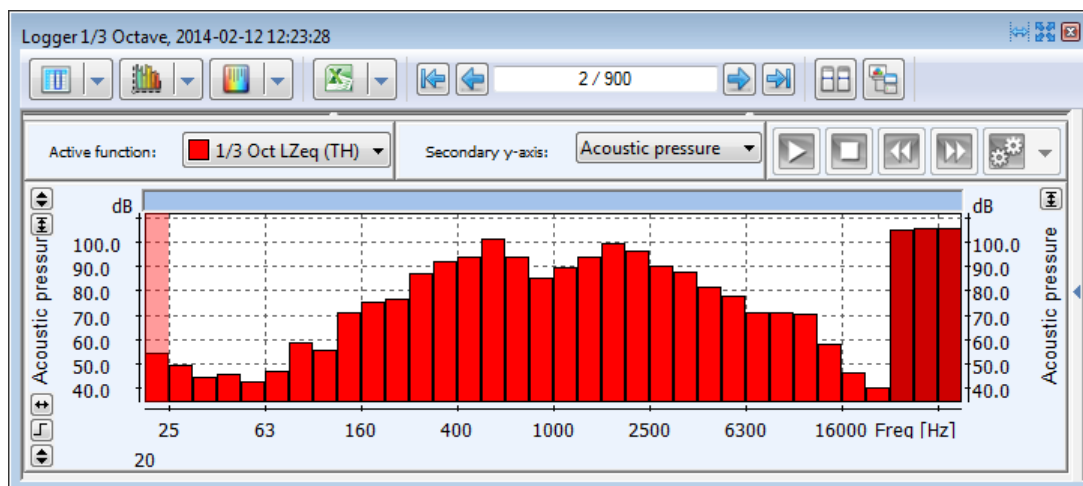


Fig.4-23 The *Logger 1/1 Octave* panel.

While displaying spectral data in Plot mode, the spectrum is displayed for a selected interval of time. The time history of the spectrum can be browsed using the buttons located on the panel's toolbar, shown in Fig.4-24.

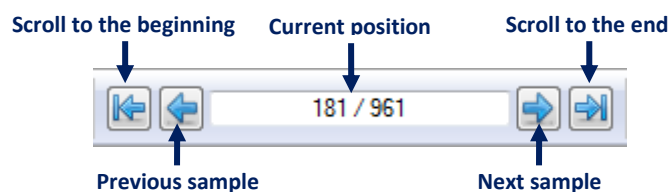


Fig.4-24. Buttons for browsing the time history of measured spectrum.

#### 4.2.8. TIME INTERSECTION

By default, the Time Intersection (*TSect*) panels are not displayed in the 'Add panel' list. They can be enabled in Main Options » Data Exchange.



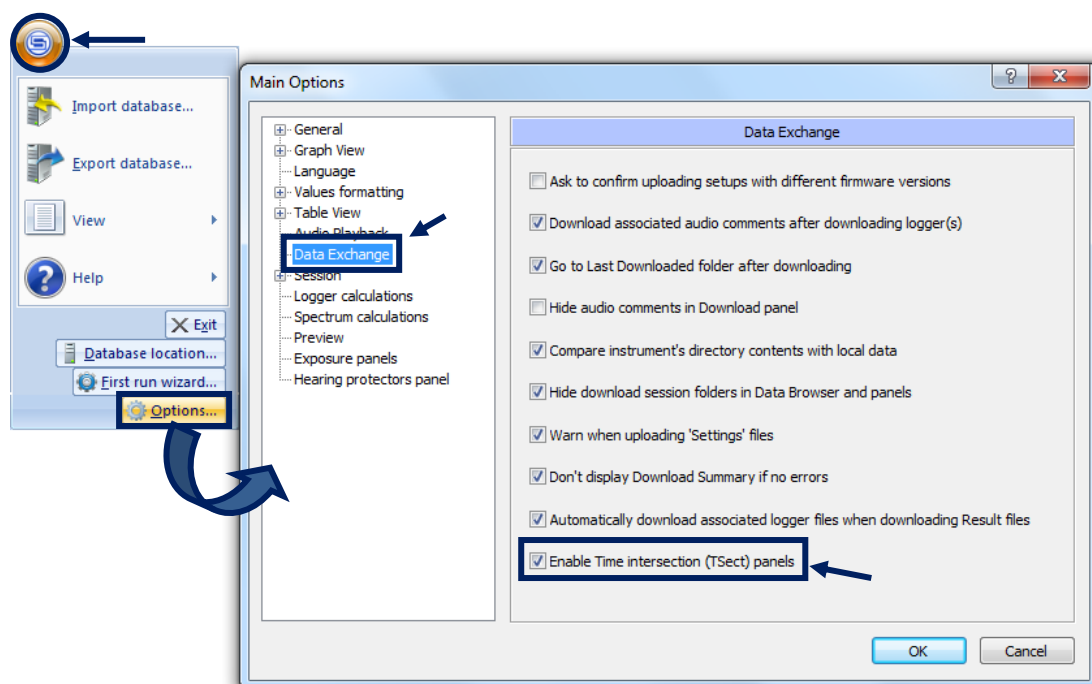
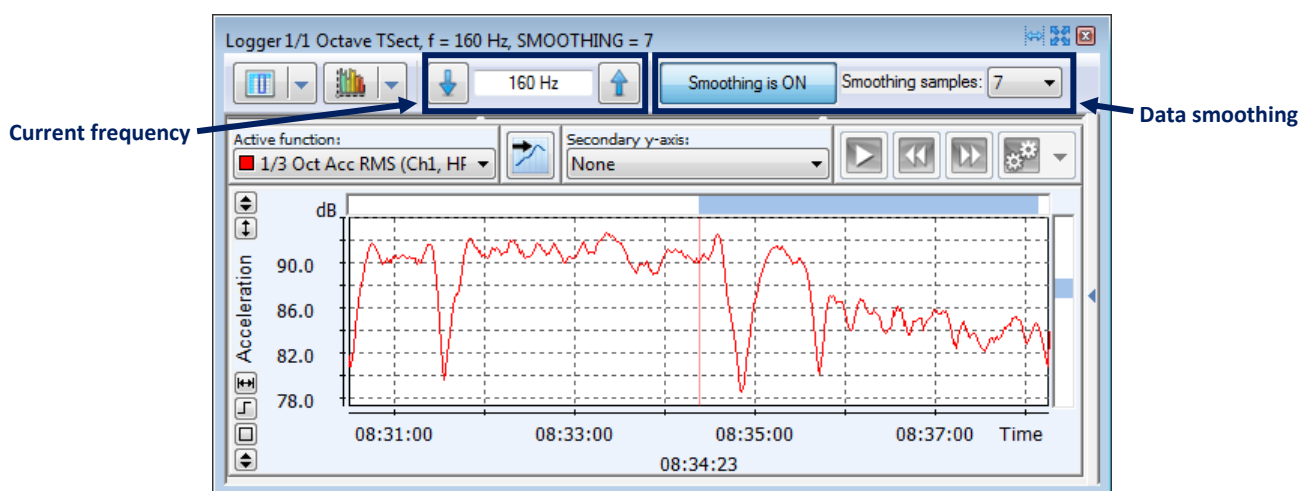


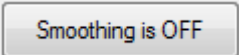
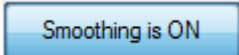


Fig.4-25 Enabling the Time Intersection panels.

The TSect panels allow for viewing logger / merged spectral data at a selected value of frequency as a function of time. They can be displayed in Table or Plot mode.



- The frequency can be selected using the  and  buttons, located on the Panel Toolbar.
- The  /  button can be used to enable / disable the smoothing of data. The number of samples used for smoothing can be set using the selector located to the right of this button (using more samples for smoothing results in a higher amount of smoothing).
- Selecting a point in time when working with a TSect panel automatically changes the time viewed in the corresponding spectral panel.

#### 4.2.9. SPECTRUM RESULTS

This type of panel allows for displaying the results of measurement in the frequency domain, such as *1/1 Octave*, *1/3 Octave* and *FFT* measurement results. It can be viewed in Plot, Table or Text mode.

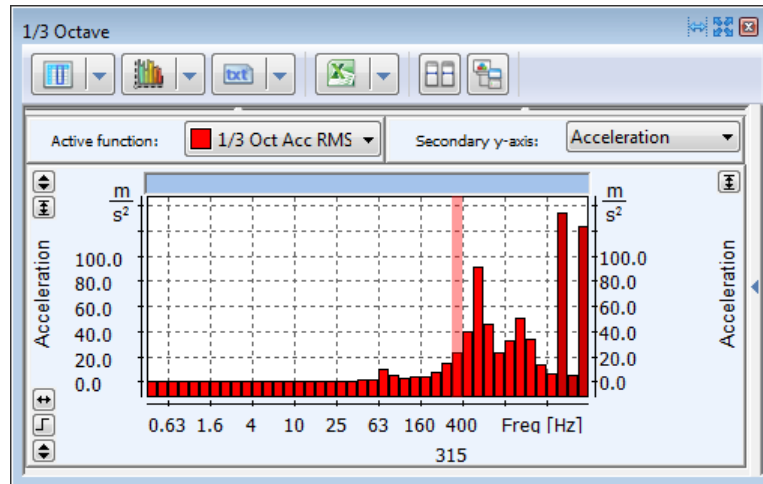



Fig.4-26 The *Spectral results* panel (an example for 1/3 Octave measurement results).

#### 4.2.10. TEXT

The Text panel makes it possible to include text in the report. It provides some simple text-processing options, such as font style or size selection. You can also include pictures from the PC memory in a Text panel using the  button.

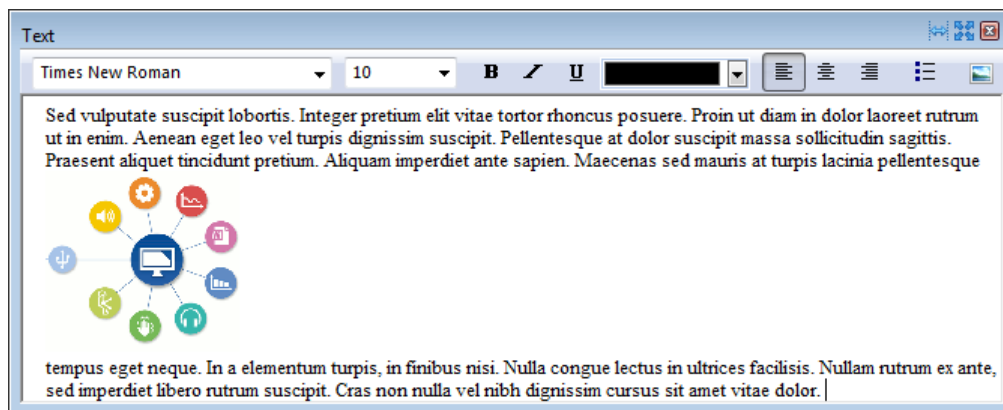


Fig.4-27 The *Text* panel.

#### 4.2.11. MAP

The Map panel, available in case of logger files downloaded from SVAN instruments capable of acquiring GPS data, allows for displaying the location of measurement.

- The data, measured in different locations, are plotted on a map, downloaded from Google Maps.
- The measured function is displayed in the top-right corner of the Map view sub-window.

- The colors of the plotted points represent the measured values, according to the color scale, displayed at the right hand side of the Map view sub-window.

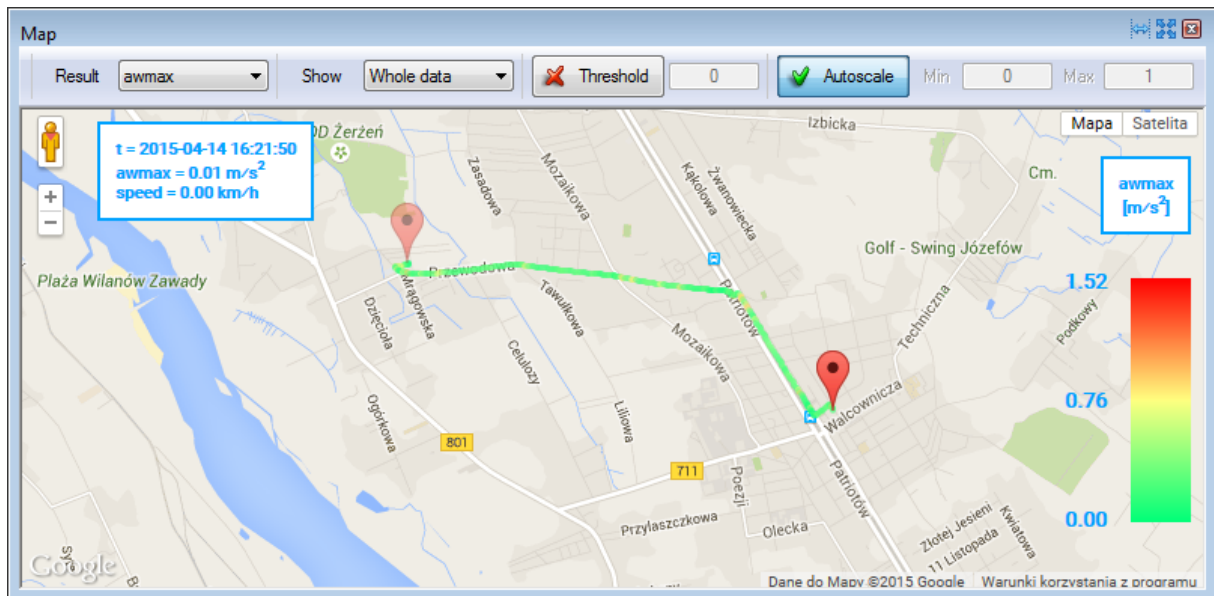




Fig.4-28 The Map panel.

The *Result* selector allows for selecting the displayed function.

The *Show* selector allows for selecting the displayed time range (whole data set / block selection / markers).

The *Threshold* tool allows for displaying only results which excess a selected value. To use it, press the  **Threshold** button and specify the threshold value in the field to the right of it. You have to change the focus before the new threshold takes effect (e.g. by clicking on another control).

The *Autoscale* tool automatically adjusts the color scale so that the whole range of measured values is displayed. If you disable it by pressing the  **Autoscale** button, you should manually set the color scale by entering the minimum and maximum values in the fields located to the right of that button.

**Note:** The Map panel requires Internet Explorer 9+ to be installed.

### 4.3. DISPLAY MODES

A panel can be displayed in one of four available modes:

- Table,
- Plot,
- Spectrogram,
- Text.

Each of these modes has its own particular features; for each type of panel, only some of the display modes are available (*e.g.* a *Session Header* panel can only be displayed in Table or Text mode). To choose the display mode, use the buttons located at the top-left corner of the panel.

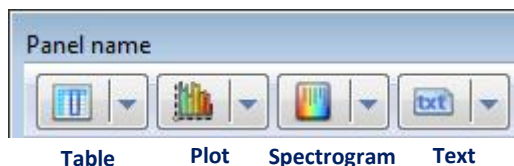


Fig.4-29 Buttons for choosing the display mode.

#### 4.3.1. TABLE MODE

In the Table mode, numeric and text data are displayed in the form of a table. This mode is used for displaying the Session header or Instrument configuration, as well as for displaying measurement results such as *Logger results* in numeric form.


No	Date & time	L1300.SVL Ch1 P1 (A) PEAK A (TH) [dB]	L1300.SVL Ch1 P1 (A, Slow) MAX (TH) [dB]	L1300.SVL Ch1 P1 (A, Slow) MIN (TH) [dB]	L1300.SVL Ch1 P1 (A, Lin) LEQ (TH) [dB]	L1300.SVL Ch1 P1 (A, Slow) LAV (TH) [dB]
48	2013-06-20 11:47:37	68.3	51.1	50.5	50.1	-5.0
49	2013-06-20 11:47:38	67.5	50.5	50.3	50.2	-5.0
50	2013-06-20 11:47:39	73.4	50.6	50.2	50.5	-5.0
51	2013-06-20 11:47:40	79.2	53.7	50.4	54.5	-5.0
52	2013-06-20 11:47:41	88.1	55.0	52.3	54.8	-5.0
53	2013-06-20 11:47:42	114.9	78.8	54.0	78.9	62.1
54	2013-06-20 11:47:43	85.0	78.7	74.5	52.5	76.0
55	2013-06-20 11:47:44	112.2	77.5	73.5	74.8	72.7
56	2013-06-20 11:47:45	104.3	74.7	70.7	69.4	-5.0
57	2013-06-20 11:47:46	109.5	76.5	67.5	76.1	64.0
58	2013-06-20 11:47:47	92.8	75.7	71.7	59.9	62.3
59	2013-06-20 11:47:48	115.1	78.2	69.6	77.7	72.2
60	2013-06-20 11:47:49	109.8	76.1	73.1	72.0	68.6

Fig.4-30. An example of panel displayed in Table mode.

#### *Normal / Transposed view*

In general, when the *Normal view* is set, the table rows contain different time samples while columns contain results of different measurements or calculations. Switching to the *Transposed view* sets the inverse configuration. The *Transposed view* is particularly useful if you need to view many variables in few points of time.

To enable the *Transposed view* you can do one of the following:

- Click on the  button – the view will switch to the other than currently set.
- Use the Table mode menu to choose one of the views.

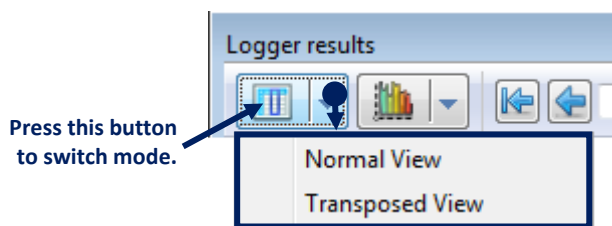


Fig.4-31 Selecting the view in Table mode.

### Copying with headers

The *Copy with headers* tool is available in the context menu opened by clicking with the right mouse button. It copies the selected data to the clipboard together with headers describing it, located above and to the left of the selection.

Cells also copied by the *Copy with headers* tool

		&LOG8.SVN	&LOG8.SVN	&LOG8.SVN
		Ch1 (VLM)	Ch1 (VLM)	Ch1 (VLM)
		1/3 Oct Acc RM...	1/3 Oct Acc RMS...	1/3 Oct Acc RM...
No	Time	0.400 Hz	0.50 Hz	0.63 Hz
1	00:00:01.000	0.016	0.022	0.005
2	00:00:02.000	0.0001	0.013	0.0009
3	00:00:03.000	0.014	0.018	0.010
4	00:00:04.000	0.012	0.0	
5	00:00:05.000	0.014	0.0	
6	00:00:06.000	0.024	0.0	
7	00:00:07.000	0.016	0.0	
8	00:00:08.000	0.009	0.00	

Context menu options:

- Copy
- Copy with headers
- Sort by start time
- Sort by name

Result of Copy with headers:

		&LOG8.SVN
		Ch1 (VLM)
		1/3 Oct Acc RMS (HP) [g]
		0.50 Hz
3	00:00:03.000	0.018

Fig.4-32 The *Copy with headers* tool.




### Cell types

There are three different types of cells in Supervisor's tables:



- Cells with gray background contain headers, describing the current data, which will be copied when you use the *Copy with headers* tool.
- Cells with yellow background also contain descriptions for the data values, but they are not copied by the *Copy with headers* tool.
- Cells with white background contain the data values.

### Adjusting the view

To configure the size of the fonts displayed in the panels in Table mode, you can use the following buttons, available on the Toolbar:

-  – increases the font size,
-  – reduces the font size,
-  – sets the default font size.

The *AutoSize Columns* tool enables to set the width of the columns equal to the longest text string in each column. It can be activated using one of the following buttons:

-  – located on the panel's toolbar,
-  – located at the top-right corner of the panel.

You can easily convert the unit of displayed results in terms of the power prefix using the menu opened by clicking with the right mouse button on the header of a column in the normal view or of a row in the transposed view.

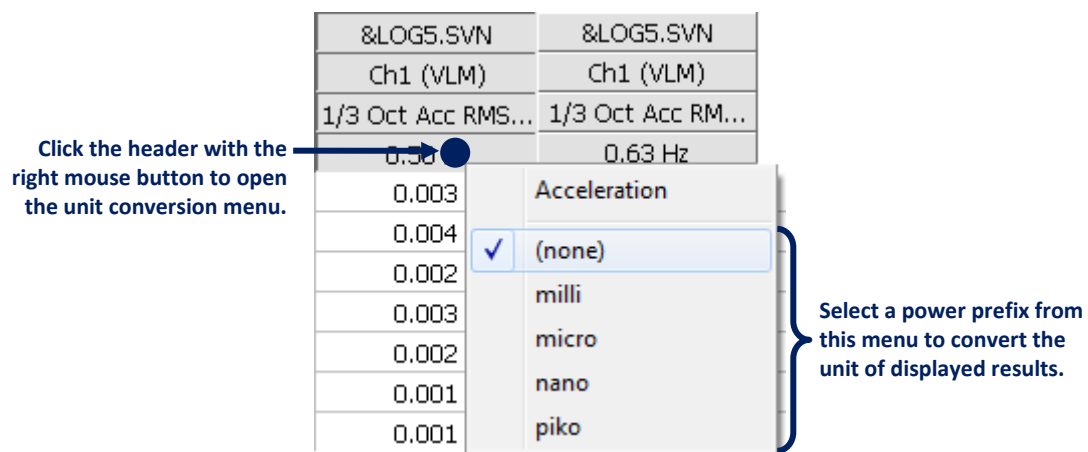


Fig.4-33 Converting units in a table in terms of the power prefix using the context menu.

### Table view options

Configuration of the Table mode settings is also available in the *Table View* tab of the *Main Options* dialog box (Fig.3-31).

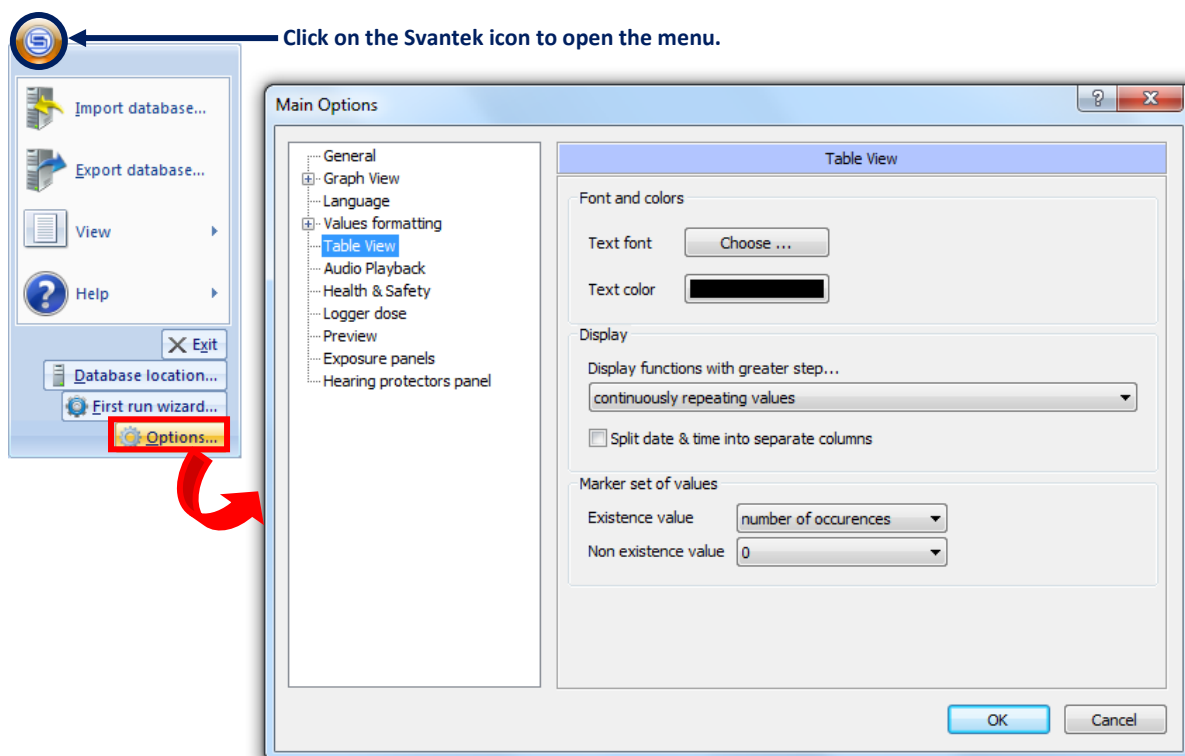


Fig.3-31. The Table View settings in the Main Options dialog box.

The Table view options are divided into 3 panels:

The *Font and colors* panel enables to configure the way text is displayed in the *Table view*. To select the text font press the *Choose* button. A font selection window will appear, allowing to set the preferred font. To select the text color, press the color button. A color choice window will appear allowing to select the preferred color.

The *Display* panel enables to configure the way functions are displayed in the *Table view* when viewing multiple functions of different steps. The *continuously repeating values* option causes the fields where the values are not defined (because a function has a greater step than other displayed functions) to be filled with the last available value. The *show single value at start time of greater step* option causes to display values only at the beginning of a greater step, leaving the other fields empty.

The *Marker set of values* panel enables to configure the way markers are displayed in the *Table view*. Markers contain ranges of the time domain specified by the user or created automatically. They can be displayed in the *Table view* as a function. You can select the value displayed in the table corresponding to data contained / not contained in the marker (*Existence value* / *Not existence value*).

### Limiting the time domain

The *Limit time domain* tool enables to display only a limited range of the time domain, specified by a selected function or marker. In order to enable this option, you have to open the View Configurator, select the desired function / marker and press the *Limit time*

domain to button in the Options menu. In order to remove the limit, use the *Clear time domain limit* command.

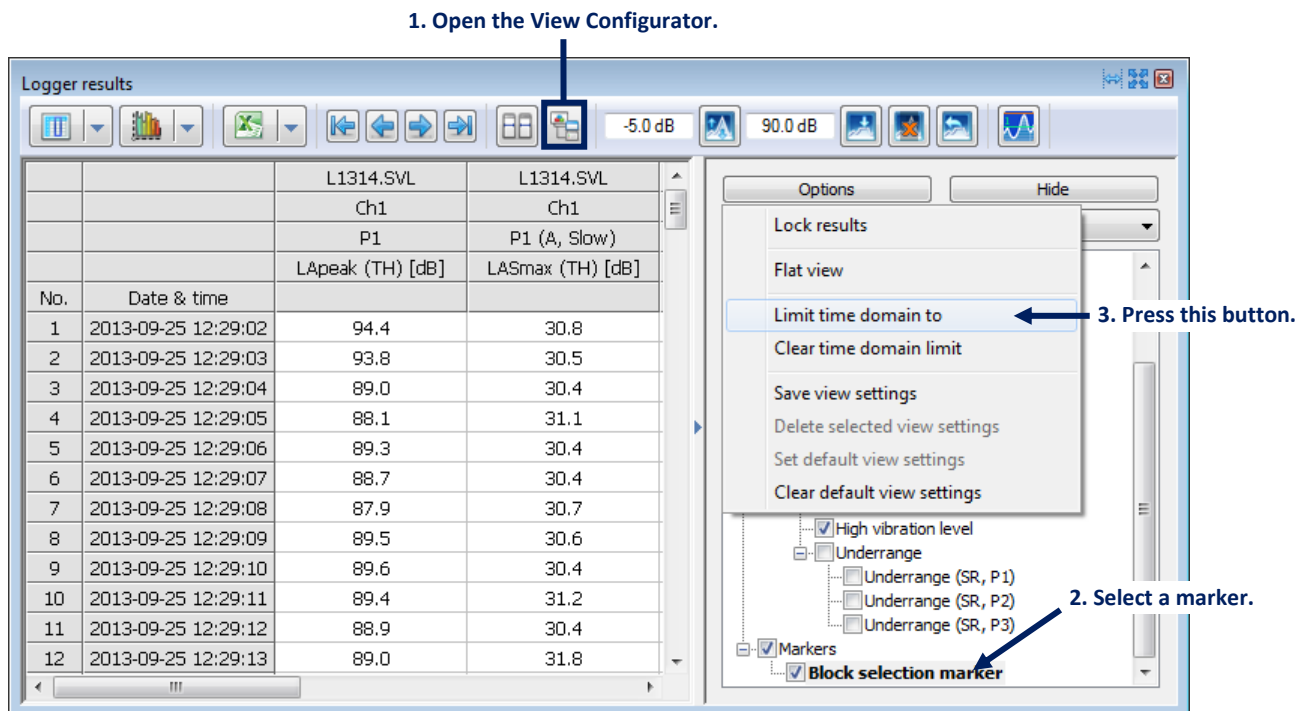


Fig.4-34 Limiting the time domain in the Table mode.

**Note:** The View Configurator is described in detail in Section 4.4.

#### 4.3.2. PLOT MODE

In the Plot mode, functions measured in the time or frequency domain, in panels such as *e.g. Logger results* or *Logger 1/3 Octave*, are presented in the form of a 2D plot.

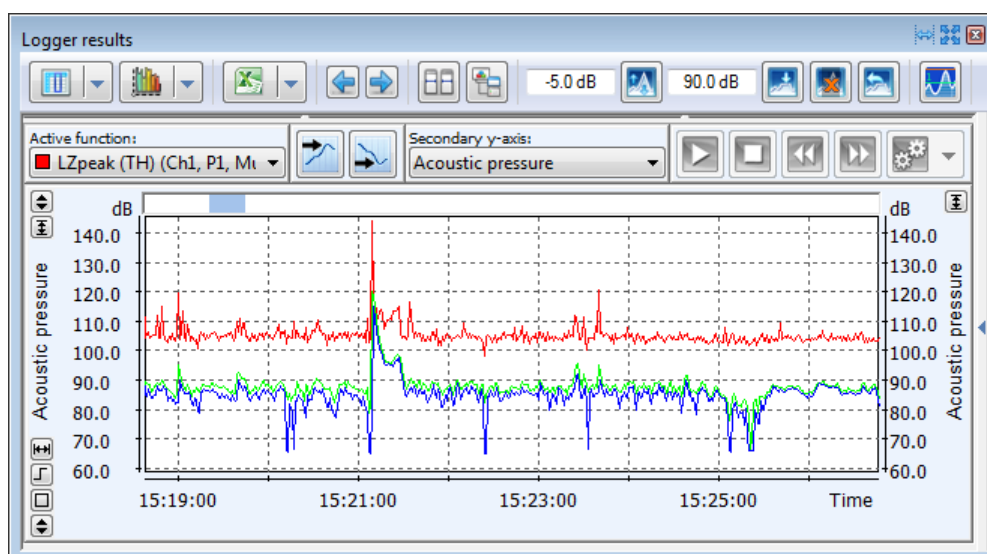




Fig.4-35. An example of panel displayed in Plot mode.



## Window configuration

Each panel in Plot mode is composed of 3 parts (Fig.4-36):

- Central part – the plot together with the axes and additional controls,
- Upper table – containing some additional information, such as the titles,
- Lower table – containing the positions of cursors and selections as well as numerical results of measurements and calculations.

You can show or hide the tables using the  buttons, located at the left-hand side of the panel. You can also use the  button to switch between 3 available modes:

- *Normal* – all parts visible;
- *Data And Results* – upper table hidden;
- *Only Data* – both tables hidden.

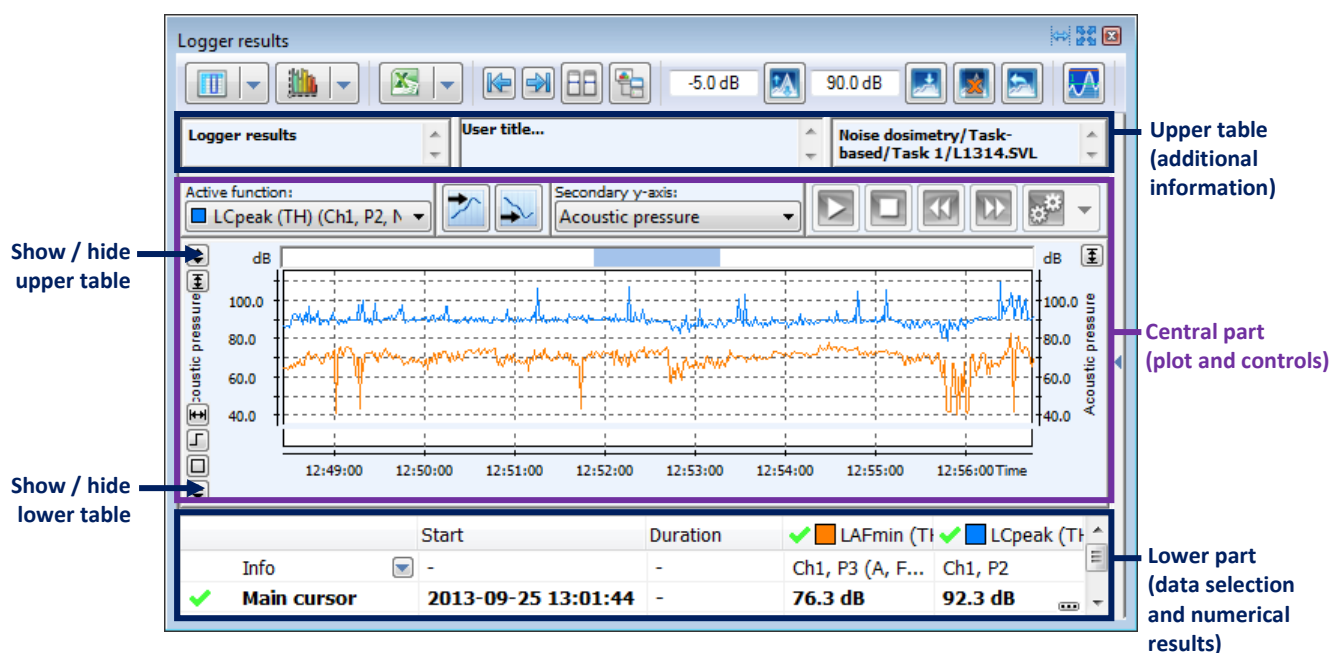


Fig.4-36. Parts of panels in Plot mode.



## Viewing the plot



In the Plot mode, the horizontal (x) and vertical (y) axes can easily be scrolled and scaled. To scroll an axis, you can:

- use the blue slider at the top of the plot area,
- click with the left mouse button on the axis and move the mouse without releasing.

To scale an axis, click on it with the right mouse button and move the mouse without releasing.

## Axis auto scaling

The *Y-axis auto scaling* tool serves to automatically scale the y-axis to make the function values fill the plot area. To enable the *Y-axis auto scaling*, use the  /  buttons, located at the left-hand side of a panel in Plot mode.

Analogously, the *X-axis auto scaling* tool serves to automatically increase or decrease the number of pixels per sample (and aggregation degree for time history plots) to make all samples visible in the whole plot area. To enable the x-axis auto scaling, use the  /  buttons, located at the left-hand side of a panel in Plot mode. You can also automatically scale the x-axis so that only a selected interval of time is displayed using the 'Auto scale x settings' dialog box, accessed by selecting the 'Auto scale x settings...' command in the context menu opened by clicking with the right mouse button anywhere in the plot area. It also allows for expanding the range of measurement results in order for the x-axis to start at a selected hour.

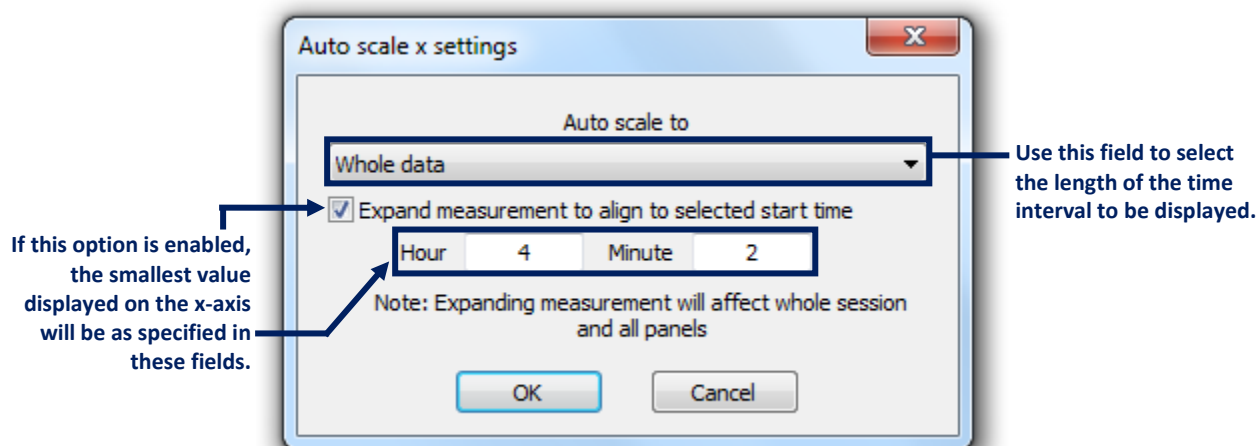


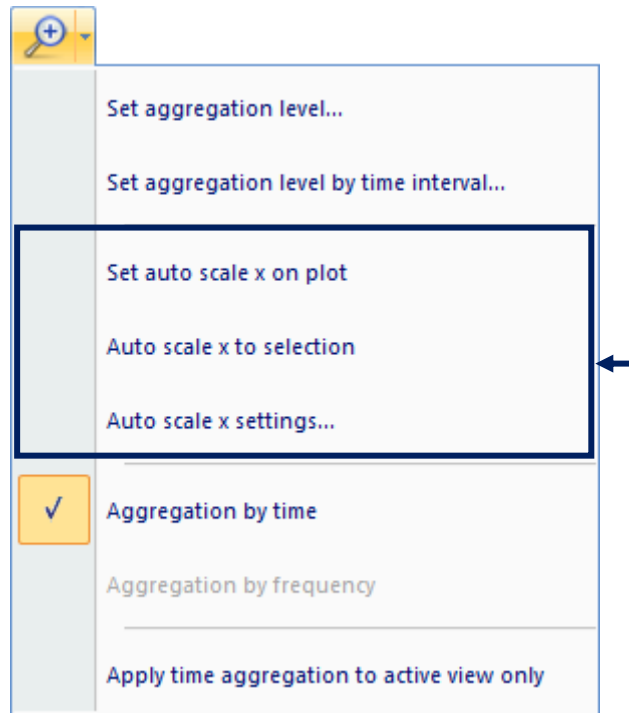
Fig.4-37 The *Auto scale x settings* dialog box.

Clicking with the right mouse button in the plot area and selecting the 'Auto scale x to selection' command scales the x-axis according to the current block selection.

**Note:** The displayed range of the time history may contain unselected fragments if the block selection is non-continuous.

**Note:** If you manually scroll or scale an axis when the corresponding *auto-scaling* tool is enabled, it will be automatically disabled.



The commands related to X-axis auto-scaling are also accessible from the Zoom menu on the Toolbar.



**Fig.4-38** Commands related to X-axis auto-scaling in the Zoom menu (on the Toolbar).

### *Adjusting the view*

All the functions displayed on the plot are listed in the table in the lower part of the Plot view window.

When you click on a function's name on the list, that function's representation in the plot area becomes highlighted so you can easily recognize it when many functions are plotted simultaneously. The  /  buttons serve for showing / hiding the functions. Color used for plotting each function can be selected by clicking on the square located next to that function's name.

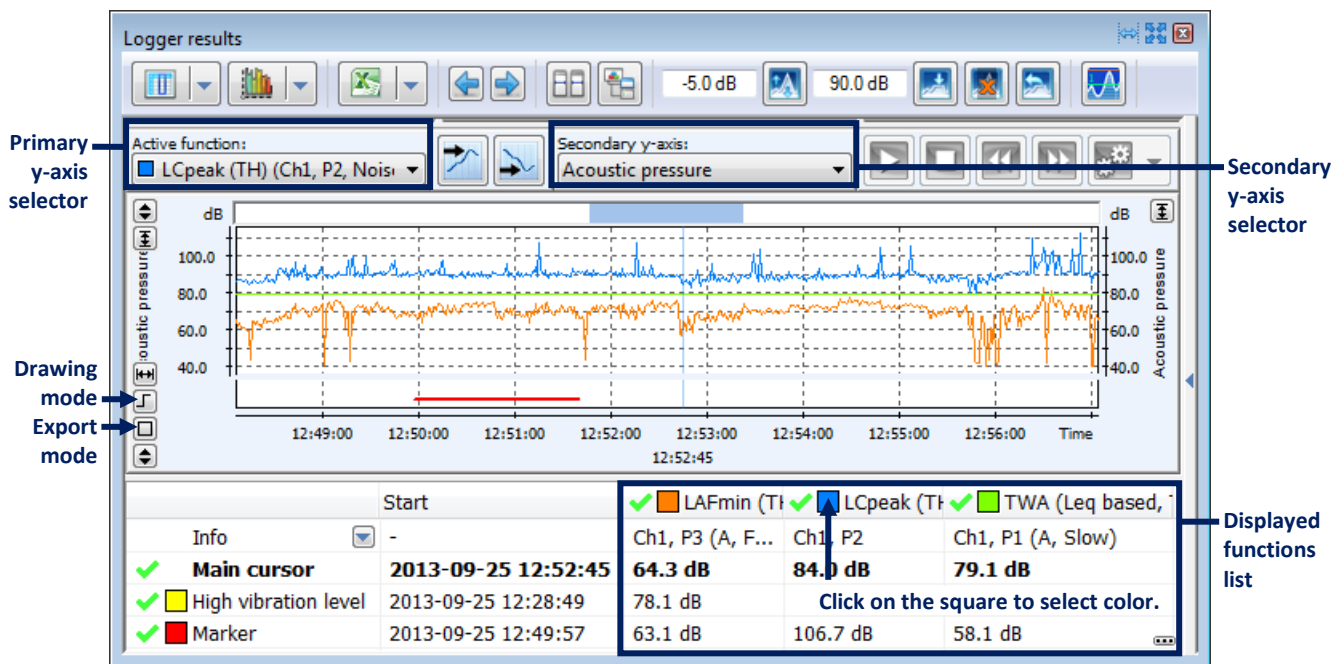


Fig.4-39. Controls for adjusting the view in the Plot mode.

The contents of the table below the plot can be customized using the context menu, opened by clicking with the right mouse button anywhere in the table area. The menu contains the following commands:

- *Set font...* – enables one to select the font used in the table below the plot,
- *Copy with headers* – you can use this command to copy the contents of the table to the clipboard (the column and row headers are also copied),
- *Autosize columns [off / fit in window / fit in column]* – enables one to automatically adjust the table columns' width: the 'fit in window' option causes the columns to fill the whole width of the panel, while the 'fit in column' resizes the columns to fit exactly the width of the contained text. Anytime you manually resize a column, the 'Autosize off' option becomes automatically selected.
- *Show start / stop / duration* – enables one to show or hide the columns of the table representative of the information about the time ranges specified by block and cursor selections and markers.
- *Show whole data / inside blocks / outside blocks / individual blocks* – enables one to show or hide the rows of the table representative of various ranges of the time domain: 'whole data' corresponds to all the available time history, 'inside blocks' correspond to the accumulated ranges of all block selections, 'outside blocks' correspond to the ranges of all the fragments of the time domain which are not included in block selections, and 'individual blocks' correspond to separate block selections, displayed individually (as Block 1, Block 2 etc.).
- *Delete all calculated functions* – removes all functions generated using the Logger dose calculator (→ Section 5.8).

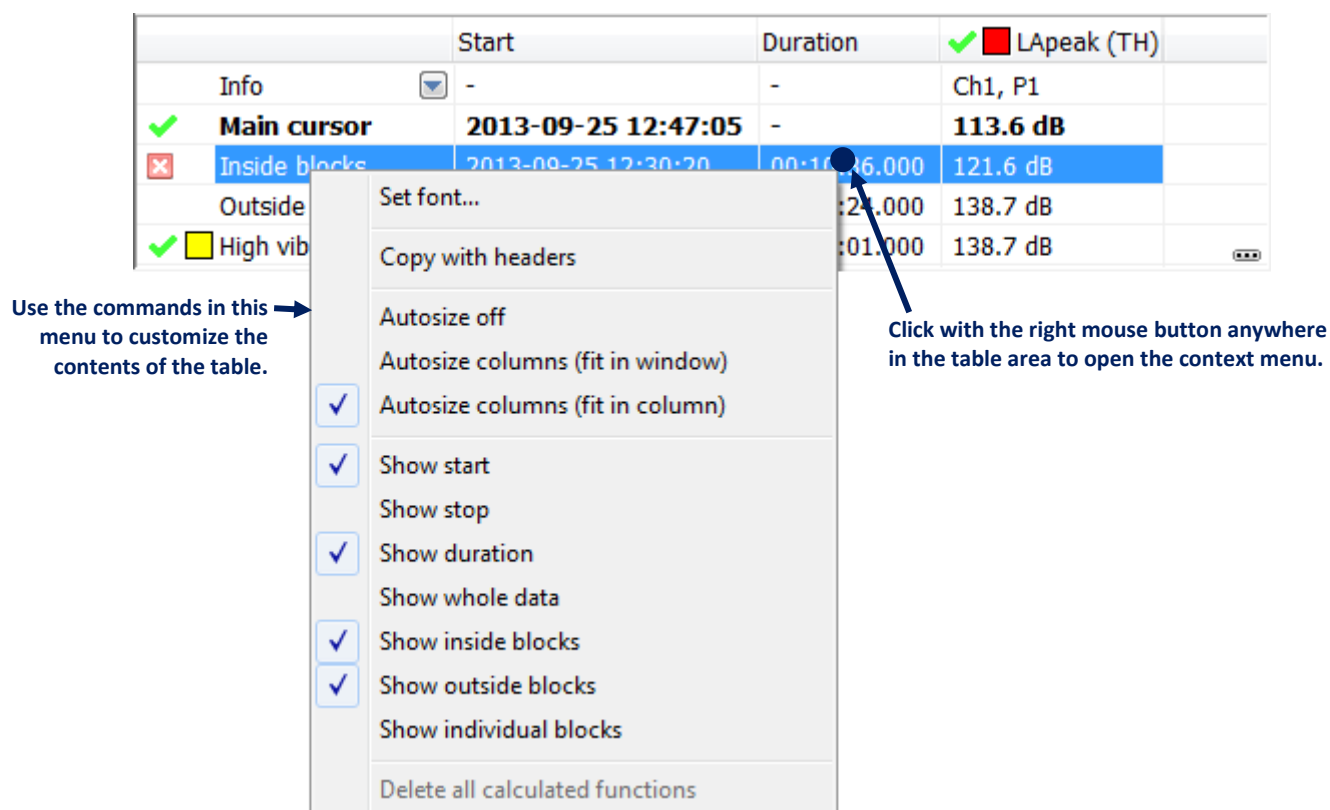



Fig.4-40 Context menu for customizing the contents of the table below the plot.

You can specify the way functions are drawn on the plot using the *Drawing mode* buttons  located on the left side of the window.

You can choose the currently active function, used to define the primary y-axis and the main cursor domain, as well as the quantity to be represented on the secondary y-axis, using the *Active function selector* and the *Secondary y-axis selector*, located in the upper part of the *Plot view* window.

**Note:** By default, the secondary y-axis is displayed in each plot-mode panel. To enable hiding it, use the "Allow none secondary axis" option in Main Options » Graph View » Data Visualization (see figure below).

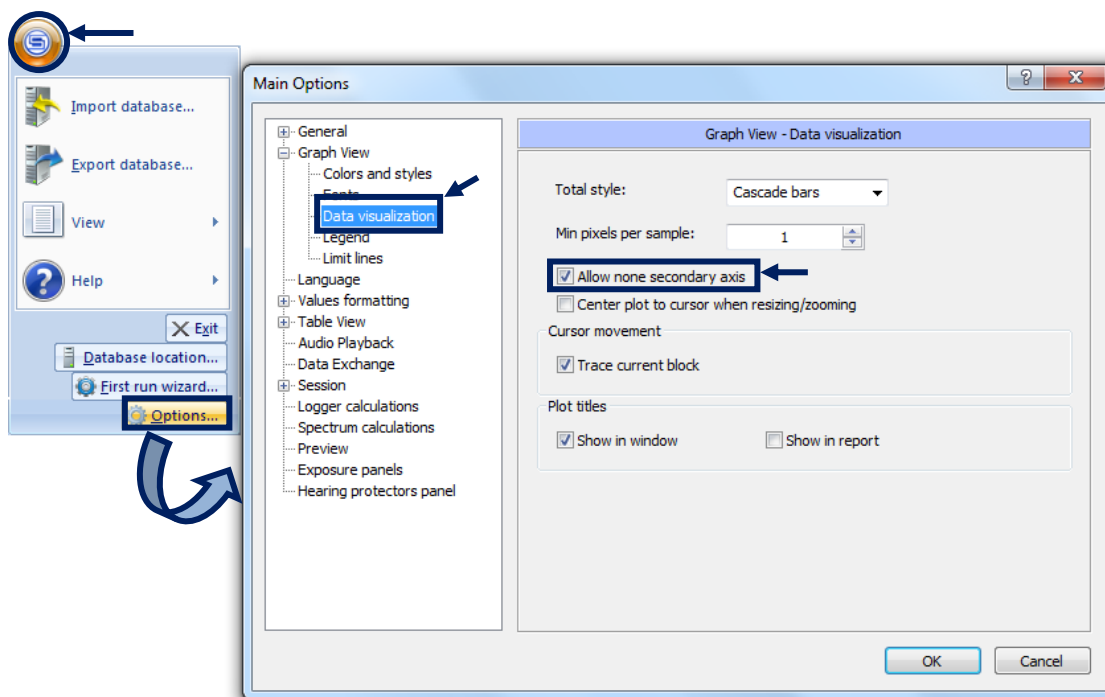






Fig.4-41 The option which allows for hiding the secondary y-axis.

### Export modes

You can export the plotted results in two modes:

- the 'single' mode, represented by the  icon, consists in exporting a single figure, containing only the range of the time history displayed in the panel.
- the 'multi (screen-by-screen)' mode, represented by the  icon, consists in exporting all the time history in several figures.

The two modes are illustrated in Fig.4-42. In order to change the mode, use the  /  buttons, located at the bottom-left corner of the panel.

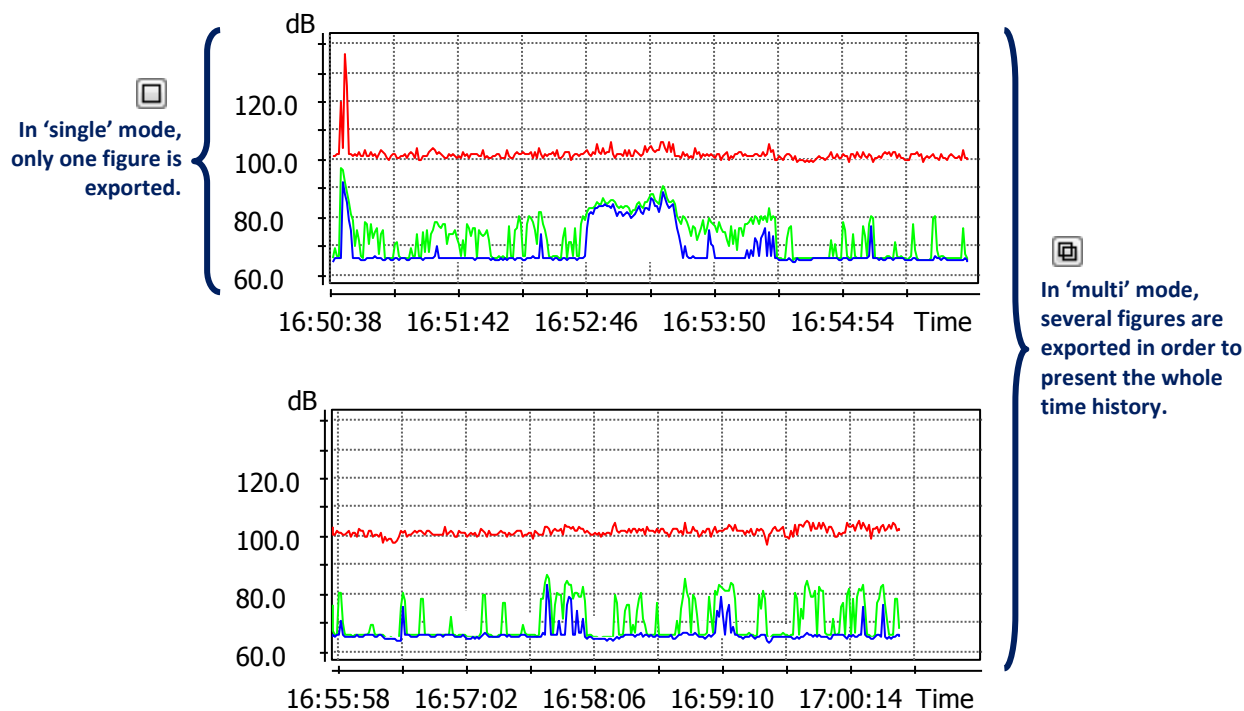


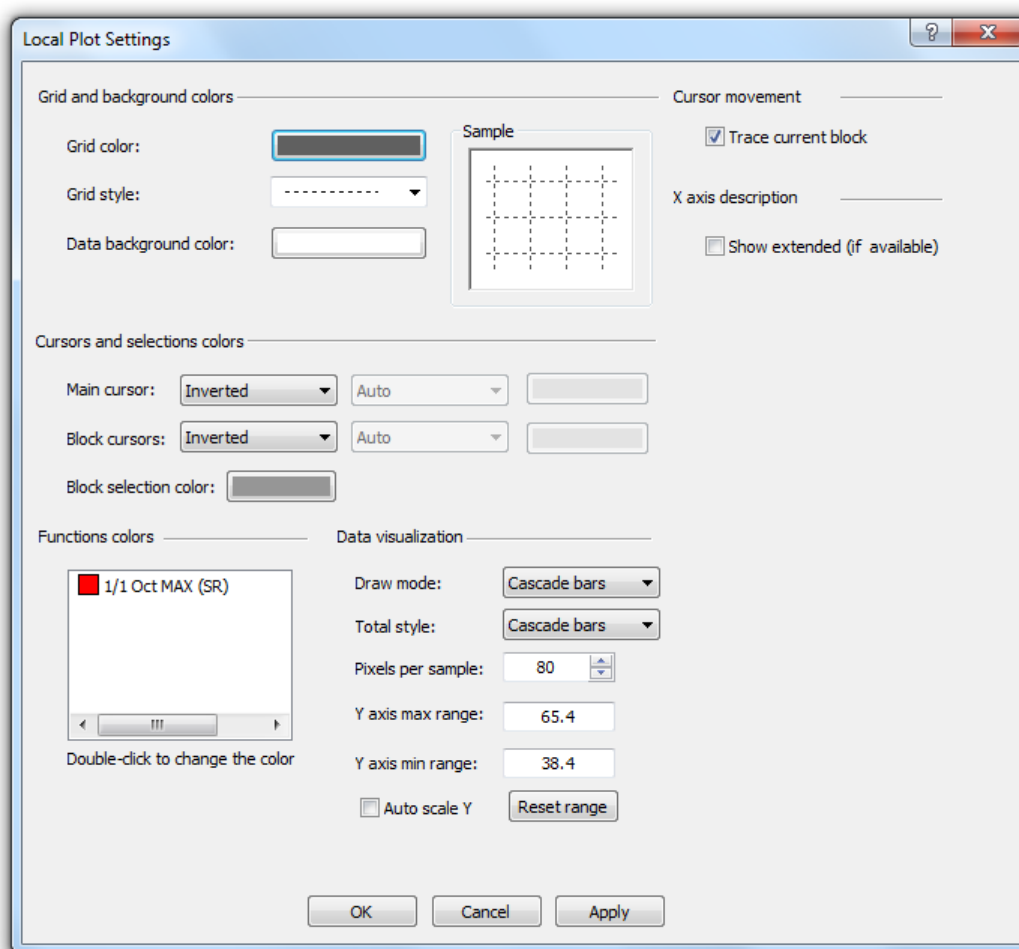
Fig.4-42 Modes of exporting panels in Plot mode.

### Local plot settings

The graphic options of the Plot view can be configured in the *Local Plot Settings* dialog box, opened with the *Local Plot Settings* command, available in the context menu opened by clicking in the plot area with the right mouse button.

Settings specified in this dialog box only apply to the particular panel for which it was opened. When you save the layout of the session (*cf.* Section 4.1.6), these settings are also saved.




**Note:** Global settings of the same type can be configured in the Graph view tab of the Main Options dialog box.



**Fig.4-43** The Local plot settings dialog box.

In the *Cursors and selections colors* panel you can choose one of three modes of drawing the vertical lines representative of the positions of cursors and blocks marking selected data:

- *Inverted* – a line of inverted background color,
- *Solid* – a line of a chosen color, drawn over the plotted functions,
- *Transparent* – a line of a chosen color, not hiding the plotted functions below it.

The selection of Draw mode is equivalent to what can be achieved using the  /  /  buttons. The Total style concerns the way of displaying the Total results, drawn at the end of the x-axis in case of frequency domain functions.

*Trace current block* – with this box option enabled, clicking with the main cursor on a block selection will automatically jump to the field containing the range of the selected block in the table below the plot area.






*Show extended* – enabling / disabling this option will show / hide the extended x-axis description.




## Selection of data

To select data, you can use the cursors or block selections. Each cursor allows to select one element of the data at once, while blocks enable the selection of multiple elements at once.


### Main cursor

When you open a window with the plot view, only the Main cursor is present. You can set its position by clicking in the plot area, by using the left and right arrow keys or by using the    buttons located in the upper part of the Supervisor window. You can also switch the Main cursor off, clicking on the  icon next to its name in the table below the plot. When passive, the cursor's icon turns to . By default, the position of the Main cursor is marked on the plot with a vertical line in inverted background color; you can change the way the Main cursor is displayed using Local Plot Settings or Graph View settings in the Main Options. The Main cursor may be placed where the samples of the active function exist. If the Main cursor is hidden, clicking in the plot area makes it visible again.

### #1 and #2 (Block) cursors

There are two additional cursors available, named Block cursor #1 and #2. You can set their positions by clicking somewhere in the plot area with the right mouse button and choosing the *Put #1* or *Put #2* command in the pulldown menu, or by pressing CTRL+1 or CTRL+2 keys. The selected cursor position is then set at the current position of the Main cursor. In default settings, the positions of the additional cursors are marked on the plot with vertical lines in inverted background color with numbers written next to them. You can clear the selections of additional cursors by clicking on the  icons next to their names in the table below the plot.

### Block selections

To set a block selection you have to click in the plot area and drag the mouse without releasing until all the elements you need are selected. When you select two different blocks, the selections will be added (previous selections are not removed). The selected area is represented with a gray background. To deselect blocks, click on the  icons next to their names in the table below the plot, or click in the plot area with the right mouse button and choose the *Deselect block(s)* option. You can deselect the current (last selected) block or all blocks at once. You can also invert the block selection. Choosing this option removes the current selection and selects all the remaining data in the file.

### Additional features

- The #1 and #2 cursors can be used for precise selection of blocks. When both Block cursors are located on the plot:
  - Pressing ENTER will create a new block selection between the two block cursors;
  - Pressing ESC will deselect the part of a block selection from between the cursors (if the area between the cursors contains a fragment of a block).
- When you click on a block with the main cursor, the slider in the table below the plot will be moved automatically to the field containing the range of the selected block.  
**Note:** This feature can be disabled in the *Local plot settings* dialog box.
- Pressing ESC if the #1 and #2 cursors are not placed will remove a block selection containing the Main cursor. If the Main cursor is not located within any blocks, pressing ESC will remove all the selections (you will be asked for confirmation).

The selected data is listed in the table in the lower left corner of the *Plot view* window (it is not visible if you select the *Only data* mode). In case of the cursors, the point of their position is given in the “Start” column. In case of block selections, the points of begin and end of all separate blocks are given in the “Start” and “Stop” columns. For each cursor and block selection, these points can be edited by entering the time values manually after double-clicking corresponding fields of the above mentioned columns.

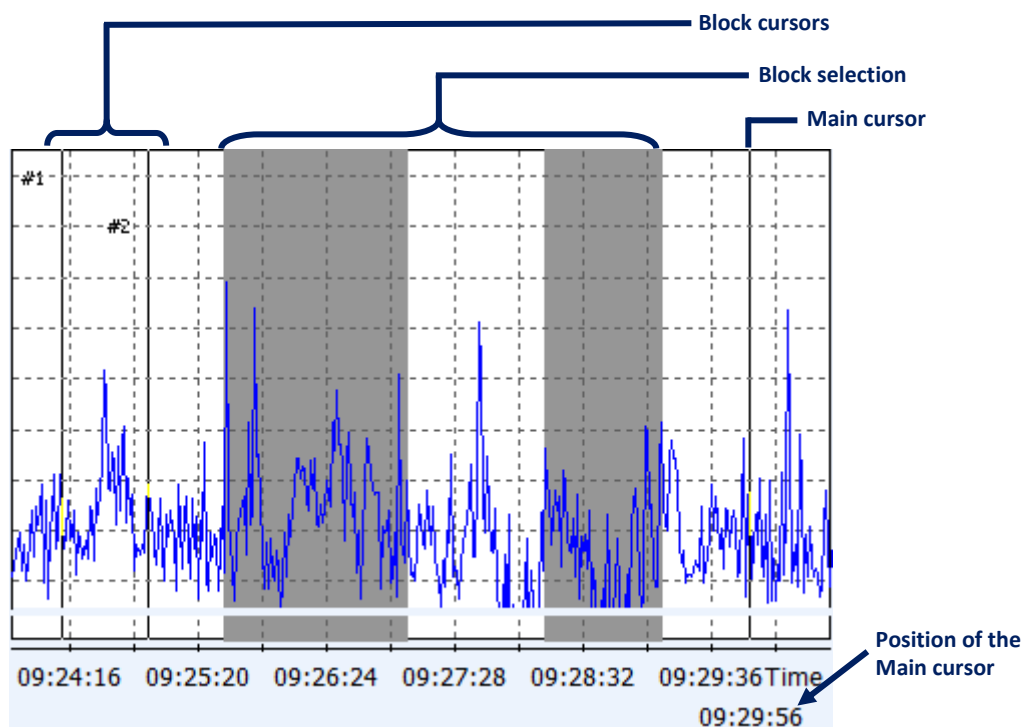
	Start	Stop
✓ <b>Main cursor</b>	2013-09-25 12:47:44	-
✗ <b>Inside blocks</b>	2013-09-25 12:35:36	2013-09-25 12:47:44

Double-click the Start / Stop field for a selected cursor or block selection to enable editing.

**Fig.3-44** Editing the position of cursors and block selections by entering time values manually.

**Note:** In order for the “Start” and “Stop” columns to be shown, corresponding options have to be enabled in the table’s context menu; for details, see the *Adjusting the view* paragraph in this section.




The Main cursor’s position is also marked below the X-axis of the plot.



**Fig.4-45.** Data selection in the Plot mode.

## Labels

You can add labels to the plot, consisting of a short text and an optional arrow pointing to a selected point in the plot area. To add a label, click with the right mouse button anywhere in the plot area and select the ‘Add label’ command.

- To edit the label's text, click somewhere close to the middle of the label, or click the label with the right mouse button and select the 'Edit text' command.
- To delete the label, click it with the right mouse button and select the 'Delete label' command.
- To move a label, place the mouse close to an edge of the label, and when the cursor face turns to , click with the left mouse button and move the mouse without releasing it.
- To resize a label, place the mouse close to a corner of the label, and when the cursor face turns to , click with the left mouse button and move the mouse without releasing it.
- To add an arrow, click the label with the right mouse button and select the 'Add arrow' command. The arrow can be moved by dragging its end with the left mouse button pressed (when the mouse is in a place allowing for moving the arrow, the cursor face turns to ). To remove the arrow, use the 'Remove arrow' command in the context menu.

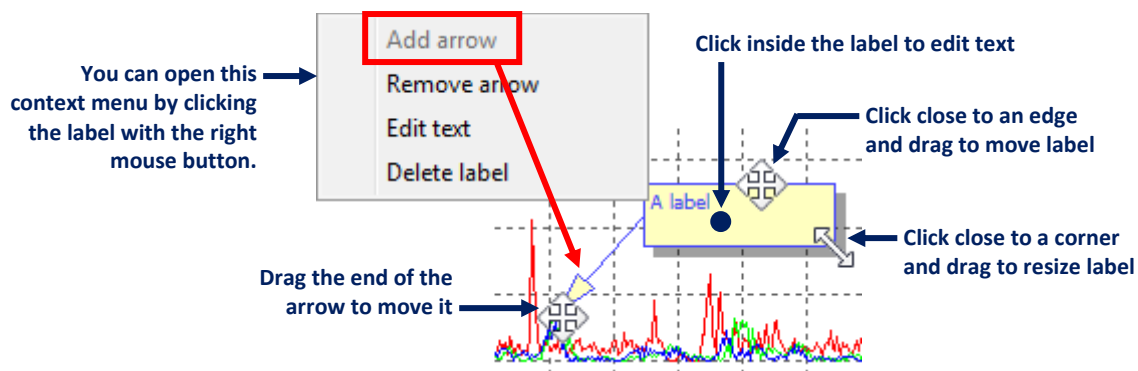


Fig.4-46 Editing labels in a plot mode panel.

### Limit lines

The *Limit lines* are horizontal lines with custom labels and colors which you can draw in Plot views at selected levels of the Y axis.

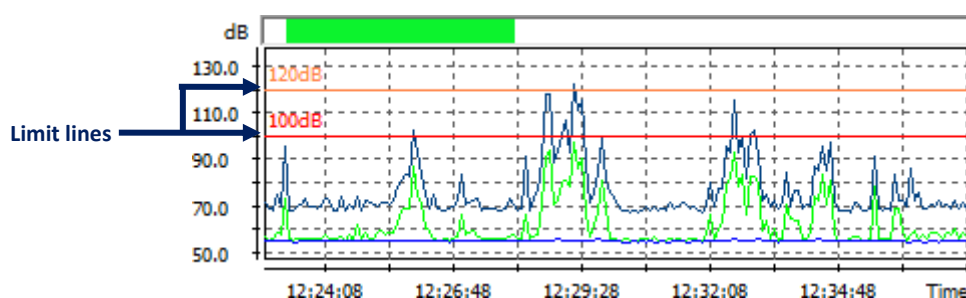


Fig.4-47 An exemplary plot with two limit lines.

If you want to display limit lines in a plot view, first you need to configure them in the *Graph view » Limit lines* settings tab in the Main Options dialog box. Separate sets of limit lines values and labels can be specified for sound and vibration data. A separate value, label and color can be specified for each limit line.

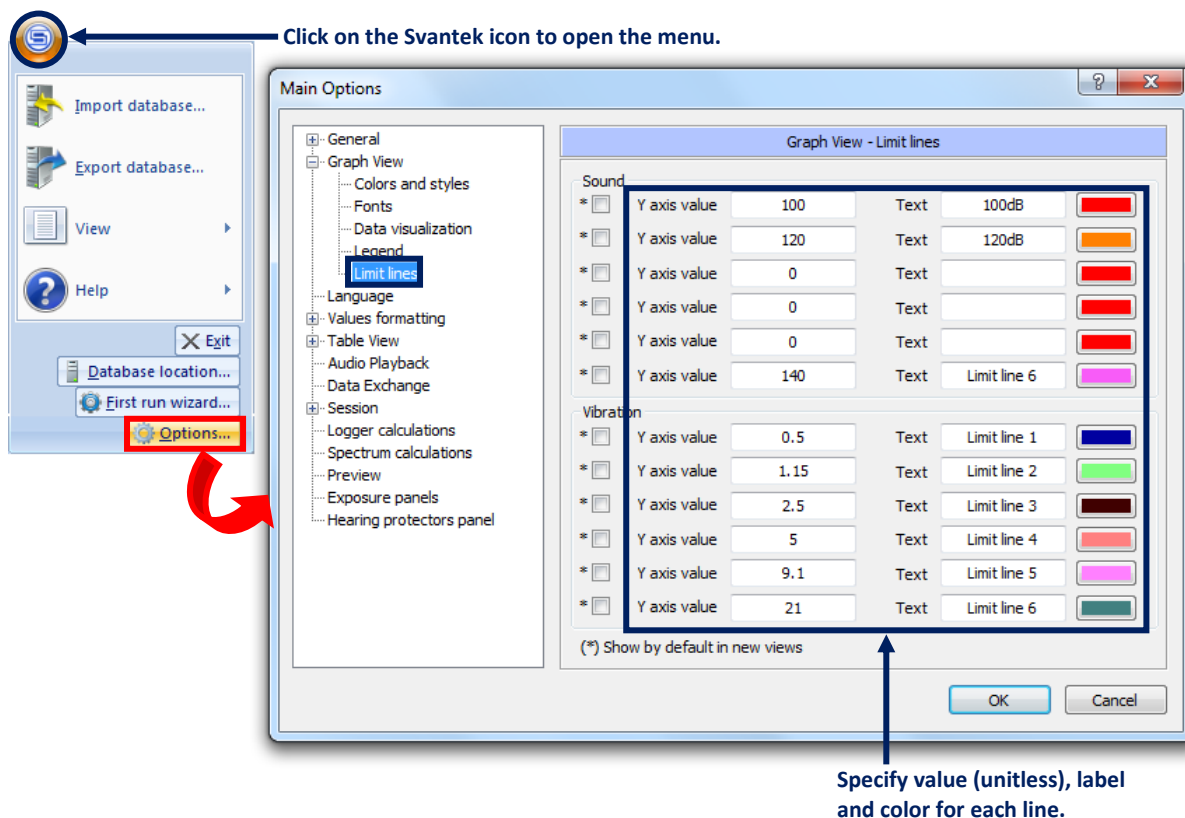



Fig.4-48 The *Limit lines* settings in the Main Options dialog box.

**Note:** The value specified in the *Limit lines* settings is unitless – the line will always be drawn at the same value on the Y axis regardless of the currently displayed units (so the lines will intersect with the measurement results in different places when linear and logarithmic values are displayed).

Once the limit lines are configured in the way described above, they can be drawn on the plot by doing the following (Fig.4-49):

1. Select the “Limit lines settings...” command from the context menu available after clicking with the right mouse button in the plot area,
2. Set the visibility of selected lines in the Limit lines dialog box.

To access the limit lines settings, you can also use the  button, located on the Panel Toolbar. **Note:** This button may be hidden if the view sub-window is too narrow.

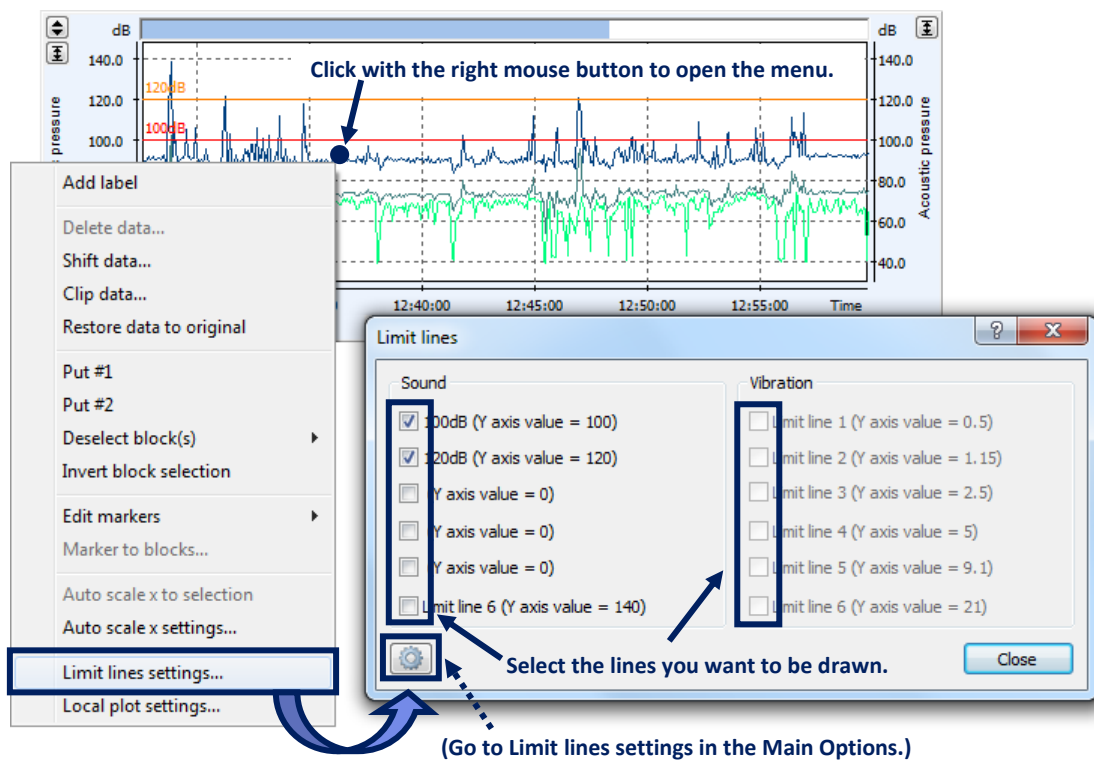



Fig.4-49 Setting the visibility of limit lines on a plot.

You can also access the Limit lines settings in the Main options directly from the Limit lines dialog box by pressing the  button.

It is also possible to specify a set of limit lines that will be displayed by default in each newly created panel in Plot mode. In order to do so, use the checkboxes located at the left-hand side of the Limit lines settings tab in the Main Options (*cf.* Fig.4-48). Having specified the default set of limit lines, a different set of limit lines can be later selected for each particular Plot panel in the manner described above.

### Go to min/max

Buttons above the plot area allow for placing the Main cursor at the sample corresponding to the minimum or maximum value of the active function.

**Note:** These buttons may be hidden if the panel is too narrow.

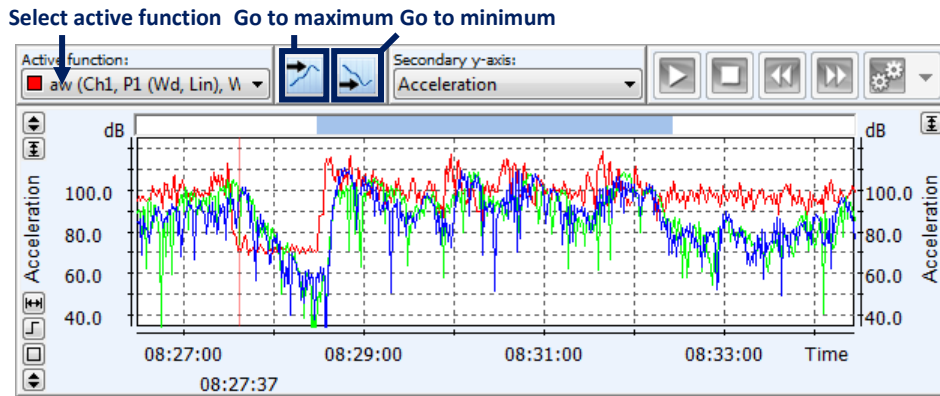


Fig.4-50 Buttons for automatically locating maxima and minima of the active function.

### 4.3.3. SPECTROGRAM MODE

The Spectrogram mode can be used to show the 3D variation of time, frequency and amplitude. The x-axis represents the time domain, the y-axis represents the frequency domain and the colors correspond to the values of the currently selected function. The time scale is linear while the frequency scale is logarithmic. The range of the color scale is shown down the right hand side of the plot area.

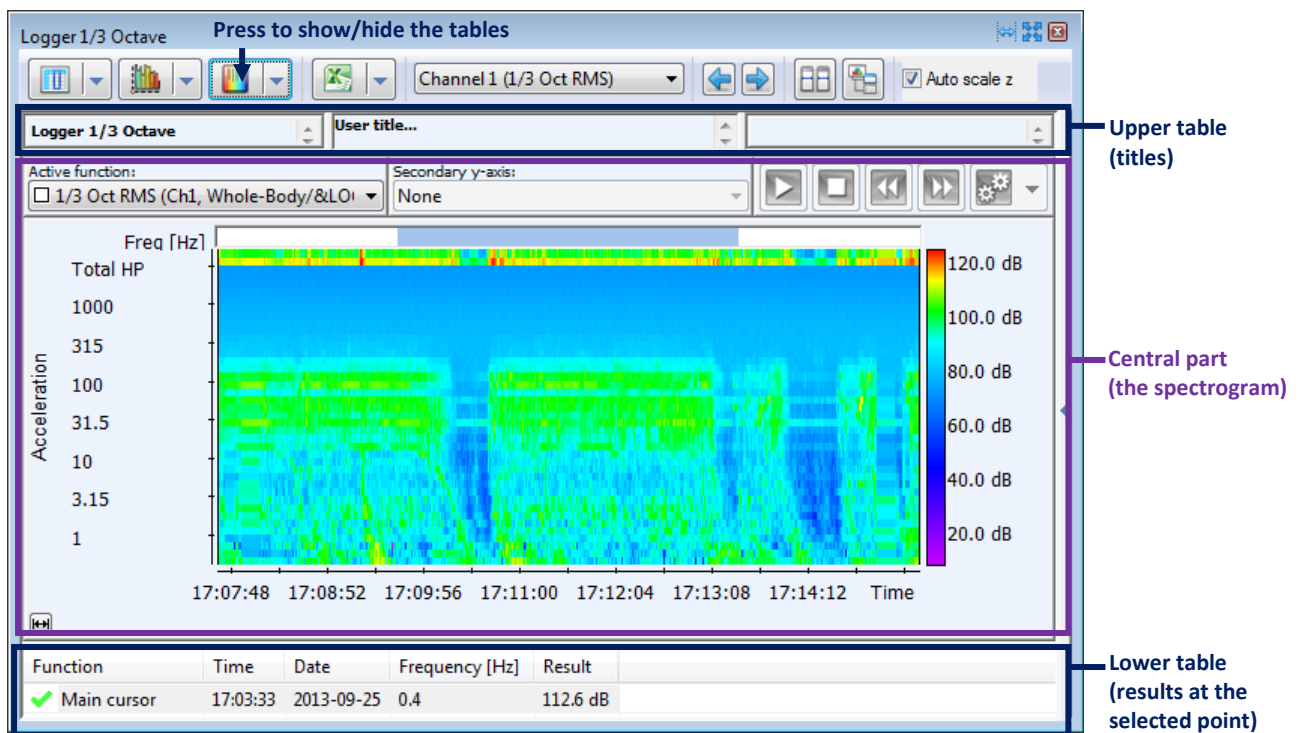



Fig.4-51. An example of panel displayed in Spectrogram mode.

The table at the top of the panel, containing the titles, and the one at the bottom, containing the position of the Main cursor together with corresponding measurement results, can be shown or hidden by pressing the  button. You can choose one of three modes:

- *Normal* – both tables visible,
- *Data And Results* – upper table hidden,
- *Only Data* – both tables hidden.

To scroll the time axis you can use the blue slider at the top of the spectrogram area, or click on the axis below the spectrogram area with the left mouse button and move the mouse without releasing. Scaling the x- and y-axis is not available in the Spectrogram mode.

### Adjusting the view

You can choose the parameter displayed on the spectrogram by using the *Active function* selector in the upper part of the panel in Spectrogram mode. The selected function defines the values on the z-axis.

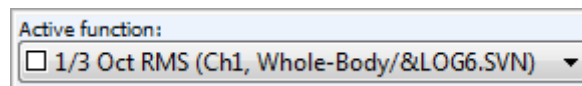


Fig.4-52. The *Active function* selector.

The *Auto-scale z* tool serves to scale the z-axis to fit the range of currently displayed data. When browsing the time domain, the scale will be modified automatically. When you disable the *Auto-scale z* option, the scale will remain constant.

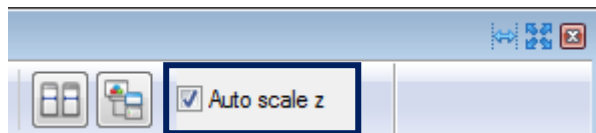






Fig.4-53. The *Auto-scale z* checkbox in the panel's toolbar.

You can modify the color profile to set the optimal dynamics for the range of data that you need. To do so, click on the color bar representing the z-axis, on the right side of the panel in Spectrogram mode. Then click on one of the displayed squares to move the range in which the chosen color will be displayed. You can set 4 points of the profile to adjust the color dynamics as needed. Modifying the color profile does not change the scale of the z-axis.





Fig.4-54. Examples of color profiles in the *Spectrogram* view.

## Selection of data

A point of the spectrogram can be selected using the Main cursor. To select a point, simply click somewhere in the spectrogram area. You can also modify the position of the cursor using the arrow keys and the     buttons above the *Spectrogram* view window.

The current position of the Main cursor is represented as the crossing point of grey lines. The table below the spectrogram area describes the position of the Main cursor in the time and frequency domains, as well as the value of the displayed function in the selected point.

You can hide / show the Main cursor clicking on the  /  icon next to its name in the table below the spectrogram area.

### 4.3.4. TEXT MODE

The Text mode can be used for displaying measurement results and other information in the text form. Data is presented as simple text with additional descriptions (if available). The text can be copied with the use of the pulldown menu, opened by clicking with the right mouse button.

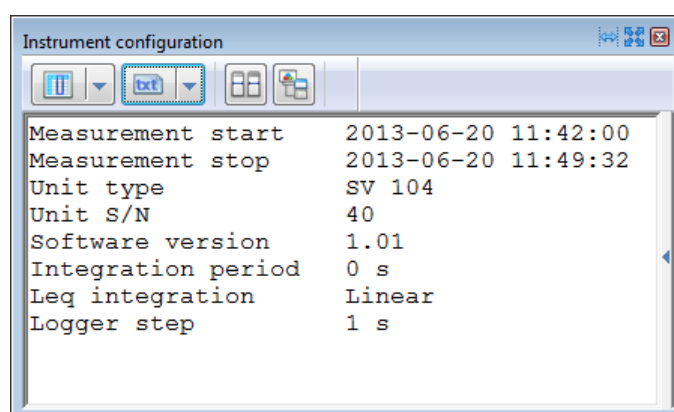


Fig.4-55. An example of panel displayed in Text mode.

## 4.4. VIEW CONFIGURATOR

The *View Configurator* is located at the right hand side of each panel. It can be used to select the set of results to be displayed in the panel.



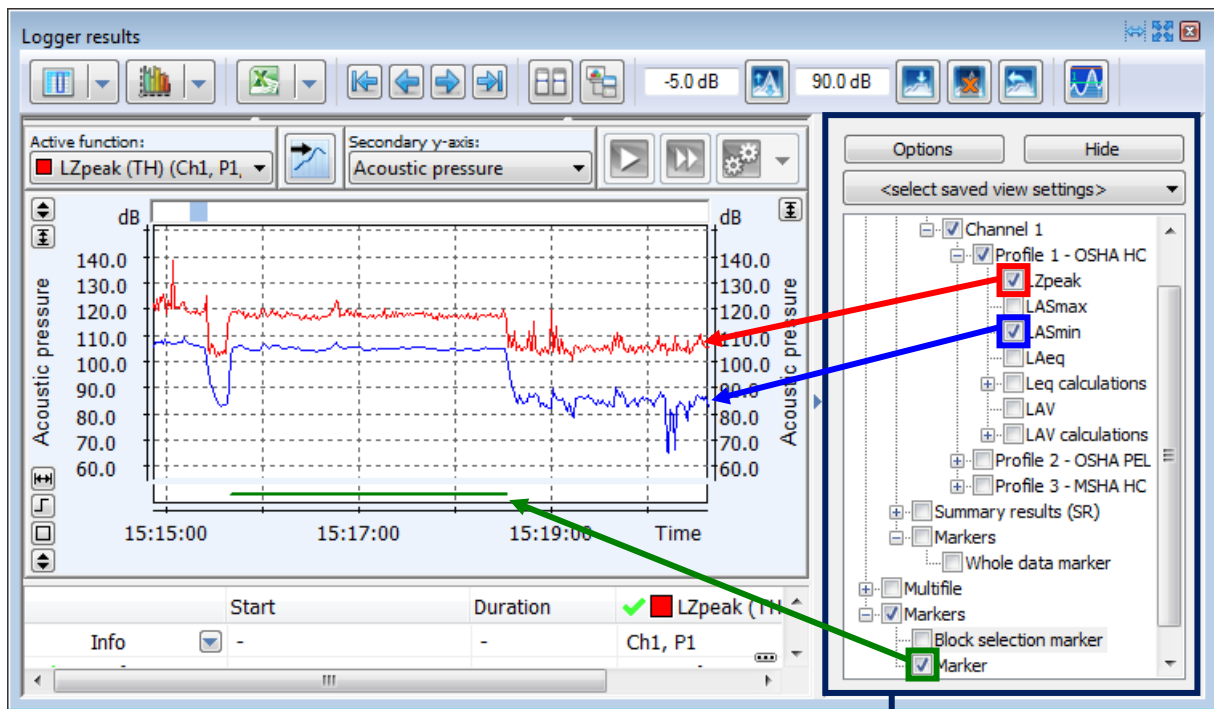



Fig.4-56. The View Configurator.

The View Configurator

#### 4.4.1. USING THE VIEW CONFIGURATOR

To show / hide the View Configurator, use the  button, located on the panel's toolbar. It can also be hidden using the *Hide* button in the upper-right corner of the View Configurator sub-panel.

The results and functions displayed in Plot, Table or Text modes are selected in the *View Configurator*. Checking the control next to the name of a result / function adds it to the view. If you check a branch containing more than one result / function, all the data inside the selected branch will be displayed. If you select in this way more than 30 objects at once, you will be asked for confirmation.

**Note:** When a panel is being resized, the View Configurator may be automatically hidden if it takes too much space.

There are two ways in which multiple objects can be selected simultaneously:

- Selecting an object with the CTRL button pressed will cause the selection of all available objects of the same type, *e.g.* selecting the Time history MIN results in Profile 1 will also cause the selection of Time history MIN results in other profiles, as well as Summary MIN results in all profiles.
- Selecting one object, and then selecting another object in the same subtree with the SHIFT button pressed will cause the selection of all objects in the subtree that are displayed between the two objects.

These two methods are illustrated in Fig.4-57.

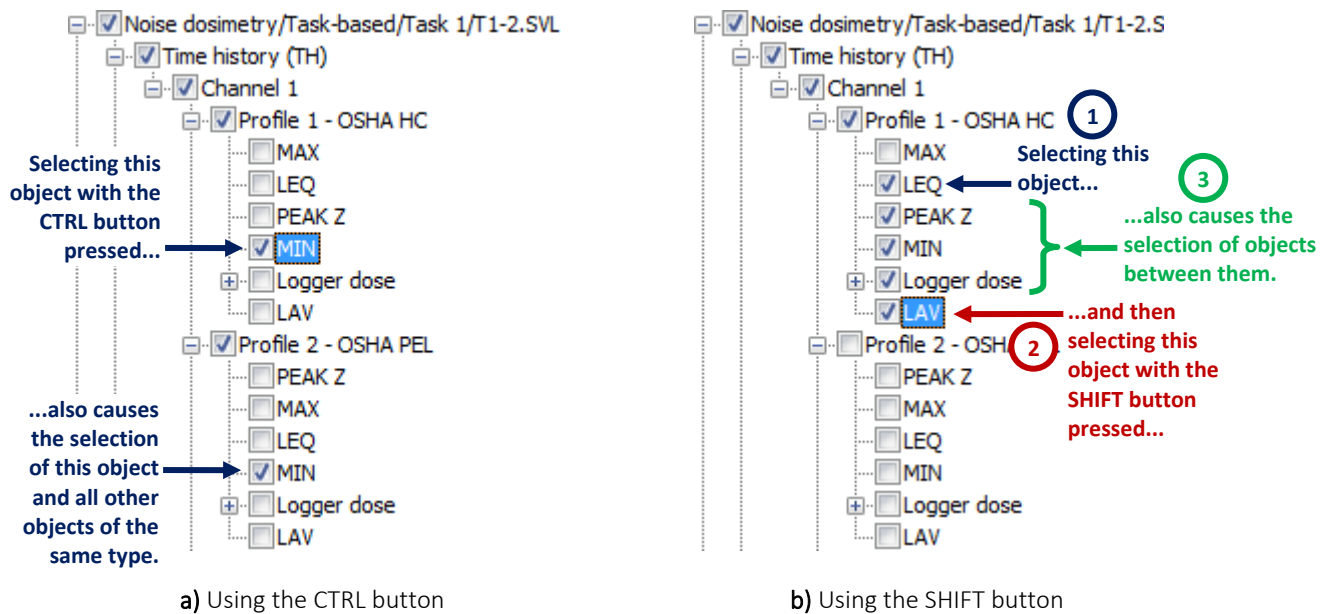


Fig.4-57 Methods for the selection of multiple objects simultaneously in the View Configurator.

By default, the *View Configurator* is presented in *Tree view* (the hierarchy is: *Channel » Profile » Function*). By activating the *Options » Flat view* command, you can view the configurator as a plain list, not representing the structure of data. This also enables to select all the available data at once by checking the *Flat results* checkbox.

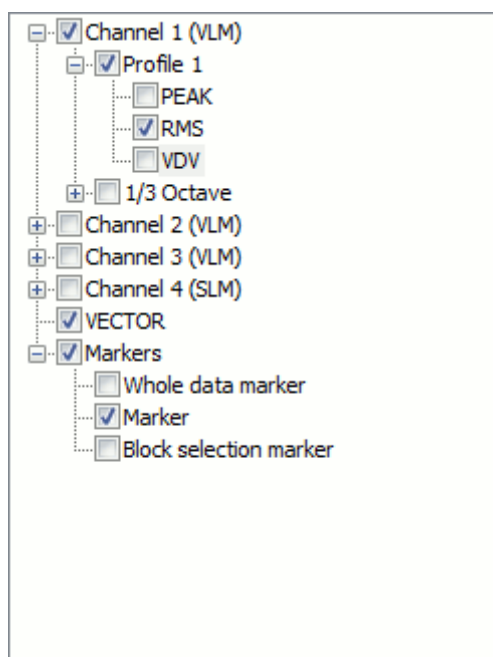


Fig.4-58a. The View Configurator in *Tree view* mode.

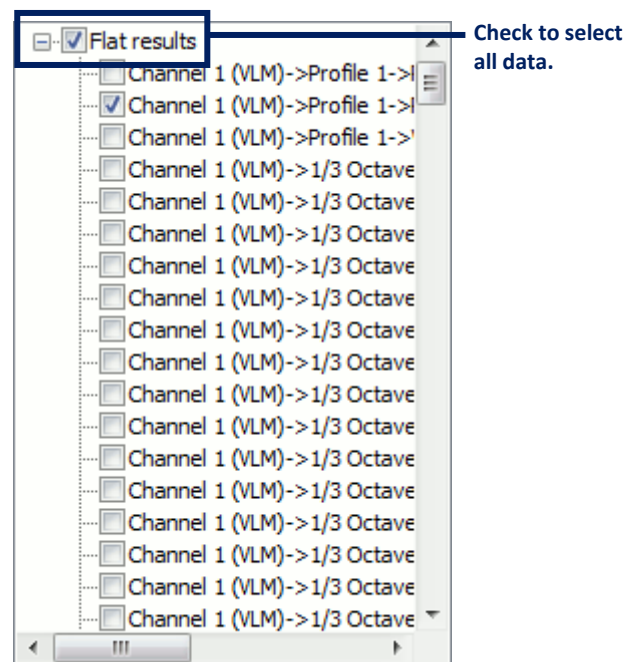


Fig.4-58b. The View Configurator in *Flat view* mode.

#### 4.4.2. LIMITING THE TIME DOMAIN

The *Limit time domain* tool enables to show only a selected range of data in the Table display mode. Selecting a marker on the list and pressing the *Options » Limit time domain to* button

will hide in the table all samples not contained within the selected marker's range. Pressing the *Options » Clear time domain limit* button resets the time domain, showing all the data once again. The time domain limit only affects the Table display mode. For details, see also Section 4.3.1: *Table mode*.

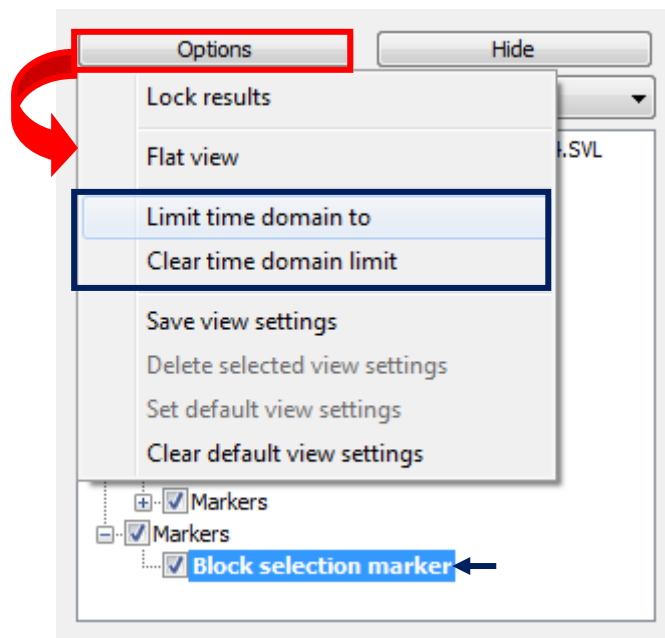


Fig.4-59 Limiting the time domain of a panel in Table mode.

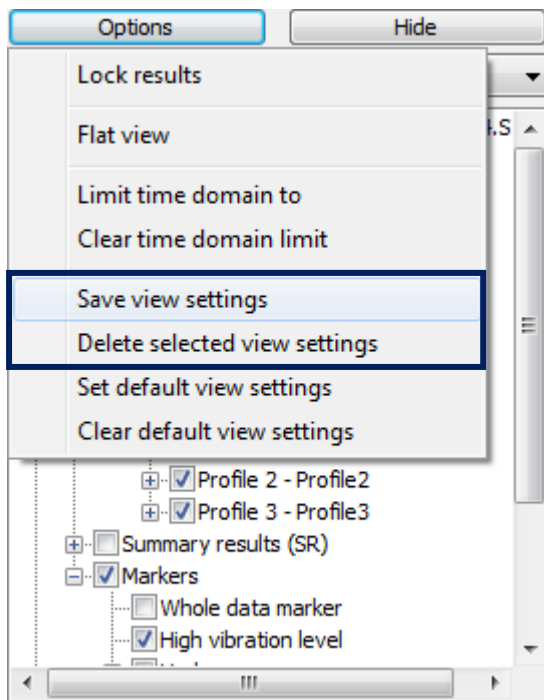
#### 4.4.3. SAVING SETTINGS

It is possible to save the View Configurator's settings for later use. The settings are saved in a package including:

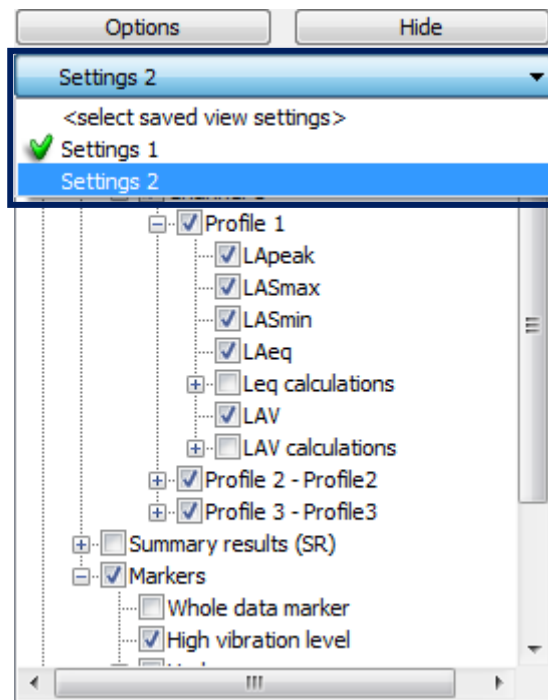
- selection of data to be displayed,
- colors of the plots.

Different settings can be saved for different types of results separately.

To save the current configuration, use the *Save view settings* command from the Options menu. All saved settings are available in the list box below the Options button. They can be loaded by selecting one of them in the list box, and deleted using the *Delete selected view settings* command in the Options menu. (Fig.4-60 and 4-61)



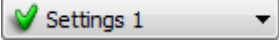
**Fig.4-60** Commands for saving and deleting View Configurator settings.



**Fig.4-61** List box for loading View Configurator settings.

You can select a saved package of settings to become default:

1. select saved settings from the list,
2. press *Options » Set default view settings*.

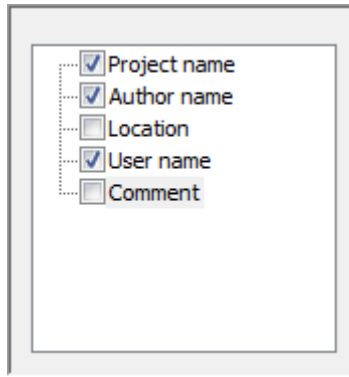
Newly created panels will be automatically configured according to the the default settings (as far as it is possible with regard to the available data). The default settings are indicated with a green tick mark: . You can clear the default settings using the *Options » Clear default view settings* button.

#### 4.4.4. SPECIAL CASES

The View Configurator only functions as described above in case of panels representing the measurement results, such as the *Logger results* panel. For some types of panels, such as Noise Exposure or Text, it is not available at all. For some other types of panels, such as:

- Session header,
- Instrument configuration,
- ‘What if’

it also enables to select information to be included, but it has a simpler form and does not allow for saving settings.



**Fig.4-62** The View Configurator for the Session header panel.

## 5 DATA ANALYSIS



### 5.1. CONVERSION OF UNITS

In Supervisor it is possible to easily recalculate logarithmic to linear and linear to logarithmic units. In case of VLM results, it is also possible to display the values in linear non-metric units.

The available units are shown in Table 5.1.

**Table 5-1.** Units for displaying SLM and VLM results available in Supervisor.



		VLM results		
		SLM results	Acceleration	Velocity
Logarithmic	[dB]	[dB]	[dB]	[dB]
Linear	[Pa]	[m/s <sup>2</sup> ]	[m/s]	[m]
Linear non-metric	-	[g]	[ips]	[mil]

To select the units for sound level values you can use the  button located on the Toolbar (available in the Session mode), and the menu attached to this button. Analogously, to select the units for vibration level values, use the  button.

### 5.2. ZOOM AND AGGREGATION

The Zoom serves to adjust the amount of displayed data. In case of the Plot mode, this concerns manipulating the number of pixels per sample. In case of the Table mode, increasing the zoom from the original level cannot affect the way data is displayed. However, in each display mode, the zoom can be reduced in reference to the original level, meaning that multiple samples are represented by one pixel or cell. This requires the application of *data aggregation* algorithms. The so-called *aggregation degree* denotes the number of data represented by one element (sample in a plot / cell in a table).

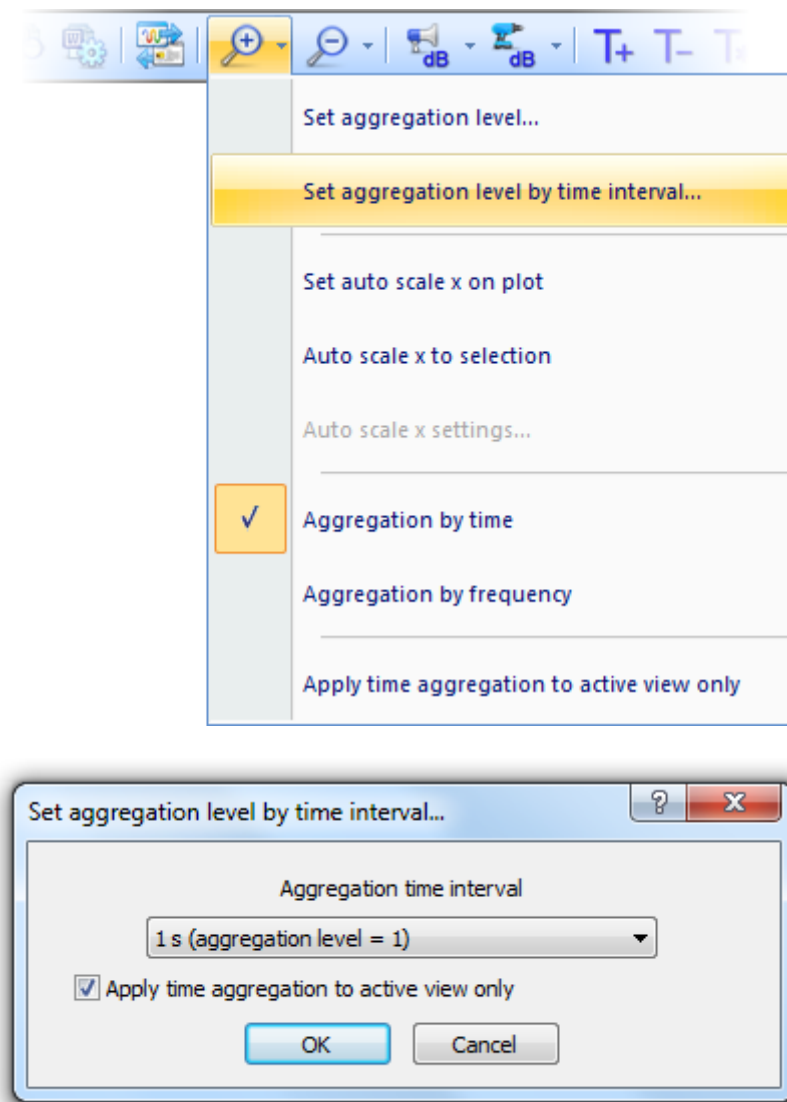
**Note:** It is possible to display more than one pixel per sample with aggregation degree higher than one at the same time.

To reduce / increase the aggregation degree, use the  /  buttons on the Toolbar. In case the Plot mode is currently active and aggregation is not applied, using these buttons you can increase / decrease the number of pixels per sample.

You can also set the aggregation degree manually using the *Set aggregation level* command from the pulldown menu, opened by clicking on the ▾ button next to the *Zoom Plus / Minus* buttons. The aggregation degree can be then entered in the *Set aggregation level* dialog box.

The maximum value of the aggregation degree equals the number of samples in the current data.

Another possibility is to set the aggregation degree by time interval. The degree will automatically be set to a value for which a single element (a pixel or a cell) will correspond to a selected time interval. For example, for measurement results in which each datum corresponds to measurement time of 1 second, selecting the aggregation time interval as 1 minute will set the aggregation degree to 60.



**Fig.5-1.** Setting the aggregation level by time interval.

Using the same pulldown menu, you can also decide whether aggregation should be applied to the time or frequency domain, if it is available in the currently viewed data. Aggregation can be applied to the currently viewed panel only (if '*Apply time aggregation to active view only*' is checked), or to each panel generated using the same data as the currently viewed one (otherwise).

### 5.3. ACCELERATION, VELOCITY AND DISPLACEMENT

In case of VLM spectrometric data Supervisor allows for the recalculation of three quantities:

- *Acceleration*,
- *Velocity*,
- *Displacement*.

To select the quantity you wish to display, use the pulldown menu opened next to the button for VLM units selection, located on the Toolbar (which is **available** in the Session mode).

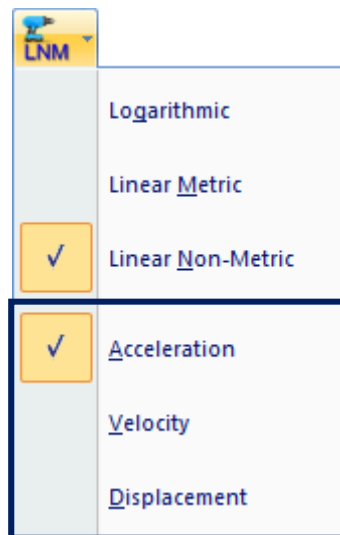


Fig.5-2. Selection of VLM quantities.

Acceleration, velocity and displacement can all be displayed simultaneously. In the Plot mode the particular quantities can be recognized in the functions list below the plot by 'Acc', 'Vel' and 'Dil' (for acceleration, velocity and displacement, respectively) added to the name of the function.

Function		Main cursor	
✓	1/3 Octave Acc RMS (Ch3)	75.2 dB	
✓	1/3 Octave Vel RMS (Ch3)	120.7 dB	
✓	1/3 Octave Dil RMS (Ch3)	166.3 dB	

Fig.5-3. Functions list containing the same function for various VLM quantities.

### 5.4. EXPOSURE LEVEL CALCULATOR

Supervisor provides three types of panels which serve for the calculation of exposure and dose for vibration and noise exposure levels: *Noise exposure*, *Noise dose/TWA*, *Hand-arm vibration exposure* and *Whole-body vibration exposure*.



### 5.4.1. DATA CONFIGURATOR

In the Exposure Level Calculator panels, the data are sorted according to the user and task information assigned to data. The Data Configurator, located at the left-hand side of the panel, contains a list of data files in the current session, presented in the form of a tree with users as root items, tasks as their subitems and files as subitems of tasks. Using the checkboxes located next to the file names you can select the data that will be used for estimation.

**Note:** You can also modify the assignments in the Noise exposure panel—the changes will be applied in the Supervisor's database. More details about assigning additional information to data are described in Section 3.3.

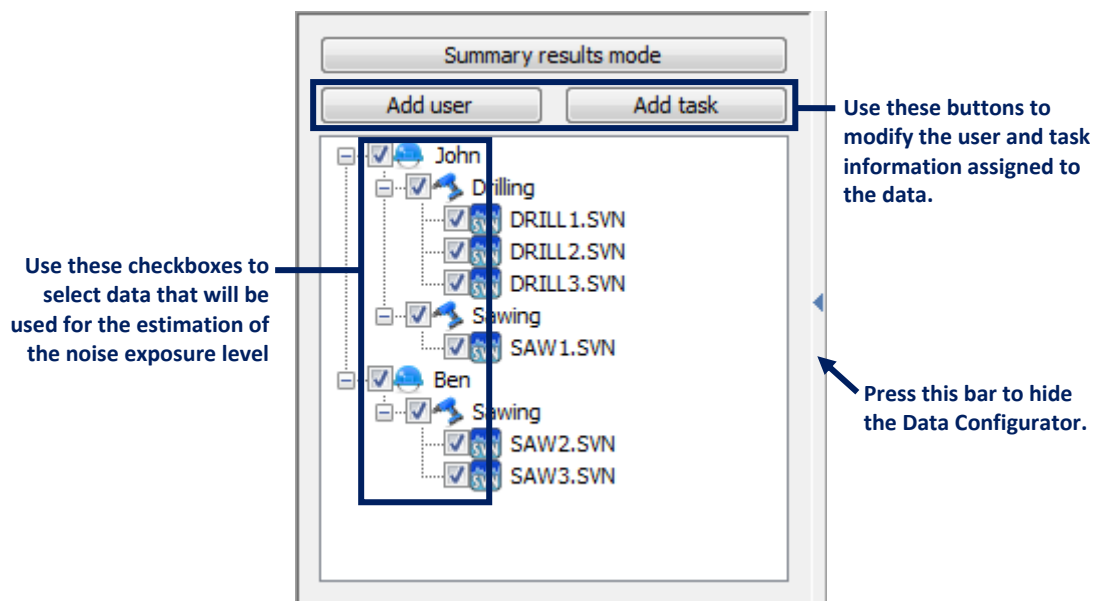


Fig.5-4 The data configurator in the Exposure Level Calculator panels.

If you created the session using files with no user / task information assigned, the configurator panel contains a list of files and no additional information. You can then add the users and tasks using the buttons located at the top of the configurator panel, and assign files to them (Fig.5-5). One way to assign the files is clicking on a user or task with the right mouse button, pressing the 'Add files...' button and selecting the files in the 'Add files...' dialog box (Fig.5-5b); you can also use the drag & drop technique (Fig.5-5c).

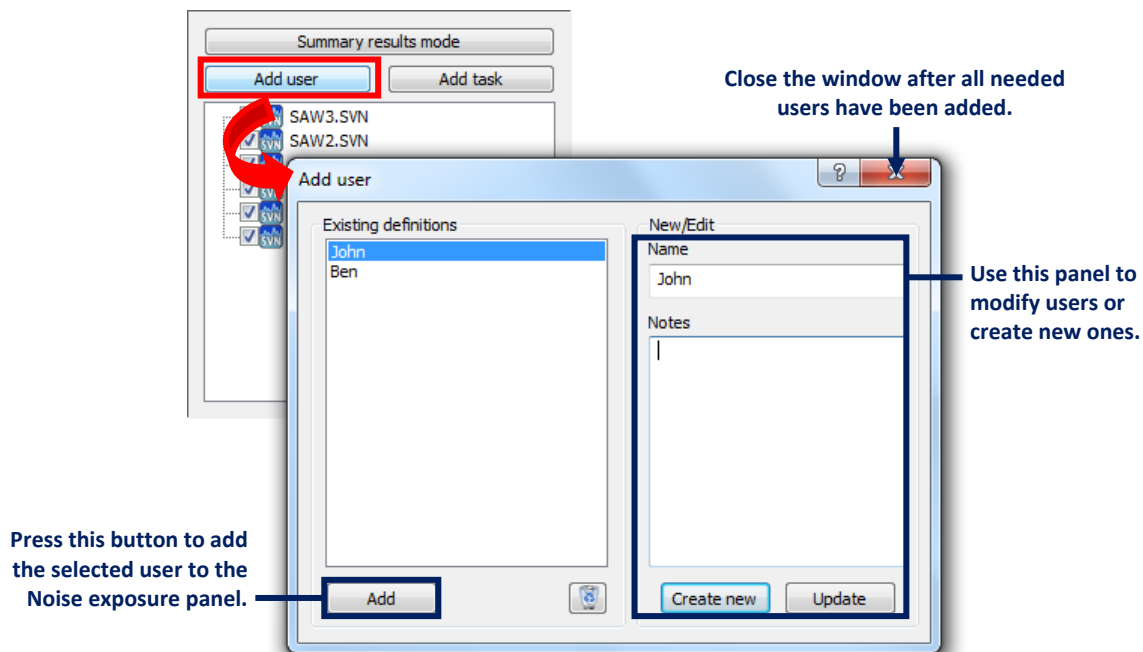
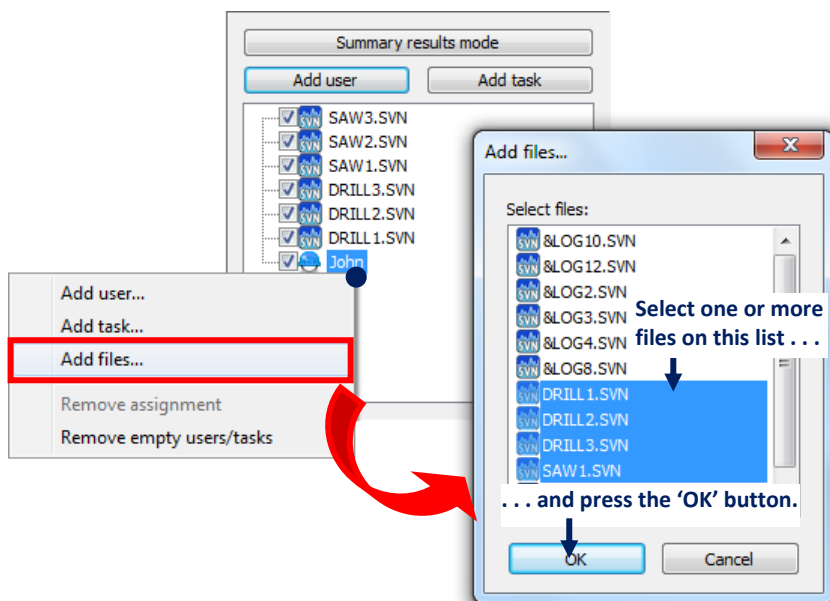
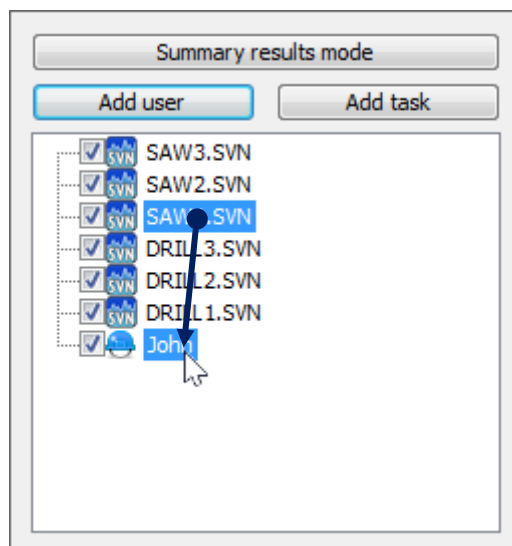


Fig.5-5. a) Adding users / tasks to the Noise exposure panel using the buttons located at the top of the configurator.



b) Assigning files to users / tasks from the Session data panel using the 'Add files...' dialog box.



c) Assigning files to users / tasks from the Session data panel using the drag & drop technique.

## 5.4.2. SUMMARY RESULTS / TIME HISTORY MODE

The Exposure Level Calculator panels can be used in two different modes: *Summary Results* and *Time History*. By default, the *Summary Results* mode is used; it consists in using summary results (in case of logger files) or the overall measurement result (in case of a single result file) for the calculation. The *Time History* mode can be used if you wish to use the ranges of a selected marker (defined on a logger file) for calculation.

In order to use the *Time History* mode, at least one user-defined marker or Force marker must exist. To create a marker, open a Logger results panel and follow the instructions provided in Section 5.7.1.

You can switch to the *Time History* mode by pressing the button located at the top of the Data Configurator, at the left-hand side of the panel. The label on this button indicates the current mode.

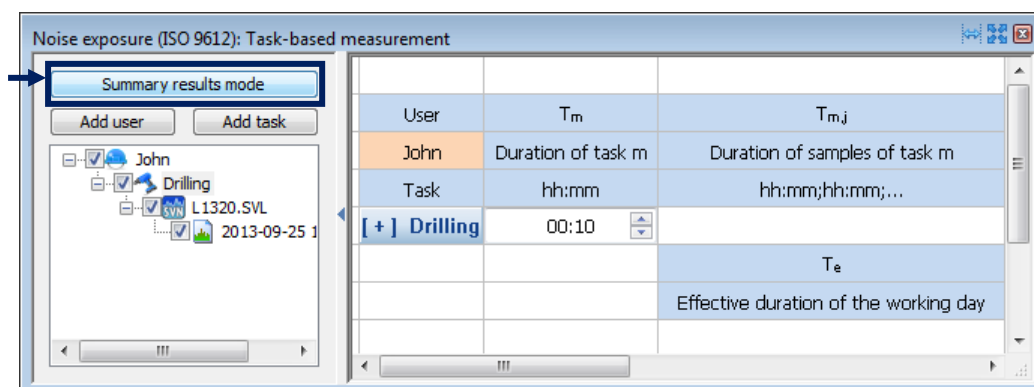


Fig.5-6. Button for switching between *Summary results* and *Time history* modes in the Exposure Level Calculator panels.

In the *Time history* mode, the Task assignments are replaced with marker ranges. Each marker represents a single task; you can specify the duration of these tasks in the same way as in the *Summary results* mode.

User	T <sub>m</sub>	T <sub>m,j</sub>	T <sub>m</sub>	L <sub>p,AeqTm</sub>	L <sub>EX,sh,m</sub>	ΔL <sub>p,AeqTm</sub>
John	Duration of task m	Duration of sample...	Average duration o...	Leq for task m	Noise exposure level of task m	Leq values difference
Task	hh:mm	hh:mm;hh:mm;...	hh:mm	dB	dB	dB
[-] Marker	01:20		01:20	74.7	66.9	3.3*
Result:	15:21:26, 00:05:22			74.9		
Result:	15:20:05, 00:00:36			71.6		
[-] Marker 2	01:00		01:00	77.3	68.3	0.0
Result:	15:27:59, 00:01:02			77.3		
	T <sub>e</sub>		02:20			*exceeds 3dB
	Effective duration...					
Detailed results for separate marker ranges					L <sub>EX,sh</sub>	U(L <sub>EX,sh</sub> )
					Daily noise exposure level	Expanded uncertainty
				User	dB	dB
				John	70.7	2.4

Fig.5-7. An Exposure Level Calculator panel in *Time history* mode.

When you click on a marker range in the Data configurator, the Main cursor is automatically placed at the corresponding sample in the Logger results panels generated using the same data.

### 5.4.3. NOISE EXPOSURE

The *Noise exposure* panel serves for estimating the daily noise exposure level according to the ISO 9612 standard, using data representative of summary results of Leq measurement.

The data are ordered according to the user and task information assigned to data; for details, see Section 5.4.1.

The daily noise exposure level can be estimated using three different measurement strategies:

- Task-based strategy,
- Job-based strategy,
- Full-day measurement-based strategy.

You will be asked to choose a measurement strategy each time you add a Noise Exposure panel to a session.

#### ***Task-based strategy***

The Task-based strategy consists in calculating the LEQ values for separate tasks and estimating the daily noise exposure level according to the declared duration of tasks. You can specify the total duration of a task—using a time-picker field—or the duration of separate samples. In the latter case the average time will be used for calculation. The duration of samples needs to be typed in the format: hh:mm;hh:mm;... where the ‘;’ sign separates different samples. The value in the *Duration of task m* field is taken into account only if the *Duration of samples of task m* field is empty. The value in the column *Average duration of task*

$m$  is the average value of the duration of samples specified in the column *Duration of samples of task  $m$* .

**Note:** The number of specified samples and the dispersion of their duration affects the assessment of the estimation uncertainty.

User	$T_m$	$T_{m,j}$	$\bar{T}_m$	$L_{p,AeqT,m}$	$L_{Ex,h,m}$	$\Delta L_{p,AeqT,m}$
John	Duration of task $m$	Duration of samples ...	Average duration of ...	Leq for task $m$	Noise exposure level ...	Leq values difference
Task	hh:mm	hh:mm;hh:mm;...	hh:mm	dB	dB	dB
<b>[ - ] Drilling</b>	08:00	7:55;8:05	08:00	110.7	110.7	0.2
<input checked="" type="checkbox"/> File name:	3rdOct: 2014-02-12 12:28:26			110.5		
<input checked="" type="checkbox"/> File name:	3rdOct: 2014-02-12 12:33:26			110.7		
<input checked="" type="checkbox"/> File name:	3rdOct: 2014-02-12 12:38:26			110.7		
	$T_e$		08:00			
	Effective duration of...					
					$L_{Ex,h}$	$U(L_{Ex,h})$
					Daily noise exposure ...	Expanded uncertainty
				User	dB	dB
				John	110.7	2.0

**Fig.5-8** The *Noise exposure* panel with the Task-based strategy selected.

The results of at least three independent measurements should be available for a single task. According to the ISO standard, each measurement should be long enough so that the measured level of noise is representative for the whole duration of the task.

If the expanded uncertainty of the LEQ values exceeds 3dB (which is signaled by red background of the cell), you can do one of the following:

- perform three or more measurements for the same task,
- divide the task into smaller ones,
- increase the duration of the measured samples for the task.

### ***Job-based strategy***

The Job-based strategy consists in averaging the results of a series of LEQ measurements performed during various fragments of the day, and then using a declared value of the effective duration of the working day to estimate the daily noise exposure level.

Noise exposure (ISO 9612): Job-based measurement

User	Elapsed time	Lp,AeqTn	LEQ of sample n		
John	hh:mm				
Job sample	hh:mm		dB		
<input checked="" type="checkbox"/> T2-1	00:10		96.6		
<input checked="" type="checkbox"/> T2-2: 2013-09-27 18:14:32	00:10		98.9		
<input checked="" type="checkbox"/> T2-4: 2013-09-27 18:38:44	00:10		93.7		
<input checked="" type="checkbox"/> T2-5	00:10		102.8		
<input checked="" type="checkbox"/> T2-6	00:10		105.6		
Cumulative duration	00:50				
Te	08:00				
Effective duration of the working...					
Use this field to specify the effective duration of the working day.			Lp,AeqTe	LBx,sh	c1U1
			LEQ for the effectiv...	Daily noise exposure ...	Uncertainty contribu...
User		dB	dB	dB	dB
John		101.5	101.5	7.8*	13.2
				*exceeds 3.5dB	
The results are presented in this table.					

Fig.5-9 The Noise exposure panel with the Job-based strategy selected.

The results of at least five independent measurements should be available for a single job. The necessary length of samples, specified in the ISO standard, depends on the number of workers and number of measurements.

### Full-day strategy

The Full-day measurement-based strategy consists in averaging the LEQ values obtained in several full-day measurements and using them to estimate the daily noise exposure level according to a declared duration of the working day.

Noise exposure (ISO 9612): Full-day measurement

User	Elapsed time	Lp,AeqTn	LEQ of measurement n		
John	hh:mm				
Measurement	hh:mm		dB		
<input checked="" type="checkbox"/> FULL-DAY: 2013-09-30 17:21:36	08:00		90.7		
<input checked="" type="checkbox"/> L1329: 2013-09-26 17:35:58	08:00		77.6		
Cumulative duration	16:00				
Te					
Effective duration of the w...					
	08:00		13.1 dB *	*exceeds 3dB	
Use this field to specify the effective duration of the working day.			Lp,AeqTe	LBx,sh	c1U1
			LEQ for the effectiv...	Daily noise exposure ...	Uncertainty contribu...
User		dB	dB	dB	dB
John		87.9	87.9		3.0
The results are presented in this table.					

Fig.5-10 The Noise exposure panel with the Full-day strategy selected.

The results of at least three full-day measurements should be available in order to use the Full-day strategy. The dispersion of data is also displayed, since if the dispersion is greater than 3 dB, two more full-day measurements should be performed.

The expanded uncertainty of estimation is also calculated and displayed next to the results. The contribution of uncertainty due to sampling, *i.e.* caused by limited length of samples, is displayed separately. If it exceeds 3.5 dB, it is advisable to consider a modification of the measurement plan.

#### 5.4.4. NOISE DOSE/TWA

The *Noise dose* panel allows for the estimation of the Noise dose and the Time Weighted Average Noise Level (TWA) on the basis of the measured LAV data, according to standards OSHA HC and OSHA PEL.

Once data have been selected for calculation using the Data configurator, you need to declare the exposure time for each task and user.

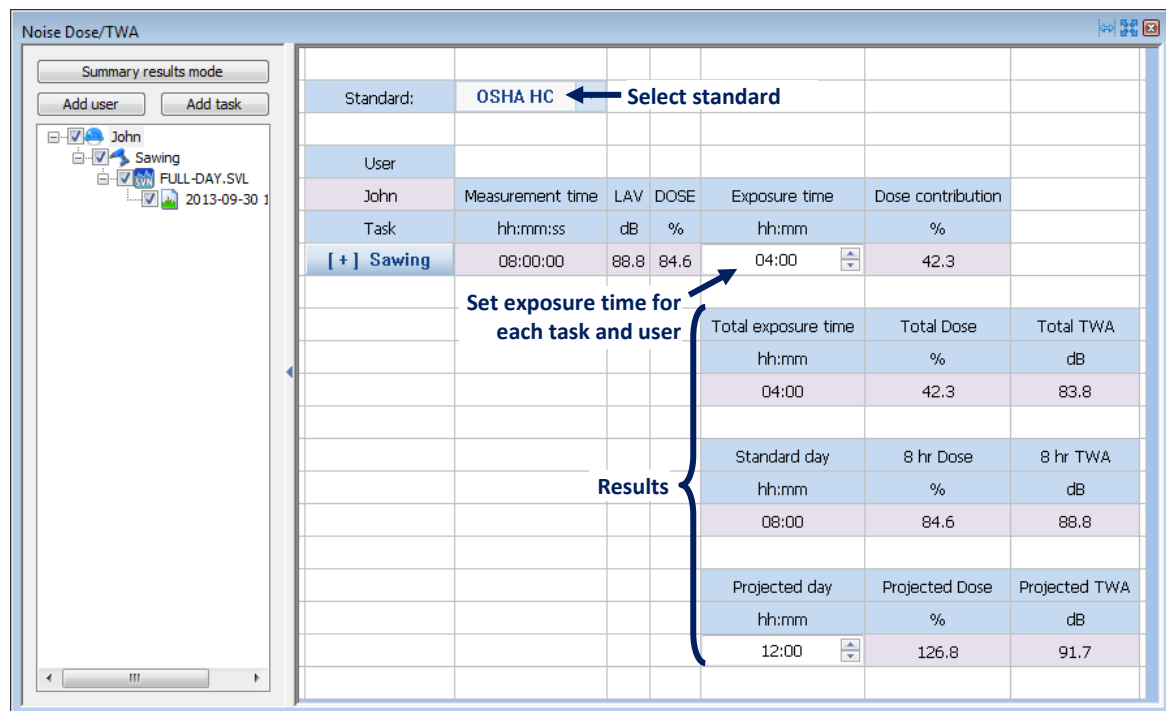


Fig.5-11 The *Noise dose*/TWA panel.

The resulting values of Dose and TWA are presented for the total exposure time (sum of exposure times of all tasks), for a standard day (8 h) and for a custom projected duration.

#### 5.4.5. HAND-ARM VIBRATION EXPOSURE

The *Hand-Arm vibration exposure* panel allows for the estimation of the average daily (8 h) exposure to hand-arm vibration according to the ISO 5349-2 standard, as well as 4-hour or 2-hour per day exposures, using vibration measurement results.

The data are ordered according to the user and task information assigned to data; for details, see Section 5.4.1.

In order to select the mode (A(8) – 8-hour per day, A(4) – 4-hour per day or A(2) – 2-hour per day exposures), use the selector located at the top-left corner of the panel. The results can be presented as exposure levels or points. To switch the presentation mode, use the button located to the right of the ‘Show exposure’ label.

The screenshot shows the 'Hand-Arm vibration exposure' panel. It includes a top section for configuration (Mode, Standard, Show exposure) and two main data tables for Ben and John. Annotations with arrows point to specific features: 'Use this selector to select calculator mode.' points to the Mode dropdown; 'Use this button to change the results presentation mode.' points to the Show exposure button; 'Show / hide detailed data for this task' points to the task toggle button; 'Declare exposure duration for each task / user' points to the exposure duration input field; and 'The final results of calculation are displayed below detailed data.' points to the Daily exposure A(8) result cell.

Hand-Arm vibration exposure									
Mode:	A(8) ← Use this selector to select calculator mode.								
Standard:	ISO 5349-2								
Show exposure:	levels ← Use this button to change the results presentation mode.								
User							Time to reach EAV	Time to reach ELV	
Ben	Exposure duration	a <sub>hwx</sub>	a <sub>hwy</sub>	a <sub>hwz</sub>	a <sub>hvx</sub>	Partial exposure	2.50 m/s <sup>2</sup> A(8)	5.00 m/s <sup>2</sup> A(8)	
Task	hh:mm	dB	dB	dB	dB	dB A(8)	hh:mm	hh:mm	
[ - ] Sawing	08:00	122.4	119.5	108.2	124.3	124.3	18:33	>24:00	
Total duration:	08:00						Daily exposure A(8)		
							User	dB	
							Ben	124.3	
User							Time to reach EAV	Time to reach ELV	
John	Exposure duration	a <sub>hwx</sub>	a <sub>hwy</sub>	a <sub>hwz</sub>	a <sub>hvx</sub>	Partial exposure	2.50 m/s <sup>2</sup> A(8)	5.00 m/s <sup>2</sup> A(8)	
Task	hh:mm	dB	dB	dB	dB	dB A(8)	hh:mm	hh:mm	
[ + ] Drilling	01:00	134.6	140.0	134.8	142.0	133.0	00:18	01:15	
Total duration:	01:00						Daily exposure A(8)		
							User	dB	
							John	133.0	

Fig.5-12 The *Hand-Arm vibration exposure* panel.

Once data have been selected for calculation, you need to declare the exposure duration for each task and user. The daily exposure values for each of the users will then be displayed below the corresponding data.

The background of the result cells is colored according to the exposure level:

- green: if *Daily Exposure* < EAV,
- yellow: if  $EAV \leq \text{Daily Exposure} < ELV$ ,
- red: if *Daily Exposure*  $\geq ELV$ .

You can show / hide the detailed data for each task by pressing the button labeled with the task's name.

#### 5.4.6. WHOLE-BODY VIBRATION EXPOSURE

The *Whole-Body vibration exposure* panel serves for estimating the level of daily exposure to whole-body vibration according to various standards using vibration measurement results.



The data are ordered according to the user and task information assigned to data; for details, see Section 5.4.1.

Once data have been selected for calculation, you need to declare the exposure duration for each task and user. The final results of calculation (daily exposure, VDVR or aren – according to the selected mode) for each of the users will be displayed in the cells located below the detailed data.

The background of the result cells is colored according to the exposure level:

- green: if *Daily Exposure* < *EAV*,
- yellow: if  $EAV \leq \text{Daily Exposure} < ELV$ ,
- red: if *Daily Exposure*  $\geq ELV$ .

**Whole-Body vibration exposure**

Mode: A(8) ← Use this selector to select calculator mode.

Standard: ISO 2631-1

Show exposure: levels

User	Task	Exposure duration	a <sub>wx</sub>	a <sub>wy</sub>	a <sub>wz</sub>	Partial exposure (X)	Partial exposure (Y)	Partial exposure (Z)	Time to reach EAV	Time to reach ELV
John		hh:mm	dB	dB	dB	dB A(8)	dB A(8)	dB A(8)	0.50 m/s <sup>2</sup> A(8)	1.15 m/s <sup>2</sup> A(8)
	[+] Drilling	04:00	105.9	105.0	107.9	105.8	104.9	104.9	>24:00	>24:00
	[+] Sawing	02:00	103.8	101.2	106.0	100.7	98.1	100.0	>24:00	>24:00
	Total duration:	06:00				Total exposure (X)	Total exposure (Y)	Total exposure (Z)		
						dB A(8)	dB A(8)	dB A(8)		
						107.0	105.8	106.1		

← Show / hide detailed data for this task

← Declare exposure duration for this task / user

User	Daily exposure
John	dB
John	107.0

← The final results of calculation are displayed below detailed data.

Fig.5-13 The *Whole-body vibration exposure* panel.

The calculation can be performed in four different modes:

- A(8) (according to the standard ISO 2361-1),
- VDV (according to the standard ISO 2361-1),
- VDVR (according to the standard NHO 09),
- aren (according to the standard NHO 09).

To select the calculator mode, use the selector at the top-left corner of the table.

In case of the A(8) mode, the results can be presented as exposure levels or points. To switch the presentation mode, use the button located to the right of the 'Show exposure' label.

In case of the aren mode, the working day period can be specified manually.

You can show / hide the detailed data for each task by pressing the button labeled with the task's name.

## 5.5. HEARING PROTECTORS

The *Hearing protectors* panel is designed to provide information about the type of hearing protectors recommended for a user, given the results of dose measurement. It can only be used with noise dosimetric data and is not applicable for vibration dosimetry.

This type of panel is always displayed in the form of a table. There are two modes in which it can be used: *HML adjustment* and *Protectors database*. To change the mode, press the button containing the name of the current mode, located next to the *Mode* label (Fig.5-14).

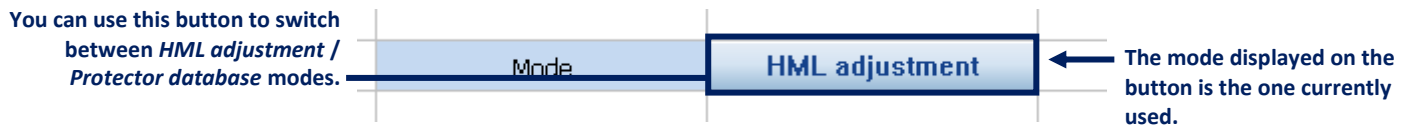


Fig.5-14 Button for changing the mode of the *Hearing protectors* panel.

### 5.5.1. PROTECTORS DATABASE

The *Protectors database* mode allows to use the stored information about multiple hearing protection devices in a database to estimate the effective level of noise when wearing different protectors, and for different measured levels of noise, using three methods: the SNR method, the HML method and the Octaves method.

To use the Hearing protectors panel in this mode, you first need to fill in the database with the specification of one or more hearing protection devices. To do so, press the *Manage database* button located next to the button for switching modes and use the *Hearing protectors* dialog box.

After you save one or more hearing protection devices in the database, you can use them together with dosimetric data to estimate the effective level of noise. It is not compulsory to fill in all the fields. The missing values will be treated as 0 (no attenuation).

It is also possible to fill in only two of the three parameters, and automatically calculate the remaining one according to the formula:

$$\text{Mean attenuation} - \text{Standard deviation} = \text{APV}$$

using the *Calculate missing parameters* button.

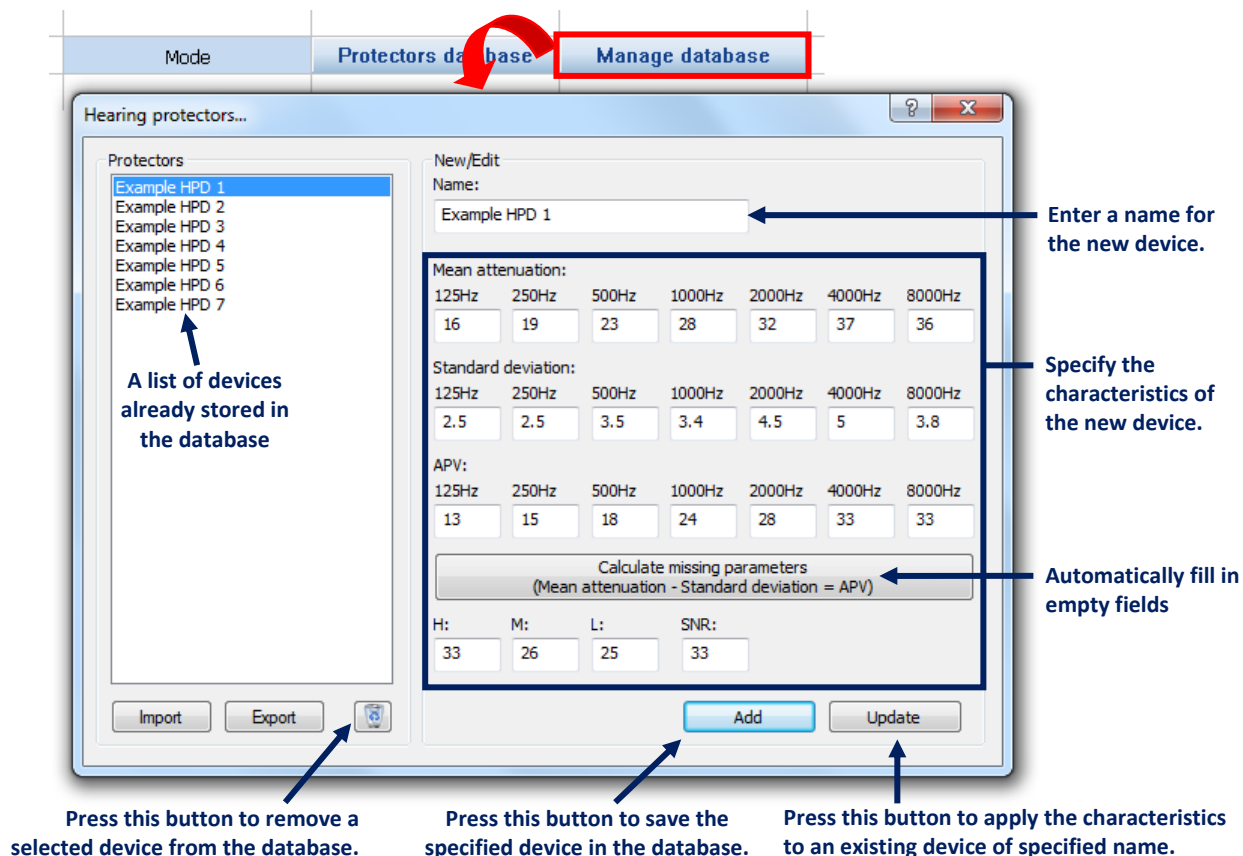


Fig.5-15 The *Hearing protectors* dialog box, serving for managing the hearing protection devices database.

The hearing protectors stored in the database can be exported to external CSV files (which use semicolon ";" as the field separator), as well as imported to Supervisor, using the *Import* / *Export* buttons, located at the bottom-left corner of the window.

**Note:** The easiest way to analyse the internal structure of such CSV files is to export an exemplary hearing protector (e.g. one with all parameters equal to zero).

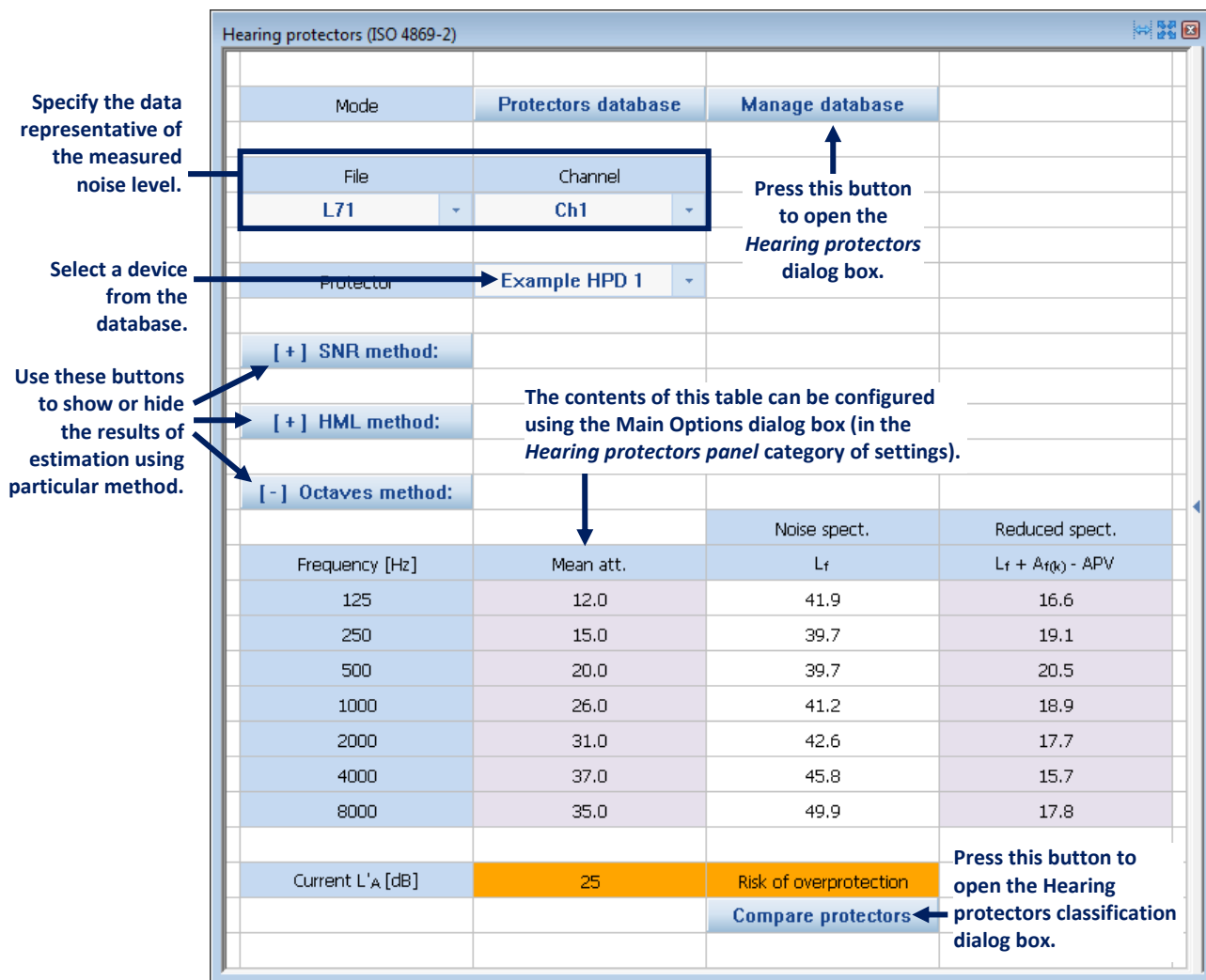


Fig.5-16 The Hearing protectors panel in Protectors database mode.

In case a file is used which contains multiple Summary results, it is possible to perform calculations on a selected Summary results, or to average all Summary results. To decide, use the listbox located next to the File and Channel fields (Fig.5-17).

File	Channel	Result
L1314	Ch1	Averaged
		<div> Averaged 2013-09-25 12:37:36 2013-09-25 12:47:36 2013-09-25 12:57:36 2013-09-25 13:07:36 2013-09-25 13:17:36 </div>

Fig.5-17 Selecting a single Summary result or averaged results in the Hearing protectors panel.

You can choose which parameters of the hearing protector should be shown in the *Octaves method* part of the table. It can be specified in the *Hearing protectors panel* settings in the Main Options (Fig.5-18). The available parameters are:

- Mean attenuation,

- Standard deviation,
- APV.

You can also enable displaying an optional preview of the APV, noise spectrum and reduced spectrum in graphical form below the results of the Octaves method (Fig.5-19) by checking the *Show octaves graph preview* option.

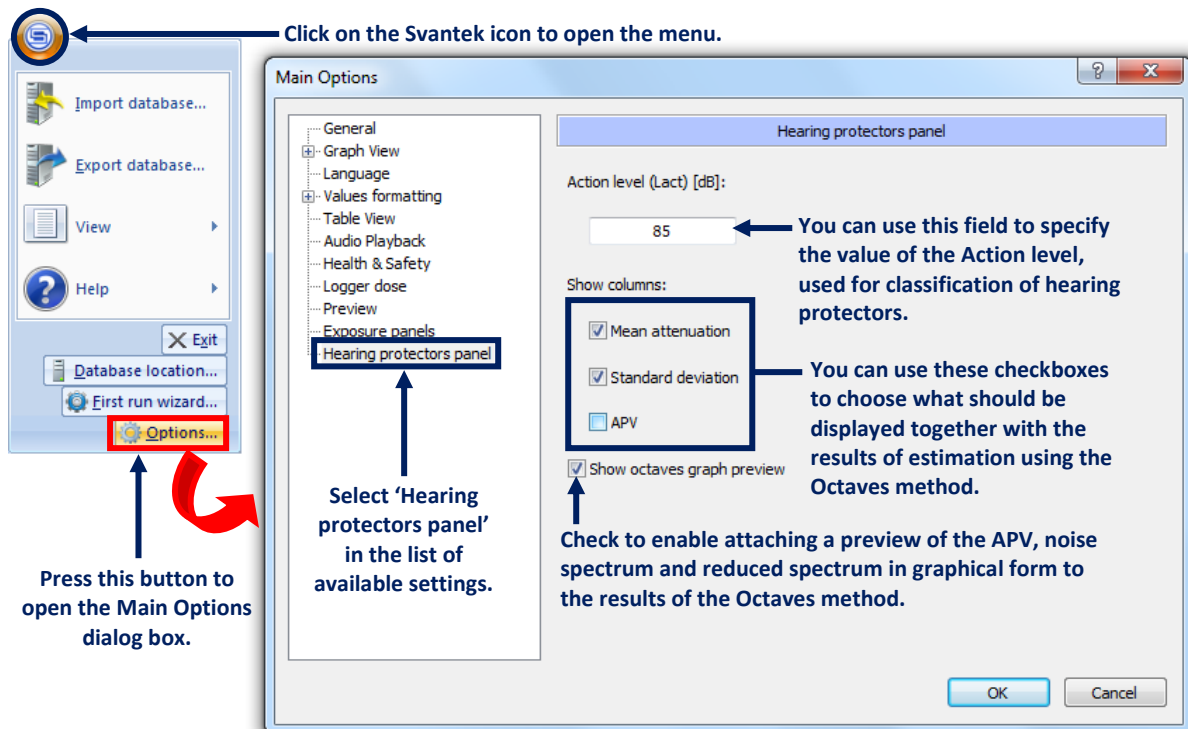


Fig.5-18 Modifying the Hearing protectors preferences in the Main Options dialog box.

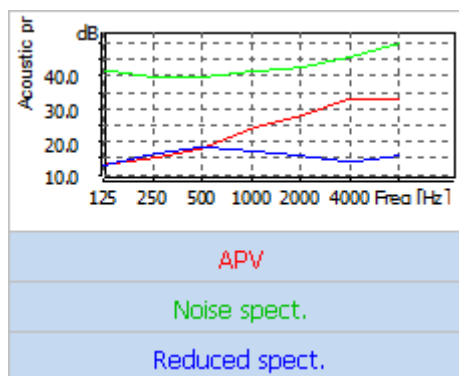


Fig.5-19 Optional preview of the APV, noise spectrum and reduced spectrum in graphical form, attached to the results of the Octaves method.

In calculation, the following data are used:

- In case of methods which use the values of the parameters  $L_A$  and  $L_C$ : these values can be entered manually (when '[None]' is selected in the 'File' field), or loaded from a selected file. In case of data acquired from some Svantek instruments, the difference  $L_C - L_A$  may be

available instead of the  $L_A$  or  $L_C$  value; the remaining value is then automatically calculated using the difference and the other available value.

- In case of methods which use octave spectra: the data is loaded from a file; if only 1/3 octave spectrum is available in the selected file, the octave spectrum is automatically calculated.

### 5.5.2. CLASSIFICATION OF PROTECTORS

Protectors are classified using the calculated effective level of noise according to the EN 458 standard. The result of classification is displayed next to the estimate of  $L'_A$  in text form, and is also shown by the color of the table cells which contain the results. The possible classes are shown in Fig.5-20.



**Fig.5-20** Classification of hearing protectors according to  $L'_A$ .

**Note:** The classification is based on the value of the Action level, which can be specified in the Main Options dialog box (see Fig.5-18).

The results of classification can also be viewed using the *Hearing protectors classification* dialog box. To open it, press the 'Compare protectors' button, located below the table cell which contains the classification result for the selected protector.



**Fig.5-21.** Button for opening the Hearing protectors classification dialog box.

The Hearing protectors classification dialog box contains lists of all protectors, stored in the database, which have been classified as Good or Acceptable (with the estimated effective noise level value either slightly higher or slightly lower than the optimal one) using the selected method of estimation.

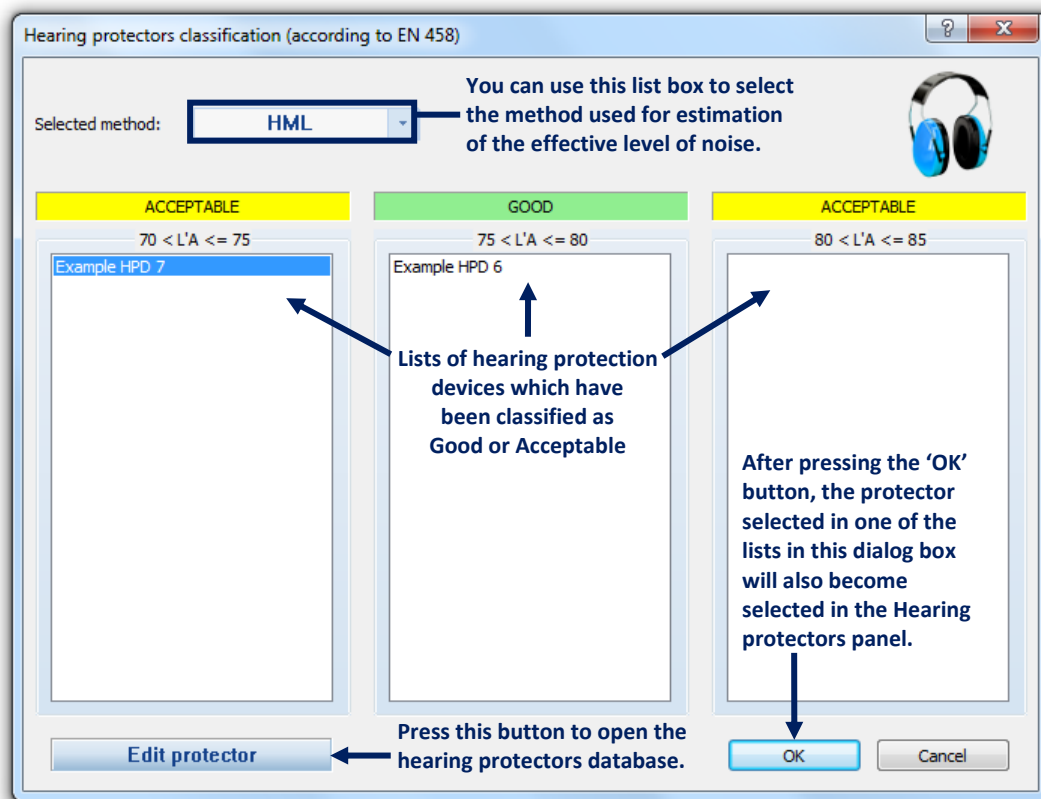


Fig.5-22 The Hearing protectors classification dialog box.

### 5.5.3. HML ADJUSTMENT

The HML adjustment mode enables to check the performance of a hearing protector in some measured conditions by specifying the protector's HML characteristics. At the bottom of the panel, the estimated effective level of noise when wearing the specified protector, together with a comparison to an expected level of noise, is displayed.

The HML adjustment mode also gives the possibility to automatically find the HML characteristics of a protector which will result in the expected level of noise. To use this tool, press the *Find HML* button. The optimal characteristics will appear in the H, M, L fields.

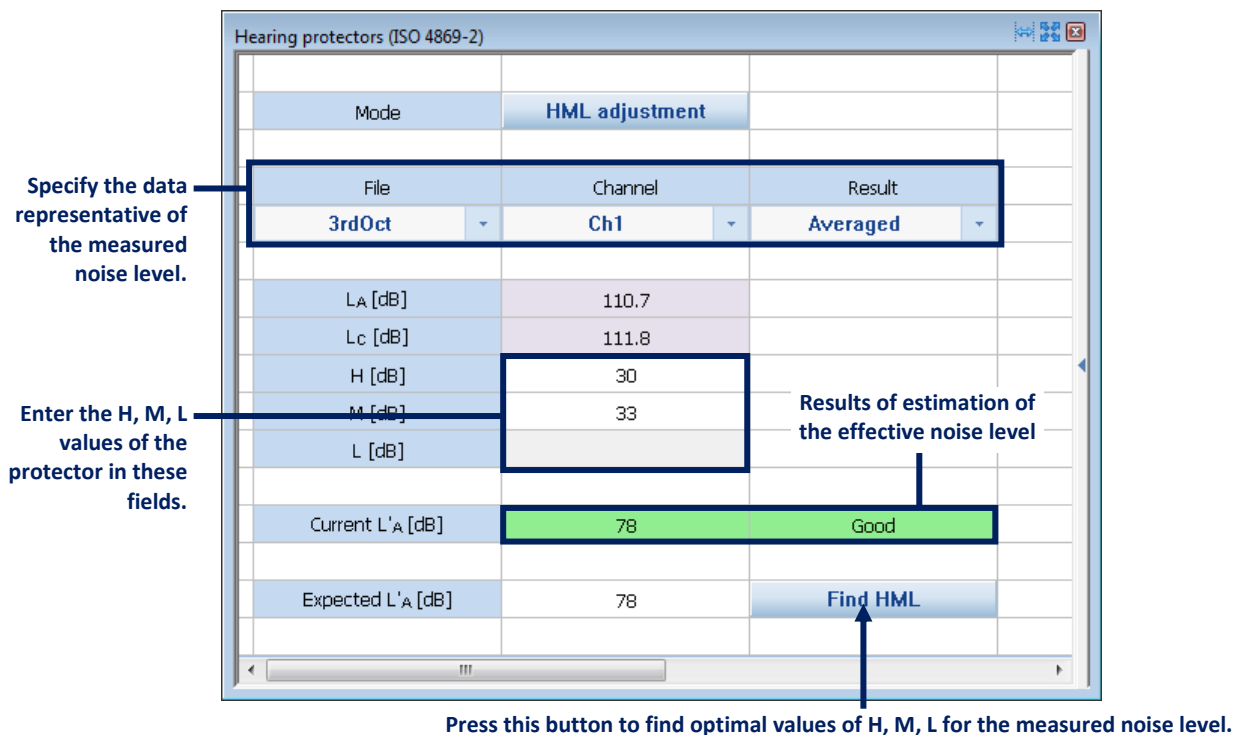


Fig.5-23 The *Hearing protectors* panel in *HML adjustment* mode.

## 5.6. WHAT IF

The 'What if' panel is a special tool which enables one to estimate the values of dosimetric functions assuming different values of parameters such as threshold or criterion level. The recalculation is always based on logger (time history) data. To use it, specify the assumptions using the 'New value' fields in the parameters-related part of the panel, and the recalculated values of the functions will appear in the yellow cells at the bottom of the panel.

You can select the functions for which recalculation will be done using a special version of the View configurator, specific for this type of panel. In this case, the View configurator can be opened by clicking on the vertical bar with the ◀ icon, located on the right side of the panel.



**LEQ time history source**

File name	Channel	Profile
L1300.SVL	Ch1	P2 [A, Fast]

Apply logger deletions, shifts & clips: **Yes**

**Parameters**

Parameters	Original value	New value
Threshold [dB]	0.0	0.0
Criterion level [dB]	80.0	75.0
Exchange rate	3	6
Projected time [hh:mm]	08:00	08:00

**Function name**

Function name	Original value	Recalculated value
DOSE	0.1 %	0.2 %
DOSE8h	7.5 %	17.2 %
PDose	7.5 %	17.2 %
LAV	68.7 dB	59.8 dB
LEQ	68.7 dB	67.2 dB
SEL	95.3 dB	92.2 dB
TWA	50.7 dB	20.8 dB
PSEL	50.7 dB	47.6 dB
LEPd	68.7 dB	67.2 dB
E	0.0 dB	0.0 dB
E8h	0.02 dB	0.02 dB

Annotations:

- Data source:** Points to the File name, Channel, and Profile fields.
- Decide whether modifications of data should be taken into account or not:** Points to the 'Apply logger deletions, shifts & clips' dropdown.
- Fields for modifying the assumptions:** Points to the 'New value' column in the Parameters table.
- Results of estimation for the modified assumptions:** Points to the 'Recalculated value' column in the Function name table.
- Click on this bar to open the View Configurator:** Points to a bar on the right side of the 'Recalculated value' column.

Fig.5-24 The *What if* panel.

Using the 'Apply logger deletions, shifts & clips' field you can decide whether modifications of the data, such as deletion, shifting and clipping, done in a Logger results panel, should be taken into account when recalculating new values of parameters. When set to 'No', original (unmodified) data is used for calculation.

Click on this bar to hide the View Configurator.

- ☒ DOSE
- ☒ DOSE\_8h
- ☒ PDose
- ☒ LAV
- ☒ LEQ
- ☒ SEL
- ☒ TWA
- ☒ PSEL
- ☒ LEPd
- ☒ E
- ☒ E\_8h

Fig.5-25 The View Configurator specific for the 'What if' panel, serving for the selection of dosimetric functions to be recalculated.

## 5.7. MARKERS

The markers can be used as a tool for data classification. A marker denotes a certain range of data, specified automatically or selected by the user. Markers created by Svantek instruments and markers created in Supervisor are equivalent and can be used in the same way.

### 5.7.1. CREATING MARKERS

Markers divide into two types:

- *Block* markers,
- *Point* markers.

The block markers contain a finite range of data, while point markers only contain one datum.

To create a *block* marker:

1. Make a block selection in the plot area, simply clicking and moving the mouse with the left button pressed.  
**Note:** A block marker does not have to be continuous, *i.e.* it can be composed of several separate ranges.
2. Press the right mouse button to open a context menu.
3. In the menu, select *Edit markers » Use selected blocks » New marker*.
4. Specify the desired name and color for the new marker in the *Create New Marker* dialog box.

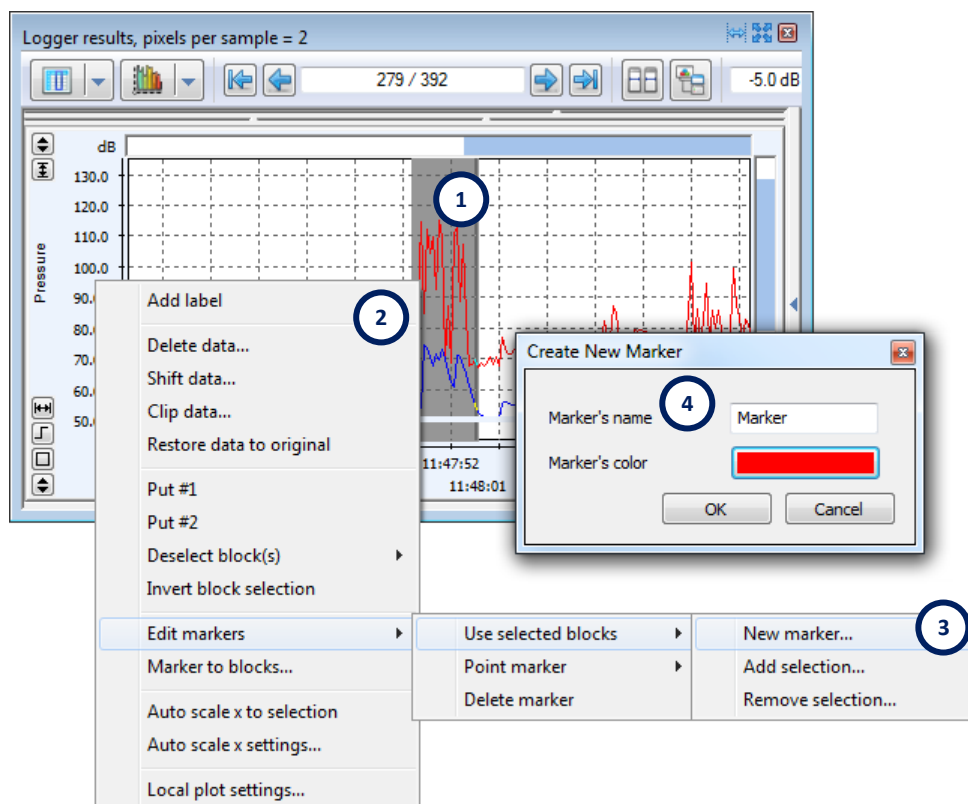


Fig.5-26 Creating a block marker.

In case of *point* markers, instead of making block selections you only have to place the Main cursor at the desired location (clicking with the left mouse button in the plot area). The rest of the process is analogous to the creation of block markers, the only difference being the path in the pulldown menu: *Edit markers* » *Point marker* » *New marker*.

### 5.7.2. VIEWING MARKERS

Block markers are visible in the Plot mode as horizontal lines below the plot area, above the x-axis. In case of point markers, vertical lines are also drawn. Each marker has its own color. The markers are listed in the table below the plot. To show or hide markers, click on the ✓ / ✗ icons, located next to their names on the list.

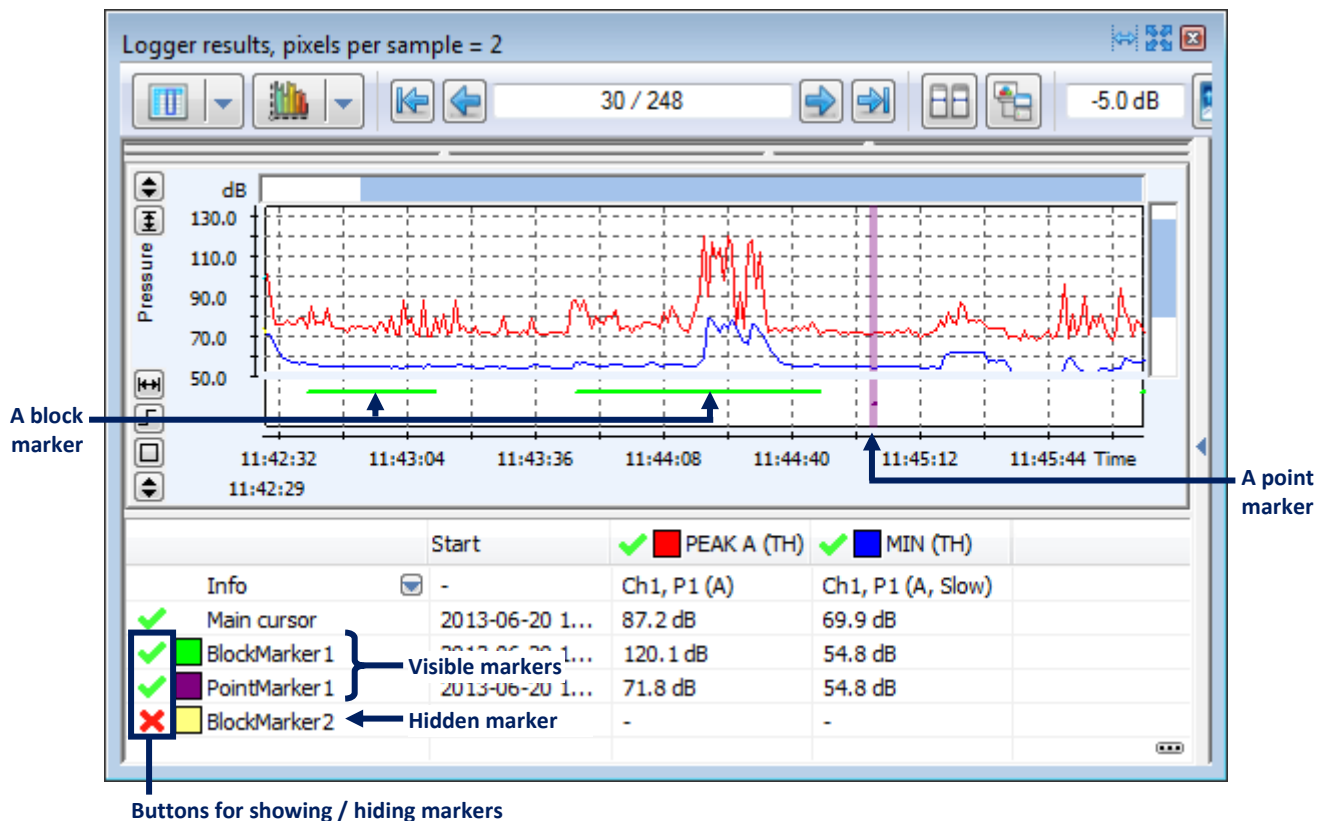


Fig.5-27. Visualization of markers in the Plot mode.

In the Table mode, markers are considered as one of the functions available for displaying. You can select the values displayed in the table for data contained / not contained within range of a marker using the *Table view* tab in the *Main options* dialog box.

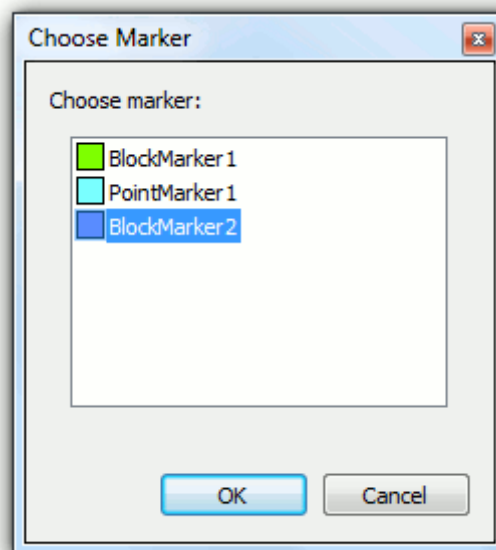
### 5.7.3. EDITING MARKERS

To modify the ranges of markers, you can use the pulldown menu opened by clicking with the right mouse button somewhere in a plot area, when working with a panel in the Plot display mode. Following commands are available:

- *Edit markers* » *Use selected blocks* » *Add selection* – adds the current block selection to a chosen marker.

- *Edit markers » Use selected blocks » Remove selection* – subtracts the current block selection from a chosen marker.
- *Edit markers » Point marker » Add cursor position* – adds the sample at the current position of the Main cursor to a chosen marker.
- *Edit markers » Point marker » Remove cursor position* – subtracts the sample at the current position of the Main cursor from a chosen marker.
- *Edit markers » Delete marker* – deletes a chosen block or point marker.

Every time you modify or delete a marker, the *Choose marker* window will appear. It serves for selecting the marker you wish to modify or delete. You can select multiple markers, clicking on their names with CTRL pressed. You can also select several successive markers, clicking on the first one and then the last one with SHIFT pressed.



**Fig.5-28.** The *Choose Marker* dialog box.

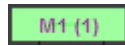
A marker need not be continuous—it can be composed of several disconnected continuous fragments. Such an individual fragment is called a ‘range’ of the marker.

**Note:** A group of ranges can be selected in order to perform some operations on several markers simultaneously. To select/deselect a range, click on it of them with the SHIFT button pressed. You can also use the *Add/remove marker range to/from selection* to select/deselect ranges. Selected ranges are drawn in black.

You can easily modify ranges in the following ways:

- Clicking with the left mouse button in the middle of a range and moving the mouse without releasing will move the selected range within the time domain. When the mouse is in a position allowing for moving a range, the marker’s name and the number of the range is displayed (Fig.5-29a).  
**Note:** If multiple ranges are selected, moving one of them automatically moves the whole group.
- Clicking with the left mouse button on one of the ends of a range and moving the mouse without releasing will resize the selected range. When the mouse is in a position allowing

for resizing a marker range, the <<, >> signs are added to the name of the marker (Fig.5-29b).



a) Clicking and moving mouse will move the range.

b) Clicking and moving mouse will resize the range.

**Fig.5-29** Labels that appear when the mouse is in a position allowing for the modification of a marker range.

Clicking with the right mouse button on a marker range activates a pulldown menu, containing the following commands (all these commands can be used for a group of selected ranges):

- *Open comment file* – opens the comment file that the selected marker corresponds to.
- *Add marker range to selection* – selects the range that was clicked.
- *Remove marker range from selection* – deselects the range that was clicked.
- *Selected ranges to blocks* – adds the selected ranges to the block selection on the plot.
- *Add selected ranges to another marker* – adds the selected ranges to a chosen marker.
- *Remove current range from marker* – removes the range that was clicked from the marker that it belonged to.
- *Remove all selected ranges from marker* – removes the selected ranges from a chosen marker.

#### 5.7.4. SPECIAL MARKERS

Some markers are created automatically and cannot be edited. This includes:

- The *Comment markers* denote the ranges of audio comments attached to the measurement results.  
**Note:** Double-click a Comment marker to open the corresponding audio file in the default audio player.
- The *Audio markers* denote the position of audio events, recorded automatically by Svantek instruments, and allow for their export to external files.
- The *Wave* marker denote fragments of logger data to which a .WAV file is associated.
- The *Missing wave* marker denote fragments of logger data to which a .WAV file was associated, but has not been downloaded.
- The *Whole data marker* contains the whole time domain.
- The *Pause* or *Break* marker shows the time ranges containing pauses or breaks, if available in the currently viewed data.
- The *Block selection marker* denotes the current block selection.
- The *Overload* and *Underrange* markers denote the ranges in which measurement results are outside of the measurement range.
- The *Changed data* marker denotes the ranges in which data has been shifted or clipped (cf. Section 4.2.3)

**Note:** The Underrange marker is hidden by default, and has to be enabled in the View Configurator.

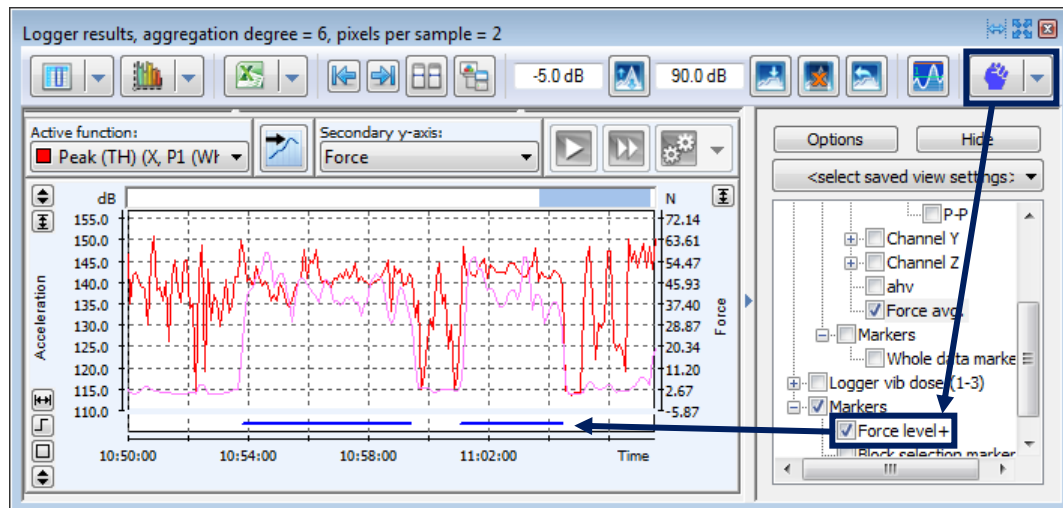
There are more types of special markers, which are created by Svantek instruments. For details, consult the manual of the instrument.

**Note:** The *Whole data marker* and the *Block selection marker* are only applicable in the Table mode.

### 5.7.5. FORCE MARKERS

When force measurement results are available in the currently open logger file, you can easily generate a marker corresponding to the time ranges with high force level using the Force marker controls, located at the right end of the Panel Toolbar.

**Note:** This button may be hidden if the panel is too narrow.



**Fig.5-30** Displaying automatically generated markers corresponding to high levels of force.

The parameters related to the generation of the Force marker are available in the pulldown menu:

- *Force threshold* - minimum force level taken into account in the analysis;
- *Duration* and *Minimum duration* - optionally, allows for removing all the generated Force marker's ranges of duration lower than the specified minimum duration;
- *Smoothing* and *Smoothing samples* - optionally, allows for smoothing the measured force level using selected number of samples;
- *Remove distortions* - if this option is enabled, the ranges in which an *overload*, *underrange*, *high vibration level* or *force underrange* marker occurs are removed from the generated Force marker.

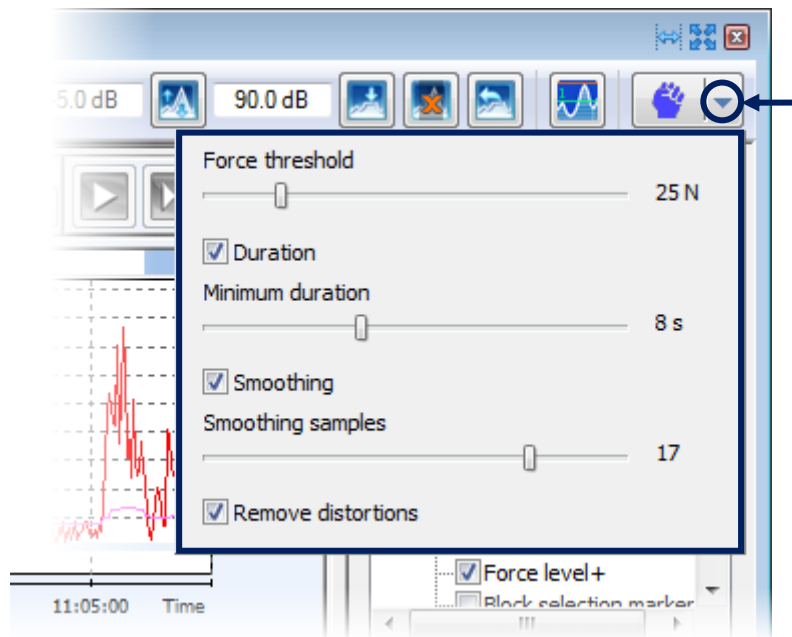


Fig.5-31 Controlling the parameters related to the generation of Force markers.

## 5.8. LOGGER DOSE CALCULATOR

### 5.8.1. CALCULATION OF DOSIMETRIC FUNCTIONS

Supervisor makes it possible to quickly calculate the values of several dosimetric functions using the measurement results. In case of noise dosimetry the available functions include:

- DOSE,
- DOSE\_8h,
- LAV,
- SEL,
- TWA,
- PDose.

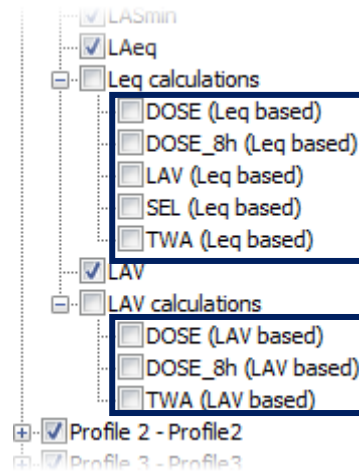
In case of vibration dosimetry the available functions include:

- Current exposure,
- Daily exposure,
- AEQ,
- awv (for whole-body vibration) / ahv (for hand-arm vibration),
- awmax (for whole-body vibration) / ahwmax (for hand-arm vibration),
- Current dose,
- Daily dose,
- MaxVDV.

**Note:** The presentation of the values of calculated dosimetric functions is only available in the *Logger results* panels, displayed in the Plot mode. The availability of particular functions depends on the data used for calculation. Similar functions are also calculated (in a different manner) in the 'What if' panel (see Section 5.6).

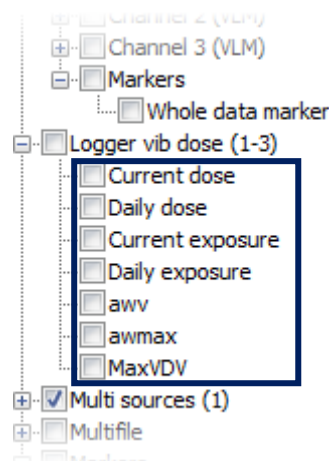
You can calculate the values of these functions immediately when viewing data. All you need to do is select the desired functions in the View Configurator (located at the right hand side of the panel; more details on the View Configurator are described in Section 4.4).

The calculation of **noise-dosimetric** functions can be based on Leq data or LAV data. The functions available for calculation are contained in two sub-branches of the Configurator tree: *Leq calculations* and *LAV calculations*.




**Fig.5-32** The list in the View Configurator containing noise-dosimetric functions available for calculation.

The **vibration-dosimetric** functions available for calculation are contained in the *Logger vib dose* branch of the Configurator tree. The numbers in brackets correspond to the numbers of channels used for calculation of the RMS or VDV functions (1–3 or 4–6).



**Fig.5-33** The list in the View Configurator containing vibration-dosimetric functions available for calculation.

## 5.8.2. DISPLAYING THE RESULTS OF CALCULATION

The results of calculation are displayed in the table below the plot area (if it is hidden, you can show it using the  button located at the bottom-left corner of the panel).



If the table is hidden, you can show it using this button.

	Duration	DOSE_8h
Info	-	Ch1, P1 (A, Slow)
✓ Main cursor	-	-
Whole data	00:07:32.000	0.770 %
✗ Inside blocks	00:01:32.000	1.480 %
Outside blocks	00:06:00.000	0.360 %
✗ Block 1	00:01:21.000	0.530 %
✗ Block 2	00:00:11.000	8.450 %

Calculated values of the DOSE\_8h parameter

Fig.5-34 The results of Logger dose calculation displayed in the table below the plot.

The calculation is performed for the whole data set, as well as for ranges selected in one of two ways: as markers and as block selections. To show / hide results for time ranges determined by markers, select the markers in the View configurator (in the *Markers* branch, at the bottom of the list). To show / hide results for whole data or time ranges determined by block selections, use the context menu opened by clicking with the right mouse button anywhere in the table area. This context menu, as well as the selection of data and markers, are described in detail in Section 4.3.2, devoted to the description of the Plot display mode.

Except of the total values displayed in the table, it is also possible to draw the time histories of the dosimetric functions calculated using the Logger Dose Calculator. This option can be enabled in *Main Options* » *Logger calculations*.

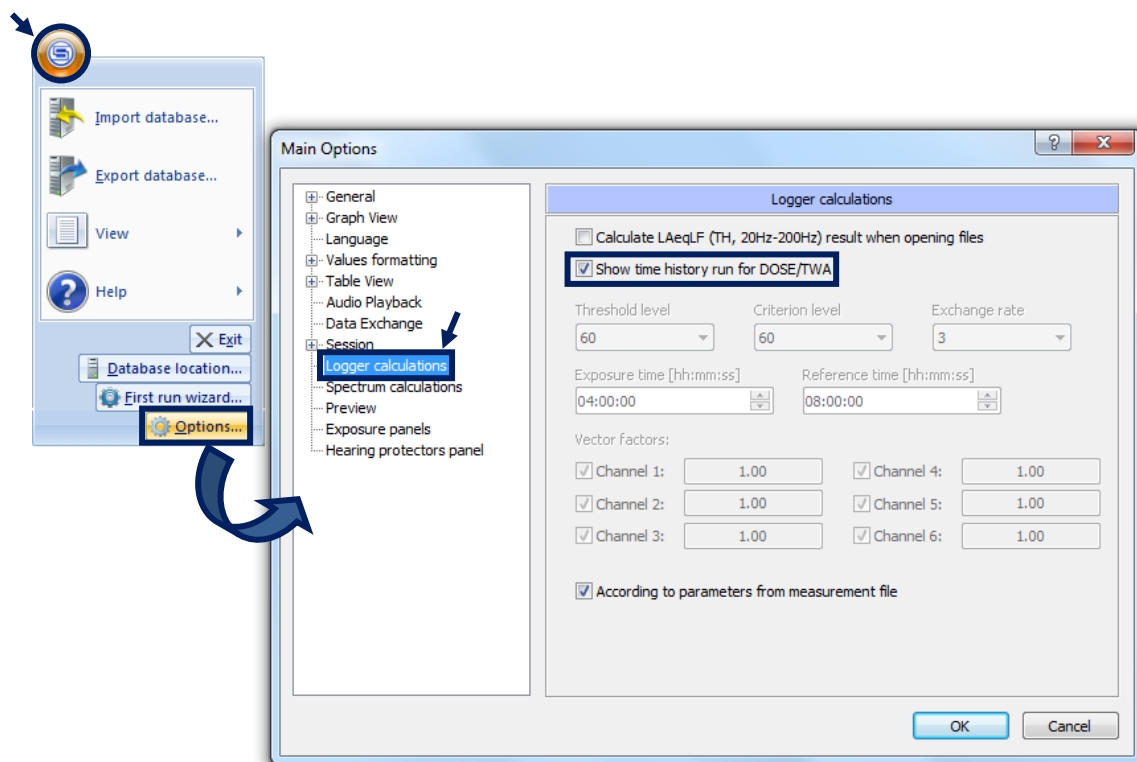
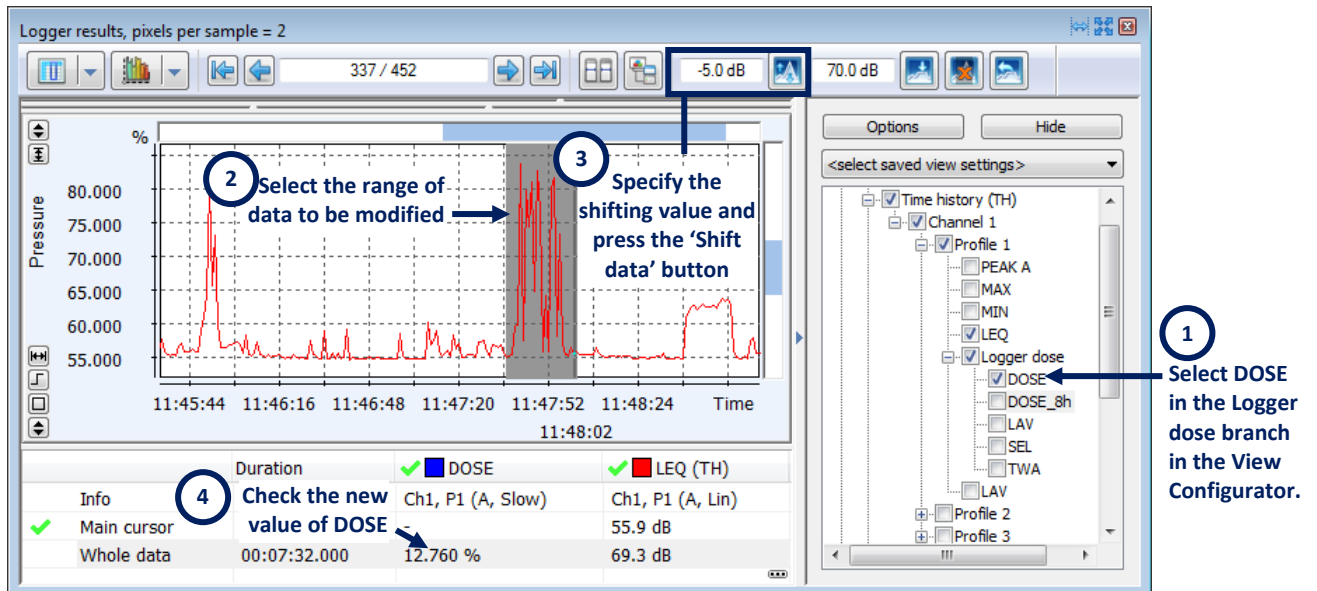


Fig.5-35 Drawing time histories of calculated dosimetric functions.

### 5.8.3. PREDICTING DOSIMETRIC FUNCTIONS FOR SIMULATED DATA

The Logger dose calculator tool can also turn out useful for viewing the values of dosimetric functions and manipulating the data simultaneously (using shifting, clipping and deletion of data, as described in Section 4.2.3). You can, for example, display the DOSE function and see how the dose reduces when a range of measured LEQ values is decreased by 10 dB. Such an exemplary procedure is illustrated in Fig.5-36.



**Fig.5-36** Using the Logger dose calculator to predict the values of dosimetric functions for simulated data – an example: viewing how the value of DOSE changes when the LEQ data in a selected range is shifted by -5dB.

### 5.8.4. MODIFYING PARAMETERS OF CALCULATION

The calculations can be performed according to the values of parameters loaded from the measurement file, or the values of the parameters can be specified manually. To manually modify the parameters values, use the Logger calculations settings panel in the Main Options dialog box (Fig.5-37).

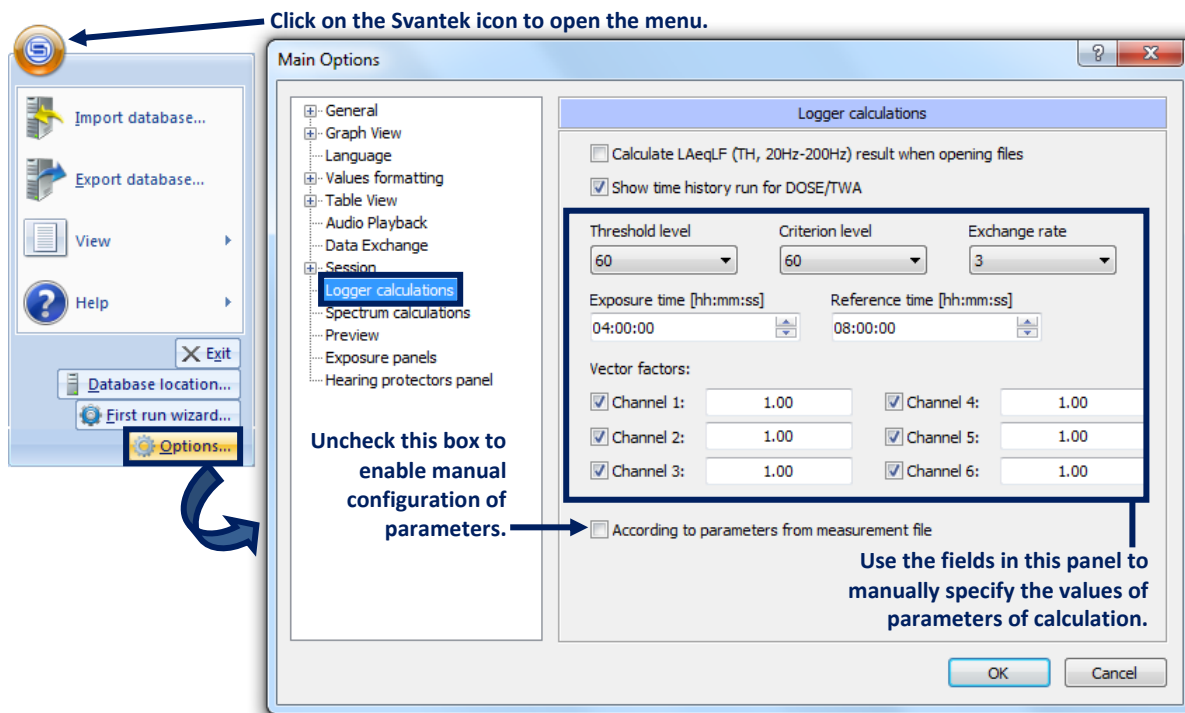


Fig.5-37 Modifying the Logger calculations parameters in the Main Options.

## 5.9. NOISE RATING AND NOISE CRITERION

If LZeq spectral data (e.g. 1/1 Octave LZeq results) are available, the Noise Rating (NR) can be calculated according to the standard ISO 1996, and Noise Criterion (NC) can be calculated according to the standard ANSI S12.2-1995 or ANSI S12.2-2008.

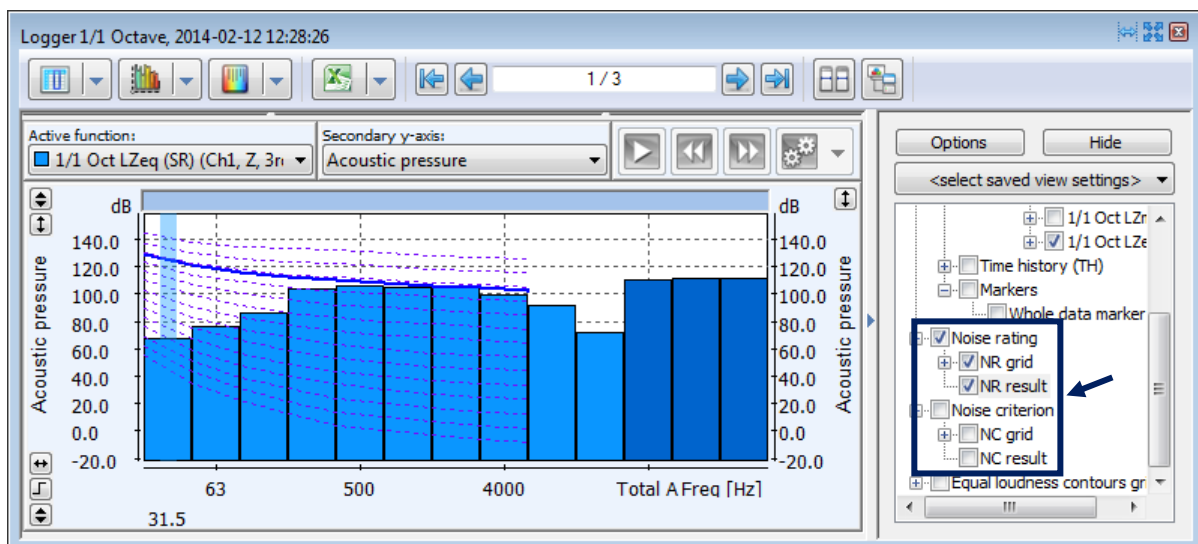


Fig.4-63 The View Configurator with the Events Navigator.

To show calculation results, use the View Configurator:

- Select the *grid* option to display NR / NC curves.
- Select the *result* option to display the NR / NC value calculated for the current measurement data.

To select the standard used for the calculation of NC, go to Main Options » Spectrum calculations.

## 6 OTHER FEATURES

### 6.1. DATABASE MANAGEMENT AND BACKUP

A Supervisor's database contains the following data:

- files downloaded from Svantek instruments,
- location, user and task information assigned to the downloaded files,
- sessions created in Supervisor, as well as their templates.

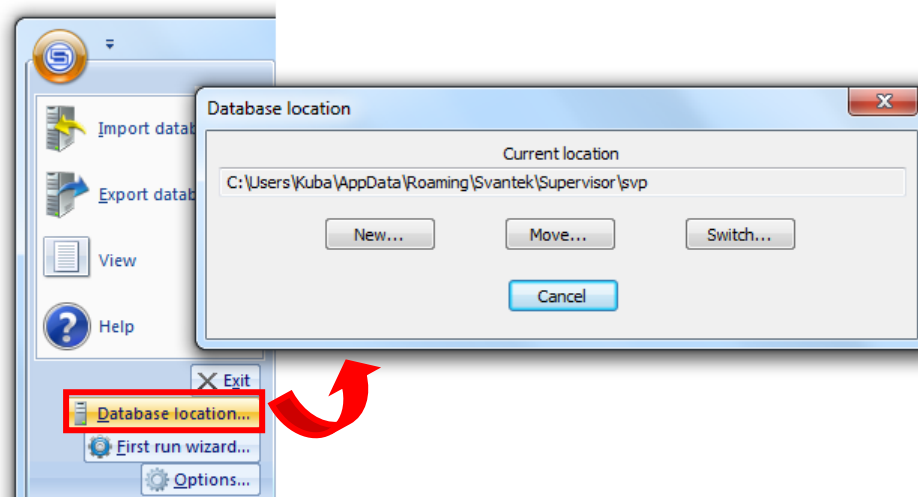
Multiple databases can be stored on a PC in different locations, but only one can be used in Supervisor at a time. The possibility of exporting and importing whole databases enables one to easily create backup copies of measurement results and reports, as well as to exchange data between different PCs.

**Note:** In order to understand and properly use the tools described in this section, two forms in which Supervisor's databases are stored need to be distinguished.

- The database that is accessed by the Supervisor application every time you use it is stored in some location in the PC's memory in the form of various folders and files, corresponding to the measurement results, sessions, *etc.* that you create and process using Supervisor. The location of this database can be managed using methods described further in this section. There can also be several such databases stored on the same PC and you can switch between them while working with Supervisor. The folders corresponding to these databases should not be deleted, moved or renamed manually using Windows Explorer.
- Databases created using the Export tool and loaded to Supervisor using the Import tool are stored in the form of .SVP files (a single .SVP file corresponds to a single database). You can move these files freely, *e.g.* in order to exchange data between different PCs. Note that when you import a database from a .SVP file, the .SVP file remains unchanged, while all the files that co-create the current database are deleted and replaced with the contents of the new, imported database.

#### *Managing the database location*

The location of the current database in the PC's memory can be managed using the Database location dialog box, opened using the "Database location..." command available in the main menu.



**Fig.6-1** Managing the location of the currently used database in the PC's memory.

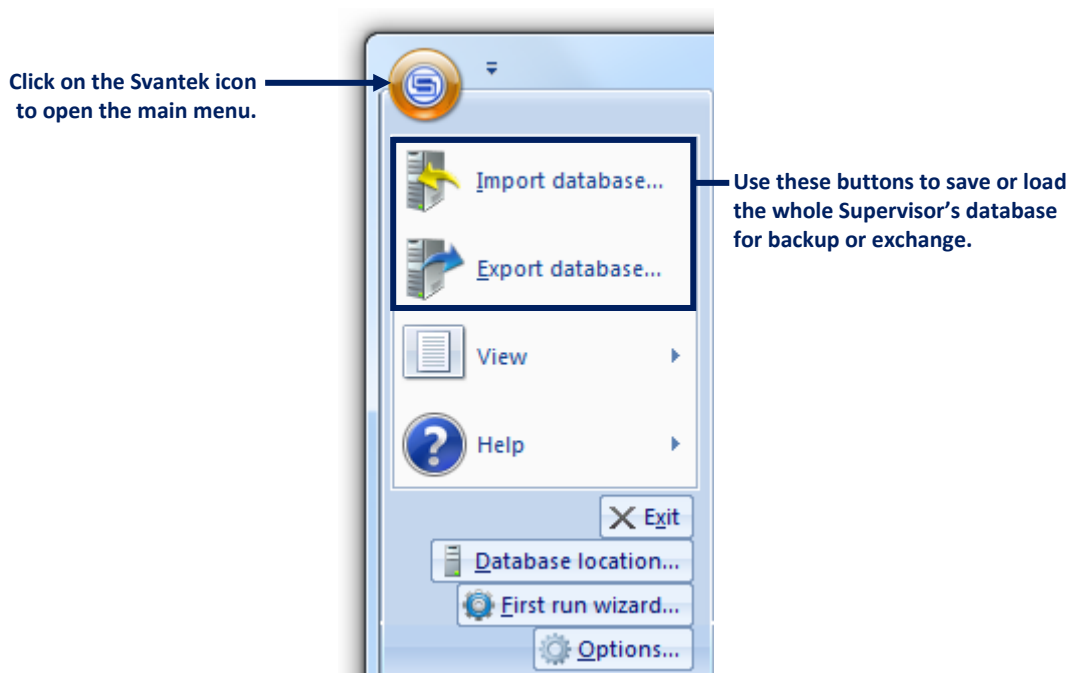
There are three modes in which the database location can be changed:

- *New...* – creates a new, empty database in the specified location and sets it as the current database. The previous database remains unchanged.  
**Note:** The files that are present in the selected location at the moment of creating a new database are *not* deleted. A unique catalogue is created for the new database.
- *Move...* – moves the whole current database to the specified location. The data currently used in Supervisor remain the same. The previous location of the database becomes cleared.
- *Switch...* – sets an existing database, stored in the PC's memory, as the current database. The previous database and its location remain unchanged.

When you press one of the buttons corresponding to different modes of managing the database location, a dialog box appears, allowing for the selection of the new location.

### ***Importing / exporting the database***

To import the database, use the "Import database..." command, available in the main menu (Fig.6-2).



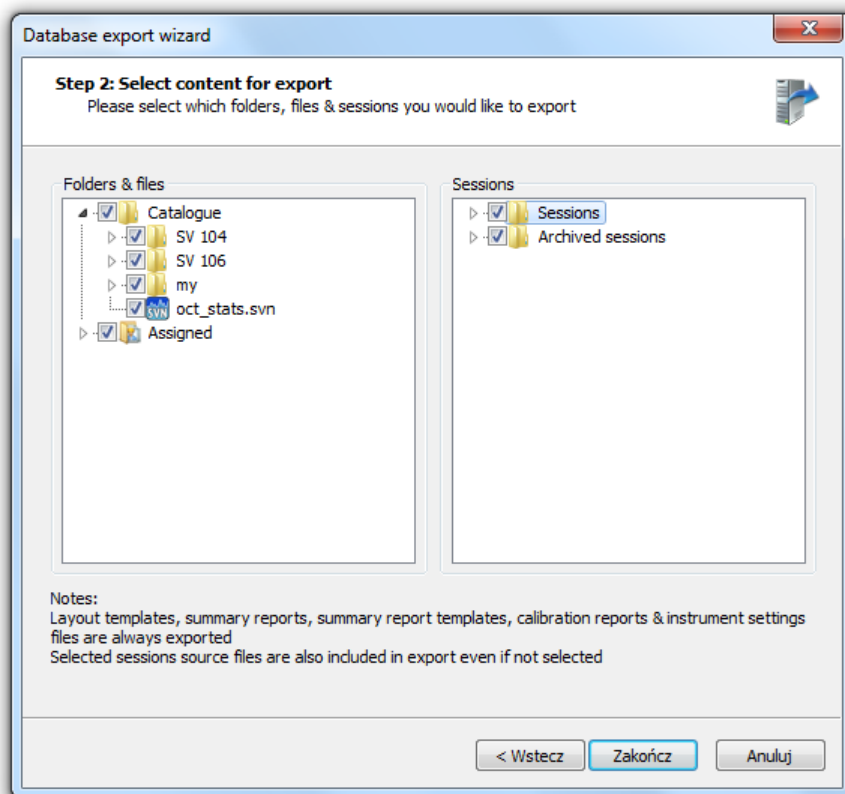
**Fig.6-2** Buttons for importing / exporting the Supervisor's database.

When importing a Supervisor database from an external SVP file, you have two options:

- *Replace whole database with new one*, which means deleting all the contents of the previous database prior to importing the new one.  
**Warning:** In this case, if you import an earlier copy of your database, any newly downloaded files may be deleted.
- *Import measurement files and add them to current database*, which means that the previous database will stay unchanged, and the imported data will be placed in a separate folder, called "Imported".

When you choose one of these options, a dialog box will appear, allowing for the selection of the SVP file to be imported.

To export the database, use the "Export database..." command. You can export the whole database, or you can use the Wizard to select elements of the current database (*i.e.* particular files, folders and/or sessions) to be exported.



**Fig.6-3** The Database export wizard, allowing for the selection of folders, files and sessions to be exported.

The folders and files are displayed in the Folders & files panel of the Database export wizard dialog box in a similar way as in the Library panel of the Data Browser (*cf.* Section 3.2.1): the Catalogue branch contains all the files and sub-folders as they have been configured after downloading, and the Assigned branch contains a list of files with a specified location, user or task, ordered according to the assigned values. Similarly, the Sessions panel contains lists of the currently opened sessions and of the archived sessions. To select a folder, file or session for exporting, check the checkbox next to its name. When you select a folder, all of the files and sub-folders contained inside it become automatically selected too. When you finish selecting files, a dialog box will appear allowing for the selection of the location for the exported database.

**Note:** It is also possible to export selected folders and files using the File manager's Library: after activating the “Export database” command for a selected folder or file, the Database export wizard is opened and configured automatically to match the selection made in the Library (see Section 3.2.1 for details).

## 6.2. AUDIO SIGNALS

Three types of audio signals should be distinguished when working with Supervisor:

**Audio events** - audio signals, recorded automatically by Svantek instruments during measurement, when some specified conditions are met; they are integrated into the files containing logger measurement results (not stored in separate files).



**Audio comments** - audio signals, recorded manually by the user, such as voice recordings; they are stored as a special type of Wave files.

**Wave files** - recorded automatically by Svantek instruments, stored as separate files, but linked to fragments of logger files.

### 6.2.1. AUDIO NAVIGATOR

The Audio Navigator is located at the top-right corner of panels with logger data in plot mode. It allows for playing audio signals associated with the currently viewed logger data (e.g. recorded during measurement by an SV 104 instrument). The Audio Navigator's interface consists of a set of buttons whose functions are described in Table 6-1.

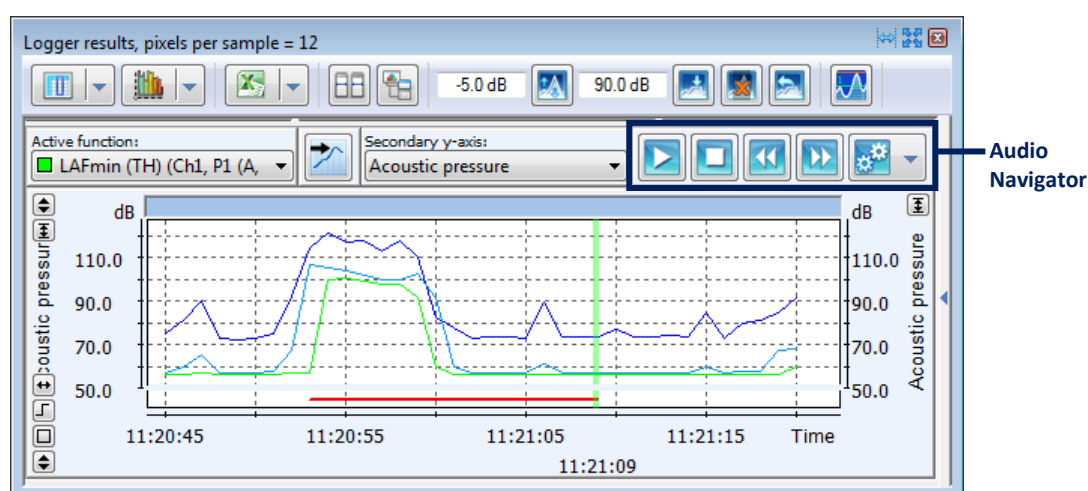








Fig.6-4 The Audio Navigator.

Table 6-1 Buttons of the Audio Navigator.

Icon	Function
	Play event / resume playback
	Pause playback
	Stop playback
	Jump to previous event (press this button and CTRL simultaneously to jump to first event)
	Jump to next event (press this button and CTRL simultaneously to jump to last event)
	Show options (described below)

Several options are available for the Audio Navigator after pressing the *Show options* button:

- The *Maximum Level* slider allows for setting the audio signal boost level. 0 dB leaves the signal at its original level.
- The *Automatic Gain Control* tool serves to automatically adjust the signal boost. With this option enabled, fragments of audio data will be constantly analysed in order to maximize the signal dynamics, given the *Maximum Level* slide bar is left at 0 dB. The length of analysed fragments can be specified in *Main Options » Audio Playback » Buffer Length*. The minimum value of the *Maximum Level* parameter depends on signal bit depth, e.g. 144 dB for 24 bit, 96 dB for 16 bit. Differences below 12 dB between subsequent fragments of audio data will not affect the boost level. The algorithm is designed to reduce the boost level faster than when increasing it, so that sudden loudness is avoided.
- The *Synchronize All Views* option allows for simultaneous movement of the data selection tools in all panels which contain the audio record (comprising the Main cursor in case of Plot mode and the selection bar in case of Table mode).
- The *Play event from beginning* option (available only in case of audio events) alters the behaviour of the *Play* button, automatically moving the Main cursor to the beginning of current event before starting playback.
- If the *Play all events* option (available only in case of audio events) is enabled, after reaching the end of an event, playback will automatically continue from the beginning of the next event. Otherwise it will stop.
- The *Mix to mono* option (available only in case of Wave files) allows for mixing the signal from all channels to be played equally in all output channels.  
**Note:** In case of multi-channel audio events, all the channels are always played simultaneously.
- The *Loop playback* option (available only in case of Wave files) causes the Wave file to be played from the beginning again when the end of file is reached.

**Note:** A minimized version of the Audio Navigator is also shown in the Preview panel in case a .WAV file is selected in the File Details list (*cf.* Section 3.2.3).

### 6.2.2. EXPORTING AUDIO EVENTS

You can export the audio events, which are originally integrated with logger files, to external .WAV files. In order to export an audio event, recorded automatically by a Svantek instrument, find its corresponding Audio marker on a plot-mode panel, click on it with the right mouse button and select "*Export event(s)*".

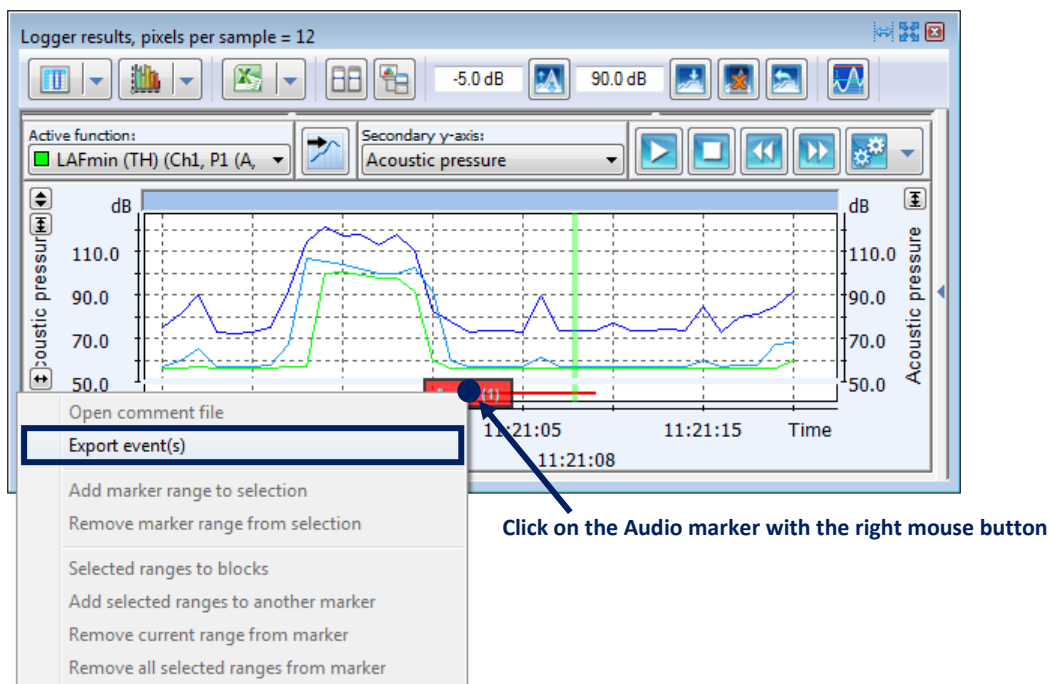


Fig.6-5 Exporting audio events.

In the Export Events window, you can select the events you wish to export using the checkboxes in the *Export* column, or the *Select all* and *Select none* buttons. It is also possible to select events according to their length. To do so, specify minimum and/or maximum length and press the *Select by length* button.

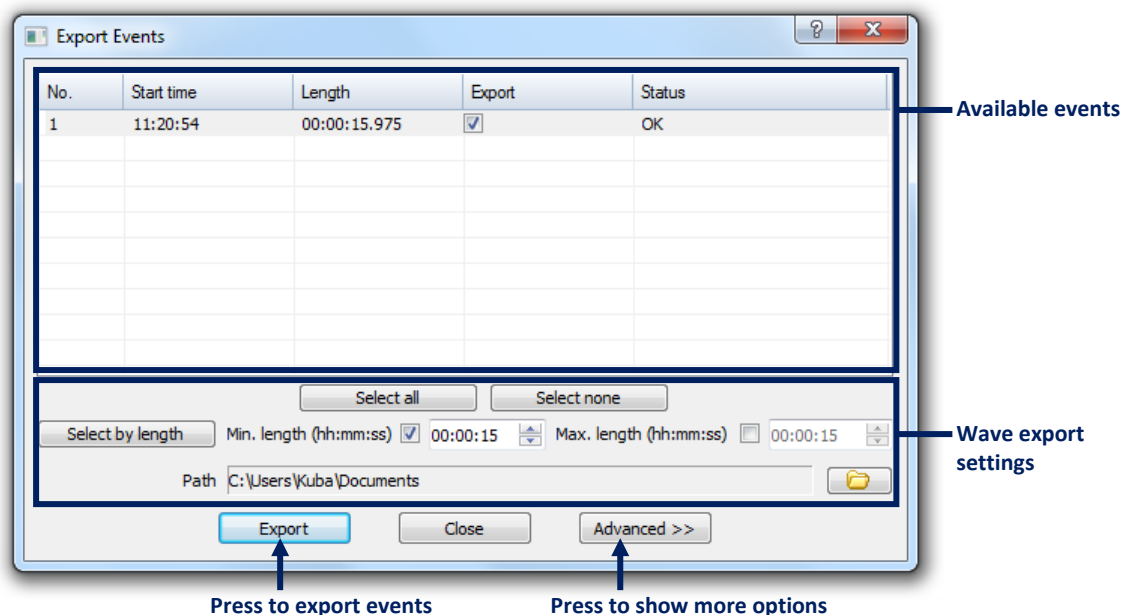


Fig.6-6 The Export Events window.

If you want to configure more detailed export settings, press the *Advanced >>* button.

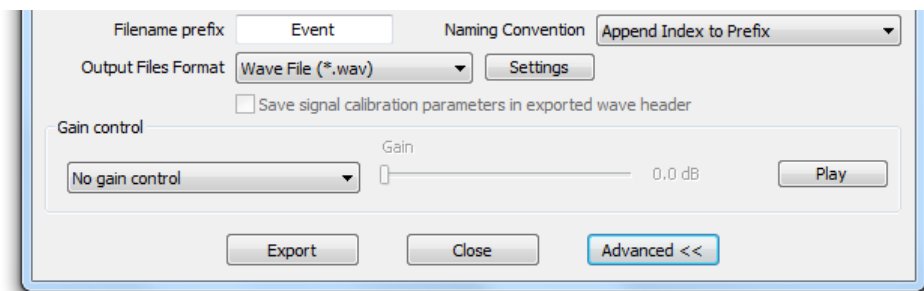



Fig.6-7 The advanced options in the Export Events window.

Available options include:

- Path – select target directory
- Filename prefix – set text to start the filename with
- Naming convention – select between appending number of the event or start time to the filename
- Output Files Format – currently only WAV file format is available
- Settings – displays exported WAV file parameters
- Gain control – select whether to use no signal boost, constant level signal boost or 'Automatic gain control' smart signal boosting mechanism (see Section 6.2.1 for more details)
- Play – playback of the last selected audio event
- Export – export selected audio events using given settings

### 6.2.3. PLAYING AUDIO COMMENTS

In case there are audio comments attached to a logger file, the Notes column of the File Details table (*cf.* Section 3.2.2) will contain the  button in the row corresponding to that logger file. Pressing this button will open a menu, containing a list of all comments attached to the selected logger file. Selecting one of the comments will start its playback.

**Note:** In order to see the Notes column and enable playback of audio comments, you have to check the appropriate option in the File Details table's context.

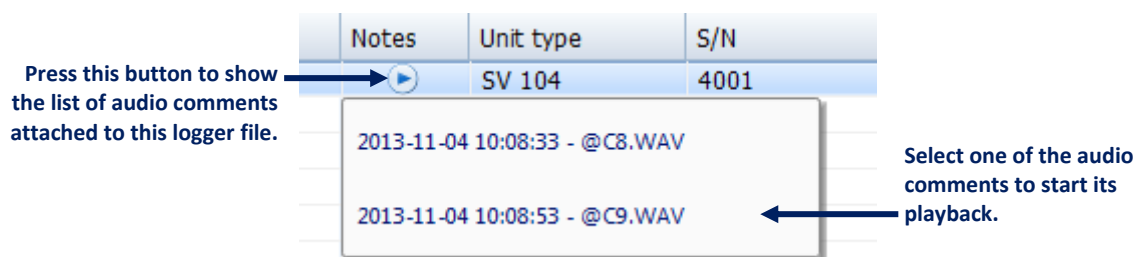


Fig.6-8 Playback of the audio comments.

Some options related to the audio comments are also available in the Notes dialog box, which can be opened using the Notes command in the context menu, available after clicking with the right mouse button on a file in the File details panel.

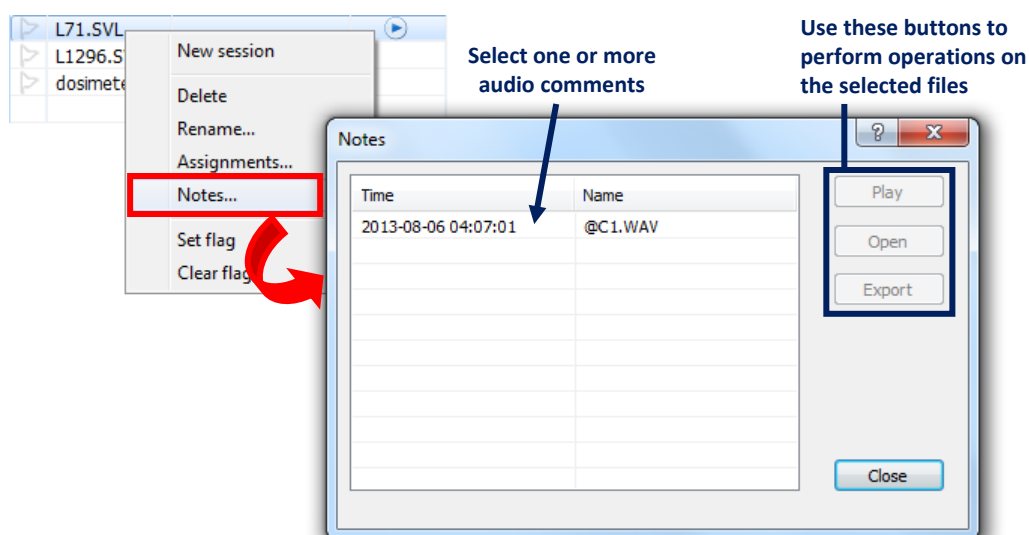


Fig.6-9 The Notes dialog box.

The Notes dialog box contains a list of all audio comments attached to the selected file. You can select one or more of them in order to perform one of the following operations, using the buttons located at the right-hand side of the window:

- *Play / Stop* – starts / stops the audio playback of the audio comment.
- *Open* – opens the audio comment file in your default application for audio files.
- *Export* – allows for storing the audio comment file in a selected location in the PC's memory.

You can adjust the audio playback settings, such as the device used for playback and the length of the buffer, in the Audio Playback panel of the Main Options dialog box.

#### 6.2.4. DOWNLOADING AUDIO COMMENTS

SVAN 971 and SV 104 instruments support attaching audio comments, in the form of .WAV files, to logger measurement files. Such audio files are, by default, not shown in the files list of the Download panel (*cf.* Section 3.1). Furthermore, they are also (by default) downloaded automatically when the logger file to which they are attached is downloaded. However, you can modify these settings in order to treat the audio comments files in the same way as all the other types of files downloaded from connected Svantek instruments. To do so, go to the Data Exchange settings in the Main Options and use the following checkboxes:

- *Download associated audio comments after downloading logger(s)* – if this option is enabled, the audio comments will be downloaded automatically when the logger file to which they are attached is downloaded.
- *Hide audio comments in Download panel* – if this option is enabled, audio comment files will not be displayed in the files list of the Download panel.

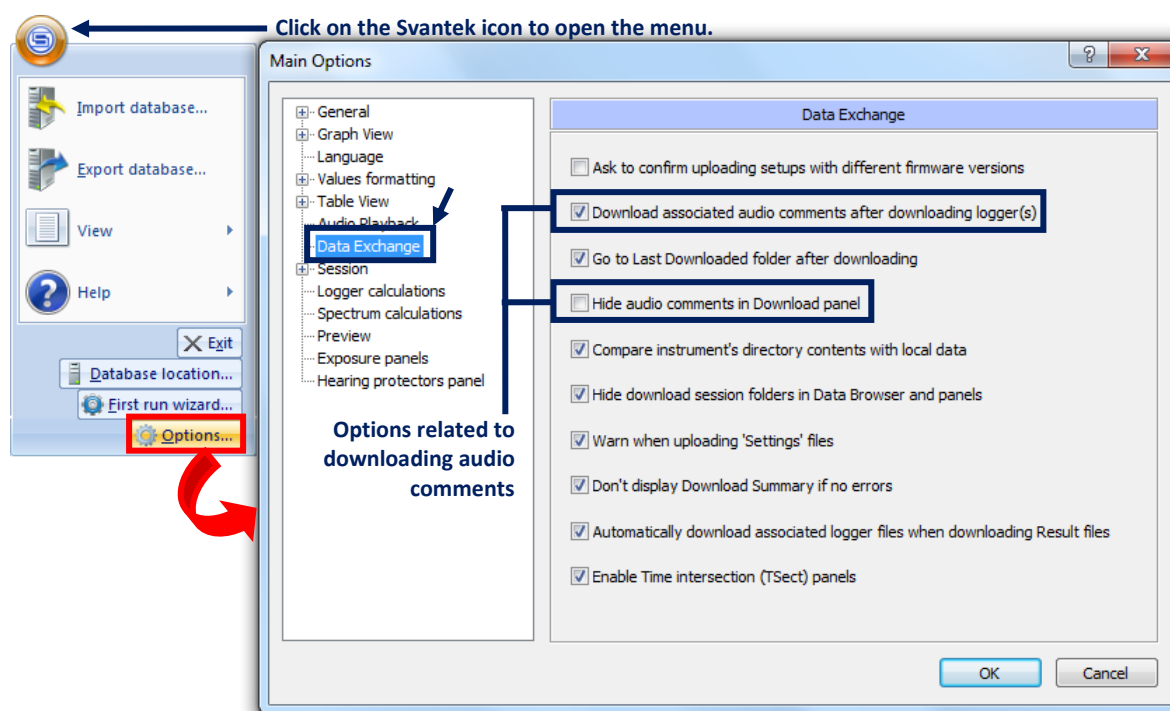


Fig.6-10 Settings related to the downloading of audio comments in the Main Options.

Selected: SV 104 #240

Name	Size [B]	Date	Location	User	Task
@C4.WAV	94 350	2015-03-10 19:14:26	-	-	-
@C5.WAV	62 430	2015-03-10 19:15:40	-	-	-
L13.SVL	2 452	2015-07-08 09:34:12	-	-	-
L14.SVL	2 420	2015-07-08 09:34:24	-	-	-
L15.SVL	2 452	2015-07-08 09:34:30	-	-	-
L16.SVL	2 452	2015-07-08 09:34:36	-	-	-
L17.SVL	2 420	2015-07-08 09:34:44	-	-	-
L18.SVL	2 468	2015-07-08 09:34:52	-	-	-

Fig.6-11 If the *Hide audio comments in Download panel* option is disabled, the audio comments are shown just like other files.

## 6.2.5. DOWNLOADING WAVE FILES

Some Svantek measuring instruments allow for automatically recording audio signals and storing them in the form of separate .WAV files. Such files can be downloaded just as any other types of files using the Download panel; however, each such .WAV file is linked to a logger file, which results in some additional features related to their downloading and viewing.

The .WAV files, unlike audio comments, are not downloaded automatically together with the associated logger files; they are listed in the Download panel (*cf.* Section 3.1) and have to be downloaded separately.

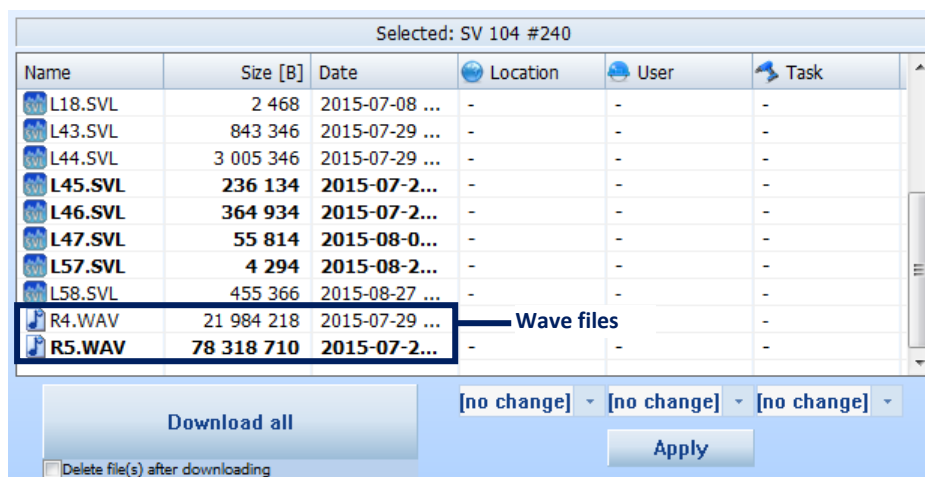


Fig.6-12 Wave files in the Download panel.

**Note:** A simple way to recognize which logger file is connected to a given .WAV file is to look at the Date column and find a pair of files whose dates are identical.

If the currently viewed logger results have a .WAV file associated with them, a *Wave marker* is created. It denotes the range of the logger linked with the .WAV file. In the Plot mode, you can click on the Wave marker with the right mouse button and select "Remove selected wave" in order to delete the .WAV file.

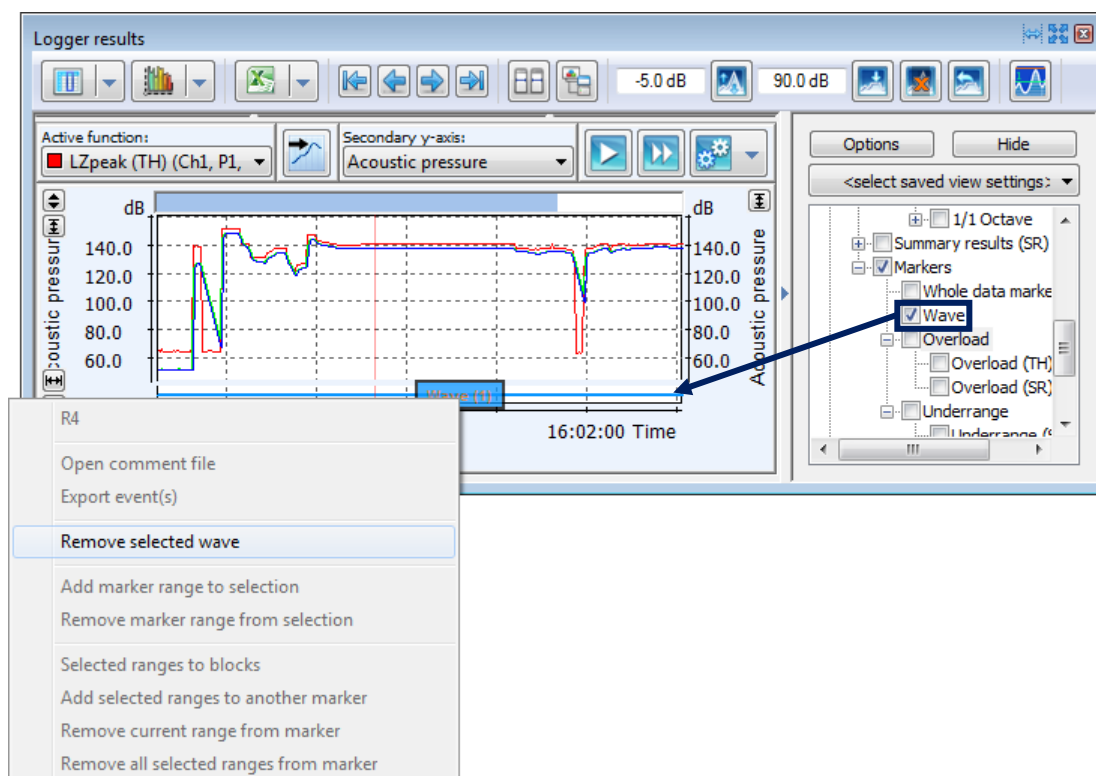
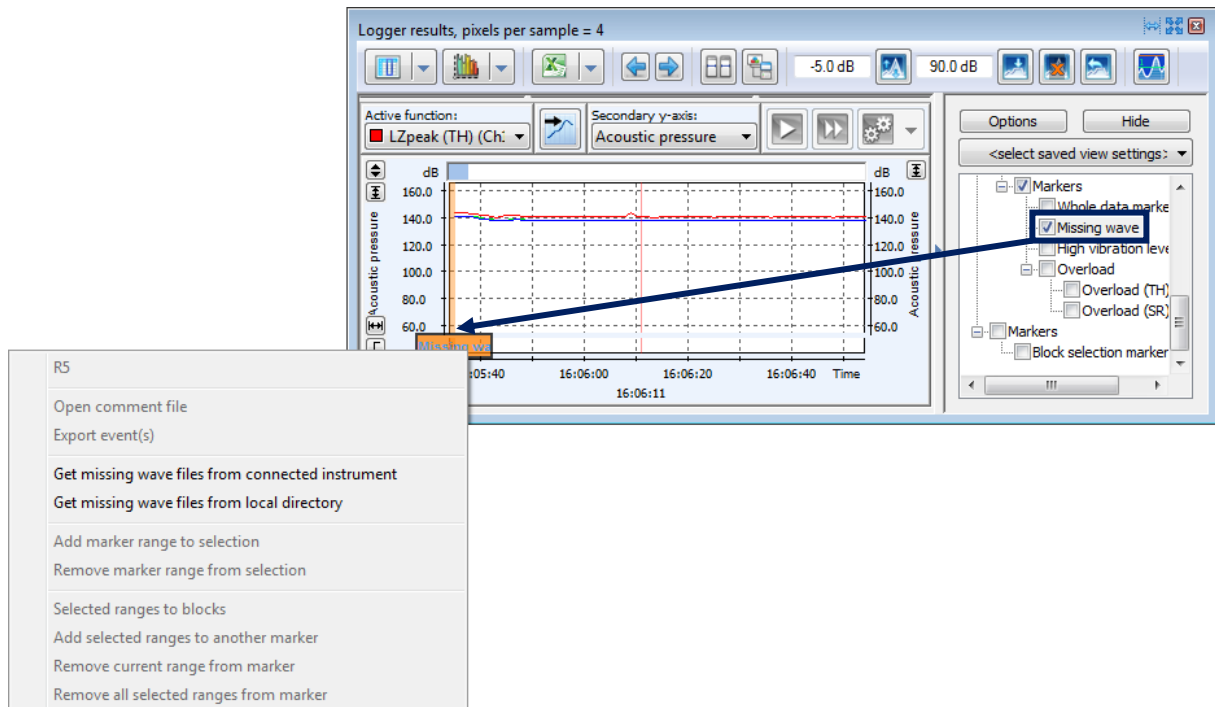


Fig.6-13 The Wave marker.

In case a logger file has been downloaded, but some .WAV file associated to it has not, a *Missing wave marker* is created, denoting the range in which the .WAV file should be present.

When you click on the Missing wave marker with the right mouse button, you can select *Get missing wave files from connected instrument* or *Get missing wave files from local directory* to download the linked .WAV file from a connected instrument or associate one stored on the PC memory.



## 6.2.6. WAVE PANEL

The Wave panel can be used to look at the waveform of an Audio event or a separate .WAV file.

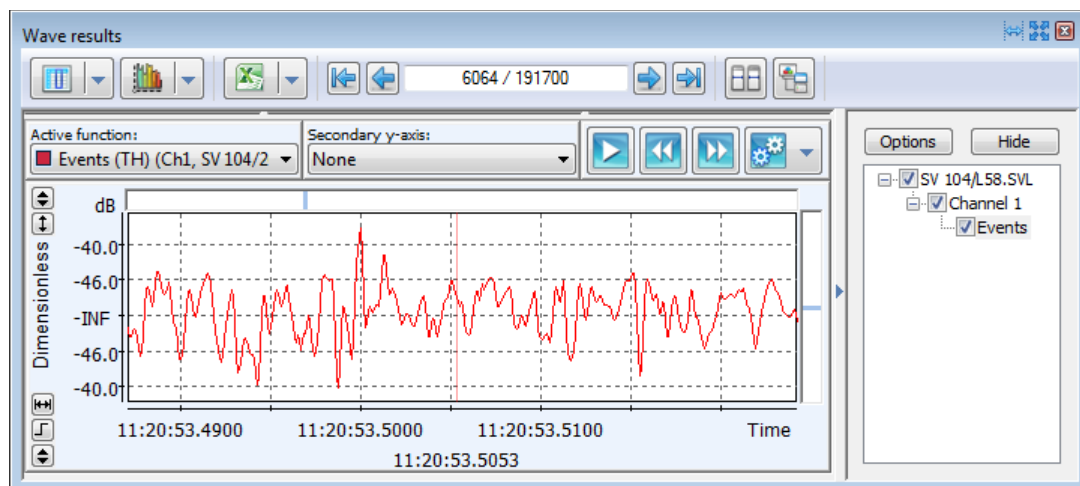


Fig.6-14 The Wave panel.

You can work with a Wave panel just in the same way as with typical time-history data. The Audio Navigator, located at the top-right corner of the panel, allows for playing the displayed audio signal.



## 6.3. LANGUAGES

Supervisor is available in various languages. In order to enable a language different than English, you have to acquire an activation key from your local Svantek distributor. Then, the key has to be entered in the Enter Activation Key dialog box, available via the Help branch of the main menu (Fig.6-15).

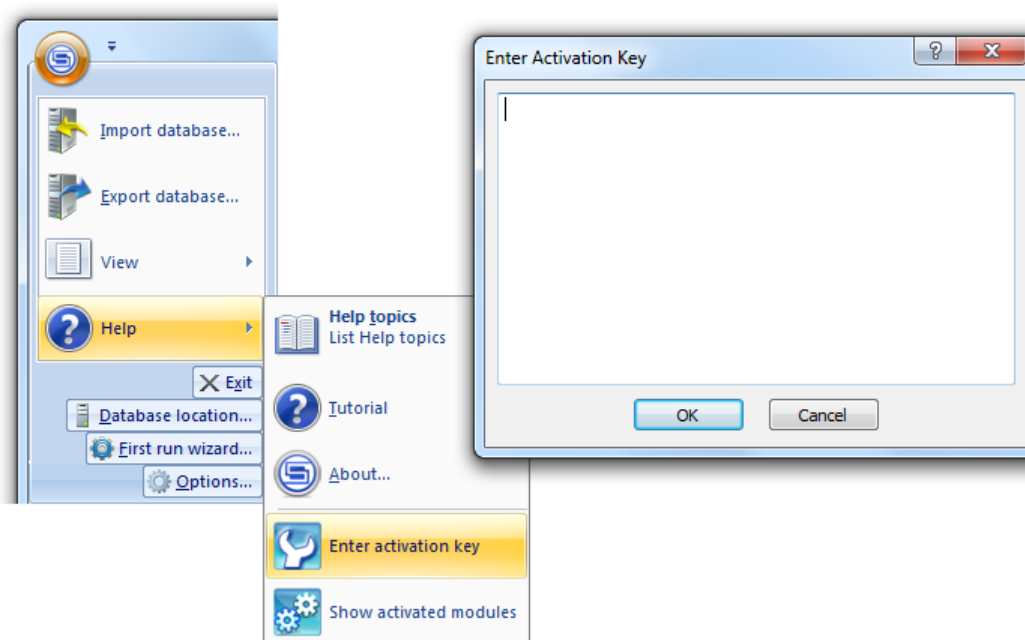


Fig.6-15 Entering an activation key for a different language version.

Once a language is activated, it can be set in the Language settings in the Main options dialog box (Fig.6-16).

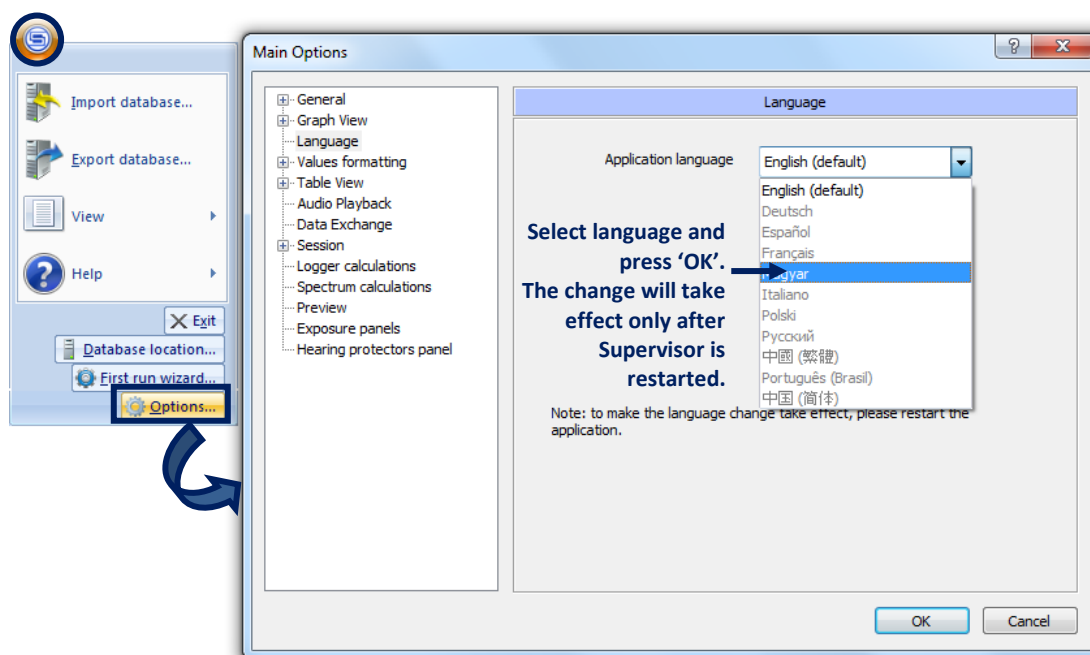


Fig.6-16 Changing the language in the Main options dialog box.

After entering the activation keys, all the activated languages are listed in the Activated Modules window (Fig.6-17).

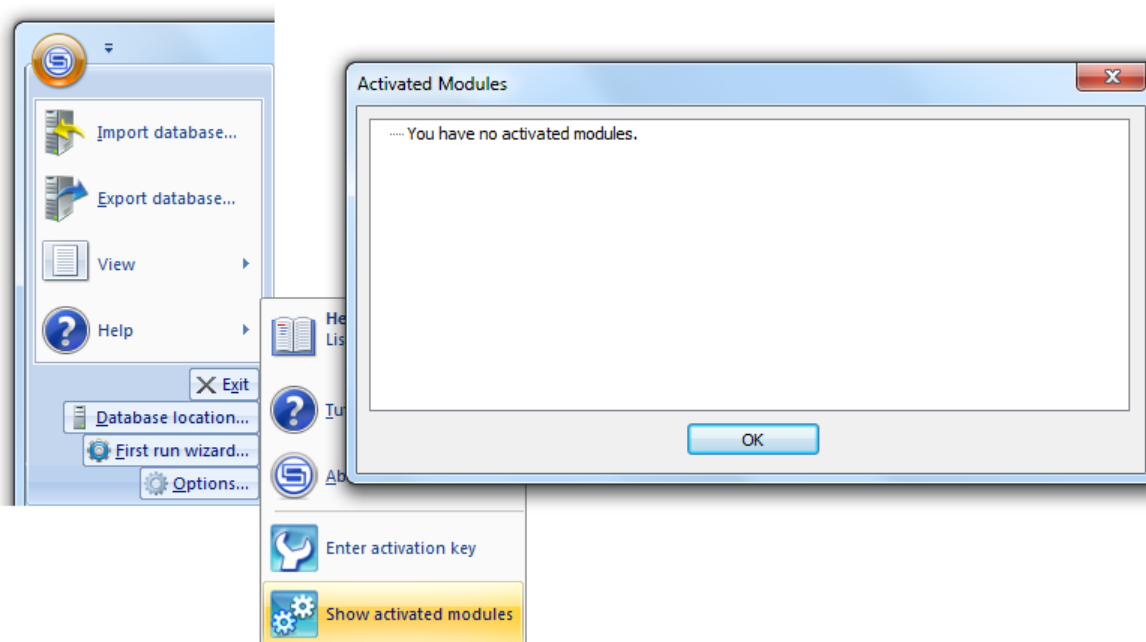
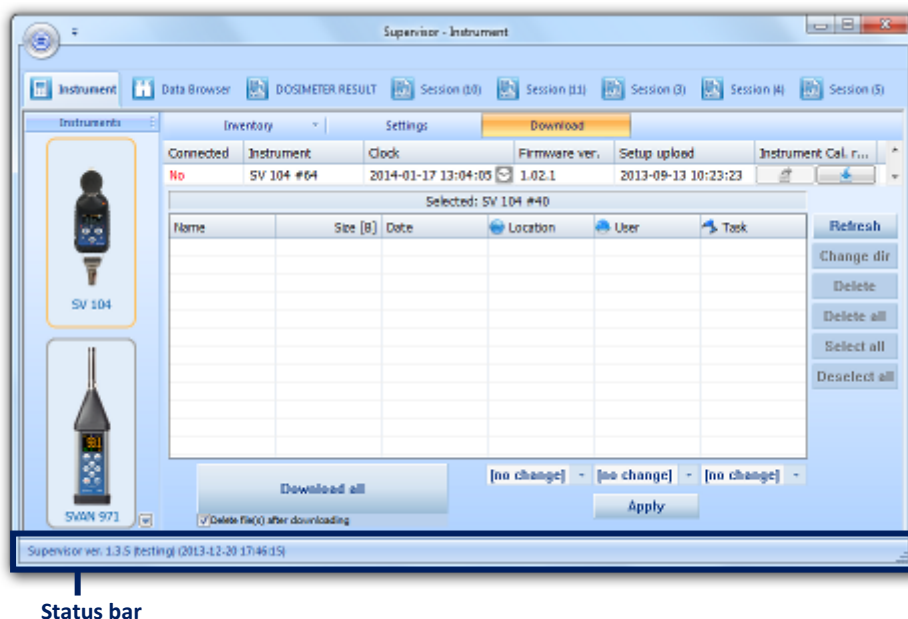


Fig.6-17 The Activated Modules window, containing a list of all languages for which activation key has been entered.

## 6.4. STATUS BAR

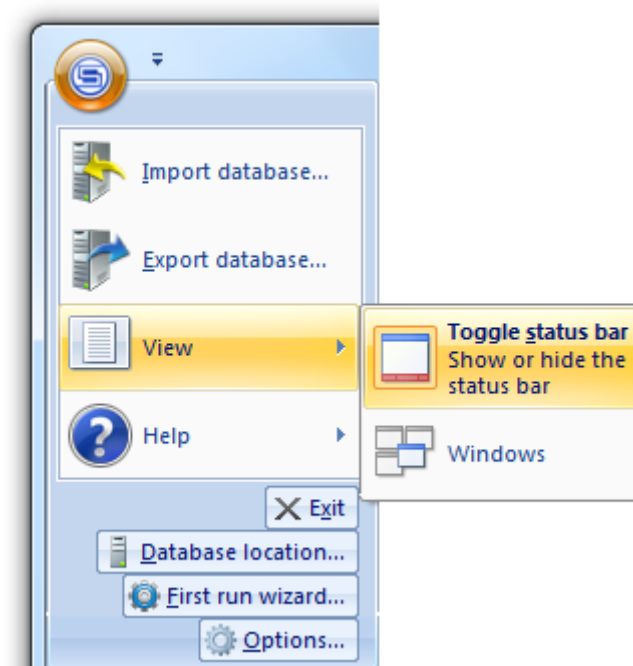
The Status bar can be displayed at the bottom of the Supervisor application window. It contains some information, such as the currently used version of Supervisor.



Status bar

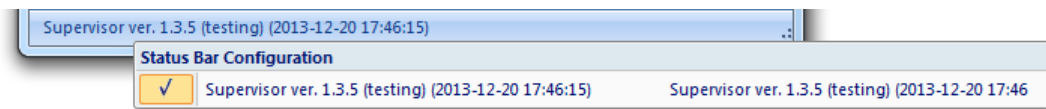
Fig.6-18 Location of the Status bar in the Supervisor application window.

The visibility of the Status bar can be toggled using the main menu, as shown in Fig.6-19.



**Fig.6-19** Command in the main menu for toggling the visibility of the status bar.

You can also configure the status bar by clicking with the right mouse button somewhere in its area and selecting the information you want to be displayed.



**Fig.6-20** Status bar configuration.

## 6.5. QUICK ACCESS TOOLBAR

The Quick Access Toolbar can be used to make selected buttons from the main menu easily accessible. It can be located above or below the Ribbon (Fig.6-21). Its location can be chosen using the Customize Quick Access Toolbar menu (Fig.6-22).



**Fig.6-21** Two possible locations of the Quick Access Toolbar.

By default, the Quick Access Toolbar is empty. You can fill it with buttons using the *More commands...* button in the Customize Quick Access Toolbar menu (Fig.6-22). When you press this button, the *Customize* dialog box will appear.

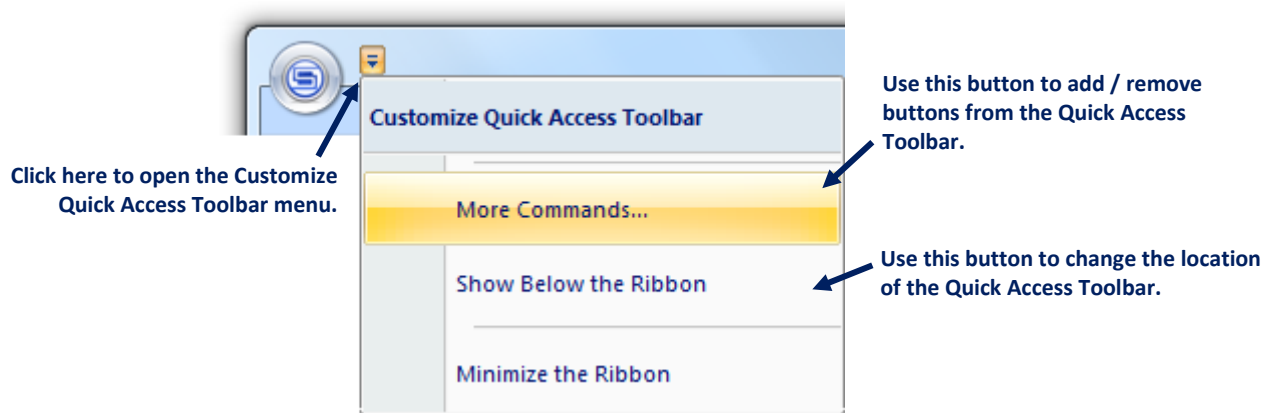


Fig.6-22 The Customize Quick Access Toolbar menu.

The Commands panel at the left side of the Customize dialog box contains a list of all commands available to include in the Quick Access Toolbar. To add a command, select it and press the 'Add >>' button. The panel at the right side of the dialog box contains a list of commands currently contained in the Quick Access Toolbar. You can also configure the order of the commands in the Quick Access Toolbar using the arrow buttons.

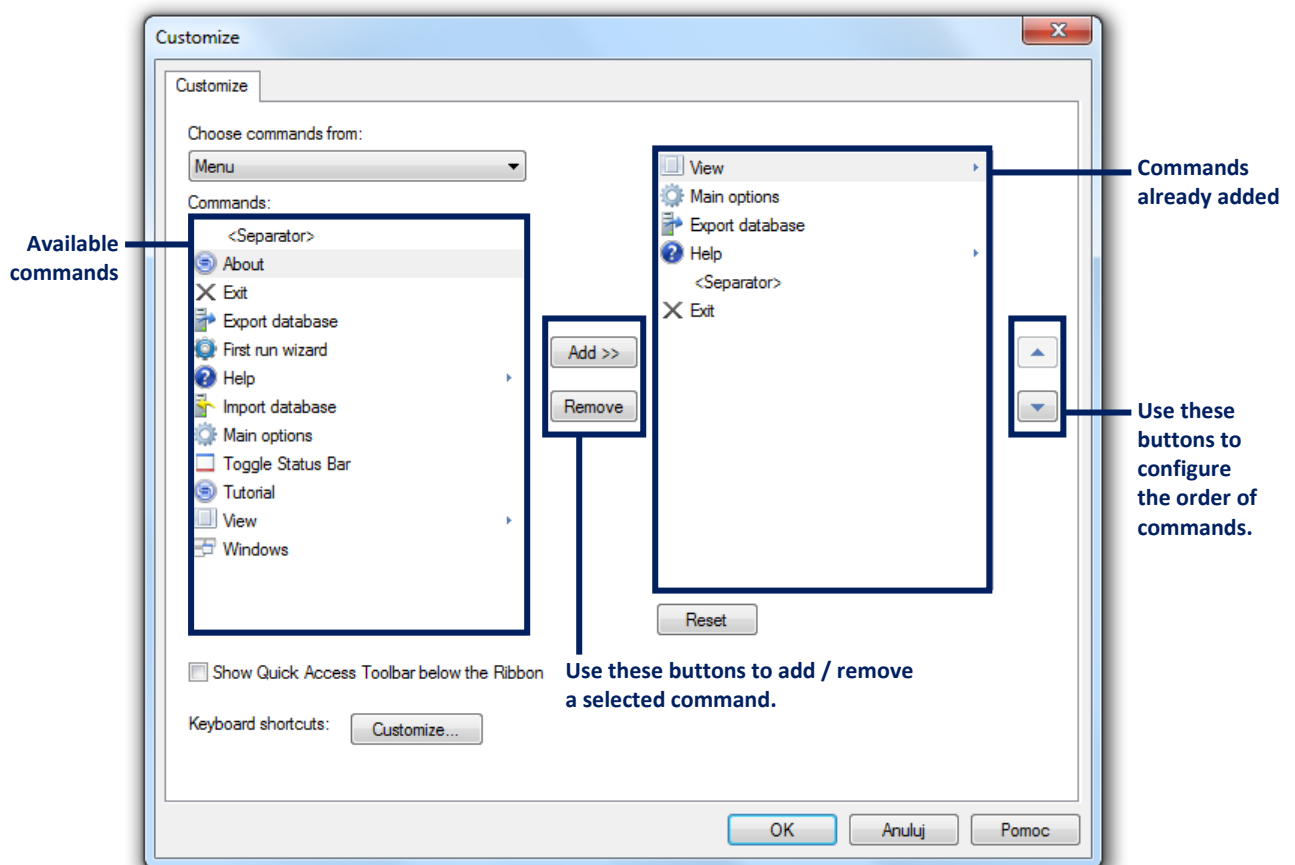


Fig.6-23 The dialog box for customizing the Quick Access Toolbar.