

Using the Data Viewer in ArtemiS

The Data Viewer in ArtemiS is used for displaying analysis results on the screen. Furthermore, Data Viewer diagrams can be exported to various formats.

The Data Viewer Properties settings offer a wide range of layout possibilities, allowing you to choose the optimal arrangement for your specific purpose.

The Properties Dialog of the Data Viewer

After inserting a Data Viewer element into the Destination Pool of an ArtemiS project, the Properties dialog can be opened with a click on the right mouse button (see figure 1), which allows the Data Viewer to be configured according to your needs.

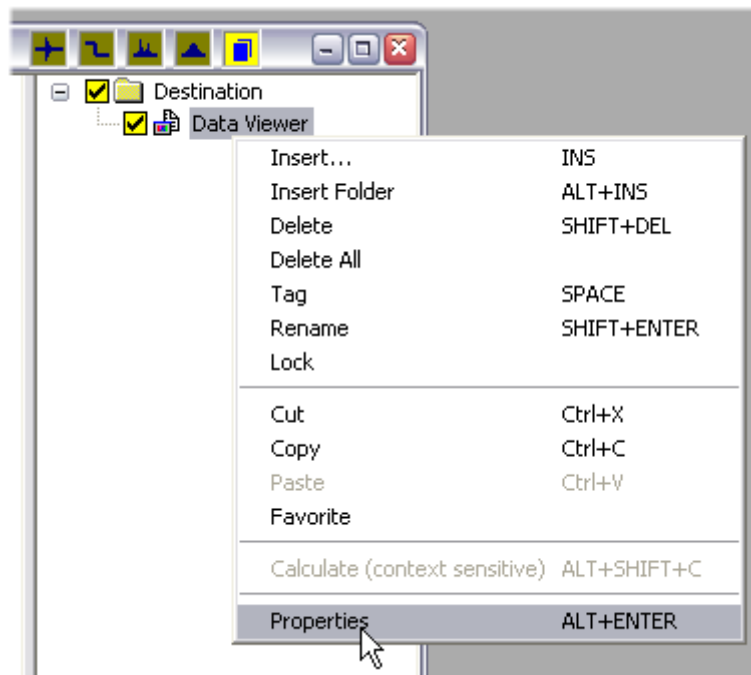


Figure 1: Context menu of a Data Viewer element in the Destination Pool

The Properties dialog of the Data Viewer contains four tabs, on which the settings for the screen display can be configured.

In the upper part of the first (leftmost) tab, you can specify how the analysis results should be arranged in the diagram windows of the Data Viewer. The selection is facilitated by a large button with colored icons on it showing as an example the various layouts of four result diagrams. These four results are derived from two sound files or marks (represented by the colors red and green, first pair of icons) and two analysis functions (represented by the spectrum and the straight line, second set of 4 icons). The following table describes the individual layout variants

and their corresponding icons. Clicking on this large button changes the display setting from one variant to the next:

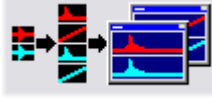
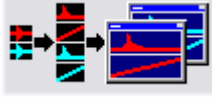

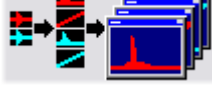
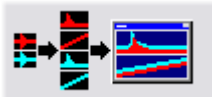
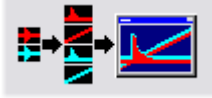
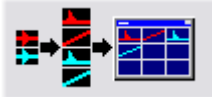
Variant	Icon	Description
A		(Default) Each analysis is shown in a separate Data Viewer, i.e. the results of each specific analysis for several sound files are displayed in one window in separate diagrams.
B		The results are displayed separately for each original sound, i.e. all analysis results for one sound file appear in one Data Viewer in separate diagrams.
C		All analysis results are displayed in the same Data Viewer in separate diagrams.
D		Each analysis result diagram is displayed in its own Data Viewer.
E		All results are displayed in one Data Viewer. The results of the first analysis are combined in one diagram, the results of the second analysis in a second diagram etc. Results from the same analysis are overlaid.
F		All analysis results are combined in one single diagram in one Data Viewer. Results from different analyses are overlaid providing they have a common abscissa (horizontal or x-axis).
G		All analysis results are displayed in different diagrams within one Data Viewer. This can include overlaying results from the same or different analyses as in variants E and F.

Table 1: Icons representing the various layout options

As already described, the icons are on a button you can click on to switch from one layout variant to another. To the right of the button, additional parameters can be set to specify the details for the respective layout. This information is only required for some of the layout variants – for the other variants, these fields are grayed out.

Figure 2 shows the additional parameter for layout variant E. In this case, the additional parameter is used to limit the number of marks combined in one Data Viewer.



Figure 2: Additional parameter for layout variant E

With the setting shown in figure 2, the results of two marks are combined in one Data Viewer. If there are six marks selected in the Source Pool of the ArtemiS project, this setting will cause three Data Viewers to be opened, each showing the results for two marks. The number of diagrams in each Data Viewer depends on the number of analysis functions selected: ArtemiS creates a separate diagram for each analysis.

For layout variant F, the number of analysis functions per diagram must be specified. Figure 3 shows an example.



Figure 3: Additional parameter for layout variant F

In layout variant F, several analysis results are combined. By specifying maximum 4 Analyses / Diagram as shown in figure 3, the number of analysis results can be limited to four curves per diagram. Since one analysis result is calculated for each mark and each analysis type, two marks and two analysis types will generate four results (as shown by the icons on the variant-selection button). With the setting shown in figure 3, all four results will be combined in one diagram of one Data Viewer. If the limit is reduced from four to two analyses per diagram, the analysis results for the first mark will be combined in the first Data Viewer and the results for the second mark in a second Data Viewer.

Please note that with this layout variant, only two-dimensional analysis results can be combined in one diagram. Also, a maximum of eight ordinates (Y axes) with different units is possible per diagram, for example loudness with the unit sone and sharpness with the unit acum. If more than two different ordinates are to be displayed, the option “Group (all ordinates visible)” must be activated in the context menu of the Data Viewer. This can be done e.g. on the third tab of the properties dialog of the Data Viewer (see figure 4).

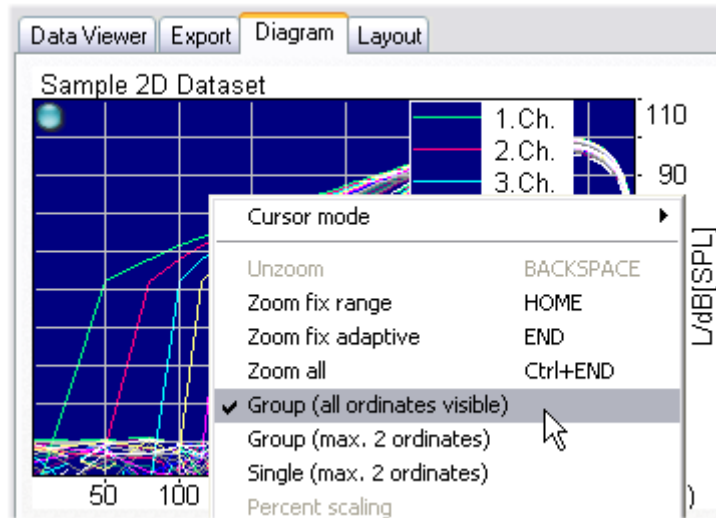


Figure 4: Option for displaying more than two different ordinates in one diagram

The measurement unit for the abscissa (X axis) must be identical for all analysis functions to be combined.

Layout variant G requires additional parameters (see figure 5).



Figure 5: Additional parameters for layout variant G

Besides the number of analyses per diagram, you can specify the maximum number of diagrams per result window. If the number of analysis results is higher than the product of Analyses / Diagram and Diagrams, another Data Viewer is opened. Again, a maximum of eight different ordinate units is possible in one diagram. With the configuration shown in figure 4, two activated marks and two activated analyses will cause one Data Viewer with four diagrams to be opened, each diagram showing one analysis result.

Examples

In the following, two layout examples based on the project shown in figure 6 are presented.

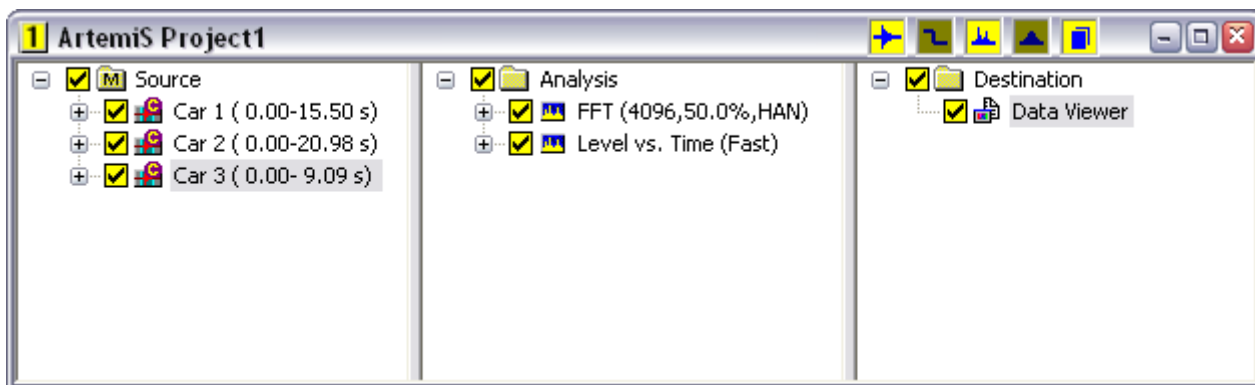


Figure 6: Example project with three activated marks and two activated analyses

In the first example, layout variant E is used. The number of marks per Data Viewer has been limited to two. Since there are three marks selected in the project, ArtemiS opens two Data Viewers with these settings: one Data Viewer with the results of the first two sounds and another Data Viewer with the results of the third sound (see figure 7).



Figure 7: Example settings for layout variant E and the corresponding output of the analysis results

Layout variant F is not suitable for the analysis selection shown in figure 6. With a selection of two analyses per diagram in the settings dialog of the Data Viewer, ArtemiS would be instructed to combine the analysis results of the averaged FFT and the time-dependent loudness analysis for the first sound. However, these two analyses require different units for the abscissa (Hertz and seconds) and can therefore not be displayed together in one diagram.

Figure 8 shows the settings for layout variant G and the resulting Data Viewer windows. With this layout variant, too, you must take note that the selected analyses require different units for the

abscissa. Therefore, the analysis results must be displayed separately. This can be easily achieved with the settings shown in figure 8.

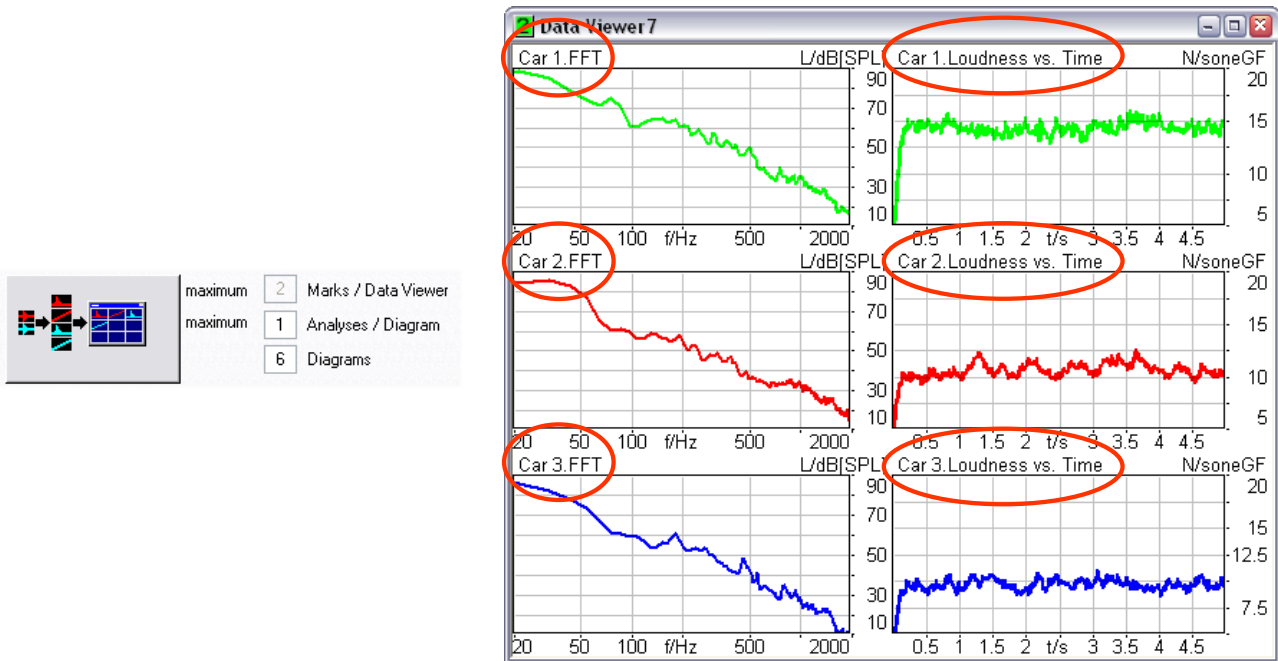


Figure 8: Example settings for layout variant G and the corresponding output of the analysis results

Display of Multi-Channel Sound Files

The symbolic images described above only refer to the arrangement of the different marks and analyses in the created Data Viewer windows. These settings have no effect on the display of the individual channels that may be contained in a mark. The display of the channels is configured in the Channel Layout area of the Properties dialog of the Data Viewer (see figure 9). The left screenshot shows the setting where the channels are not split, but displayed together in one diagram. If the option split channels vertically is selected as shown in the right screenshot, the channels are separated and displayed in several diagrams within one Data Viewer, one below the other.

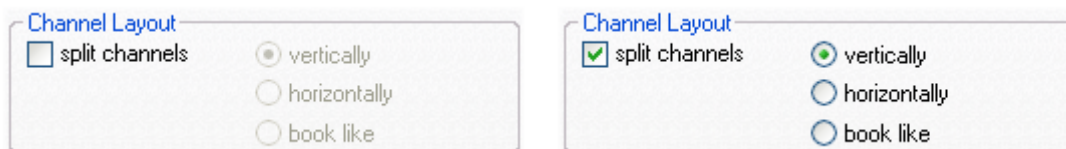




Figure 9: Settings for the layout of the channels in the Properties dialog of the Data Viewer

If split channels horizontally is selected instead, the individual channels of a file are arranged next to each other in separate diagrams. The setting split channels book like creates a Data Viewer in which the individual channels are displayed one at a time like the pages of a book. To switch the view from one channel to another, ("flipping the pages"), click on the button Next Channel  or Previous Channel  in the Channel Layout toolbar on the left side of the user interface.

Saving Data Viewers

Once a Data Viewer has been calculated, it can be saved to disk via the Save command in the File menu or the keyboard shortcut [Ctrl]+[S]. Initially, this will only save the empty Data Viewer, i.e. the layout, the arrangement of the marks and the active channels. If you want to save the displayed analysis results as well, go first to the Properties dialog of the Data Viewer and enable the option "Save files" (see figure 10, available in ArtemiS 6 or later). If this setting has been selected prior a calculation, saving a Data Viewer will also save its displayed content (automatically, in a separate file).

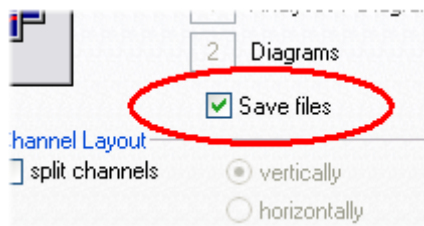


Figure 10: Properties dialog of a Data Viewer with activated "Save files" option

A saved Data Viewer can be used as a template for other Data Viewers to be created. In the lower right of the Properties dialog, a saved Data Viewer can be selected (see figure 11).

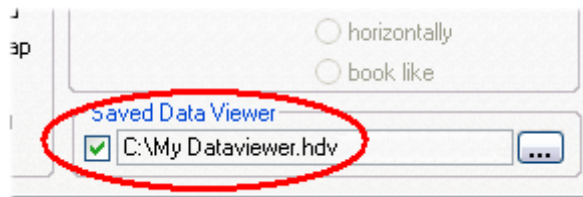


Figure 11: Using a previously saved Data Viewer as template

Important point: If the saved Data Viewer contains analysis results (i.e., Save Files was active when the Data Viewer being used as a template was originally saved – see Figure 10), not only the Data Viewer settings are used as a template, but also the already-contained analysis results are displayed along with the new results. This can be useful, for example when target sounds are searched for, or a tolerance has been defined. However, this combined display is only possible if the axis units of the already-saved results are identical to those of the newly-calculated analysis.

Exporting Analysis Results

In many cases, it is not sufficient to just to view the analysis results on the screen. Therefore, ArtemiS provides the possibility to export the diagrams of a Data Viewer. In the Properties dialog of the Data Viewer, several different formats can be selected (see figure 12).

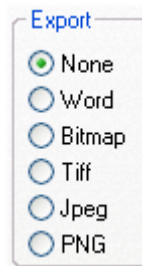


Figure 12: Export formats of the Data Viewer

Besides the option “None”, where no export takes place, five export formats are available: Word, Bitmap, Tiff, Jpeg and PNG. On the second tab of the Properties dialog, additional options for the export of the diagram can be selected. In order to minimize the length of this Application Note, only the first tab of the Data Viewer Properties dialog has been described. For detailed instructions how to use the second tab and the other tabs, please refer to the ArtemiS online help. This export function must be enabled prior to the calculation of the analysis results.

Diagrams of an already-calculated Data Viewer can be copied to the clipboard. The shortcut [Ctrl]+[F] copies an image that can be pasted into a Word document, for example. Using the shortcut [Shift]+[Ctrl]+[F] the format of this image can be defined (Metafile, Bitmap or Diagram Object). Note that a [Ctrl]+[F] capture only copies one diagram, the one in which the [Ctrl]+[F] command was made. To copy the image of a complete Data Viewer containing more than one diagram, use [Ctrl]+[C]. However this shortcut always creates a bitmap copy; creating a Windows Enhanced Metafile with its preferable in image quality is not possible with this shortcut.

Do you have any questions to the author? Please contact us by E-mail: imke.hauswirth@head-acoustics.de.

We are looking forward to your feedback!