

Additional information on creating reports

ArtemiS SUITE provides a very versatile reporting functionality, which makes it easy for you to present your analysis results in clearly arranged reports. This Application Note contains general notes on creating reports with ArtemiS SUITE¹.

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Other Application Notes are available, which explain, for example, how to generate a simple report and how to include user documentation in reports. You can download them in the Download Center on the website of HEAD acoustics:

https://www.head-acoustics.de/eng/nvh_application_notes_reporting.htm

The reporting function is described below using a Pool Project as an example. Basically, the descriptions also apply to other projects of ArtemiS SUITE, e.g., the Automation Project.

General report options

The report options, which can be opened in the menu bar via **Tools -> Options -> Documents -> Report**, allow you to configure many useful options for your reports.

Here you can specify, for example, the **Default page format**, i.e., the aspect ratio, the page size and the orientation (landscape or portrait) of the report. This format will always be applied when a new report is opened. Via the  button, you can also copy the page format from a currently open PowerPoint² presentation. Figure 1 shows the corresponding section of the options page.



Figure 1: Configuration of the default page format

Besides the default page format, you can also modify the default page layout. This will facilitate your work if you frequently use a certain page layout. Just select this layout as **Default** in the **User-defined Page Layouts** section (see figure 2) and when opening a new report a page with this layout appears automatically.

¹ The descriptions in this Application Note refer to version 9.0. The general procedures also apply to other versions. However, the scope of functionality and the user interface may differ.

² PowerPoint is a registered trademark of the Microsoft Corporation.



Figure 2: Selecting the default page layout

That way, you can start right away with your layout, without the need to load it first and to delete the original default page that you do not need anyway.

In the options, you can also manage your custom page layouts created during your work. To do so, use the buttons **Remove** and **Rename** (see figure 3).

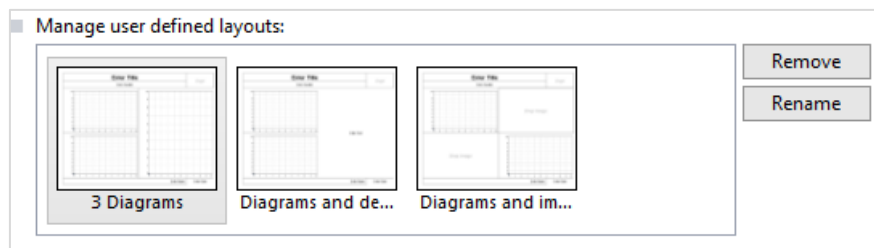


Figure 3: Managing user-defined page layouts

Editing a report

After starting a calculation with a report item in the Destination Pool of a Pool Project, a report appears which you can further modify according to your needs. Some possibilities to edit a report template have already been described in the Application Note “Using the reporting function in ArtemiS SUITE”. More possibilities are described in the following.

Using background images

In many companies, predefined presentation templates following the corporate design are used. Using these official layouts is often mandatory, but they limit the space available for content on the slides. In order to make sure that the diagrams and text boxes will not hide the company logo or other elements of the predefined presentation layout, you can display a suitable background image in the report already in ArtemiS SUITE. To do so, start your PowerPoint application and open the desired presentation. After that click in ArtemiS SUITE on an empty space of your report and open the Properties window (e.g., by using the shortcut **Alt + Enter**). Click on the  button on the **Report** tab in order to create a screenshot from the active presentation and display it as a background image (see figure 4).

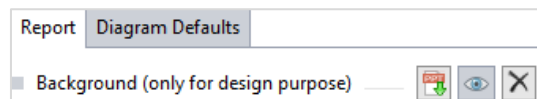


Figure 4: Selecting a background image for the report layout

By clicking on the  button, you can turn the background image on and off. When you no longer need the background image, delete it by clicking on the  button. The background image is displayed for visualization purposes only and is not included in the output when exporting the report.

Page format

This Properties window also allows you to specify the page size and orientation in the **Page Format** section (see figure 5).

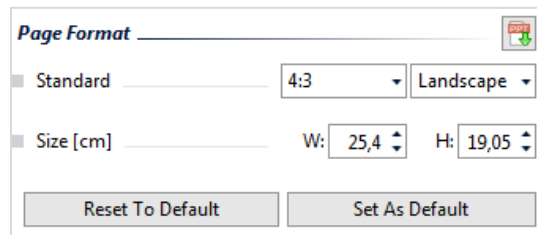


Figure 5: Properties window for specifying the page format and orientation

These settings correspond to those in the report options in the first chapter, but apply only to the current report. Only after you save the configuration as default via the **Set As Default** button, it applies for other reports as well. By clicking on the **Reset to Default** button, you can reset a modified configuration to the default setting.

Positioning the elements

To position an item, click on it with the left mouse button and move the mouse pointer to the edge until the Move symbol  is displayed instead of the mouse pointer. Now press and hold the mouse button and move the element to the desired position. The snapping function helps you to align the size and position of the element with other elements. You can disable the snapping function temporarily by keeping the *Shift* key pressed while moving the element. Furthermore, you can enter the size and position of each element numerically via **Content** -> **Layout** -> **Size / Positon** in the Properties window (see figure 6).

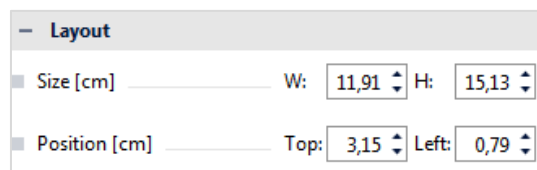


Figure 6 Properties window for specifying the size and position of a report element

If you have selected multiple items by keeping the *Ctrl* key pressed, all selected items are moved simultaneously.

Diagram options

After activating a diagram in your report, the Properties window automatically displays in the **Content** tab the **2D/3D Diagram** section.³ In this area, you can specify the representation settings (e.g., line color and text size of captions) for the diagram. Changes are applied to the currently active diagram. By selecting multiple diagrams, you can also change the settings for all selected diagrams at once. Furthermore, the context menu allows you to copy individual parts of the configuration (e.g., only the legend formats) and transfer them to another diagram (**Copy** and **Paste**). With the commands **Set As Default** and **Reset (All) To Default**, you can also specify the diagram settings for all selected diagrams, all diagrams of a report and for all future diagrams added to this report. The corresponding context menu can be opened by clicking on a sub-section (e.g., **Show Legend**, see figure 7) with the right mouse button.

Right-clicking on the section header (**2D** or **3D Diagram**) allows you to transfer all settings at once or to make them your default settings.

³ A newly inserted diagram that is not yet linked to data sources always displays the Properties for 2D diagrams. As soon as you link the diagram to a 3D data set, the Properties window will automatically change accordingly.

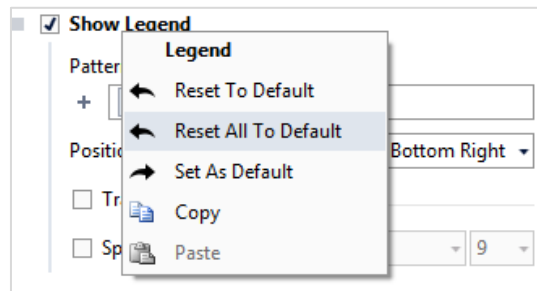


Figure 7: Context menu of the legend properties

Entering text

If you have activated a text box in your report, the Properties window on the **Content** tab contains a **Text** section. In this section, you can specify a number of settings for the text box, such as the **Font** (see figure 8).

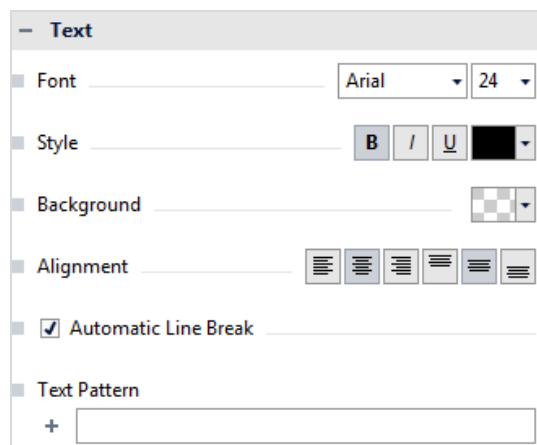


Figure 8: Properties window of a text box

After clicking into the text box, you can enter the desired text directly. In addition, ArtemiS SUITE automatically provides a number of predefined text modules, which you can add by clicking on the plus sign next to the **Text Pattern** field. If your measurement data contains User Documentation⁴, you can use that in your text box as well.

Before a text box can display the data specific to an item (e.g., the channel name of a recording), it must first be linked to that item. You can activate the data binding in the Properties window of the text box via **Data Binding -> Available Data** by checking the checkbox of the desired item.

⁴ The advantages of working with User Documentation are described in detail in the Application Note "Creating reports with user documentation and other text modules".

Embedding audio content in a report

Often the best way to demonstrate modifications and enhancements of sounds is playing audio examples. Therefore, the reporting function of ArtemiS SUITE allows you to embed your time-domain signals in your reports quickly and easily, so that they can be played back later when the report is presented using PowerPoint.

This is done using the audio item . Click on this button and keep the left mouse button pressed while dragging the mouse pointer to the desired position for the audio item in your report, where a placeholder is placed. Afterwards, select the desired time-domain signal in the Properties window via **Data Binding** -> **Available Data** by checking the checkbox of the desired item. For each audio item, you can select up to two channels of a file. Once a time-domain signal is linked to the audio item, the loudspeaker icon in the report changes (see figure 9).

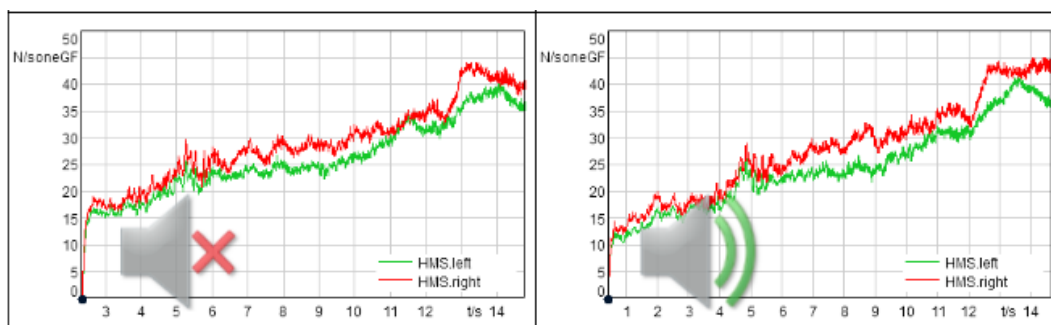


Figure 9: Audio item in a report (left: not linked to a data source, right: linked to a data source)

In the Properties window via **Content** -> **Audio**, you can also specify the format the time-domain signal is to be converted to when exporting the report to PowerPoint. The formats WAV and MP3 are available. Furthermore, you can choose between different sampling rates and level ranges for the audio files. When the files are converted accordingly, they are directly embedded in the PPTX file and are immediately ready for playback in PowerPoint.

Creating a report template based on a Data Viewer

A particular convenient method to create a report template is provided by the Data Viewer. You work with your Pool Project as usual and use a Data Viewer to display your results. You interactively optimize the display options (such as the layout of columns and rows). After finding the optimal representation for your results, you can convert the content of the Data Viewer (number of diagrams, distribution of the analysis results across the diagrams, etc.) into a report with a single click on **Export to** -> **ArtemiS SUITE Report**. In this new report, you can then add additional elements (such as a text box for a headline). Once you have saved this report, you can use it as a template for creating other reports. The data bindings of the individual diagrams have been copied from the Data Viewer, so you do not have to re-configure it when creating the report.

Including existing analysis results

By embedding previously saved analysis results in a report, you can display reference curves for comparison with new analysis results. In order to do so, the reference curve must exist as an HDF file. Such a file can be easily created in a Pool Project with the HDF export function in the Destination Pool. You can also use this method to embed result files from colleagues or customers, for which you do not have time-domain data, into your reports and compare them to your measurements.

In the following example, this reference is an FFT spectrum showing the maximum acceptable level for the different frequencies, which already exists as a result file in HDF format. If this target spectrum is exceeded, the corresponding sections in the diagram are to be highlighted. To create the report with the comparison spectrum, first activate the time-domain signal to be compared to the target spectrum, an analysis function⁵, and a report element in the Pool Project, and then start the calculation. Afterwards, bind the result of the current calculation to a diagram in the report. The current calculation results can be found in the Properties window via **Data Binding** -> **Available Data**.

Next drag and drop the target spectrum, e.g., from the HEAD Navigator into the diagram, too. The reference curve is then displayed as another source (**Target**) in addition to the **Available Data** in the Properties window (in the list on the left side of figure 10).

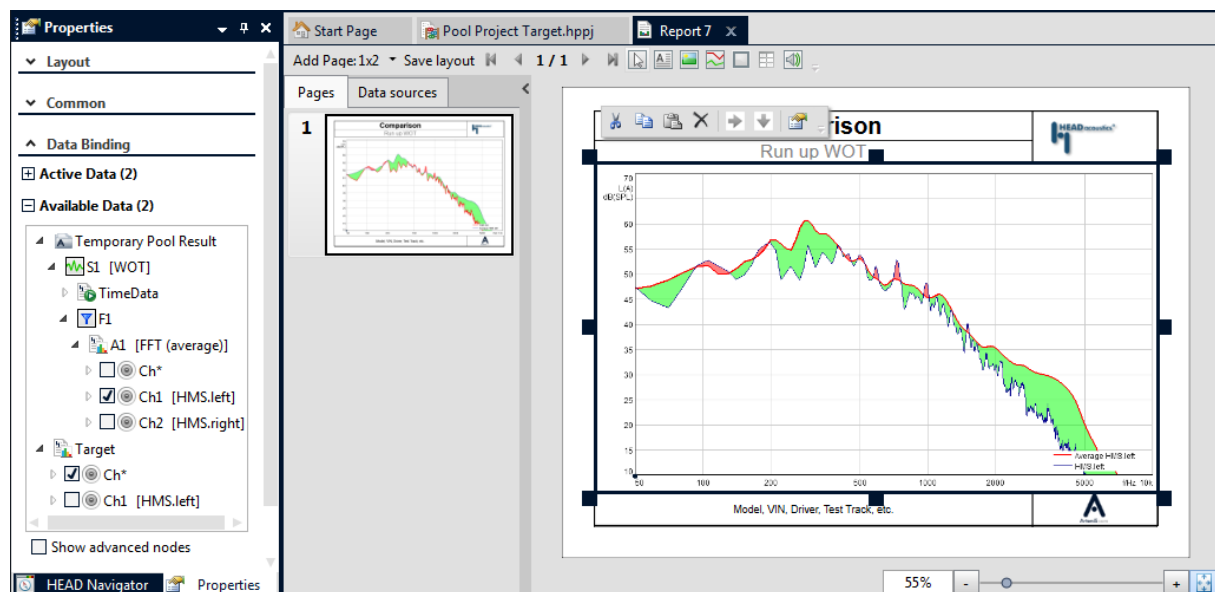


Figure 10: Example project for calculating a reference curve

To color-code the area between the two curves, open the context menu of the diagram and click on **Fill Area**. By clicking on the  icon, you can create fill areas and configure them afterwards. Of course, you can also fill in the text boxes and add images to your report.

To compare additional spectra to the same target curve, save the generated report as an HRPX file, then select this file as the template in the Properties window of the report item in the Destination Pool. If you now select a different time-domain signal for the next calculation, it will be automatically combined with the target curve in a new report, and the areas between the curve will be color-coded as specified in the previous report (see figure 11, next page).

⁵ When selecting the analysis it has to be considered that the analysis results (e.g., measurement units) are compatible with the reference curve. Otherwise, the current analysis results and the results of the reference curve cannot be displayed together in one diagram.

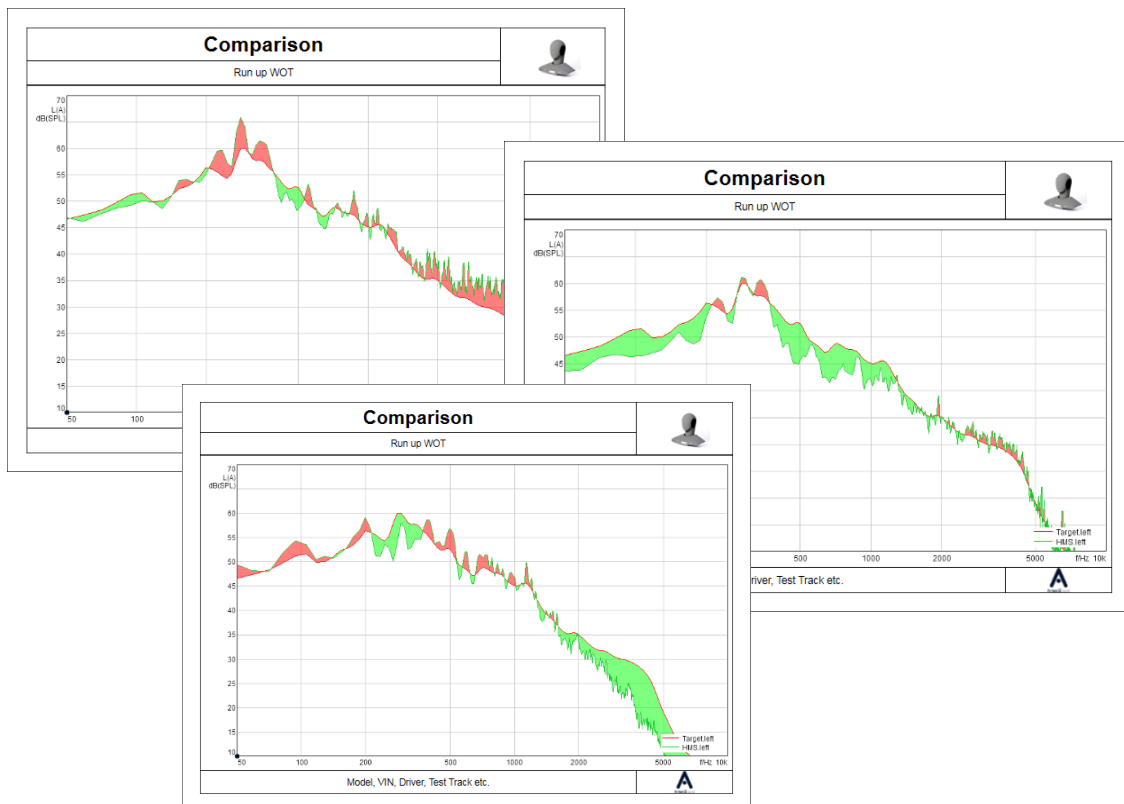


Figure 11: Examples of reports with different time-domain signals compared to the same target curve

By adding user documentation, you can include information specific to the respective time-domain signal in the report. This information will then be replaced automatically each time you recalculate the report with a new time-domain signal.

Additional application notes describing the reporting in ArtemiS SUITE you can find in the Download Center on our web site:

https://www.head-acoustics.de/eng/nvh_application_notes_reporting.htm

Do you have questions to the author?
Contact us at imke.hauswirth@head-acoustics.de.
We are looking forward to your feedback!