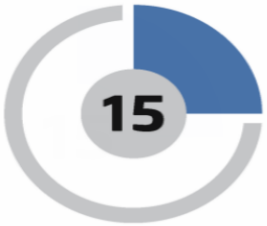
WEISANG

FlexPro 2021

Data Analysis & Presentation



Get to know FlexPro in just 15 minutes

Getting to Know FlexPro in just 15 Minutes

This tutorial provides you with a brief overview of the structure of FlexPro and the basic command methods.

Before you start, it is vital that you read this first topic, since it will provide you with important information on getting started:

Managing Data with FlexPro 4

Alternative Import Options

Entering Data Manually into FlexPro 6

Importing Excel Data 8

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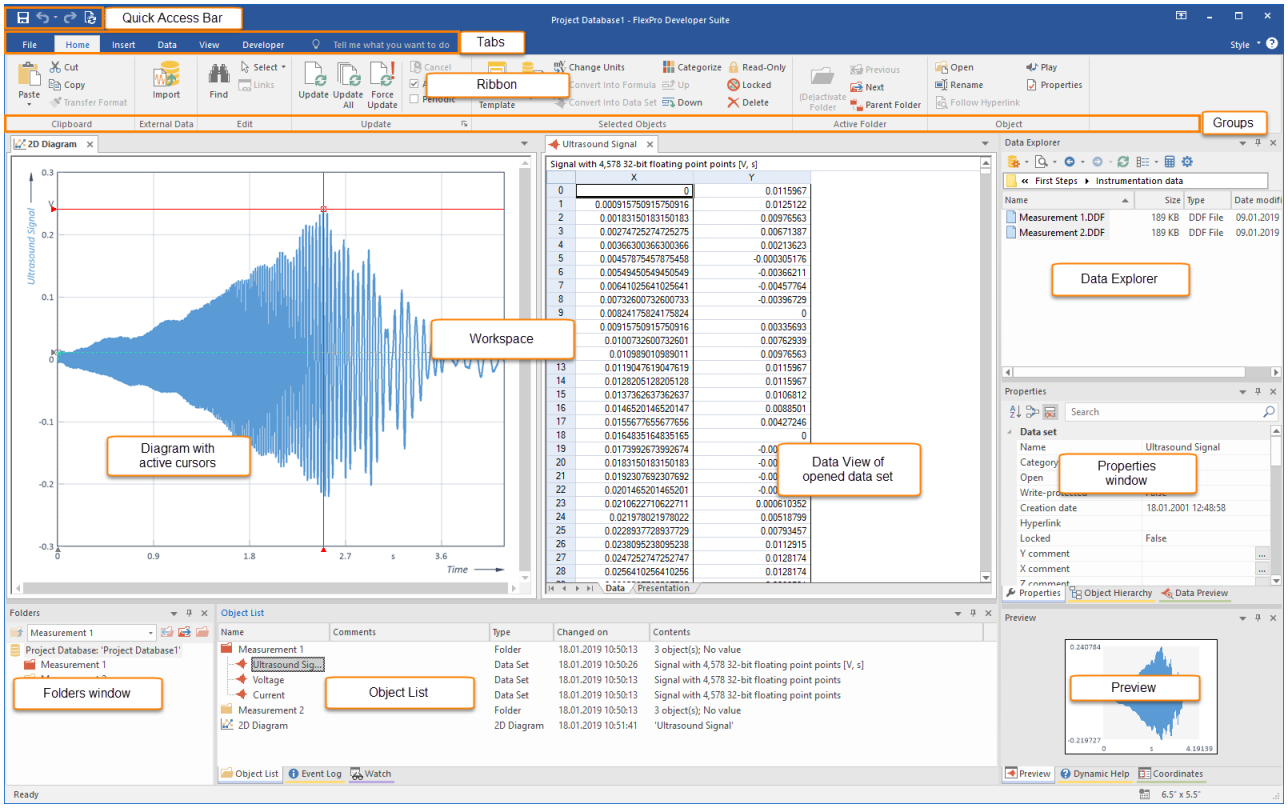
Managing Data with FlexPro



FlexPro stores all objects generated by you such as data sets, diagrams, folders, etc. in a project database that appears in FlexPro's main window. The object list shown above in the FlexPro window already contains some objects as examples. When you start FlexPro, these sample objects will not appear.

Structure of FlexPro's Main Window

- **Ribbon**

  This is where you select commands. The ribbon is divided into several tabs. Only one tab is active at a time. The example above shows the Home tab. You can switch tabs by clicking on the tab title. The commands are arranged in groups. Their names are below the icons. The FlexPro documentation uses the following syntax to refer to a command: Tab[Group] > Command, e.g. Home[Clipboard] > Copy. Some icons open menus from which you can choose an entry. This can be identified by a small arrow next to or under the icon; for instance: Home[Clipboard] > Paste > Paste Special.

- **Quick Access Toolbar**

  This displays frequently used commands that you can always access without having to change tabs.

- **Folders Window**

  This is where folders created by you are displayed. You can select one particular folder here and its content then appears in the Object List.

- **Object List**

  For instance, if you create a new data set or a diagram, it will appear as an object in the Object List. This allows you a general view of all objects that you are working on, such as data, diagrams and formulas.

- **Data Explorer**

  Depending on the view selected, Data Explorer displays files on your hard disk or indexed data.

- **Object Hierarchy**

This window presents the objects displayed in the Object List in a hierarchical structure. You can therefore simply reconstruct which objects are linked directly or indirectly with a particular object.

- **Preview**

  In the Preview window, the content of one object in the Object List or selected in another window, such as a data set, is displayed. This provides you with an overview of the object's content without having to double-click to open it.

- **Data Preview**

  Data Preview is an advanced preview window specifically designed for data sets. The data set just selected is displayed there as a curve. You can use data cursors to measure the data or enlarge a section.

- **Properties Window**

  This powerful window allows you to quickly edit the properties of selected objects.

- **Dynamic Help**

  This window offers selected topics and procedures related to the object that you are currently processing or to the window in which you are currently working. Simply click on a help topic to display it.

- **Workspace**

  Here, the windows of open objects appear on tabs. In addition to the Object List, folders can also be opened in a window here. The above illustration shows the Data view of an open folder, which shows all data sets contained in the folder in a data grid.

Note: If necessary, you can undo any steps you make in FlexPro. Just click on the Undo/Redo icons in the Quick Access Toolbar.

The next step depends on the format of your data. Select one of the four options:

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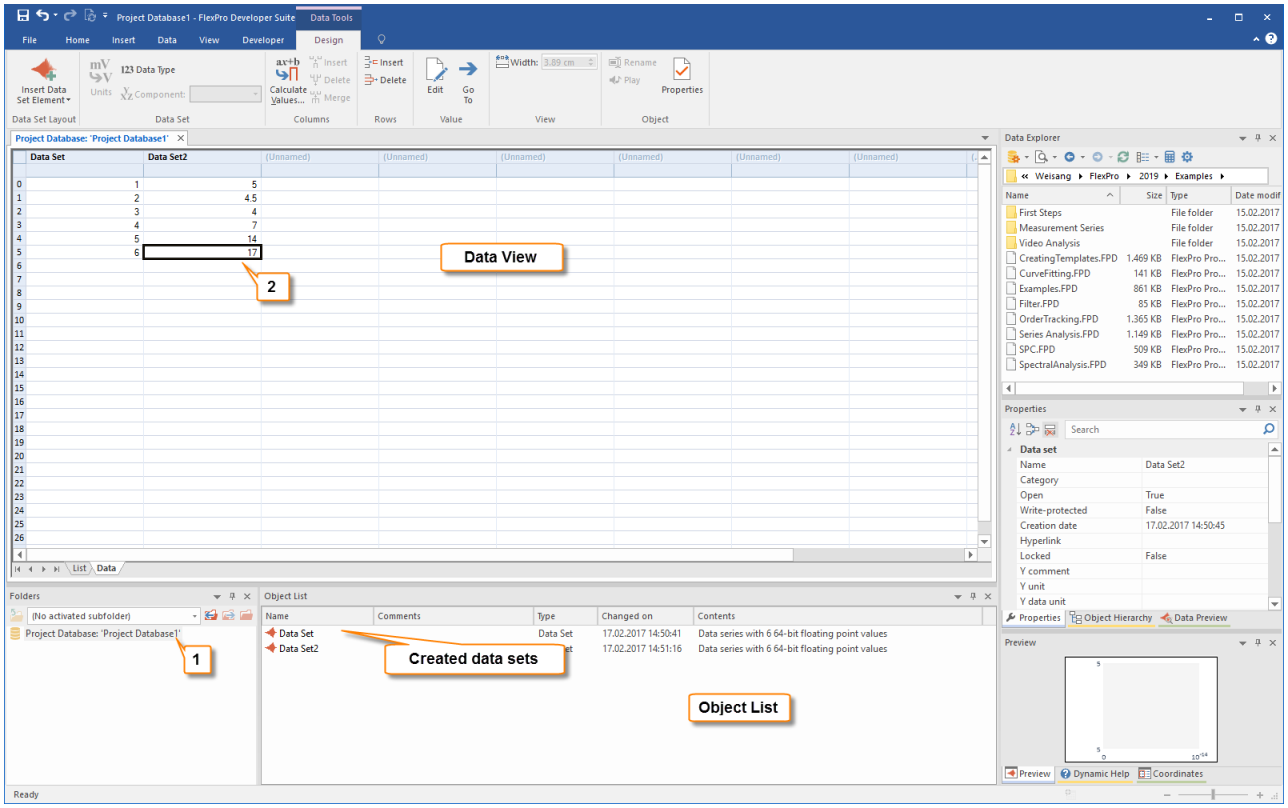
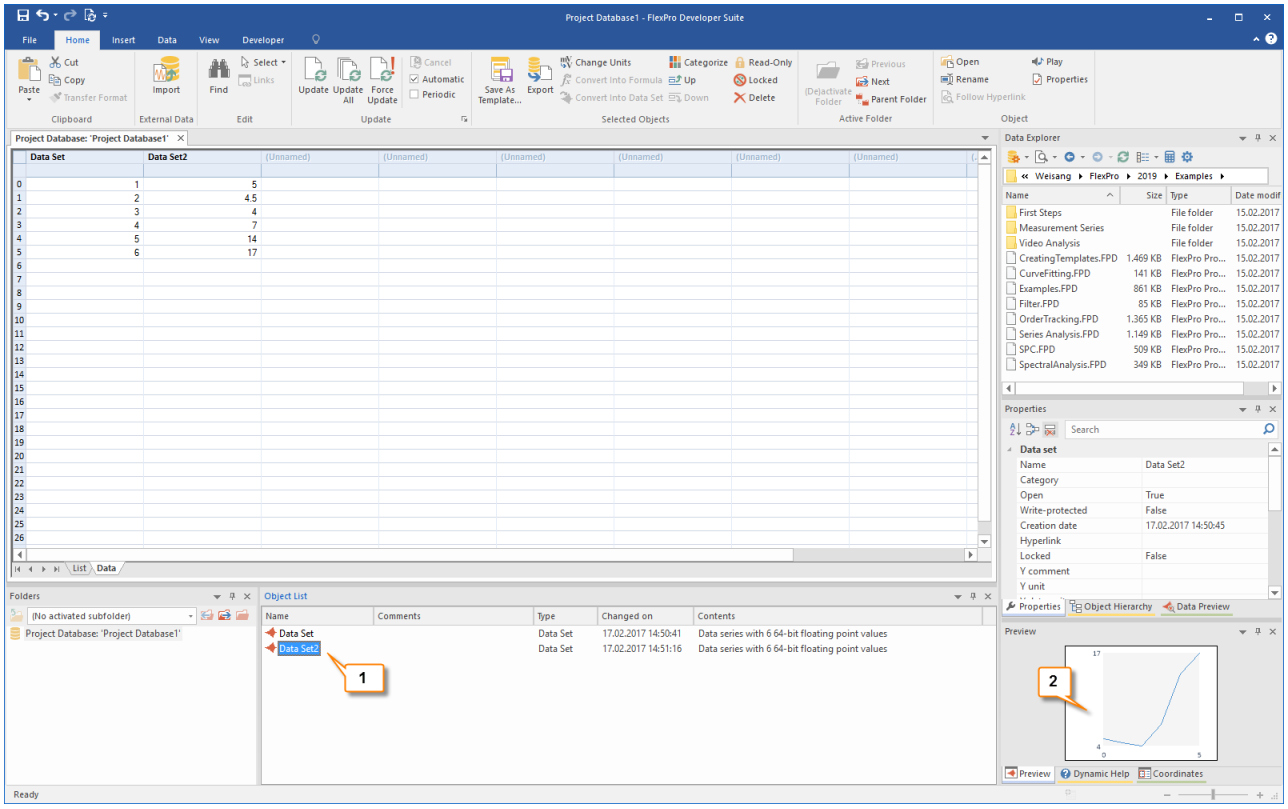
Entering Data Manually into FlexPro



Double-click on the root folder shown in the first row in the Folders window to open it [1].

Enter the first two columns of the numerical values shown above in Data View [2]. FlexPro automatically creates the two objects DataSet and DataSet2, which appear in the Object List.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2].

Caution: The following examples in this tutorial are based on imported data. Please select one of the alternative import methods that you want to use:

Importing Excel Data 8

Importing Data from Measuring Devices 11

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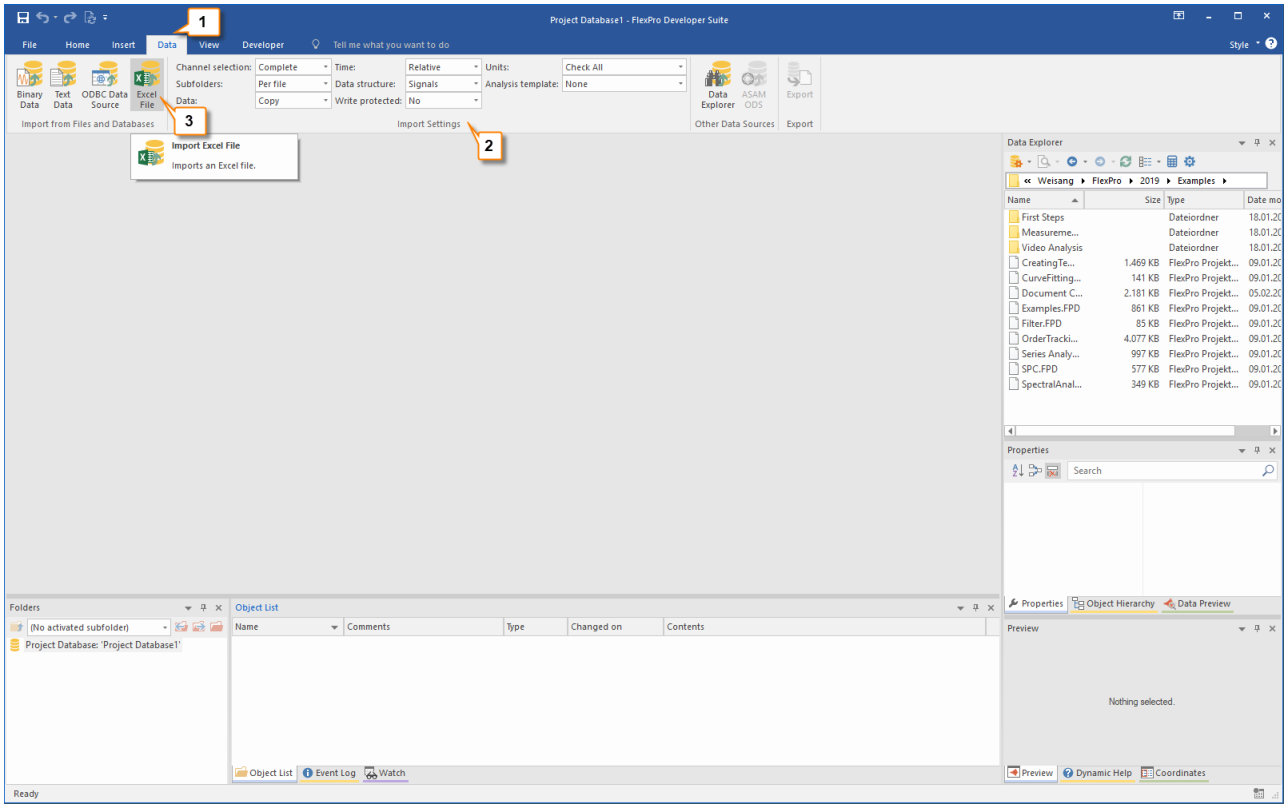
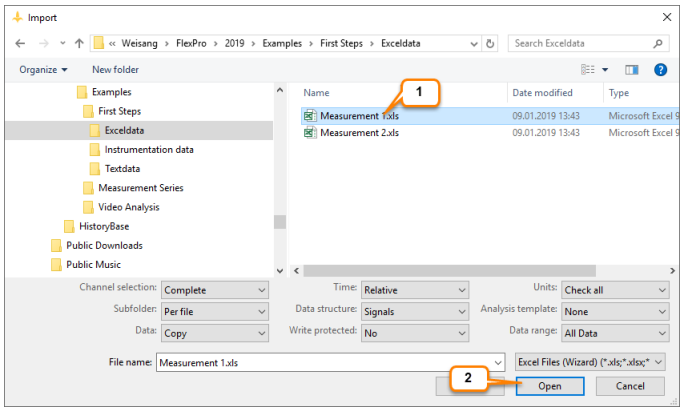
Importing Excel Data

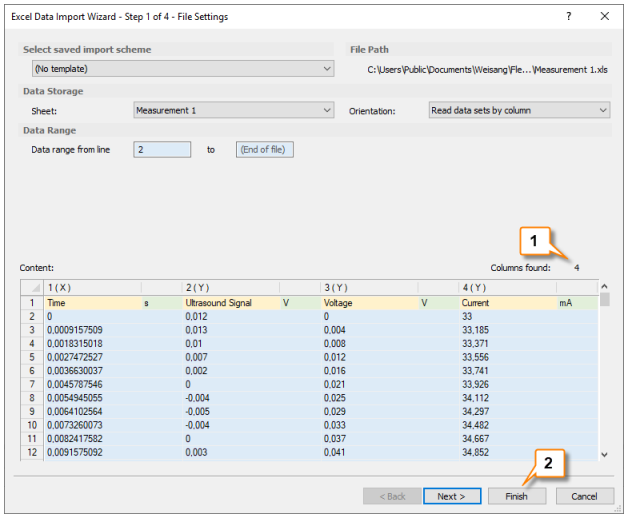


Click on the Data tab of the ribbon [1] and in the group called Import Settings set the options as shown in the picture [2].

Click [Import from Files and Databases] > Excel File [3].

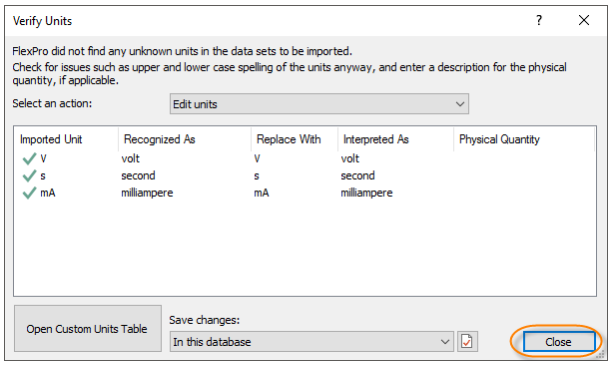


The Import dialog box opens. Switch to the folder `C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL%>` or C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>. From there, switch to the subfolder `Examples\Data\First Steps\Excel data` and select Measurement `1.xls` [1]. Click Open [2].



FlexPro automatically recognizes the current data set structure. You can verify this by looking at the value displayed for Columns found [1]. Click Finish [2].

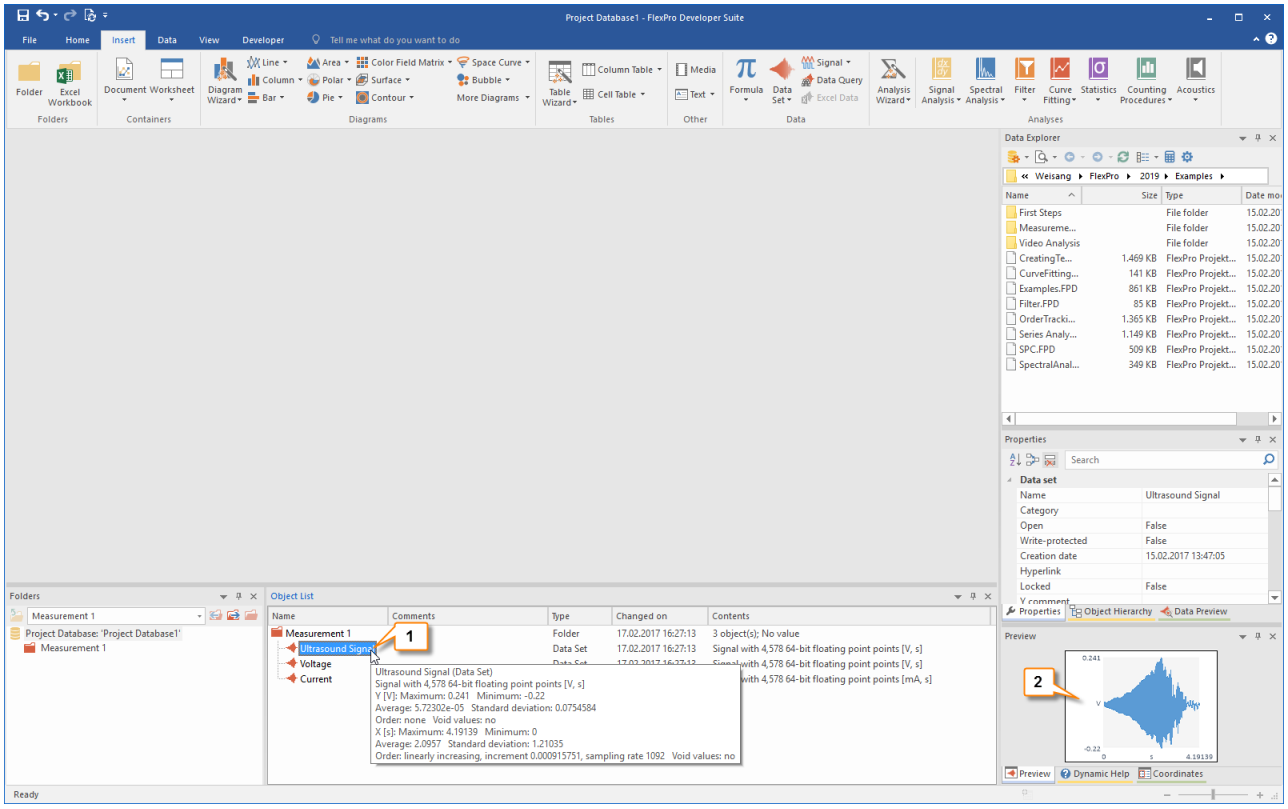
Note: When you import your own data, you may have to configure the settings on the next pages of the wizard so that the data is interpreted correctly. You can save all settings made in the wizard to quickly import data with the same data structure in the future. To do this, select the Save import schema option on the last page of the wizard.



In the Verify Units dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

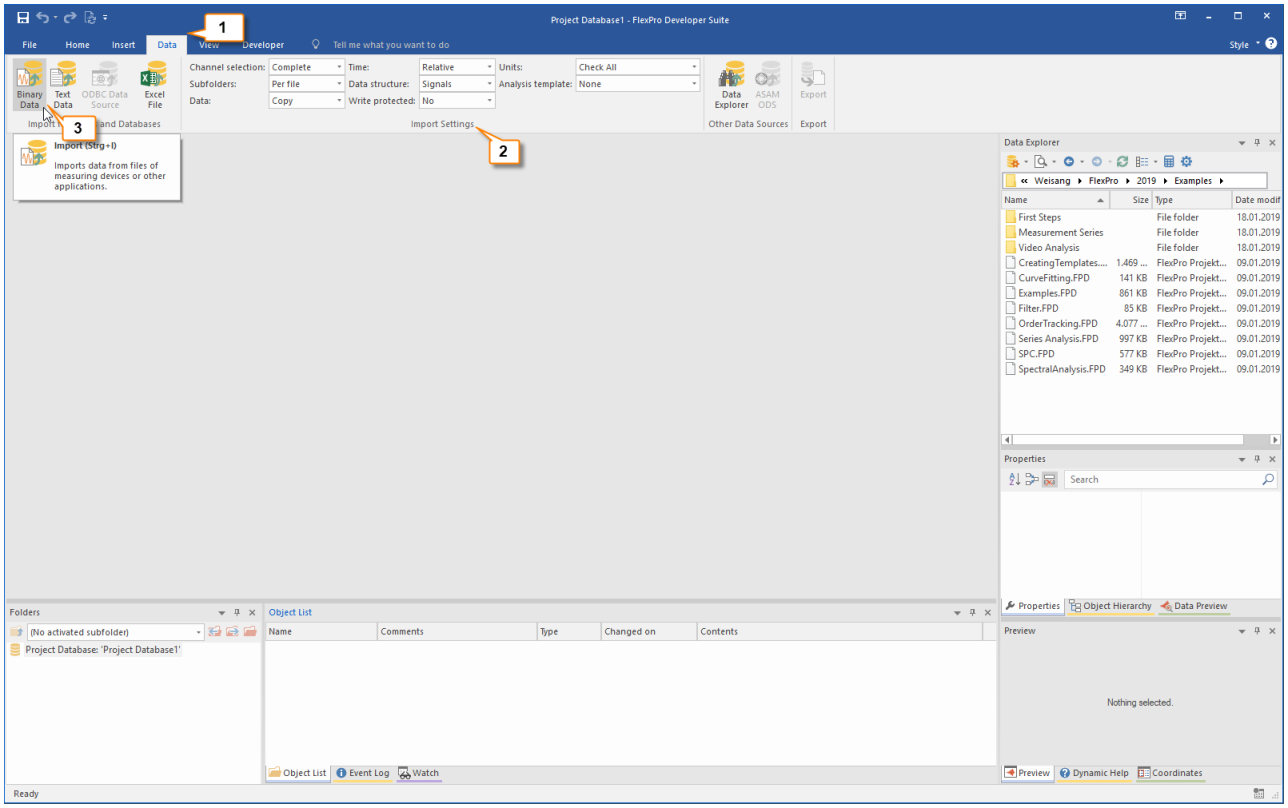
Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2].

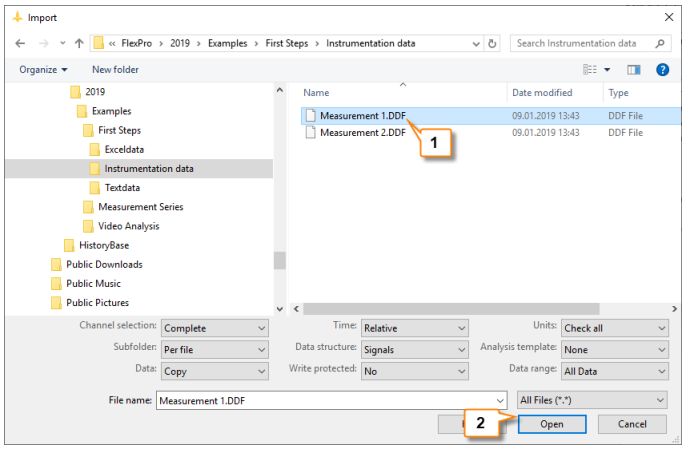
Next: Creating and Editing Diagrams 16.

Importing Data from Measuring Devices



Click on the Data tab on the ribbon [1] and in the Import Settings group select the options as shown in the picture [2].

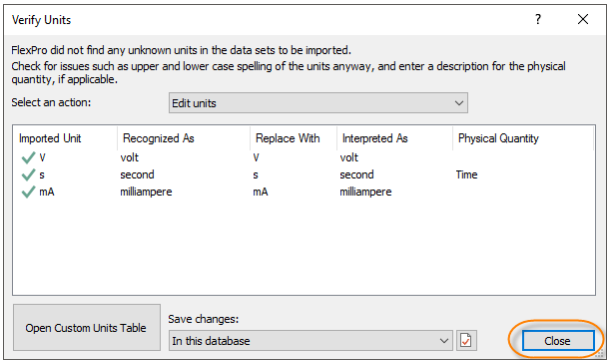
Click on [Import from Files and Databases] > Binary Data [3].



The Import dialog box opens.

Switch to the folder `C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL%>` or `C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>`. From there, switch to the subfolder `Examples\Data\First Steps` and select `Measurement 1.DDF` [1]. Click Open [2].

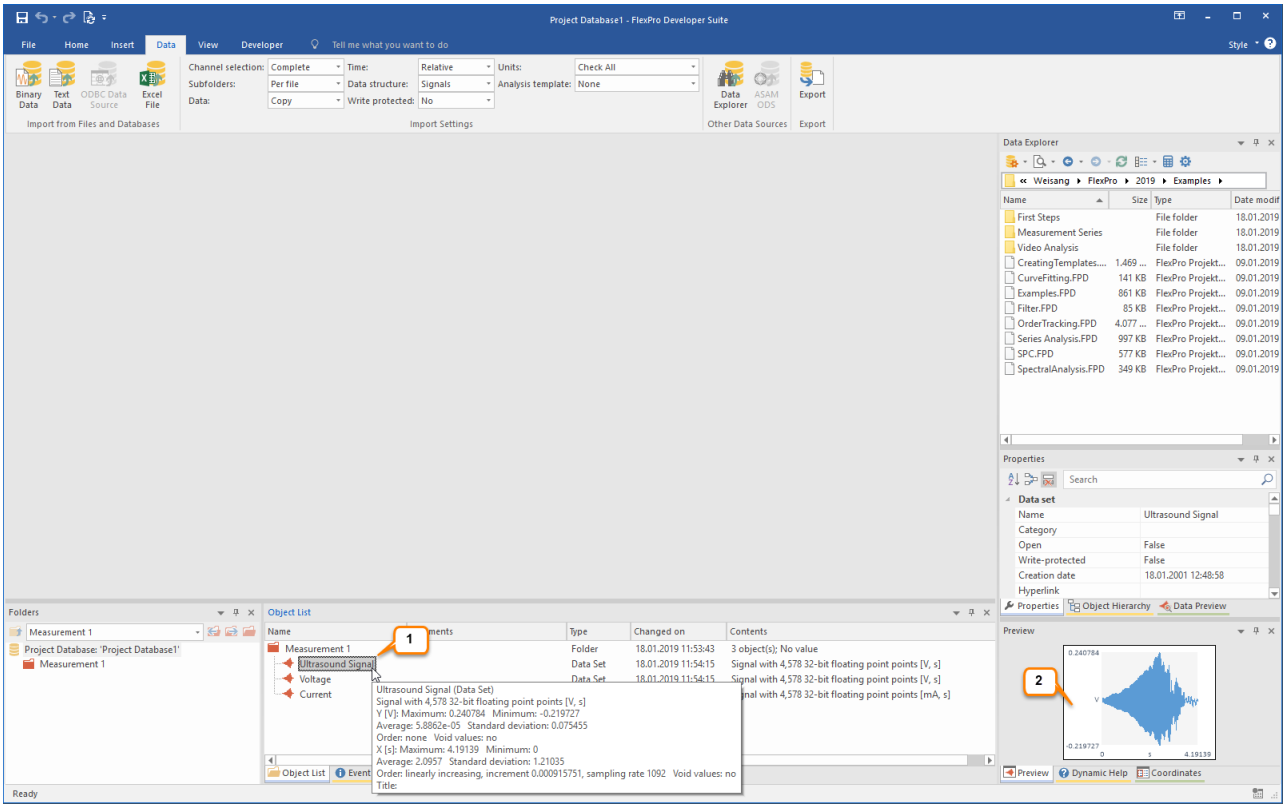
Note: If you expand the File Type list, all available import options will appear.



In the Verify Units dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

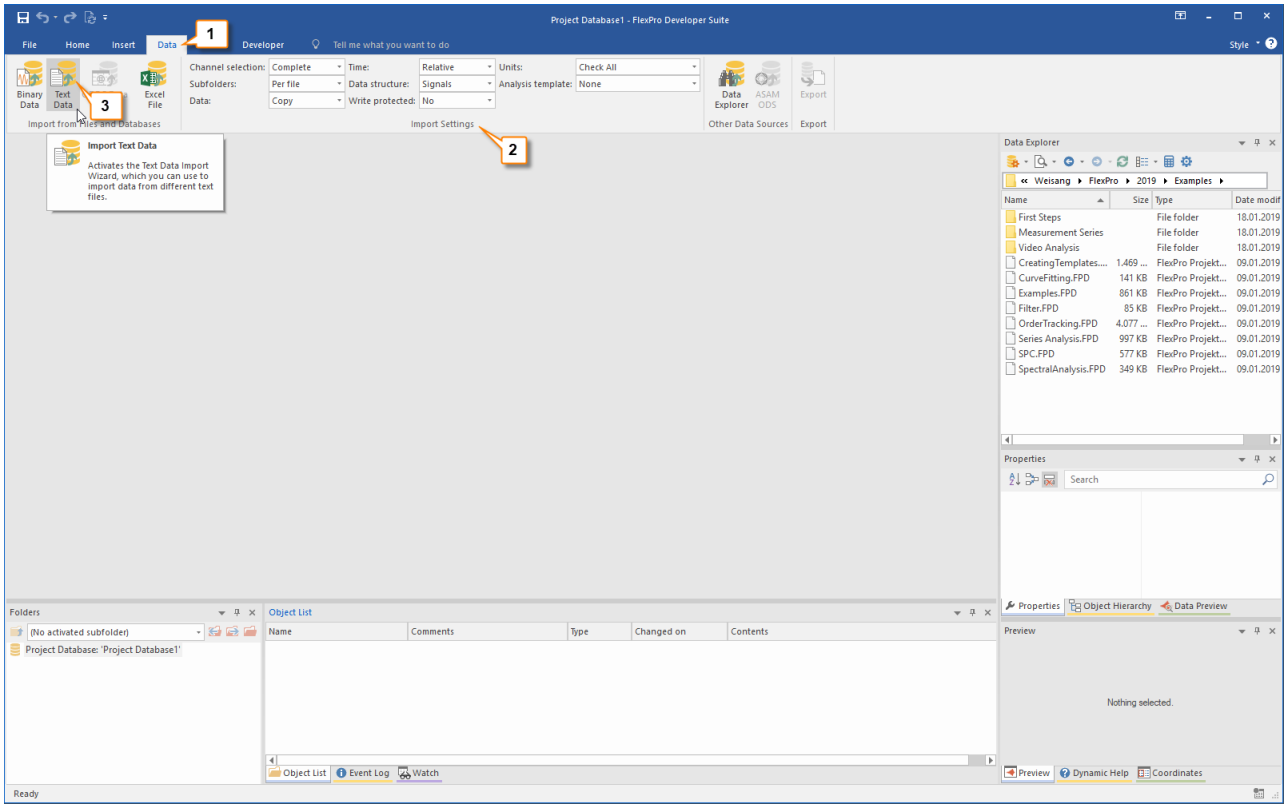
Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2].

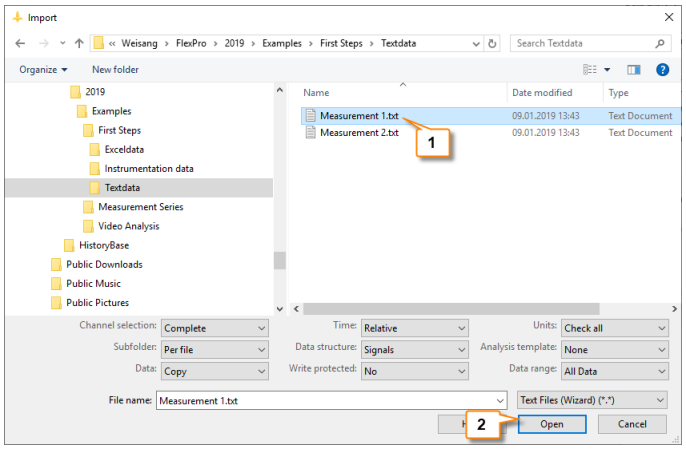
Next: Creating and Editing Diagrams 16.

Importing Text Data

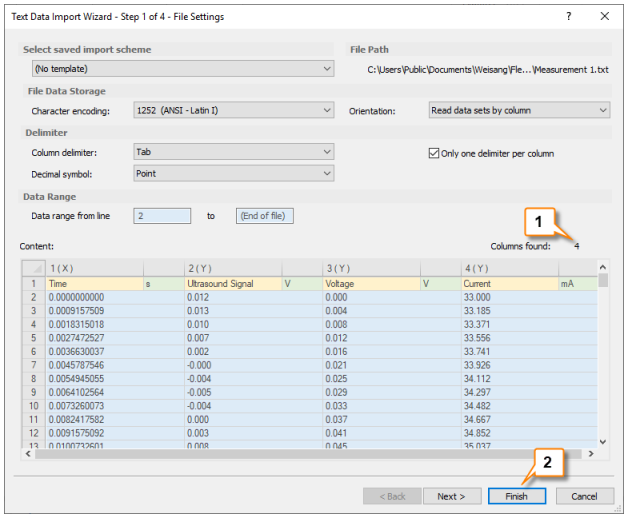


Click on the Data tab of the ribbon [1] and in the group called Import Settings set the options as shown in the picture [2].

Click [Import from Files and Databases] > Text Data [3].

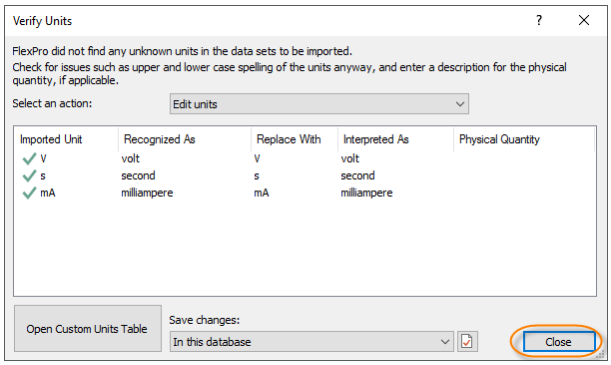


The Import dialog box opens. Switch to the folder `C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL%>` or `C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>`. From there, switch to the subfolder `Examples\Data\First Steps\Text data` and select `Measurement 1.txt` [1]. Click Open [2].



FlexPro automatically recognizes the current data set structure. You can verify this by looking at the value displayed for Columns found [1]. Click Finish [2].

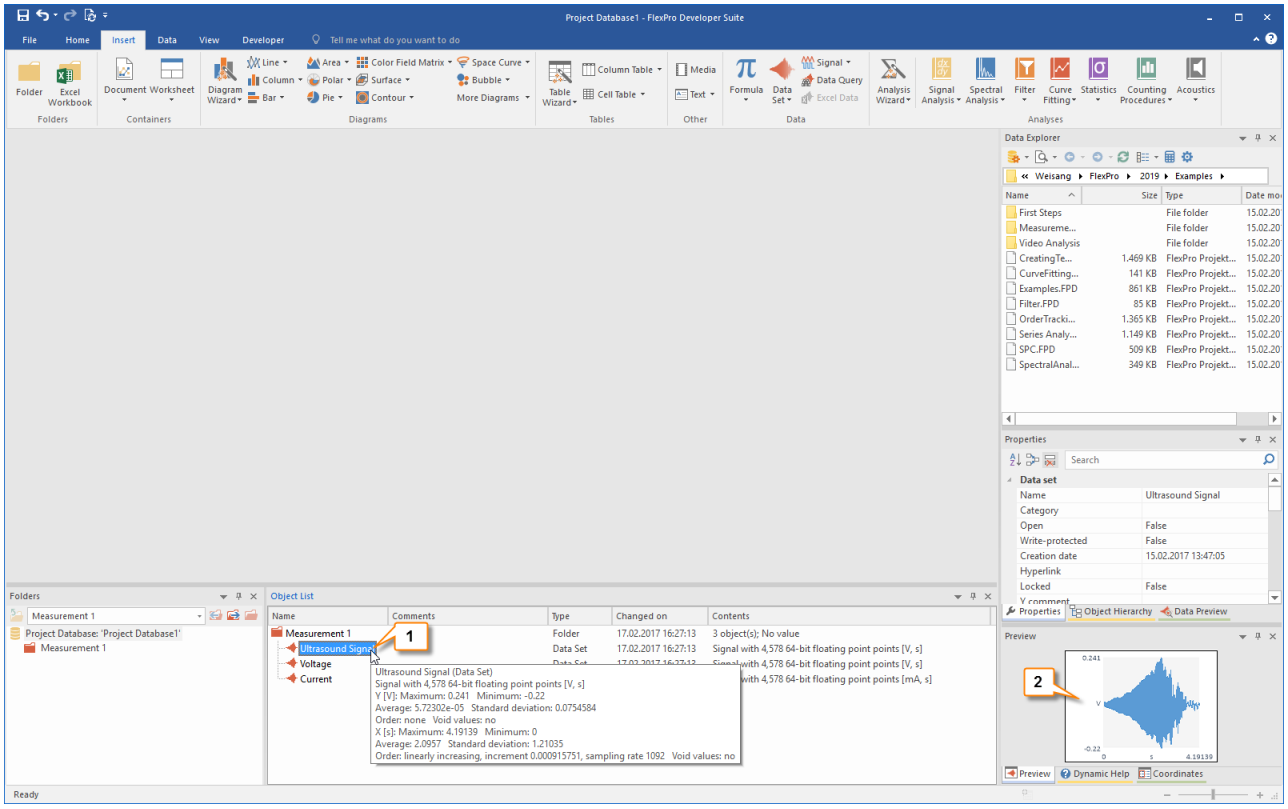
Note: When you import your own data, you may have to configure the settings on the next pages of the wizard so that the data is interpreted correctly. You can save all settings made in the wizard to quickly import data with the same data structure in the future. To do this, select the Save import schema option on the last page of the wizard.



In the Verify Units dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

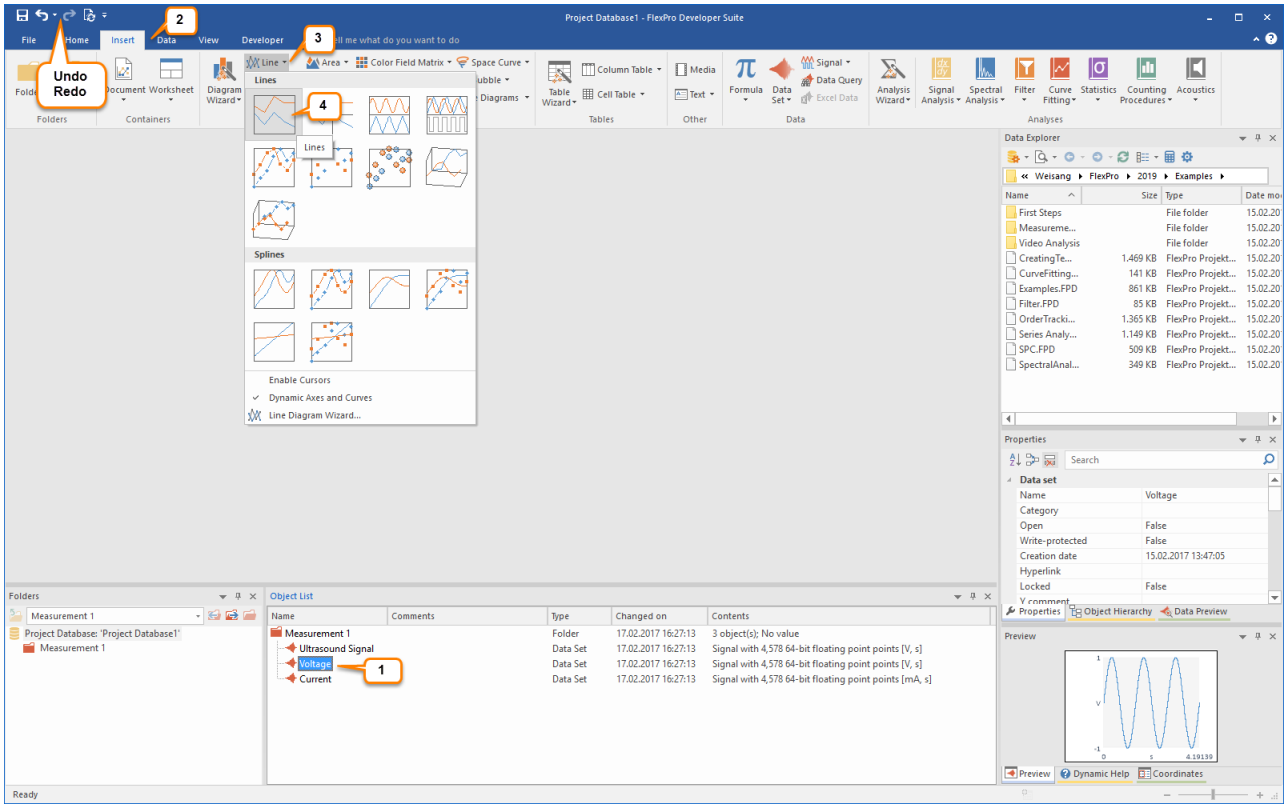
Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2].

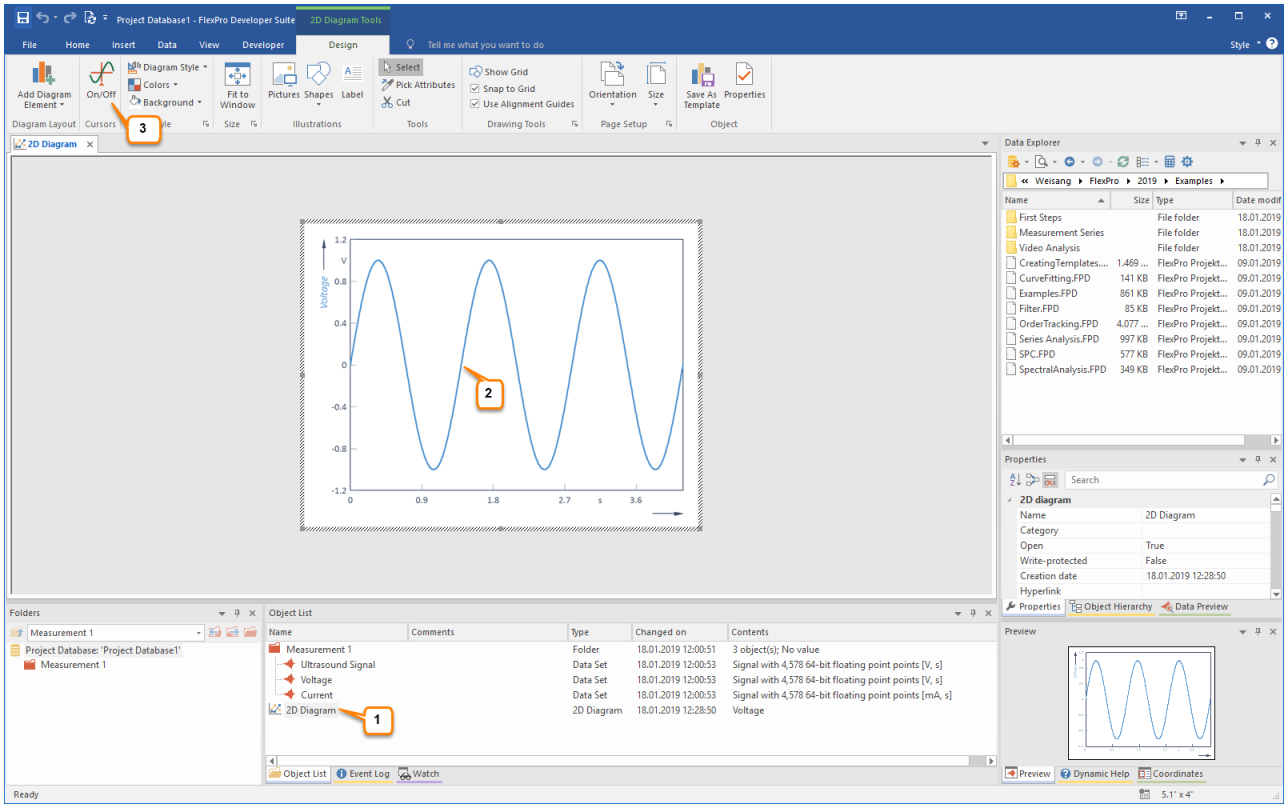
Next: Creating and Editing Diagrams 16.

Creating and Editing Diagrams



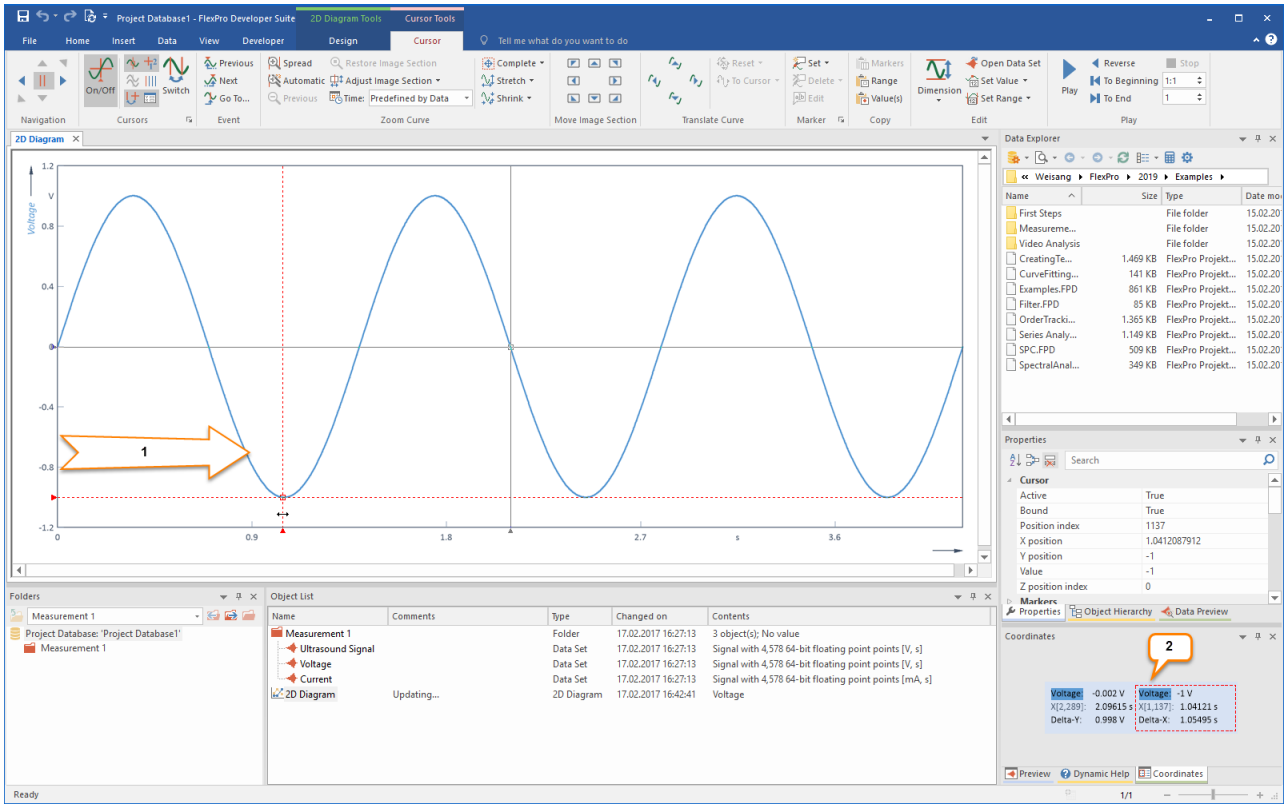
Use your left mouse button to select the data set Voltage [1]. Next, click on the Insert tab of the ribbon [2]. Open the Line [3] menu and select Lines [4].

Note: If necessary, you can undo any steps you make in FlexPro. Just click on the Undo/Redo Symbols on the Quick Access Toolbar.



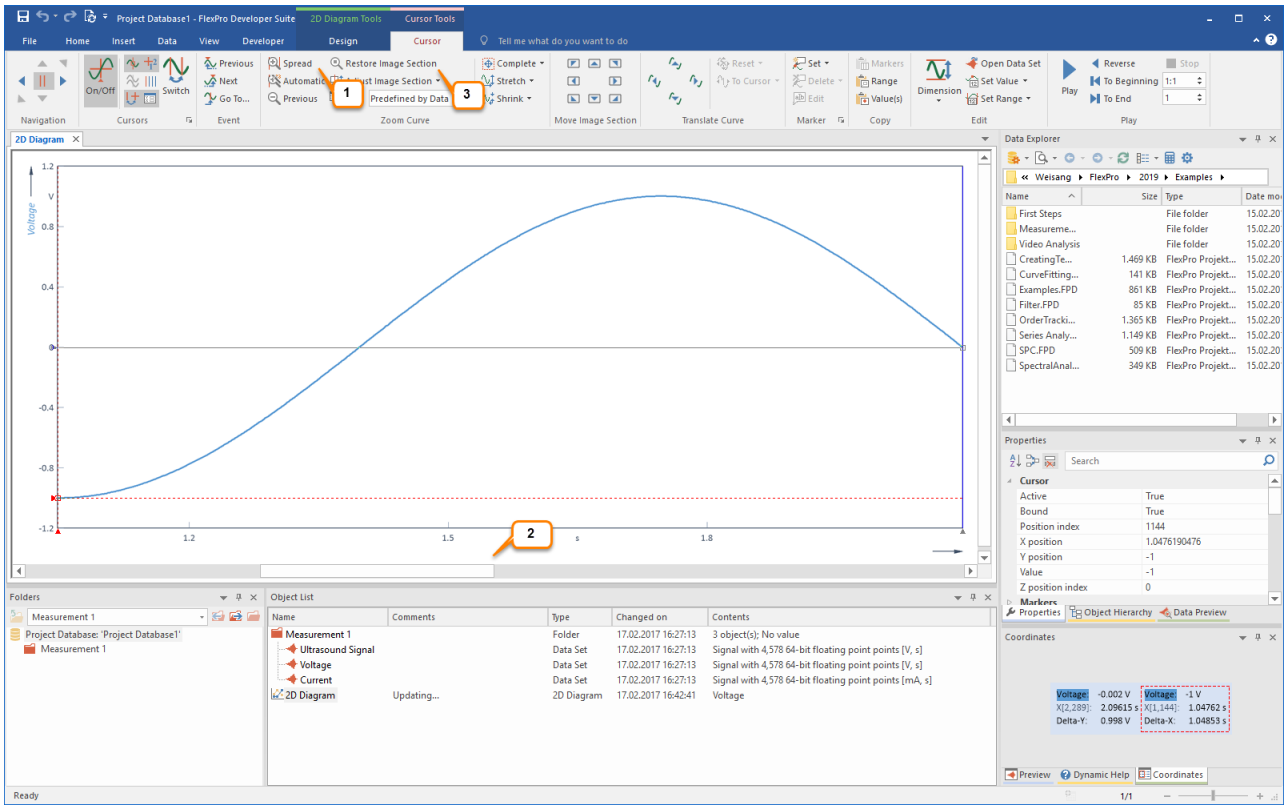
The new diagram is inserted into the Object List [1] and is opened in the workspace [2]. Click [Cursors] > On/Off to activate the data cursors [3].

Using Cursors to Measure Data Sets



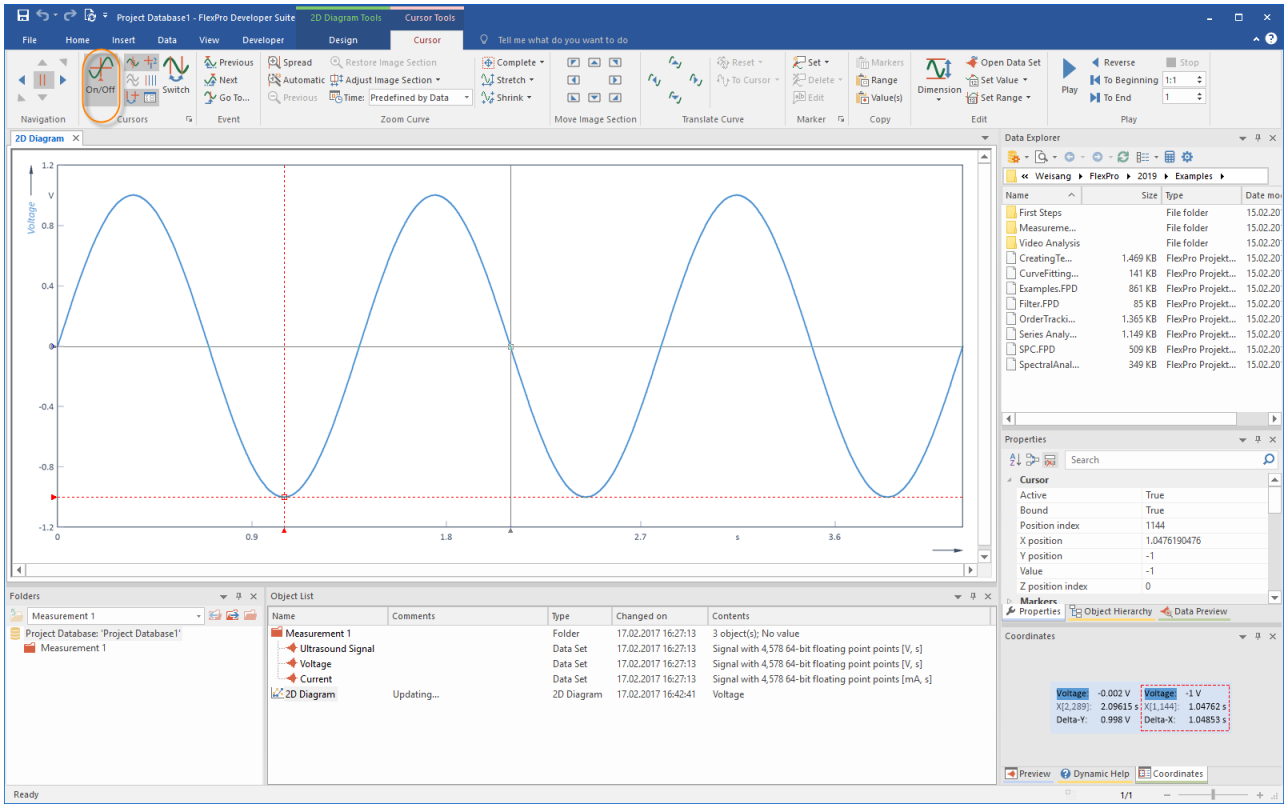
Move your mouse pointer to the left Y axis where one of two cursors is located. A horizontal double arrow appears. Hold the left mouse button down and move the cursor to the right [1]. The current values for the positions of the cursors are displayed in the Coordinates window [2].

Spreading the Curve in a Diagram

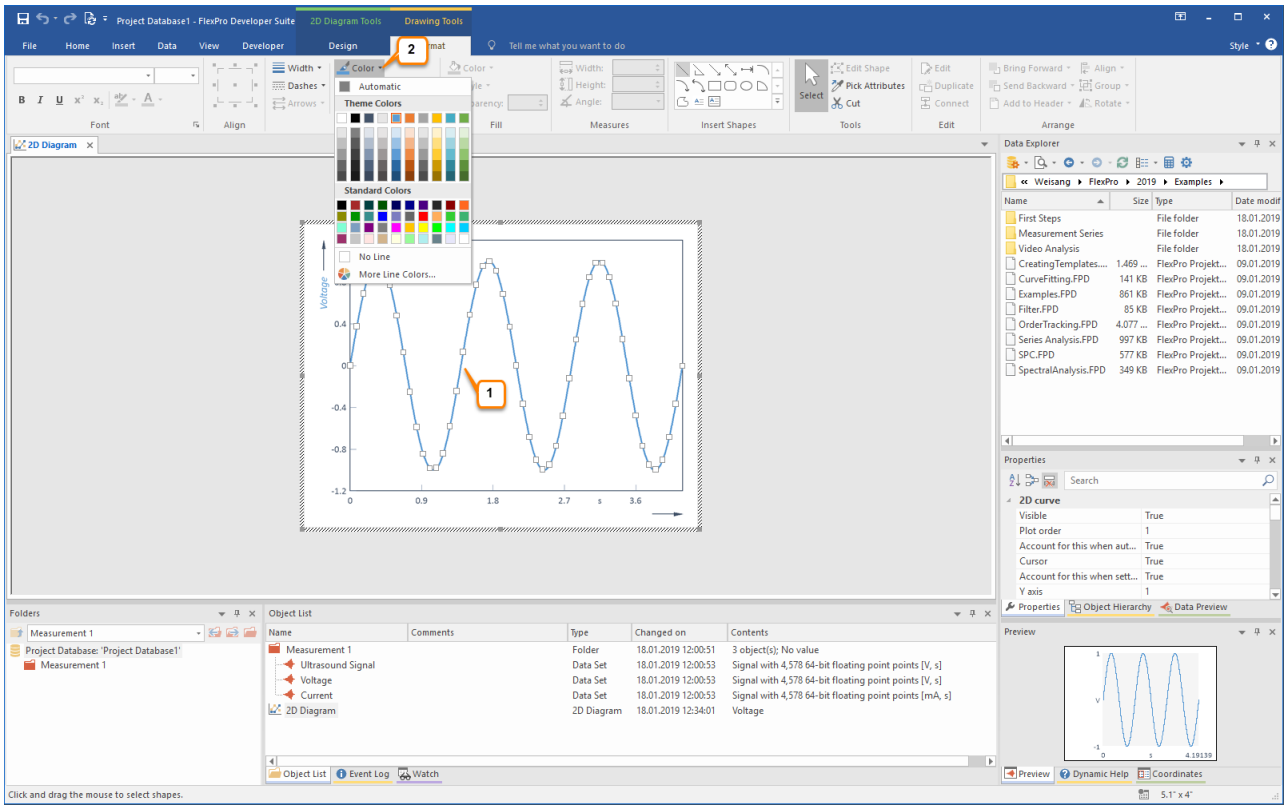


Clicking on the Spread [1] icon enlarges the signal section between the cursors. Use the scrollbar [2] to move the stretched data set within the diagram.

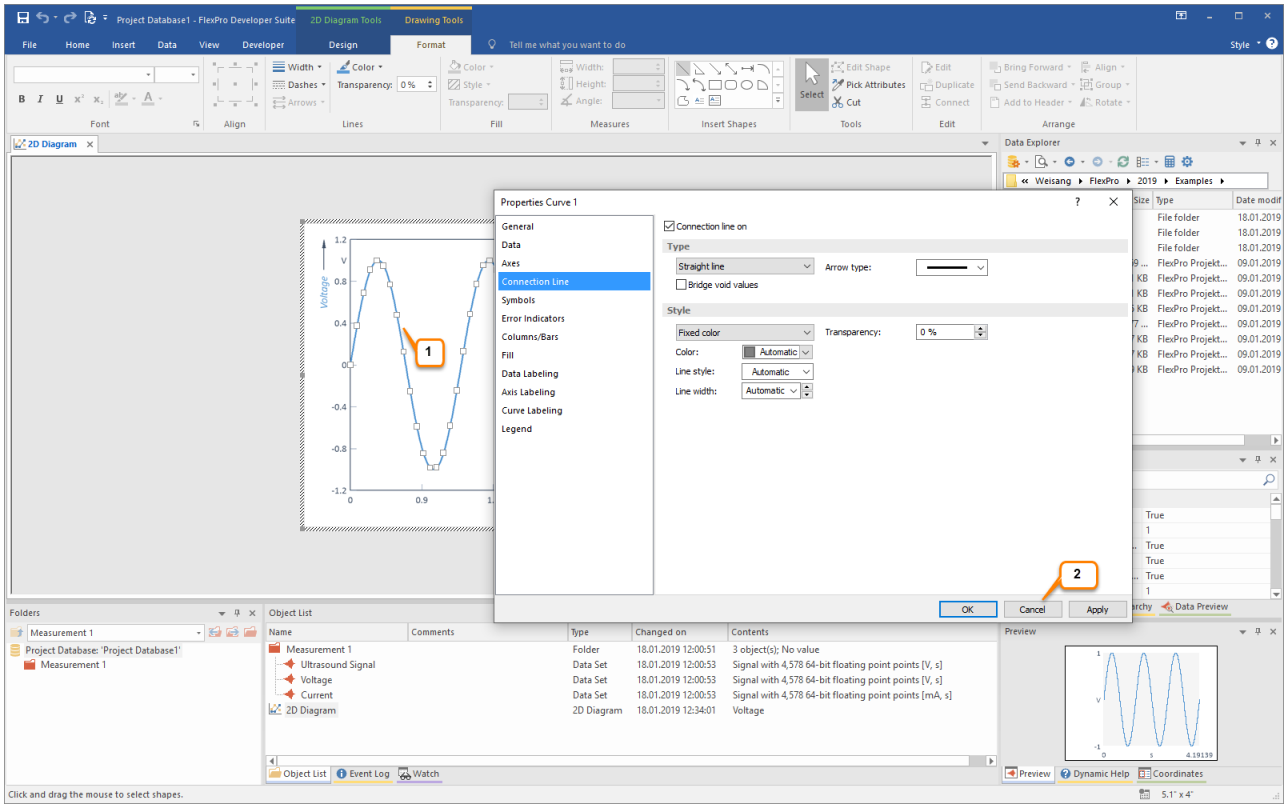
The Restore Image Section [3] icon allows you to undo all zoom operations in one step.



Switch off the cursors using [Cursors] > On/Off in order to edit the diagram.



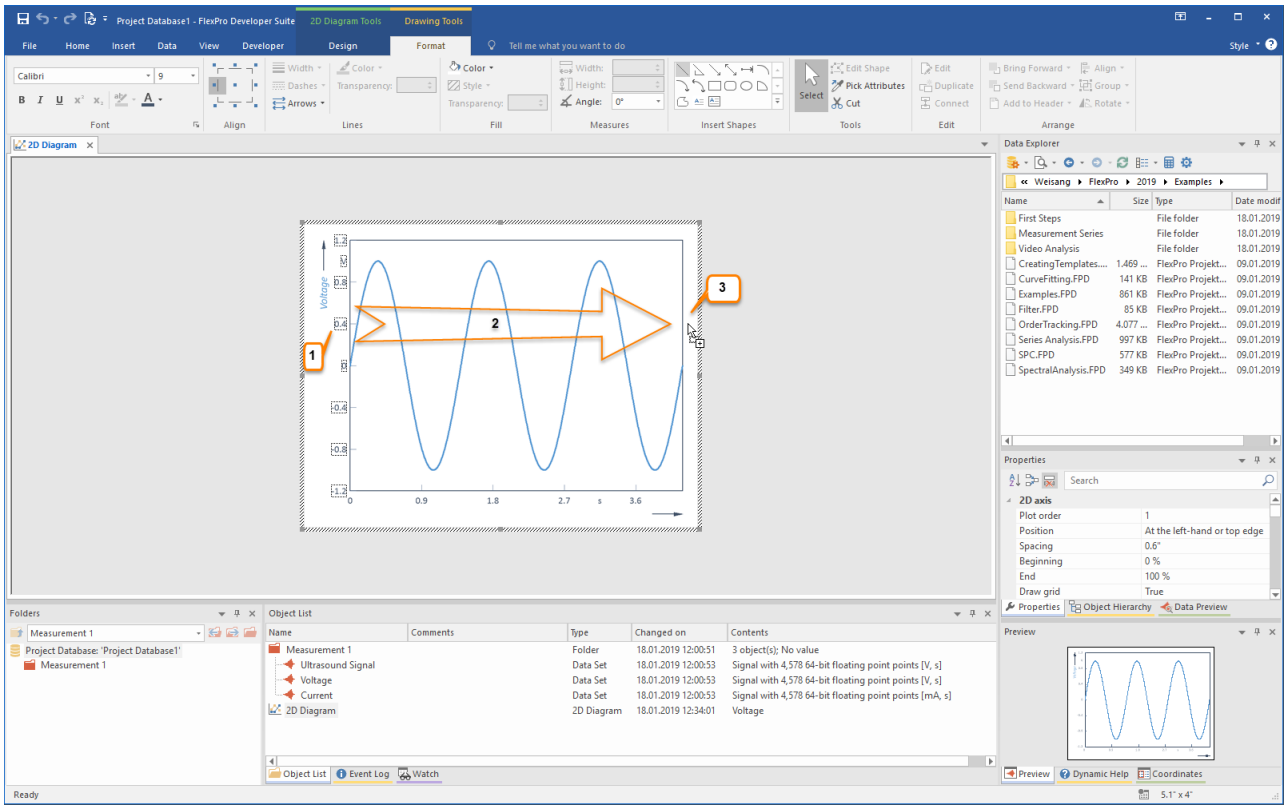
With one click of the left mouse button on the curve of the diagram, this curve can be selected for editing [1]. Using the Line Color [2] menu, you can now change the color of the curve, for instance.



Double-clicking with the left mouse button on the selected curve [1] opens the Properties dialog box for the curve. This is where all options for changing this curve are displayed. Now close the Properties dialog box by clicking on Cancel [2].

Note: Double-clicking on any element (axes, scaling, etc.) opens the respective Properties dialog box automatically and allows you to work with the element.

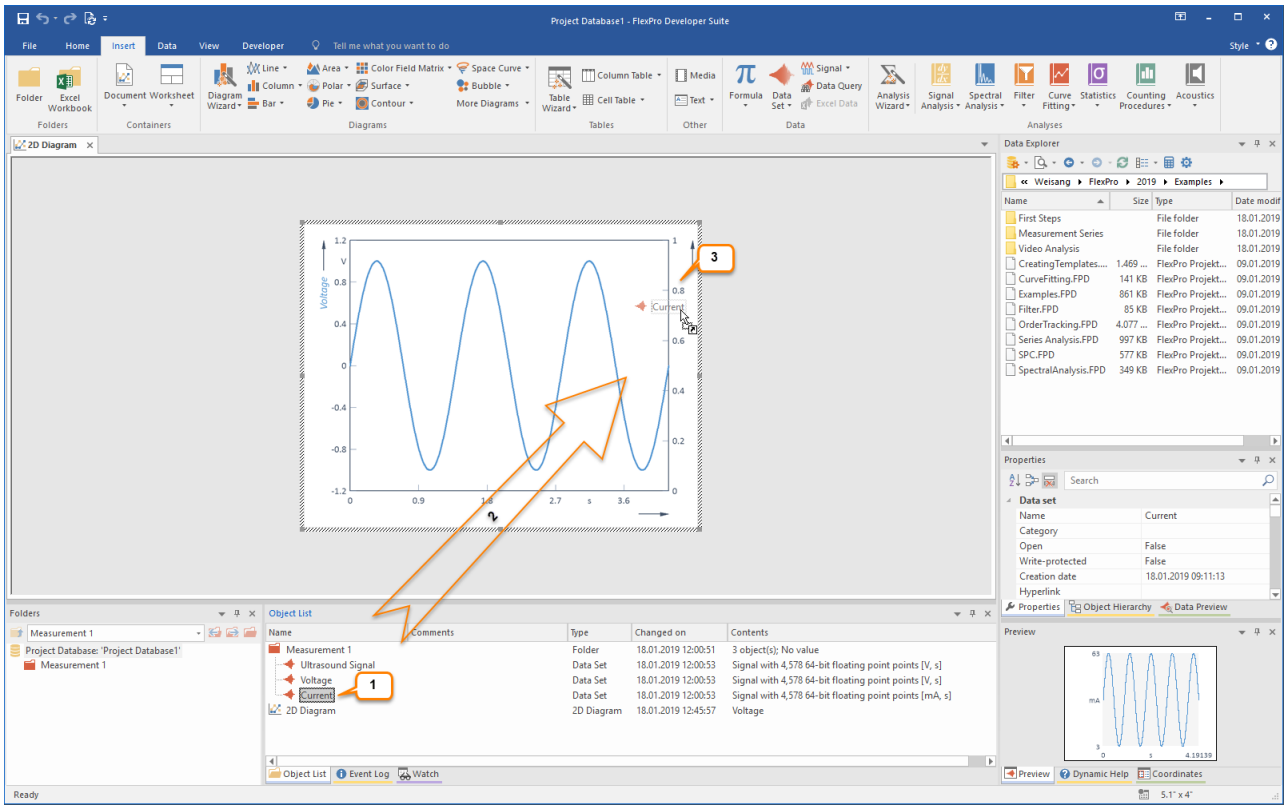
Creating a New Y Axis



Click on the scaling of the Y axis using the left mouse button. The numerical values appear highlighted [1].

Move your mouse pointer to one number on the Y axis. For example, click on the number 0.4 and hold down the left mouse button. Now also press the CTRL key. The mouse pointer now displays an additional + sign. Move the mouse pointer to the white space to the right of the diagram [2]. Now release the mouse button [3]. A new axis is added at the selected position. In the next step, a data set will be scaled over this new axis.

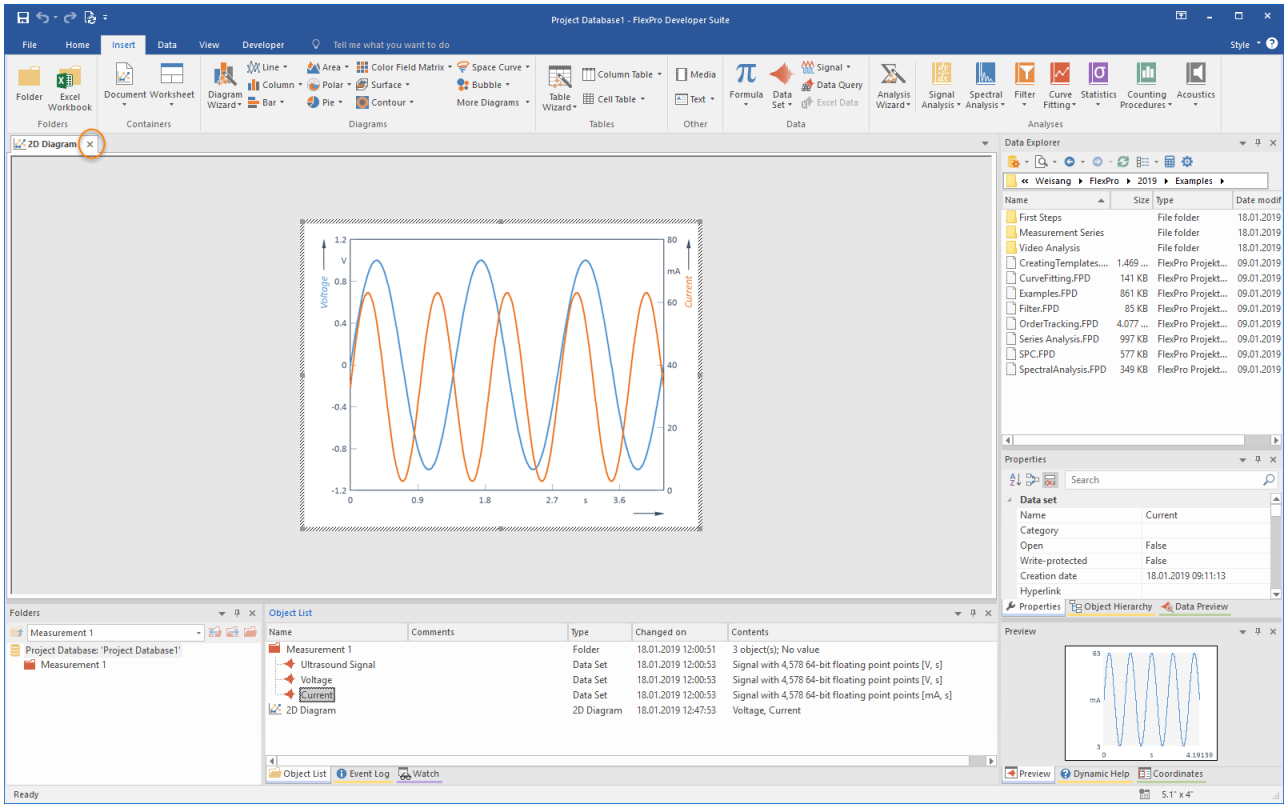
Adding a Second Data Set to the Diagram and Scaling Over the New Axis



In the Object List, click on the data set called Current. Press and hold down the left mouse button [1].

Move your mouse pointer to the new axis [2]. Release the mouse button [3]. The Current data set appears in the diagram and is automatically scaled over the new axis.

Note: If the object in which you want to insert an element via drag-and-drop is located on a tab in the background and is therefore not visible, move your mouse pointer to the tab of the target object and wait a moment. FlexPro will then bring the window to the foreground.



This is how your diagram now looks with two data sets and two Y axes. Now close the diagram by clicking on the Close icon in the window tab.

Note: Click the 2D Diagram object in the Object List. Now you can copy this diagram to the clipboard or use drag-and-drop to copy it into a Word document, for example.

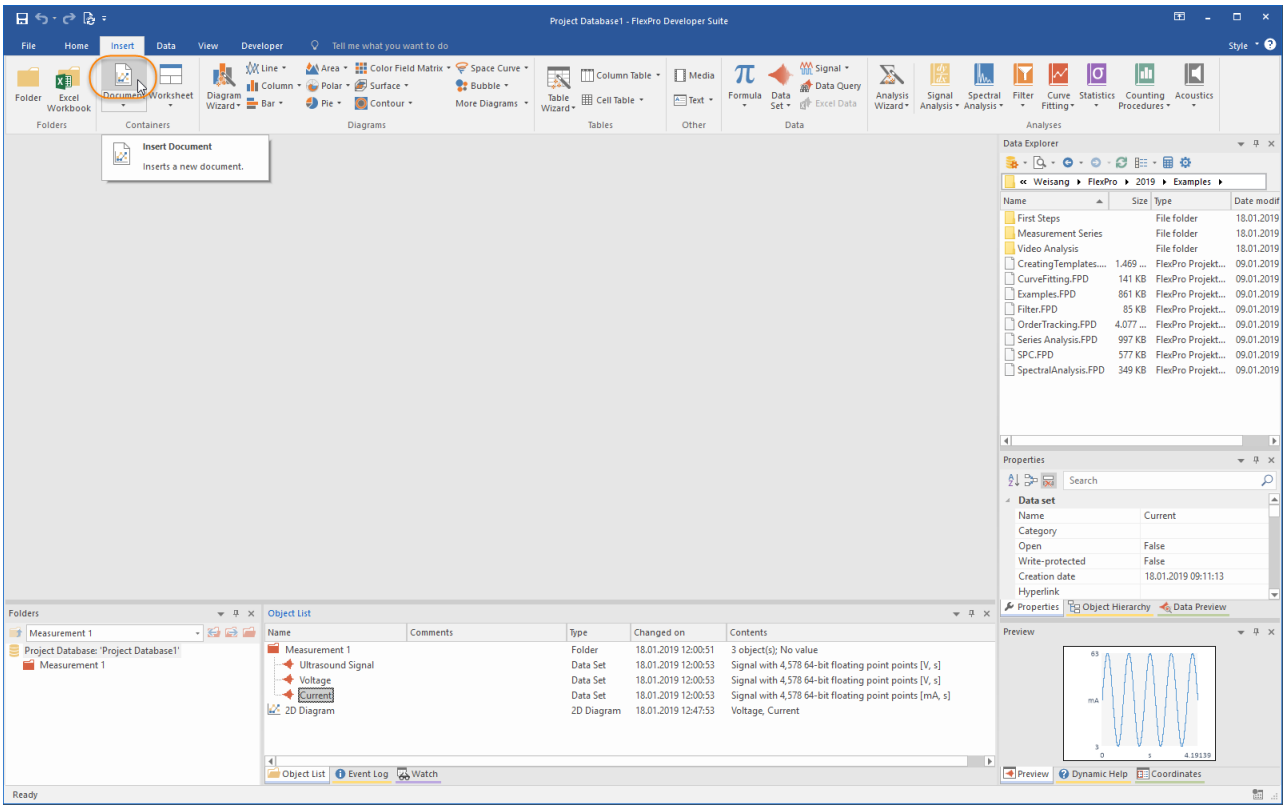
Next: Creating a Document 24.

Creating a Document

The Document

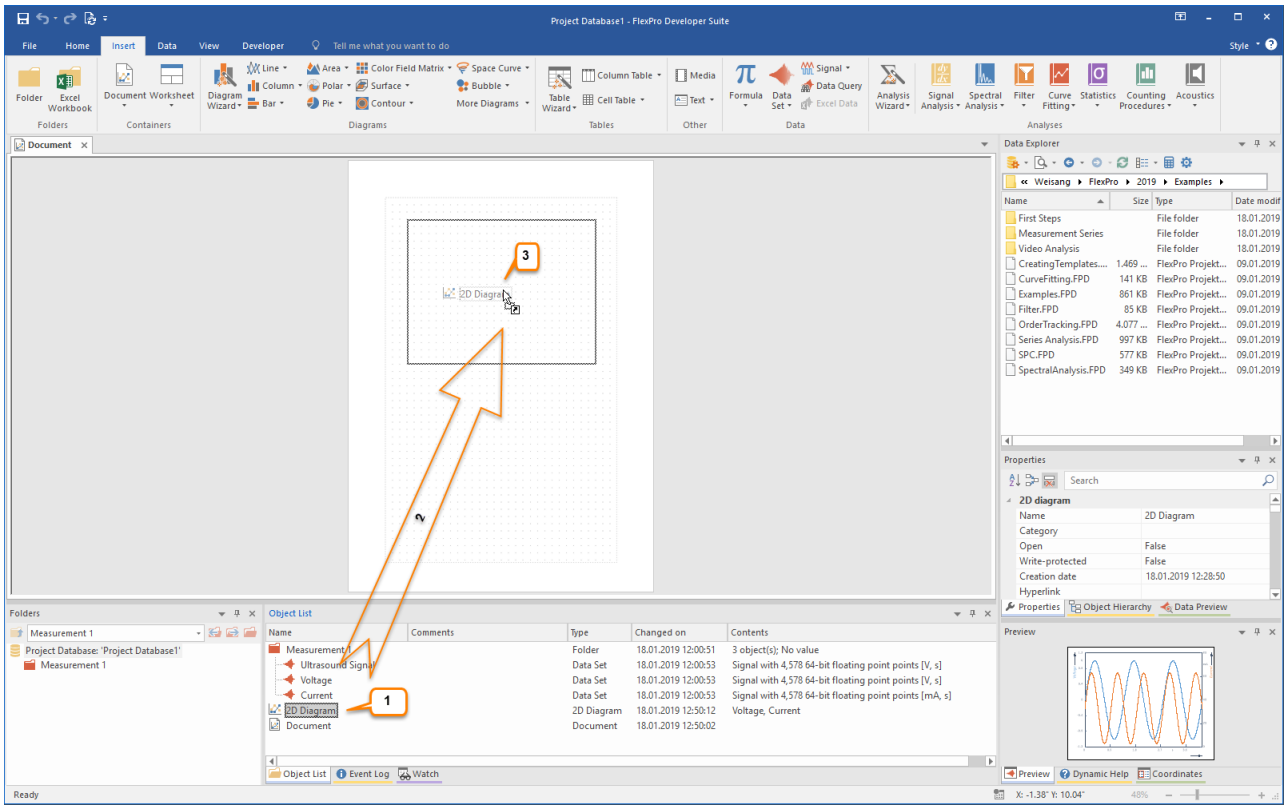
A document is the equivalent of a piece of paper on which you can place diagrams, text and tables and then print it out.

Creating a Document



Click on the Insert[Containers] > Document to create a blank document.

Displaying a Diagram in a Document

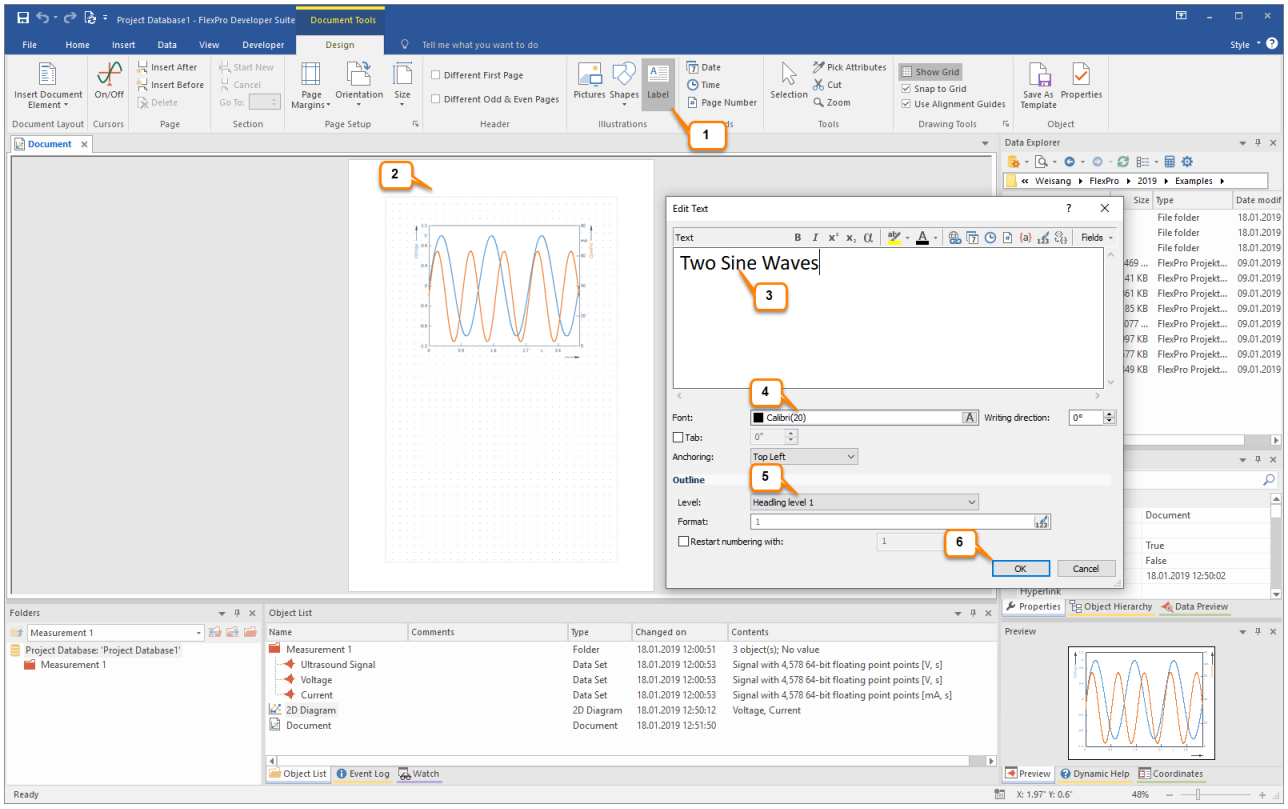


Select the appropriate diagram, in this case 2D Diagram, from the Object List [1]. Next, drag this diagram to the document by holding down the left mouse button and placing it where you want it to be located [2]. After releasing the button on your mouse, the diagram is displayed in the document [3].

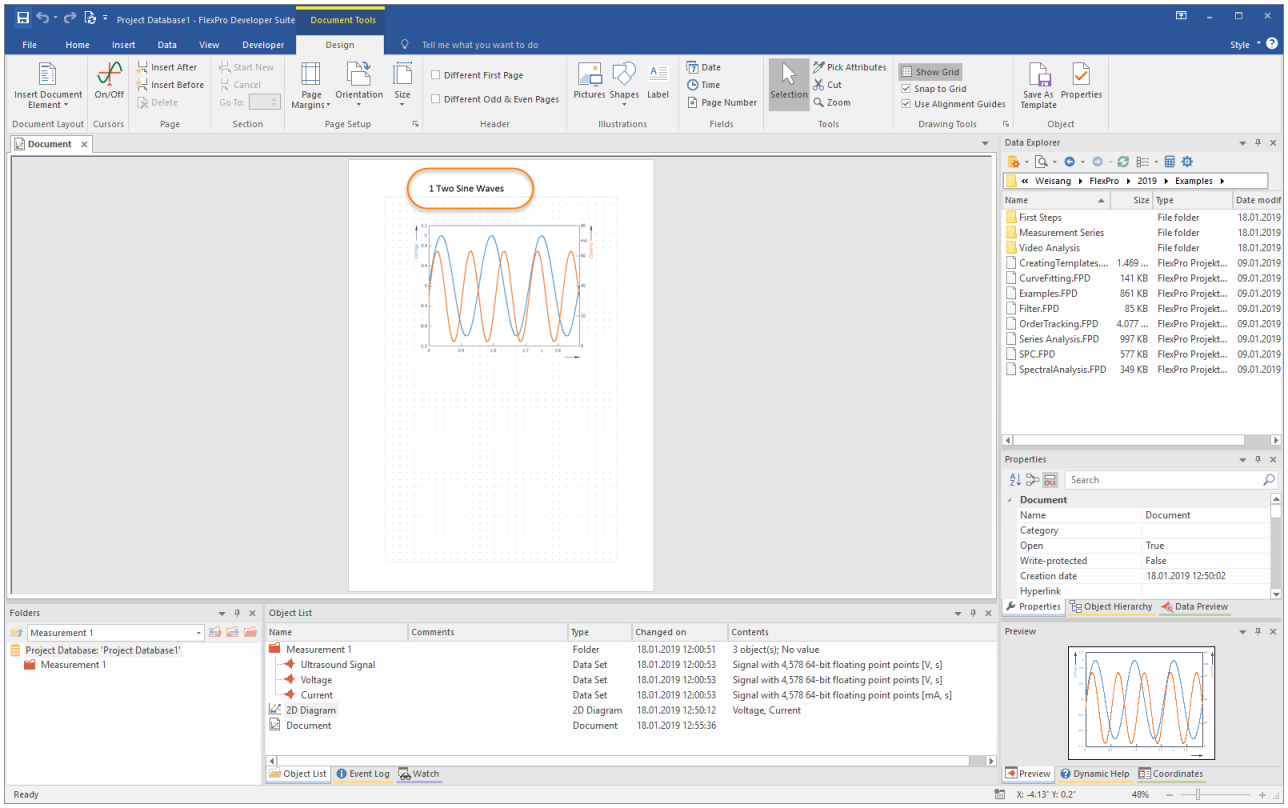
Note: In this case, a link to the diagram located in the Object List is inserted into the document. You can see this as a link icon, which appears on the mouse pointer. To insert a standalone copy of the diagram into the document, you have to hold down the CTRL key and mouse button at the same time.

Inserting a Row of Text into a Document

Click Design[Illustrations] > Label [1] and then move the mouse pointer to the location where you want the label in the document [2]. Click to open the Edit Text dialog box.



Now enter the appropriate text [3], select font size 20 [4], headinng level 1 [3] and click OK [4]. The text will then appear in the document.



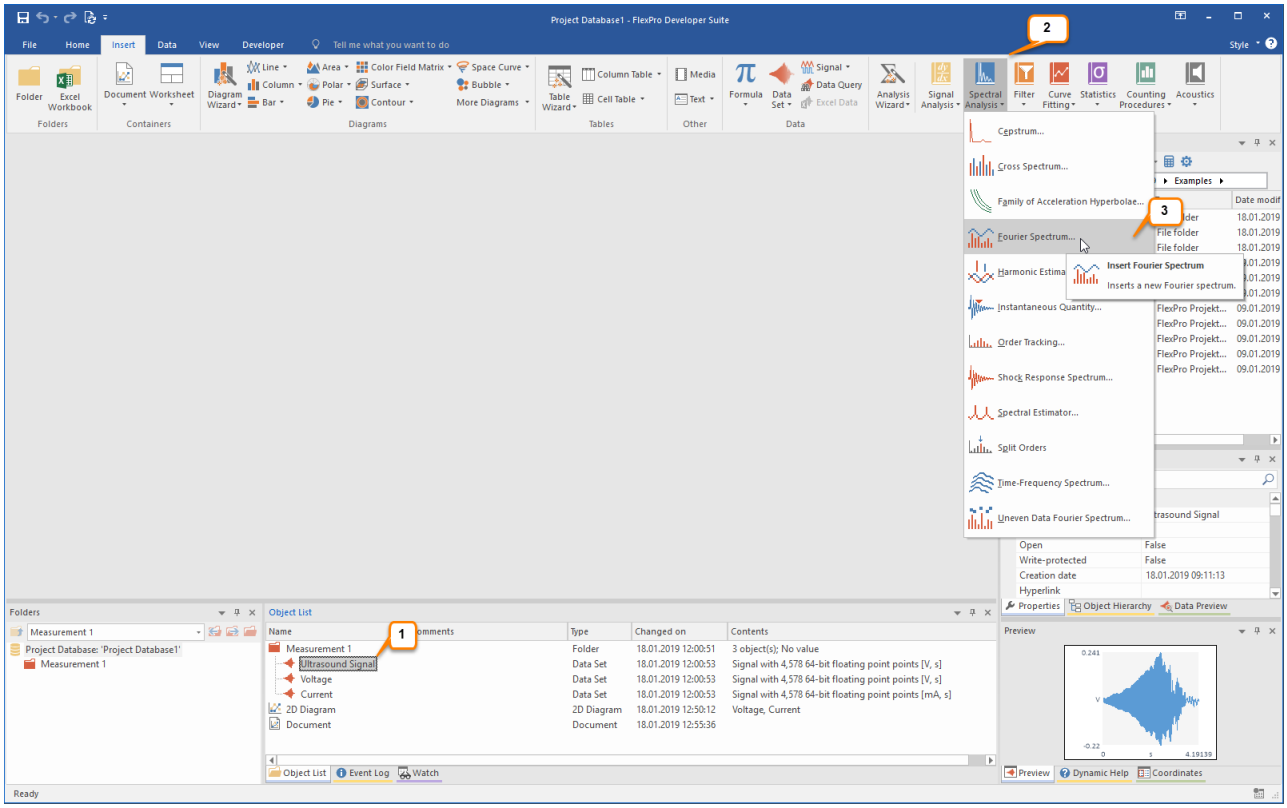
The inserted text can now be moved with the mouse.

Now close the document.

Note: If you activate the cursor using the Document Tools[Cursors] > On/Off icon and click on the diagram in the document, all of the cursor options become available to you in the document. You can also create multi-page documents.

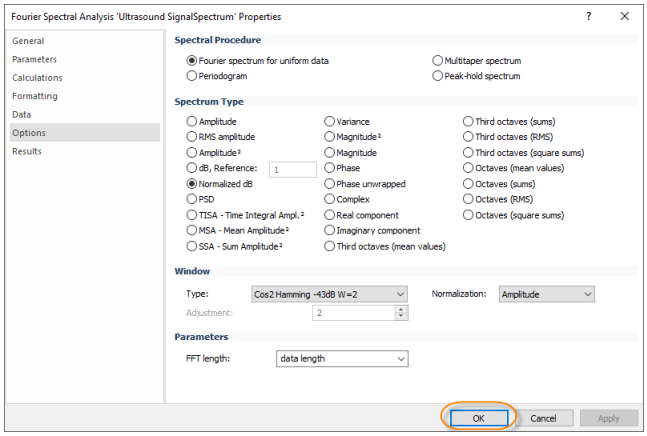
Next: Calculations in FlexPro 28.

Calculations in FlexPro

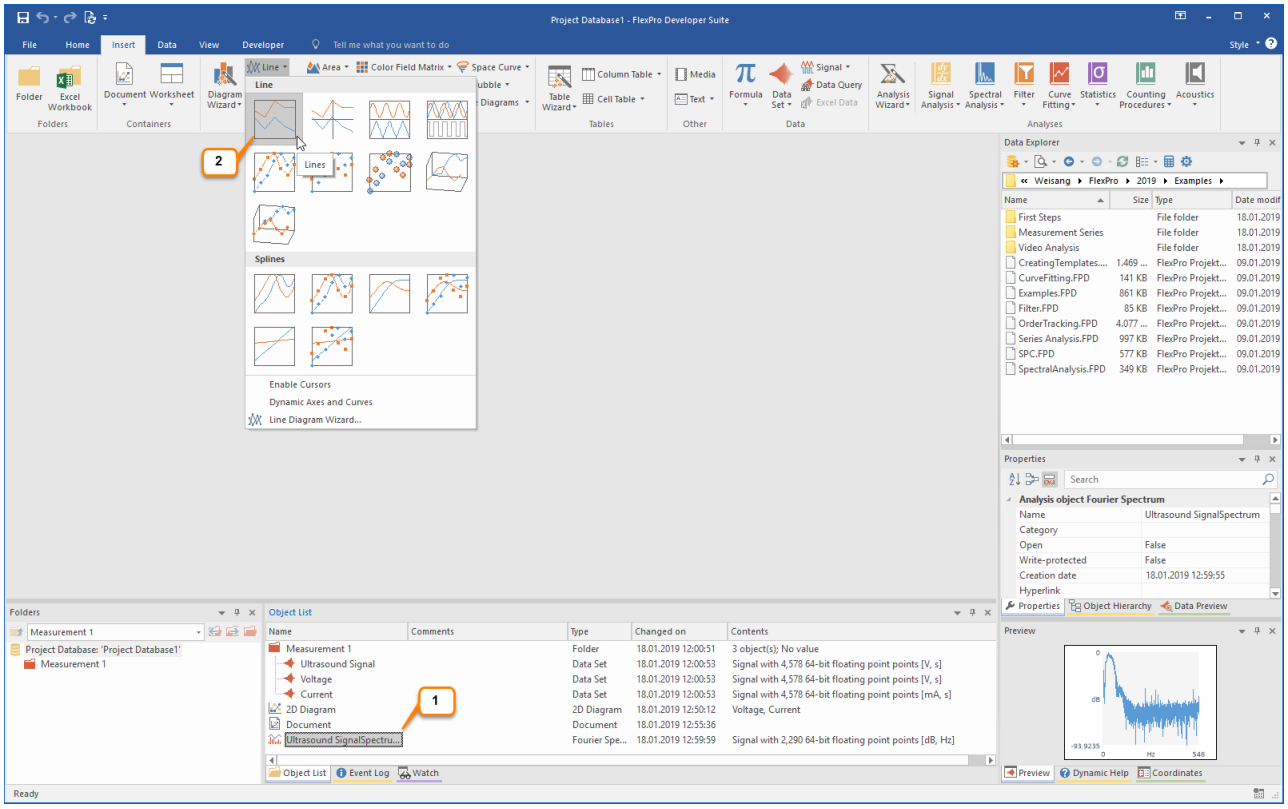


Select the data set in the Object List called Ultrasound Signal [1]. In the Preview you can see the shape of the signal.

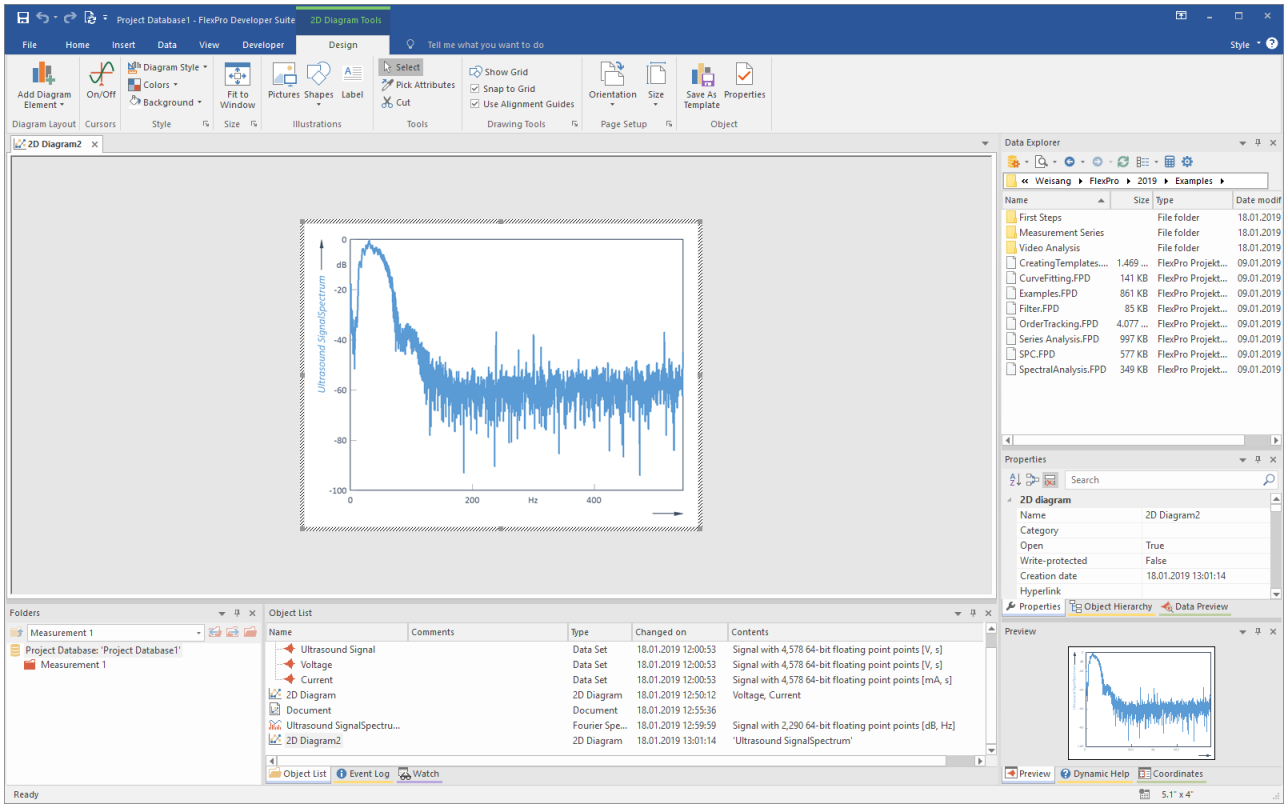
Next, from the Insert[Analyses] > Spectral Analysis [2] menu select Fourier Spectrum [3]. FlexPro now creates an analysis object for calculating the Fourier spectrum.



In the Properties dialog box, which is now opened, leave all settings unchanged and exit by clicking OK. The spectral analysis is performed for this example using the default settings in the dialog box.



In the Object List, the analysis object is displayed with the name Ultrasound SignalSpectrum [1]. This represents the spectral analysis of the ultrasound signal and can be used like a data set. To display this calculated spectrum in a diagram, select Insert[Diagram] > Line > Lines [2].

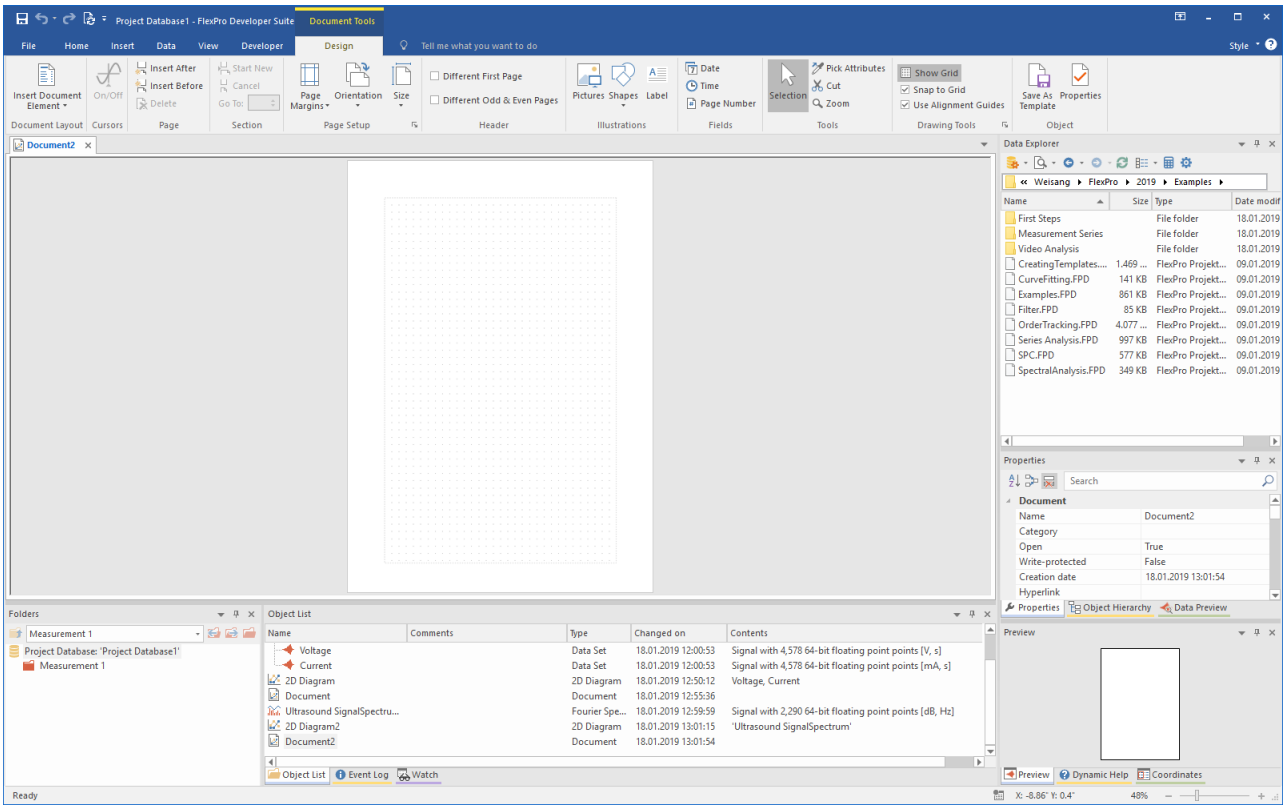


The new diagram with the spectral analysis is then displayed in a new window. Now close the diagram.

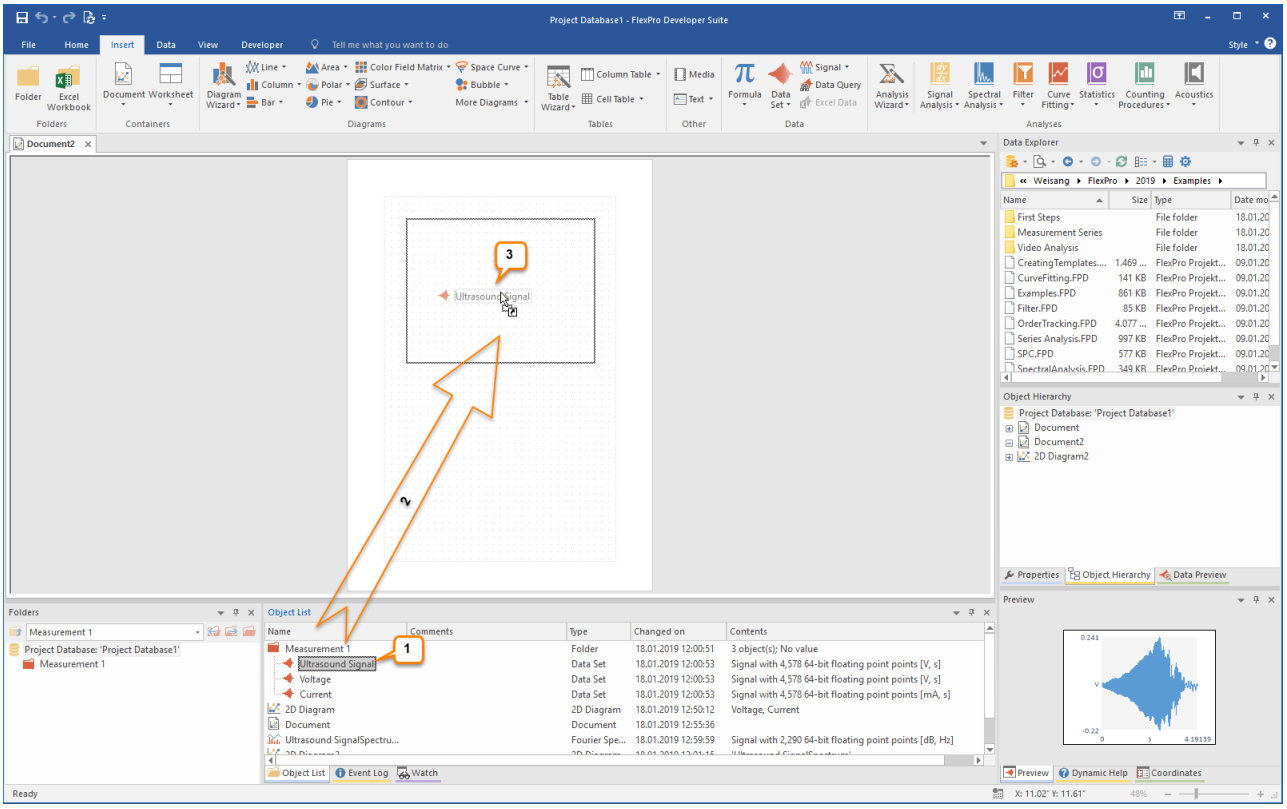
Note: You can also set up your own calculations as FlexPro formulas. Wizards are available to assist you with this process.

Next: Automatic Presentation and Calculation of Data with the Press of a Button 31.

Automatic Presentation and Calculation of Data with the Press of a Button

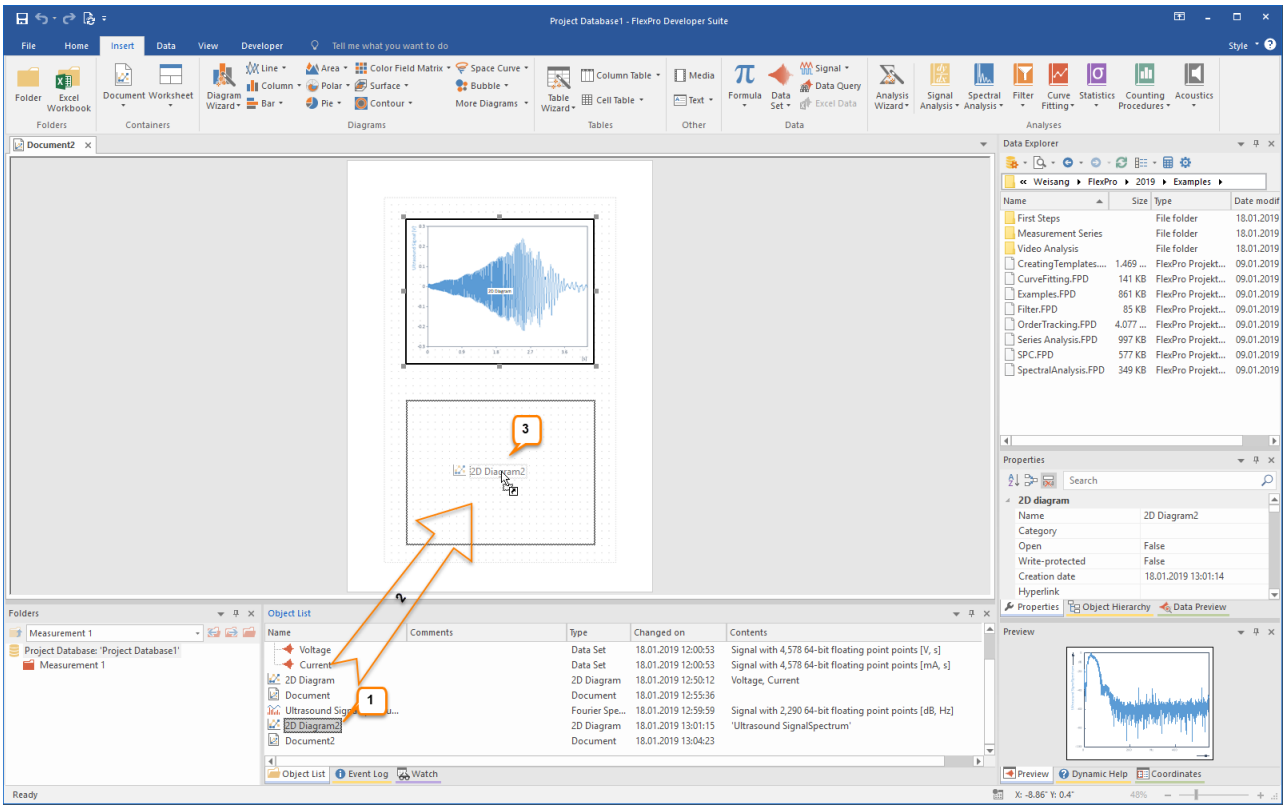


Create a new document by clicking on Insert[Containers] > Document.

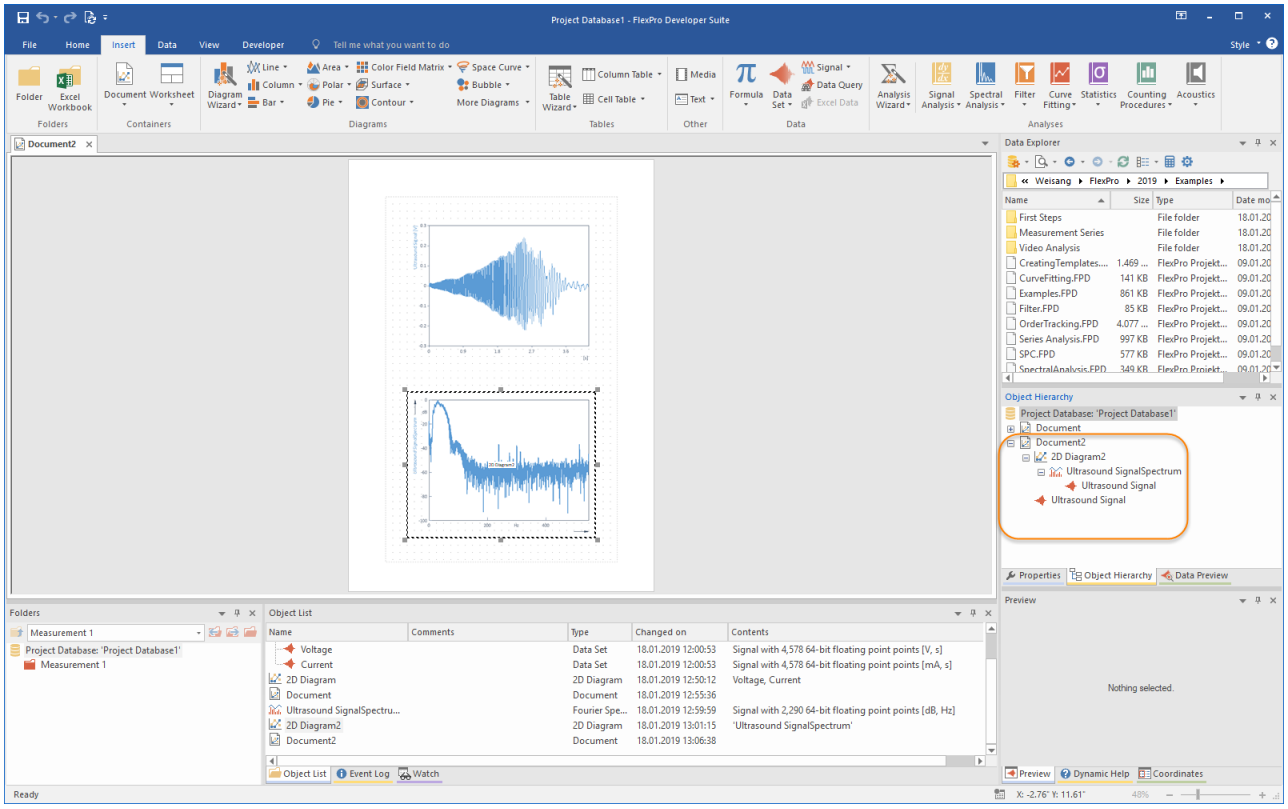


Select the data set in the Object List called Ultrasound Signal [1]. Drag this data set to the document by holding down the left mouse button [2] and placing it where you want it to be located. After releasing the mouse button, the data set is displayed in the document [3].

Note: You can drag a data set directly into a document without creating a diagram first. If you do this, a diagram is automatically created within the document.



Now select the diagram called 2D Diagram2 [1] with the spectral analysis and place this diagram within the document by selecting the diagram in the Object List with your left mouse button and, while holding the mouse button down, drag the diagram to the desired location in the document [2] and drop it there [3].



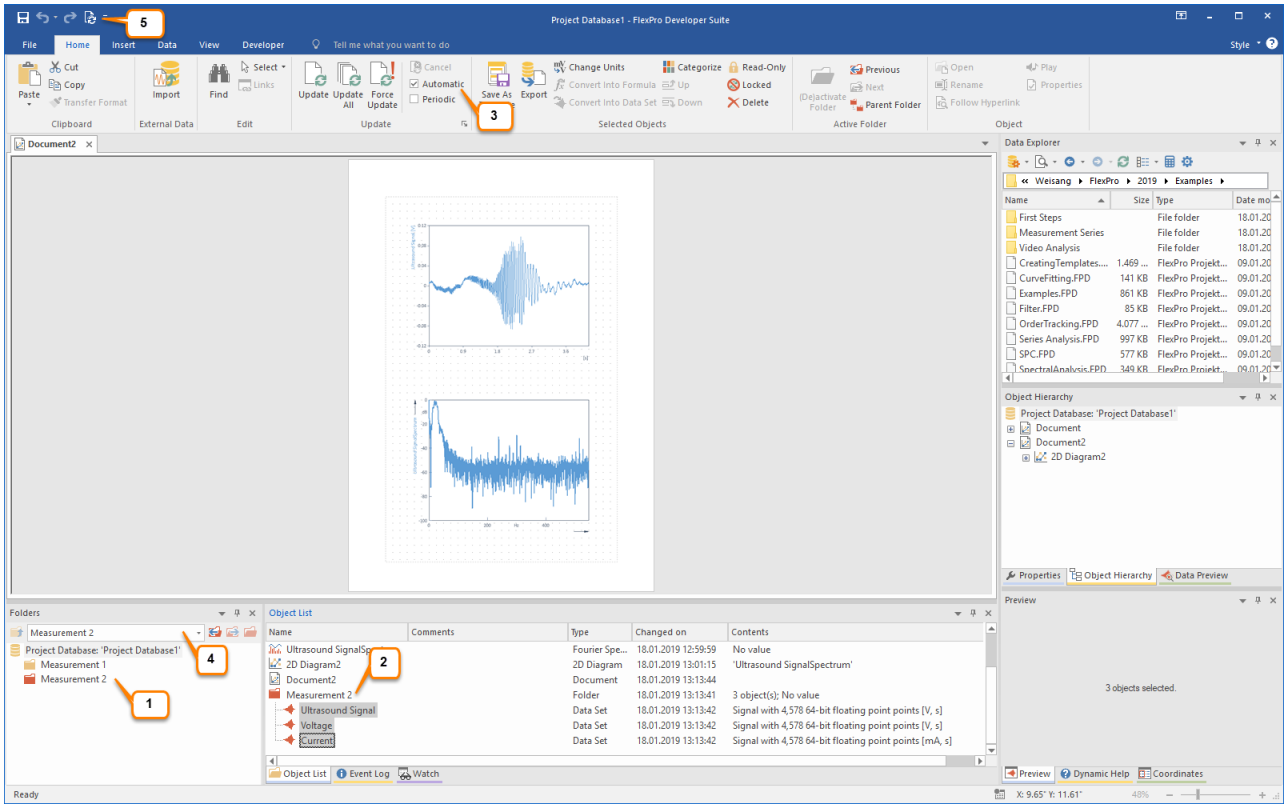
You now have a finished document with the ultrasound signal and the spectral analysis of this signal from Measurement 1.

All objects from which you have assembled your evaluation form a dynamic network, which is displayed in the Object Hierarchy window. You can thus use the evaluation directly as a template for evaluating additional measurements. Import the file Measurement 2 from the data folder.

You can find information on the relevant import options under:

- Importing Excel Data 8
- Importing Data from Measuring Devices 11
- Importing Text Data (ASCII Files) 13

In FlexPro, a second folder called Measurement 2 is now created and activated (distinguished by the red folder icon) [1]. The content of the active folder is displayed [2] and all open windows are updated, since the option Home[Update] > Automatic is selected [3].



Note: You can switch between the individual measurements at any time by selecting the appropriate subfolder from the Activate or deactivate subfolder list box at the top of the Folder [4]. FlexPro updates all windows automatically as long as the option Automatic Update is selected. Otherwise, you can also carry out the update manually using the Update All command [5].

If you want to, you can now try out other options available in FlexPro. Here are a few suggestions:

- Double-click on the object UltrasoundSignalSpectrum and convert the spectral format from dB to amplitude.
- Create statistics for measured data and display these as a table within the document.
- Export the complete analysis as an HTML web page.
- Record a few command steps as a macro.
- Create a formula for calculating data sets.

Search the Online Help for the relevant Help topics.

The FlexPro setup includes additional sample project databases covering a wide range of topics.

The examples can be found in the folder `C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL%>\Examples` or `C:>User>Public>Public documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>>Examples`.

Topics covered include:

- Presentation examples
- Analysis examples
- Examples of measurement series analyses
- Data query and document collection
- FPScript examples
- Order tracking examples
- Other examples (SPC, roundness, etc.)

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