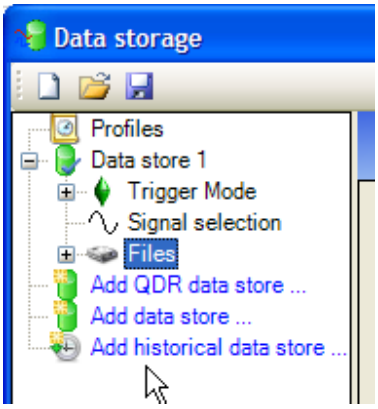
New features in ibaPDA v6.25.0

1 Iba Historical Data Server

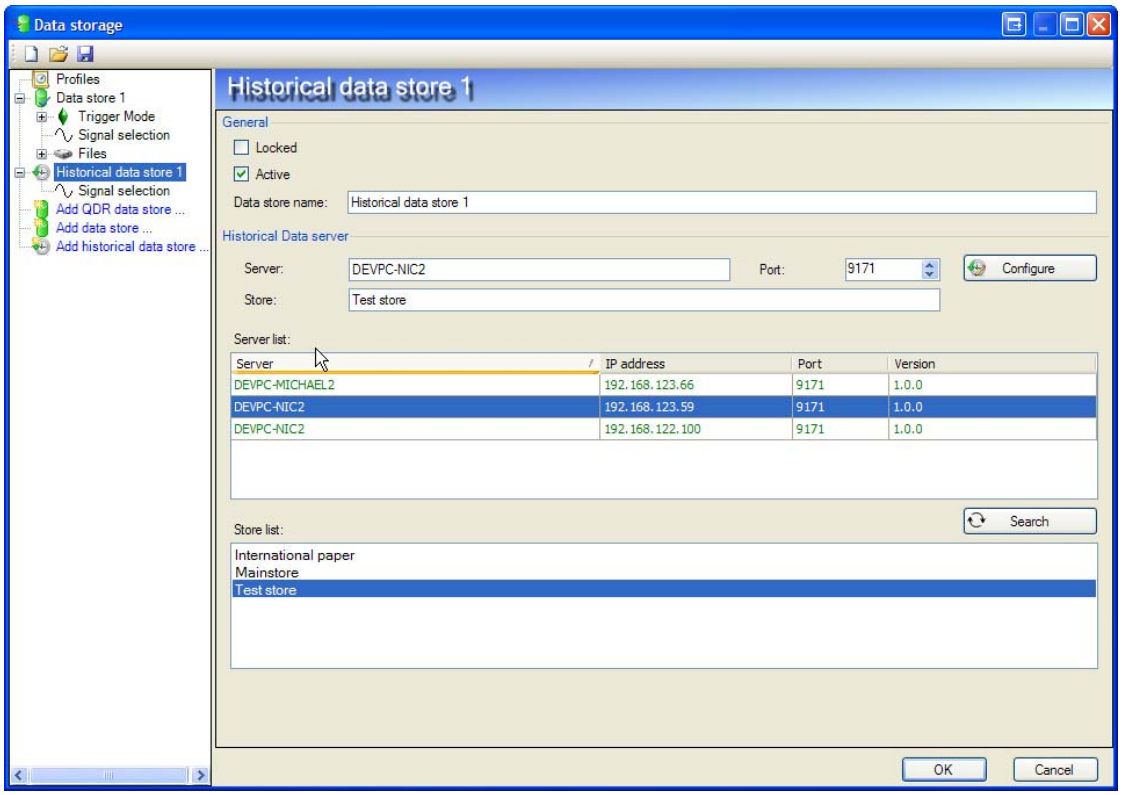
1.1 Data store



The data storage configuration of ibaPDA has 3 types of data stores:

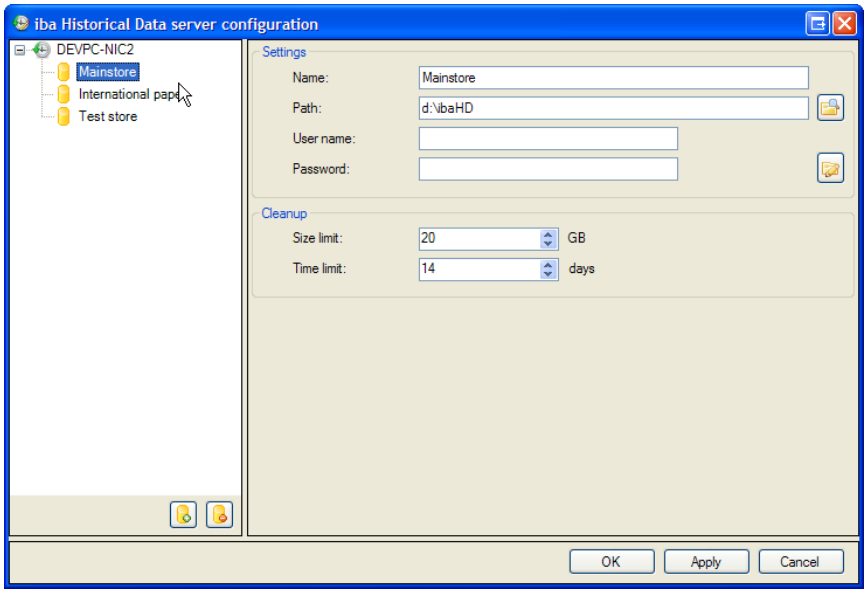
- Normal data store
- QDR data store
- Historical data store

The historical data store writes data to an historical data server. An historical data server stores longterm timebased data for signals. The data is stored in different resolution levels. This allows the fast display of signal data at different zoom levels from years down to milliseconds.



Click the “Add historical data store…” node to add an historical data store. You first have to select which historical data server you want to connect to. The server list gives a list of all the historical data servers that have been found on

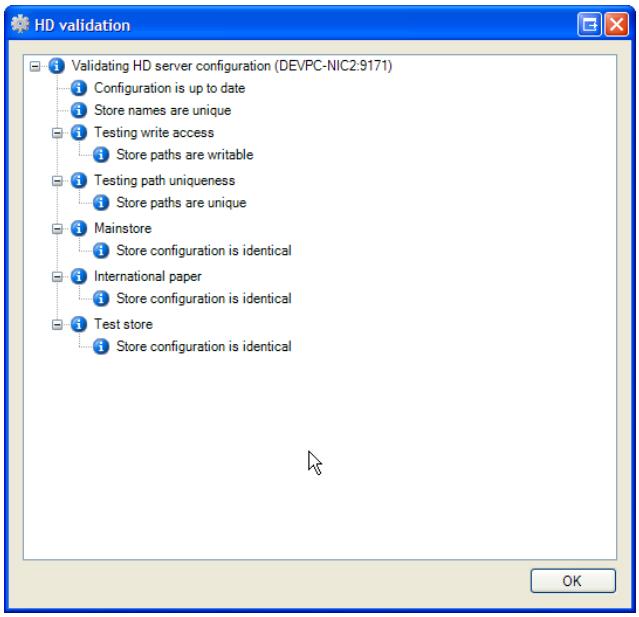
the local network. If you select one then the store list shows the stores that are available on that server. Select the store you want to write to. If no stores are available or you want to create a new store then click the “Configure” button. This will open the historical data server configuration form.



The tree shows the current stores. Use the buttons under the tree to add or remove a store. A store contains the data for a group of signals. Each store can be written to by only one source at a time. So if you have multiple ibaPDAs writing to the same historical data server then they must be writing to different stores.

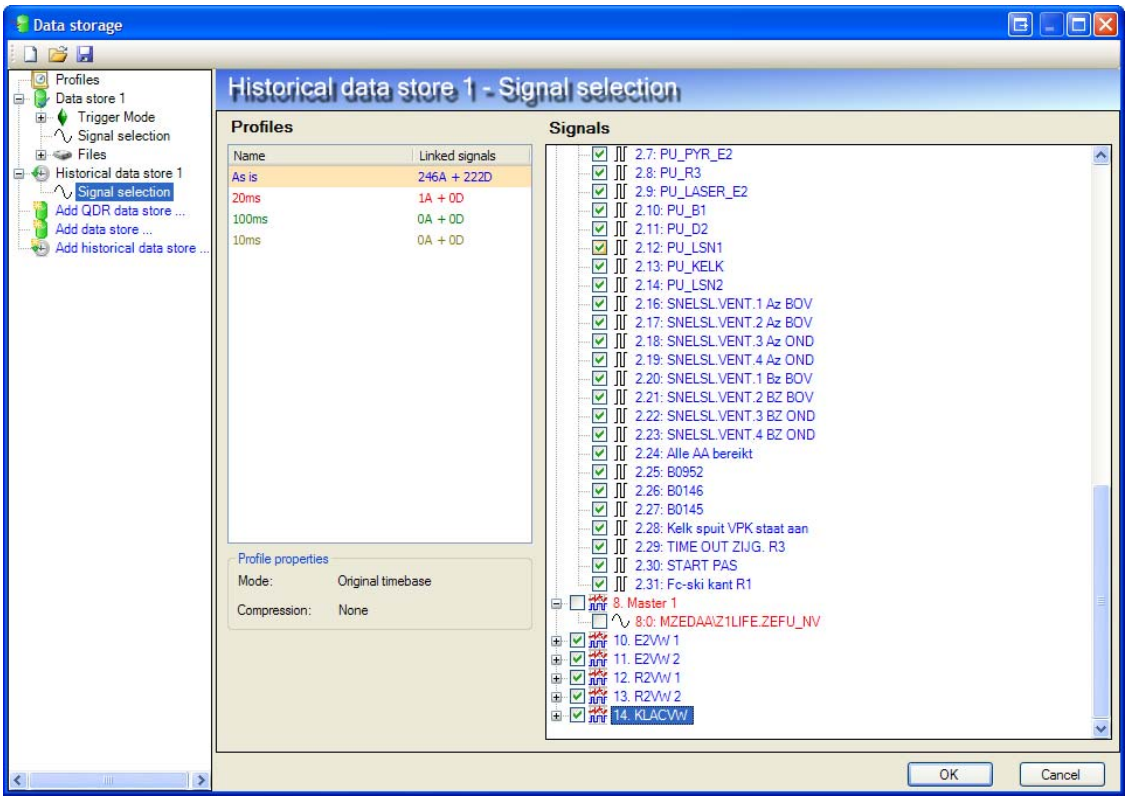
You have to configure the name of the store, its location and its cleanup strategy. If the location is a UNC path then you have to provide the username and password needed to access the path. The cleanup removes the oldest data when the total size of all signal data goes above the size limit. It also removes any signal data that is older than the specified time limit.

Click the OK or Apply button to set the new configuration. A validation form will popup.

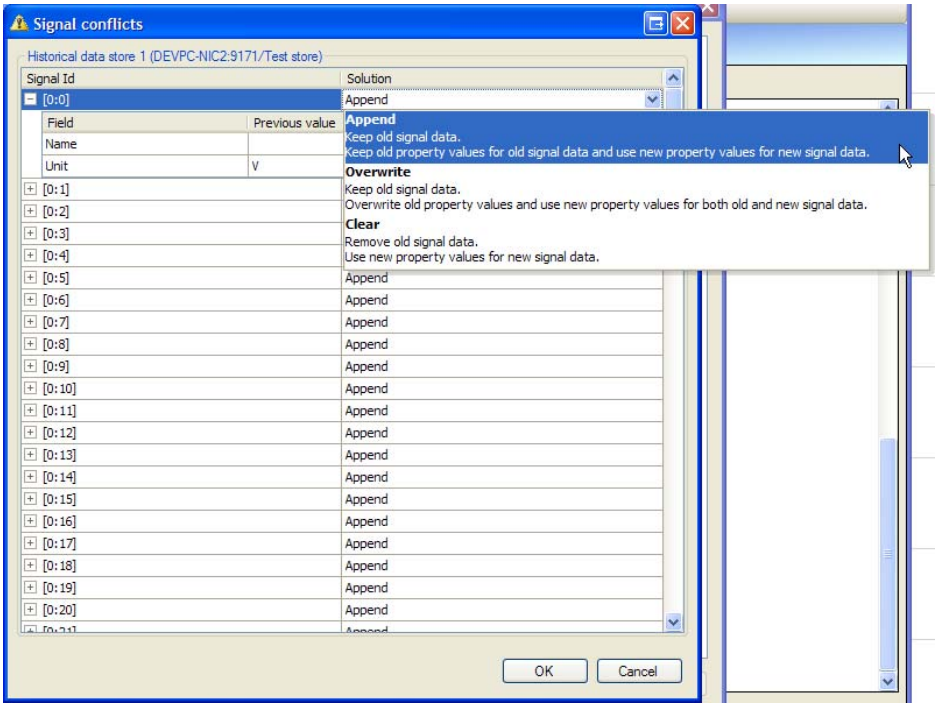


After selecting the server and the store you have to select the signals you want to write.

The signal selection is done in the same way as on the normal data stores. You can define profiles and assign them to signals.



When you click OK the configuration is applied to the ibaPDA server. The ibaPDA server then tries to connect to the ibaHD server (= iba Historical Data server) and apply the configuration there. It can happen that there are conflicts between the signals in the new configuration and the signals that already exist on the ibaHD server. The name of signal [0:0] e.g. could have changed. The ibaHD server then asks you what you want to do.



There are 3 possibilities:

- Append
- Overwrite
- Clear

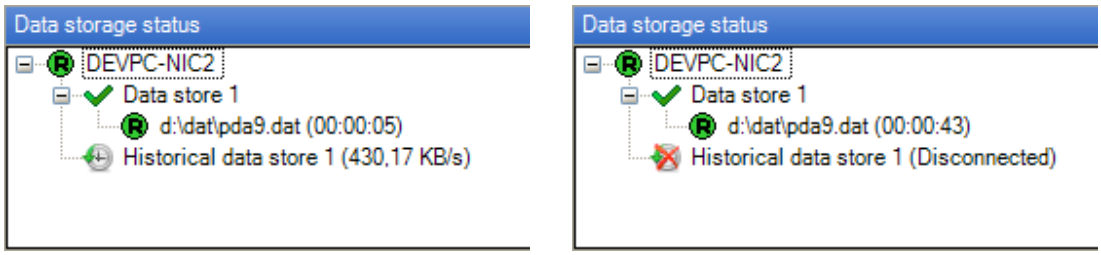
Append will keep the old signal data and the old property values (e.g. name, unit …). It will use the new property values for the new signal data. In principle you could see the old property values in the viewer when you go back to the old data. This feature is currently not implemented in the viewer. It is planned for a future release.

Overwrite will keep the old signal data and it will overwrite the old property values with the new property values. The new property values are then used for both the old and the new signal data.

Clear will remove the old signal data. The new property values are used for the new signal data. So if you choose this option then you will lose all data of the conflicted signals.

You can click the Solution column header to copy the solution from the focused row to all rows below it.

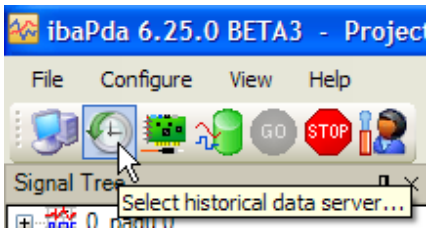
The data storage status shows the status of the historical data store. If it is connected then it displays how much data is being written to it.

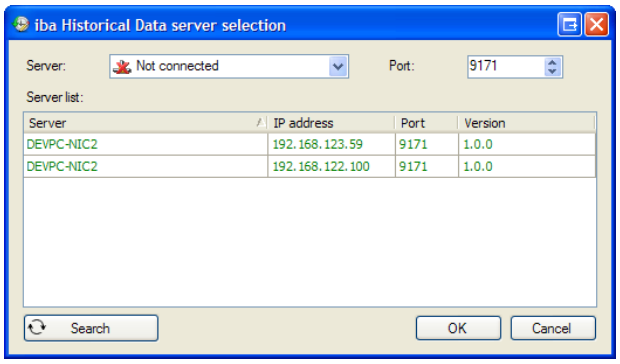


When the connection to the historical data server is lost a message is written to the event log. Pda will periodically try to reconnect to the historical data server. When the connection is restored a message is written to the event log. The data measured during the connection down time is lost. In the current release the historical data server has be to available when starting the acquisition otherwise it will never connect to it. In a future release we plan to support disconnected historical data servers at the start of the acquisition.

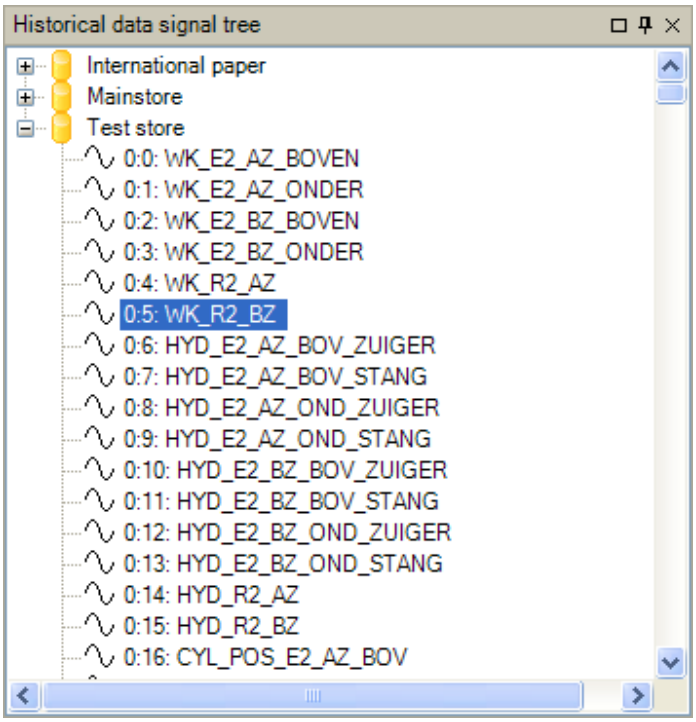
1.2 Client

The ibaPDA client can also connect to an ibaHD server. It becomes then a client of the ibaHD server. Use the toolbar button or the menu item in the Configure menu to open the iba historical data server selection form.

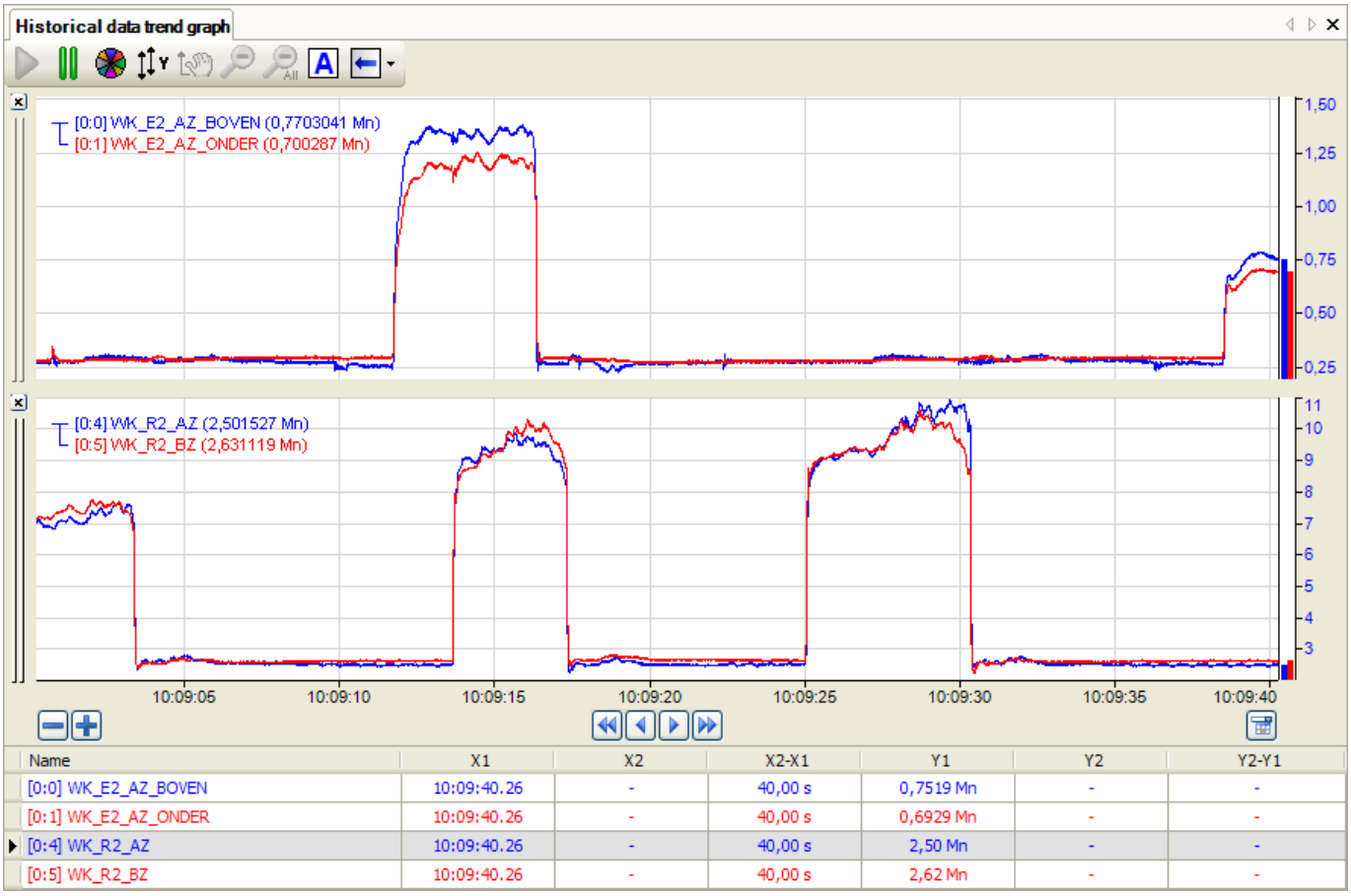




The form looks like the ibaPDA server selection form. By default the server is set to “Not connected”. This means that ibaPDA will not connect to an ibaHD server. Select a server from the grid or type in a server address to select a server. Click the OK button to connect to the ibaHD server. If the historical data signal tree was not visible then it will be shown automatically in the client.



The historical data signals can only be shown on an historical data trend graph. You can create on by clicking the historical data trend graph button on the toolbar or one will be automatically created when you double click a signal in the historical data signal tree.

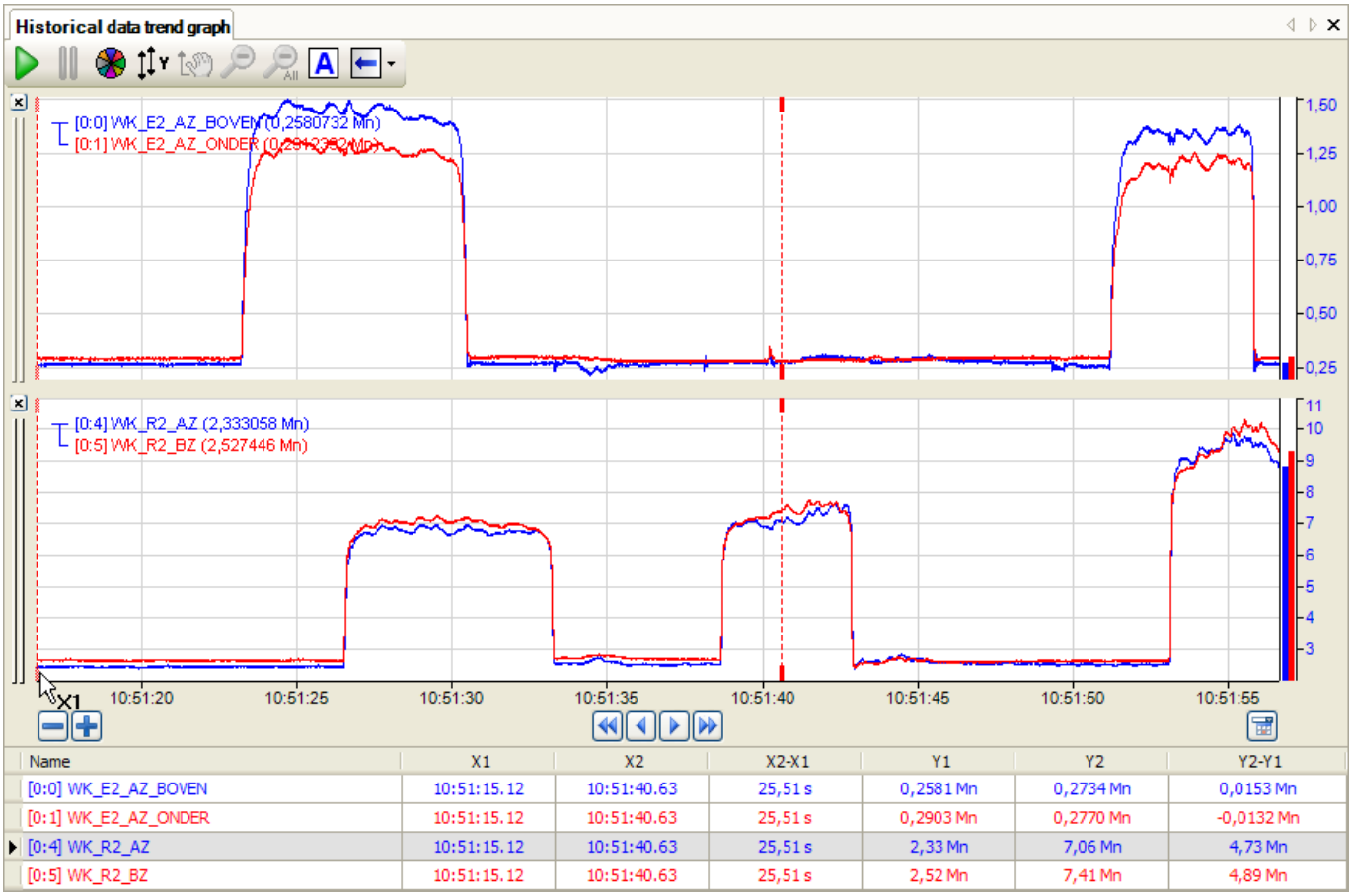


Name	X1	X2	X2-X1	Y1	Y2	Y2-Y1
[0:0] WK_E2_AZ_BOVEN	10:09:40.26	-	40,00 s	0,7519 Mn	-	-
[0:1] WK_E2_AZ_ONDER	10:09:40.26	-	40,00 s	0,6929 Mn	-	-
[0:4] WK_R2_AZ	10:09:40.26	-	40,00 s	2,50 Mn	-	-
[0:5] WK_R2_BZ	10:09:40.26	-	40,00 s	2,62 Mn	-	-

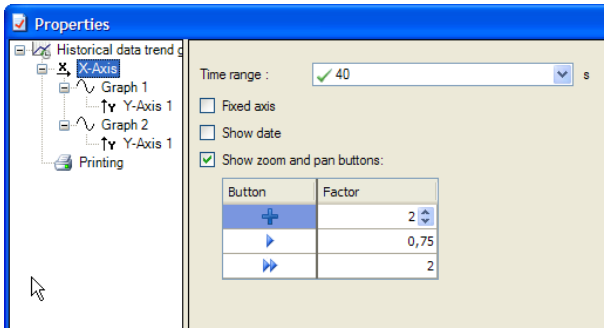
The historical data trend graph is almost the same as the normal trend graph. The only difference is that the data is coming from the ibaHD server instead of the ibaPDA server. This means that the scrolling of the X-axis is controlled by the ibaHD server. It also means that if you add a new signal to the trend graph that you see all the historical data for the signal. In the normal trend graph you only see the data stored in the signal buffer on the client. Check the next chapter to see all the changes that have been made to the trend graph.

2 Trend graph changes

2.1 X-axis buttons



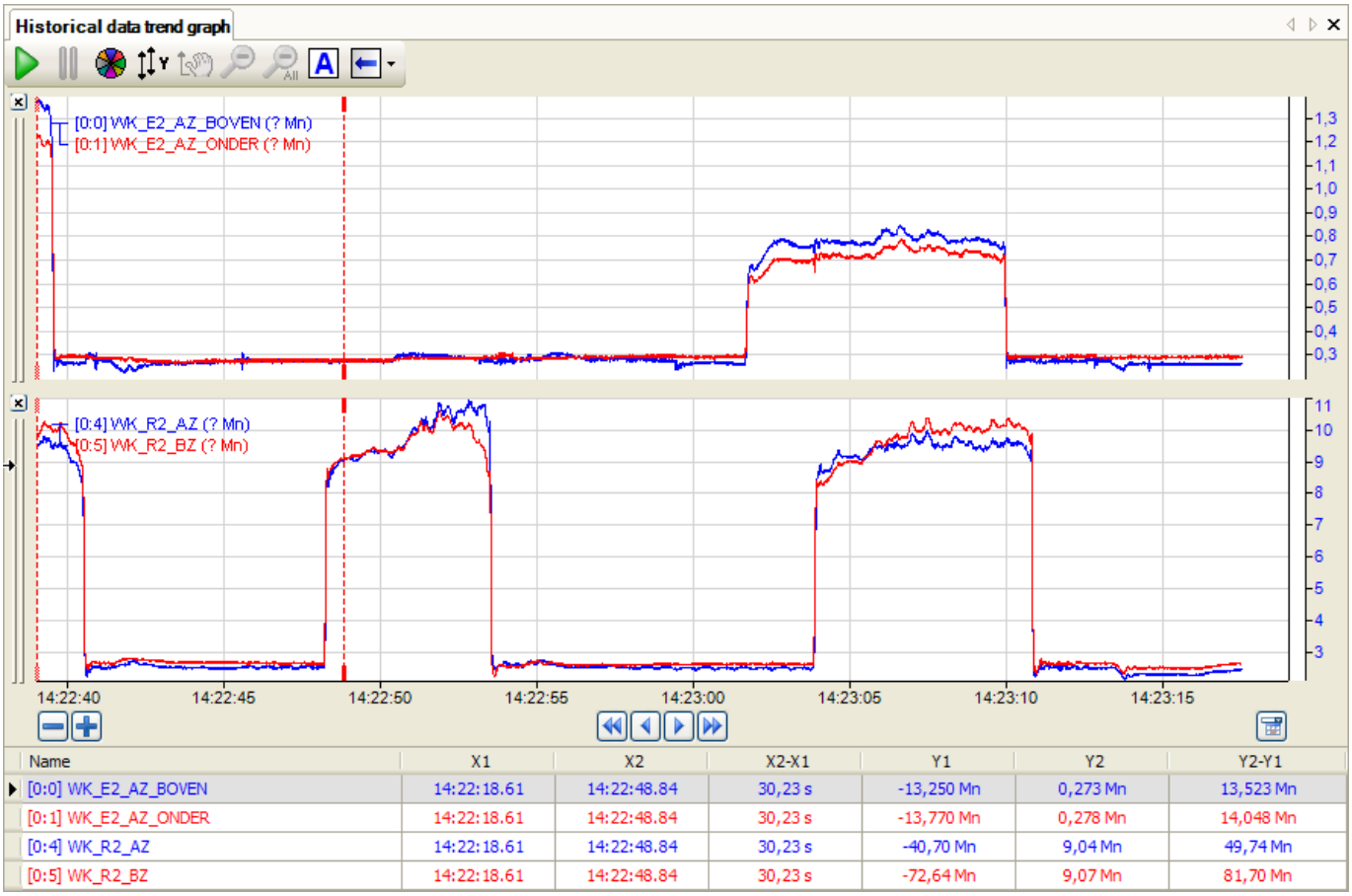
Name	X1	X2	X2-X1	Y1	Y2	Y2-Y1
[0:0] WK_E2_AZ_BOVEN	10:51:15.12	10:51:40.63	25,51 s	0,2581 Mn	0,2734 Mn	0,0153 Mn
[0:1] WK_E2_AZ_ONDER	10:51:15.12	10:51:40.63	25,51 s	0,2903 Mn	0,2770 Mn	-0,0132 Mn
[0:4] WK_R2_AZ	10:51:15.12	10:51:40.63	25,51 s	2,33 Mn	7,06 Mn	4,73 Mn
[0:5] WK_R2_BZ	10:51:15.12	10:51:40.63	25,51 s	2,52 Mn	7,41 Mn	4,89 Mn



The X-axis can show zoom, pan and goto buttons. You can enable and configure these buttons in the properties of the X-axis. The + button zooms in on the middle of the X-axis in pause mode and on the most recent part of the X-axis in live mode. The – button zooms out. The zoom factor is by default 2. This means that when zooming in, the X-axis range becomes half of the original range. When zooming out the range becomes double the original range. There are 4 pan buttons: pan left large, pan left small, pan right small and pan right large. The pan left buttons will move the X-axis to the right so they will show you the data that is on the left from the current position. The pan right buttons will show you the data on the right of the current position. The pan factors can be configured in the X-axis properties. By default the small buttons pan 0,75 times the X-axis range and the large buttons 2 times the X-axis range. So if the range is 100s and we are currently at timestamp 10:00:00 then a small pan left will go to 09:58:45 and a large pan left will go to 09:56:40. These buttons can also be controlled by the keyboard.

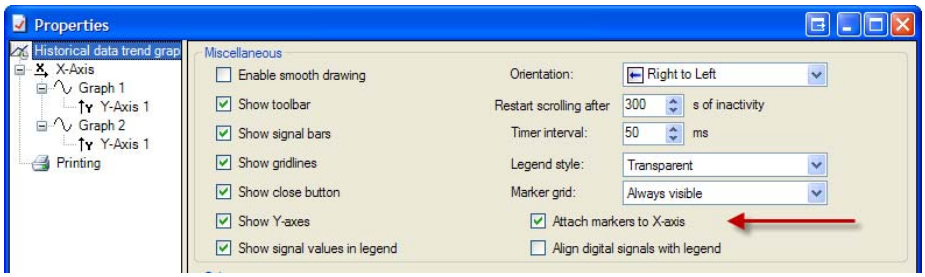
Button	Shortcut key	Description
+	+	Zoom in
-	-	Zoom out
>	PAGE UP	Pan right
>>	none	Pan right large
<	PAGE DOWN	Pan left
<<	none	Pan left large

2.2 Markers

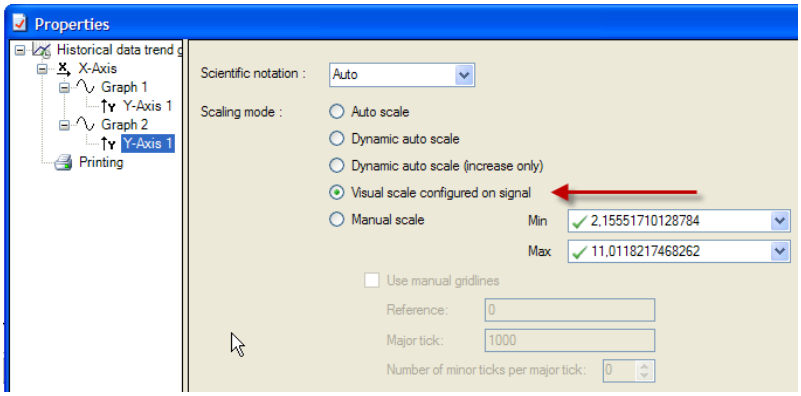


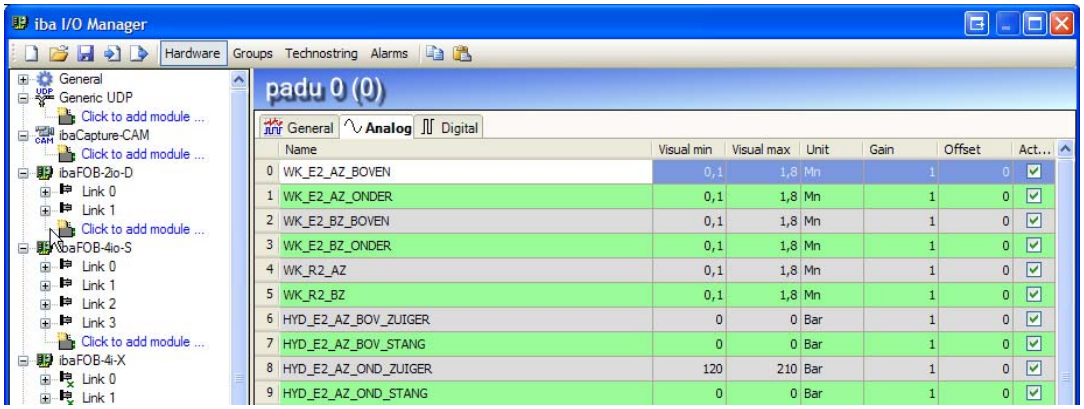
There are 2 modes to control the position of the markers. The markers can be attached to the X-axis or not. In previous versions the markers were always detached. This means that if you move the X-axis the markers will remain at the same pixel and so they will be positioned on a different timestamp. In the attached mode the markers will remain at the same timestamp. So if the X-axis is moved then the markers are moved also. If the X-axis is moved so far that the marker timestamp is no longer visible then the marker is drawn at the edge of the graph and the grab handles are lighter. The grid still shows the correct position of the marker. You can always position the marker back into the current X-axis range by dragging the marker from the edge of the graph.

The attached mode is the default mode in pda 6.25.0. You can select the old mode by unchecking the “Attach markers to X-axis” checkbox in the trend graph properties.



2.3 Y-axis visual scale mode



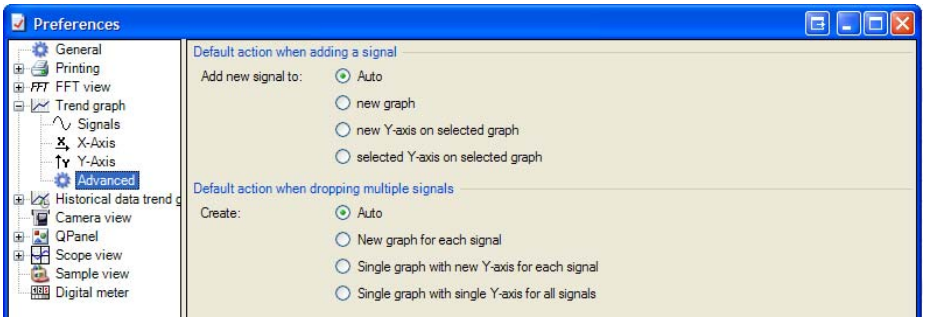


There is a new scale mode for the Y-axis: visual scale. Each analog signal has 2 properties visual min and visual max. You can set these properties in the I/O manager. By default these columns are not visible in the signal grid so you have to use the new customize columns feature to make them visible. These properties determine the minimum and maximum value you want to see on the Y-axis of a trend graph. If you add a new signal with visual scale to a trend graph then the Y-axis will be set to the visual scale defined on the signal. If a signal does not have the visual scale properties defined and the Y-axis is in visual scale mode then the Y-axis will act as if the “Dynamic auto scale (increase only)” mode was selected. The visual scale is not defined if visual min is equal to visual max. The visual scale values are 0 by default so they are not defined by default. The visual scale properties are also saved in the dat file. ibaAnalyzer version 5.18.1 and higher are able to use them.

2.4 Legend style toolbar button

There is a new toolbar button to change the legend style between transparent, opaque and invisible. Every click on the button cycles through the 3 styles.

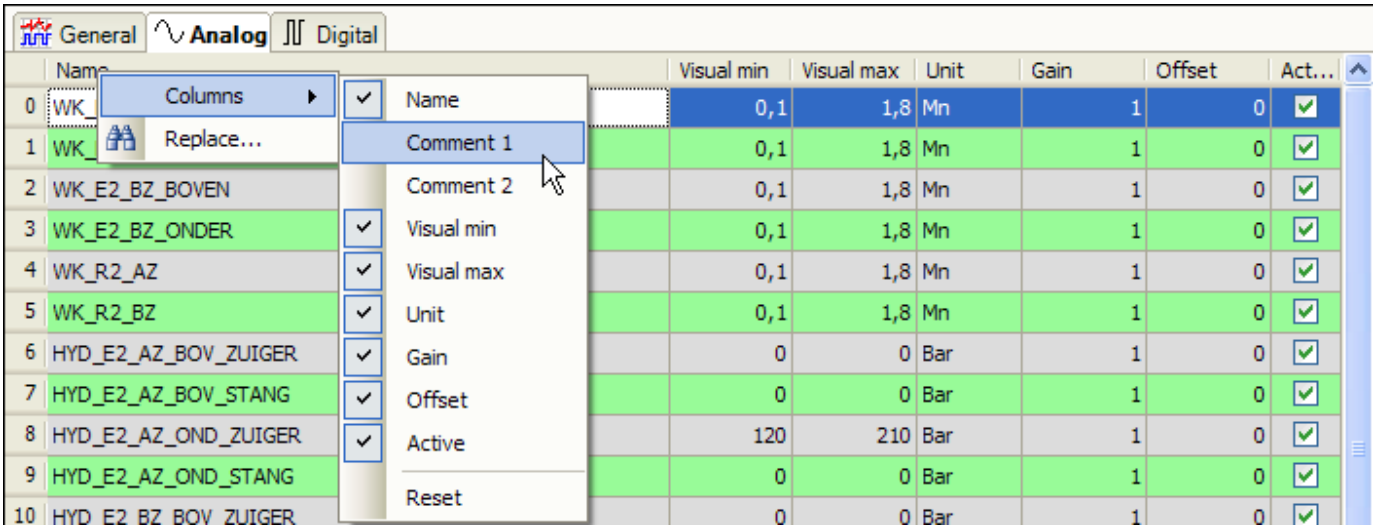
2.5 Advanced options



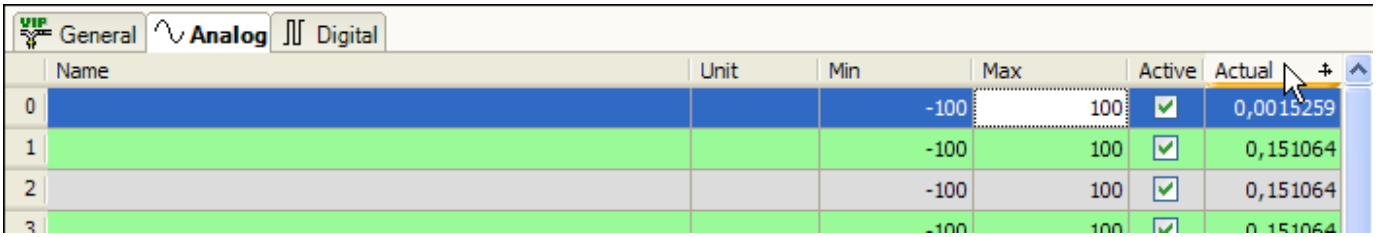
The advanced options allow you to change the behavior when adding signals to a trend graph by either double clicking in the signal tree or by dropping signals on it. The default behavior is auto. This corresponds to the behavior of the past. If you add a signal with no modifier keys pressed then a new graph and a new Y-axis will be created for the signal. If you hold the CTRL key while adding a signal then a new Y-axis is created in the currently selected graph and the signal is added to that new Y-axis. If you hold the SHIFT key while adding a signal then the signal is added to the currently selected Y-axis. If you drop multiple signals then this behavior is repeated for all signals.

In 6.25.0 you can now override this default behavior and select 1 specific behavior that will be used always no matter which modifier keys are pressed.

3 Signal grid changes

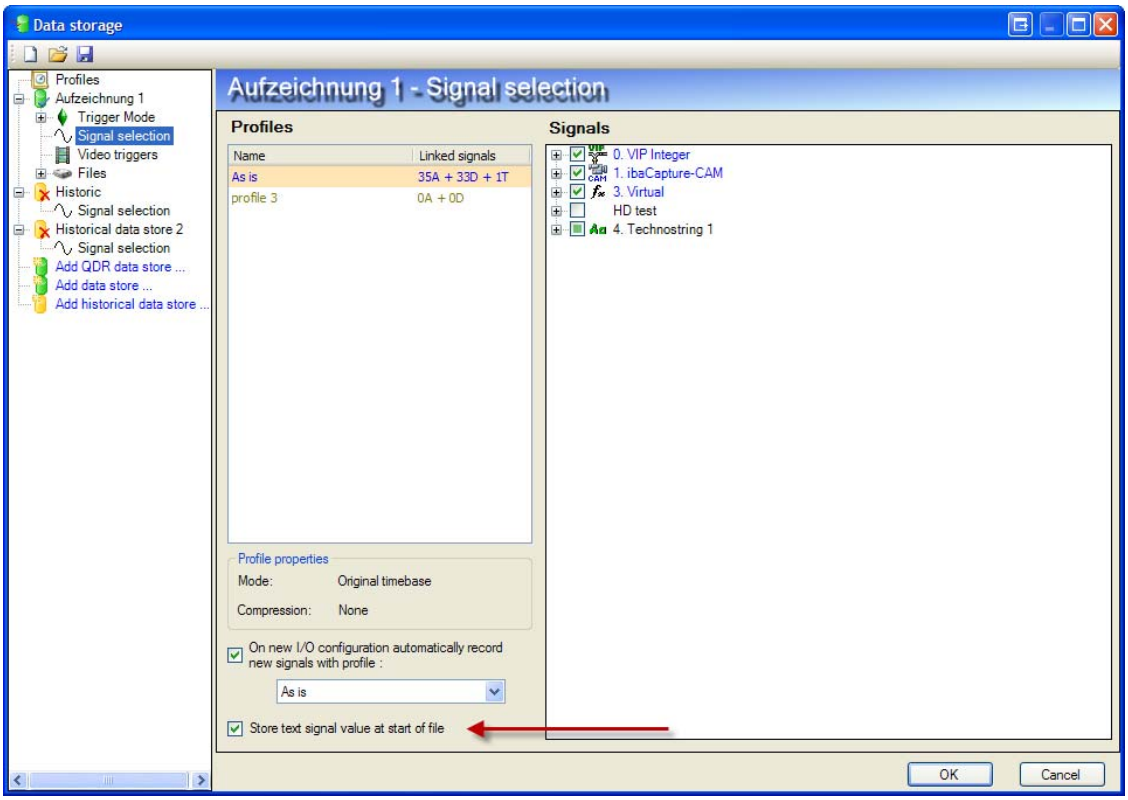


The columns in the signal grid of the I/O manager can be customized. You can use the context menu of the grid to show or hide different columns. You can drag and drop column headers to reorder columns. You can drag and drop the column edges to change the width of columns. All these changes are saved in the registry per module type. So if you change the columns of a VIP integer module then all VIP integer modules will have the same column layout. VIP real modules will still have the default column layout. You can restore the default column layout by clicking the Reset command in the context menu of the grid.

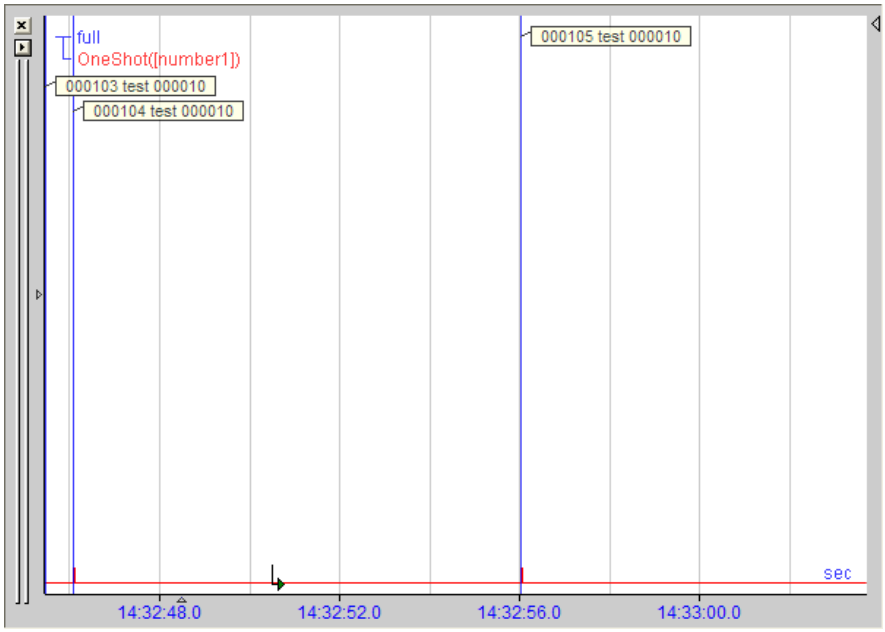


The Actual column can show raw values and scaled values. In previous versions you could only switch between raw and scaled values by using the context menu of the grid. Now you can switch by clicking the Actual column header. A scale image is displayed in the column header when scaled values are being shown.

4 Save value of text channel at start of file



The text signals values were only saved in past versions when their value changed. So if the value of a text signal didn't change during a file then there was no text visible in the file. If the value changed during the file then you would only know the text signal value from that point onwards. To improve this situation you can now select the option "Store text signal value at start of file" in the signal selection of a normal datastore. When this option is enabled then the value of the text signal is always stored at the beginning of the file. This way you will know the value of the text signal throughout the whole file. The next screenshot shows the result in ibaAnalyzer.



5 New functions

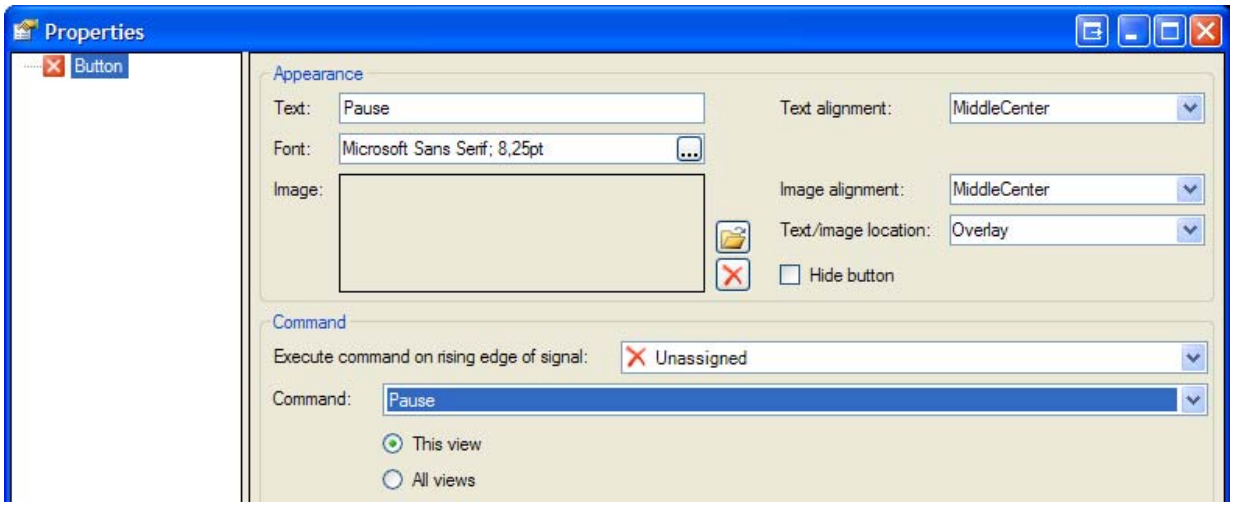
ICPSensorStatus(‘module number’, ‘sensor number’)

This function monitors the status of an ICP sensor. The first parameter specifies the module number of the Padu 8-ICP module. The second parameter specifies which sensor to monitor. The sensor number goes from 0 to 7. The function returns 0 when the sensor is ok and 1 when it detects an open chain. The return value is an analog value so that other errors might be returned in the future. If the module number does not correspond to an ICP module then the function will return an error during the validation.

KurtosisInTime(‘expr’, ‘interval’)
SkewnessInTime(‘expr’, ‘interval’)

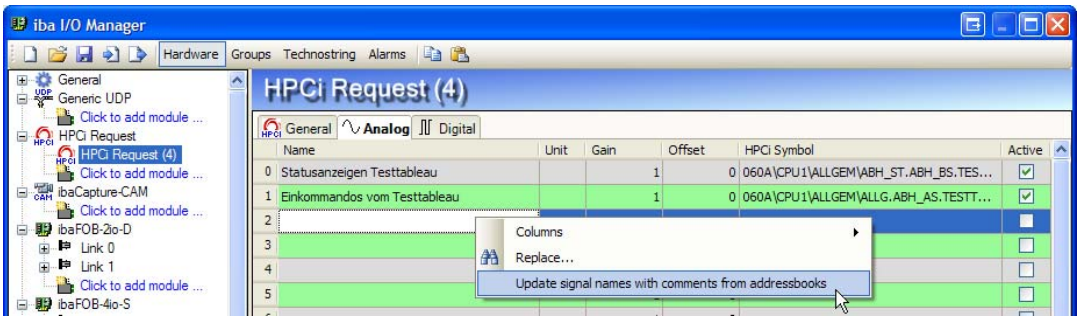
These function calculate the kurtosis and the skewness over a fixed interval. See the ibaAnalyzer new features document for more information about kurtosis and skewness.

6 New QPanel button commands

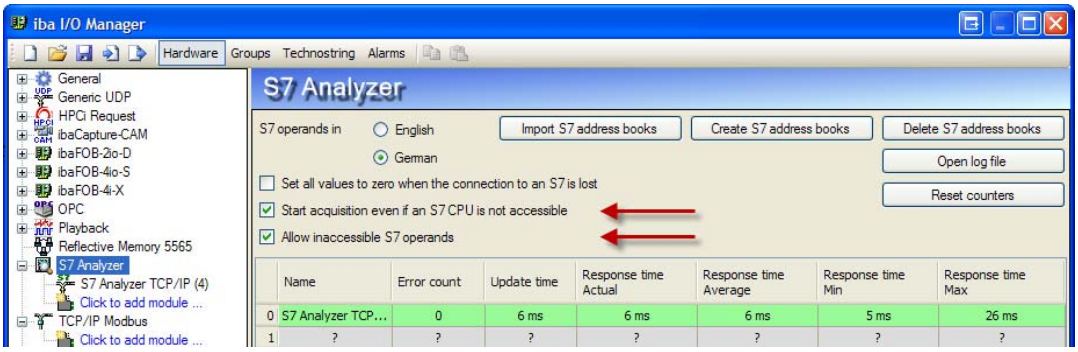


There are 2 new commands on the QPanel button: pause and resume. They can work either on the QPanel view itself or on all views.

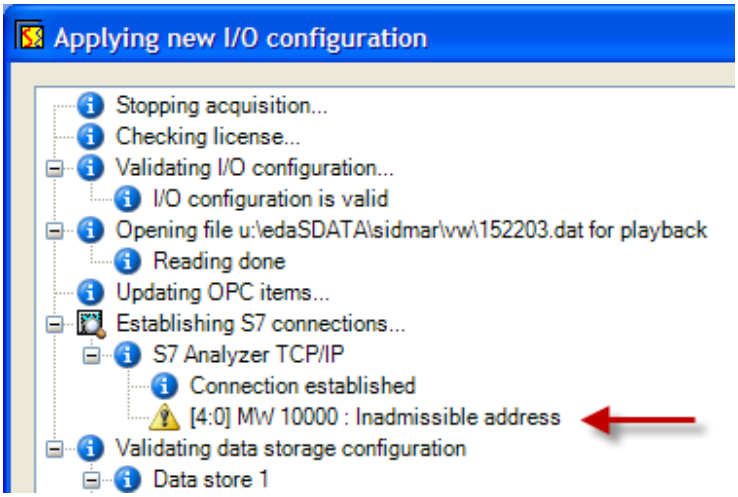
7 Small improvements



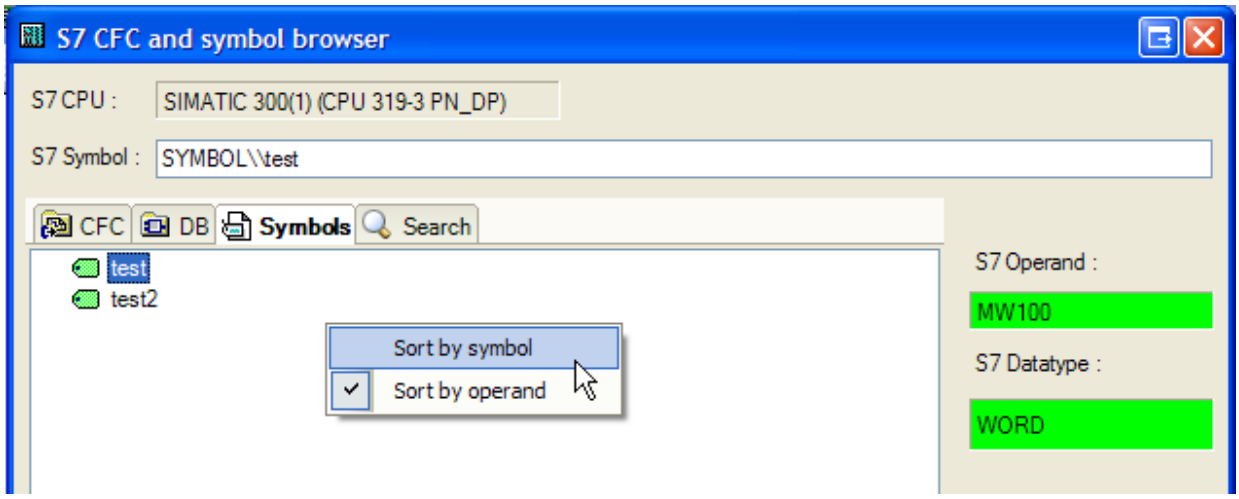
You can automatically update the signal names of HPCi request modules with the comments from the corresponding HPCi symbols in the addressbook. Right click in the signal grid to open the context menu and then select the command “Update signal names with comments from addressbooks”.



The S7 analyzer interface has 2 new options. The first option lets you start the acquisition when an S7 CPU is not accessible. You will get a warning instead of an error in the validation dialog. If you have started with the S7 CPU disconnected then pda will periodically try to connect to the CPU.



The second option lets you start the acquisition when there are inaccessible S7 operands. The inaccessible operands will be shown as warnings instead of errors in the validation dialog.



The S7 symbol browser lets you sort the symbols by operand or by symbol name.