New Features in ibaAnalyzer 6.10.0

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1 Support for COMTRADE 2013 format

In the current version of ibaAnalyzer, support for COMTRADE 2013 standard is implemented in addition to previous versions of the COMTRADE standard.

1.1 Overview of 2013 format

There are three versions of the **COMTRADE** standard: **1991, 1999 and 2013**.

The **2013 version** has the following improvements:

- It provides considerably better precision by supporting two **new data types** – **Binary32** and **Float32** (additionally to ASCII and Binary data types).
- Four new fields in the “config section” are present that describe **time zone** and **time quality**.
- It supports a single-file format – one **.CFF** file instead of a the separate .CFG, .INF, .HDR, and .DAT files
- Multilingual support with UTF-8 instead of ASCII is added.
- A number of obsolete restrictions are removed.
- …

1.2 Import functionality

The current version of ibaAnalyzer supports **Import** of data from **COMTRADE 1991, 1999 and 2013** files.

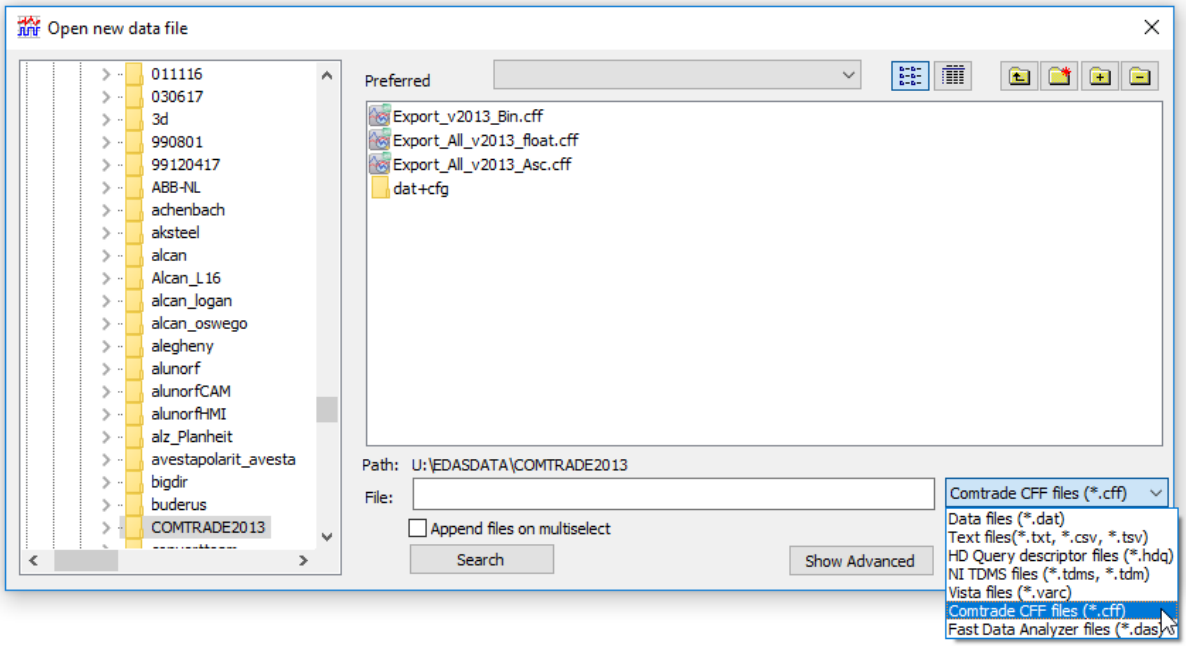
All new data types, *.cff format and all other features of 2013 version are supported.

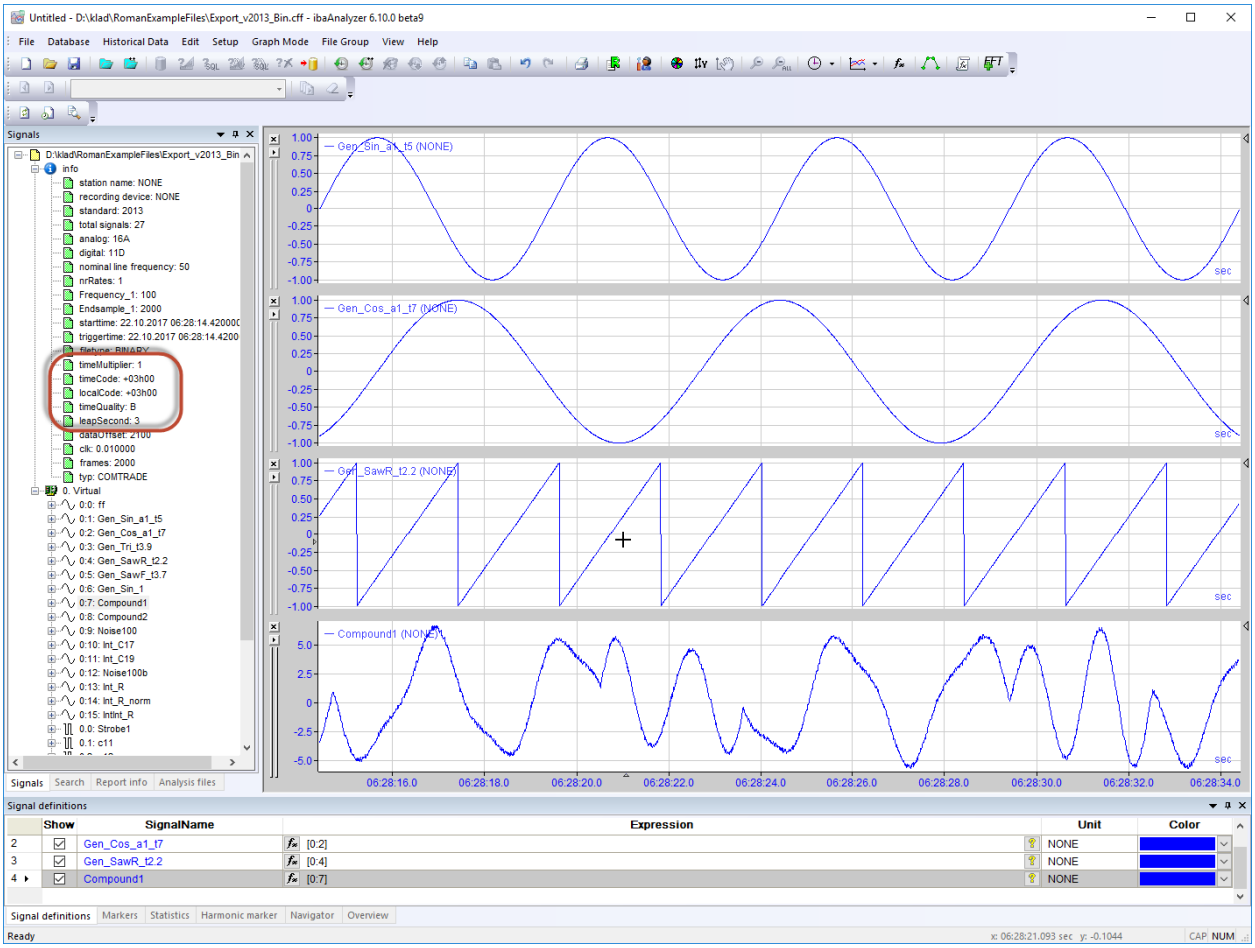
Please, select the corresponding data type from a dropdown list to make *.cff files visible in the “*Open new data file*” dialog.

There are four new info fields that appear only for v2013 COMTRADE files:

- *timeCode*
- *localCode*
- *timeQuality*
- *leapSecond*

Their values are equal to corresponding fields in CFG section of the COMTRADE format. Please refer to the COMTRADE documentation for their meaning and possible values.


Open new data file
Preferred
Export_v2013_Bin.cff
Export_All_v2013_float.cff
Export_All_v2013_Asc.cff
dat+cfg
Path: U:\EDASDATA\COMTRADE2013
File:
Append files on multiselect
Search
Show Advanced
Comtrade CFF files (*.cff)
Data files (*.dat)
Text files(*.txt, *.csv, *.tsv)
HD Query descriptor files (*.hdq)
NI TDMS files (*.tdms, *.tdm)
Vista files (*.varc)
Comtrade CFF files (*.cff)
Fast Data Analyzer files (*.das)

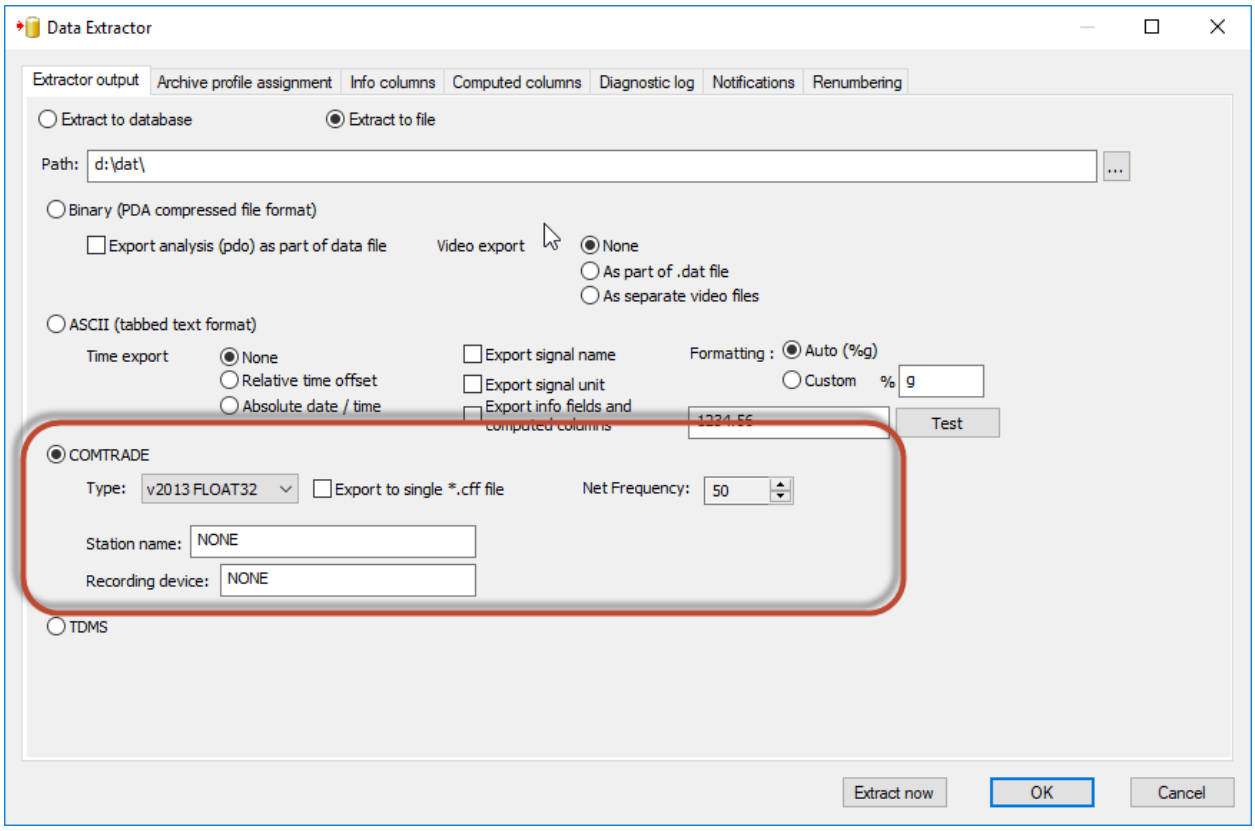

Untitled - D:\klad\RomanExampleFiles\Export_v2013_Bin.cff - ibaAnalyzer 6.10.0 beta9
File Database Historical Data Edit Setup Graph Mode File Group View Help
Signals
Gen_Sin_a1_t5 (NONE)
Gen_Cos_a1_t7 (NONE)
Gen_SawR_t2.2 (NONE)
Compound1 (NONE)
Signal definitions
Show SignalName Expression Unit Color
Gen_Cos_a1_t7 [0:2] NONE
Gen_SawR_t2.2 [0:4] NONE
Compound1 [0:7] NONE
Ready

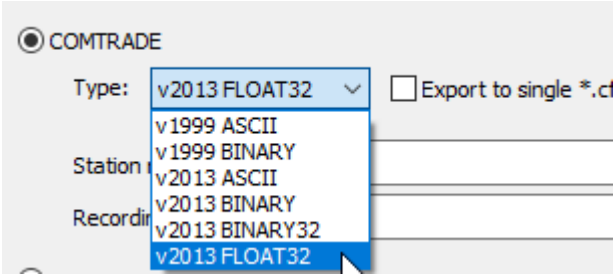
1.3 Export and Extract functionality

In the current version of ibaAnalyzer **Export or Extract** of data to **COMTRADE 1999 and 2013** versions of the standard is supported. Export or extract to the old 1991 version of the standard is not supported.

All new data types and *.cff format are supported for the 2013 version of the COMTRADE standard.

The option “Export to single *.cff file” can be selected from the checkbox to export to .cff format, this option will be disabled if the 1999 version of the standard was selected.





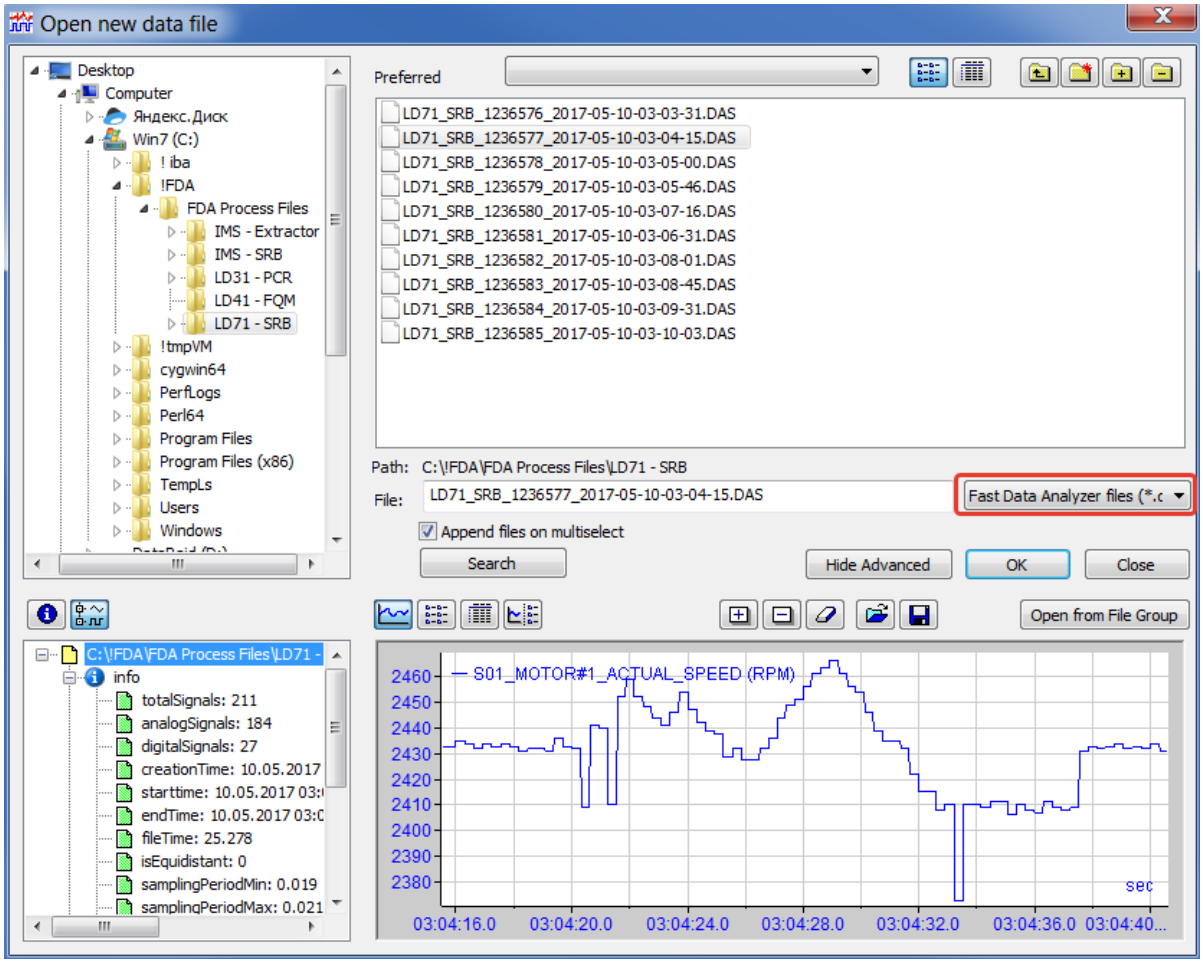
2 Import of FDA *.das files

In the current 32 bit version of ibaAnalyzer, ***.das files** generated by **FDA** (Fast Data Analyzer) application by Danieli can be imported.

2.1 Installation of the libraries

By default the functionality is not available after ibaAnalyzer installation. A separate installer is required that installs the necessary libraries. The installer is named `ibaFdaDasBundleInstall.exe` and is located on the iba shipment DVD.

2.2 File open dialog



One can select the corresponding data type from the dropdown list to make these files visible in the "*Open new data file*" dialog.

Please, note that reading of ***.das** files is available only in **32-bit version of ibaAnalyzer**. **ibaAnalyzer x64 does not support this format**, and this feature is not planned to be implemented in future.

2.3 Some remarks about non-equidistance

It’s necessary to mention that (contrary to iba *.dat files where sigans are equidistantly sampled most of the time) FDA *.das files are **non-equidistant by their nature**.

Some of FDA files are, in fact, equidistant. But it is not a general rule. And strictly speaking, such a file is just a special case of non-equidistant file, where all sample-to-sample distances happen to be equal.

When ibaAnalyzer opens a *.das file, it checks these distances to determine, whether the file is equidistant or not. You can see this by *isEquidistant* info field (see below).

When data from a *.das file is exported to iba *.dat format, it is resampled (if necessary) and **becomes equidistant**. This mechanism explains the difference in sizes of original *.das file and exported iba *.dat file:

- For **equidistant** *.das file: exported ***.dat file is smaller** than the original *.das file;
- For **non-equidistant** *.das file: exported ***.dat file is bigger** than the original *.das file; Sometimes this difference is really big, because of resampling to a considerably smaller sampling rate. (e.g. from average rate of ~31 ms to rate of 1 ms)

Also iba *.dat format uses *runlength* encoding, therefore exact size of destination file depends on a real shape of signals.

2.4 Short overview of FDA *.das info fields

- *totalSignals, analogSignals, digitalSignals* – are self-explanatory; it's guaranteed that the following is always true: *totalSignals* = *analogSignals* + *digitalSignals*;
- *creationTime* – when file was created (it can be slightly different from the following item)
- *starttime* – timestamp of the first data sample in the file
- *endTime* – timestamp of the last data sample in the file plus the value of clk field
- *fileTime* – length of recorded signals in seconds
- *isEquidistant* – 1 or 0 telling whether original data is equidistant or not
- sampling periods:
    - *samplingPeriod* – this field appears only for equidistant files; it shows sample-to-sample distance in the file
    - *samplingPeriodMin* and *samplingPeriodMax* – these fields appear only for non-equidistant files; they show minimal and maximal sample-to-sample distance in the file
- *clk* – sampling period of resampled data;
    - for equidistant files it is always equal to *samplingPeriod*;
    - for non-equidistant files it is a GCD of all sample-to-sample distances in the file (e.g. 5 for a set of distances like 35, 40, 55, 70)
- *samples* – number of original samples in the file
- *frames* – number of samples when viewed at *clk* sampling rate (for equidistant files *frames* value is always equal to *samples* value; for non-equidistant – not)
- *frequency* – FDA-specific value (see FDA documentation)

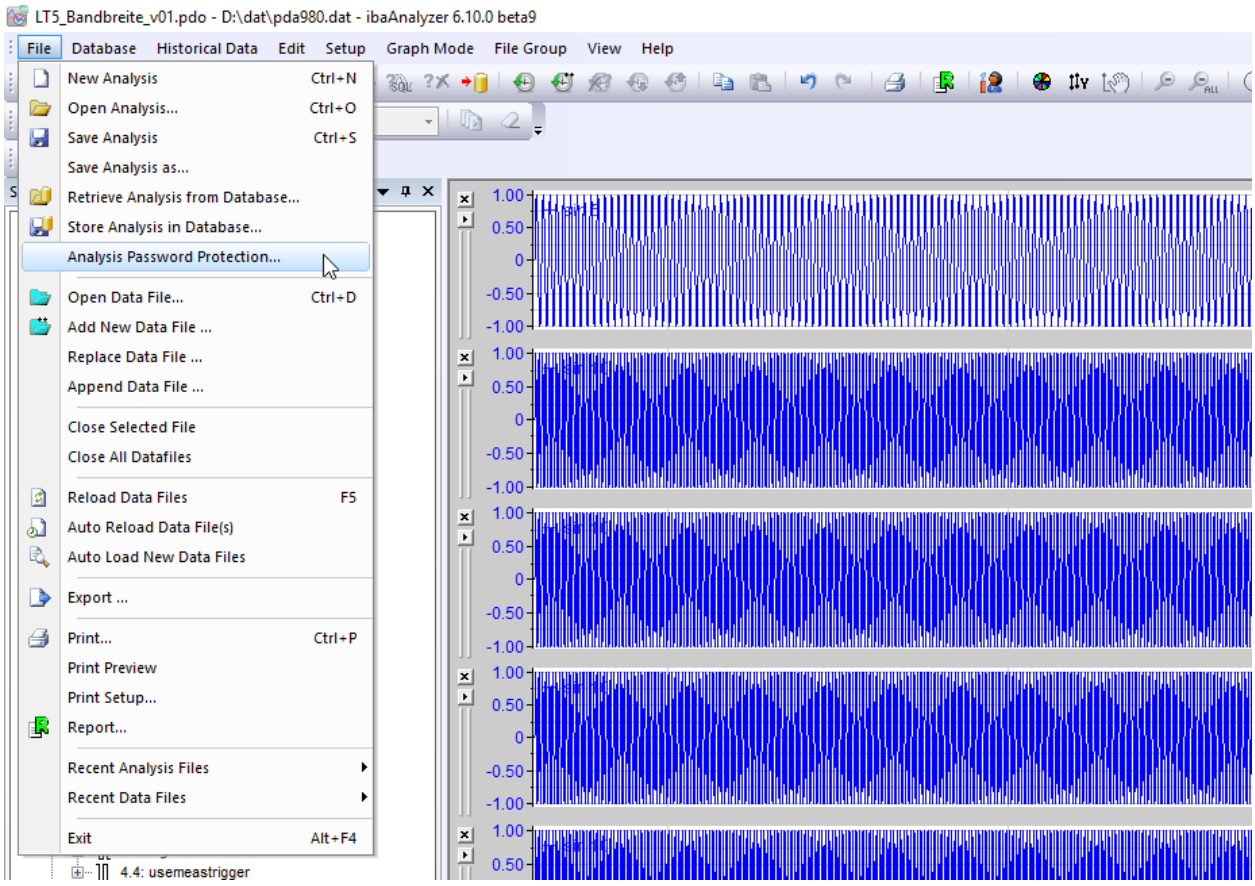
3 Password protection of analyses

In previous versions of ibaAnalyzer it was already possible to set a password on an analysis so that the analysis could not be saved accidentally or by unauthorized users.

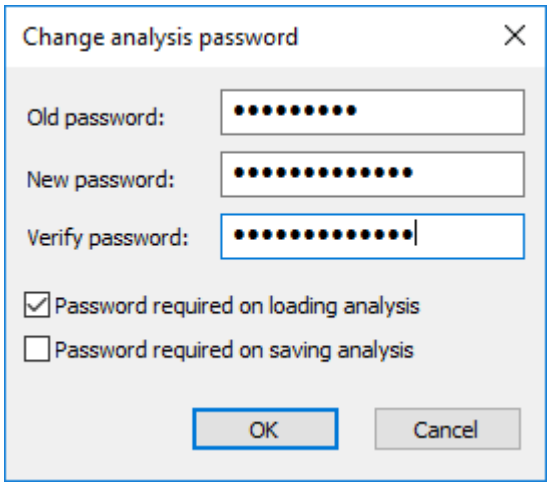
This functionality has been extended so that the one can also select that the analysis cannot be loaded interactively without providing the password. This prevents an unauthorized user from inspecting the analysis and learning critical process information.

3.1 Setting or modifying the analysis password

Accessing the dialog to set or alter the analysis password is done through the main ibaAnalyzer menu by selecting the menu item "*Analysis Password Protection…*" from the "*File*" submenu.



After selecting the menu option, the password protection dialog appears…

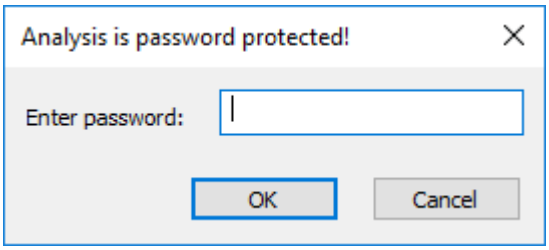


The dialog consists out of the following elements

- A textbox prompting for the "*Old password*". If a password has already been set on the analysis, this password needs to be provided here. When attempting to confirm the dialog without specifying the old password, the error message "*invalid password*" will be displayed and the dialog will be closed without setting or modifying a password.
  If no password has previously been set, this textbox will be empty and disabled and nothing needs to be specified here.
- A textbox prompting for the "*New password*". Here one can specify a password or leave the textbox to remove any old password on the analysis.
- To prevent mistakes in specifying the new password, an additional textbox is present labeled "*Verify password*". Here one must specify the same contents as in the "New password" textbox. When attempting to confirm the dialog while there is a discrepancy between the two passwords, the error message "*Password verification error*" will be displayed after which ibaAnalyzer returns to the dialog.
- A checkbox labeled "*Password required on loading analysis*". Selecting this option enables the new functionality that the user will be prompted for the password before the analysis can be loaded interactively.
- A checkbox labeled "*Password required on saving analysis*". Selecting this option enables the old functionality that the user will be prompted for the password before the analysis can be saved.
- A button labeled "*OK*" to confirm the dialog. At least one of the two previous checkboxes needs to be selected otherwise this button is not enabled and the dialog cannot be confirmed.
- A button labeled "*Cancel*" to dismiss the dialog without specifying a new password or altering the old password.

3.2 Loading a password protected analysis

- When opening an analysis **interactively** that has the password protection enabled for loading, the following dialog appears:



  If the user fails to specify the correct password the error message “Password verification error” will be displayed and a blank analysis will be loaded instead.

- When opening an analysis non-interactively, e.g. through the command line with the options `/report`, `/extract` or `/print` the user will not be prompted for a password, the reasoning being that ibaAnalyzer will close itself anyway after executing the task at hand and no critical process information can be learned in the meantime. Likewise, when an analysis is loaded through ibaDatCoordinator while performing a task, no password is required.
- It is not possible to load an analysis that has the password protection enabled for loading in a version of ibaAnalyzer prior to 6.10.0. The analysis will appear to such previous versions as being formatted invalidly.

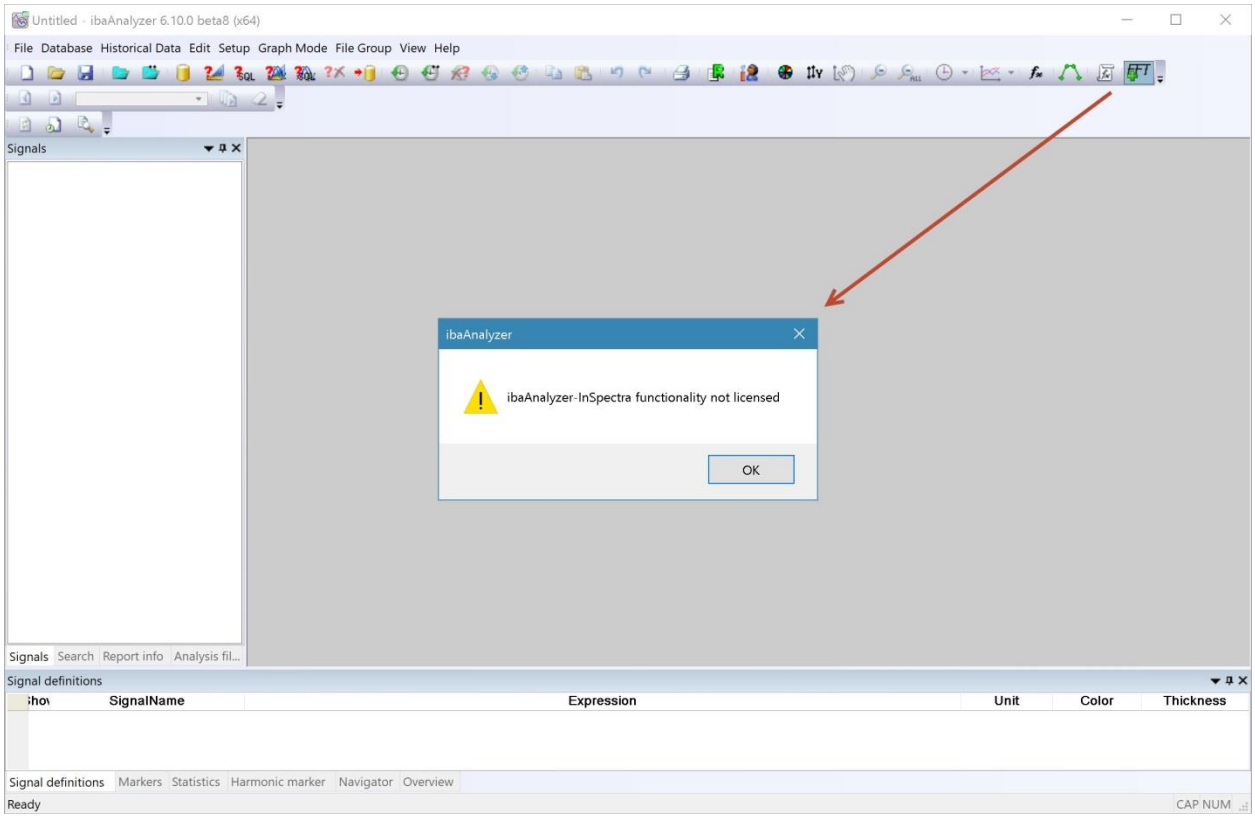
4 IbaAnalyzer-InSpectra

In the current version of ibaAnalyzer, the FFT-view is updated to the newest version. This version includes several new functions:

- Contour plot.
- Support for the Flat-top window.
- The base axis can be inverted, displaying periods instead of frequencies.
- Support for export and import of calculation settings. The calculation settings of InSpectra profiles can be imported.

Given the amount of functions which are a beneficial to customers, it was decided to license the FFT-view starting from version 6.10.0 of ibaAnalyzer. The FFT-view has also been renamed to ***ibaAnalyzer-InSpectra***

If the license is not present, an error message will be displayed when trying to attempt to add an IbaAnalyzer-InSpectra view or loading an analysis that contains an FFT or IbaAnalyzer-InSpectra view.



5 CSV file import settings

In previous versions of ibaAnalyzer, the ibaAnalyzer settings for importing CSV text files were persistent by storing them in the ibaAnalyzer application settings part of the windows registry.

In the current version, the settings can alternatively be stored in the analysis.

This can be selected by checking the checkbox labeled “Store settings in analysis” in the “Text file import” settings dialog.