ibaAnalyzer-V7-File-Extract

Extract Interface for External Data File Formats

Manual

Issue 2.2

Measurement Systems for Industry and Energy

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The current version is available for download on our web site www.iba-ag.com.

Version	Date	Revision - Chapter / Page	Author	Version SW
2.2	12-2020	Chapter 4.2 New options	TS/RM	7.1.4

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Content

1   About this manual

This documentation describes the function and application of the software

ibaAnalyzer-V7-File-Extract.

We assume that the reader is familiar with the software *ibaAnalyzer* itself, otherwise we recommend to consult the *ibaAnalyzer* main manual first.

Other documentation

The manual for *ibaAnalyzer* contains four parts:

■ Part 1: Introduction and Installation

■ Part 2: Working with *ibaAnalyzer*

■ Part 3: Expression editor

■ Part 4: Application examples

Additionally, some specific functions are documented in seperate manuals:

■ *ibaAnalyzer-DB*: Reading and writing into databases

■ *ibaAnalyzer-E-Dat*: Reading other data formats

■ *ibaAnalyzer-Reportgenerator*: Creation of automated reports

1.1   Target group

This documentation addresses in particular professionals who are in charge of analyzing measured data and process data. Because the data is supplied by other iba products the following knowledge is required or at least helpful when working with *ibaAnalyzer-V7-File-Extract*:

■ Operating system Windows

■ *ibaPDA* (creation and structure of the measuring data files)

■ *ibaAnalyzer*

1.2   Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu *Logic diagram*
Calling the menu command	*Step 1 – Step 2 – Step 3 – Step x* Example: Select the menu *Logic diagram - Add - New function block*.
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
File names, paths	"Filename", "Path" Example: "Test.doc"

1.3   Used symbols

If safety instructions or other notes are used in this manual, they mean:

Danger!

The non-observance of this safety information may result in an imminent risk of death or severe injury:

■ Observe the specified measures.

Warning!

The non-observance of this safety information may result in a potential risk of death or severe injury!

■ Observe the specified measures.

Caution!

The non-observance of this safety information may result in a potential risk of injury or material damage!

■ Observe the specified measures

Note

A note specifies special requirements or actions to be observed.

Tip

Tip or example as a helpful note or insider tip to make the work a little bit easier.

Other documentation

Reference to additional documentation or further reading.

2   Introduction

2.1   What is ibaAnalzyer-V7-File-Extract ?

ibaAnalyzer-V7-File-Extract is a purchasable extension which enables measurement data acquired in the iba dat file format to be extracted automatically in standard formats which can be imported by other programs.

Supported formats are the iba format (.dat), text files (CSV or ASCII), Apache Parquet, Matlab (.mat), COMTRADE and TDMS. See chapter ↗ *Supported File Formats*, page 24 for further details.

2.2   Functions and application

The *ibaAnalyzer-V7-File-Extract* functionality is an integral part of current *ibaAnalyzer* versions and is activated during the installation of *ibaAnalyzer* whenever the respective dongle is present. All data in iba data file format (*.dat), created by *ibaPDA*, *ibaQDR*, *ibaLogic*, *ibaScope* or third party applications which have used the *ibaFiles* library can be easily loaded, transformed and extracted using *ibaAnalyzer-V7-File-Extract*.

Summary of the major functions:

■ Loading measurements from iba data file

■ Transformation of data or generation of new virtual signals

■ Extract data to various formats

■ Automated processing with *ibaDatCoordinator*

Other documentation

For detailed information about the general functions of *ibaAnalyzer*, see the *ibaAnalyzer* manual.

For the usage of *ibaDatCoordinator*, see ↗ *Automatic Extraction using ibaDatCoordinator*, page 36 or the corresponding manual.

2.3   Installation

ibaAnalyzer-V7-File-Extract is installed automatically together with *ibaAnalyzer* and is activated by the associated license.

3   Data Extractor dialog in ibaAnalyzer

In order to use *ibaAnalyzer-V7-File-Extract* a separate dialog, called "Data Extractor" is available in the main software. Using the default settings, the dialog is accessible via the main toolbar or the menu *Database - DatExtractor* .
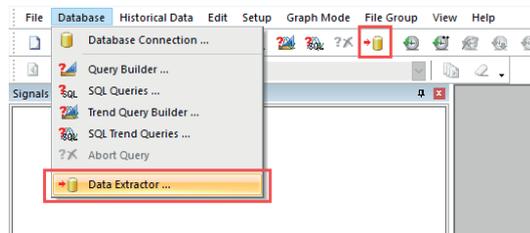

Fig. 1: Opening the Data Extractor

If no license is available, a corresponding error message will be displayed when attempting to open the "Data Extractor" dialog.
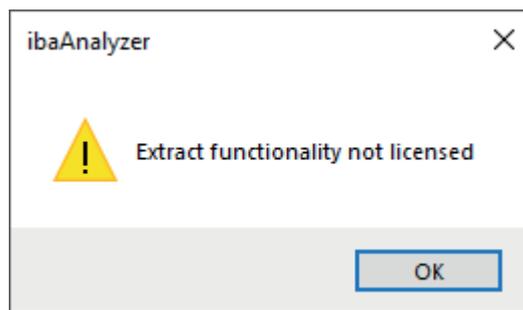

Fig. 2: No license error

By default, the "Extractor output" tab is shown, see ⬈ *Extractor Output*, page 10 for more details.
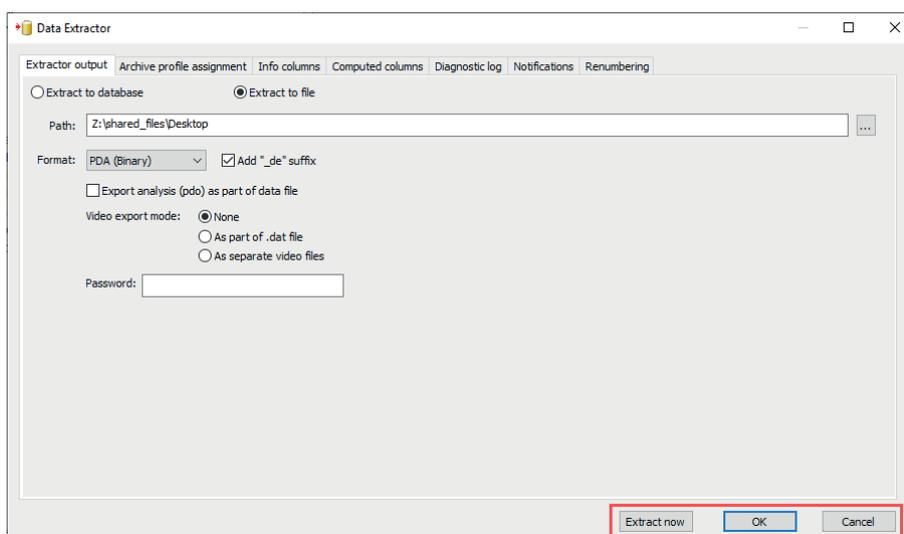
Fig. 3: The Data Extractor Window

The common element in each tab are the following buttons:

<Extract now>
A file will be created based on all the current settings in the „Data Extraction" window. By default, all extracted file names will consist of the source file name augmented by „_de". If extraction from the same source file is repeated the extracted files will be indexed starting with „_00".

<OK>
All current settings within the dialog are saved and the window is closed.

<Cancel>
All settings changed after the "Data Extractor" window was opened are discarded and the window is closed.

Tip

If multiple files are opened in the file group of *ibaAnalyzer* (e.g. from a conditional search using *ibaHD-Server)*, it is possible to apply the extraction to all files contained in the file group. After pressing <Extract Now> a corresponding dialog is shown.
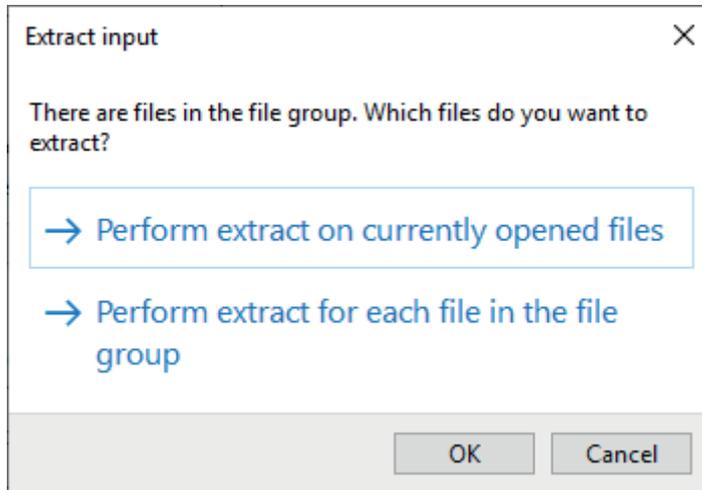
3.1   Extractor Output

This tab is used to specify the location and the format of the extraction file.
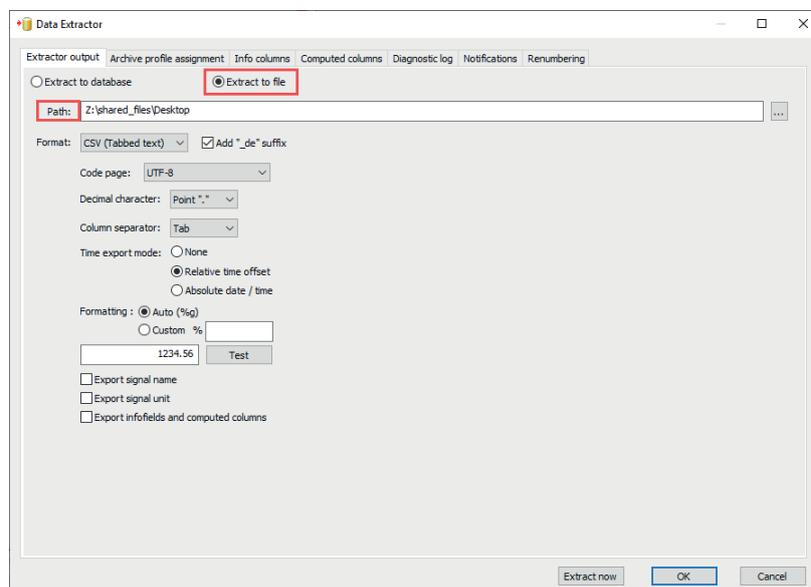

Fig. 4: Extractor output window

In order to use *ibaAnalyzer-V7-File-Extract*, the option "Extract to file" needs to be selected. The option "Extract to database" is necessary for the product *ibaAnalyzer-DB*.

Other documentation

For the "Extract to database" functionality, see the manual *ibaAnalyzer-DB*.

The extracted files are automatically stored at the defined path. If the specified directory cannot be found it will be created automatically. Further, it is possible to browse the network to select the location, by pressing <…>.

File name

ibaAnalyzer-V7-File-Extract creates output files having the same name as the input file and an additional "_de" suffix. If the checkbox "Add '_de' suffix" is disabled, the original file name is used.

In this tab, the output file format is specified. See ↗ *Supported File Formats*, page 24 for more detailed information on the supported formats.

Note

If the analysis is called from the *ibaDatCoordinator* then the location of the extracted files must be specified there and will override the location specified in the Data Extractor. In case the directory is password protected the username and password must be entered.

3.2   Archive Profile Assignment

The selection of exported signals and the resulting sampling rate is done in the *Archive profile assignment* tab.
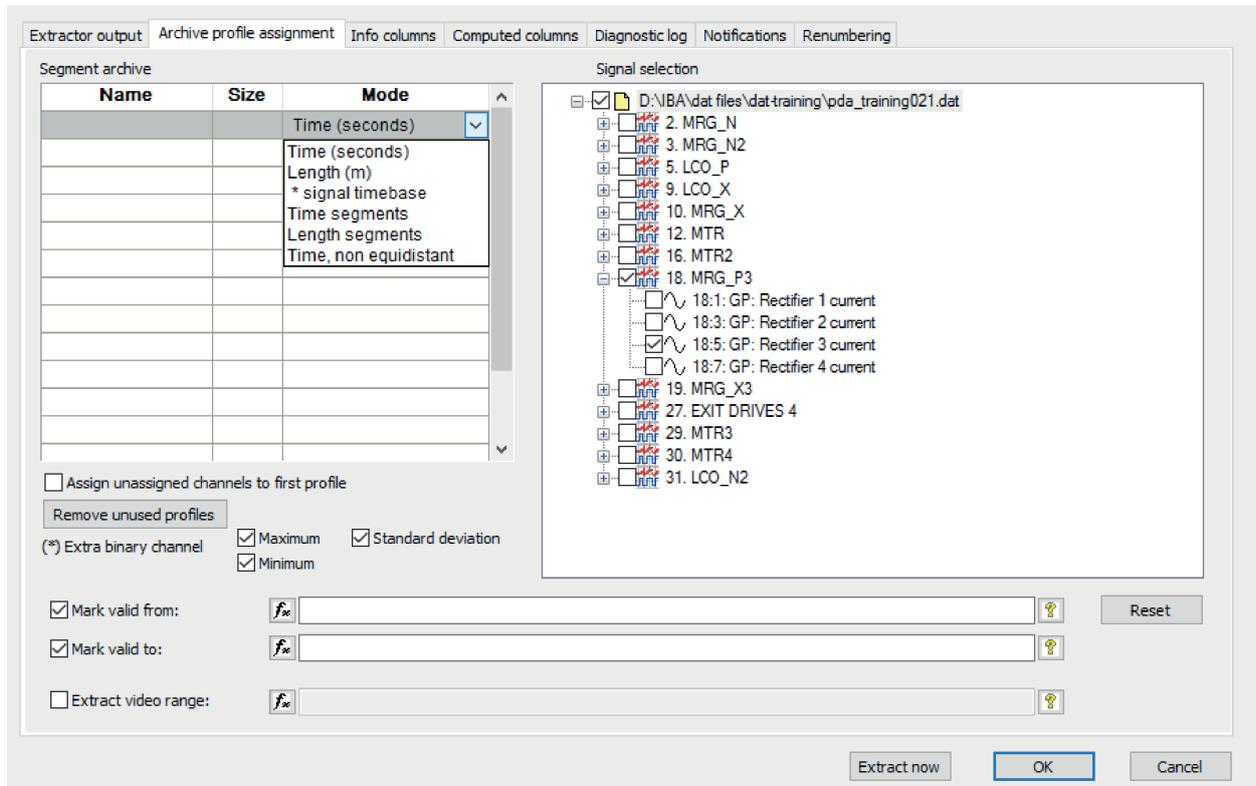
Fig. 5: Archive profile definition and assignment

Note

> To create an archive profile, at least one data file needs to be opened in *ibaAnalyzer.*

Profile Definition

Different "Segment archive profiles" can be added to the table. For each profile the associated signals can be selected in the right pane. Signals can be extracted time-based or length-based and the profile settings have to fit to the type of signal. Of course, different profiles can be specified for different signals.

Note

> A signal can always be assigned to one and only one profile.

The "Mode" and "Size" column

Using a dropdown menu the "Mode" for each profile can be selected. Together with its multiplier "Size" this determines the final sampling rate of the profile.

■ Time (seconds)

Specify the sampling rate in seconds

■ Length (m)

Specify the sampling rate in meter

■ *signal timebase

Use the original signal timebase or a multiple of it.

■ Time segments

Specify the number of exported line segments. The sampling rate is automatically adjusted depending on the measurement duration

■ Length segments

Specify the number of exported length segments. The sampling rate is automatically adjusted depending on the measurement length

■ Time, non equidistant

Extract non-equidistant data

Note

| i |

"Time, non equidistant" is only available, when exporting to text files.


Note

| i |

Assigning a length mode to a time-based signal or a time mode to a length-based signal will produce an error on extraction.
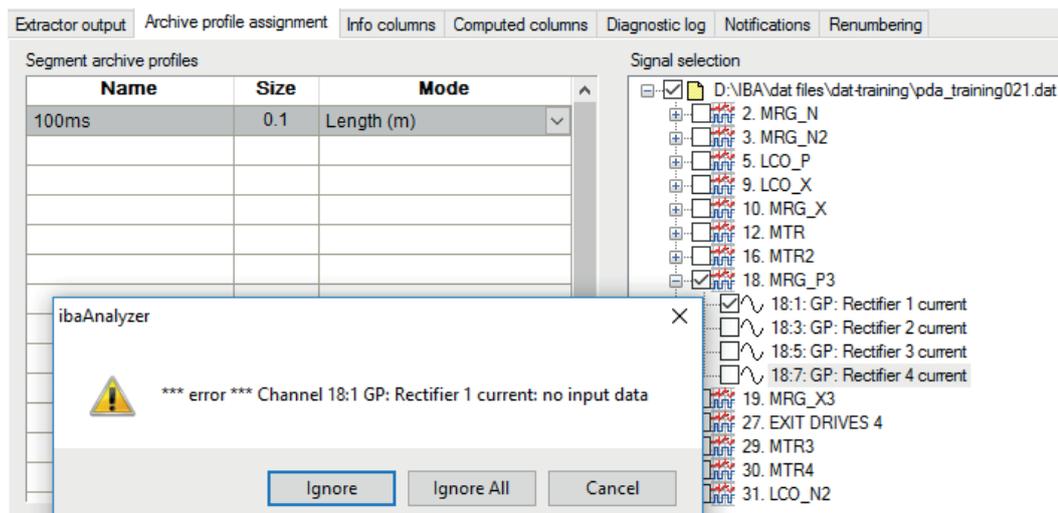
The mode "Signal timebase" works for time- and length-based signals.

Note

If the archive profile specifies signals which are not present in the existing dat file, they will be listed under "Channels currently unavailable".
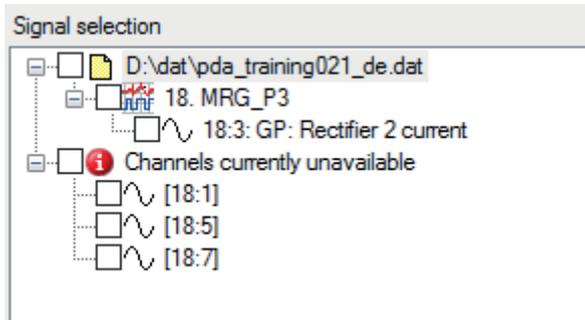
Extra binary channel info

For down-sampled signals it may be useful to also extract "Maximum", "Minimum" or "Standard deviation" of the signals. Select any of these options in order to create an additional signal containing these values.

When extracting to a dat file these options generate corresponding sub-channels.

Note

If the selected profile sample cycle is the same as that of the source signals, these values contain no additional information.

Mark valid from / Mark valid to

If not the complete signal (over the full duration) shall be exported, you have the possibility to specify the beginning and end of a profile range. If either of these is not defined, the corresponding end of the extracted profile range will be the same as that of the input signal range.

Note

You can use expressions to calculate the range from your data.

Extract video range

When exporting videos, only parts of the video may contain important information. By providing a corresponding digital signal, only the parts of the video marked by this signal are extracted to the file. This can help to save storage space.

Assign unassigned channels to first profile

This option simply adds all signals, which are not assigned to a profile, to the first available profile. This can be useful, if the file structure changes over different files.

<Remove unused profiles>

Use this option to automatically delete profiles which have no signals assigned.

<Reset>

Remove all signals from the selected profile.

3.3   Info Columns

The *Info columns* tab permits the extraction of information from the "Info" part (e. g. techno string columns) of the source file. This data will be found in the "Info" part of the extracted files.

Info Field Assignment

There are two procedures for selecting an info field.
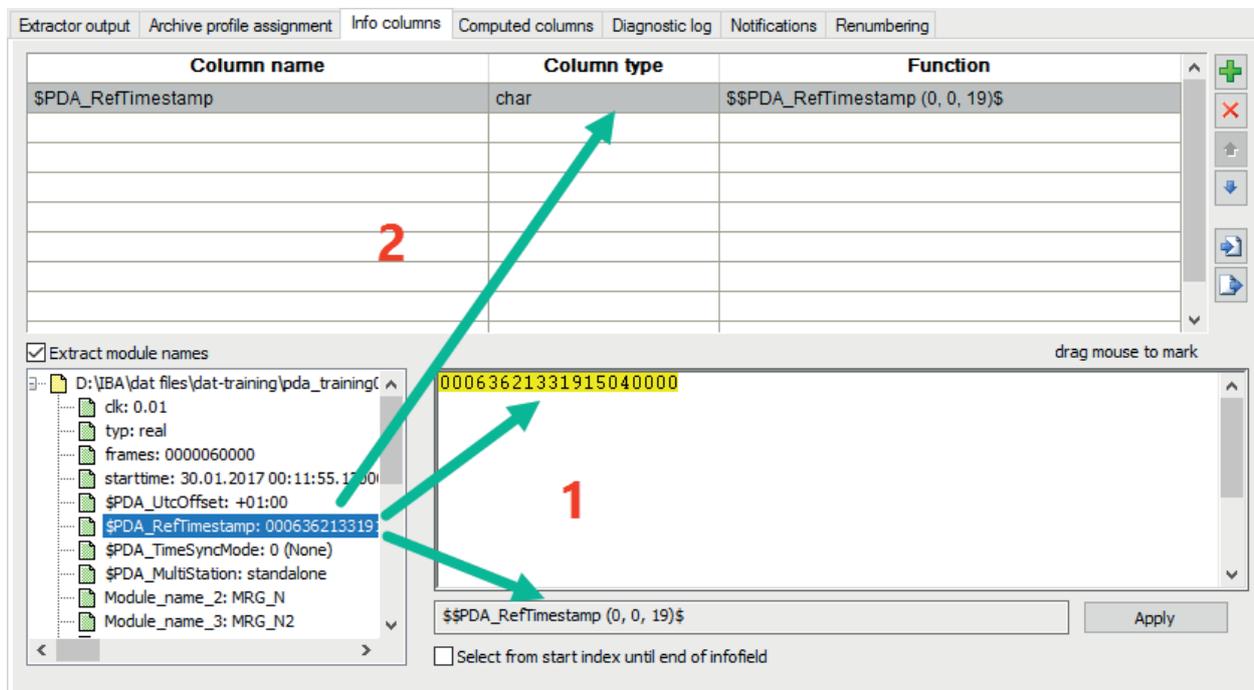

Fig. 6: Configuring info columns for extraction

Click on the source field. The field information will be transferred to the processing field (1).

Double click on the source field. The column line (2) will be filled in addition to the processing field. The "Column type" can only be "char". The "Column name" can be renamed if required. The range of characters within the "Function" can be altered in the processing window.

Select group

It is also possible to select a group of characters from the contents of the info field.

1. Click on the first of the required characters, drag the mouse to the last required character and release.

2. <Apply>

3. The excerpt from the source string is transferred to the column field.
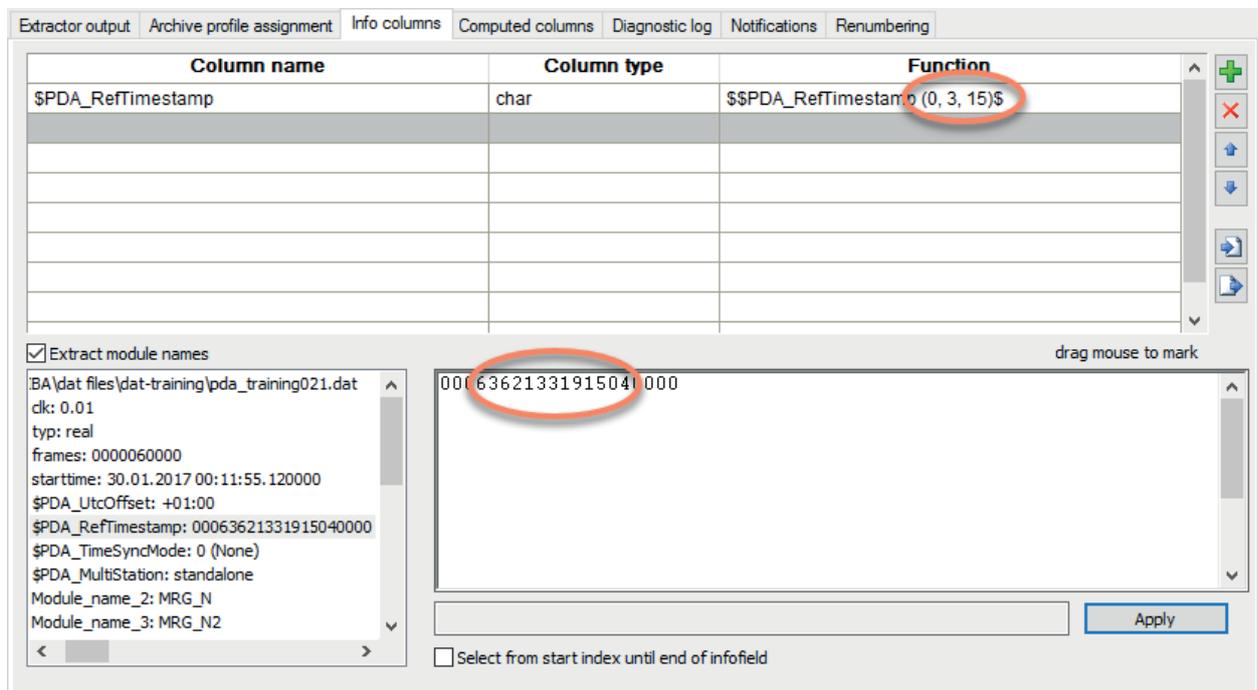
Select from start index to end of info field

All the characters from the marked starting point to the end of the info field are selected.

Procedures for manipulating Info Columns

Column name	Column type	Function	
Module_name_2	char	$Module_name_2 (0, 0, 4)$	
Module_name_3	char	$Module_name_3 (0, 0, 5)$	
Module_name_5	char	$Module_name_5 (0, 0, 4)$	
Module_name_9	char	$Module_name_9 (0, 0, 4)$	
Module_name_10	char	$Module_name_10 (0, 0, 4)$	

	Add line	Adds a new empty line above the currently selected line	
	Delete line	Deletes currently selected line	
	Move line up	Moves currently selected line up	
	Move line down	Moves currently selected line down	
	Import info file	Import Info Column information from text file. The "Open text file" dialog appears.	
		Alternative: right click on header, select *Import*	
	Export info file	Export Info Column information to text file. The "Save text file" dialog appears.	
		Alternative: right click on header, select *Export*	

3.4   Computed Columns

The *Computed columns* tab is used to specify operations which can be applied to the individual signals. These operations will create one value for the associated signal (e.g. the average, maximum, or minimum of all the data in one signal).

Select and prepare signal

Double click on required signal (drag and drop also works). The signal will be copied into the computed column list.

The "Column name" initially takes the source signal name but can be altered as required.

The "Expression" initially takes the source signal channel number.

The expression can be altered by selecting the "Expression builder". The result of the expression should be a constant value. If no function is defined the average of the signal data will be calculated.

The "X" cell is automatically filled with the source signal cycle mode.

The list manipulation functions are described in ⬈ *Info Columns*, page 15

Note

If no group function is specified in the expression *ibaAnalyzer* automatically uses the average.

3.5   Diagnosis and Notification

In a production environment it is necessary to monitor automated processes, to log processing information for diagnostic purpose and to generate notifications.

3.5.1   Diagnostic Log

The diagnostic log is useful for checking progress when automatic extraction is operating (e.g. triggered by the *ibaDatCoordinator*). If a log mode is selected the log file will be created and updated with each extraction.

Mode

■ None

    Log Switched off

■ Brief

```
24-May-17 13:45:54: Start extract file 'D:\IBA\dat files\dat-training\pda_training021.dat'
24-May-17 13:46:57: Start extract file 'D:\IBA\dat files\dat-training\pda_training021.dat'
```

■ Detailed

```
24-May-17 13:16:10: Start extract file 'D:\IBA\dat files\dat-training\pda_training021.dat'
24-May-17 13:16:10: Start extraction to file 'd:\dat\pda_training021_de.dat'
24-May-17 13:16:10: Start extract channel 18:1 GP: Rectifier 1 current with profile 100ms
24-May-17 13:16:10: Start extract channel 18:3 GP: Rectifier 2 current with profile 100ms
24-May-17 13:16:10: Start extract channel 18:5 GP: Rectifier 3 current with profile 100ms
24-May-17 13:16:10: Start extract channel 18:7 GP: Rectifier 4 current with profile 100ms
24-May-17 13:16:10: Extract completed
24-May-17 13:16:35: Start extract file 'D:\IBA\dat files\dat-training\pda_training021.dat'
24-May-17 13:16:35: Start extraction to file 'd:\dat\pda_training021_de_00.dat'
24-May-17 13:16:35: Start extract channel 18:1 GP: Rectifier 1 current with profile 100ms
24-May-17 13:16:35: Start extract channel 18:3 GP: Rectifier 2 current with profile 100ms
24-May-17 13:16:35: Start extract channel 18:5 GP: Rectifier 3 current with profile 100ms
24-May-17 13:16:35: Start extract channel 18:7 GP: Rectifier 4 current with profile 100ms
24-May-17 13:16:35: Extract completed
```

Filename
Enter name of diagnostic file. Browse the network if required (<…>).

Create logfile on day base
With this option enabled one log file is created for each day.

<Edit>
The selected log file can be opened in Notepad and changed as required.

Note

> If logging is activated permanently, a cleanup strategy for the log files has to be implemented externally (not part of *ibaAnalyzer*).

3.5.2   Notifications

The *Notification* tab provides 4 means of communication triggered by a selected status of the extraction process. The following statuses are available:

■ On completion

■ On success

■ On failure

■ On failure (1st. failure only)

Fig. 7: Notifications tab

E-mail address
Enter address and select extraction mode.

Net send computer name
Enter computer name and select extraction mode. Browse the network if required (<...>).

Command line
Enter command line script to be executed when extractor status achieved and select extraction mode.

Write to Windows application event log

Select extraction mode. View in Windows Event Viewer.
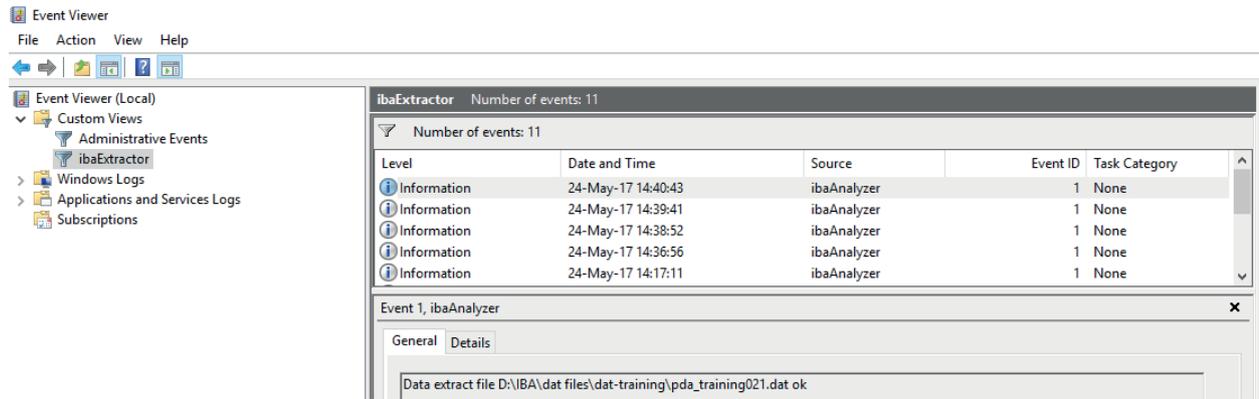
Fig. 8: Example for Data Extractor notifications in Windows Event Viewer

3.6   Renumbering

If multiple files are opened and several signals are to be extracted from several files, it is likely that multiple channels will have the same ID number and hence need to be renumbered or otherwise they will not be able to be uniquely identified in the exported media. *ibaAnalyzer* can do this renumbering automatically but will give a warning if it has to do so before proceeding with the extraction.

The channel IDs are comprised of a module number and a position within the module. The *Renumbering* tab allows the specification of an offset to the module numbers for each file, hence enabling the user to prevent ID collisions and avoid automatic renumbering.
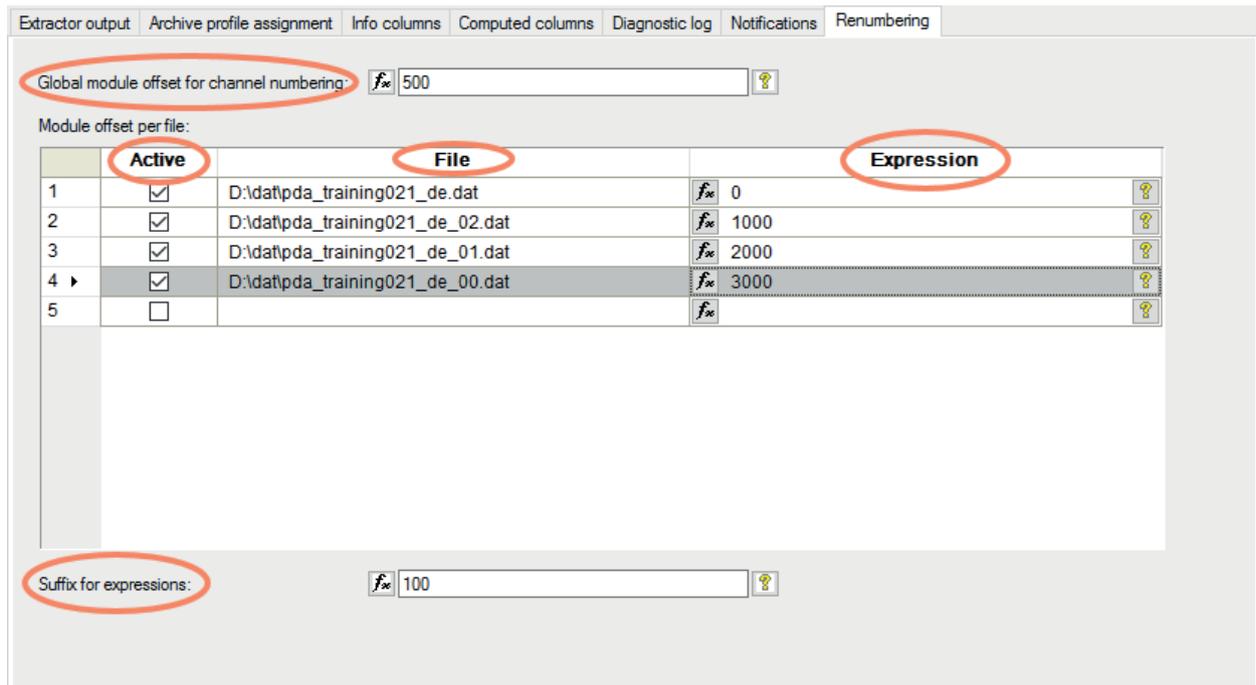
Fig. 9: Renumbering tab

The open dat files are listed automatically in the "File" column.

Global module offset for channel numbering
This number will be added to data file channel numbers.

"Expression" column
The offset for each data file is entered in this field.

"Active" column
Channel offsets will only be made for active files. Extraction of channels in inactive files leads to the following message.
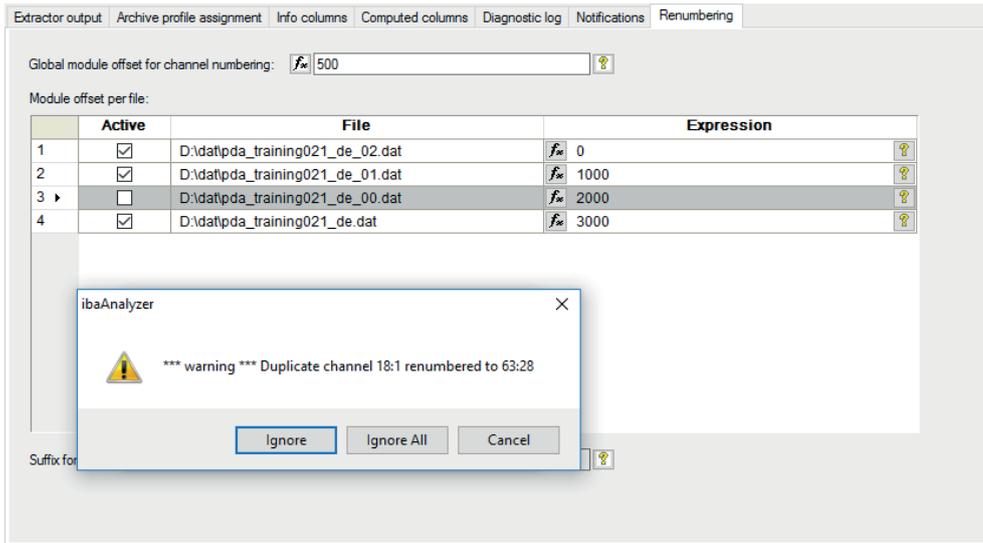
Suffix for expressions

This applies only to expressions created in *ibaAnalyzer*. The expression names are augmented by the specified suffix.

Example of extracted file based on above settings:
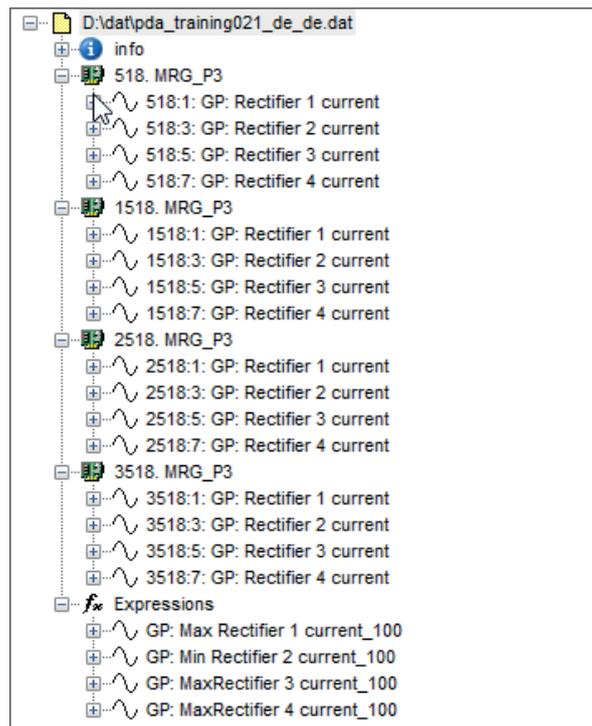
4 Supported File Formats

With *ibaAnalyzer-V7-File-Extract* it is possible to convert available data into various formats. The functionality is constantly extended to support other formats. Currently, dat files, ASCII (or CSV), COMTRADE, TDMS, Apache Parquet and Matlab (.mat) are supported.

4.1 The iba format (.dat file)

By selecting the format "PDA (Binary)" it is possible to create new and modified dat files.
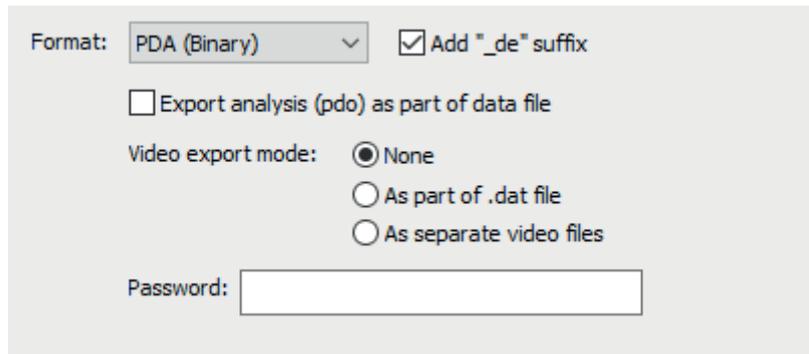
Fig. 10: Export to iba dat file format

If the option "Export analysis (pdo) as part of data file" is selected, the exported dat file contains the analysis. When such a file is opened again by *ibaAnalyzer*, the decision can be made whether to import the embedded analysis.
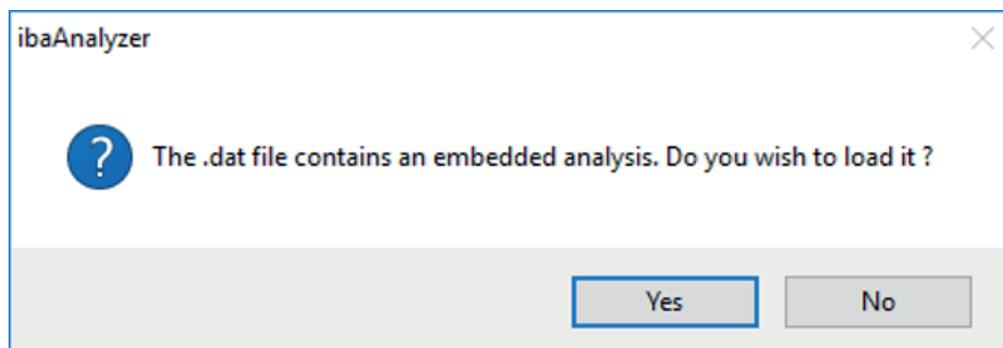
Fig. 11: Load analysis dialog

Note

All extracted data is converted to Real format. This can cause a loss of precision for some data types.

Starting from *ibaAnalyzer-V7*, it is possible to create password protected dat files. The password specified in this dialog is used for all exported files.

Video export mode

If necessary, available video data can additionally be embedded in the exported dat files. The following options are available:

■ None

No video export required

■ As part of .dat file

ibaCapture videos will be exported as part of the new dat file. All videos which are selected in the signal tree will be exported.

■ As separate video files

ibaCapture videos will be exported as separate files (.avi) to the same directory as the dat file. Although 2 separate files are created, opening the resulting dat file automatically calls up the associated video file. The file name suffix "_nn" indicates the individual pairs.

Note

For exporting the videos, *ibaAnalyzer* needs access to the video files or the *ibaCapture* server.

4.2   Text file (CSV)

The option "CSV (Tabbed text)" enables an export to plain text files.

Fig. 12: Export to CSV

ibaAnalyzer automatically creates separator-based text files. This means that all signal data are organized in columns and the columns are separated by the specified separator in the extracted file. Several settings are available to create customized files.

Code page
It is possible to choose between different encodings for the resulting file. We recommend to use UTF-8 as a standard.
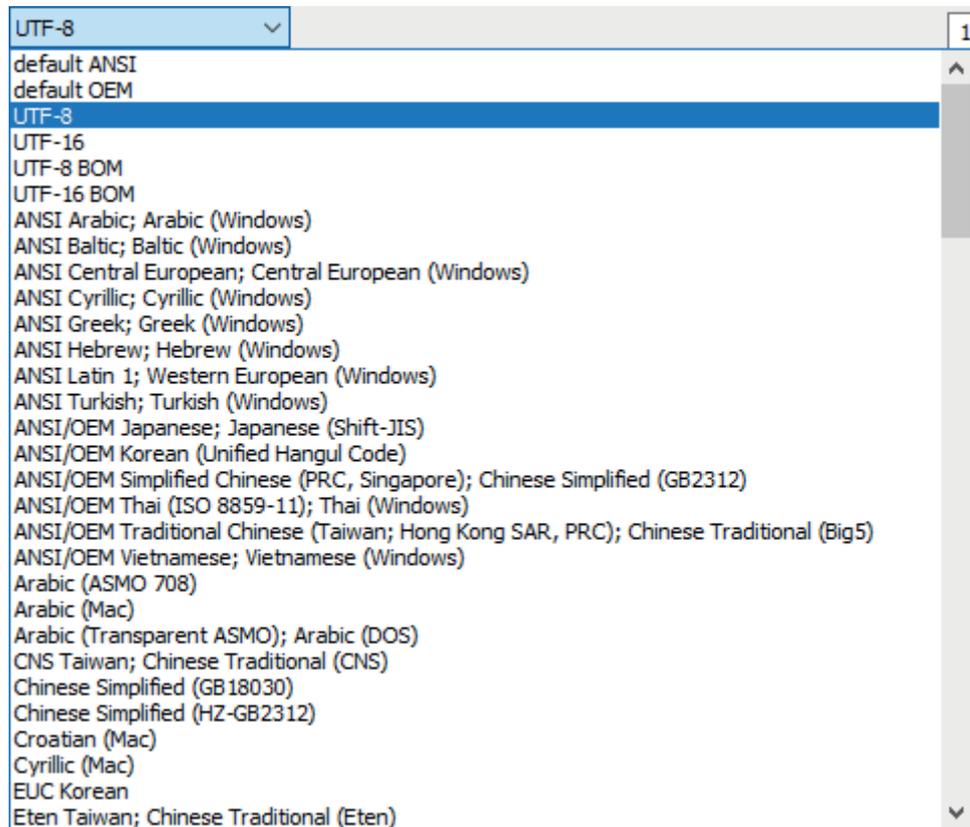
Fig. 13: Encoding with UTF-8

Decimal character
Select if a comma or point is used as decimal separator for the exported values. The option "System" applies the standard used by the current operating system.

Column separator
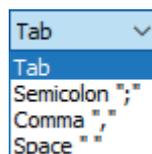
The default option is to use a tab as separator of the individual columns. Other separators are possible, e.g. to create CSV (comma separated values) files.

Note

It is possible to select "Comma" both for the decimal character and the column separator. In this case the resulting files will not be usable. *ibaAnalyzer* displays a corresponding warning if this combination is used.
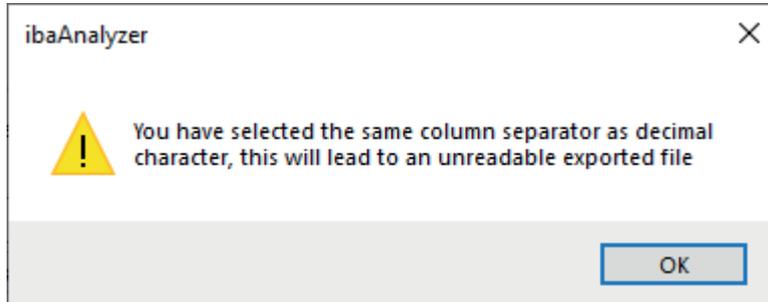
Time export mode

Select if time data need to be exported and in which format. The time stamp appears as a separate column in the exported file.

■ None

   No timestamp data are exported

■ Relative time offset

   Begins with "0" and counts the seconds from the file start

■ Absolute date/time

   Displays the absolute date and time

Time	[18:1]	[18:3]	[18:5]
30.01.2017 00:11:55.120000	0	217.272	190.276
30.01.2017 00:11:55.220000	0	238.018	196.484
30.01.2017 00:11:55.320000	0	219.696	182.417
30.01.2017 00:11:55.420000	0	226.913	182.002

Formatting

It is possible to specify the number of digits used when writing floating point values to a file. The syntax follows a "printf" statement in C++.

The option "Auto" uses the '%g' format. Under "Custom" different variants can be used. Please refer to suitable reference for printf in C++.

In order to test the behavior, an additional test field is available which formats the input to the corresponding format.

Enter value and press < Test >. Then, the formatted value is displayed.

Fig. 14: Entry of value (left) and result after pressing <Test> (right)

Export signal name, Export signal unit
These options add an additional line at the header of the resulting file. They contain either the name or the unit of the measured values.

Export infofields and computed columns
This option permits the extraction of all signals created in the *Info columns* and the *Computed columns* tabs of the "Data Extractor" window. The data will be put to a separate part of the file with a key-value structure.

Note

|	
i	Text signals in the source file are treated like any other source signal.

Skip leading/trailing empty rows
Usually, the exported data start with the first row at the starttime of the file and the last row corresponds to the endtime.

In case not all data is extracted (e.g. because XMarkValid was used) this can result in rows completely filled with NaN.

If you enable these options such empty rows are automatically removed in the resulting text file.

4.3   COMTRADE

The *IEEE Standard Common Format for Transient Data Exchange for Power Systems* (short *COM-TRADE)* defines a particular format for the exchange of data files as documented in the IEEE Std C37.111-1999 standard. The standardization applies to both the format of the data files and the type of media to be used for exchanging fault signal, test or simulation data of energy supply systems.

ibaAnalyzer generates a *.dat file during the COMTRADE export which contains the measured values, as well as a *.cfg file with configuration data, such as channel information (signal number, signal name, info columns), the start and end time, etc.
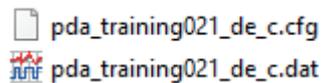
Further, *ibaAnalyzer* supports different types of the format, which can be selected via dropdown menu. For some versions of the format it is possible to export a single .cff file instead of the usual two files.
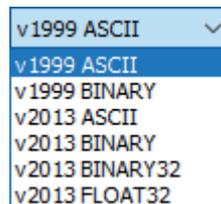
According to the COMTRADE convention, information concerning the station name and the recording device must be added to the file and can be entered in the corresponding fields. This information is stored in the cfg-file which *ibaAnalyzer* generates during the export process in addition to the data (.dat) file.

In addition to that, the applicable main frequency (50 / 60 Hz) can be set.

4.4   TDMS

Format: TDMS   ☑ Add "_de" suffix

With this option data can be extracted to the binary National Instruments Technical Data Man-agement Streaming file format. These files can be opened in e.g. LabVIEW and DIAdem.


Note

i   You need a separate license for this feature to be enabled. Contact iba support for more information.

4.5   Apache Parquet

Apache Parquet is a column-oriented, binary data format which provides efficient data compression and different encodings. Due to its columnar structure and the possibility to add meta data the file format, it resembles the iba dat file format. Also due to the comparable storage size we recommend these files as an interchange format to external systems.

The data in the output file will be structured as follows:

- A channel (or expression) corresponds to a Parquet column

- The module structure available in iba dat files has no direct pendant in Parquet and is therefore mapped using meta data (see below)

- All info fields are stored as Parquet meta data

Note

All extracted (numerical) data is converted to the FLOAT Parquet data type. This can cause a loss of precision for some data types. STRING and BOOL will have the same corresponding Parquet data type.

Compression
The Apache Parquet format offers different compression methods. *ibaAnalyzer* supports plain encoding (Uncompressed), Snappy, Gzip, Brotli, LZ4 and ZStandard.

Row group size
The Apache Parquet format has an additional row-wise structure mechanism called "column chunks" or "row group". In *ibaAnalyzer* you have the possibility to choose the row group size according to your needs. The input corresponds to the number of rows per row group.

Create Spark compatible files

The Apache Spark framework can be used to work with Parquet files. Since several characters are not allowed as column name within this framework this option replaces all such characters by underscores.

Time export mode

Similar to the text file extract it is possible to export an additional time column.

- None

  No timestamp data are exported, however the start time and sampling rate are still available as meta data

- Relative time offset

  Begins with "0" and counts the seconds from the file start. The column contains FLOAT values in this case.

- Absolute date/time

  In this case the additional column will contain the absolute date and time. The Parquet data type TIMESTAMP is used.

Derive column names from

The column names for the Parquet file can be selected here. It is possible to use the channel numbers, the channel names or one of the comments. Note that when using a comment, this information needs to be available.

When selecting the channel number, the names will be formatted as

- [M:C] for analog channels

- [M_C] for digital channels (dots are not allowed for channel names in the Parquet format)

- [M:C:S] for subchannels

With "M" as the module number, the signal (or channel) number is "C" and the subchannel number is "S".

The Parquet format does not allow non-unique column names. If this is the case in the original data, *ibaAnalyzer* automatically adds a corresponding suffix like "_1", "_2", etc.

Meta data

If data are exported from iba dat files several meta data (or info fields) are available. These data are also written to the Parquet format, where only one level of meta data exists. Therefore, these data are structured as follows:

- File level information (the standard info fields) are stored as normal key value pairs with the info field name as key

- For computed columns and info columns the specified name is used as key

- Module level information use a key of the form "M[x]y" where x is the module number and y the field name

- Channel level information use a key of the form "[x]y" with x being the channel name and y the field name

This structure of data also enables *ibaAnalyzer* to restore the complete file structure, when opening the extracted Parquet file.

Length-based and ibaQDR data

It is possible to extract length-based data or *ibaQDR files* to the Parquet format. If the correct length-based profile is used for the extract, *ibaAnalyzer* writes additional meta data to the file to indicate this. The following fields are used:

■ "Lengthbased" to indicate that the column contains length-based data

■ "LengthBase" which contains the sampling rate in m.

4.6   Matlab

The software Matlab distributed by MathWorks provides its own (binary) data format with file extension ".mat". In order to better support the Matlab integration it is possible to create .mat files with *ibaAnalyzer*. These files can be opened directly with the Matlab software.

Time export mode

Similar as for other formats, it is possible to export an array containing the timestamps either as relative time offset or as formatted string. The time array will be added to the "fileinfo" structure which is described below.

Use numbers as names

With this option it is possible to not use the module and signal names for the names of the "struct" objects (see below). In this case the module or signal number is used with some prefix "M" for modules and "S" for signals.

In order to display the correct name when opening the file again with *ibaAnalyzer*, the original names are stored in an additional field "name" within the structure.

Data structure

The software Matlab supports different datatypes and structures. *ibaAnalyzer* supportes .mat files which contain so-called "struct" objects. *ibaAnalyzer* creates nested "struct" objects in the following form:
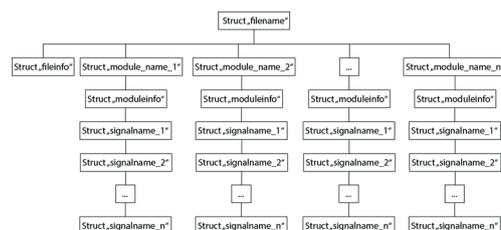
This structure is used to resemble the internal structure of the iba dat files.

The struct "filename" is the root structure. It contains only other structures containing info fields or modules. The name of the structure is derived from the filename displayed in the *ibaAnalyzer* signal tree.

The file-level info fields are stored as key-value pairs in a fixed structure "fileinfo". The field "clk" containes the sampling rate of the signal data. Further, a field "starttime" contains time stamp of the first data point. Several other info fields will automatically be added to this structure.

The individual modules are present in form of structures having the name of the module. In case the "Use numbers as names" option is set, the structures are named as "Mx" where x is the module number.

Every module has a fixed structure "moduleinfo" which contains module-level info fields as well as a field "name" containing the module name, and a field "ModuleID" containing the module number.

Like for the modules, the individual signals within one module are present as structures using the signal name or a string "Sx" with x being the signal number.

Every signal structure contains an array "data" which holds the signal values. Other key-value pairs are written representing the signal-level info fields. The most important fields are:

- "SignalID"

  the signal number within the module

- "name"

  the signal name (will be displayed in *ibaAnalyzer*)

- "unit"

  the unit (if present) as displayed in the signal grid

- "PDA_Comment1"

  the comment 1 displayed in the signal grid. Similar for comment 2

- "PDA_TBase"

  this field is present in case the sampling rate is different from the global "clk" value

- "Lengthbased"

  the presence of this field indicates that the column contains length-based data

- "LengthBase"

  in case of length-based data the sample rate in meter is specified here

Naming conventions
When extracting to .mat files, the nested structs are given names automatically. If the option "Use numbers as names" is chosen the signal ID is used.

5   Command Line Options

Some of the command line options described in the *ibaAnalyzer* manual can also be used with *ibaAnalyzer-V7-File-Extract*. This means that the program can also be started via batch-/Windows-scripts or from within other programs, such as *ibaDatCoordinator*, *ibaPDA*, *ibaLogic* or customer applications.

In order to automate the postprocessing when starting *ibaAnalyzer* via command line several, so-called switches are available which also relate to the functionality of *ibaAnalyzer-V7-File-Extract*. The used syntax is the following:

```
ibaAnalyzer.exe datfilename1 [datfilename2] …[datfilenamen] [pdo-
filename] [/switch]
```

where *ibaAnalyzer* is opened including different data files, an analysis and various options which are described in the following.

In all cases *ibaAnalyzer* automatically opens all specified data files and the analysis and carries out the given task. Note that the analysis is in some cases mandatory, if the information needed for the task is only available in the analysis.

Command line switches

■ /extract[:filename]

This switch is used to extract the data into a file using *ibaAnalyzer-V7-File-Extract*. The destination file name [:filename] must be added as a parameter. For this *ibaAnalyzer* is solely started in the background and no window is visible.

■ /append

In order to append several dat files use this switch. The default behavior for several dat files is to open them in parallel.

■ /print

This switch automatically triggers the hardcopy function of *ibaAnalyzer*. This makes sense only in combination with a suitable analysis. The Windows default printer is used. *ibaAnalyzer* only stays visible if an error occurs.

■ /report[:filename]

This switch triggers the creation of a report defined in the analysis and the linked .lst file. If [:filename] is specified the report is printed to a file automatically. The file type is specified by the file name extension.

Combination permissible or useful?	/append	/print	/extract	/report
/append				
/print	YES			
/extract	YES	YES		
/report	YES	YES	YES	

Table 1: Possible combinations of the most important switches

6   Automatic Extraction using ibaDatCoordinator

A major advantage of the *ibaAnalyzer-V7-File-Extract* license is the possibility to automate the extraction with the free tool *ibaDatCoordinator*.

Fig. 15: Configuring an Extraction task

Here we describe some important features which apply to the usage of *ibaAnalyzer-V7-File-Extract* in combination with the Extract task in *ibaDatCoordinator*.

Extract analysis file
Enter the path and file name of the .pdo-file in this field or select the file using the browser button. By clicking the *ibaAnalyzer* button to the right, the analysis is opened in *ibaAnalyzer*.

Target/Target directory
Select "Extract to file" in order to use *ibaAnalyzer-V7-File-Extract*. Additionally, the destination file path needs to be specified. If a username and password is required to access the (remote) directory it can also be entered and the connection can be tested with the question mark button.

The option "Extract to database" requires *ibaAnalyzer-DB.*

File type

Select the required file type. The available file formats are described in ⬈ *Supported File Formats*, page 24

Date modified

For archiving and sorting it may be necessary to manipulate the "date modified" tag of the resulting file. Set the "Set 'Date Modified' time of output file to match .dat file" checkbox to have the same "date modified" as the original file.

Other documentation

Other available options and the general usage of the software *ibaDatCoordinator* are described in detail in the corresponding manual. For extracting data to a database, refer to the manual *ibaAnalyzer-DB*.

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7 Support and contact

Support

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Note

If you require support, indicate the serial number (iba-S/N) of the product or the license number.

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