

**Cometsystem s. r. o.**

**Comet Vision Manual**

**Guide**

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# 1 Basic program elements

The basic elements of the program are the control panel on the right side of the program window (see number 1 below) and desktop (see number 2). In the right panel it is always indicated where you are in the program (in this particular case you are in "Program home"). The desktop contents varies for each item. The work area is further divided into tabs (see Fig. 1: "Quick start," "Program home"). Once you have mastered this type of program control, everything else will be intuitive for you. All information about the events and functions are described on the buttons.

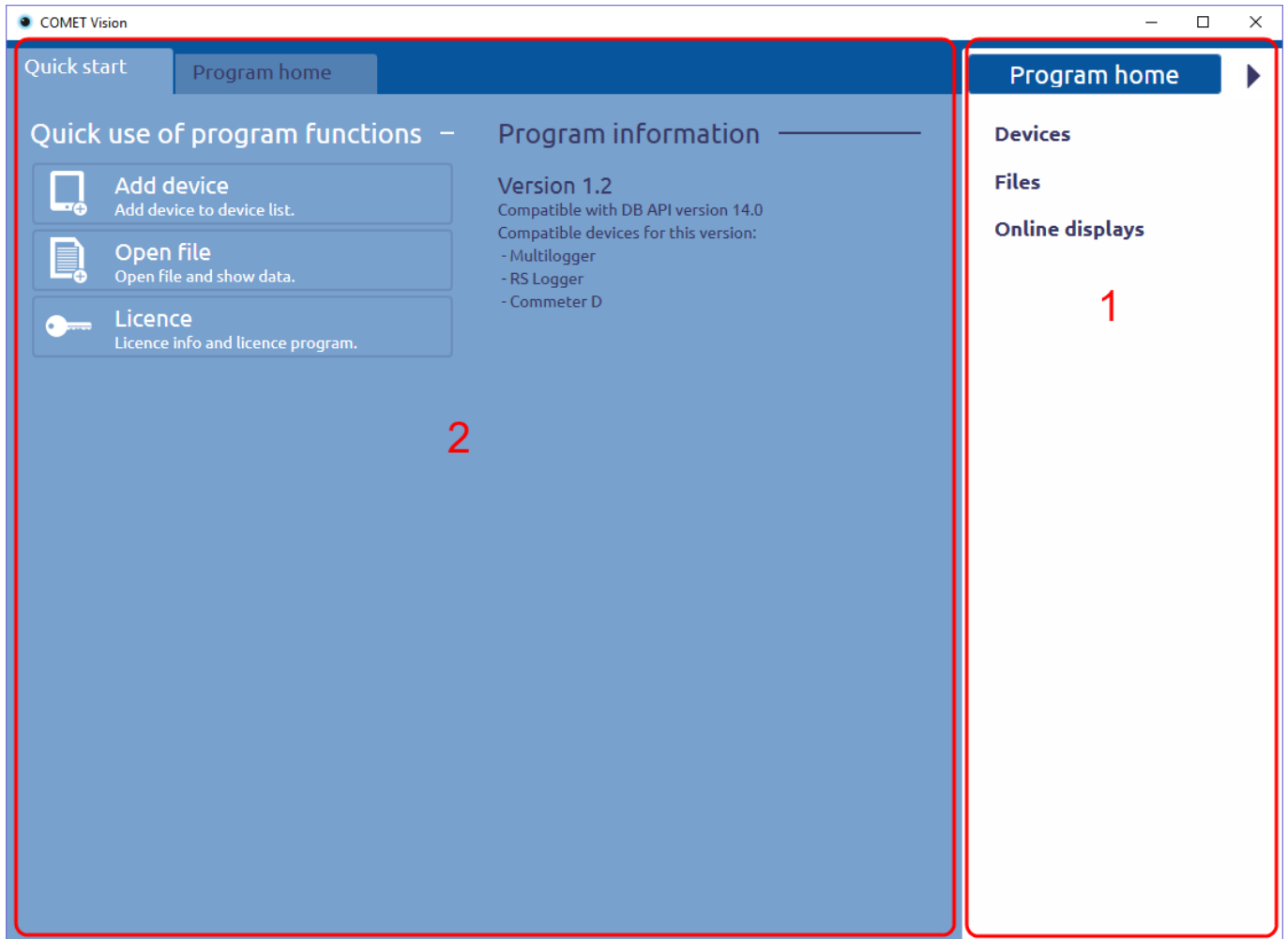


Fig. 1

On the following picture (Fig. 2) you can see everything clearly. We added a device and chose it (by clicking on it in the right panel). A workspace for the selected device is shown. Here, basic information and all available features for this device are provided.

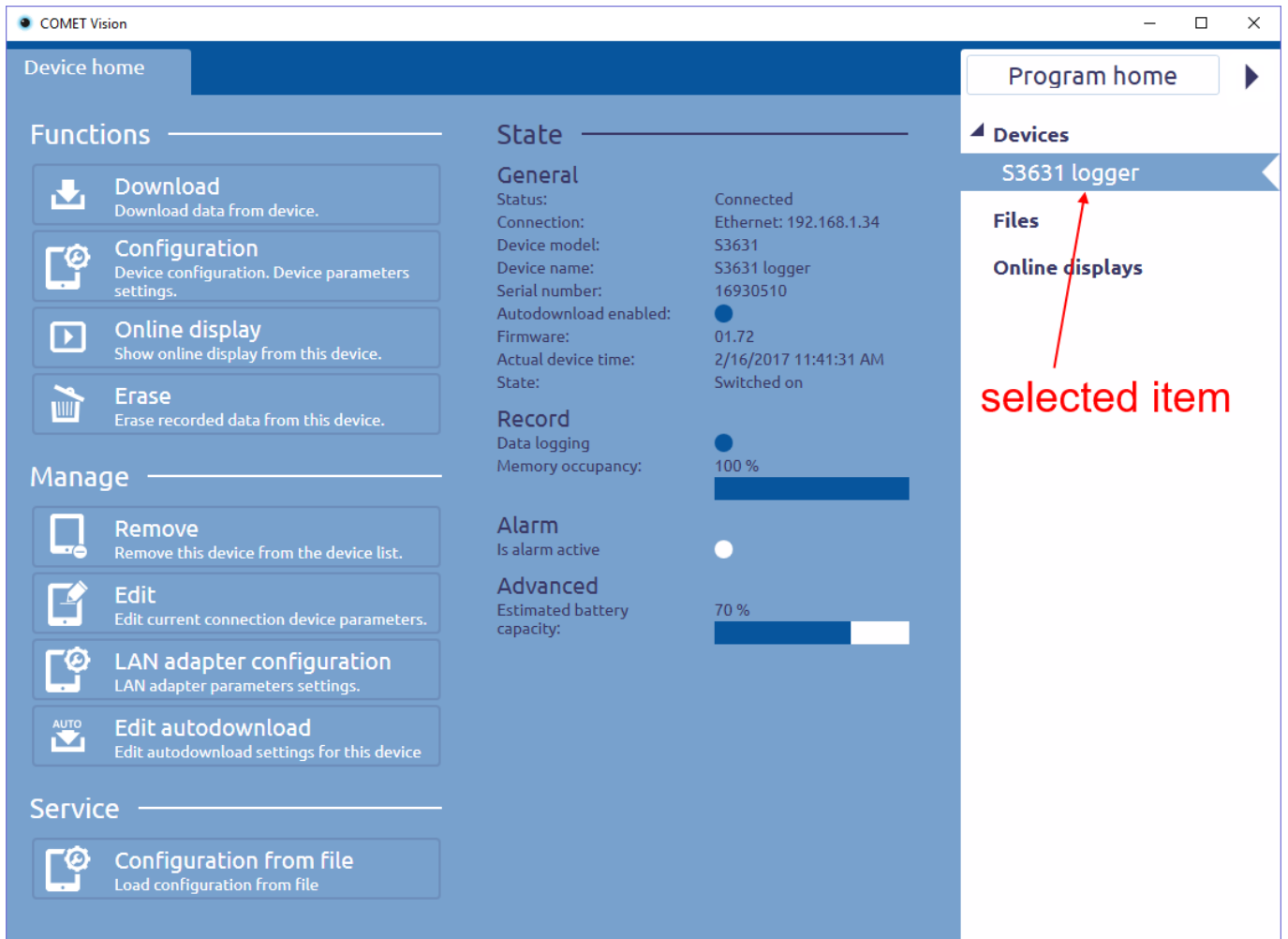


Fig. 2

## 2 How to add a device

The program remembers previously added devices. Therefore, the next time you want to use a device, you do not have to think how to connect it. Devices can be added in a standard way by filling the connection parameters or by using auto detect (applies only for devices connected via USB).

### 2.1 Standard way of adding a device

On the right panel select „Devices“ and click on the button „Add device“ (fig. 3).

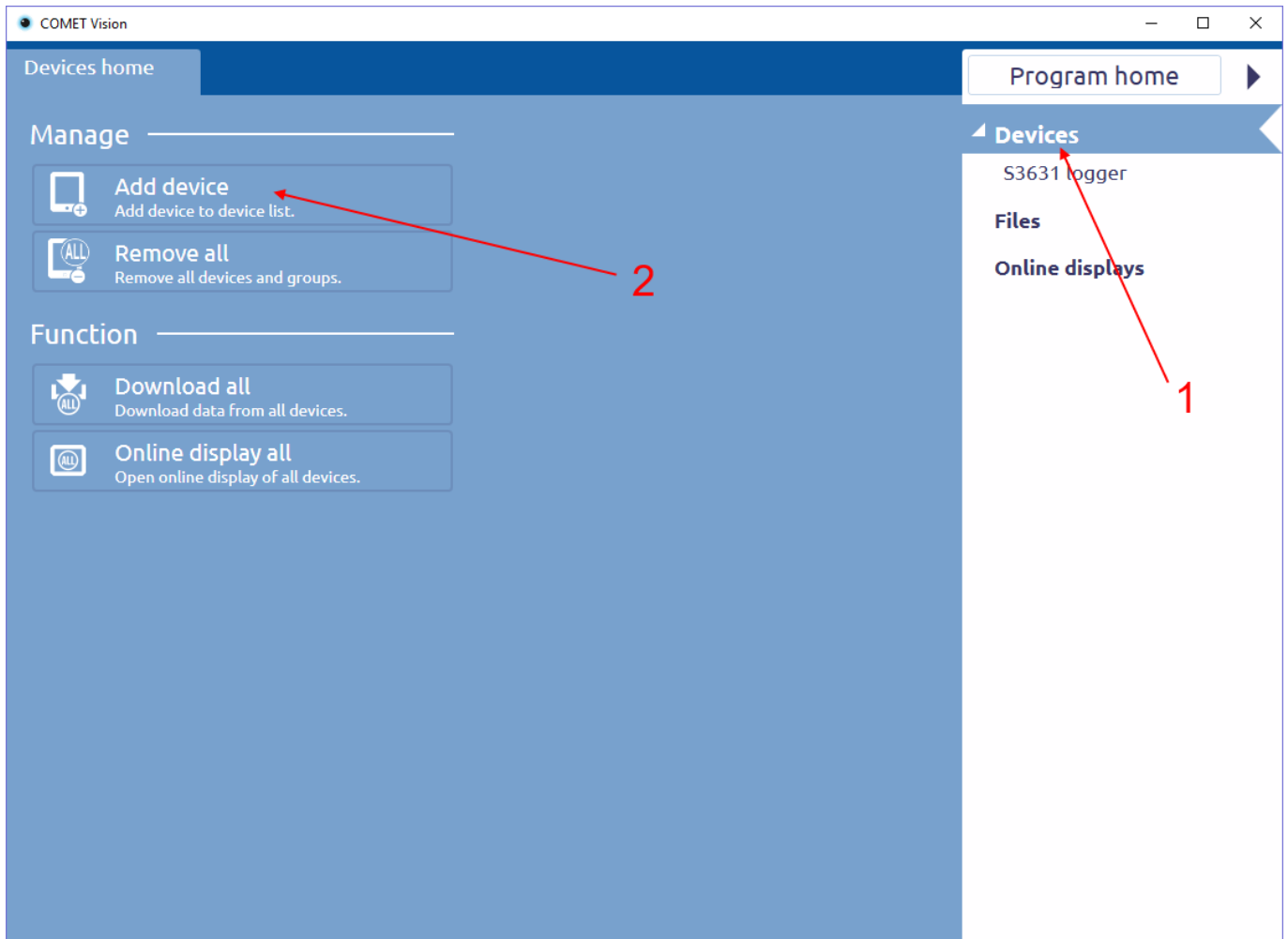


Fig. 3

The tab for adding a device is shown. Here you can choose how to connect your device.

- USB – displays a list of devices\* connected to the PC. You just choose which one of them you want to connect.
- Serial port – you have to configure the connection parameters (serial port) and device type.
- Ethernet – display a list of devices connected to the local network (fig. 4). You can select a device or fill addresses and port at the bottom of page (in edit boxes).

\*A device must be switched on to appear in the list of connected devices.

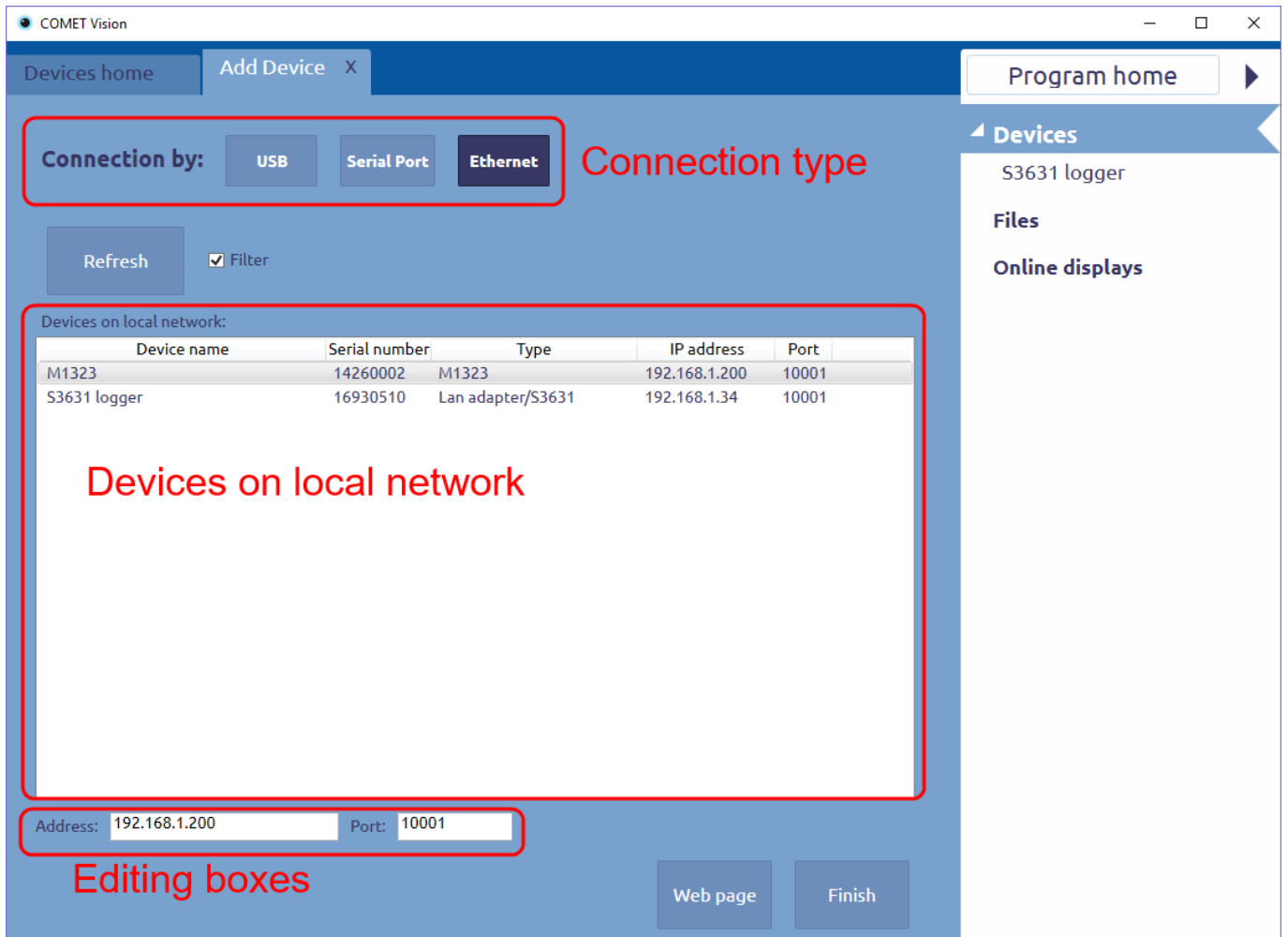


Fig. 4

## 2.2 Auto detect device

The program can automatically add devices connected via USB. Follow these steps (it is necessary to keep order):

- 1) Start Comet Vision.
- 2) Turn on the connected device (data loggers series R and S don't have to be turned on).
- 3) Connect the cable to the device.
- 4) Connect the cable to the PC.
- 5) The device is added to the program during few seconds.

## 3 Device list

There is the device list in the right panel, named "Devices"(Fig. 5). You can add any supported device to the list (see chapter 2), number of devices is unlimited in full program version.

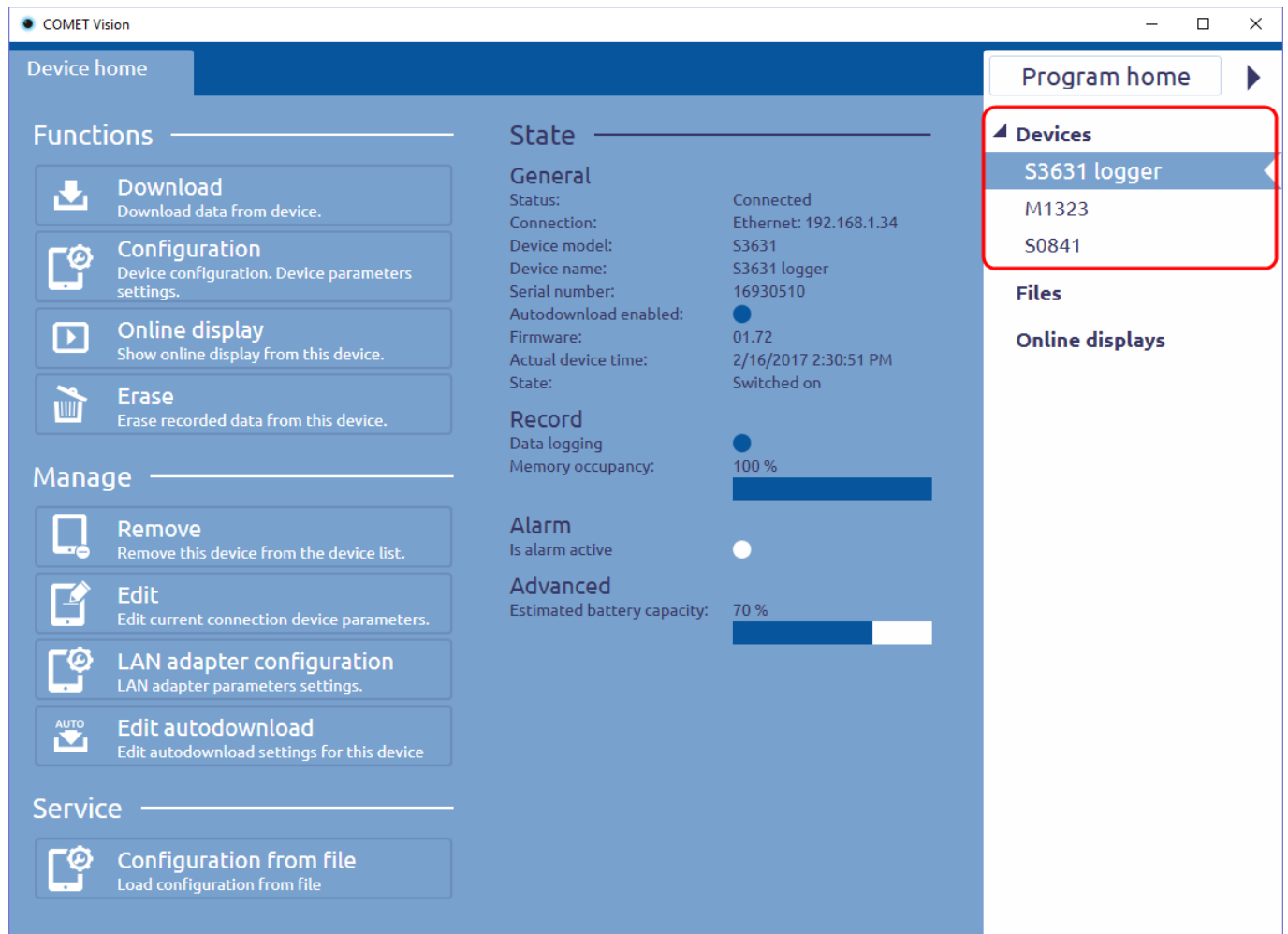


Fig. 5

The program regularly (every 5 seconds) updates information on all devices in the list.

For each device in the list, there is the following information:

- whether the device is connected or not. These states have different appearance (see Fig. 6).

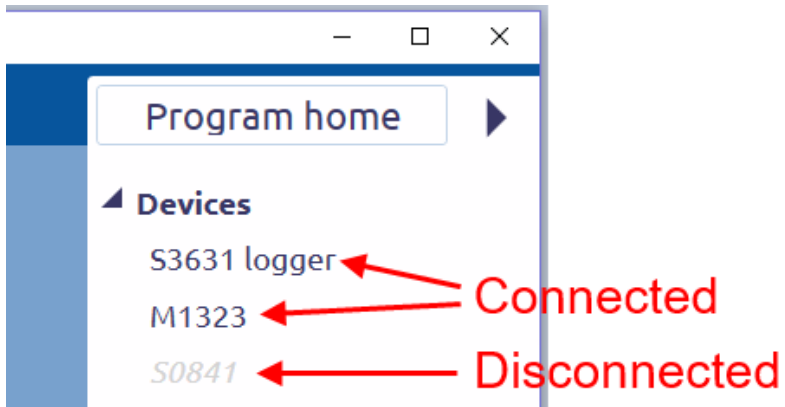


Fig. 6

- alarm is active or not for the device. If alarm is active, it has a red bell (only in the full program version, see Fig. 7).

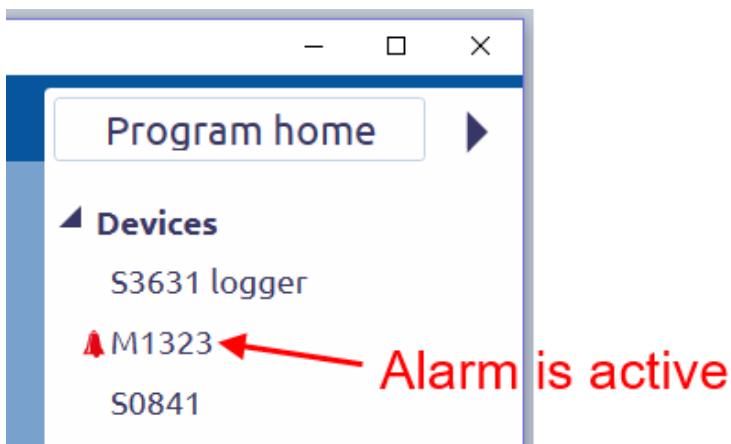


Fig. 7



## 4 Device homepage

Each device on the list has a tab called Device home (Fig. 8). Here are all the controls and information for the device (depending on the type of device). Example of information: is recording the data, memory status, battery status, and so on. This information is updated regularly (every 5 seconds).

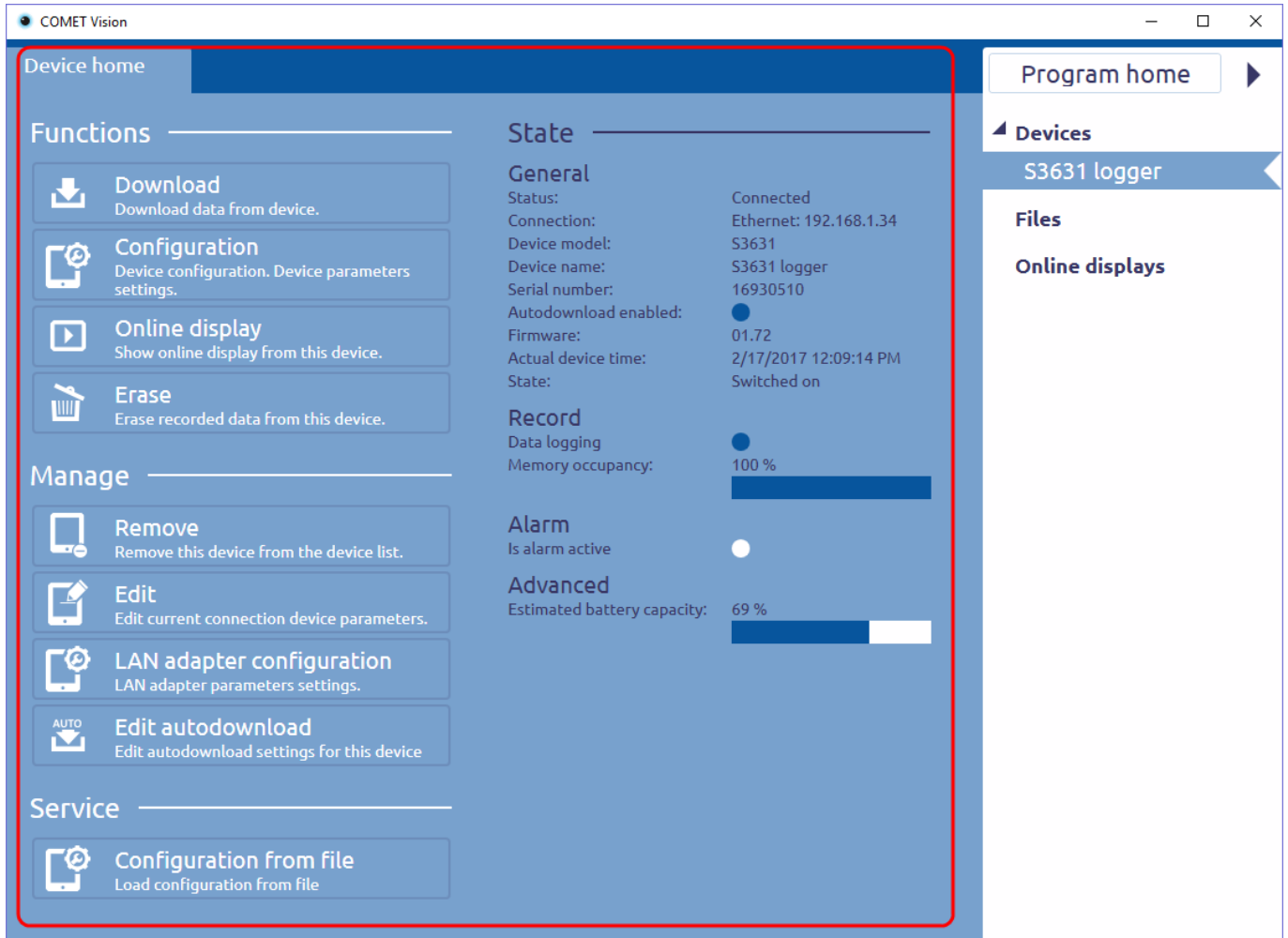


Fig. 8

### 4.1 Brief description of functions

Some functions can be hidden by the device type or configuration settings (eg. Clear counter is hidden for a device without counter).

Description of functions (some functions are described more in the following chapters):

#### **Download**

Download data from a device, store data to file and show data in new tab. If database connections and automatic exporting of data to the database are set (see chapter 7.1.3), data will be sent to the database after downloading them. More information is provided in chapter 5.

**Configuration**

Download the current configuration of the device and display it in a new tab. Here, you can view it or change it. You can save a new configuration to the device by using the button "Apply changes".

**Online display**

Getting current values from the device and display it in new tab. Getting other information, for example: if the alarm is active. You can change the reading interval values from the device. More information is provided in chapter 6.

**Erase**

Erase recorded data from a device.

**Clear counter**

Set counter value to zero.

**Remove**

Remove current device from the device list.

**Edit**

Edit current connection device parameters.

**LAN adapter configuration**

LAN adapter parameters settings.

**Add to/Edit autodownload**

Setting "Autodownload" for the device. Only here, there is function to add devices to the device list for autodownload. More information is provided in Chapter 8.

**Configuration from file**

Read the device configuration from the selected file. If configuration from file is correct and compatible with the device (must match the serial number of the device in the free program version), it will be displayed. Then you can change the configuration parameters and you can save it to the device.

## 5 Recorded data

The data can be downloaded, saved to a file, displayed in the program and sent to the database from devices that store data in its memory. Use the function named "Download data" on tab named "Device home" (see chapter 4). If database connections and automatic exporting of data to the database are set (see chapter 7.1.2), data will be sent to the database after downloading them. Data is displayed after downloading them. You can open a previously saved file from the disk.

### 5.1 Organization of stored files

There is the file list in the right panel under device list, named "Files" (see Fig. 9). It has groups by device from which data are downloaded. Groups are named by name or serial number of the device (can be selected in chapter 7.1.2). Each group can contain up to 5 files (this is in fact a reference to the location of the file on the disk).

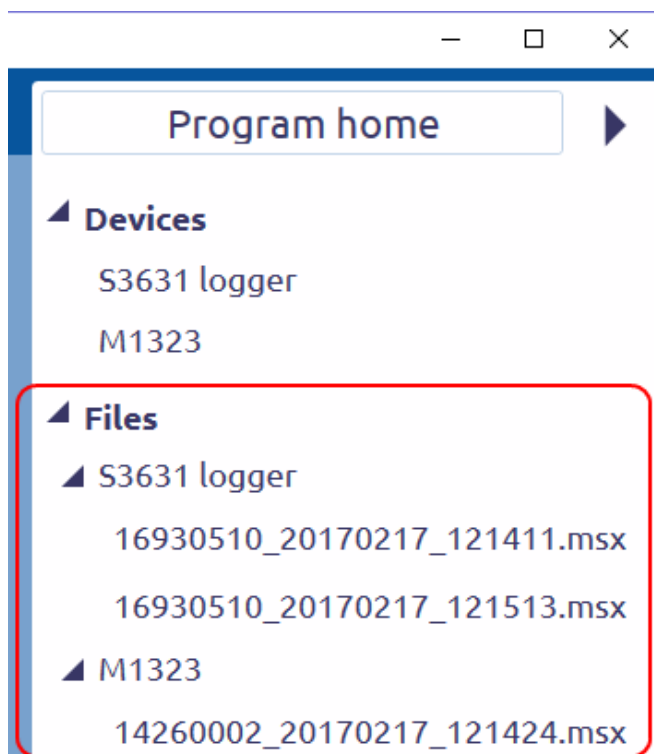


Fig. 9

#### 5.1.1 Add/Open file

One way to add a file is downloading recorded data from the device as it's been described before. The second way is opening a file from disk. This can be done by selecting "Files" in the menu and clicking on the "Open File" (see Fig. 10).

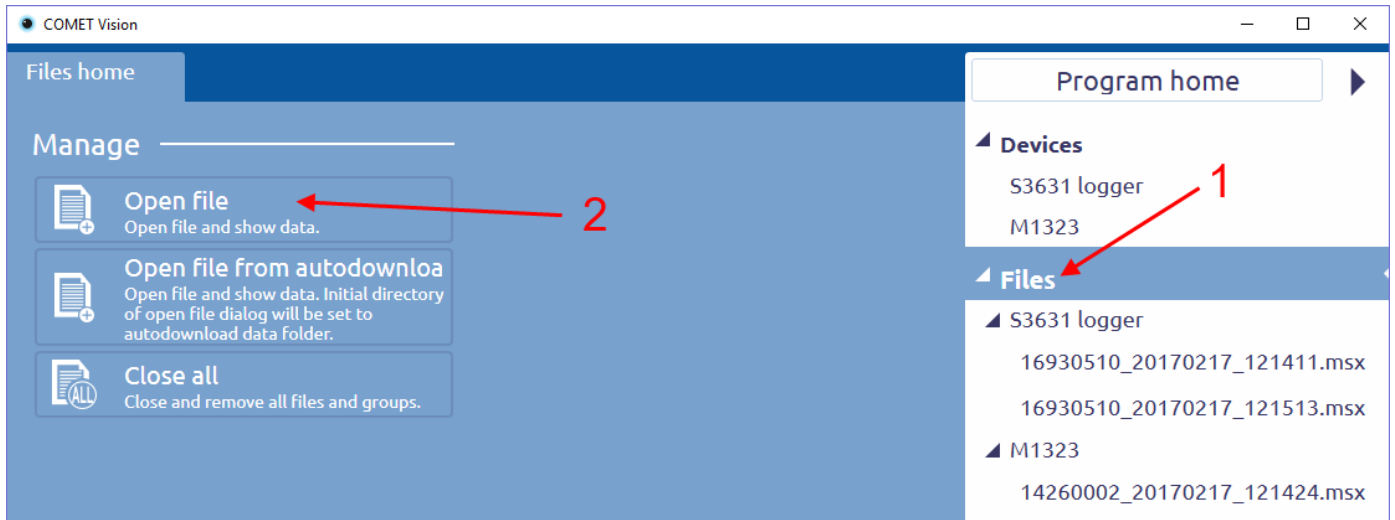


Fig. 10

### 5.1.2 File name and its location

The file name is generated according to the following scale: [serial number]\_[date]\_[time].msx. The file can be renamed only by using Windows Explorer. You have to reopen the file after the name change. Or the file name can be changed when downloading data, if you enable the show save file dialog (see chapter 7.1.2).

The default file location for saving is set to / Documents / CometLoggers / COMET Vision. A folder for each device will be created here. Location can be changed (see chapter 7.1.2).

### 5.1.3 Remove/Close file

Remove a file from the file list to close the file and release memory. File remains stored on disk after removing from program and the file can be reopened at any time.

One way to remove a file is the function on the file homepage. More information is provided in chapter 5.2.

The second way is to remove all files in the group for the device. This means, choose a group from the list of "Files" and use the "Close All". The group will be removed (with all files in this group).

The third way is to remove all files from the program. This can be done in a similar way as for the group. Choose item "File" and use function "Close All". All items (groups and files) will be removed.

## 5.2 Homepage of file

File has a homepage similar as device. Here are basic functions and information (see fig. 11).

#### Information

File path - location on the disk.

Serial Number - the serial number of the device from which the record was downloaded.

Device description - the device name from which the record was downloaded.

Date and time of first sample in record - start of recording time on the device.

Date and time of last sample in record - end of recording time on the device.

Download date and time - the date and time on a computer when the record was downloaded.

If file is error, It will be described here. For example: "File does not exist" - when somebody removed file from the disk.

### Close file

Close and remove the file from the file list. The file remains stored on disk and can be reopened.

### Export to Database

Send data to the database. **The connection parameters with the database must be set correctly** (see chapter 7.1.3)

### Open containing folder

Open location of this file in the file explorer.

### Configuration

Display configuration stored in the file.

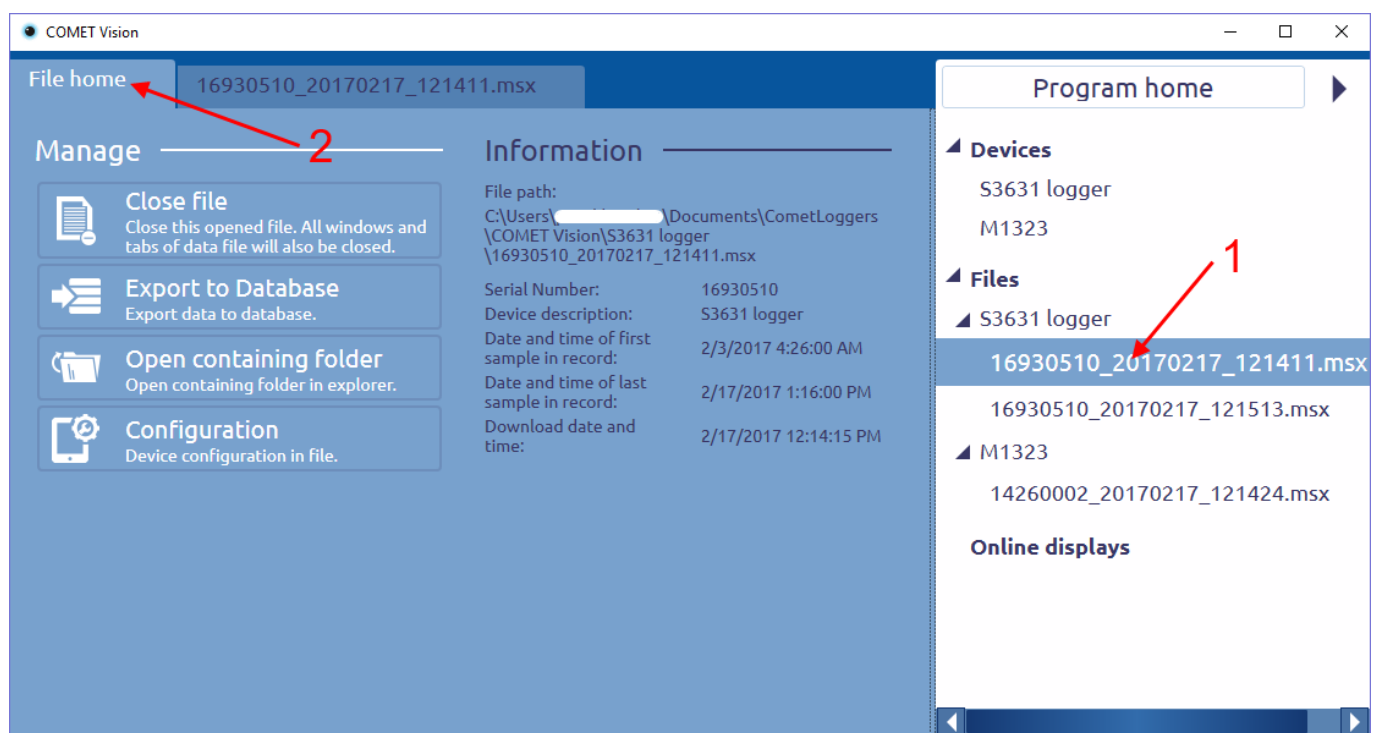


Fig. 11

## 5.3 Presentation of data

Data can be viewed and printed after you download or open a file (explained in previous chapters). Data are presented by a data table, charts or by a statistic table. This is on the tab which is named the same the file. Note: The tab is duplicated in the item of device after downloaded.

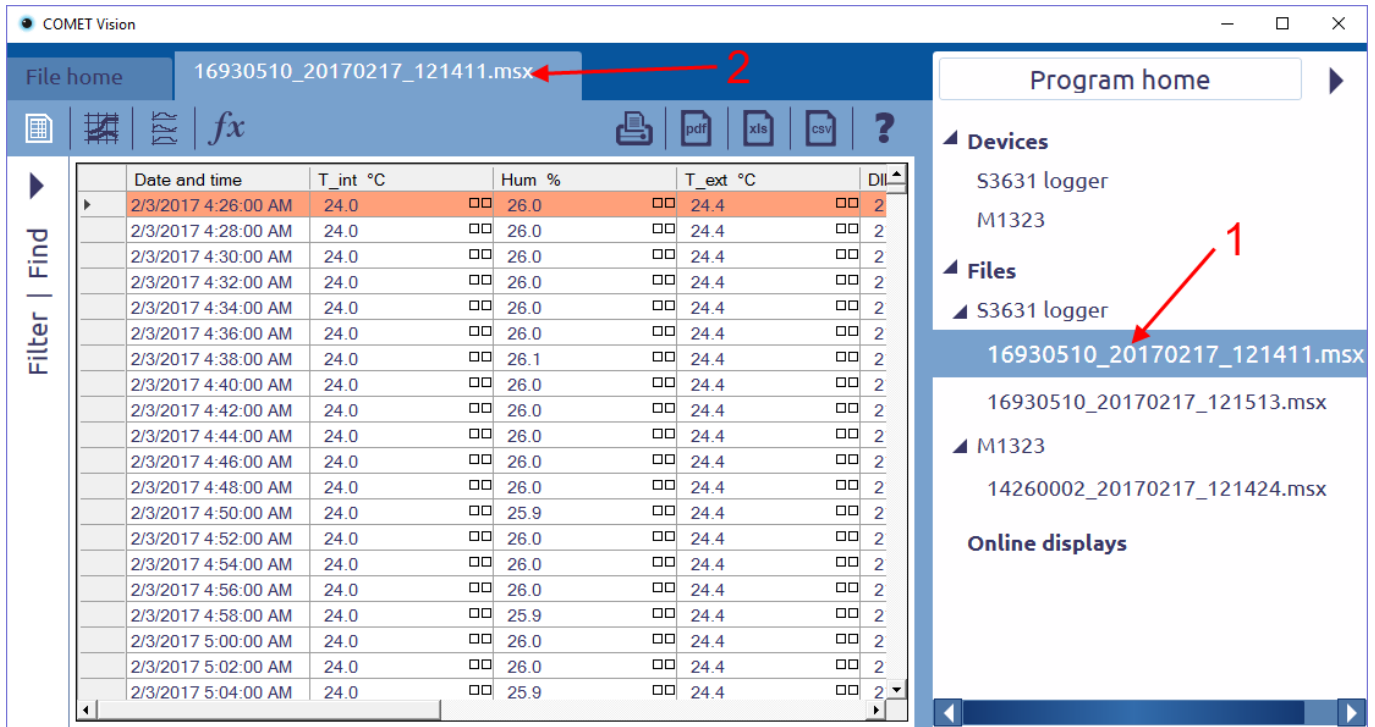


Fig. 12

### 5.3.1 Data table

Data are arranged chronologically by the time of the recorded values. An alarm status is shown besides values (empty square = alarm is not activated, a red square = alarm is activated). An interruption of recording is highlighted by different background colour of line (Interruption means first value of continuous recording. It is start of curve in a chart.)

At the top, there is a toolbar. On the left side of the toolbar, there are some buttons to change a type of data presentation. The icon for table view is selected (highlighted in white, see fig. 12). On the right side of the toolbar, there are some buttons with functions. These buttons are changed according to the type of data presentation.

**Print** 

Print the data table. Note: Cannot print large amounts of data (limited to 500 pages).

**Export to pdf** 

Export the data table to the pdf file.

**Export to xls** 

Export the data table to the xls file.

**Export to csv** 

Export the data table to the csv file.

**Help** 

Show detailed description and explanations of this tab.

## Filter and Find

There are some functions in the left side (see fig. 13). This part can be hidden/shown.

The screenshot shows the COMET Vision software interface. At the top, there is a file path: 16930510\_20170217\_121411.msx. Below the path is a toolbar with icons for home, grid, list, formula (fx), print, pdf, xls, and csv. The main area is divided into a left sidebar and a data table.

**Filter Panel:**

- Date and time range:** From: 04 : 26 : 00, Date: 2/3/2017. To: 13 : 16 : 00, Date: 2/17/2017.
- Select channels:**
  - T<sub>int</sub> °C
  - Hum %
  - T<sub>ext</sub> °C
  - DIF (Diff.) °C
  - DP (Dew-point) °C
  - Interrupt Cause
- Alarm events:**
  - Only if some alarm was changed
- Buttons:** Apply filter, Clear filter

**Find Panel:**

- Go to row by:** Time: 04 : 26 : 00, Date: 2/3/2017, Go

**Data Table:**

Date and time	T <sub>int</sub> °C	Hum %	T <sub>ext</sub> °C	DIF (Dif)
2/3/2017 4:26:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:28:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:30:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:32:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:34:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:36:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:38:00 AM	24.0	26.1	24.4	21.0
2/3/2017 4:40:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:42:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:44:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:46:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:48:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:50:00 AM	24.0	25.9	24.4	21.1
2/3/2017 4:52:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:54:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:56:00 AM	24.0	26.0	24.4	21.0
2/3/2017 4:58:00 AM	24.0	25.9	24.4	21.1
2/3/2017 5:00:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:02:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:04:00 AM	24.0	25.9	24.4	21.1
2/3/2017 5:06:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:08:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:10:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:12:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:14:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:16:00 AM	24.0	26.0	24.4	21.0
2/3/2017 5:18:00 AM	24.0	25.9	24.4	21.1
2/3/2017 5:20:00 AM	24.0	26.0	24.4	21.0

Fig.13

You can filter:

- Date and time range - filtering data by date and time.
- Select channels - filtering data by channels.
- Alarm events - filtering data only when an alarm was changed or record was interrupted.

You can find data by date and time. Enter a date and time and click the "Find" button to find row with this data and time.

## 5.3.2 Chart

Data can also be viewed in chart form. This option is activated by the second button in the toolbar (see Fig. 14). All curves are shown in one chart. Chart has common time axis (X axis) and common axis for values (Y axis).

In the left panel, there are settings named "Quick settings". Here, you can change curve settings, for example: visibility, colour and so on.

Function "Zoom" is available by the right button on the mouse. There are some functions on the toolbar.



Fig. 14

**Zoom: Show all**



Clear the zoom. Show all data in the chart. You can use this function by double-click.

**Print**



Print the chart.

**Export to pdf**



Export the chart to the pdf file.

**Cursors**



Values will be displayed depending on the position of the mouse. This function deactivates the function "Zoom" (it is necessary for touch screen).



## Settings



View the chart settings. There, you can change eg. the Y-axis parameters.

## Help



Show detailed description and explanations of this tab.

### 5.3.3 Charts by channels

Second type of chart view are charts each with only one curve. The advantage is highlighting in the curve when an alarm is active (red color). In this case, for each channel is created a separate chart. Axis X (timelines) are synchronized.

Here are the same features as in the previous case, "Zoom", "Print", "Export to PDF", "cursor". Moreover, it is possible to change the size chart or hide it.

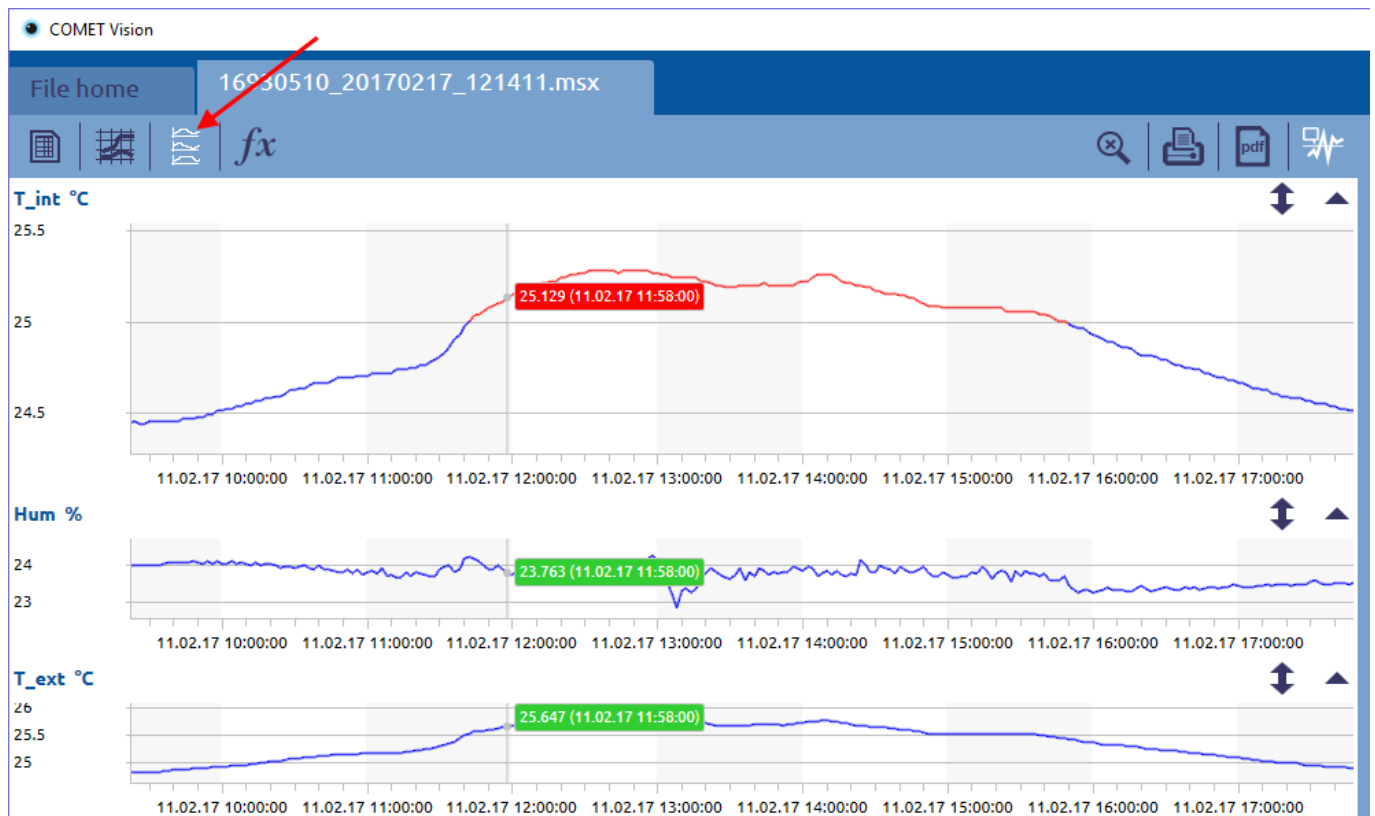


Fig. 15

### 5.3.4 Statistics

In this window, there are some compute values from record data. The number of samples, the minimum value, maximum value, average value, MKT (mean kinetic temperature) and the standard deviation are computed for analog values. A time duration of each status and the number of status changes are computed for binary values. Filter is shared for the statistics and the data table. If data are filtered, the statistics will be calculated from the filtered data.

Note: The average values can be distorted when some value is incorrect or recording interval was changed. In this case, there is a red exclamation mark (see fig. 16). A description will be displayed when you place cursor on the exclamation mark.

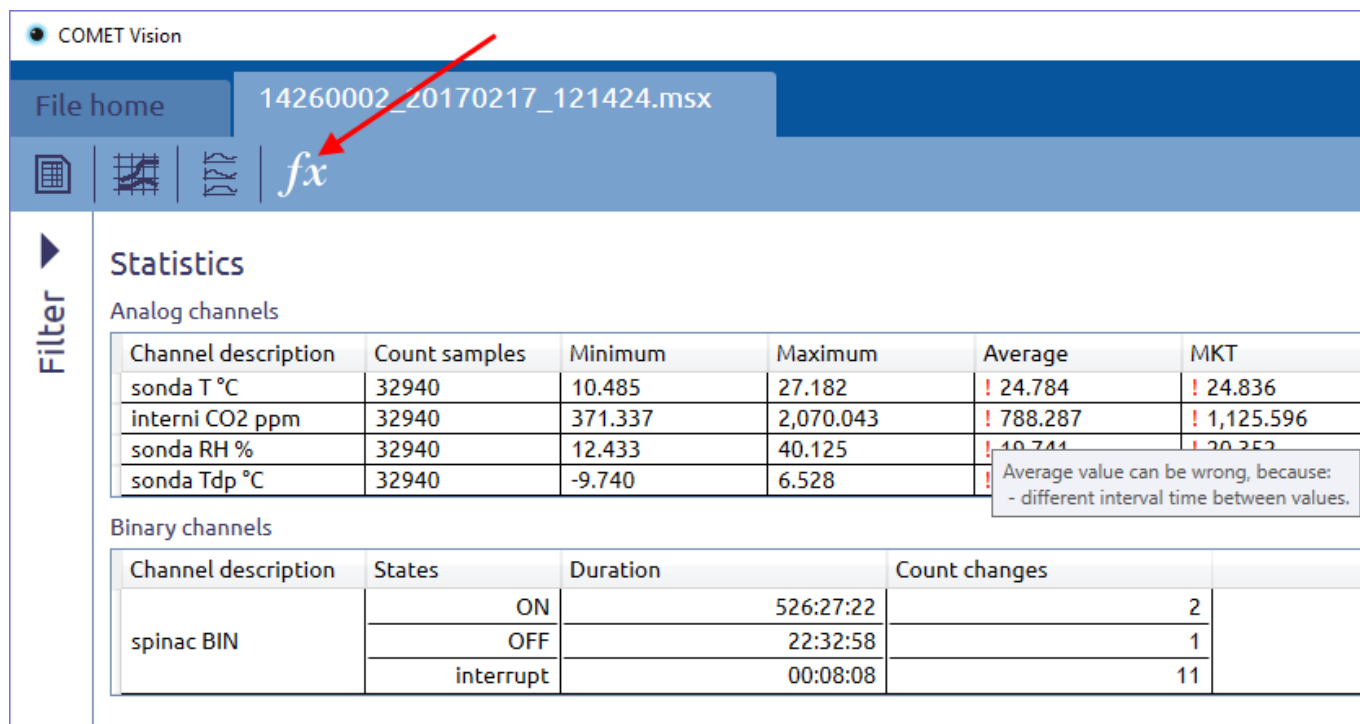


Fig. 16

## 5.4 Export to database

Recorded data can be sent to the database. There are two ways how to do this. The first way is manually using the function named "Export to Database" on the home page of file (see chapter 5.2). The second way is automatically export a data to the database always after downloading them. This feature can be switched on/off in a program settings (see chapter 7.1.3).

Note: The database must be available and connection parameters with the database must be set (see chapter 7.1.3).

## 6 Online display

Program can read current values. The values are both displayed and plotted in a chart. For each device can be run separately online display. There is a special display named custom display. It can set which channels are read from one or more devices to be displayed in one window.

In the right panel, there is a place named "Online displays" to add an item for this feature (similar as "Files" and "Devices"). Each item has two tabs, "Online display home" and "Online display".

### 6.1 Homepage of online display

This tab contains basic control and information. Here is information: what device is set to get values, how often to read values (refresh interval), how chart range is set.

#### Settings

In the settings, you can change the refresh interval (how often to read values) and chart range (range of timelines).

#### Remove online display

Stop reading current values and remove selected item from list of online displays.

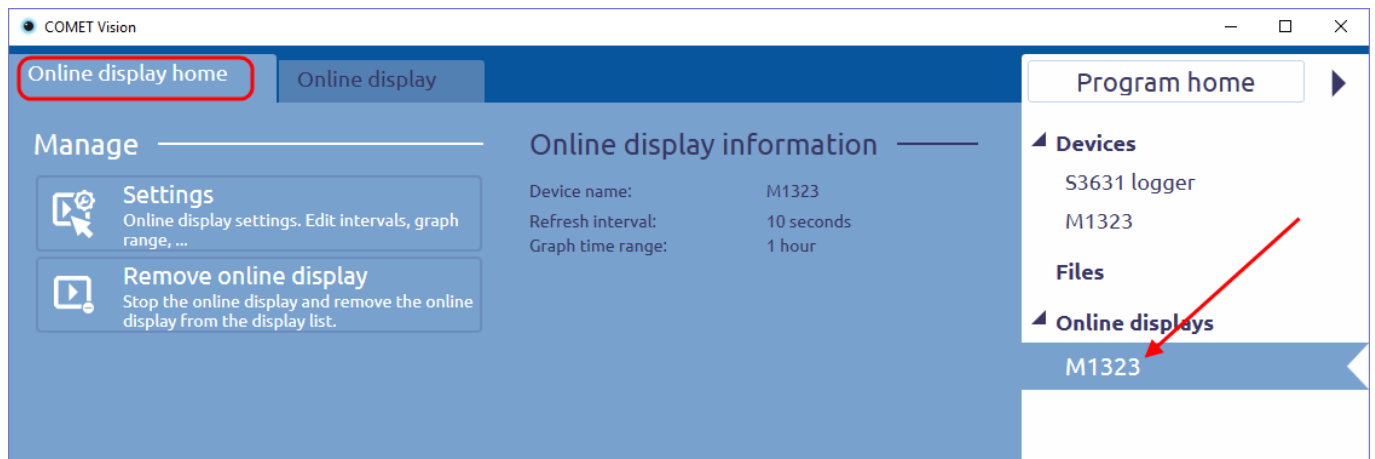


Fig. 17

### 6.2 Online display – display values

Here is displayed current values obtained from the device. There are two ways of presenting the data.

#### 6.2.1 Display of current values

The last obtained values are displayed as shown in figure 18. There is more information, such as: minimum and maximum values, if an alarm is active, how many seconds have elapsed since obtaining the latest value. It can be displayed by using next functions:

**Tiles** 

Display only the current value and a description channel. If alarm is active, a tile will be highlighted in red. This view is useful if you have a small screen and a large number of channels.

**Lines** 

Display more information than previous case. A view is extended by minimum and maximum values, view the active alarms and how many seconds have elapsed since obtaining the latest value.

**Charts** 

Display the line with chart.

**Min/Max** 

Display minimum and maximum values on channels including timemarks without current values.

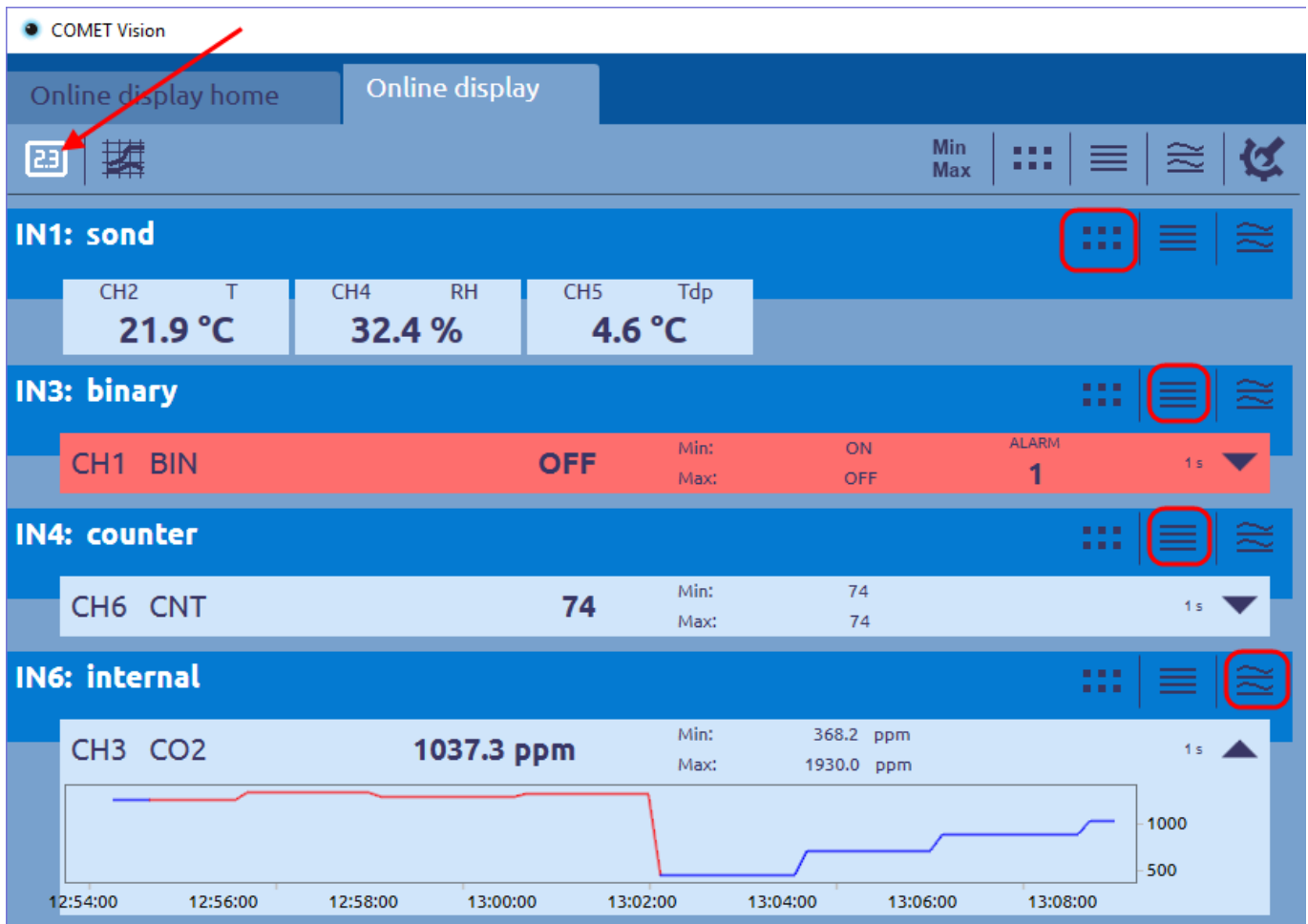


Fig. 18

## 6.2.2 Display chart

There is a floating chart for all values. The curves can be visible or hidden and you can change their colour and thickness by using quick settings.



Fig. 19

## 6.3 Custom online display

There is a special display named custom display. It can set which channels are read from one or more devices to be displayed in one window. The channel settings can be changed. Views of values is the same as in the ordinary online display.

# 7 Program options

In the program options you can customize program behavior, defaults and other functions. These options are available via the homepage of the program (see Fig. 20).

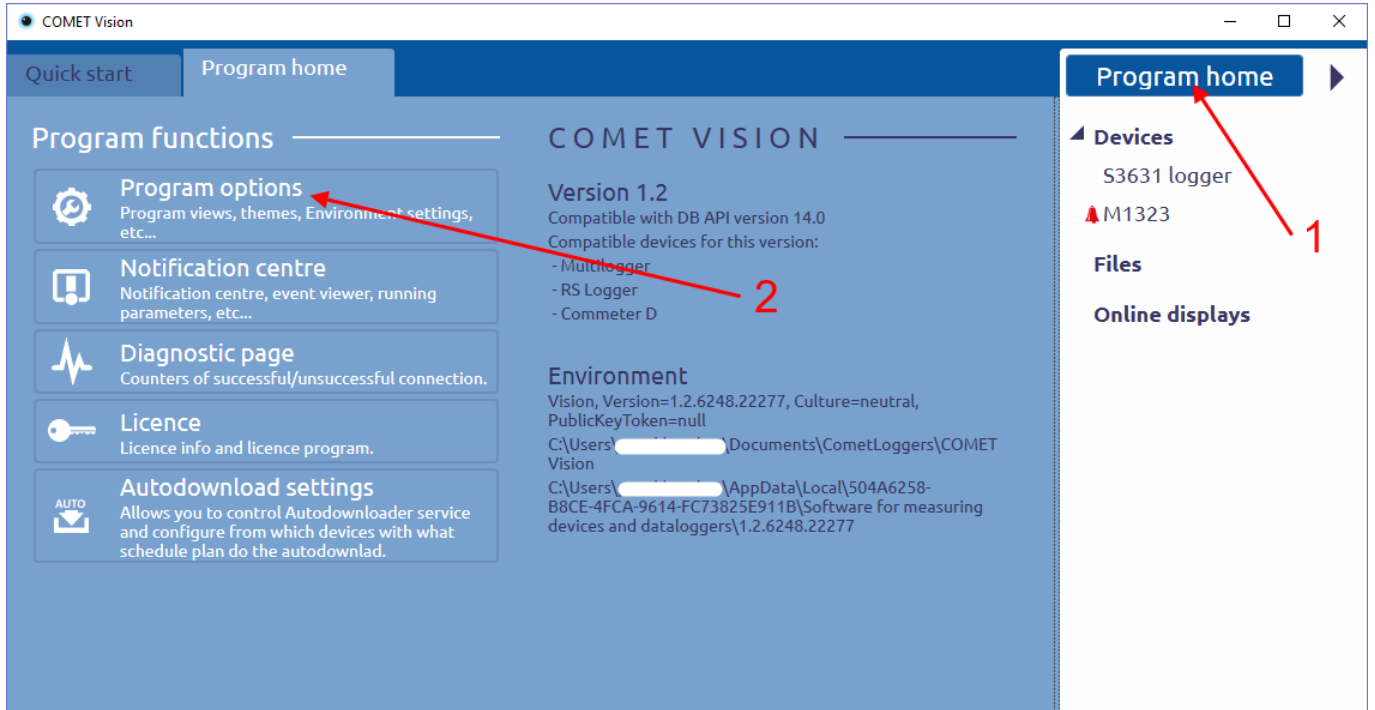


Fig. 20

After clicking Program settings the tab named "Program options" (see fig. 21) will appear. Press button "Apply" to save the new settings.

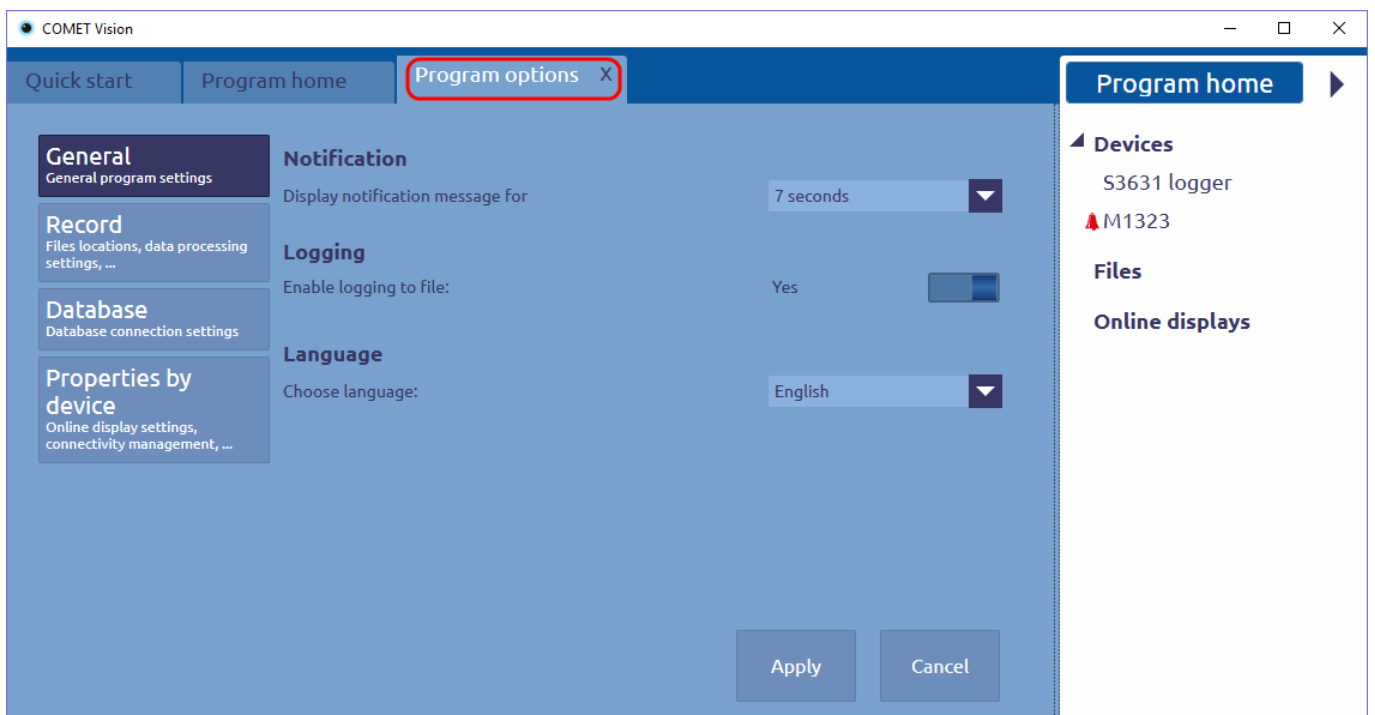


Fig. 21

## 7.1 Description settings

### 7.1.1 General

#### Notification

The user is notified about result of action always when the action is finished (more in chapter 9.1). The time how long the information is being displayed can be set here.

#### Logging

The program stores information about its activities to a file. The file can be used to detect and eliminate any errors. This feature can be turned off.

#### Language

Select the program language. After selecting a new language, it is necessary to restart the program.

### 7.1.2 Record

#### Folder for downloaded data files

A location on the disk, where data files will be stored. Opening a file uses this path as the default location.

It is possible to specify how subdirectories will be created for each device (either by device name or serial number of the device).

You can enable to show the save file dialog to change a file path and a file name.

#### Record description

You can add description to the file after downloading. A dialog box asking you to enter a description after downloading. Automatically displaying the dialog is controlled by this option.

### 7.1.3 Database

#### Database connection settings

Here, you can set connection with the database. To be able to send data to the database, connection with the database must be set correctly. You can verify connection parameters using function "Connection test".

#### Automatically export data to database after data download

You can allow to export data to the database automatically for all devices. Connection with the database must be set correctly.

### 7.1.4 Properties according to devices – Multilogger

#### Online display settings

An online display will be started with this default values.

#### Configuration

This device does not allow to edit the configuration of multiple users at the same time. Access to the edit mode of the configuration must be restricted accordingly. The number of users is not limited for viewing the configuration. A device will be switched into edit mode when a user changes any of the parameters. You can enable to show the

confirmation dialog to enter edit mode. You can specify the timeout after which it will automatically return from the editing mode if the user does not change any parameter.

## 7.1.5 Properties according to devices – RS Logger

### Online display settings

An online display will be started with this default values. This device is a low power device. Any communication consumes electric power from the battery, it is recommended to set the refresh interval to the highest value.

### Temperature unit and computed quantities

The device measures the temperature in degrees Celsius. Here, it is possible to activate a conversion to degrees Fahrenheit.

You can also turn on the display of derived variables. The program can compute some derived variables from some measured values.

### Device connection settings

The program regularly communicates with each device in the list to get states. You can set time after which the communication will be stopped. This will save the battery.

## 7.1.6 Properties according to devices – Commeter D

### Temperature unit

The device measures the temperature in degrees Celsius. Here, it is possible to activate a conversion to degrees Fahrenheit.



## 8 Autodownloader

An autodownloader is a service that is installed together with the program. This service is running when the computer is turned on. Running the program and logging a user is not required. The service can be controlled by the program (Start/Stop). You can edit a configuration of the service in this program.

The service automatically downloads data from a device, storing data in files on the disk and exporting data to the database.

### 8.1 Autodownloader settings

Go to the autodownloader settings by clicking on program home (see fig. 22).

Note: User must have administrator rights to edit autodownloader settings.

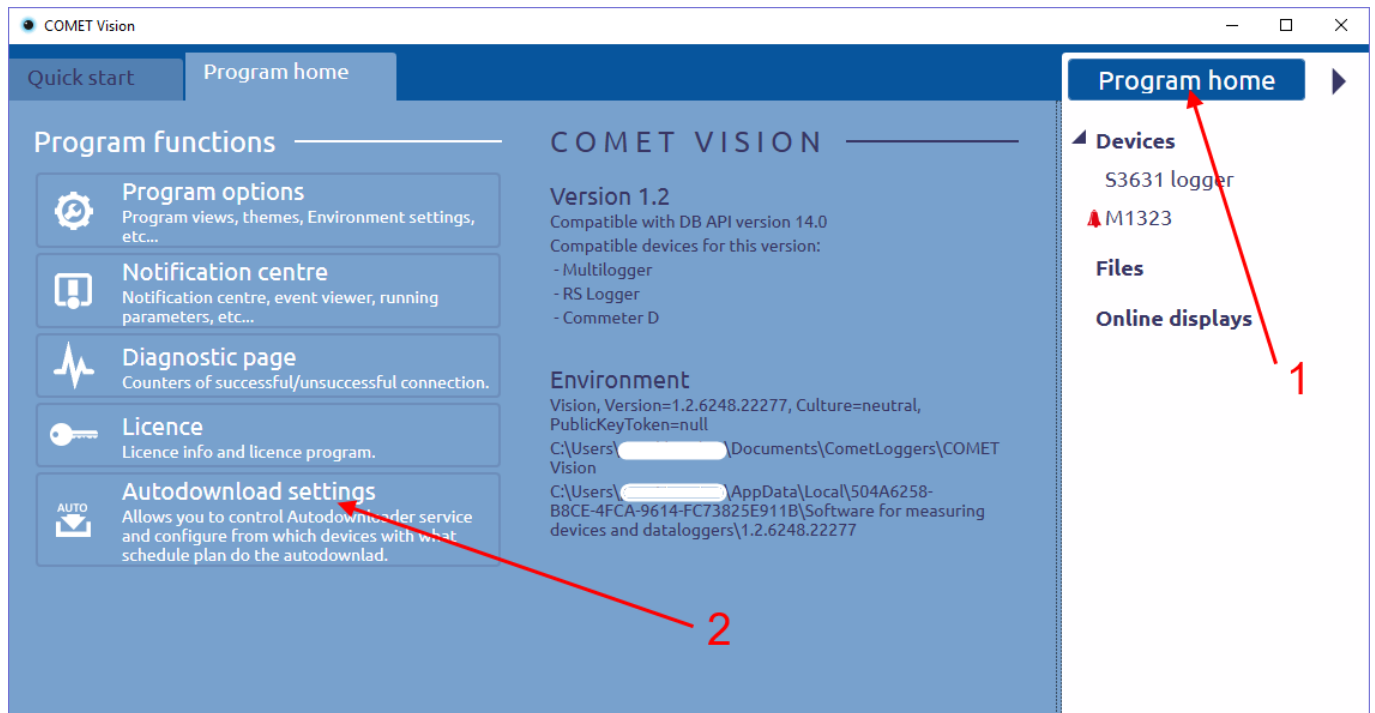


Fig. 22

#### 8.1.1 Control service

Here, the service can be started or stopped. There is also an event viewer of the Autodownloader.

#### 8.1.2 Default schedule

Here, you can set a schedule how often you want to download data (once a day, several times a day or once a month). The schedule is used for all devices or a device can have its own schedule. Note: **If a computer is turned off or for any other reason is unable to automatically download data, the data will be downloaded automatically on a next interval according to the schedule.**

### 8.1.3 Configuration of devices

The function Autodownloader is active for devices in this list. Adding a device to the list is possible only from a device homepage (see chapter 4). Here, you can set its own schedule or allow the default schedule. On the next figure (fig. 23), there is set to download data from two devices. In first case, the device is set to the default schedule. In second case, the device is set to its own schedule.

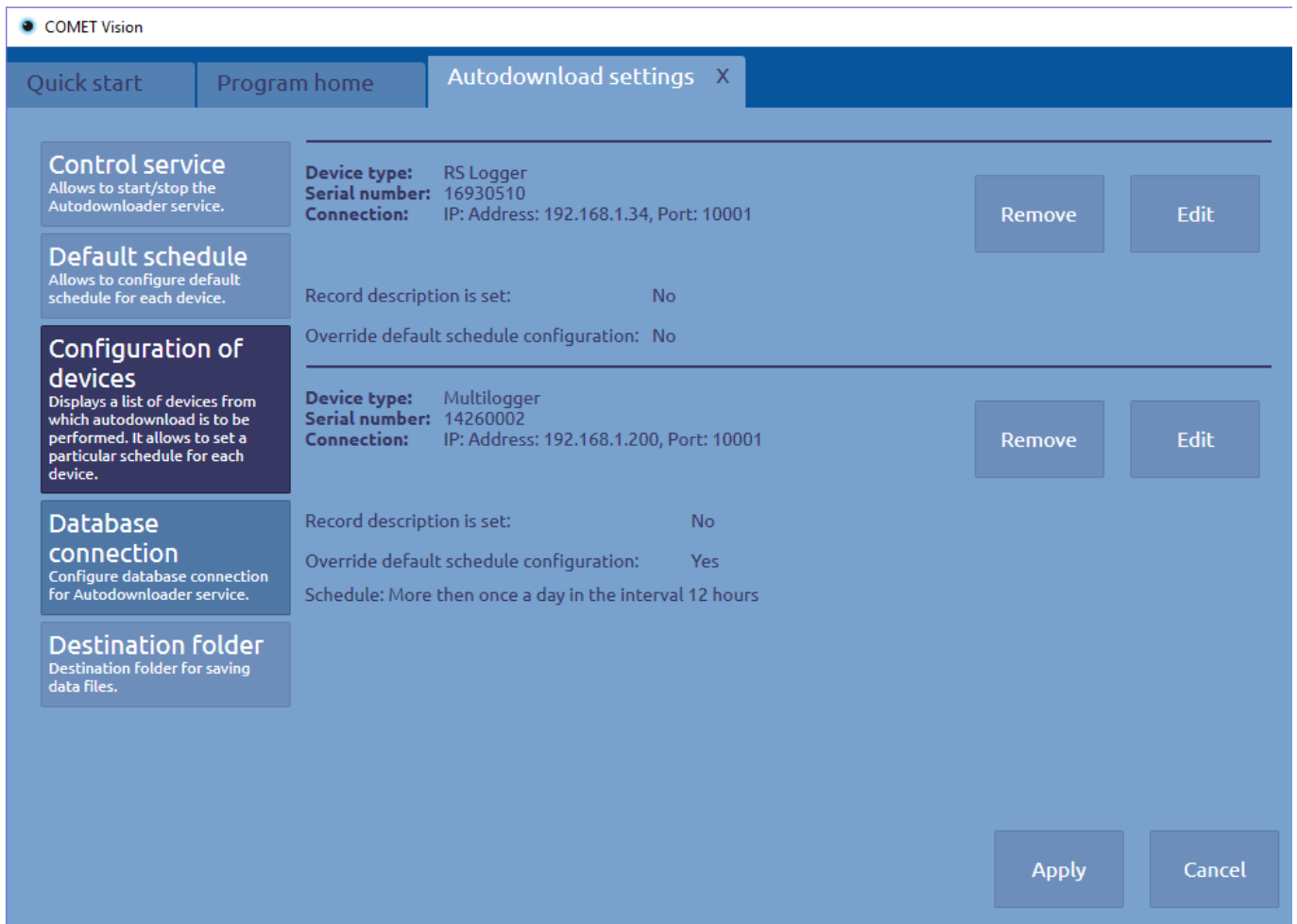


Fig. 23

### 8.1.4 Database connection

Here, you can set connection with the database. To be able to send data to database, connection with the database must be set correctly. You can verify connection parameters using function "Connection test". If disabled, the Autodownloader service stores data to files only.

### 8.1.5 Destination folder

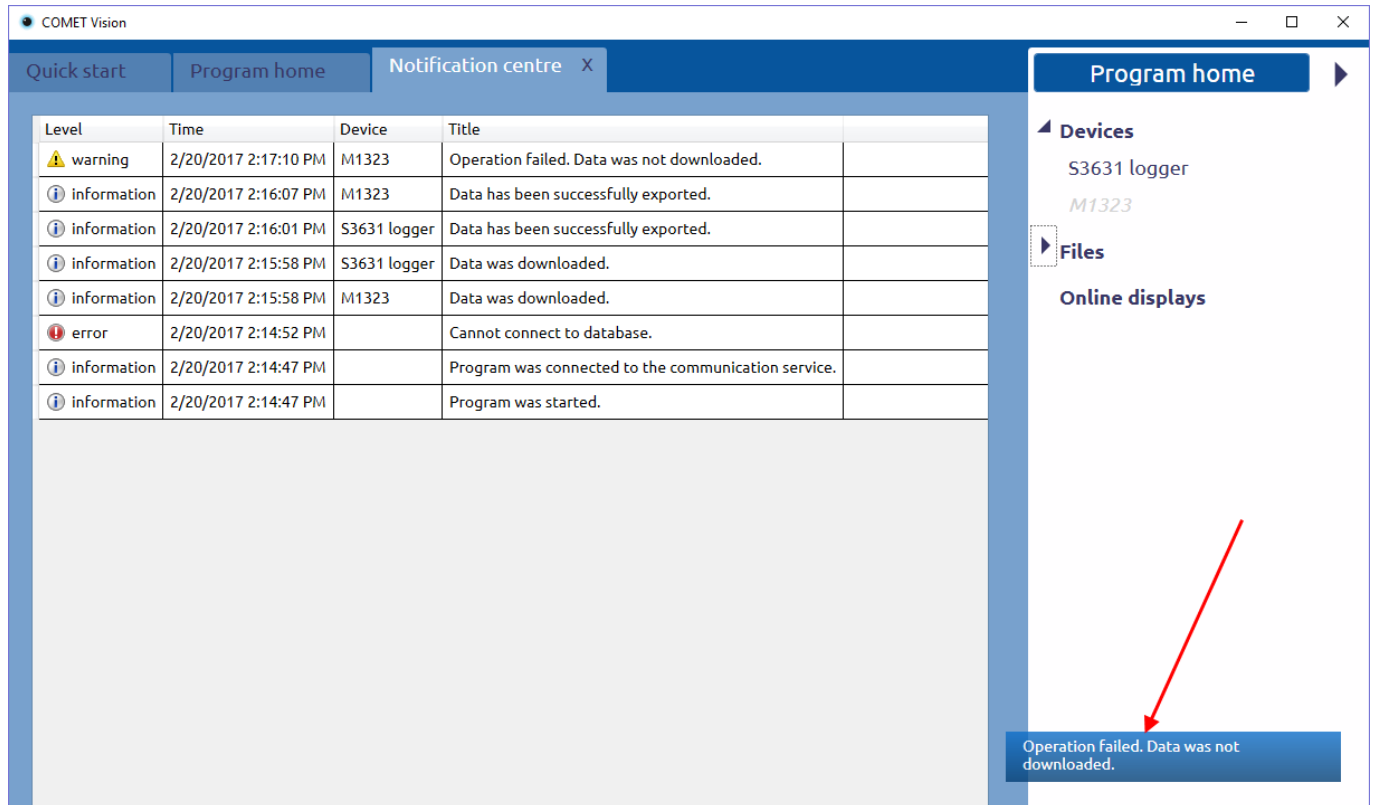
The location on the disk, where data files will be stored.

## 9 Other functions of the program

This chapter contains a description of the other functions of the program. All these functions are accessible from the home page of the program.

### 9.1 Notification centre

There is an overview of all completed events. If an event is completed, it will be added to the this list and will be shown in right down corner for a time (the time can be set in program settings, see chapter 7.1.1).



Level	Time	Device	Title
warning	2/20/2017 2:17:10 PM	M1323	Operation failed. Data was not downloaded.
information	2/20/2017 2:16:07 PM	M1323	Data has been successfully exported.
information	2/20/2017 2:16:01 PM	S3631 logger	Data has been successfully exported.
information	2/20/2017 2:15:58 PM	S3631 logger	Data was downloaded.
information	2/20/2017 2:15:58 PM	M1323	Data was downloaded.
error	2/20/2017 2:14:52 PM		Cannot connect to database.
information	2/20/2017 2:14:47 PM		Program was connected to the communication service.
information	2/20/2017 2:14:47 PM		Program was started.

Fig. 24

### 9.2 Diagnostic page

This tab is used to check that everything works properly. It will be effective tool to search causes, if a problem occurs. It computes successful and unsuccessful connections with the devices. This information can be saved to a file using the button "Save to File". In the file is stored any other useful information. If you need a support, send this file in an attachment, please. The second useful file is a logging file named Log.txt (the function logging must be enabled), which is located in the data store. If you need support, please send the logging file too.

### 9.3 Licence

There is information about your licence. Here, you can also activate or deactivate the licence.

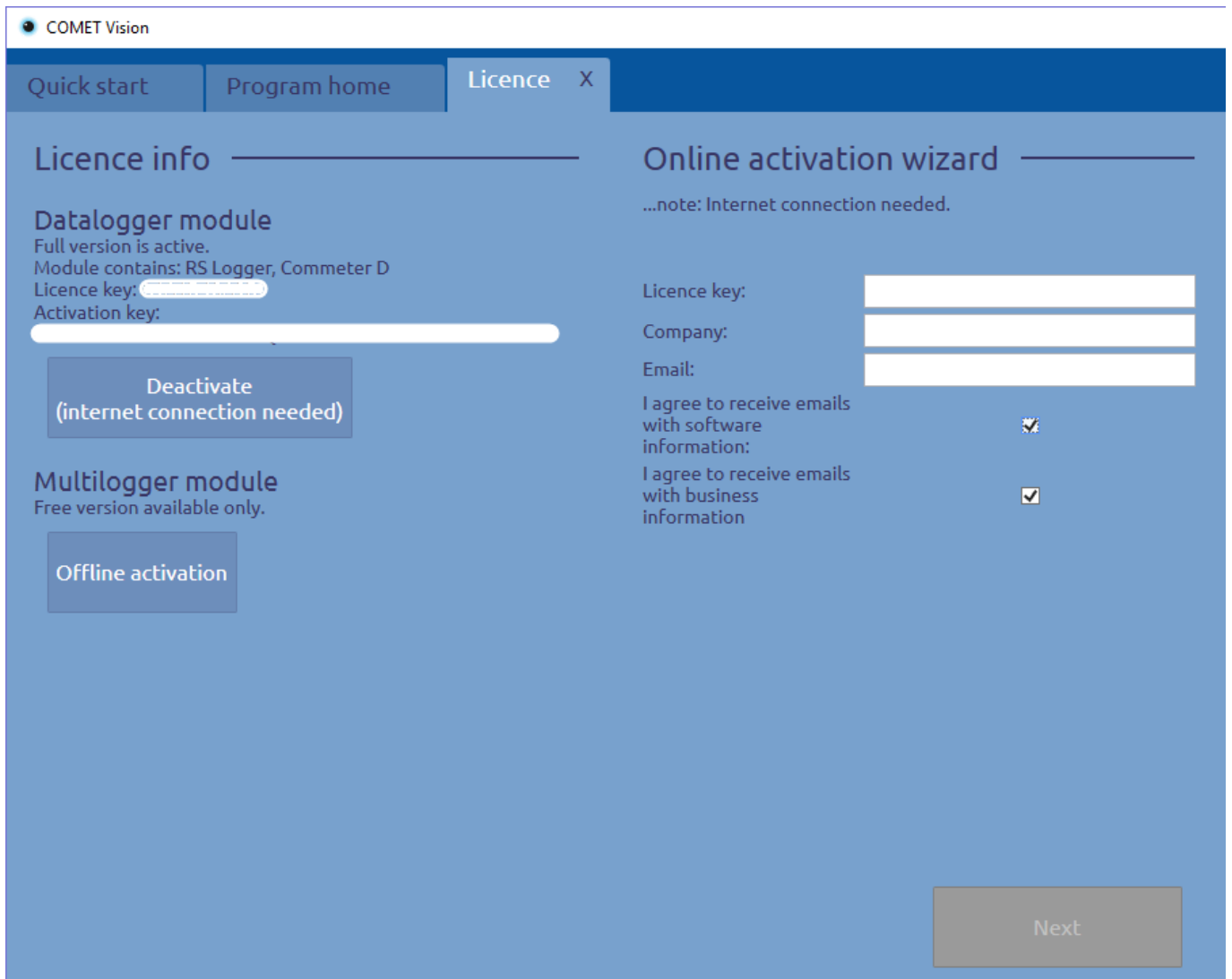


Fig. 25