Advanced Serial Data Logger

Trust in Confidence!

PRINTED MANUAL

USB HID Logger

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http://www.aggsoft.com

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1 Introduction

1.1 About USB HID Logger

More and more devices that support the HID data exchange interface have been appearing lately. It can be laboratory, measurement or medical tools, barcode, RFID or fingerprint scanners, UPSs (uninterruptible power supplies). It is not always that software supplied with these devices offers the necessary features. This program is intended to supplement or completely replace the "native" software.

Key features:

- Several USB HIDs simultaneously. It is possible to log data from several USB HIDs simultaneously. You can use different data log and export options for each device;
- All types of HIDs. Our software supports all usage types according to the USB HID specification;
- Data decoding. The program can log and export both binary data in the RAW format and decoded values from HID data packets;
- Enhanced file logs. Writing data to the log file without any changes. Creating a new file by time or size. Adding date and time stamps to the file;
- Fast and safe. Fast multi-threaded, optimized and effective architecture;
- Data filters. They allow you to filter, format and merge your data, for instance, you can combine data from two different devices;
- Event processing. It is possible to analyze received data and process events, for instance, send e-mail messages when a certain value exceeds some predefined limit;
- Data export in real time. USB HID Logger can work as a DDE or OPC server and export decoded values from HID reports to other applications;
- Excel. It is possible to export data to Excel in real time in several ways (CSV, directly, via ActiveX or DDE);
- Export to various databases. The program can write data to all popular databases, including MSSQL 2000+, MySQL 4+, Oracle 8+, Access and some others in real time (a sample configuration for exporting data from a USB HID to a database);
- Modules. Lots of modules that allows you to extend the features of the program;
- Simple and intuitive interface. Neither programming nor special knowledge is required to configure the program;
- It supports various operating systems. The logger runs on all versions starting from Windows 2000, including 32 and 64-bit systems.
- Windows service mode. USB HID Logger can also run as a service, which allows you to receive data from the moment the operating system starts before the user logs on. The program continues to run in the background after the user logs off.

1.2 Glossary

ASCII - An acronym for American Standard Code for Information Interchange. ASCII files are plain, unformatted text files that are understood by virtually any computer. Windows Notepad and virtually any word processor can read and create ASCII files. ASCII files usually have the ".TXT" extension (e.g., README.TXT).

Binary File - A file that contains data or program instructions written in ASCII and extended ASCII characters.

Bit - A binary digit in the binary numbering system. Its value can be 0 or 1. In an 8-bit character scheme, it takes 8 bits to make a byte (character) of data.

Bytes - A collection of eight bits that represent a character, letter or punctuation mark.

Cable - Transmission medium of copper wire or optical fiber wrapped in a protective cover.

Client/Server - A networking system in which one or more file servers (Server) provide services; such as network management, application, and centralized data storage for workstations (Clients).

PC - abbreviation for a Personal Computer.

Ports - is a connection point for a cable.

Protocol - is a formal description of a set of rules and conventions that govern how devices on a network exchange information.

2 License, Registration and technical support

2.1 License

SOFTWARE LICENSE

Trial Limited Version

The trial limited version of this software may be used for evaluation purposes at the user's own risk for a trial period. At the end of the trial period, the user must either purchase a license to continue using the software or remove it from his/her system.

The trial limited version may be freely distributed, provided the distribution package is not modified. No person or company may charge a fee for the distribution of USB HID Logger without written permission from the copyright holder.

Licensed Version

On payment of the appropriate license fee, the user is granted a non-exclusive license to use USB HID Logger on one computer (i.e. a single CPU), for any legal purpose, at a time. The registered software may not be rented or leased but may be permanently transferred, if the person receiving it agrees to terms of this license. If the software is an update, the transfer must include the update and all previous versions.

Registered customers are entitled to free updates during one year from the date of purchase. It means that for one year you can download and install the latest registered versions of USB HID Logger from our site. If you don't want to purchase an update, you can use the program forever; it will never expire, but you won't be able to use the latest version. If you purchased the software more than one year ago, you are no longer entitled to free upgrade and technical support; however, you can purchase an update to the latest version at a special, greatly discounted price, and this update will allow you to have free updates and technical support for another year. The type of the update license must match the type of your existing license.

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If you do not agree to these conditions you should not install this software.

2.2 Limitations

The unlicensed program works in the trial mode. The program allows to test all features, but it limits the time and/or amount of processed data. The license key removes all limitations from the trial version. You may purchase a license key here 4.

The trial version of our software has the following limitations:

- The trial period is limited to 21 days. After that time, the program stops working.
- The continuous program work time is limited to two hours. After that period the program shows a message and stops working;
- All data export modules can handle the first 100 records only;

2.3 How to acquire a license

The unlicensed program works in the trial mode. The license key removes all limitations from the trial version and allows you to use our technical support for one year.

If you want to buy a program through the Internet, visit the order page of our site. On this page, you can get the newest information about the registration process, and also find an order link. Please, follow the “Buy now” link, enter your personal information, and choose the most convenient payment method for you. Further, you will get a notification and follow the notes in it.

You may find more information about our policies, payment terms, payment methods, and frequently asked questions on our web site.

2.4 Support

Technical questions	support@aggsoft.com
Common questions	info@aggsoft.com
Sales questions	sales@aggsoft.com

3 Installation

3.1 System requirements

Windows 2000 Professional - Windows 10 (2019), including x64 and x86 OS, Workstation, and Server OS.

3.2 Installation process

If any beta-version was installed on your computer, remove it.

Quit of the working USB HID Logger on installation time.

Run an installation file.

By default, the installation wizard installs USB HID Logger to "C:\Programs Files\USB HID Logger" or "C:\Programs Files (x86)\USB HID Logger" the directory of your system disk, but you can change this path.

In the standard distributive of USB HID Logger are no additional modules files, which you can download from our site.

4 Program use

4.1 Getting started

After you have successfully installed USB HID Logger, use the following simple steps to configure and run it.

Open the USB HID Logger program from the Start Menu.

At program run, you get into the main program window (fig. 1.1.1), main elements of which are the main menu, the data window, the program messages list, and the status bar.
- The data window shows incoming data before or after processing. You can configure the data view mode in the settings
- The drop-down box at the bottom shows all logged program info, warning, and error messages.
- The status bar shows the current state of the selected data source, errors on the data interface, and how many bytes were sent or received.
- The toolbar above the data window provides fast access to the configuration.
- The main menu above the toolbar allows you to edit the program settings 6 ("Options -> Program settings..."), manage configurations, open the current logfile from the "File" menu (fig. 1.1.2).

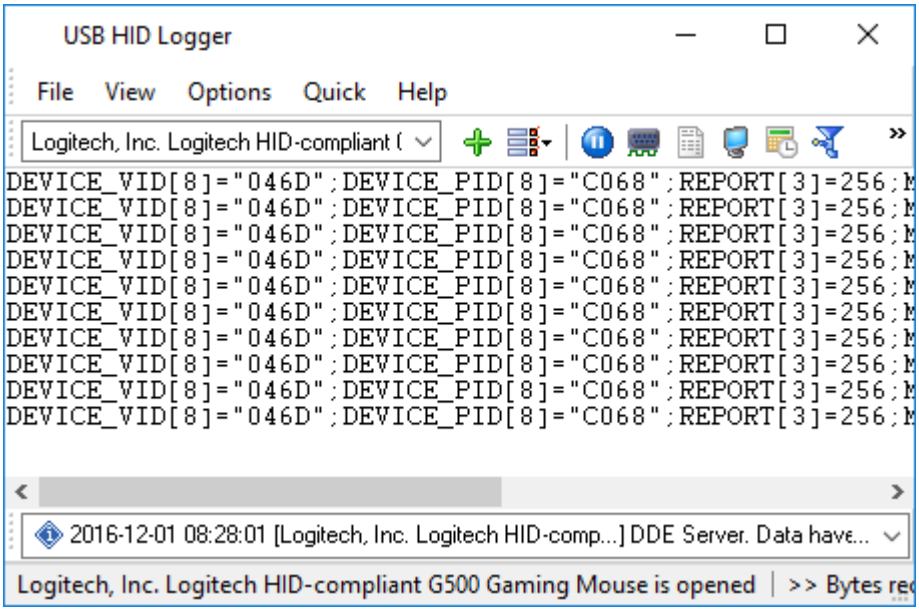

Fig. 1.1.1 Main program window

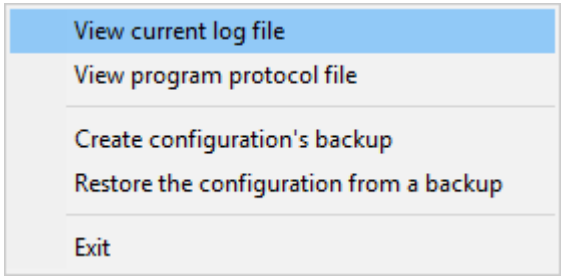

Fig. 1.1.2. "File" menu item

By default (after installation), the program has not any data sources configured. If the list of data sources on the toolbar is empty, then the program will ask you to add a new configuration. Otherwise, the program will fill in the list of data sources and try to start logging of data sources configured. Yes, of course, all your settings are being saved while exiting from the program and loaded during the program start.

Set-Up is as Easy as 1-2-3

Step 1. Configure one or more data sources.

Click the "Add configuration" button on the toolbar with a big green plus and choose your USB HID device. The "Device" tab of the "Configuration options" dialog lets you configure your settings.

Step 2. Configure log file.

Select the "Log file" header in the configuration dialog window and enable logging.

Step 3. Define how you want your data to be filtered and exported .

The "Plug-in" button on the toolbar in the main window or "Modules" tab in the dialog window lets you specify how to parse, filter and format your data to the fit the exact format required by your application. It also lets you pre-define automatic output strings to be sent to an external device.

Now, the program process and exports data from one or multiple data sources.

4.2 Introduction

USB HID Logger can save data to a log file(s) without any changes (i.e., create raw binary log files) or write to log files depending on the parser module selected. In the first case, you can view the log file with any hex editor and use this data for further analysis and remaking. In the second case, you can view data with any text editor. You can find more information about log files in the "Log rotation 16" chapter.

You can watch the data in the data window (fig. 1.1.1 5). The data view is fully customizable. You can watch data in decimal, hexadecimal, or your format. How to customize data view you can read in the "Data view 12" chapter and how to customize program view you can read in the "Window view 29" chapter.

The data can be exported or transferred to one or more targets. The simplest way is to configure the log file rotation. However, it is small a part of all features of USB HID Logger. USB HID Logger has many additional modules 22 (so-called plug-ins) that are appreciably extending possibilities of the logging software. You can download and install any module supported. Most modules are free of charge for our customers. How to install and configure modules you can read in the "Modules 22" chapter.

The program and their plug-ins generate many messages and write them to the list in the main window (fig. 1.1.1 5) and a protocol file that you can use for administration of the software. You can also configure types of system messages. More information about it you can read in the "Protocol and errors handling 33" chapter.

4.3 Data flow diagram

This diagram may help you to understand the flow of data within our software and a place of each module. The following chapters describe all plugin types.

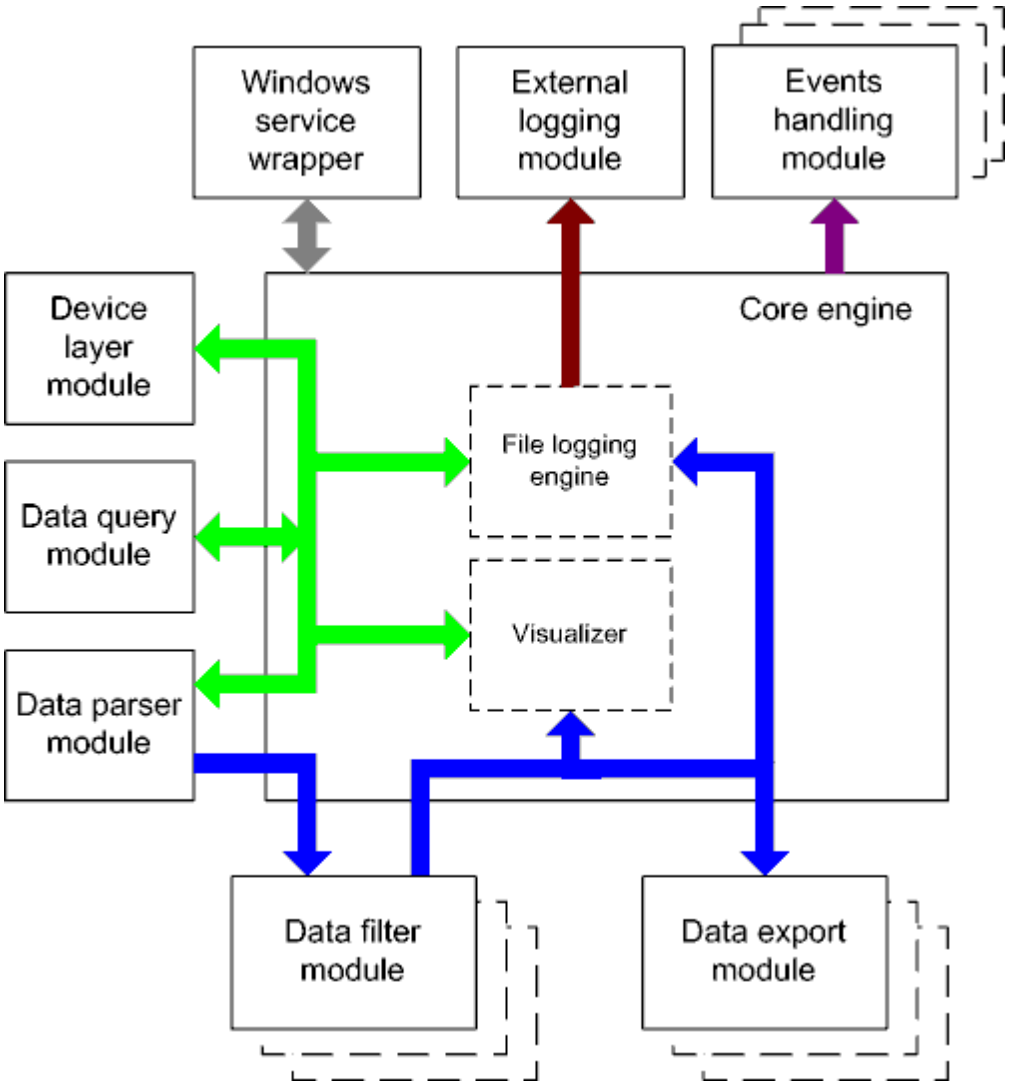

Fig. 1.2.1 Data flow diagram

History:

- The flow of binary data (RAW, unformatted data).

- The parsed data (formatted data). The data flow is separated into data packets and variables. Each data packet can be interpreted as a row, and each variable can be interpreted as a column.

Wires with other colors mark other relations with the unstructured data flow.

4.4 Work complete

The program saves all settings to the Windows registry when it stops working. All opened data sources will be automatically closed (unlocked, unallocated, or fried).

4.5 Useful advices

1. Look through hint helps on all window elements - it may help you to get a picture of this element's function.

2. You can change all program settings without restarting the program. To transfer settings to another computer, you can do the following:

1. Create a configuration backup from the "File" menu and restore it using the same menu.
2. Alternatively, export the registry node with all program settings. Start regedit.exe and export the following registry node:

   on Windows x64
   HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AGG Software\USB HID Logger

   on Windows x32
   HKEY_LOCAL_MACHINE\SOFTWARE\AGG Software\USB HID Logger

3. On another computer import settings to the Windows registry.

Many main window elements have "hot" keys for quick access to its functions.

- Ctrl+S - analogs to click on "Start/Pause" button on the toolbar.
- Ctrl+C - analogs to click on "Clear" button on the toolbar.
- Ctrl+P - opens the window with the configuration settings.
- Ctrl+L - opens the window with the log file settings.
- Ctrl+W - allows you to configure the data view mode.
- Ctrl+R - shows the window with the program settings.
- Ctrl+E - shows the Windows 2000+ service settings.
- Ctrl+M - here you can configure data query plugins, data parser, and other plugins.

4. You can look at the summary statistic that contains summary about sent and received data, created files, etc. (View - Statistics)

5. You can save program settings to an INI file. It may help to install and use several copies of the program. You can make your choice from the "Options" menu.

6. The program window can display only the last 10 messages. The full program log file (if activated) you can open using the "File - View program protocol file" menu item.

4.6 Configuration

4.6.1 USB HID

4.6.1.1 Selecting USB devices

This tab contains the list of HIDs. To enable monitoring a device, select it in the list. Note that a USB device can be compound, i.e., one physical device may represent several logical devices. The HID list contains logical devices.

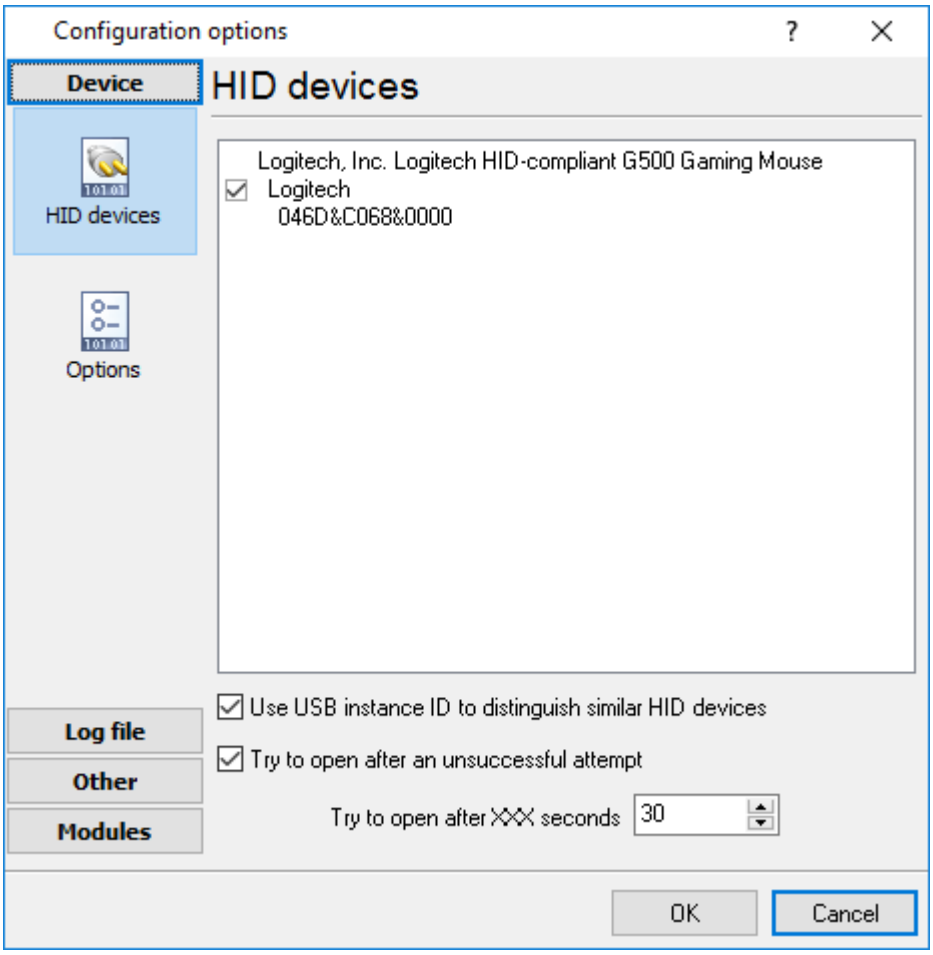

Fig.1 HID list

Use the instance number to differentiate between similar devices – enable this option if you have several similar devices connected to the computer. In this case, the program will use the number of the physical USB port to differentiate between these devices. However, the devices need to be always connected to the same ports. If you have only one HID, you can disable this option. In this case, the program will control this HID model connected to any port.

Try to open again after a failed attempt – if this option is enabled, the program will wait till the device appears and automatically start logging data from it in case the HID is connected and disconnected periodically.

4.6.1.2 HID data log options

Data between the computer and a USB device is transmitted over the USB as binary data packets called HID reports. Our program can log both these binary data packets and already decoded values.

Log decoded data – the program transforms data packets into a readable form.

Log VID and PID – if this option is enabled, the program will add manufacturer and HID model IDs to every decoded data packet.

Log the USB device name – if this option is enabled, the program will add the name of the USB device to the decoded data packet.

One value per line – this option changes the format used to log decoded values and makes it possible to write values received from several different devices to the database. If you are going to log data to a plain text file, it is recommended to disable this option.

Log raw data – if this option is enabled, the program will log unprocessed (RAW) data.

Log mouse moves – mouse moves generate many USB packets. If you want to log data about every mouse gesture, enable this option.

4.6.1.3 Samples

Configuring writing data from a USB HID to the database;
USB HID to MS SQL (writing a large number of variables);
USB HID to MS SQL (writing several variables);
Configuring writing data from a USB HID to MySQL;
Exporting data from a USB HID to Excel in real-time.

4.6.2 Additional parameters

4.6.2.1 Data view change

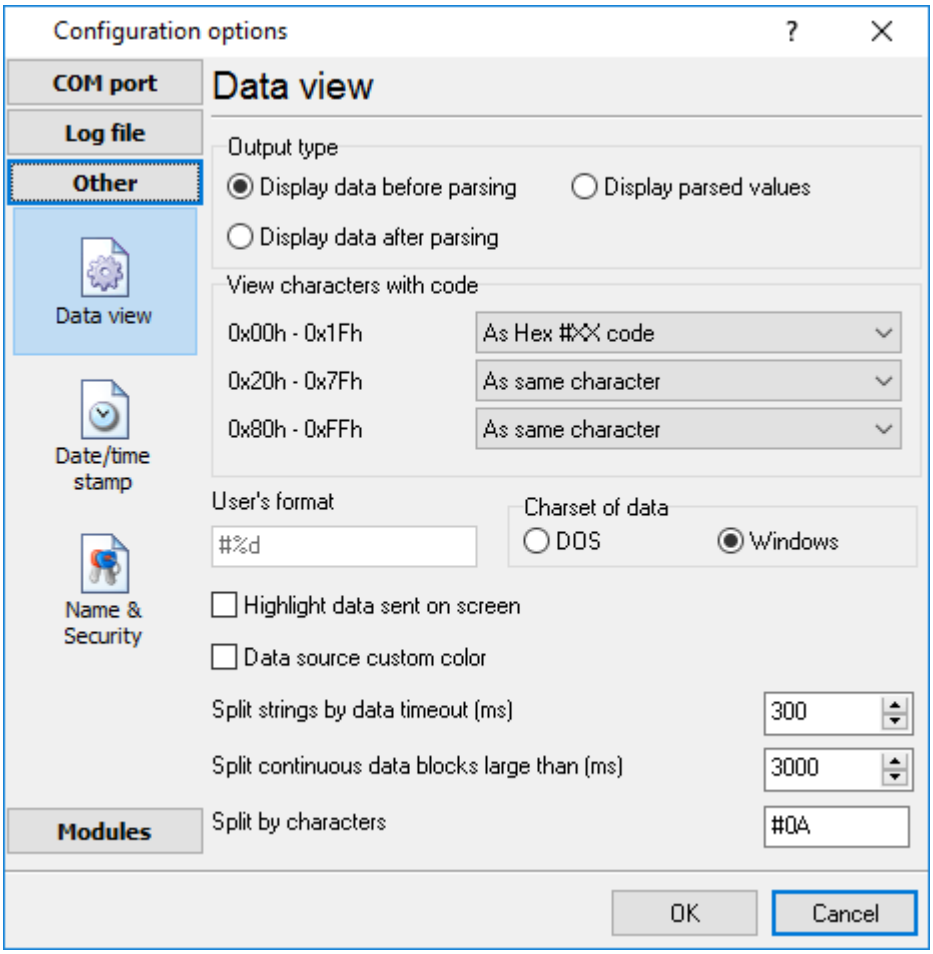

Fig. 3.1.1. Data view

Data view settings, that can be configured on the "Data view" tab:

1. **View characters with code** - the program can interpret and decode bytes as characters. You can select decoding mode for each range of character codes. If the range doesn't have the corresponding character, that's why these data can be displayed only in hexadecimal and decimal code.
2. You can set up the **user's format** to display a data byte. The directive %d shows to display a decimal code, the directive %x - hex code. You can set any framing characters before/after the user format.
3. **Highlight data sent on screen** - a string with sent data will be highlighted by the selected color.
4. **Character set** - allows you to define the character set of incoming data. Windows - Windows ANSI character set, DOS - OEM character set.
5. Data source custom color - if you've created several configurations then you can define a custom color for each data source that allows you to distinguish data flows on the "All data" page in the main window.

6. **Split strings by data timeout** - this option allows visually splitting data packets in the program window. Data packets that will be received after the specified interval will be shown on a new line. If this value is set to 0, then data packets will not be split.
7. **Split continuous data blocks large than** - this option allows visually splitting continuous data flow in the program window. The program will show data on a new line if continuous data is longer than the specified number of bytes.
8. **Split by characters** - this option allows to visually splitting continuous data flow in the program window using the specified symbols. For example (fig. 3.1.1), the program will use a character with the 0Ah hexadecimal code that is equal to the "LF" ASCII code.

4.6.2.2 Date/time configuration

This group of options (fig. 3.2.1) allows you to configure how timestamps appear in the log file and on the screen. You can configure the stamp format in the program options 32.

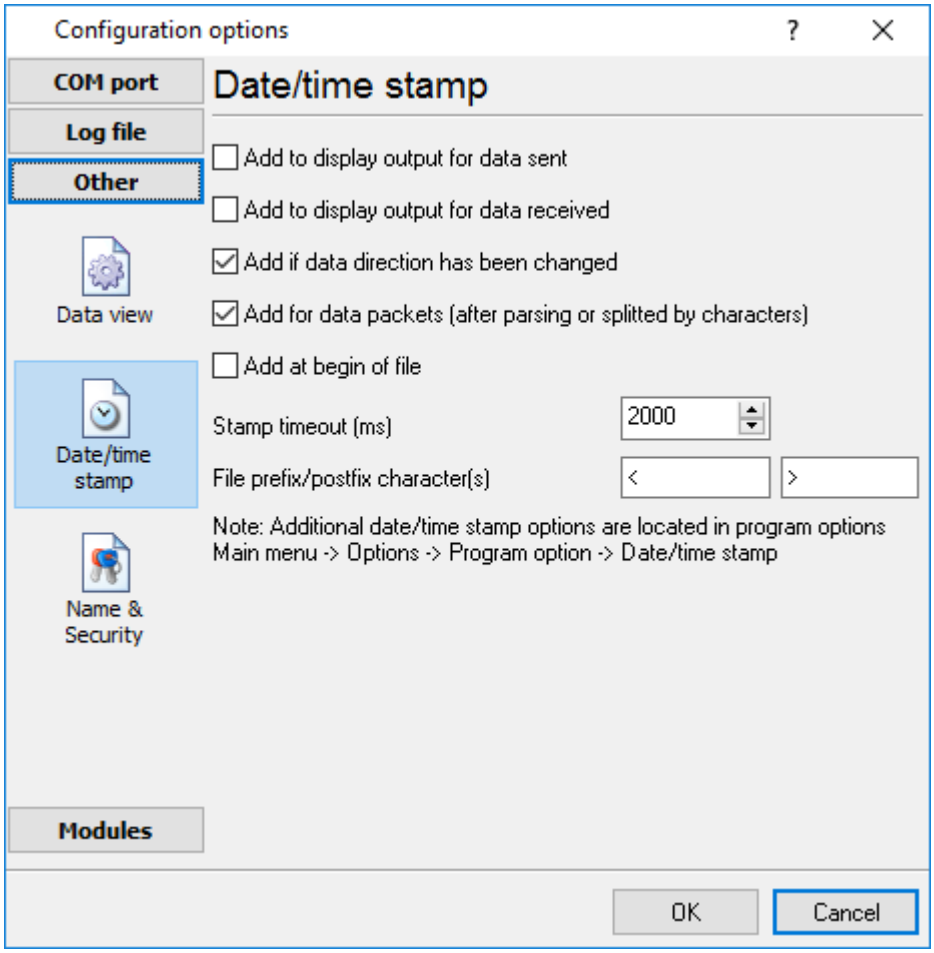

Fig. 3.2.1 Time stamp configuration

Add to display output for data sent - the time stamp will be added for the sent data displayed on the screen. The stamp will be added according to the timeout (if the data flow is uninterrupted) or when a data packet is sent.

Add to display output for data received - the same but for the received data.

Add if data direction has been changed - if the program is sending and receiving data, the time stamp will be also added when the data transfer direction changes (sending/receiving).

Add for data packets - if the data is displayed after it is processed, the stamp will be added to each processed data packet.

Add at begin of file - the stamp will be added at the beginning of every new log file.

Stamp timeout - if the data flow is uninterrupted, the stamp will be added regularly at the interval specified in milliseconds.

File prefix/postfix character(s) - the program will use these characters instead of those specified in the program options 32 while writing data to a file. For example, it allows you to add the new line character or another sequence of characters before or after the stamp. Example: >#0D#0A

4.6.2.3 Name and security

This group of options (fig. 3.3.1) allows you to configure the following parameters:

Friendly name - this name will be added before the port number or the data source in the drop-down list in the main window of the program. It allows you to describe the data source.

Start logging automatically - if this option is enabled the program will start receiving and logging data automatically when it is launched.

The "Security" option group allows you to protect user operations in this particular configuration with a password. You can specify advanced security options applied to the entire program in the program options 39.

Ask password before start and stop - the password will be required when the user clicks the "Start/Pause" button in the main window of the program.

Ask password before configuration edit - the password will be required when the user tries to open the Configuration options dialog box.

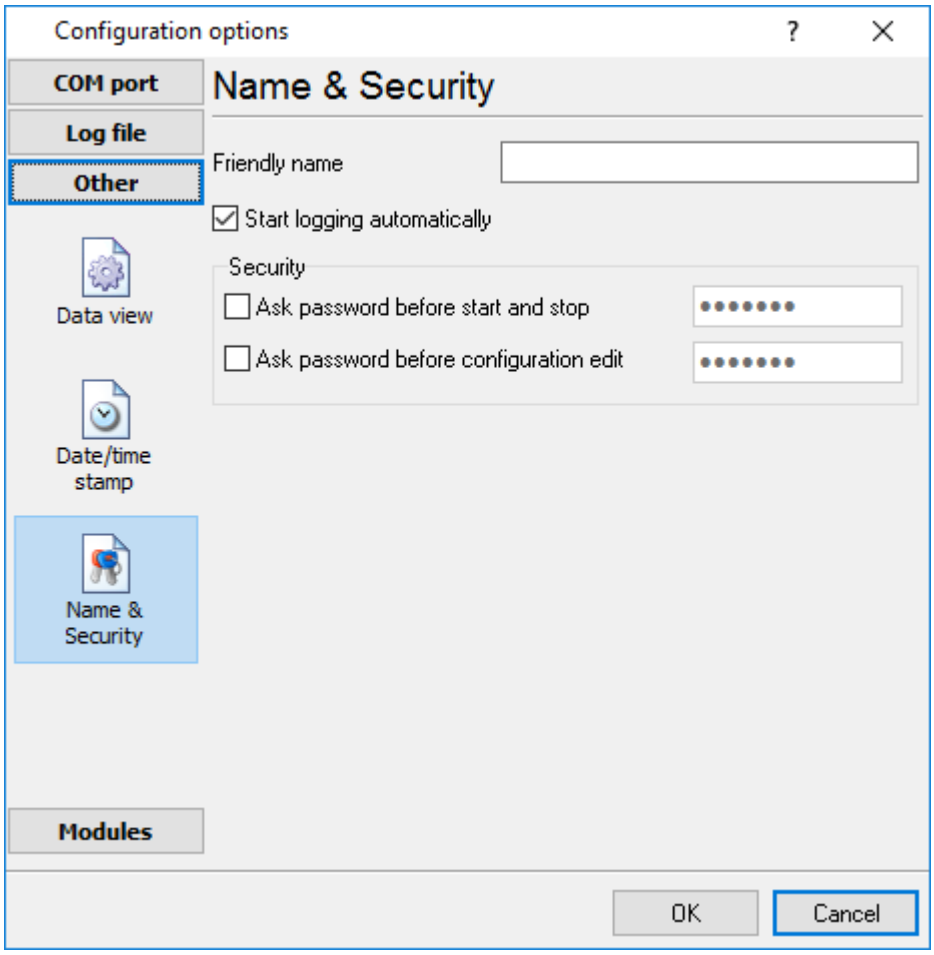

Fig. 3.3.1. Name and security

4.6.3 Log files

4.6.3.1 Log rotation

The main function of USB HID Logger is logging data to a file (so-called, log file). The "Log rotation" tab has a rich set of options for it. (fig. 4.1.1).

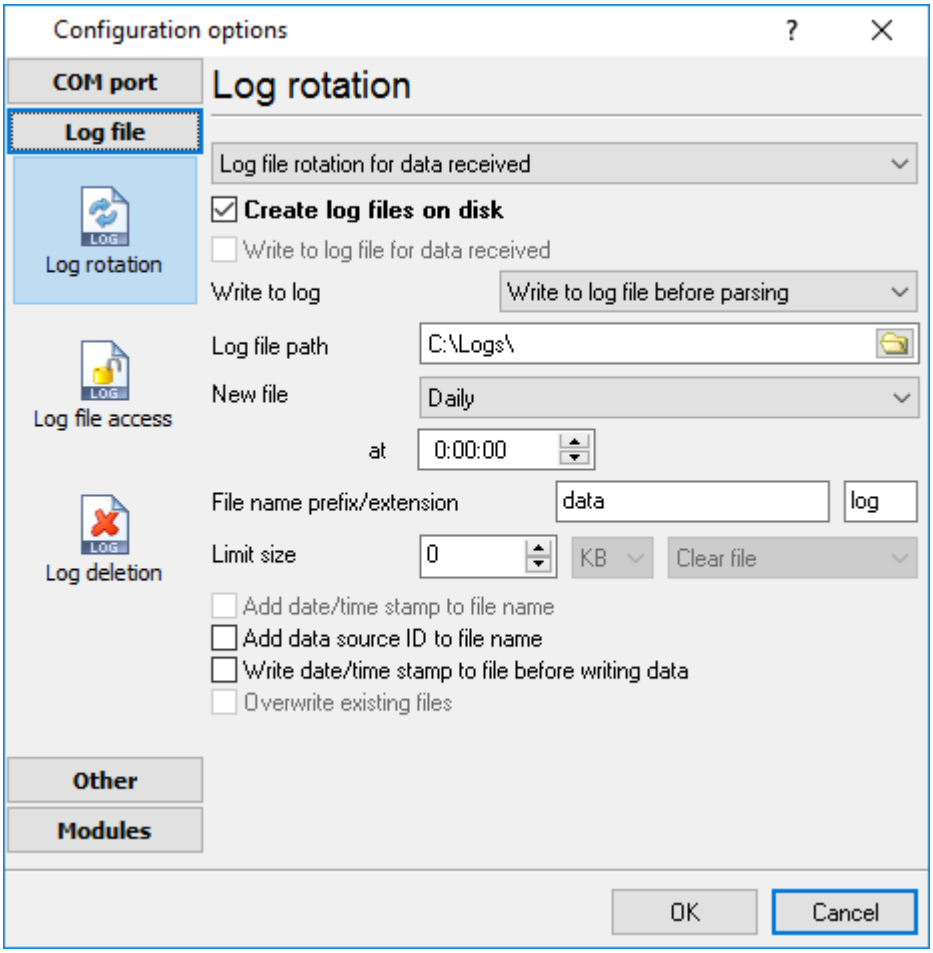

Fig. 4.1.1 Log-file forming modes

Set the "Create log file on disk" option to the checked state. Then you can set path to a folder, where files will be created with the help of a dialog window, which will be showed up after clicking a button with the "Folder" picture. You should select a necessary folder in the dialog window and click the "OK" button.

Log file path - the full path to a local or network folder, where the program will create new log files. The network path should be specified as: \\COMPUTER NAME\Folder\

Note: If the program works with network files, it greatly increases data flow through your network and decreases writing speed. Please, consider creating small log files. If your incoming data flow is fast, you may create log files locally. Later, you may sync a local folder with a remote folder using any 3rd party utility.

A log file name can be stamped with date and time. In this case, a new log file is created periodically. The format of a timestamp depends on the selected period. For instance, if the "**File name prefix**" field is set to "sample," the "**File extension**" field to "log," and the "**File name format**" option is "Daily," then each log file created will have the format "sampleYYYYMMDD.log". On March 21st, 2003, the log file will be "sample20030321.log". Please, note, that the final extension (after the final period), remains at the end of the file name.

Write to log - the option allows you to select when the program writes data to a log file. This feature is disabled in some loggers, and if the parser plugin is not available.

- **Before parsing** - the program saves all incoming data without any modifications. If an external device sends binary data, the logger will create binary files.
- **After parsing** - the program saves data after parsing. Generally, it is a parsed data packet.
- **After filtering** - the program saves data after all filter plugins. The logger saves the content of the "FULL_DATA_PACKET" variable. A filter plugin may transform or fully change the variable. If you do not use any filter plugin, then this mode works as the previous.
- **Screen content** - the program saves data to a log file as you see it in the main window. Generally, it is text content; therefore, the program creates a text log file.

The log rotation mode is defined by the following key parameters:

- **File name prefix** - the text string, which will be added at file name beginning. The prefix may contain special placeholders like {NAME}. If you create log files before parsing the NAME can be any date formatting values below. For example: "data{YYYY}_{MM}_{DD}" returns a prefix like "data2019_01_01". If you create log files after parsing or filtering, you may use any parser variable. Then the file name may depend on some value in your incoming data.
- **File name extension** - the text string, which will be a file extension (characters after the dot).

Limit size - the "Limit size" field specifies the maximum size in kilobytes of any log file. If you specify the zero file size, then the file size is not limited.

You may select from the following modes:

1. **Clear file** - if the log file size will exceed the limit specified, then the log file content will be deleted, and file filling will start from the beginning.
2. **Rename old** - if the log file size will exceed the limit specified, then the existing log file will be renamed.
3. **Shift (no threshold)** - the older data over the limit specified will be removed from the log file.
4. **Shift (with threshold) -** in this mode the program will wait when the file size will exceed the limit specified + the threshold value. After this, the older data over the limit specified will be removed from the log file.

If the program continuously works for a long time, it is possible that the log file will have a large size and this file will be inconvenient for looking and analyzing. Therefore, there is the possibility to create files in dependence with the time on a computer. You can select one variant predefined or set up a new one:

- **Daily** - the file will be created with a name containing a prefix, and date in format DDMMYYYY, where DD is two-digit day sign, MM is two-digit month sign, and YYYY is four digits of the current year. The filename extension will be added at the end of the file.
- **Monthly** - the file will be created with a name containing a prefix, and date in MMYYYY format. The filename extension will be added at the end of the file.

- **Each data packet in different file** - in this mode, the program splits data flow to a different file. In this mode you should configure the parser or the program will split a data by timeout about 300 milliseconds.
- **Don't create new file** - in this mode, the program will write all data to one file. It is recommended for a small data flow. Otherwise, your log file will be too big, and a performance of the program will fall down.
- **User's format** - a file will be created with a name containing a prefix and date in showed by you format (for example, DDMMYYYY). The filename extension will be added at the end of the file. The file may not contain format signs, then file name will be constant. You should not use characters, that the OS doesn't allow in a file name, such as "/,\.*,?" and some others.
- **Weekly** - create a new file every week. The file name will contain a week number.
- **After data timeout** - the program will create a new file if the program didn't receive any data at the specified interval.
- **Hourly** - the file will be created with a name containing a prefix, and date in format YYYYMMDDHH, where HH is two-digit hour sign, DD is two-digit day sign, MM is two-digit month sign and YYYY is four digits of the current year. The filename extension will be added at the end of the file.
- **Constantly named file** - the current log file will have a constant name. When creating a new file, the existing log file will be saved using the new file name that will contain a date and time stamp.

Date and time formatting codes:

D - a day number (1-31).
DD - a day number with a leading zero (01-31).
DDD - a day of the week in the text form (Mon-Sat), according to the regional settings on this computer.
DDDD - a day of the week in the full text form (Monday-Saturday), according to the regional settings on this computer.
M - a month number (1-12).
MM - a month with a leading zero (01-12).
MMM - a month name in the text form (Jan-Dec), according to the regional settings on this computer.
MMMM - the full month name (January- December).
YY - last two digits of the year (00-99).
YYYY - the full year number (0000-9999).
H - the hour number (0-23).
HH - the hour number with a leading zero (00-23).
N - minutes (0-59)
NN - minutes with a leading zero (00-59).
S - seconds (0-59).
SS - seconds with a leading zero (00-59).

Example: You want to create a log file every hour. It is desired that file name starts from "sample_log" and the file extension "txt".

Answer: set file prefix = sample_log_, file extension= txt (without dot!). In file name format show HHDDMMYYYY. Now the file will be created every hour. Naturally, you can set any formatting characters combination, described higher.

If you want to access to a log file while the program work, then you should configure access mode settings 19 for the log file in the next chapter.

Add date/time stamp to file name - this option is available for modes #4 and #7 and allows adding date and time to the file name.

Add data source ID to file name - if this option is activated, then the program will append the data source name at the beginning of the file name, for example, COM1-sample20030321.log.

Write data/time stamp to file before writing data - if this option is activated, then the program will write a date/time stamp to a file before each data portion.

Overwrite existing files - this option is available for modes #4 and #7 and allows you to delete an existing log file before creating a new log file.

4.6.3.2 Log file access

During work can be such situations, when it is necessary to get access to a file with *current* data (current log file) from other applications (for example, for data processing). However, while you are accessing the current log file USB HID Logger can't write data to a log file and all data at this moment will be lost. We recommend using a temporary file for data storage. It is the safest way. (fig. 4.2.1).

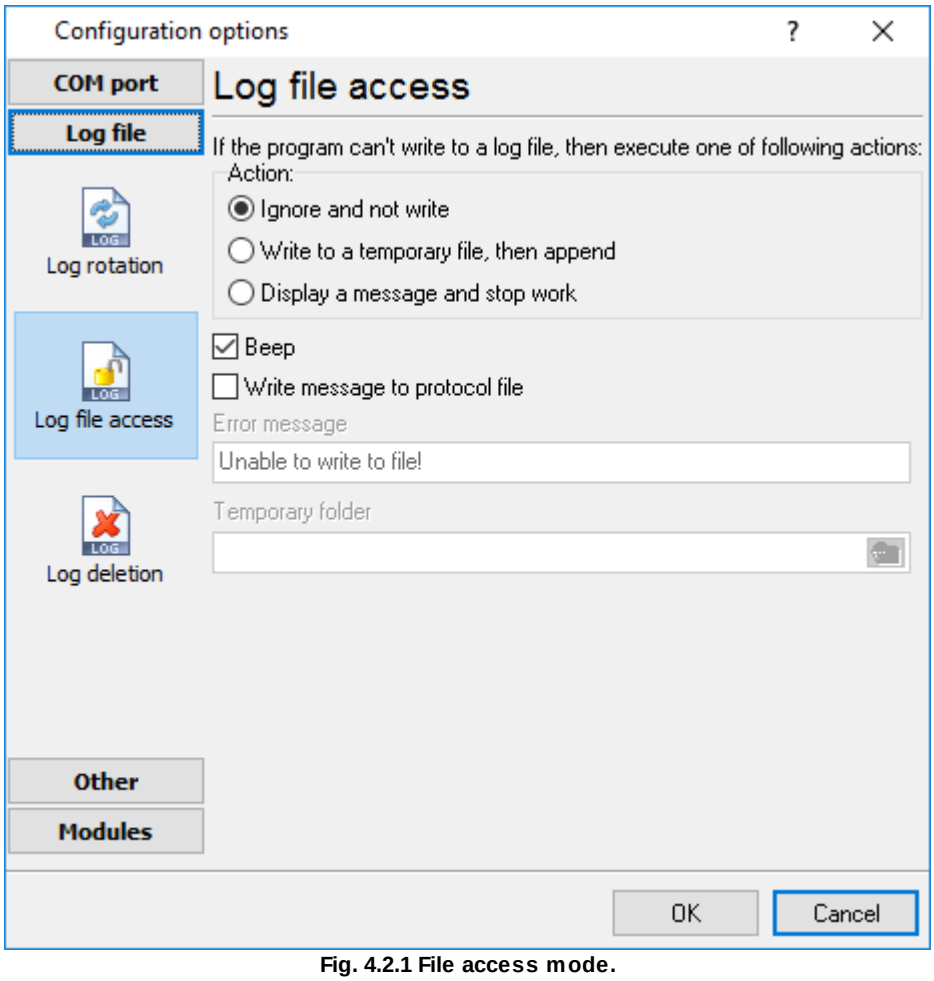

Fig. 4.2.1 File access mode.

You can select one from the following variants:

- **Ignore and not write** - in this mode, the program stop writing to a log file until it is locked. Therefore, data will be **lost**.
- **Write to a temporary file, then append** - a temporary file will be created, to which writing will be done. After access to the current file will be got, temporary file content will be added to the end of the main file. However, mind that if file has a timestamp in the name, there can be a situation when the program copies the content of a temporary file to a new log file, for the next time.
- **Display a message and stop work** - data will be lost until the dialog window is closed.

You can define your message text, which will be displayed at writing error to a log file. The sound signal can be on for an additional indication. You can also enable writing a message to a protocol file.

4.6.3.3 Log deletion

The deletion of files (fig. 4.3.1) will help you to avoid stuffing your hard disk with needless information. Log files can be deleted either depending on the time of storing or when the maximal number of files is exceeded.

When deleting files by the time of their storage, the files that were modified last time before the specified period are deleted.

When controlling the number of files, the files with the oldest modification dates are deleted first.

You can select both variants of file deletion. In that case, files will be deleted when either of the conditions is true.

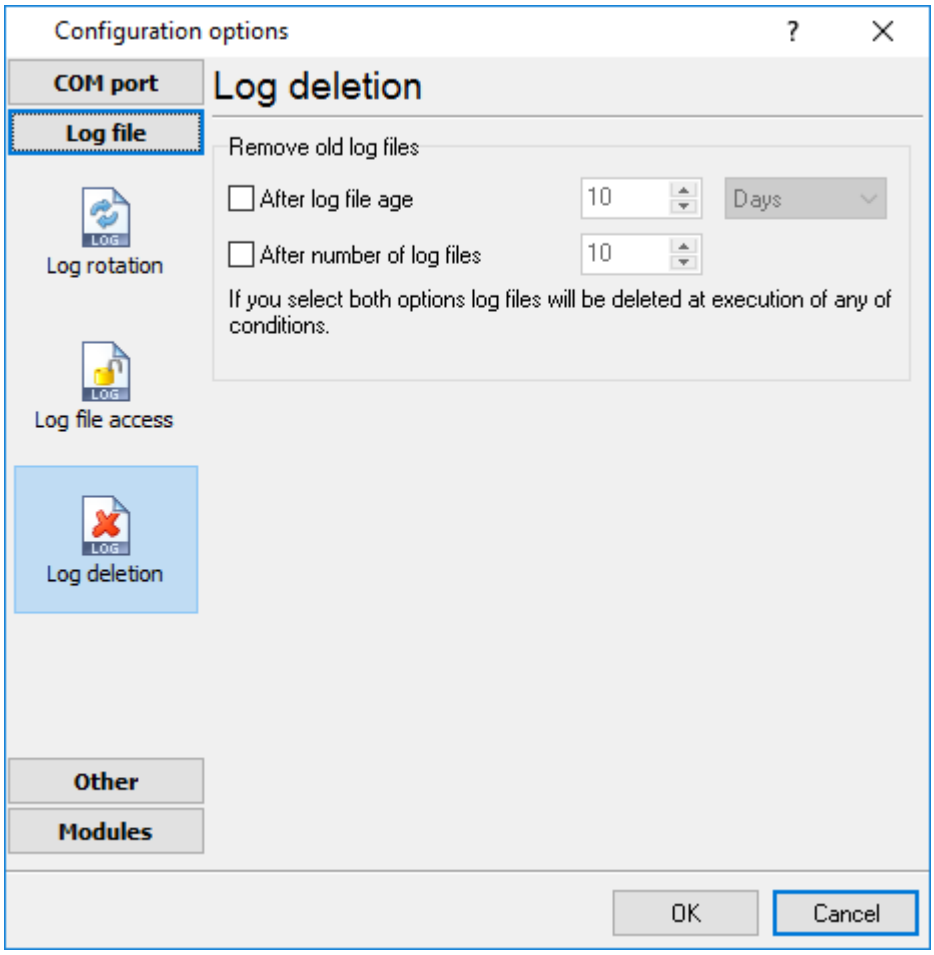

Fig. 4.3.1 Log deletion

4.6.3.4 CSV file logging

By default, the program writes data to a text file that isn't compatible with the CSV format. However, you can create Excel compatible CSV files. Simply activate logging to a CSV file.

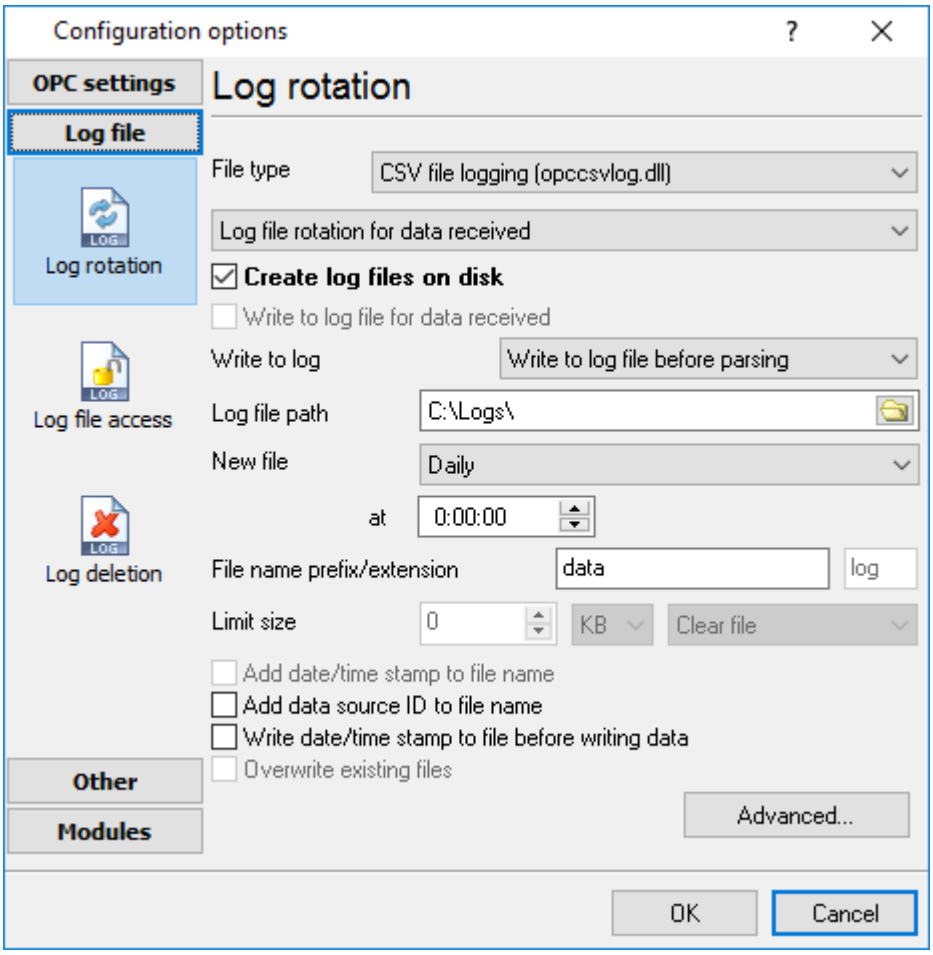

Fig. 4.4.1 CSV logging

4.6.4 Modules

4.6.4.1 Introduction & setup

To extend program functionality, we implemented plug-in modules. The module structure lets you to reduce your program size and purchase costs (you pay only functionality, which you need).

USB HID Logger supports a few types of modules (fig. 5.1.1 - 5.1.3):

Events handling (fig.12) - these plug-ins are used to handle events generated by the USB HID Logger software. Once an event occurs (for example, "Data source is opened" or "Configuration changed"), the plug-in creates a text message using the specified template, sends a notification, does some actions, executes a program or a script, etc. The form of the notification or actions depends on the plug-in settings.

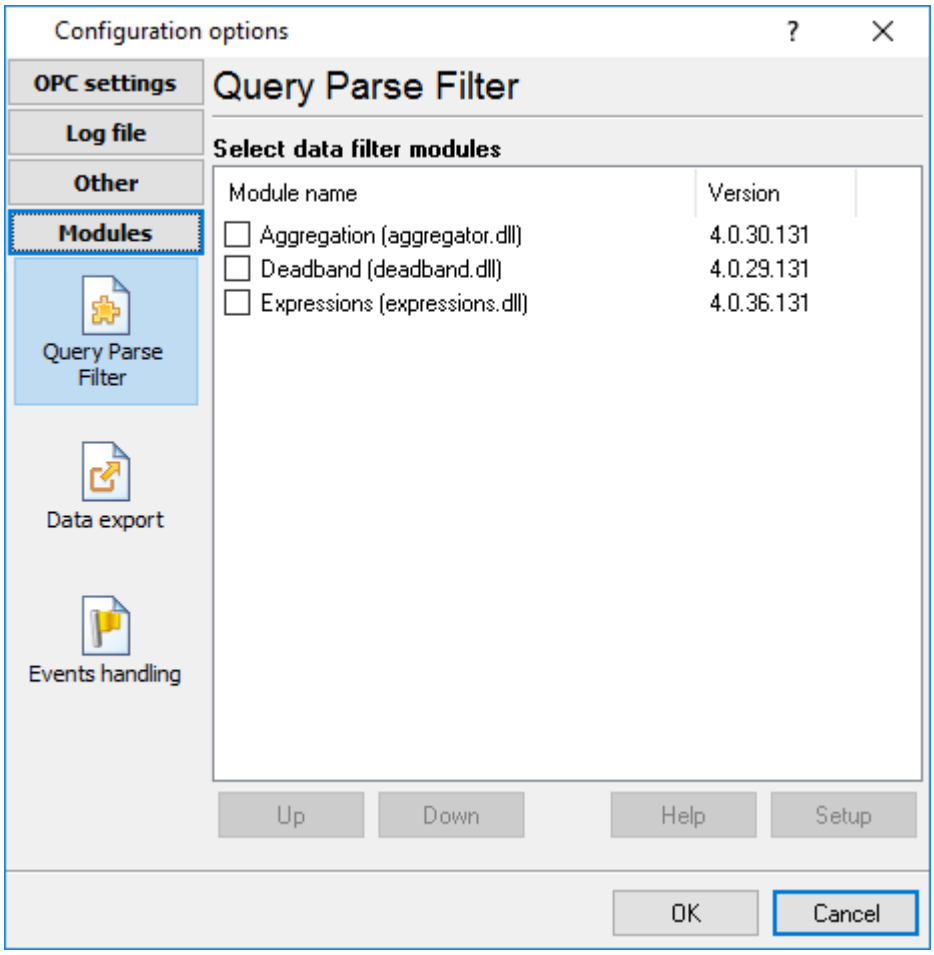

Fig. 5.1.1. Activating plug-ins

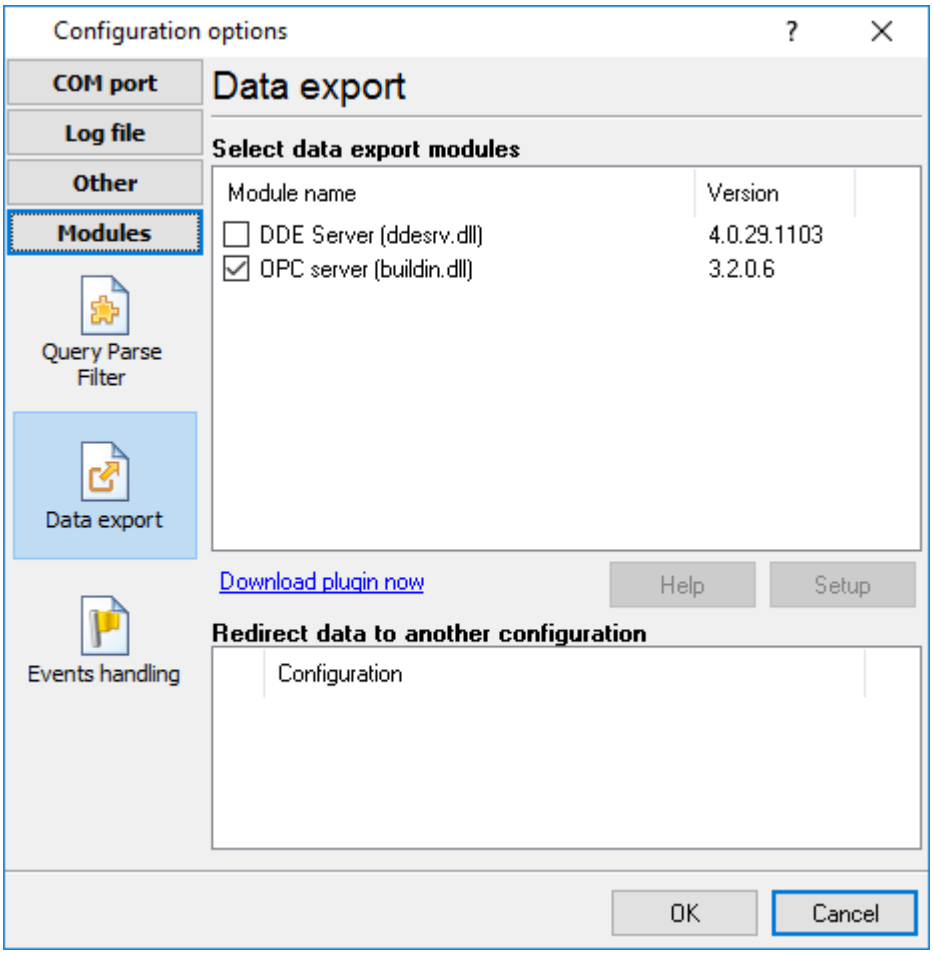

Fig. 5.1.2 Activating data export plug-ins

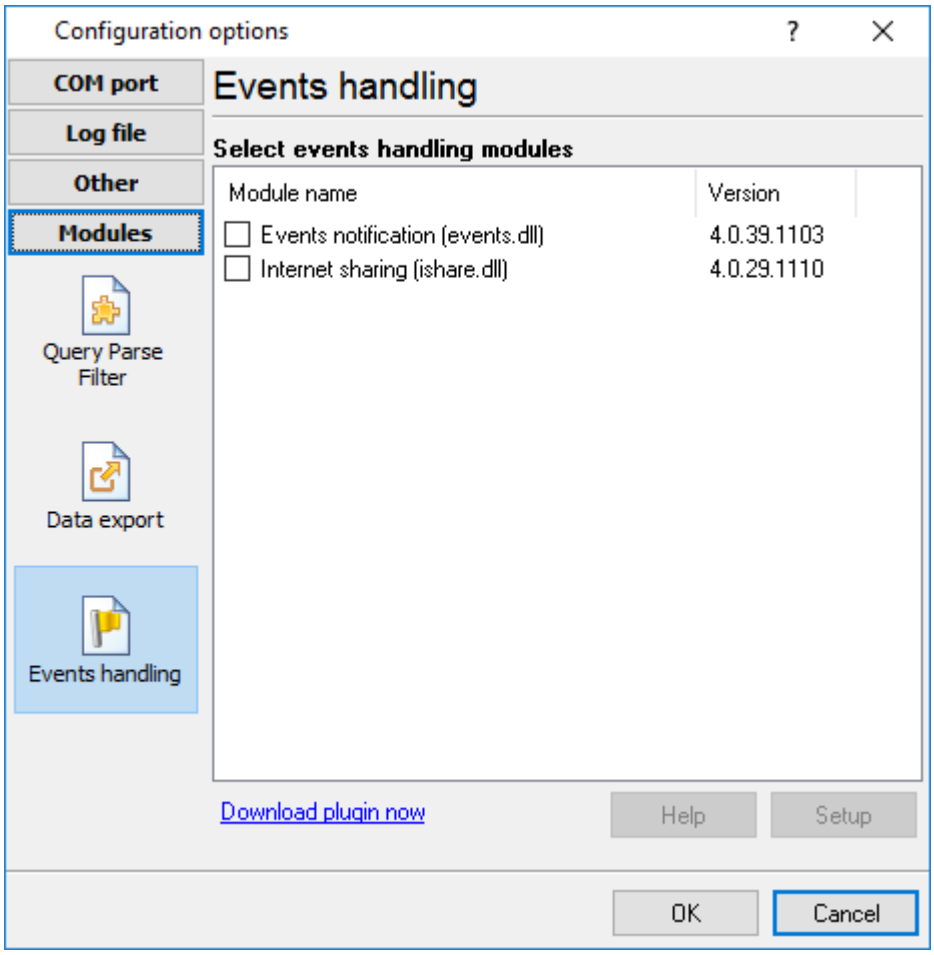

Fig. 5.1.3 Activating events handling plug-ins

Installation

You can easily install a new module. Usually, you should start the installation file and click the "Next" button for a few times. The installation wizard will detect a place of your USB HID Logger software and place a plug-in module and all distributive files to the "Plugins" folder, which is in the program folder (by default X:\\Program Files\USB HID Logger\Plugins).

After the program restart, a module will be loaded and initialized. If the module is supported by our software, the module name will appear the modules list (Fig. 5.1.1-5.1.3). Most modules require additional settings. If you want to configure the plug-in module, click the "Setup" button near it. If you selected the module and the "Setup" button is not active, then the module doesn't have additional settings and can work without additional settings. Please, read a user's manual of the corresponding plug-in for additional information.

Configuration steps

1. Select and configure a query module. You may use a module of this type if you need to send some data to your device (for example, initialization strings or request strings).

2. Select and configure a parser module. This step is necessary because filter and export modules can use parsed data only. If you didn't select the parser module, then you can't configure the data filter and data export modules.
3. Activate and configure data export modules. You can select one or more modules simultaneously. The program will use selected modules simultaneously. Please, note, the program can' use the data export module, if you didn't configure the parser module.
4. Activate and configure event modules. You can select one or more modules simultaneously.

4.6.4.2 OPC server

Since the version 2.1.1 USB HID Logger has an internal OPC server. It means that any OPC compatible client application can get data from USB HID Logger without any additional software. To connect to the OPC server, you need the server ID and name (Fig. 5.2.1). Before using the OPC server on your computer, you should download and install the OPC Core Components Redistributable from www.opcfoundation.org (registration required).

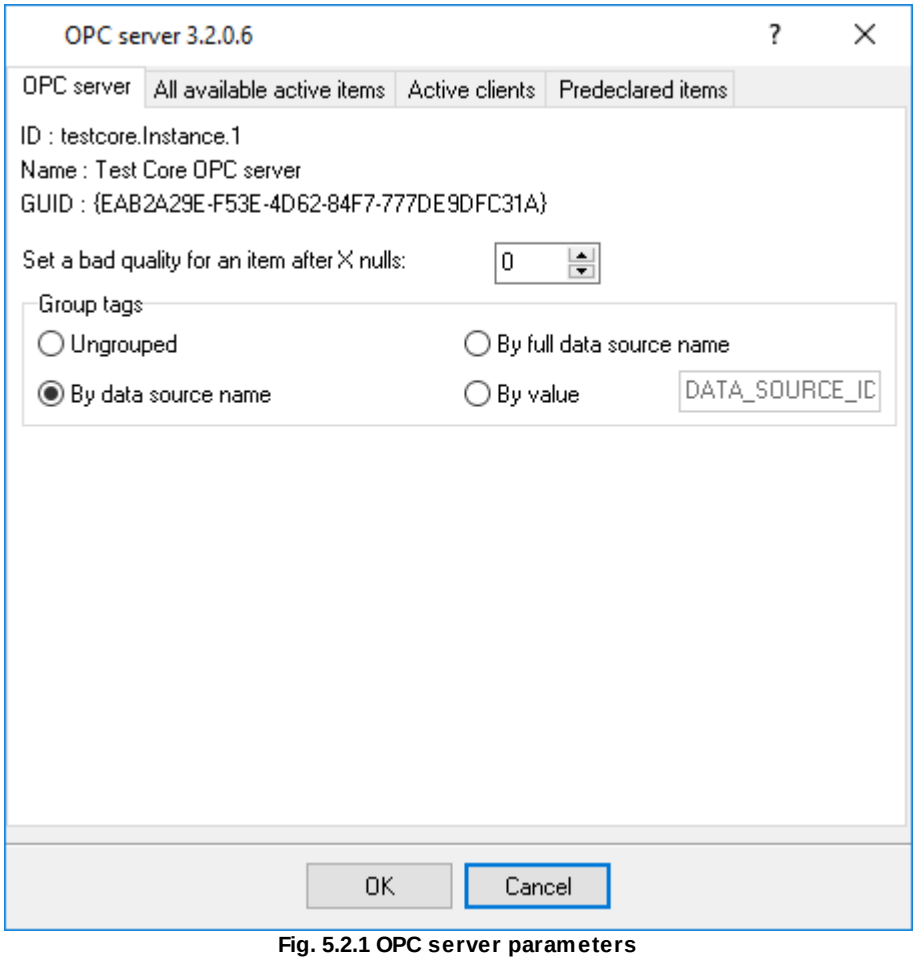

Fig. 5.2.1 OPC server parameters

USB HID Logger parses all incoming data to one or more variables, and an OPC client gets it (fig. 5.2.2). After connecting to the OPC server, you will get a list of all variables.

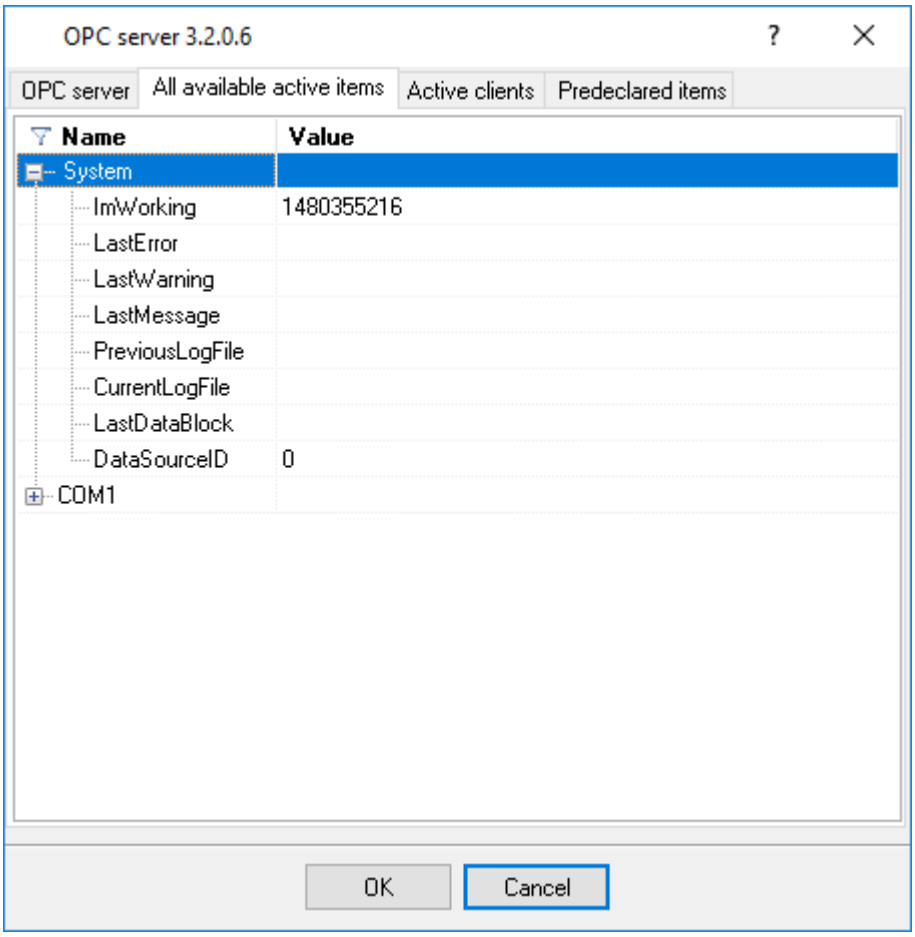

Fig. 5.2.2 OPC server active items

Clients activity is showed on the "Active clients" tab. The top node is client, below is a group of items and connected items. By double-clicking, you can get detailed information about each node.

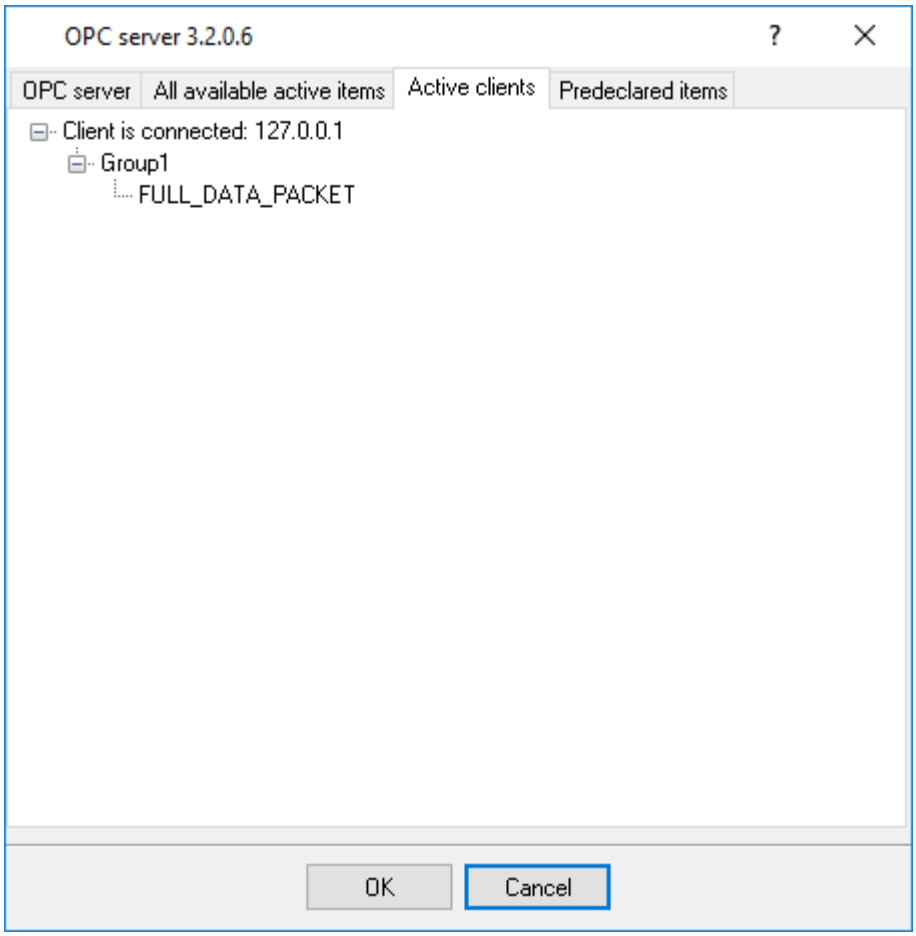

Fig. 5.2.3 OPC server clients

USB HID Logger creates new variables at "on-the-fly" mode. The USB HID Logger starts without any variables and gets it only after first data had been received. If your client OPC will connect to the OPC server before than data had been processed, then it will get an empty list of variables, and your OPC client should poll the OPC server for updating list of variables. If your OPC client doesn't allow it, then you can pre-define all variables (fig.5.2.4). In this case, the OPC server will create these variables with empty values, immediate after starting, and your OPC client will get these names while connecting.

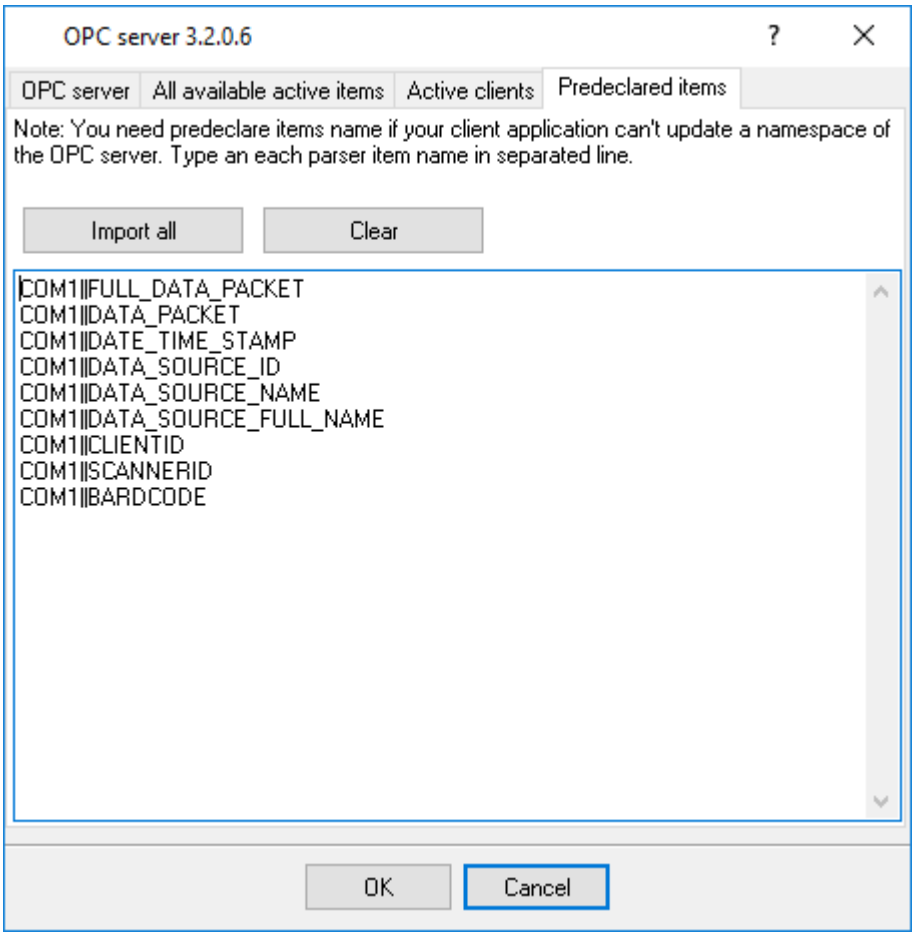

Fig. 5.2.4 OPC server pre-declaration

4.7 Program options

4.7.1 Window view

This tab in program options (fig. 6.1.1) allows you to customize the appearance of the main window of the program (fig.1.1.1 5). You can access this tab through the "Options -> Program options" menu item in the main window.

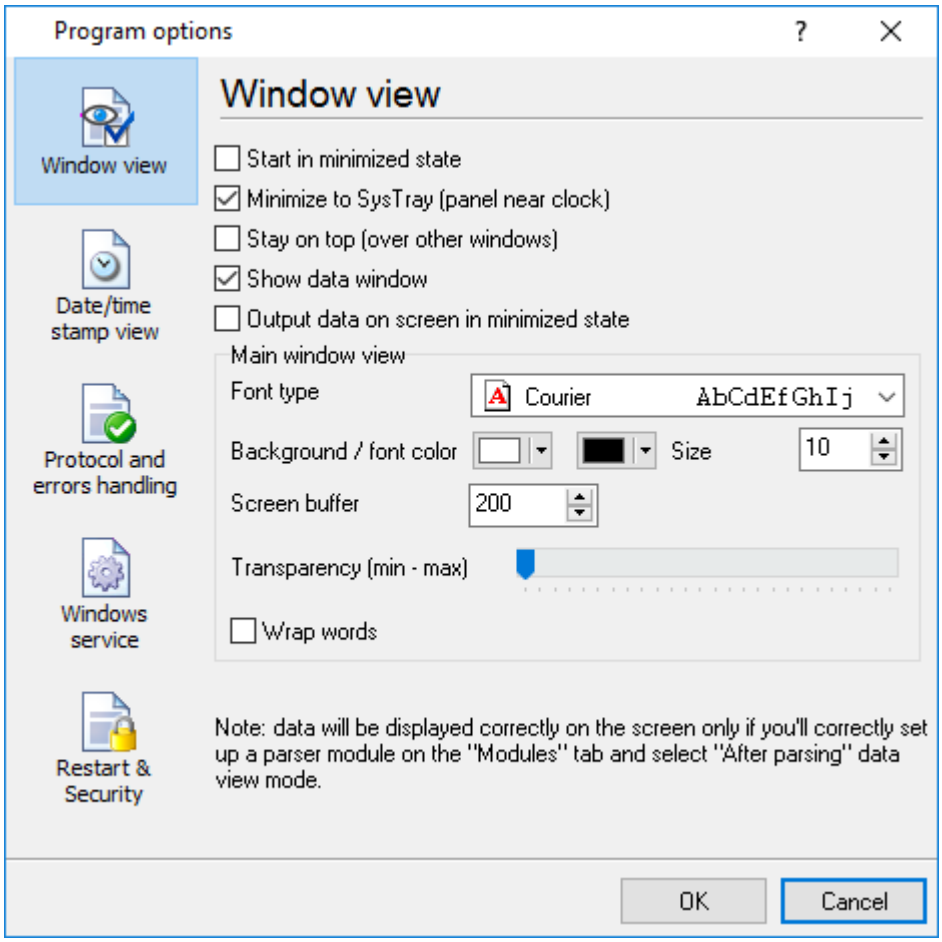

Fig. 6.1.1 Window view setting

You can set the following parameters:

- **Start in minimized state** - at start USB HID Logger will automatically minimize the program window to the taskbar or to the Systray (fig. 6.1.2).
- **Minimize to Systray** - while the main window of USB HID Logger minimizes, the program will automatically put its icon to the system panel near the clock.
- **Show data window** - if you specify this option, then the program will display all data in the main window. You may disable this option if you log data from many ports on a slow computer. It reduces the computer's CPU usage.
- **Output data on screen in minimized state** - if you'll enable this option, then the program will display processed data in minimized state. If you are logging many data sources on a slow computer, then you can decrease computer central processor load rate with disabling of this option.
- **Font type** - the data will be displayed with this font type in the main window. We recommend using mono-spaced fonts in this field, such as Terminal, Courier, or System.
- **Screen buffer** - when the number of lines in the main window exceeds the specified value, the program deletes old lines from the screen buffer.
- **Window view** - this option group lets you configure data window view mode (a font color, a font type, a background color).

- **Transparency** - in Windows 2000 and later lets you set the transparency of the main window. The most left position is the normal window view, and the most right position is maximum transparency.
- **Wrap words** - if you didn't configure a parser module or your data flow doesn't contain a blocks separator, then your data without this option enabled will be displayed as one long string in the data window.

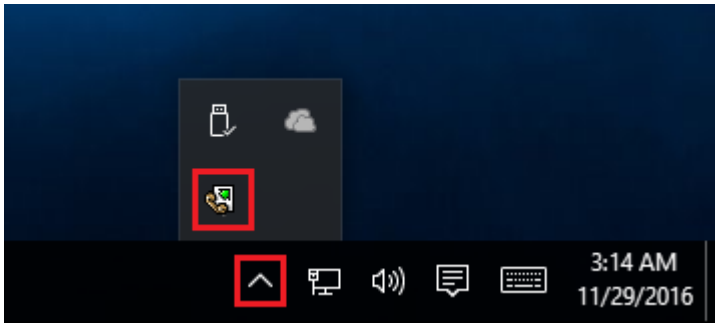

Fig. 6.1.2 Systray - panel near clock

4.7.2 Date/time stamp view

This group of options (fig. 6.2.1) allows configuring the format of date/time stamps that will be used in the main program window and log files.

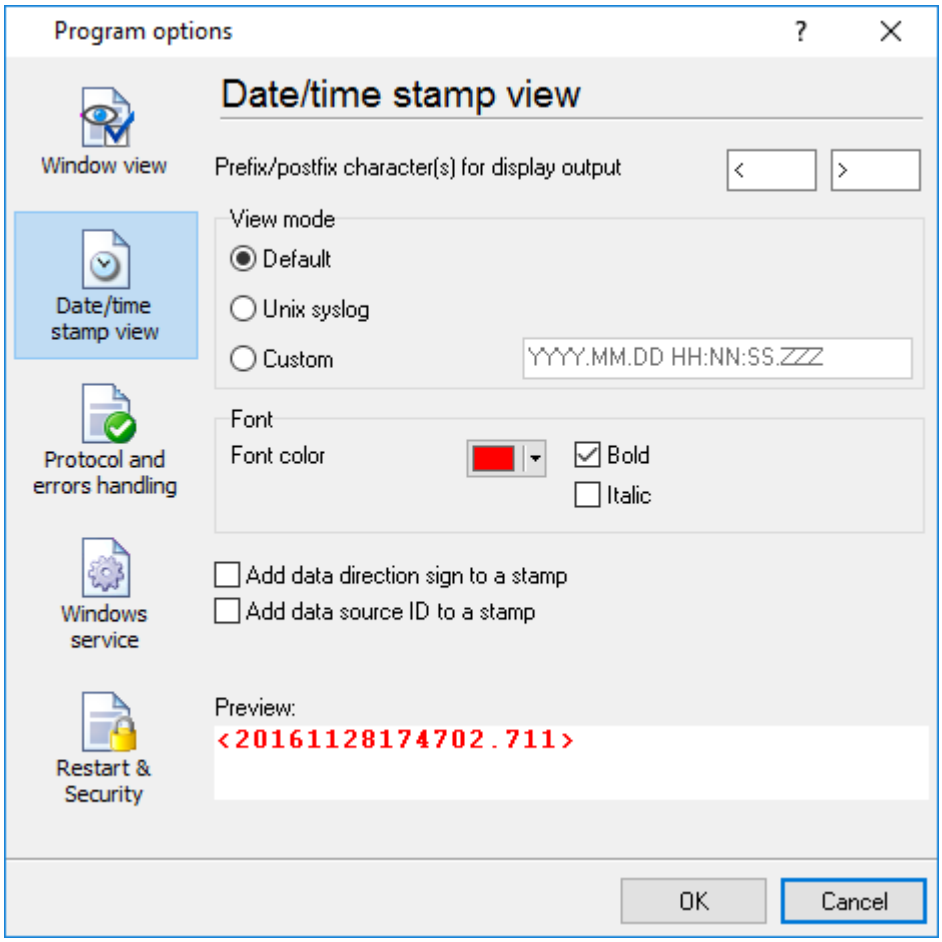

Fig. 6.2.1 Configuring data/stamp view

Prefix/Postfix characters for display output - these options allow you to define the beginning and ending characters of a date/time stamp that will be shown in the program window. When outputting data to a log file, the program uses individual characters [13] for each configuration.

View mode - allows you to select the standard or define the custom format of the date/time stamp.

Font - this group allows you to define the color and font of date/time stamp.

Add data direction sign to a stamp - if this option is activated, then the program will append TX or RX to the end of the stamp.

Add data source ID to a stamp - if this option is activated then the program will data append data source ID at the beginning of the stamp, for example, COM1.

4.7.3 Protocol and errors handling

While the program is running, it may generate many messages about errors or events. All these messages are being registered in a protocol file. The protocol file may contain messages from the main program and all working plugins. On this tab, you can define the kind of messages, which you want to put a protocol file (fig. 6.3.1). Here you can set the maximum protocol file size and the formatting mode.

Usually, the protocol file is in the "AppData" folder and has the name of the program with the 'log' extension.

On Windows 7 and higher: c:\ProgramData\USB HID Logger\
On old OS: c:\Document and Settings\All Users\USB HID Logger\

You can also open the protocol file from the “File” menu in the main window.

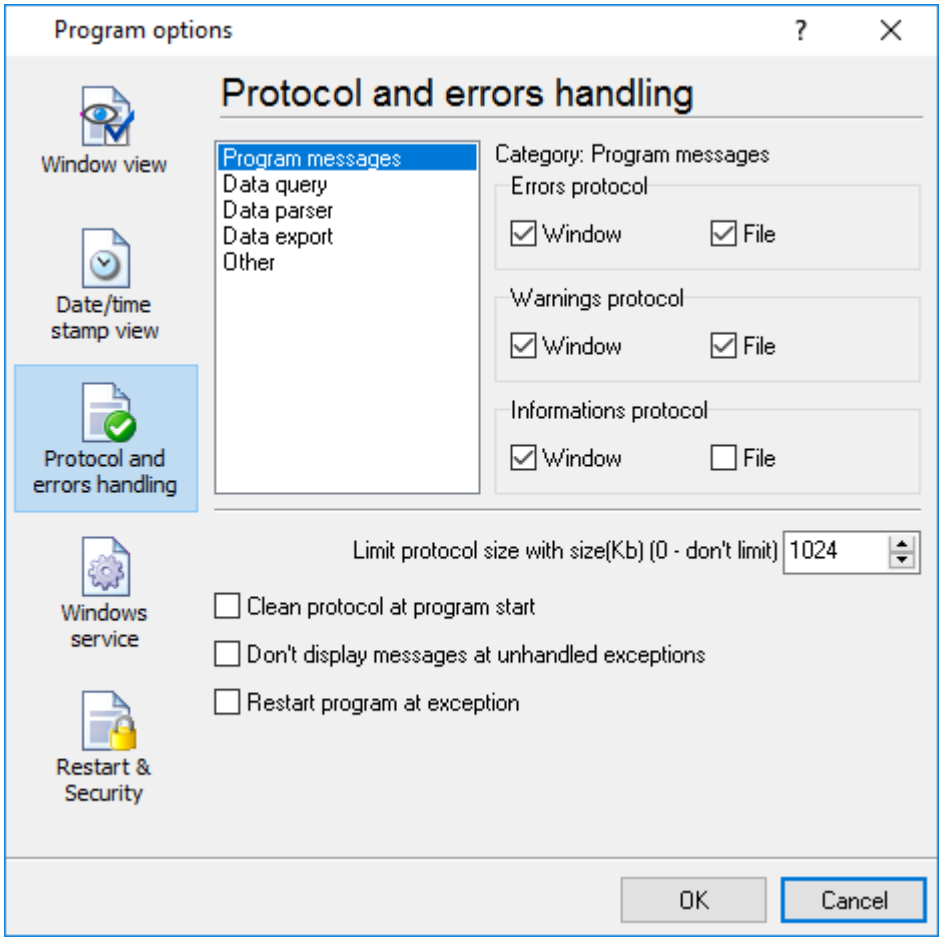

Fig. 6.3.1 Protocol settings

USB HID Logger works with three types of messages:

- **Information messages** - this type of messages informs you about current operations.
- **Warnings** - warns you about possible failures or errors. Immediately user reaction is not required.

- **Errors** - the program has detected an error which requires user attention.

There is the possibility to log the following events:

- **Program messages** - messages about start or stop of the program, etc.
- **Data query** - messages which are generated in a data query module.
- **Data parser** - messages from a data parser module.
- **Data export** - messages issued by a data export module.
- **Other** - other message types.

You can write each type of messages to a protocol file or/and to the list in the main window. Please, specify necessary options for each message type at "Window" and "File" fields.

If you don't want to allow growing a protocol file size to an unlimited size, then you can enable the "Clean protocol at program start" or limit protocol file size in the "Size" field.

Some exceptional (unhandled) messages may occur while the program is running. In most cases, these messages affect the program, and the safest way is to restart the program. Please, specify the "Restart program at exception" option and the program will be restarted automatically.

If you want to look all program messages, then you can disable the "Don't display messages at unhandled exceptions" checkbox, and the program will open the exception message window with detailed information.

4.7.4 Service mode on Windows 2000+

4.7.4.1 Configuration

Windows 2000+ services let you:

- Control service on local and remote computers, including remote computers with Windows 2000+ system.
- Setup actions on emergency service restore in case of failure, for example, auto service or computer restart (only on computers with Windows 2000 or later).
- Create for services other names and descriptions, to find them easier (only on computers with system Windows 2000 or later).
- Run service before user login (password input).
- Service can be configured on automatic start after operation system load.

Note 1: you must be logged in as an administrator to change the configuration or control the service in any way (start, stop, pause, continue).

Note 2: On Windows Vista and later you should start the program with elevated administrator privileges.

If you want to use the program as a service application, then, please, go to the "Options -> Program options -> Windows service" tab (fig. 6.4.1), then enable the "Use program as a service" checkbox. Later, please, specify the start-up type of the service. There are the following variants:

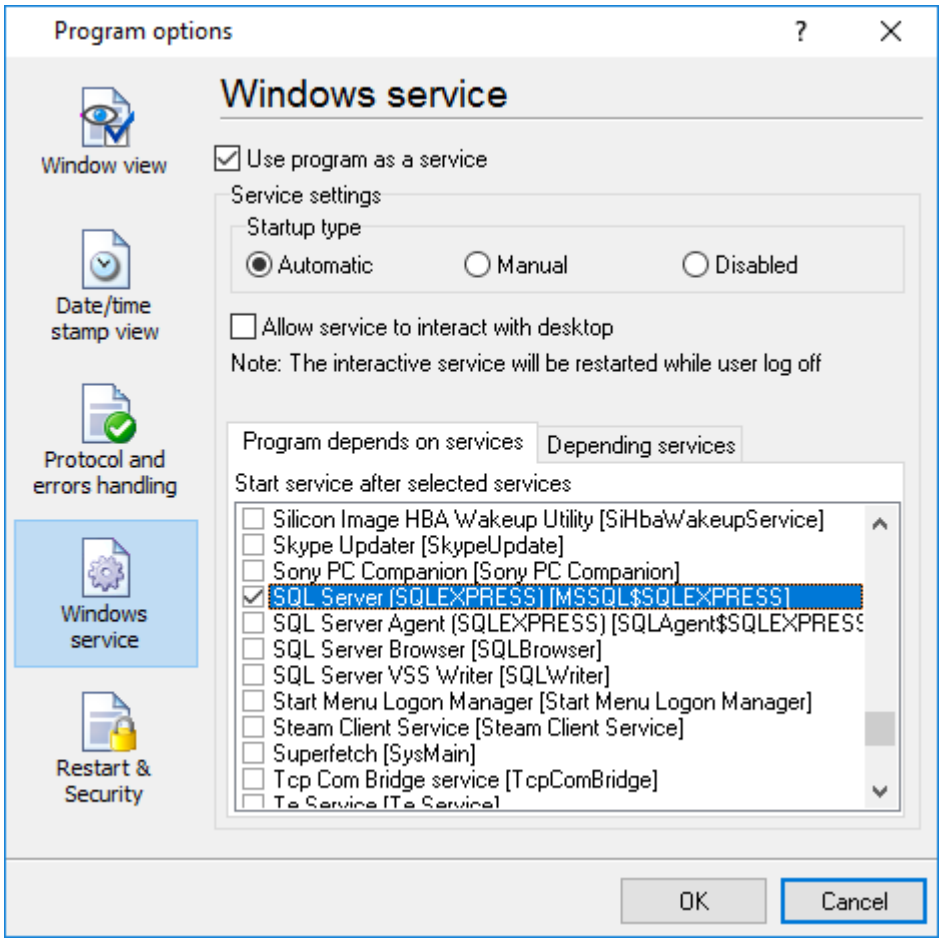

Fig. 6.4.1 Service settings

1. **Automatic** - the service starts automatically with Windows, before user login.
2. **Manual** - you can start the service application from the "Services" control panel (fig. 6.4.1).
3. **Disabled** - the service is disabled, and does not start at all.

If you want to change the program settings while the program works in the service mode, you can start a second instance of the program on your desktop, make the necessary changes, and restart the service with the new settings.

Old Windows versions (before Windows Vista) allows you to use the service in the interactive mode. In this case, the program places an icon in the system area (fig. 6.4.2).

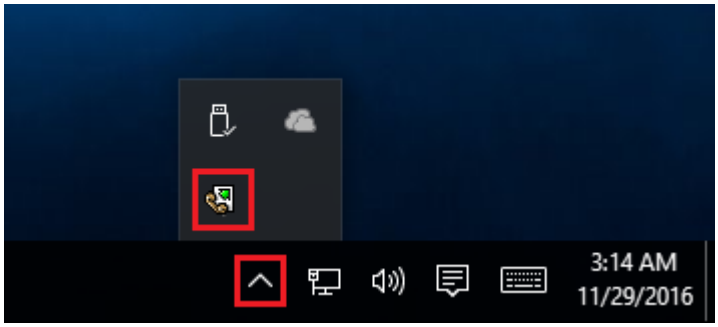

Fig. 6.4.2 Service icon in Systray

If the service should write data a database or use another service on your computer, they should be started before USB HID Logger. You can configure a list of these services on the "Program depends on services" tab (fig. 6.4.3).

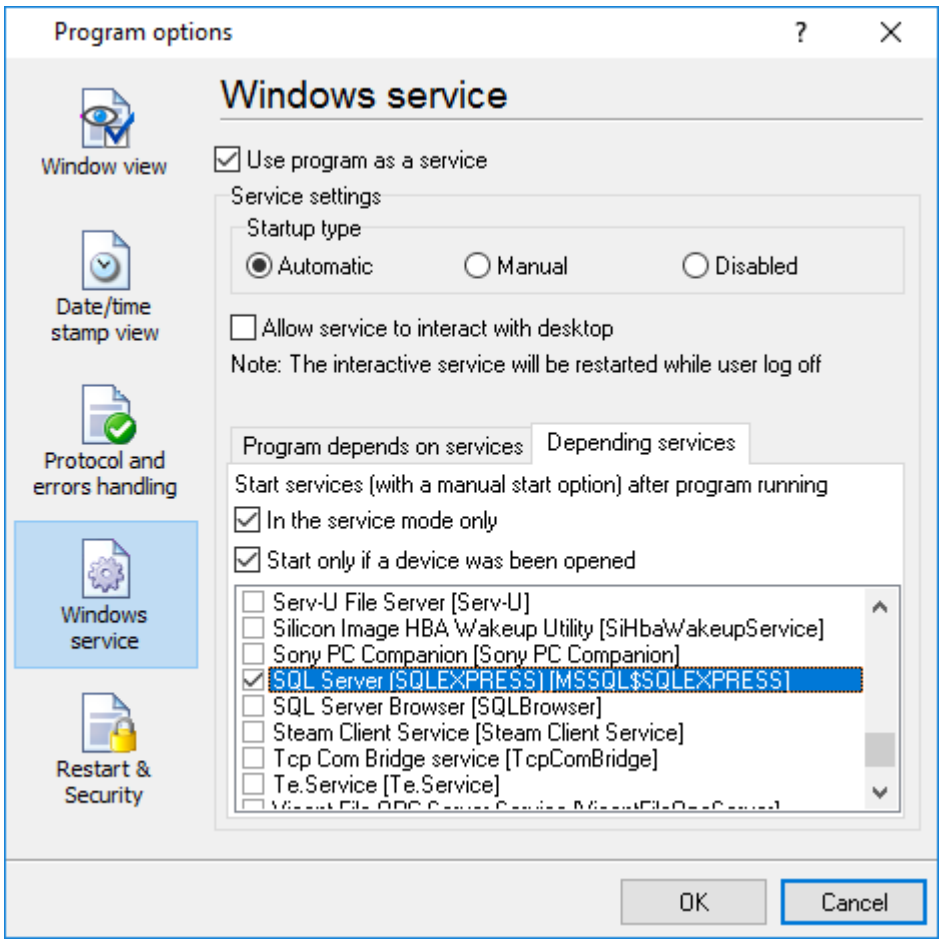

Fig. 6.4.3 Service settings #2

Sometimes, you may need to start USB HID Logger before starting other services. In this case, you should:

- Switch the start mode of a target service to "Manual."
- Start USB HID Logger.
- Select the necessary service on the "Depending services" tab.
- Select the mode when the logger will start the selected service.
- Restart USB HID Logger.

After you configured USB HID Logger to work in the service mode, you need to restart a computer or start the service manually from the "Services" control panel (fig. 6.4.4).

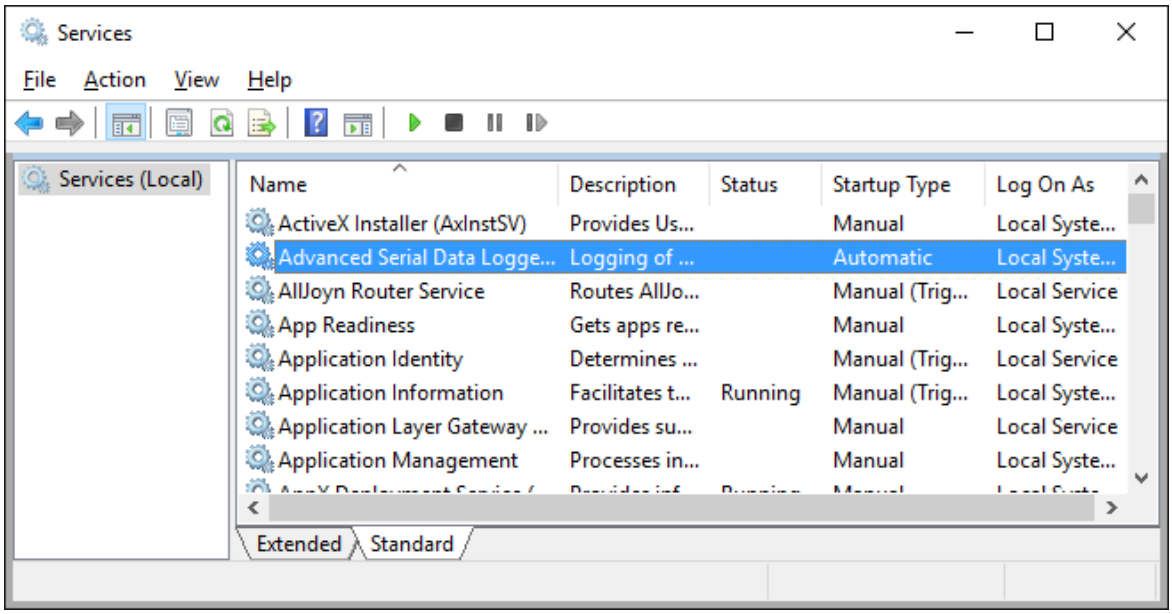

Fig. 6.4.4 Manual service run (in Windows 2000)

When the service is running, two processes should appear in the Task Manager: usbloggersrv.exe and usblogger.exe (fig. 6.4.5). The 'usbloggersrv.exe' application implements an interface between the service manager and the USB HID Logger software. Unlike srvany.exe utility, our service stops safely.

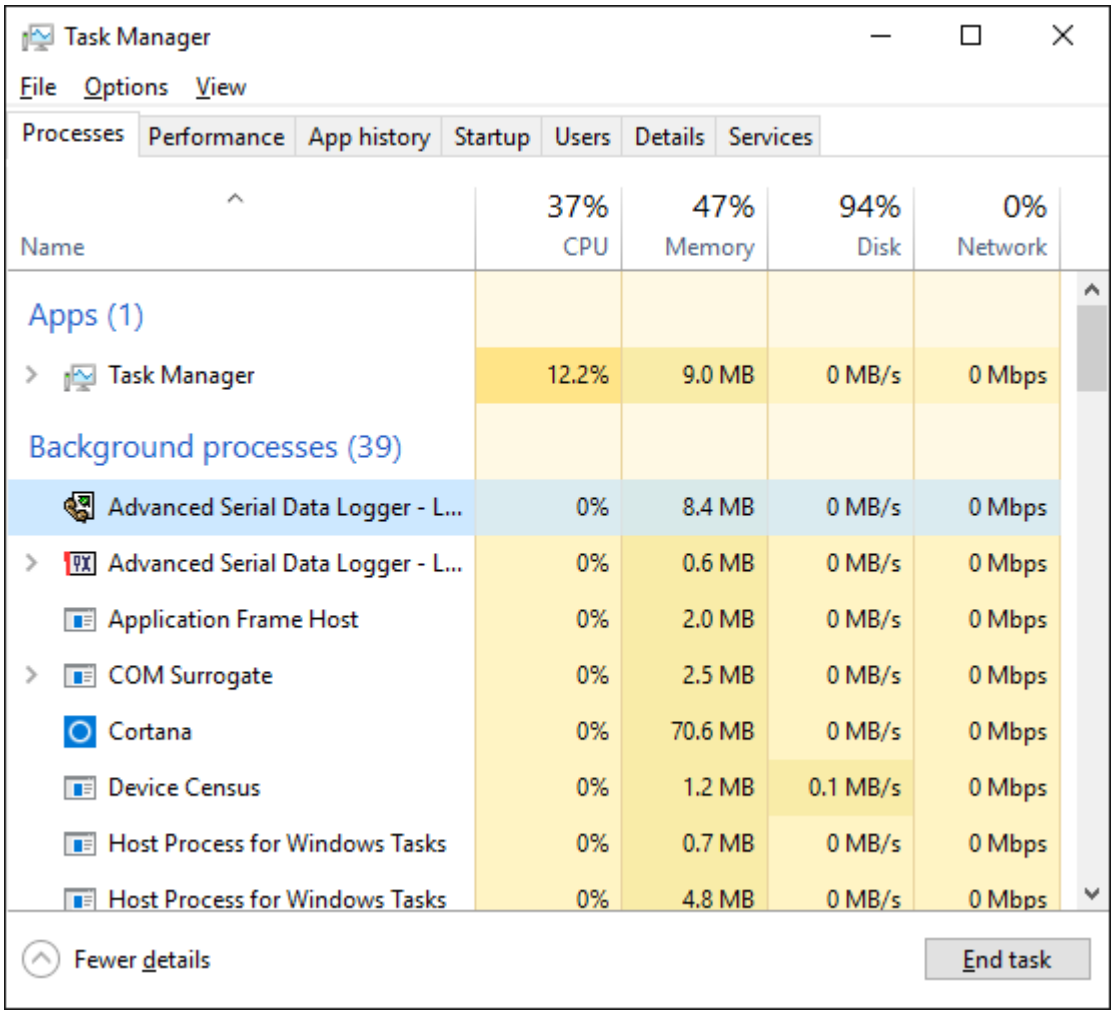

Fig. 6.4.5 Process list

If you want to configure the program as a service, then you must be logged with administrator rights. The service application can be controlled, stopped, or removed with the help of a command-line. Run usbloggersrv.exe with the following parameters:

- /? - a short help.
- /I - install service for starting in then manual mode.
- /A - install service for starting in the automatic mode.
- /D - install service in the disabled state.
- /R - remove service from the computer.

4.7.4.2 Windows Vista+ notes

One of the ways Vista's security was improved was by separating system services and user applications into separate 'sessions'. Keeping the system services isolated helps to secure them better, but also makes any interactive interface unavailable to the user. That's where the Interactive Services Detection service comes in. When a service needs to interact with the user, Interactive Services Detection presents a dialog that will switch the user to the session where the service is

running so they can interact with the service. For an excellent, detailed description of this, see next paragraph.

Many sites recommend disabling this service, but doing so will result in you not being able to interact with any services that require your attention. This service is run manually by default, so there is little point to disabling it unless you don't want to be bothered by important information from the software you may be trying to run.

- **Display Name**: Interactive Services Detection
- **Service Name**: UI0Detect
- **Process Name**: UI0Detect.exe
- **Description**: Enables user notification of user input for interactive services, which enables access to dialogs created by interactive services when they appear. If this service is stopped, notifications of new interactive service dialogs will no longer function, and there may no longer be access to interactive service dialogs. If this service is disabled, both notifications of and access to new interactive service dialogs will no longer function.
- **Path to Executable**: %windir%\system32\UI0Detect.exe
- **Default Start-up**:
  * Home Basic: Manual
  * Home Premium: Manual
  * Business: Manual
  * Enterprise: Manual
  * Ultimate: Manual

4.7.5 Restart & Security

Sometimes the program should be restarted. For example, if you've changed the program settings remotely and want to reload program automatically with the new settings. To do that, specify the time for restarting the program on the "Restart & Security" tab in program options "Options->Program options". Just specify the time of day, when the program should be being restarted.

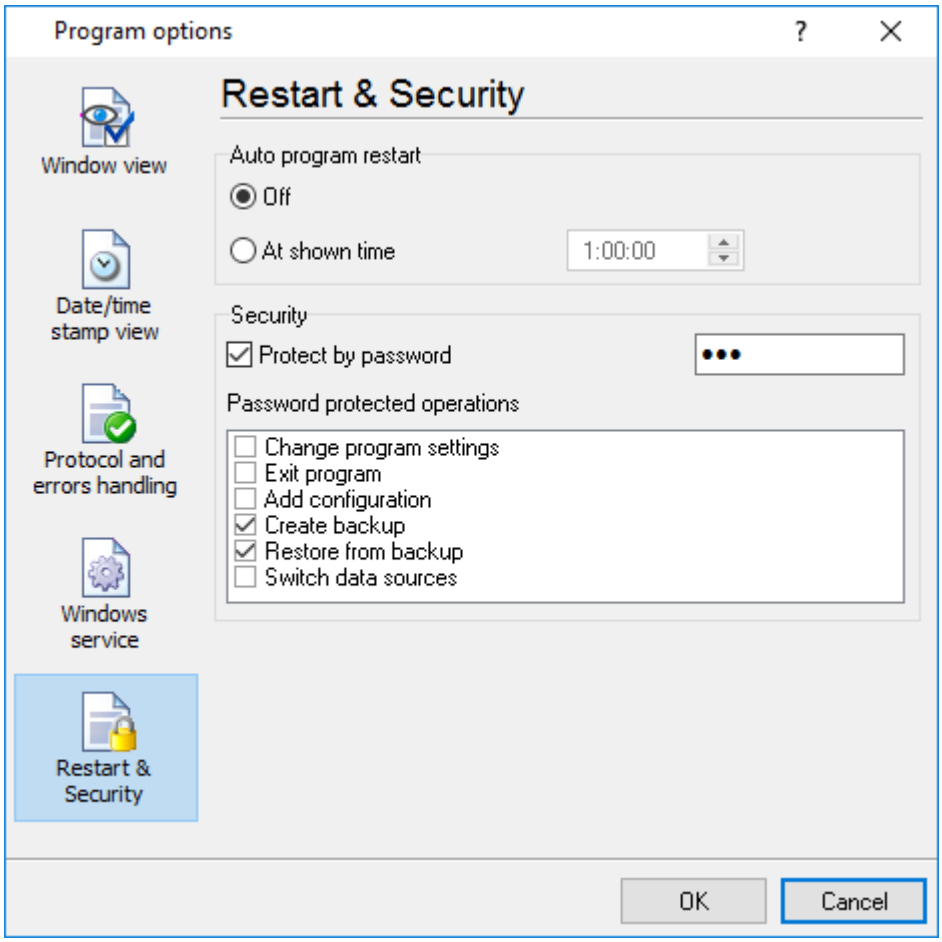

Fig. 6.5.1 Program restart settings

On this tab, you can also protect some actions with the program by a password. To do that, activate the "Protect by password" option, define a password and select protectable actions.

5 Having problems?

5.1 Program doesn't run or work

It is necessary to make sure in proper time installation on your computer, so as if you put clock after program installation, protection from use after trial period works.

Also, the program will not work, if you use a software debugger in your environment like WinDbg. In any other case, please, contact us on support@aggsoft.com.