



**The Summary statistics plugin
PRINTED MANUAL**

Summary statistics plugin

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1 Introduction

The module "Summary statistics" for our logger-programs allows retrieving basic statistical values such as "Sum", "Average", "Minimum", "Maximum" etc. Total values can be calculated for any time interval. Additionally, the module can evaluate the quality of a value, depending on the expected and processed number of values.

2 System requirements

The following requirements must be met for "Summary statistics" to be installed:

Operating system: Windows 2000 SP4 and above, including both x86 and x64 workstations and servers. The latest service pack for the corresponding OS is required.

Free disk space: Not less than 5 MB of free disk space is recommended.

Special access requirements: You should log on as a user with Administrator rights in order to install this module.

The main application (core) must be installed, for example, Advanced Serial Data Logger.

3 Installing Summary statistics

1. Close the main application (for example, Advanced Serial Data Logger) if it is running;
2. Copy the program to your hard drive;
3. Run the module installation file with a double click on the file name in Windows Explorer;
4. Follow the instructions of the installation software. Usually, it is enough just to click the "Next" button several times;
5. Start the main application. The name of the module will appear on the "Modules" tab of the "Settings" window if it is successfully installed.

If the module is compatible with the program, its name and version will be displayed in the module list. You can see examples of installed modules on fig.1-2. Some types of modules require additional configuration. To do it, just select a module from the list and click the "Setup" button next to the list. The configuration of the module is described below.

You can see some types of modules on the "Log file" tab. To configure such a module, you should select it from the "File type" list and click the "Advanced" button.

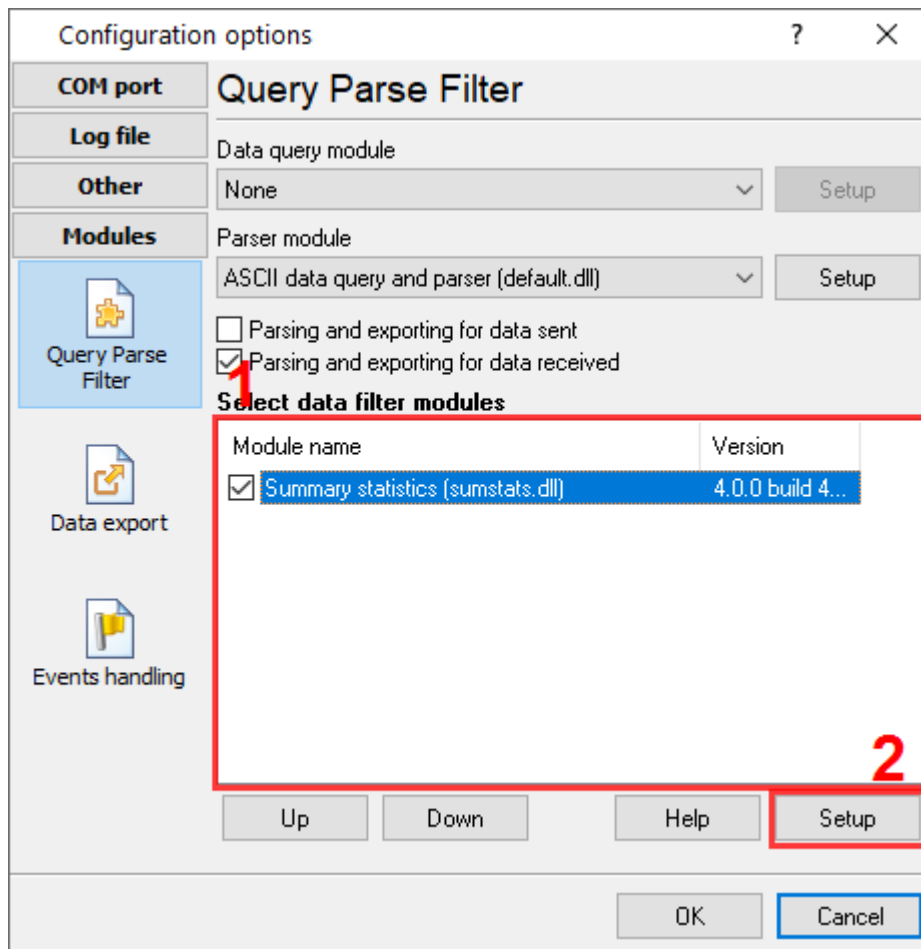


Fig. 1. Example of installed module

4 Glossary

Main program - it is the main executable of the application, for example, Advanced Serial Data Logger and asdlog.exe. It allows you to create several configurations with different settings and use different plugins.

Plugin - it is the additional plugin module for the main program. The plugin module extends the functionality of the main program.

Parser - it is the plugin module that processes the data flow, singling out data packets from it, and then variables from data packets. These variables are used in data export modules after that.

Core - see "Main program."

5 Configuration

The configuration of the "Summary statistics" module is very simple (see fig. 1). You just need to define a list of one or more variables of the parser module, and specify the calculation parameters.

Pic.1. Configuration window

Parser variable

You can add parser variables to the list and get the statistical values calculated for those variables. To add a parser variable to the list, click the **Add** button and select the name of the parser variable from the list in the dialog box. If a parser variable is not in the list, you can use the keyboard to enter its name.

In the dialog box you can specify multiple parser variables separating them with commas. In that case, the same settings will be applied to the group of variables.

Example: VALUE1,VALUE2

Additionally, you can use the mask characters "?" or "*" in the parser variable name. This allows you to set parameters for a very large group of variables.

Example: VALUE*

Note: if a variable name uses a mask, then statistics for the variable whose name matches the mask will only start after the first value is retrieved.

Removing variables

To remove a variable, select it in the list and click "More - Remove".

Renaming variables

To rename a variable name, you can delete the variable and then add it again.

If the list of variables is long, you can click "More - Clone", batch edit the list of variables in the dialog box, click "OK", and then delete the old value from the list of variables.

Interval

Continuous - statistical values will never be reset and total values will be added to each parsed data line.

Fixed - allows you to select one of the pre-defined intervals. At the end of the time interval, the accumulated statistics are exported and the count starts from the beginning. The counting starts from zero seconds.

See the example of a fixed interval of 30 minutes.

00:00:00
00:30:00
01:00:00
01:30:00
etc.

Cron - the option allows you to set an arbitrary interval for calculating statistical values. See examples of format settings in [the next section](#).

Total values

In this parameter group, you can select a type of statistical value.

Minimum, Maximum, Average, Sum are standard mathematical functions. The functions are used to calculate numeric values only.

First value, Last value - the first and last received and processed value within the interval.

Start time and **end time** - timestamps that define the interval boundaries.

Quality of service - if the value of the parameter "**Expected number of values per interval**" equals zero, then QoS will return the number of values processed. If the expected number is greater than zero, then QoS will equal the ratio "Number of values processed / Expected number of values".

For each statistical value, a specific suffix is added to the parser variable name.

- Minimum - "MIN".
- Maximum - "MAX".
- Average - "AVG".
- Sum total - "SUM".
- First value - "FIRST".
- Last value - "LAST".
- Timestamp start - "TSS".
- Timestamp end - "TSE".
- Quality of service - "QOS".

Example: If the name of the parser variable in the list is "VALUE1", the exported value will have the name "VALUE1_MIN", "VALUE1_MAX", and so on.

Settings

Export only total values - if this option is enabled, the filter module will not let parsed values pass on to other processing modules.

Calculate total values for each device separately - if this option is enabled, the module will get the device ID from the parser variable specified in the "**Parser item with device ID**" parameter. Statistics will be calculated for each device separately. When exporting statistics, a separate line will be generated for each device.

6 Cron time format

The CRON format is a simple yet powerful way to describe time and operation periodicity. The traditional (inherited from the Unix world) CRON format consists of five fields separated with spaces:

<Second> <Minutes> <Hours> <Month days> <Months> <Weekdays>

Any of the five fields can contain the * (asterisk) character as its value. It stands for the entire range of possible values. For example, every minute, every hour and so on. In the first four fields, you can also use the proprietary "?" (w/o quotes) character. See its description below.

Any field can contain a list of comma-separated values (for example, 1,3,7) or an interval (subrange) of values defined by a hyphen (for example, 1-5).

You can use the / character after the asterisk (*) or after an interval to specify the value increment. For example, you can use 0-23/2 in the "Hours" field to specify that the operation should be carried out every two hours (old version analog: 0,2,4,6,8,10,12,14,16,18,20,22). The value */4 in the

"Minutes" field means that the operations must be carried out every four minutes. 1-30/3 is the same as 1,4,7,10,13,16,19,22,25,28.

You can use three-word abbreviations in the "Months" (Jan, Feb, ..., Dec) and "Weekdays" (Mon, Tue, ..., Sun) fields instead of numbers.

Examples

Note: the <Second> field equal 0 in all examples

Format	Description
* * * * *	every minute
59 23 31 12 5	one minute before the end of the year if the last day in the year is Friday
59 23 31 Dec Fri	one minute before the end of the year if the last day in the year is Friday (one more variant)
45 17 7 6 *	every year on the 7th of June at 17:45
0,15,30,45 0,6,12,18 1,15,31 * 1-5 *	00:00, 00:15, 00:30, 00:45, 06:00, 06:15, 06:30, 06:45, 12:00, 12:15, 12:30, 12:45, 18:00, 18:15, 18:30, 18:45, if it is the 1st, 15th or 31st of any month and only on workdays
*/15 */6 1,15,31 * 1-5	00:00, 00:15, 00:30, 00:45, 06:00, 06:15, 06:30, 06:45, 12:00, 12:15, 12:30, 12:45, 18:00, 18:15, 18:30, 18:45, if it is the 1st, 15th or 31st of any month and only on workdays (one more variant)
0 12 * * 1-5 (0 12 * * Mon-Fri)	at noon on workdays
* * * 1,3,5,7,9,11 *	every minute in January, March, May, July, September, and November
1,2,3,5,20-25,30-35,59 23 31 12 *	on the last day of the year at 23:01, 23:02, 23:03, 23:05, 23:20, 23:21, 23:22, 23:23, 23:24, 23:25, 23:30, 23:31, 23:32, 23:33, 23:34, 23:35, 23:59
0 9 1-7 * 1	on the first Monday of every month at 9 in the morning
0 0 1 * *	at midnight on the 1st of every month
* 0-11 * *	every minute till noon
* * * 1,2,3 *	every minute in January, February, and March
* * * Jan, Feb, Mar *	every minute in January, February, and March
0 0 * * *	every day at midnight
0 0 * * 3	every Wednesday at midnight

You can use the proprietary "?" character in the first four fields of the CRON format. It stands for the start time, i.e., the question mark will be replaced with the start time during the field processing: minute for the minute field, hour for the "Hours" field, month day for the month day field, and month for the month field.

For example, if you specify:

? ? * * *

The task will be run at the moment of startup and will continue being run simultaneously (if the user does not restart the program again, of course) – the question marks are replaced with the time the program was started at. For example, if you start the program at 8:25, the questions marks will be replaced like this:

25 8 * * * *

Here are some more examples:

- ? ? ? ? * - run `_only_` at startup;
- ? * * * * - run at startup (for example, at 10:15) and continue being run in exactly one hour: at 11:15, 12:15, 13:15 and so on;
- * ? * * * - run every minute during the startup hour;
- */5 ? * * * - run on the next day (if CRON is not restarted) at the same hour every minute and so on every day, once in five minutes, during the startup hour.

7 Troubles?

7.1 Possible problems

No data for publication/exporting - no data is passed for export. Solution: configure the parser and make sure that one or more variables are defined in the parser.

Error on binding variable with name %s [%s] - the error usually occurs if data does not correspond to the specified format. For example, the date and time format does not match source data.

Unable to disconnect from the database [%s] and **Unable to connect to a database [%s]** - it is impossible to connect or disconnect from the database. You should check the parameters of the database connection. The analysis of the additional information will help you locate the error.

Database access error [%s]. Stop operations with the database? - the message appears if an error occurs during an attempt to execute an SQL query if the second variant of reacting to errors is selected. The message implies the "Yes" or "No" answer. The analysis of the additional information will help you locate the error.

Unable to verify your SQL script [%s] - the message appears when an attempt to analyze your SQL query fails. Check if the syntax of your SQL query is correct.

Tested successfully - the message appears if your database connection is successfully tested. It requires no additional actions.

Database isn't used - the message appears if the module is temporarily disabled (the "Temporarily disabled" check box is selected) or the database name field is empty. Check the connection parameters.

Database isn't selected - the message appears if the database type is not selected. Check the connection parameters.

Database: %s - %s contains the database name. The message appears if the database connection is successful. Usually, you see it when you call the module for the first time. It requires no additional actions.

Invalid data block length (columns=%d,length=%d) - an internal application error. It means that the data sent by the parser is in an invalid format. Perhaps, you are using the module incompatible with the version of the Advanced Serial Data Logger kernel. Update the versions of both the kernel and the module.

The time of connection is not due yet (%d,%d) - the message appears during an attempt to connect to the database after the connection to it has been lost and the "Reconnect after" option is enabled. No additional actions are required.

Invalid procedure call. Bad arguments - an attempt to call the module using invalid parameters. Perhaps, you are using the module incompatible with the version of the Advanced Serial Data Logger kernel. Update the versions of both the kernel and the module.

Writing to the database is complete - the message appears if your queue of SQL queries is successfully executed. It requires no additional actions.

Writing to the database is complete with errors - the message appears if the execution of your queue of SQL queries was interrupted by an error. It requires no additional actions.

Your SQL is empty. Please, specify some SQL text first - the message appears if you do not enter the text for your SQL query. Check if the options on the "SQL queue" tab are configured correctly.

Invalid temporary path - the path to the temporary file specified by you does not exist. Enter a new path in the "Temporary folder" field on the "Errors handling" tab.

%s, %d - will be replaced by additional information.