

**The OPC UA Server plugin
PRINTED MANUAL**

OPC UA Server plugin

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1 Introduction

The "OPC UA Server" plugin acts as an OPC UA server and allows receiving real-time values from our data loggers. OPC UA (Unified Architecture) is a cross-platform protocol for a machine to machine communication. The plugin implements the "Data Access" part of the OPC UA interface.

OPC UA, which is the new version of OPC, provides data and information modeling as well as many properties that can be shared between the client and server about a variable. OPC UA does not rely on DCOM communication for connecting clients and servers. Thus it is a platform or OS independent, and it supports platforms such as Linux (Java), Apple, or Windows.

2 System requirements

The following requirements must be met for "OPC UA Server" 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 OPC UA Server

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.

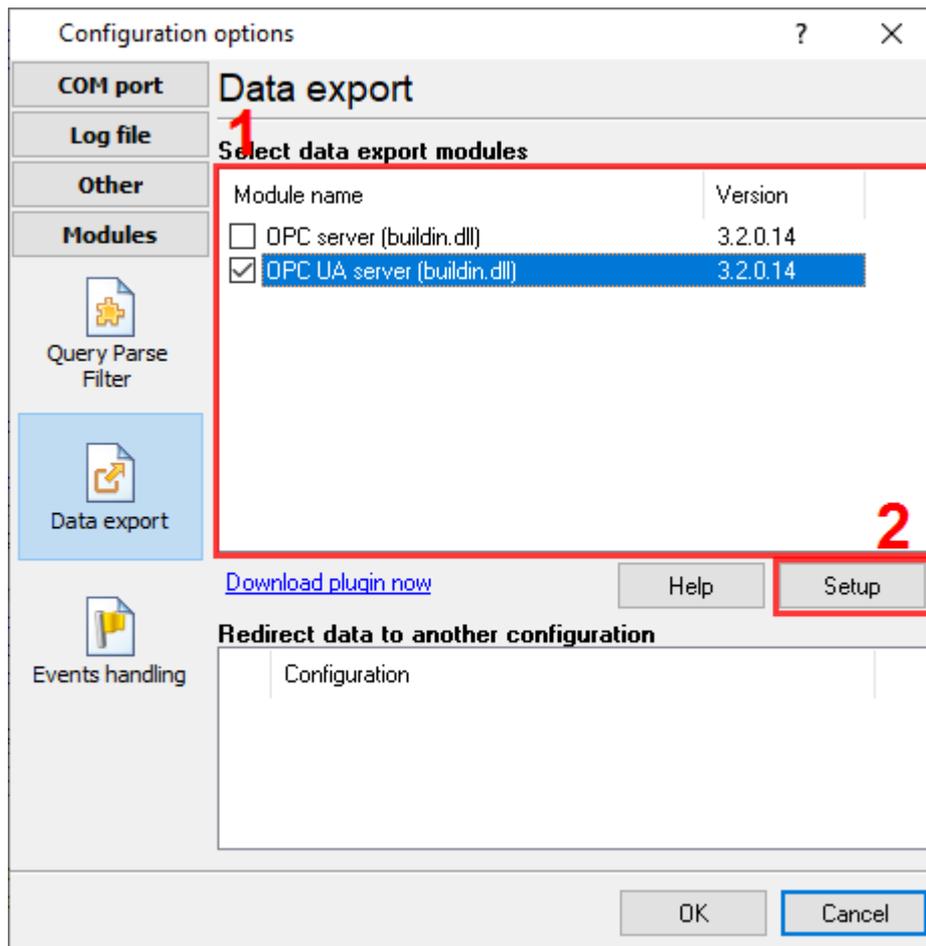


Fig. 1. Example of installed module

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 OPC server

To connect to the OPC server, you need the server URI address. It looks like "opc.tcp://HQ-HOME:10003" in figure 1. Before using the OPC server on your computer, you should download and install the OPC UA Server plugin.

Name - your OPC client or OPC browser should show this name for our OPC UA server.

Protect by password - specify the login and password. Then the server accepts only authorized connections.

Set a bad quality for an item after X nulls - if the parser plugin cannot decode data properly, it set a value for the parser variable to NULL. The OPC server can leave the previous value but set the corresponding data quality property.

Group tags - the OPC server can build a simple hierarchy structure for data from different data sources. For example, group data by the data source name (COM1, 127.0.0.1, etc.) or a device ID.

OPC UA Server 3.2.0.14

OPC server | All available active items | Active clients | Predeclared items

opc.tcp://HQ-HOME:10003
Name : Test Core OPC server

Protect by password [] [.....

Set a bad quality for an item after X nulls: 0

Group tags

Ungrouped

By data source name

By full data source name

By value [DATA_SOURCE_ID]

OK Cancel

Fig. 1 OPC server parameters

OPC UA Server parses all incoming data to one or more variables (fig. 2), and an OPC client gets it. After connecting to the OPC server, you will get a list of all variables. This tab allows you to monitor parsed data in real-time.

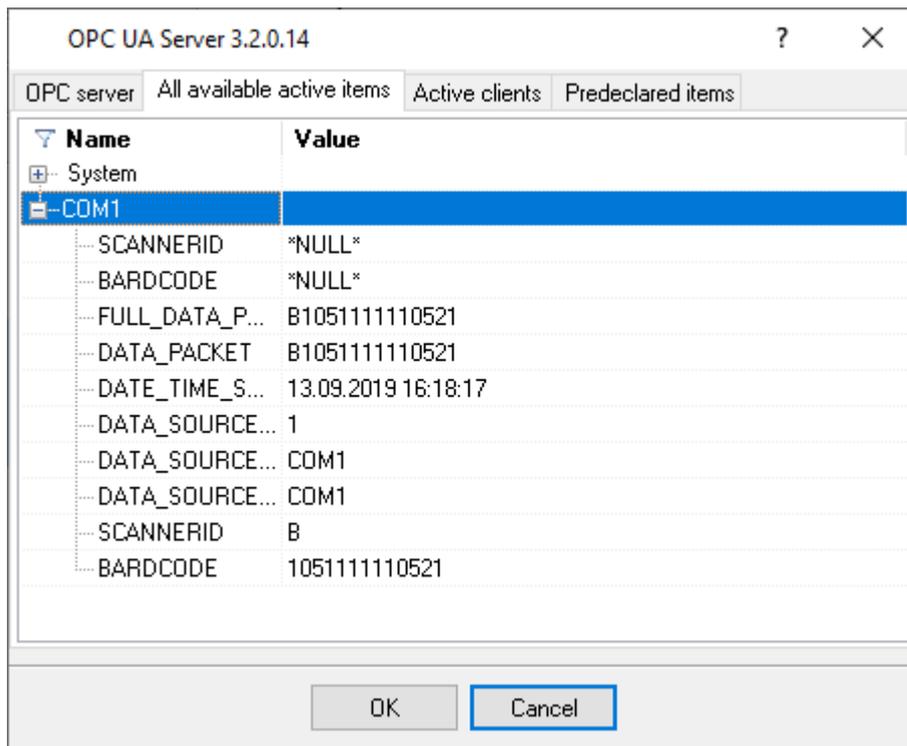


Fig. 2 OPC server active items

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.

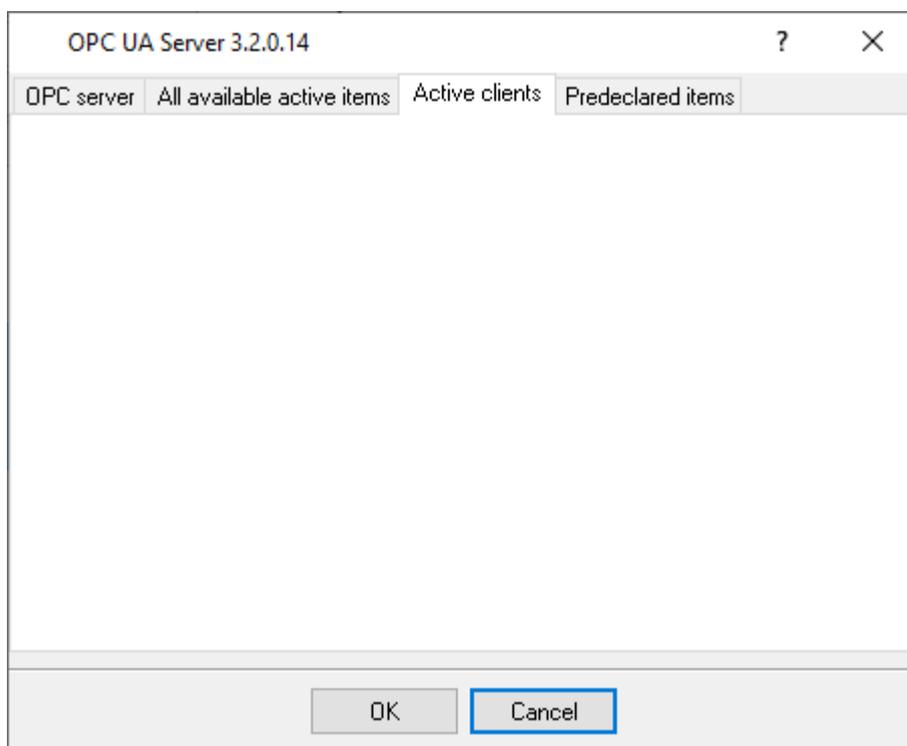


Fig. 3 OPC server clients

OPC UA Server creates new variables at "on-the-fly" mode. The OPC UA Server 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. 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.

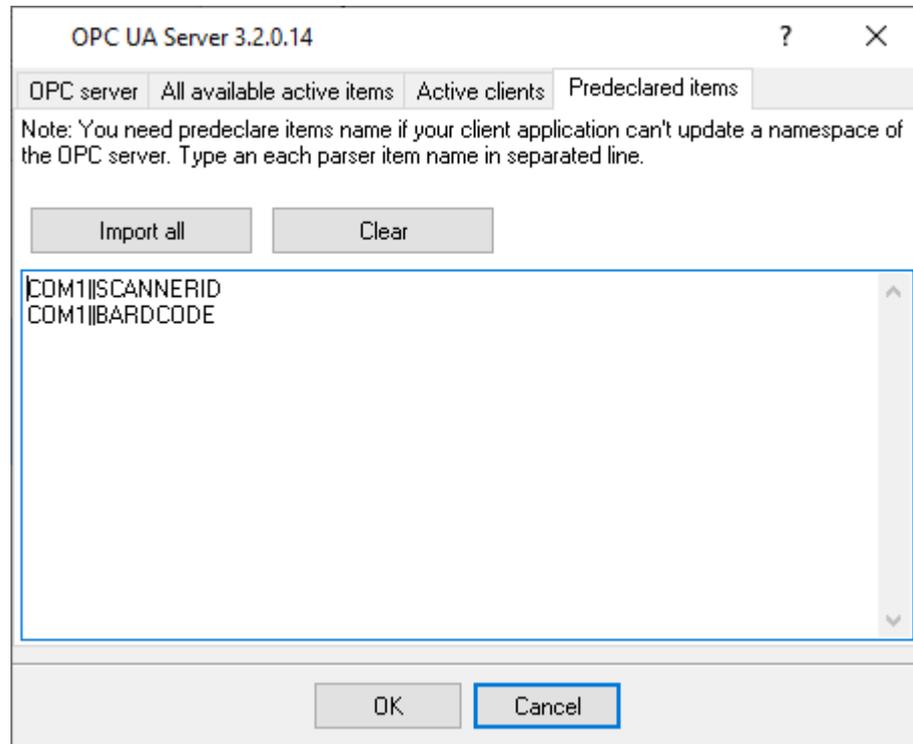


Fig. 4 OPC server pre-declaration

6 Troubles?

6.1 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.