OPC Tools Reference

Validate and troubleshoot OPC UA connections.

OPC Tools (Reference): This tool allows to test the OPC Server connections in use by the solution, explore data from other OPC UA Servers, and automate the inclusion of those servers into the solution.

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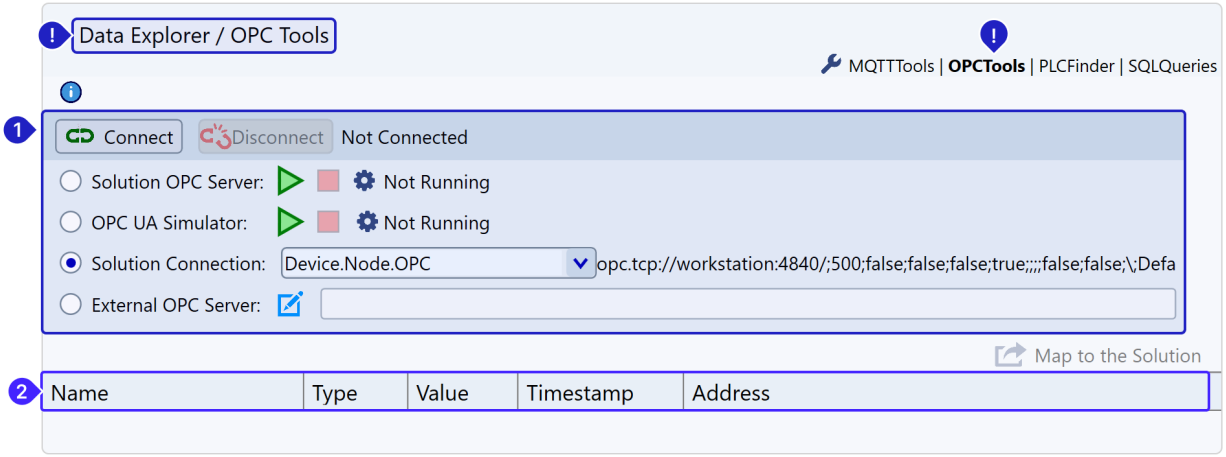
Connect to an OPC UA Server

The first step to use OPC DataExplorer is to connect with an OPC UA Server.



The User Interface presents the following options to locate the server:

- **Solution OPC Server**: connects with internal OPC UA Server (Runtime needs to be in execution, with the OPC Server Module enabled).
- **OPC UA Simulator**: starts the built-in OPC UA simulator.
- **Solution Connection**: connects with the OPC UA server used by a Device Node, or a TagProvider.
- **External OPC Server**: manually set up the connection settings to connect to an external OPC UA server.

Connect and Disconnect

Select the desired option using the radio buttons and configure the settings based on your selection. Once configured, use the top buttons to connect to the server.

After connecting, if you want to change to another server, use the Disconnect button first.

Solution OPC Server

Use the built-in OPC Server for your Solution that expose all Tags from your application with public or protected security.

Before connecting to this OPC UA server, ensure that it is properly configured and running. Follow the checklist:

1- Verify if the OPC UA Server is configured to run at your application

At Runtime / Startup, select the profile you intend to run and verify if the OPC UA Server check-box in Modules is set to run.

2 - Verify the OPC UA Server Configuration

The default settings for the OPC UA Server are valid for many scenarios, but it's always necessary to check it against your requirements.

The Configuration Dialog is opened using the Settings icon , at the side of the OPC UA Server label. Either you setup that configuration from the page Runtime/Startup, or from DataExplorer/OPC tools, that configuration is unique to the system.

Go to OPC UA Server Configuration for details on the that configuration.

3 - Verify if there are Tags configured to show in the OPC UA Server data.

When the Solution OPC UA server is active, it will display all tags from the Solution in its tree, which are visible to external systems.

In order to verify which tags will show in the OPC UA tree, go to Unified Namespace / Tags, right click on the titles to display the column Visibility. Only Tags with Visibility Public or Protected will show on the OPC UA server tree.

VisibilityOption	
Private	The tag remains visible only to the local project and its redundant pair
Protected	The tag is visible to external connections for read-only operations
Public	The tag becomes visible to external connections for both reading and writing.

4 - Verify the Solution is running, or starts it.

At Runtime / Startup you can verify if the Solution is running, or press Start button to initiate its execution.

At Runtime / Diagnostics you can verify if the OPC UA Server Module is running.

5 - Connect with the Server to browse its contents

At DataExplorer / OPC Tools, use the Connect button to explore its contents.

OPC UA Server Simulator

This built-in Simulator enables the execution of an OPC UA server that presents the data defined in its XML configuration file.

Go to OPC UA Server Simulator page for details on how to customize the simulator settings.

First, start the execution of Simulator. Then you can click Connect.

Solution Connections

Within the Solution Configuration, there are two location you can link to external OPC Servers:

- Using the Device Module, Channels, use OPC UA Client Protocol, to get data from OPC Servers.
- Using the TagProvider connections, to dynamically use data from remote OPC Servers.

In order to expedite the testing of those connections, the Data Explorer tools allows you easily select those settings, and explore the connection and data of that remote OPC UA Server.

Just select the configuration you want to test, and connect to it.

If the Radio Button for Solution Connections is disabled, it means the solution doesn't have any DeviceChannel or TagProvider using OPC UA servers.

External OPC Server

Configure custom connections to any external OPC UA Server for broader data exploring capabilities.

Use the Settings icon to open the Configuration Dialog.

Remote OPC UA Server configuration settings	
Field	**Description**
URL	Endpoint URL for the OPC UA server
Discovery	Click this button to discover available OPC UA servers on the network
User Name	Enter the username for server access if the server requires user authentication
Password	Input the corresponding password for the username

Certificate	Select 'Custom' to use a specific certificate for the connection, or 'Default' to use the default certificate
Refresh Rate	Rate in milliseconds at which the server will refresh the data
Windows Authentication	Uses Windows authentication credentials for server access
Disable Security	Connect to the server without using the security features
Enable Read Pooling	Pooling for read operations to improve performance
Read From Device	Data is read directly from the device rather than from any cache
All Items Same Group	Group all items together for reading or writing operations
Use Computer Timestamp	Use the timestamp of the computer instead of the server's timestamp
Branch Separator	Specify a character or sequence to use as the separator in the item branch

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