



*ReLab OPC Server – IEC 61850 OPC
Device Driver*

Quick Start Guide

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ReLab OPC Suite.

ReLab OPC Server and OPC Device drivers are part of ReLab OPC Suite.

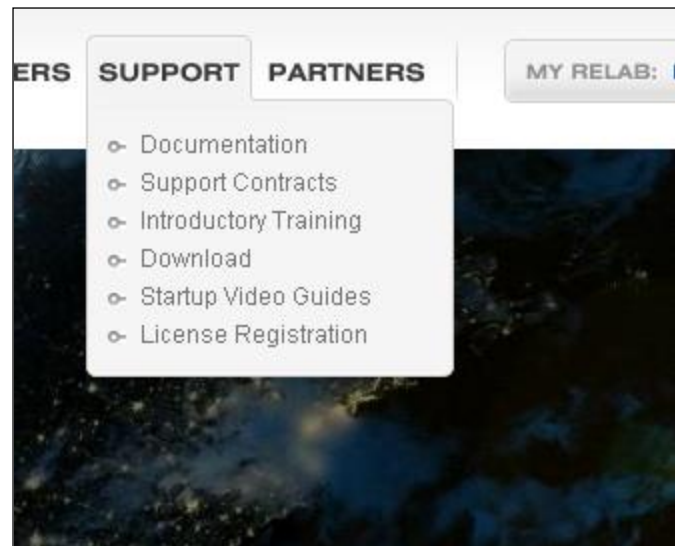
The OPC Suite includes:

- OPC Server with all supported device drivers.
- OPC Console
- Software Logic Controller Run-Time Engine
- Software Logic Controller Editor
- OPC Development tools

Product download and installation

To download the current versions of OPS Suite products from ReLab web site go to Menu:
Support->Download

Or alternatively follow the link
<http://www.relabsoft.com/support/download/>



Your will be asked to register as a customer. If you have registered before, please enter existing user name and password, if not – register as a customer and then enter user name and password.

After entering your user name and password you will be forwarded to the download page.

After downloading ReLab OPC Suite you will need to install it on your computer. The Installation process is straightforward, typical installation will install all features that are needed to help you to explore the product features and use it in your projects.

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My Relab

Authorization

User name:

Password:

Not my PC

[Forgot Password?](#)

[Forgot User name?](#)

[Registration](#)

You will need to make only few extra steps after the installation to have ReLab OPC Server and required OPC device driver(s) up and running.

Configuration.

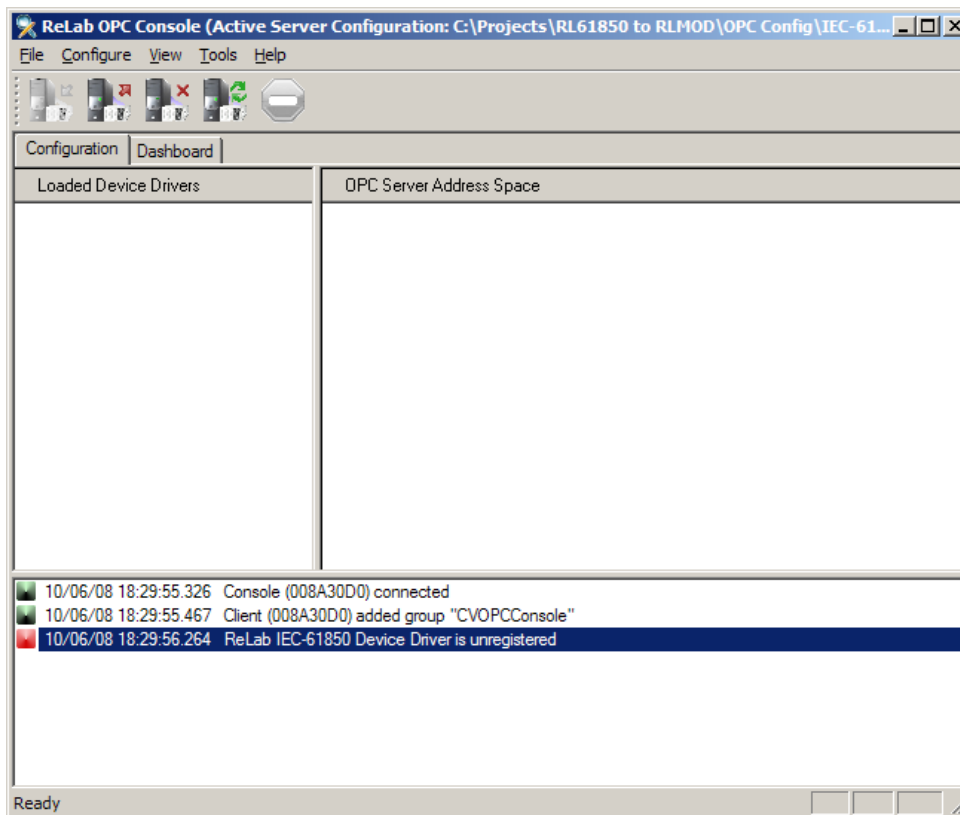
The purpose of this guide is to help you with the following steps.

- Run ReLab OPC Console and OPC Server
- Load IEC 61850 Device Driver
- Connect to IEC 61850 compliant IED
- Create Group(s)
- Map Tags
- Observe real-time tags update
- Explore ReLab OPC Server IEC 61850 writing capabilities

The first step you need is: **Run ReLab OPC Console** by going to Start->All Programs->ReLab Software -> ReLab OPC Product Suite -> ReLab OPC Console.

You do not have to start OPC Server; the OPC Console will start it automatically.

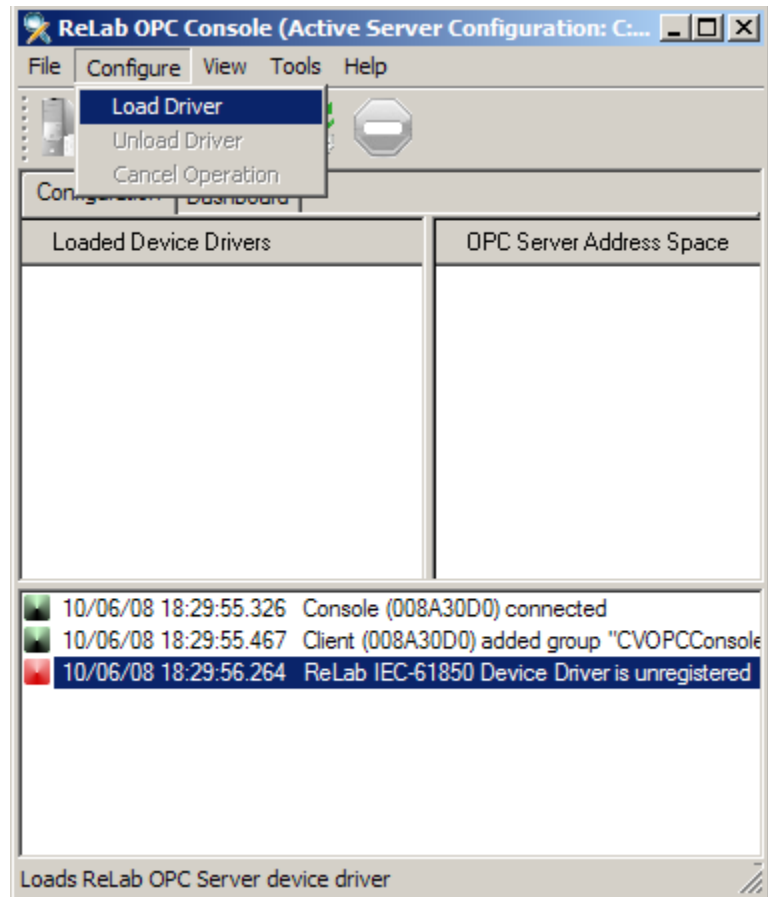
The OPC Console screen will look like this.



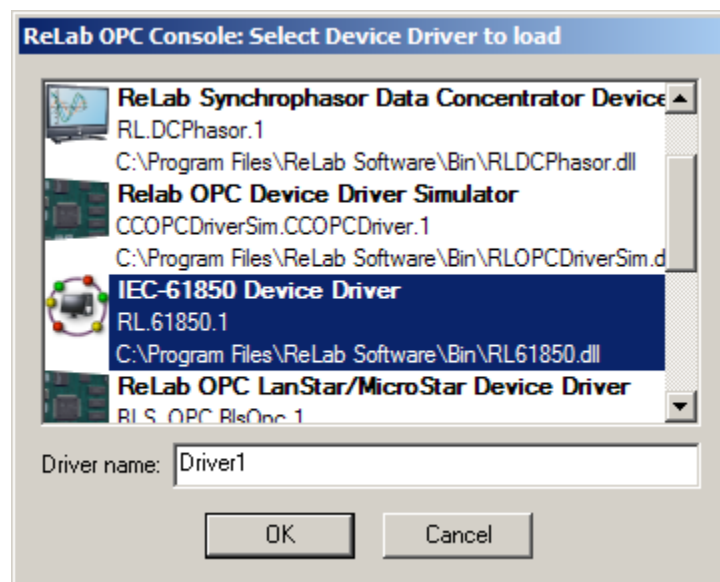
The OPC Server is up and running and OPC Console is connected to the OPC Server.

Loading device driver.

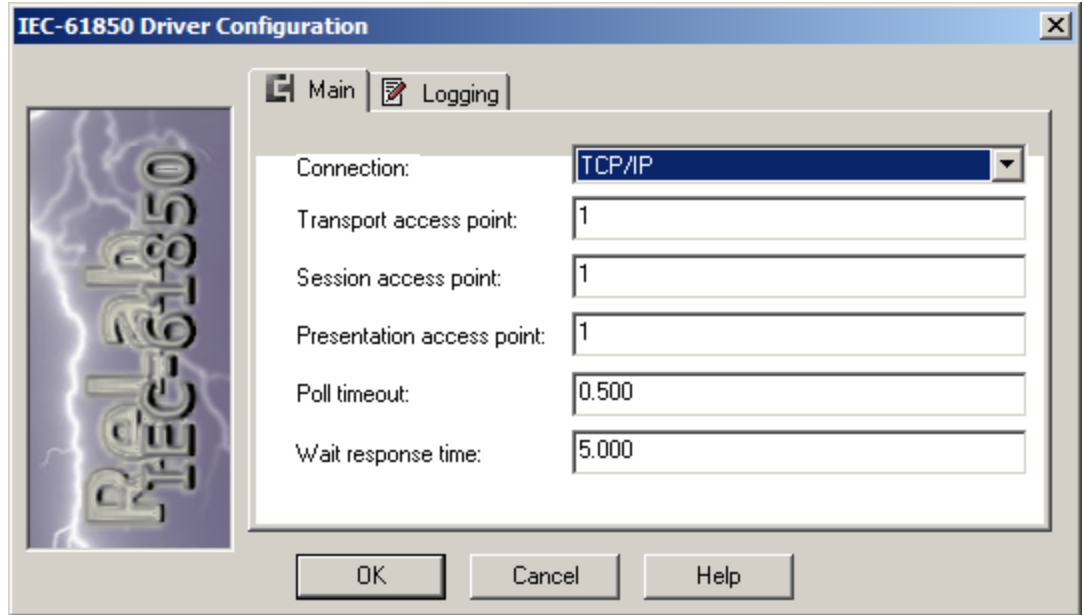
Select Menu: Configure -> Load Driver



Choose IEC-61850 Device Driver



Press OK.



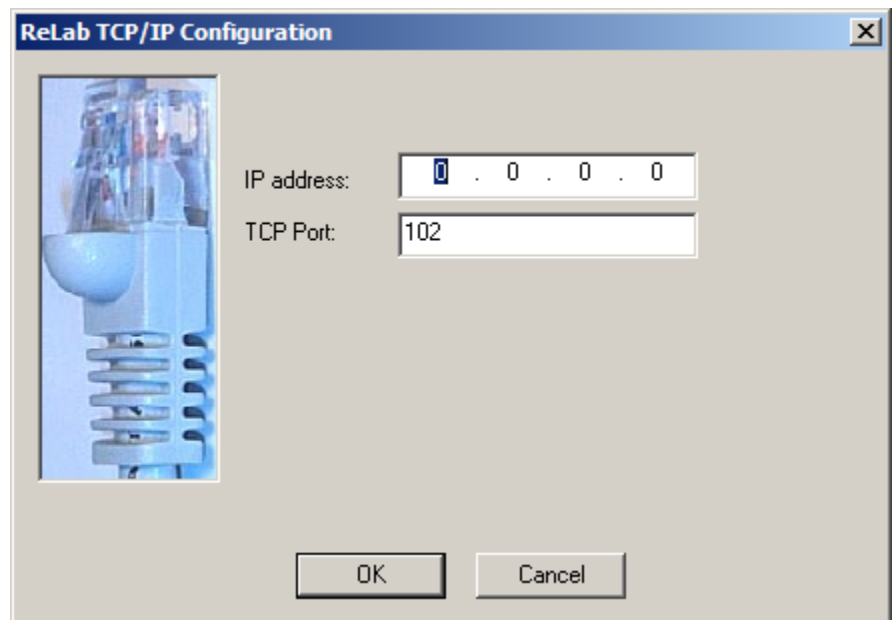
Enter the IP address and port of your IED Device and press OK.

It is not a problem if you do not have readily available IEC 61850 compliant IED.

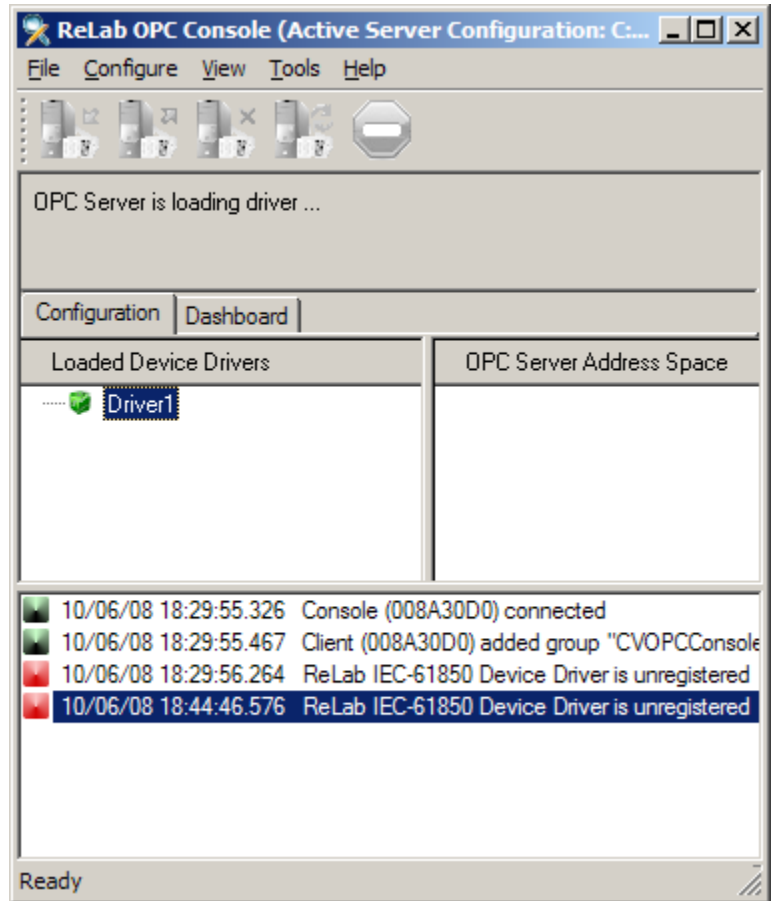
Please note that ReLab provides a remote connection to the relays in ReLab offices that you can use to test ReLab OPC Server and other ReLab products.

The IP address is:
204.195.77.50, Port **102**.

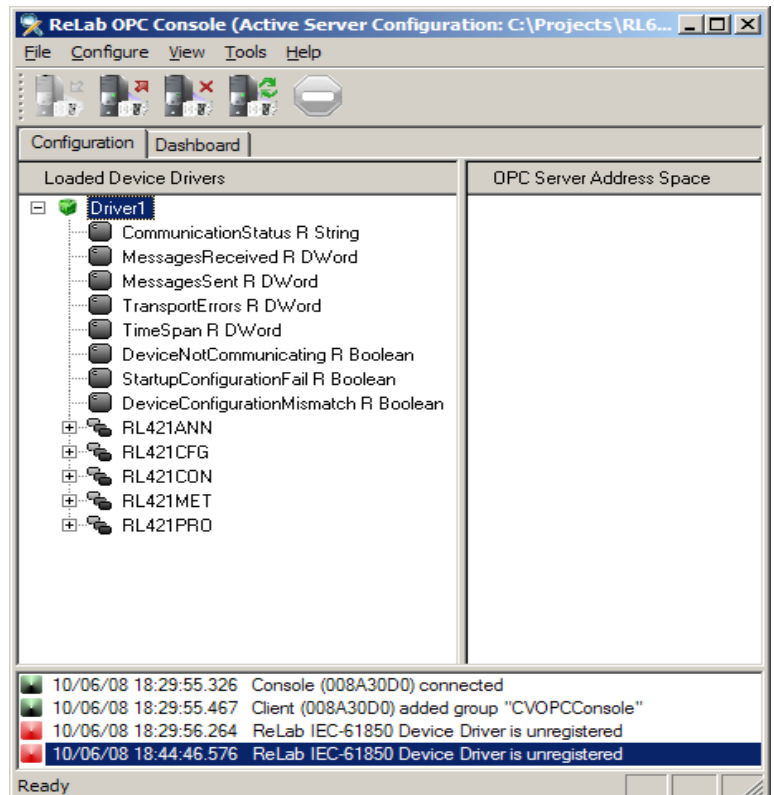
Please note that due to a limited number of concurrent connections it could happen that you will not be able to connect to one of our relays. Please do not hesitate to contact us and let us know about connection problems. Call us at (925) 262-4244 or e-mail support@relabsoft.com. Your input will help us to identify bandwidth problems and expand our services when necessary.



After specifying the IP address and port you will see the OPC Server loading the driver and reading the IED configuration.



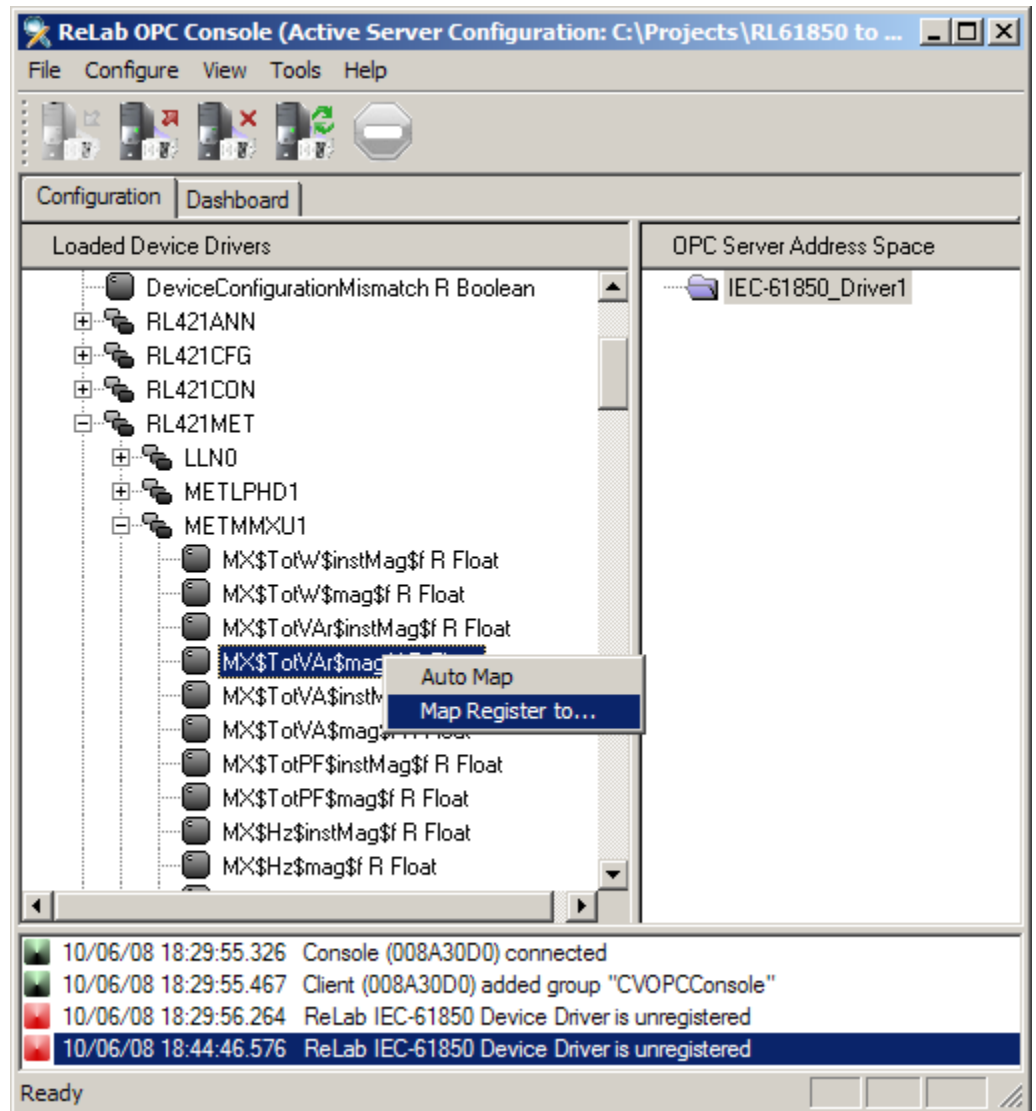
The configuration is loaded and now you can browse and map IED tags



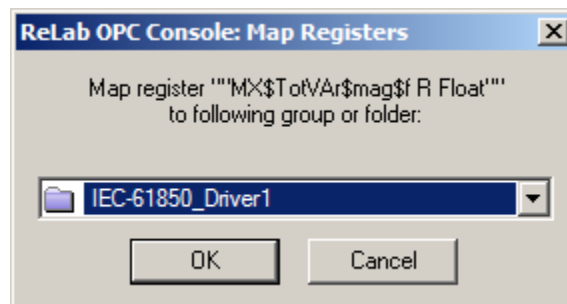
Mapping your tags.

Press the right mouse button on the right pane and choose "Create Group". After the group is created – give it some name, for example – "IEC-61850_Driver1".

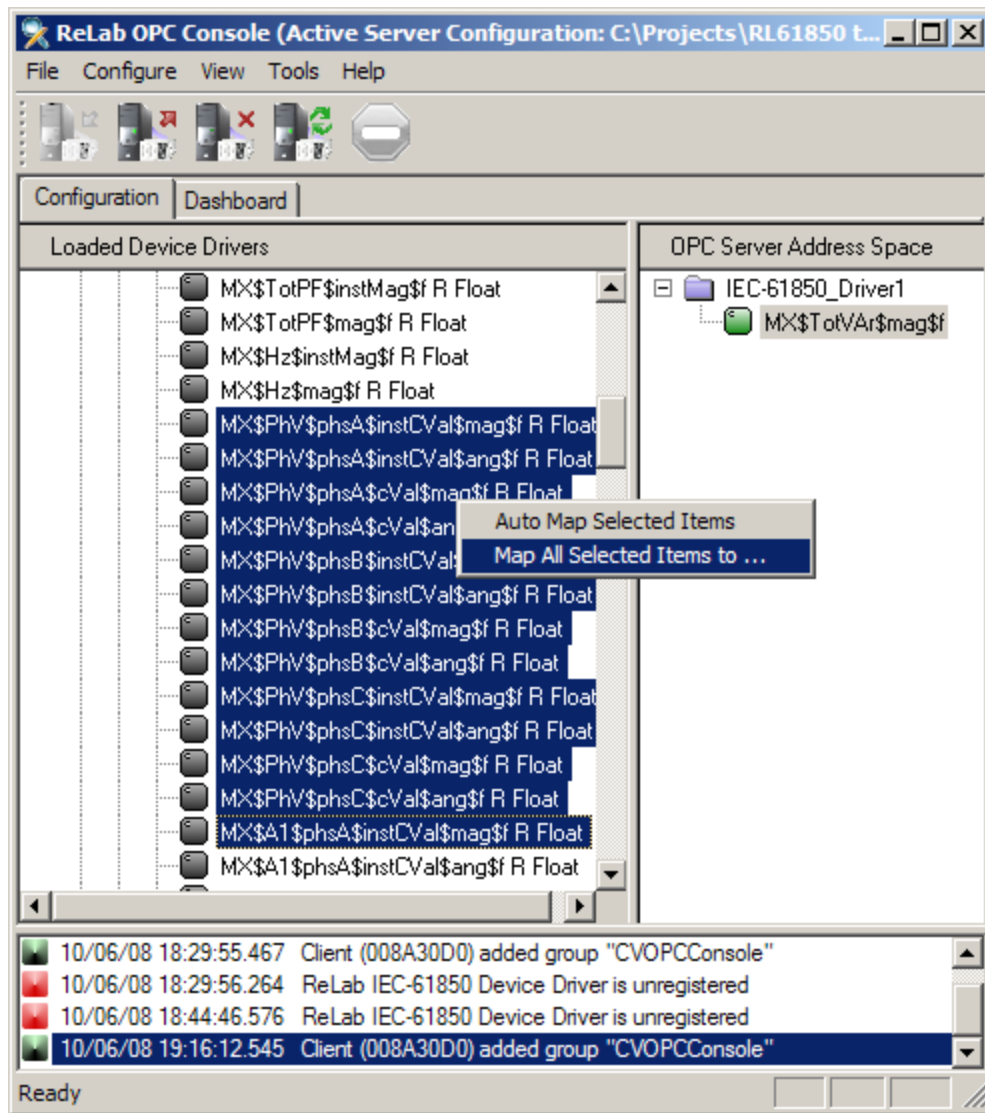
Choose some register in the left pane, press the right mouse button and choose "Map Register to".



Press OK



Alternatively or in addition to the previous step you can map multiple items by using "Shift + Up or Down Keys" or "Shift" or "Ctrl" buttons with mouse selection.



Real-time monitoring.

Now you can switch from the "Configuration" to the "Dashboard" tab and see the tags changing their values.

The screenshot shows the ReLab OPC Console software interface. The title bar reads "ReLab OPC Console (Active Server Configuration: C:\Projects\RL61850 to RLMOD\OPC Config\IEC-61850 to M...". The menu bar includes "File", "Configure", "View", "Tools", and "Help". Below the menu bar is a toolbar with several icons. The main window has two tabs: "Configuration" and "Dashboard", with "Dashboard" selected. The Dashboard tab displays a table with the following columns: Full Name, Tag Name, Value, Timestamp, Quality, Access, and Type. The table contains 15 rows of data. At the bottom of the window is a log window showing several messages, including "Mapping complete: Server mapped 13 items, Console read 15 items and created 13 test items." The status bar at the bottom left shows "Ready".

Full Name	Tag Name	Value	Timestamp	Quality	Access	Type
IEC-61850_Driver1.MX\$TotVAr\$...	MX\$TotVAr\$mag\$f	0	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsA\$...	240343	06.10.2008 20:23:50.308	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsA\$...	1.382446E-02	06.10.2008 20:23:50.308	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsA\$c...	240343	06.10.2008 20:23:50.308	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsA\$c...	1.382446E-02	06.10.2008 20:23:50.308	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsB\$...	36.9325	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsB\$...	-153.596	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsB\$c...	0	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsB\$c...	0	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsC\$...	37.6848	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsC\$...	35.51603	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsC\$c...	0	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$PhV\$sphsC\$c...	0	24.09.2008 18:01:08.359	Good	R	Float
IEC-61850_Driver1.RL421MET.M...	MX\$A1\$sphsA\$in...	5.060811E-02	24.09.2008 18:01:08.359	Good	R	Float

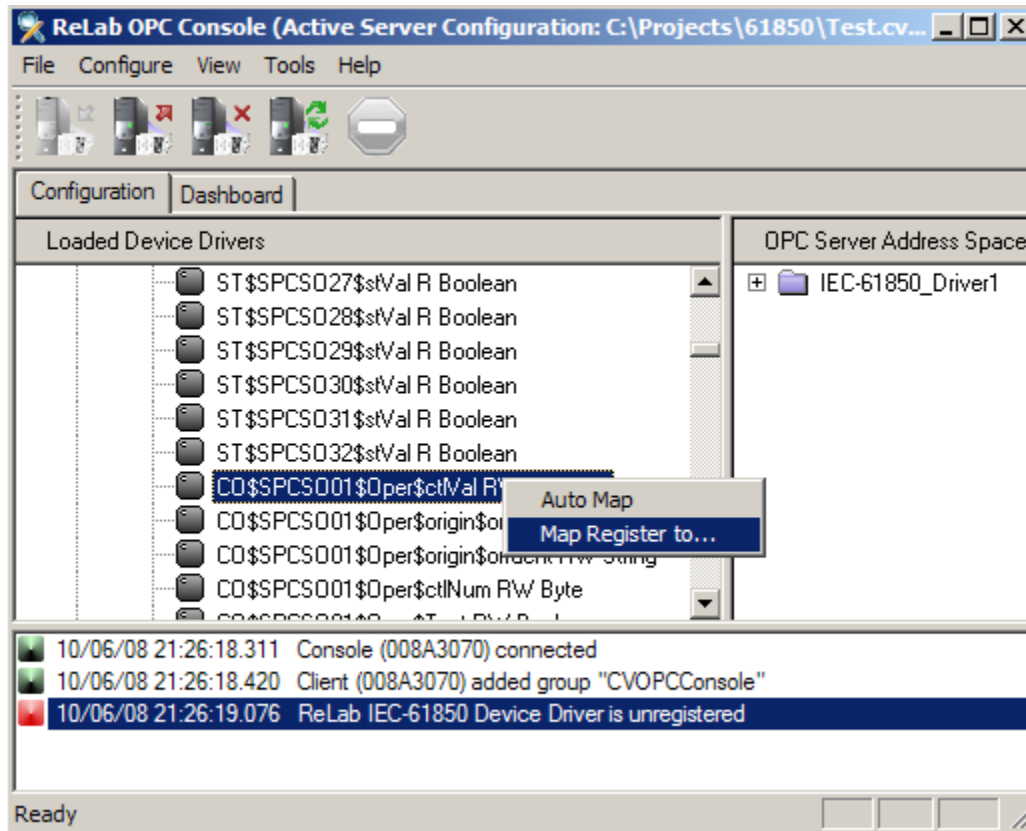
Log messages:

- 10/06/08 18:29:56.264 ReLab IEC-61850 Device Driver is unregistered
- 10/06/08 18:44:46.576 ReLab IEC-61850 Device Driver is unregistered
- 10/06/08 19:16:12.545 Client (008A30D0) added group "CVOPCConsole"
- 10/06/08 19:23:49.295 Mapping complete: Server mapped 13 items, Console read 15 items and created 13 test items.

IEC 61850 writing.

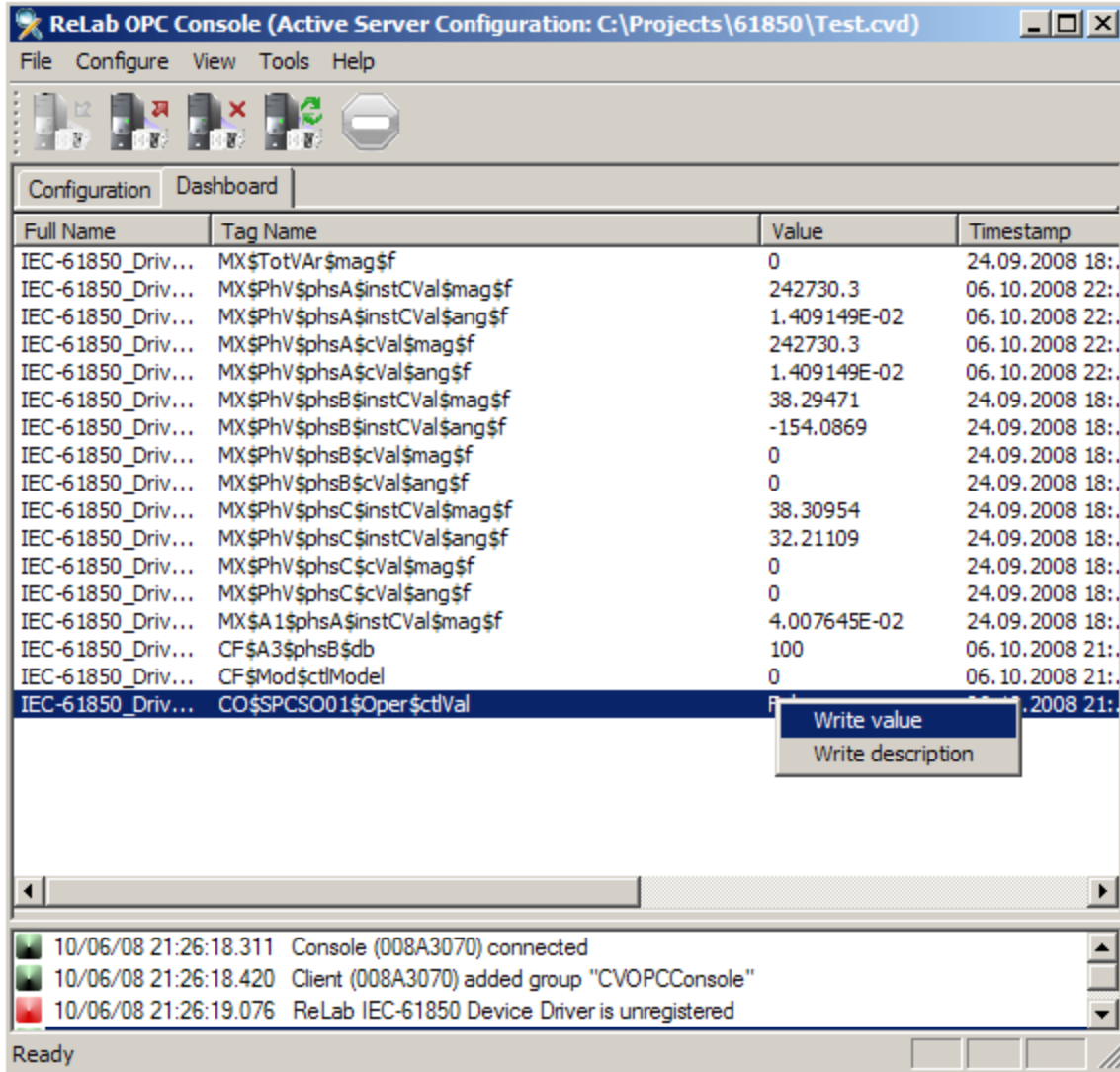
Using ReLab OPC Console you can also test ReLab OPC Server's IEC-61850 writing capabilities.

Map for example the "CO\$SPCS001\$Oper\$ctlVal" register from RL421CON ->RBGGI01.



Switch to the Dashboard and write "1" as Value.

You can do it by selecting the tag, pressing right mouse button and choosing "Write value" item from the context menu.



Here is the result you should see.

The screenshot shows the ReLab OPC Console application window. The title bar reads "ReLab OPC Console (Active Server Configuration: C:\Projects\61850\Test.cvd)". The menu bar includes "File", "Configure", "View", "Tools", and "Help". Below the menu bar is a toolbar with several icons. The main area is divided into two tabs: "Configuration" and "Dashboard". The "Configuration" tab is active, displaying a table with the following data:

Full Name	Tag Name	Value	Timestamp
IEC-61850_Driv...	MX\$TotVAr\$mag\$f	0	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsA\$instCVal\$mag\$f	243031.1	06.10.2008 22:..
IEC-61850_Driv...	MX\$PhV\$sphsA\$instCVal\$ang\$f	1.449585E-02	06.10.2008 22:..
IEC-61850_Driv...	MX\$PhV\$sphsA\$cVal\$mag\$f	243039.4	06.10.2008 22:..
IEC-61850_Driv...	MX\$PhV\$sphsA\$cVal\$ang\$f	1.410675E-02	06.10.2008 22:..
IEC-61850_Driv...	MX\$PhV\$sphsB\$instCVal\$mag\$f	36.93779	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsB\$instCVal\$ang\$f	-156.4031	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsB\$cVal\$mag\$f	0	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsB\$cVal\$ang\$f	0	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsC\$instCVal\$mag\$f	39.72757	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsC\$instCVal\$ang\$f	35.03143	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsC\$cVal\$mag\$f	0	24.09.2008 18:..
IEC-61850_Driv...	MX\$PhV\$sphsC\$cVal\$ang\$f	0	24.09.2008 18:..
IEC-61850_Driv...	MX\$A1\$sphsA\$instCVal\$mag\$f	0.2039971	24.09.2008 18:..
IEC-61850_Driv...	CF\$A3\$sphsB\$db	100	06.10.2008 21:..
IEC-61850_Driv...	CF\$Mod\$ctlModel	0	06.10.2008 21:..
IEC-61850_Driv...	CO\$SPCSO01\$Oper\$ctlVal	True	06.10.2008 21:..

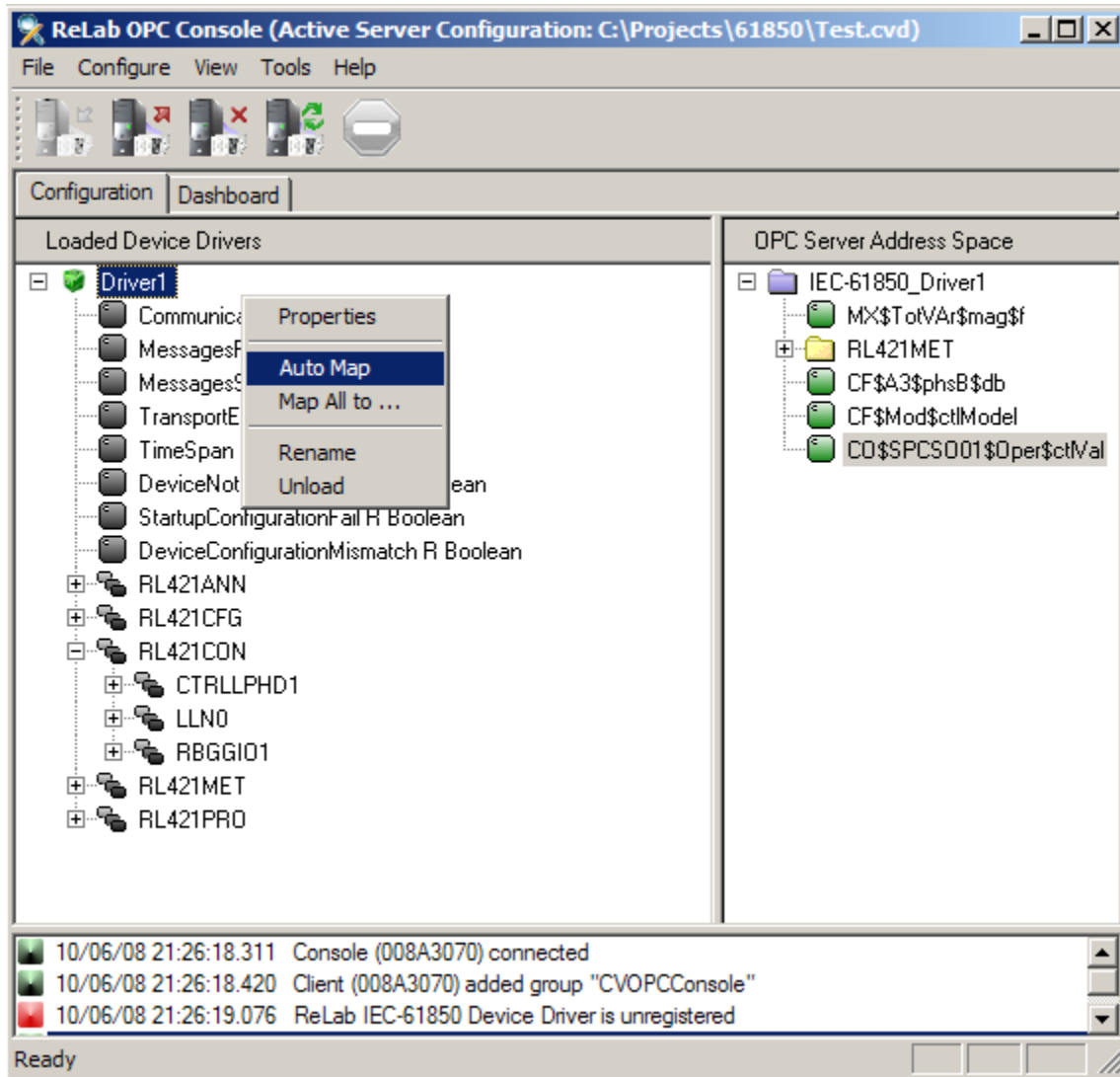
Below the table is a log window showing the following messages:

- 10/06/08 21:26:18.311 Console (008A3070) connected
- 10/06/08 21:26:18.420 Client (008A3070) added group "CVOPCConsole"
- 10/06/08 21:26:19.076 ReLab IEC-61850 Device Driver is unregistered

The status bar at the bottom left shows "Ready".

Other capabilities.

There are other simple but powerful features available in ReLab OPC Server, For example you can automatically map all your tags by pressing the right mouse button and choosing "Auto Map" from the context menu. In this case you do not have to create a group. All your tags will be automatically mapped.



The goal of this guide is to provide you with a quick start; therefore it doesn't include all features of ReLab products. To learn more about ReLab products please refer to the product documentation, ReLab online resources at www.relabsoft.com or contact us at contact@relabsoft.com or (925) 262-4244.

Working with other ReLab OPC Device Drivers

This guide uses IEC 61850 OPC Device Driver as an example. In the same way you can load another supported driver, map and use required tags. You can load and use multiple instances of the same driver and/or simultaneously use drivers of different types. For example, you can load 3 instances of IEC 618050 driver, 5 instances of SEL OPC Device driver, 2 instances of MODBUS OPC Device driver, etc. The actual maximal number of drivers per one ReLab OPC server depends on computer power as well as on the actual number of tags and tags update rate.

A note about ReLab OPC demo versions.

A demo (or unregistered) version of ReLab OPC Server is a fully functioning product with only one exception: it will run for approximately two hours and will stop updating the tags afterwards. You can restart it and run for another two hours, etc. Don't forget to save your configuration to be able to use it after restarting. Contact sales@relabsoft.com or (925) 262-4244 when you are ready to buy.