

# Configuring RSLinx as an OPC Server for PanelMate ePro

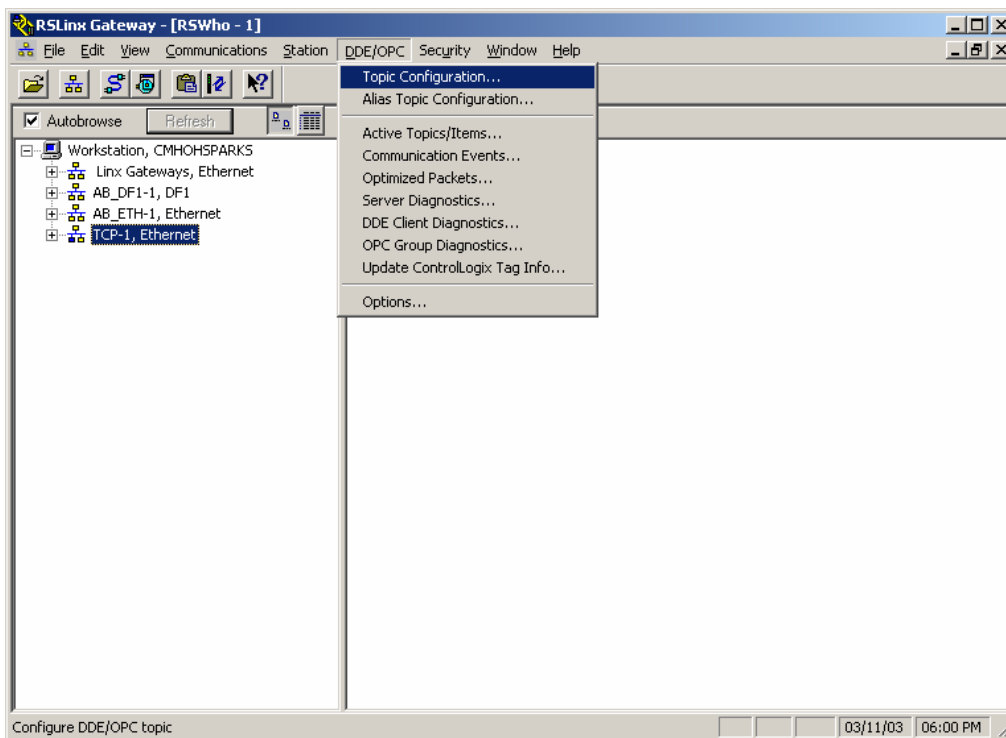
RSLinx includes OPC Server functionality in all versions except RSLinx Lite. This means that if a user purchases a license for RSLinx OEM, Standard, or Gateway versions it can act as an OPC server and be used with PanelMate PC Pro or PanelMate ePro.

On PanelMate ePro there are several issues to be aware of when attempting to use RSLinx as an OPC server. First, you must understand that RSLinx does much more than just provide OPC server functionality, and as a result has a much larger installation storage requirement than OPC servers from companies such as Kepware. The minimum installation requirements of RSLinx (V10.0) are approximately 30 Megabytes of DOM storage on an ePro (this does not include any help files) and it requires as least 5 additional Megabytes of space to uninstall or upgrade to a newer version. For this reason RSLinx is not approved for use on an ePro with less than a 256 Megabyte DOM (ePro XE or ePro X1 models).

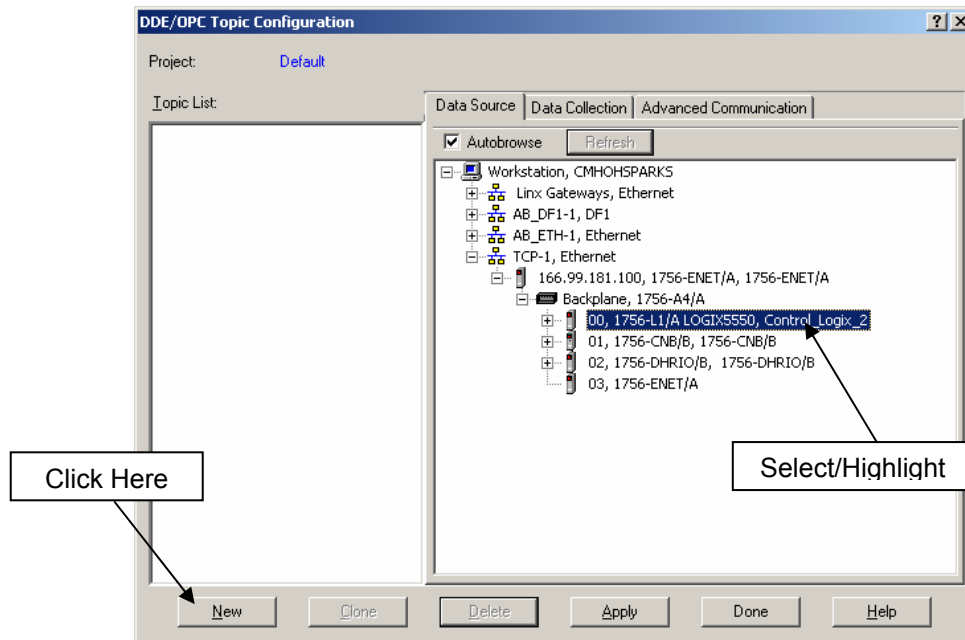
The second issue to note is that the PanelMate technical support group is not responsible for assisting in troubleshooting problems you may encounter with use of RSLinx. This document only covers the very basics of configuration of RSLinx OPC server topics and setup of that server within the PanelMate configuration editor. Outside of providing information contained herein for guidelines on configuration of RSLinx with PanelMate software you must rely on your Rockwell Automation technical support resources for product support on RSLinx.

## Setting up the OPC Topic in RSLinx

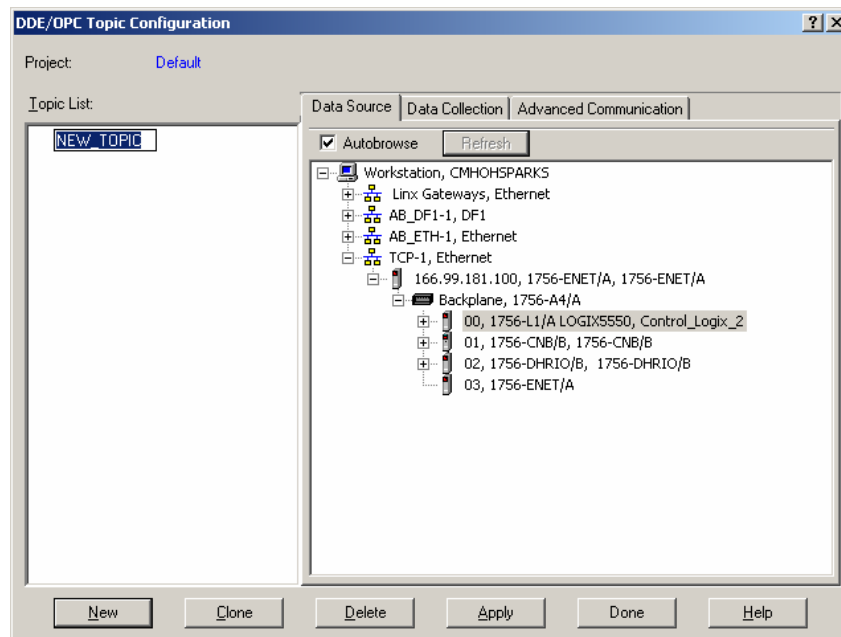
In order to configure RSLinx's OPC server you must create an OPC Topic. To do so, open RSLinx and select "**Topic Configuration**" from the "DDE/OPC" menu selection as shown below:



Next, browse the Data Source tab to select and highlight the processor that you wish to communicate to using OPC. Below is an example using a ControlLogix processor over Ethernet, but this process will work with any RSLinx driver supported by the ePro (serial DF1, AB Ethernet, ControlLogix Ethernet, DH+ using SST-5136-SD-ISA card) and any AB Processor on those networks (Eg. PLC-5, SLC 500, FlexLogix, CompactLogix, and MicroLogix models). Once the desired logic processor is highlighted, click on the “New” button as shown below:

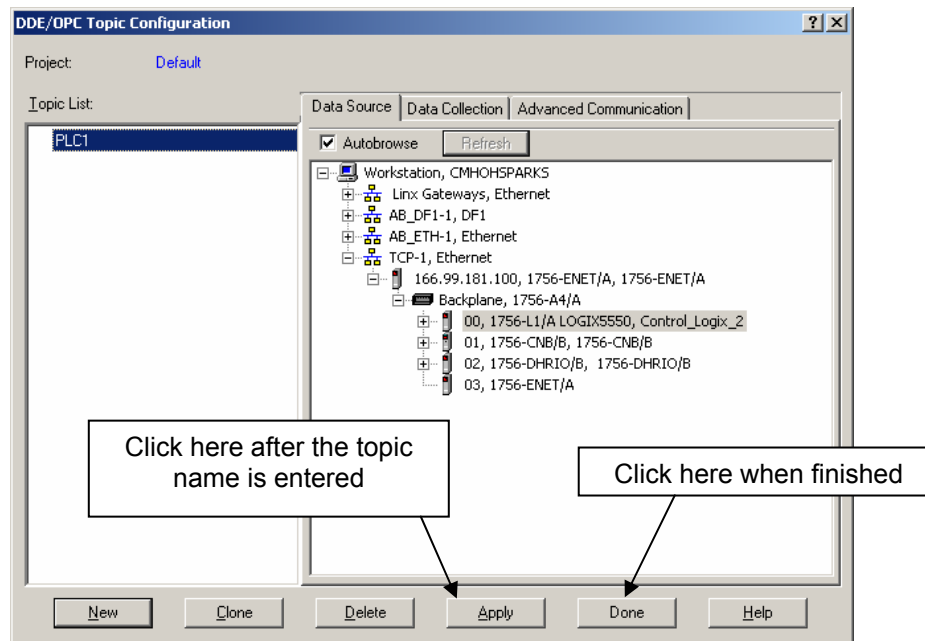


A topic labeled “NEW\_TOPIC” will be added to the topic list as shown below. Edit the topic name as desired. The topic name you select here will later be used in the PanelMate configuration editor as the OPC “Access Path”.

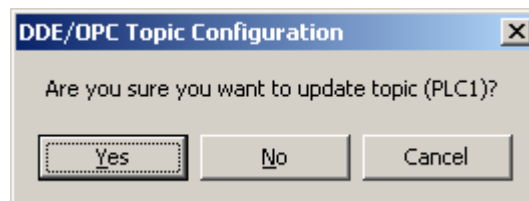


In this example the selected logic processor is named “PLC1” (as shown below). After entering the topic name click on the “Apply” button to save the topic configuration. Repeat

the process for any other logic processors to which you wish to communicate, assigning a unique name for each topic. Once you have configured all topics click on the “Done” button as shown below.



If you forget to click the “Apply” button prior to the “Done” button, the editor will prompt you to save the last topic configured (as shown below). Click on “Yes” to complete the OPC topic configuration.



## **Configuration of an OPC Server in PanelMate’s Configuration Editor**

Configuration of OPC Servers is done in the PLC Name & Port Table of the desired PanelMate configuration. First, select the port to use, 1, 2, or I/O. The port used has no bearing on what physical connection is actually used to connect the ePro to the PLC or PLC network. Since an OPC Client/Server exchange is a logical connection between two different software components it is independent of any hardware/physical connection. The actual physical connection (serial, Ethernet or optional I/O card) is only known by the OPC Server, so the PanelMate OPC client doesn’t actually use the port assignment in the PLC Name & Port table. The port assignment is only used to differentiate between devices (shown in the *PLC Name Parameters* section of the Name & Port Table) that use native drivers (which are actually assigned to a physical serial or I/O connection) and devices that use OPC drivers when using both native and OPC communications. To assign an OPC Server to a port, select the port with a mouse click and use the “Driver Use” pull-down menu to choose “OPC Server”. Port 1 is used in the example shown below.

**PLC Name and Port Table**

**Port Parameters**

Port	Device Use	Local ID
1	OPC Server	1
2	(No Usage)	
I/O	(Unequipped - No interface board)	

Device Use: OPC Server Local ID: 1

**PLC Name Parameters**

Name: plc1 Model:   
 Port: 1 Remote ID: 0

Buttons: Port Settings..., Unsolicited Device..., Add, Change, Copy, Paste, Delete, Tag File...

Next, fill out a PLC Name in the PLC Name Parameters section, select the port as the one assigned to OPC Server and enter a unique Remote ID (Model selection has no meaning in an OPC connection). The Remote ID must be unique when using multiple PLC Names assigned to an OPC server connection. The Remote ID has no bearing on any “network address” other than to distinguish one OPC device from another within PanelMate’s internal logical connection mechanism. All physical network addressing (DH+ node, TCP/IP address) is defined within the OPC server, and in the case of RSLinx, that address is defined in the topic configuration process when a logic processor is selected from the browser.

In the example shown below a device named Clogix1, remote ID 0, Port 1(OPC server port) has been selected. Once these 3 fields are defined click on the “Add” button as shown:

**PLC Name and Port Table**

**Port Parameters**

Port	Device Use	Local ID
1	OPC Server	1
2	(No Usage)	
I/O	(Unequipped - No interface board)	

Device Use: OPC Server Local ID: 1

**PLC Name Parameters**

Item Name	Port	Model	Remote	Tag File Path & Name
1: < New entry >				

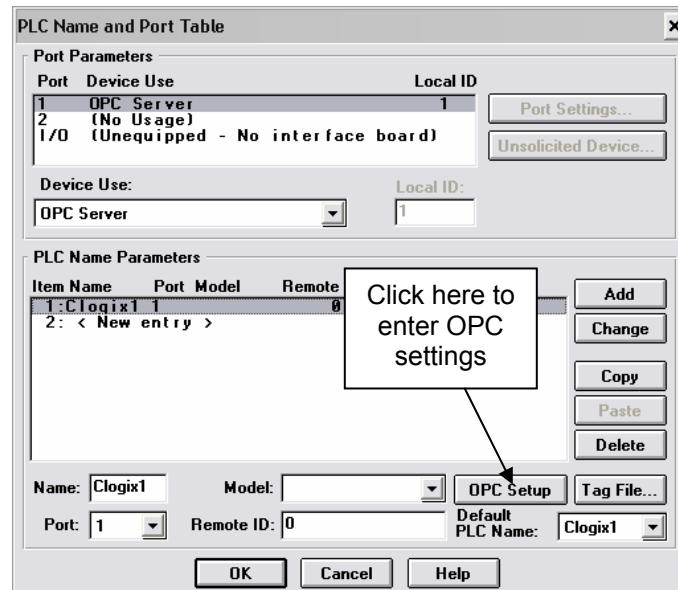
Name: Clogix1 Model:   
 Port: 1 Remote ID: 0

Buttons: Add, Change, Copy, Paste, Delete, Tag File...

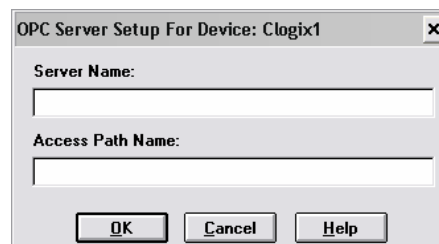
Click here to add a device

Once the device is added to the table, select that device entry with a mouse click. Once selected a button labeled “OPC Setup” will appear in the bottom left area of the dialog box

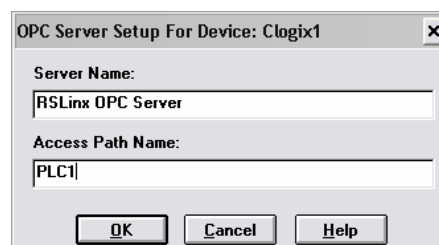
(next to the “Tag File...” button) as shown below. Click on that button to configure the OPC properties of that device.



The OPC Server Setup dialog box will pop-up as shown below. In the dialog box the OPC Server Name and Access Path need to be specified in order to create the logical connection between the PanelMate device name (Clogix1 in this example) and the RSLinx topic (PLC1 in this example).



Each OPC server name is unique, and in the case of RSLinx the server name is “RSLinx OPC Server” (upper or lower case doesn’t matter, “rslnx opc server” is okay too, but the spelling, along with spaces before and after “OPC” is critical for successful operation). The access path depends on configuration of the OPC server. In the case of RSLinx the Access Path Name is equal to the topic name created in RSLinx. In our example it was “PLC1”. Type in the information in the dialog box as shown below and click on “OK”.



If you have additional OPC servers or additional topics/logic processors to connect, create additional devices in the PLC Name Parameters section in the same manner. Since each device has a unique OPC Setup (Server Name and Access Path Name) multiple OPC servers, or multiple devices attached to a single OPC server can be accommodated from a

single OPC Server entry in the top half of the PLC Name & Port Table. The only limit is the number of devices (32 max) that can be configured in the PLC Name Parameters section.

Once all the devices are configured, click on the “OK” button at the bottom of the PLC Name and Port Table dialog box.

## **OPC Device Addressing within the PanelMate Configuration Editor**

All addressing syntax checking is the responsibility of the OPC Server. The way it works is the OPC client requests a data item by “name”, the OPC server validates that the data item is valid and returns the value of the data item, it’s quality (good, bad, unknown, etc.) and the data type (long, short, float/real, boolean, etc) of the data item so that the OPC client knows how to interpret the value supplied by the server (note: it is possible for the client to specify the data type in the request, PanelMate leaves it to the server to supply the data type). Because of this, the PanelMate editor does no syntax checking of addresses within the editor. This means that all address references in the PanelMate editor must match the syntax rules of the OPC server. In the case of RSLinx this matches typical AB PLC addresses that PanelMate users have been familiar with when using our native AB PLC drivers on the PanelMate proprietary platforms (Power Pro, Power Series, Common Platform). When it comes to ControlLogix, FlexLogix, and CompactLogix addressing, RSLinx understands the native tag addresses, including tag aliases, used in the RSLogix 5000 editor. Therefore provide the ControlLogix tags within PanelMate’s square brackets. The following are examples of valid ControlLogix tags:

**[tagname]**

**[tagname[1]]**

**[tagname[32][15].12]**

**[timer12.acc]**

**[userdefinedtag.element[12].15]**

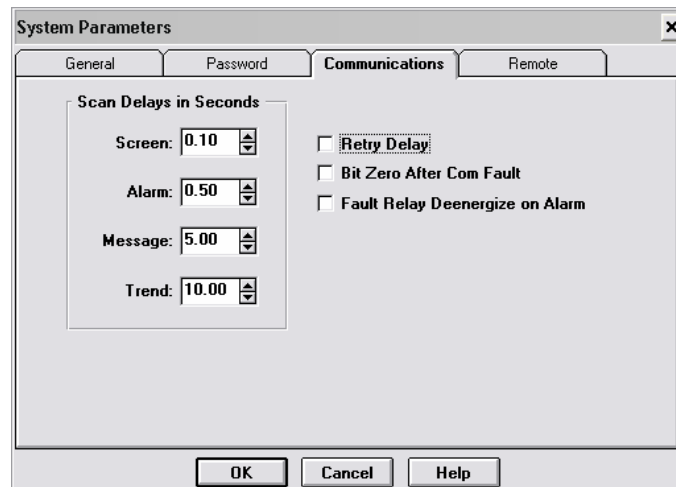
When multiple devices are defined in the PLC Name Parameters section of the PLC Name & Port Table the addressing syntax remains the same as always, where the device name is placed in front of the address separated by a comma. For example, if a second device “Clogix2” is defined, a tag from that device would be specified as **[Clogix2,tagname]**.

## **OPC Client/Server Online Operation**

When a PanelMate PC Pro or ePro configuration that uses an OPC client/server connection starts up all referenced OPC servers are automatically started at the beginning of the load process when loading the PLC Name & Port Table. After all other configuration components are loaded (messages, symbols, pages, etc.) PanelMate creates OPC groups within each OPC server. This takes place while the prompt “Creating Block Reads ....” is displayed. A different OPC group is created for each configured page in the application (Page0, Page1, Page2, .... Page NNN) and each group is populated by the data items (i.e. tags, or addresses) that are referenced by each page. OPC groups will also be created for all Alarm, Message, or Trend OPC references if alarms, messages (with embedded data references), or trends (trend templates, not TrendLink on ePro XE models) are configured in the application.

After all OPC groups are created in the OPC server the OPC groups Alarming, Messaging, and Trending are activated along with the OPC Page group for the startup page. From then on the background groups (alarms, trends, messages) remain active until PanelMate ePro runtime is stopped. The individual page groups are activated and de-activated within the OPC server by the PanelMate runtime software whenever the operator changes pages. So at any one time the only page group that is active is for the currently selected page.

The OPC server is responsible for determining how best to request data from the PLC based on what data items are being requested by an OPC client or multiple clients. Therefore, the role of determining how to “block” data to optimize communications efficiency is the role of the OPC server. The data update rate of the OPC server is determined by three things. First, there is the minimum update rate supported by the server, usually in the 50-millisecond range. Second is the physical response of the PLC and network. The amount of network traffic, the bandwidth of the network, and the efficiency of the PLC in responding to communication requests all play into this equation. Finally, the update rate configured for each OPC tag or group represents the maximum data rate requested by the OPC client. When PanelMate creates an OPC group it assigns the group update rate based on the values set in the configuration’s “System Parameters” Communications tab. The Screen, Alarm, Message, and Trend scan delays configured there are used as the group update rate when creating the page, alarm, message, and trend OPC groups. The OPC server will update a data item based on the fastest update requested if a data item appears in more than one active OPC group. The example below shows settings of 0.10, 0.50, 5.00, and 10.00 seconds for the four groups:



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