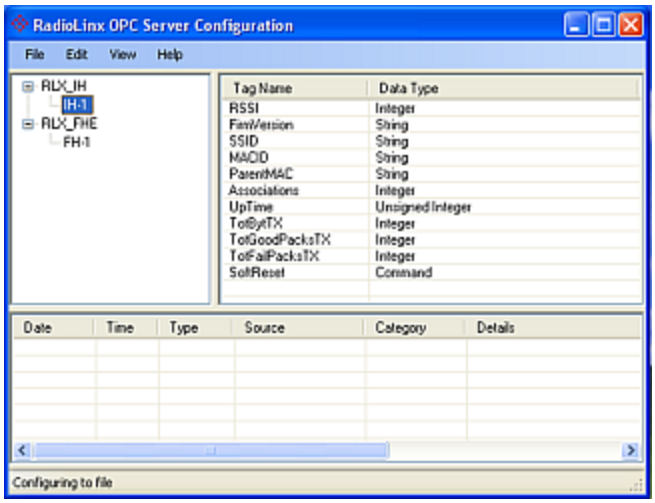
ProSoft TECHNOLOGY

Where Automation Connects.



ProSoft Software

RLX-OPC-SRV

ProSoft Software

RadioLinx® OPC Server for Frequency Hopping and Industrial Hotspot™ Radios

January 22, 2009

USER MANUAL

Please Read This Notice

The use and configuration of this software requires a reasonable working knowledge of the involved protocols and the application in which they are to be used. For this reason, it is important that those responsible for implementation satisfy themselves that the combination will meet the needs of the application without exposing personnel or equipment to unsafe or inappropriate working conditions.

This manual is provided to assist the user. Every attempt has been made to assure that the information provided is accurate and a true reflection of the product's functionality. In order to assure a complete understanding of the operation of the product, the user should read all applicable ProSoft documentation on the operation of the module and protocol driver.

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RLX-OPC-SRV User Manual
January 22, 2009

Contents

1 Start Here

In This Chapter

For most applications, the following installation and configuration steps will work without additional programming. ProSoft Technology strongly recommends that you complete the steps in this chapter before developing a custom application.

This manual will walk you through the following tasks.

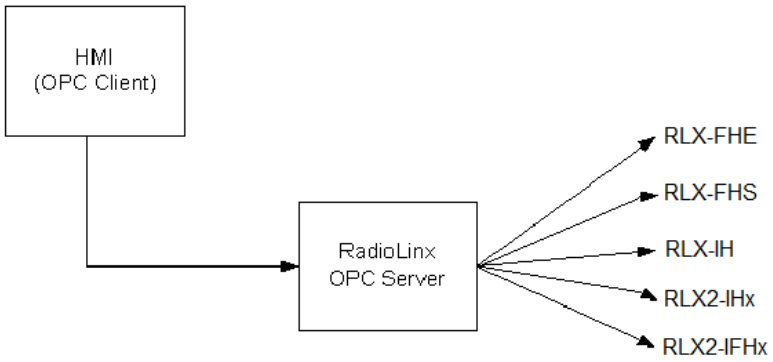
1 Setting up your network (page 15)
2 Install the server (page 17)
3 Configuring the server (page 19)
4 Security issues (page 35)
5 Setting up OPC client to monitor radios (page 57)

1.1 About the RadioLinx OPC Server

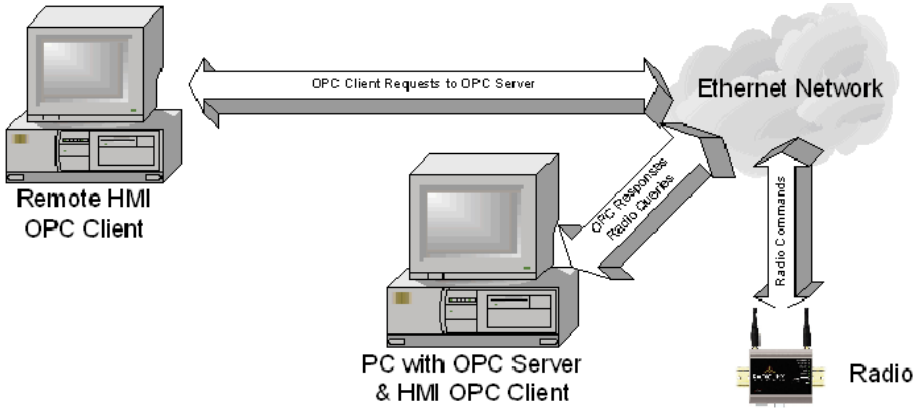
OPC is OLE for Process Control. OPC is open connectivity in industrial automation and the enterprise systems that support industry.

The purpose of the RadioLinx OPC Server is to seamlessly link customer applications to RadioLinx radios.

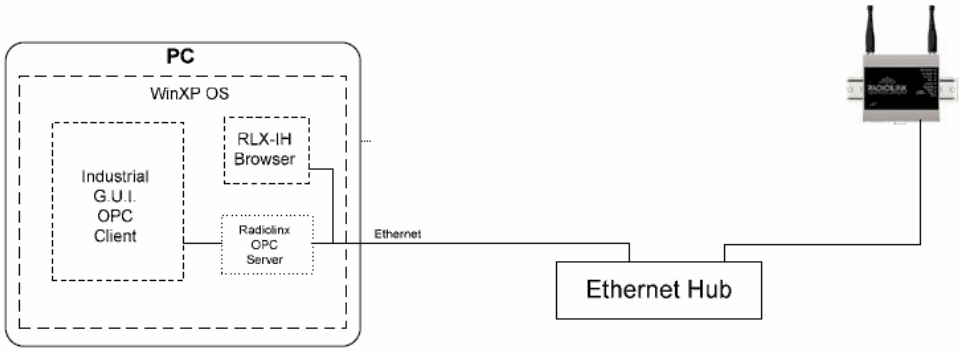
It will allow any application that can act as an OPC Client, such as an HMI, to interact with most RadioLinx radios to get signal strength, serial number, limited throughput information as well as other useful statistics.



The RadioLinx OPC Server operates in the background on any PC. It independently manages all requests from OPC Clients for information on RadioLinx radios. The clients can be programs running either on the same PC as the OPC Server or on a separate PC connected via a network connection.



1.2 Tags That Can Be Read

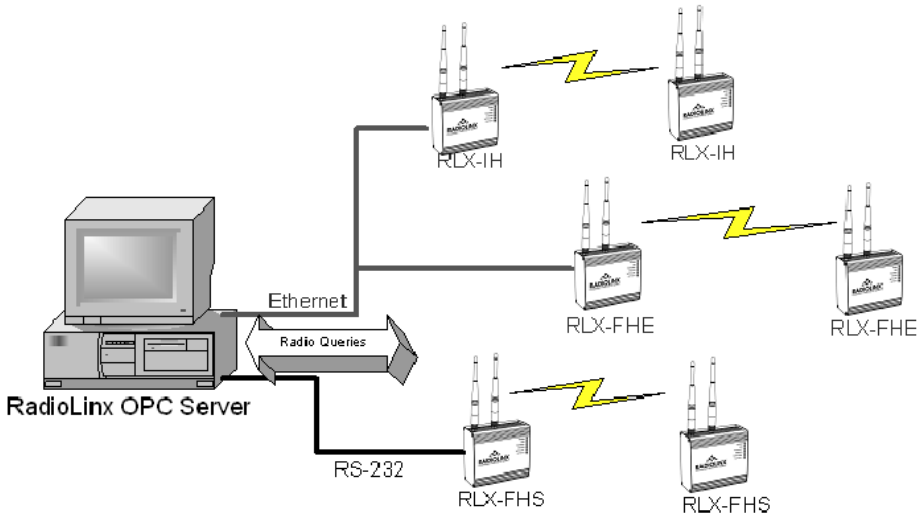


The RadioLinx OPC Server manages querying the RadioLinx radios over the appropriate connections. It is configured by the user to query RLX-FH, RLX-IH, RLX2-IHx, and RLX2-IFHx radios over the appropriate Ethernet port on the PC running the RLX OPC Server. The user defines a "connection" within the RLX OPC Server for a particular Ethernet port. They then simply associate as many RLX and RLX2 Ethernet radios with that port. The OPC Server then knows to direct any queries of those radios over that connection.

Note: For RLX-FHS radios, the connection will be done through the serial port.

The RadioLinx OPC Server is software provided by ProSoft Technology to assist in using RadioLinx products. The following sections we will guide you in installation of prerequisites, RLX OPC Server software, RLX OPC Configuration Tool, setting up the network, installing Server, configuring Server and connecting to Server, and how to monitor tags.

Notes: Only one process can communicate to a radio at the same time. Attempting to communicate with more than one process at a time can cause unpredictable results.
In order to prevent multiple processes from communicating to a radio at the same time, switch the RadioLinx OPC Server into pause mode while running ControlScape.
In addition, the validation option on the server will be disabled when the server is running.



1.2.1 RadioLinx Industrial Hotspot Radios

- RLX-IH
- RLX-IHW
- RLX-IHW-66
- RLX2-IHx
- RLXIB-IHW
- RLXIB-IESC

Tag Name	Contracted name	Data Type
RSSI	RSSI	Integer
Firmware Version	FirmVersion	String
SSID	SSID	String
MAC ID	MACID	String
Up Time	UpTime	Unsigned Integer
Parent MAC	ParentMAC	String
Number of Associations	Associations	Integers
Total Bytes TX	TotBytTX	Integer
Soft Reset*	SoftReset	Integer
Total Good Packs TX	TotGoodPacksTX	Integer
Total Failed Packs TX	TotFailPacksTX	Integer

* Are also write tags. TX = Transmitted

1.2.2 RadioLinx Frequency Hopping Radios

- RLX-FHS
- RLX-FHE
- RLX-FHES
- RLX2-IFHx

Tag Name	Contracted name	Data Type
RSSI	RSSI	Integer
Signal-to-Noise Ration	SignalToNoise	Integer
Associations	Associations	Integer
Bit error Rate	BitErrRate	Floating Point
Reset Statistics*	Reset_stats	Integer
Serial Number	SerialNum	String
Parent Address	ParentAdd	Integer
Total Bytes Forward	TotBytFwd	Integer
Total Bytes Reverse	TotBytRev	Integer
TX Packet Errors	TxPackErrs	Integer
Total Good Packets	TotGoodPacks	Integer

* Are also write tags. TX = Transmitted

1.2.3 RLX-IFHE

Tag Name	Description
RSSI	Receive Signal Strength Indicator measurement.
Unit Description	Radio name
IP Address	The IP Address of the current radio.
Unit Address:	The unit address is, and must be, a unique identifier of each modem in a network. **VALUES** 1 – Master 65535 – Broadcast
Retransmissions	This register determines the maximum amount of times that a packet will be retransmitted (in addition to the initial transmission). **VALUES** 0-255
Destination Address	This register specifies the ultimate destination for the data. **VALUES** 1-65535
Roaming	This feature allows a Remote unit to synchronize with a specified 'upstream' unit (either Master or Repeater). **VALUES:** 65535 – full roaming 1-254 – specific (fixed) unit address (Master or Repeater) with which to associate
Serial Number	Serial number of radio (RF) module.
Version	Firmware version within radio module.

Tag Name	Description
Temperature	Temperature as measured within the radio module.
Voltage	Supply voltage as measured on motherboard.
VSWR	Voltage Standing Wave Ratio. Ideally 1:1 (or 1.00), this value gives an indication of how much power is being reflected back to the radio from the antenna relative to how much is being transmitted.
SoftwareVersion	Core radio firmware version (.mhx file)
Operation Mode:	The selected mode of operation: Master, Repeater, or Remote.
Link Rate:	This is the RF communications Link Rate. A lower link rate offers better receive sensitivity performance; a higher link rate, better throughput. All IFHx radios in a network must use the same Link Rate.
RF Output Power:	This setting establishes the transmit power level which will be presented to the antenna connector at the rear of a IFHx network. Unless required, the RF Output Power should be set not for maximum, but rather for the minimum value required to maintain. FCC regulations allow for up to 36dBi effective isotropic radiated power (EIRP). The sum (in dBm) of the transmitted power, the cabling loss, and the antenna gain cannot exceed 36dBi.
Network Type:	Type of RADIO network: Point-to-MultiPoint network (PMP), Point-To-Point network (PTP), Peer-to-Peer (P2P), or Everyone-to-Everyone (E2E) **VALUES:** ▪ Point-to-Multipoint ▪ Point-to-Point ▪ Peer-to-Peer ▪ Everyone-to-Everyone ▪ PMP with ACK
Channel Mode	This option applies only to COM 1. Determines which serial interface shall be used to connect to external devices: RS232, RS485, or RS422. When an interface other than RS232 is selected, the DE9 port will be inactive. **VALUES** ▪ **RS232** ▪ RS485 ▪ RS422
Data Baud Rate	The serial baud rate is the rate at which the modem is to communicate with the attached local asynchronous device. **NOTE:** Most PCs do not readily support serial communications greater than 115200bps. **VALUES:** bits per second (bps) 230400, 115200, 57600, 38400, 28800, 19200, 14400, **9600,** 460800 and 921600 may be selected for RS422 or RS485 Channel Modes.
Data Format	This setting determines the format of the data on the serial port. The default is 8 data bits, No parity, and 1 Stop bit. VALUES: **8N1,** 8N2, 8E1, 8O1, 7N1, 7N2, 7E1, 7O1, 7E2, 7O2

<table>
<tr><th>Tag Name</th><th>Description</th></tr>
<tr><td>Flow Control</td><td>Used to enhance the reliability of serial data communications, particularly at higher baud rates.
VALUES
<table>
<tr><td>Hardware</td><td>If the attached device supports hardware handshaking.</td></tr>
<tr><td>None</td><td>If the attached device does not support hardware handshaking.</td></tr>
<tr><td>CTS Framing</td><td>Uses the CTS signal to gate the output data on the serial.</td></tr>
</table></td></tr>
<tr><td>Ethernet Received Bytes</td><td>Specifies the number of bytes received by the Ethernet port.</td></tr>
<tr><td>Ethernet Received Packets</td><td>Specifies the number of packets received by the Ethernet port.</td></tr>
<tr><td>Ethernet Received Multi-Cast</td><td>Specifies the number of multi-cast packets that are received by the Ethernet port.</td></tr>
<tr><td>Ethernet Transmitted Bytes</td><td>Specifies the number of bytes transmitted by the Ethernet port.</td></tr>
<tr><td>Ethernet Transmitted Packets</td><td>Specifies the number of packets transmitted by the Ethernet port.</td></tr>
<tr><td>Ethernet Collisions</td><td>The number of invalid packets caused from multiple devices transmitting Ethernet data at the same time.</td></tr>
<tr><td>Radio Received Bytes</td><td>Number of bytes received by the Radio (RF).</td></tr>
<tr><td>Radio Received Packets</td><td>Number of packets received by the Radio (RF).</td></tr>
<tr><td>Radio Received Errors</td><td>Number of errors received by the Radio (RF).</td></tr>
<tr><td>Radio Received Dropped Packets</td><td>Number of received dropped packets recorded by the Radio (RF).</td></tr>
<tr><td>Radio Transmitted Bytes</td><td>Number of bytes transmitted by the Radio (RF).</td></tr>
<tr><td>Radio Transmitted Packets</td><td>Number of packets transmitted by the Radio (RF).</td></tr>
<tr><td>Radio Transmitted Errors</td><td>Number of Radio(RF) transmission errors.</td></tr>
<tr><td>Radio Collisions</td><td>The number of invalid packets caused from multiple devices transmitting RF data at the same time.</td></tr>
<tr><td>COM1 Received Bytes</td><td>Number of bytes received by the Serial port.</td></tr>
<tr><td>COM1 Received Packets</td><td>Number of packets received by the Serial port.</td></tr>
<tr><td>COM1 Transmitted Bytes</td><td>Number of bytes transmitted on the Serial port.</td></tr>
<tr><td>COM1 Transmitted Packets</td><td>Number of packets transmitted on the Serial port.</td></tr>
</table>

1.2.4 RLX-IFHS

Tag name	Description
RSSI	This register displays the average signal strength received over the previous 4 hop intervals. Should the downstream unit(s) fail, a Master will maintain the last RSSI reading display. VALUES: 110 to –55dBm (maximum reading)
Temperature	Temperature as measured within the radio module.
Unit Address	The unit address is, and must be, a unique identifier of each IFHS radio in a network. The address value is 16-bits in length. The Master has by default, and must retain, a unit address of 1; 65535 is the broadcast address. VALUES 2-65534
Destination Address	As the name implies, this register specifies the ultimate destination for a modem's data. Different network topologies dictate the configuration of Destination Address: PMP: Master Destination Address = 65535, Remote Destination Address =1 PTP : Master Destination Address = UA of Remote, Remote Destination Address =1 P2P : Master Destination Address =65535, Destination Address of each (of 2 / pair) Remote radio is the UA of the other E2E : Destination Address of all radios=65535 (broadcast) VALUES 1-65535
Retransmissions	This register determines the maximum amount of times that a packet will be retransmitted (in addition to the initial transmission), noting the following specific behaviors in various network topologies: PMP: Master will retransmit each data packet the exact number of times specified; Slave will retransmit only if necessary, and then only until a given packet is acknowledged or the value of the Slave's retransmissions is reached (after which it will discard the packet if retransmission not successful). PTP: Modem will retransmit to its counterpart only if necessary, and to a maximum number of the value in retransmissions. Packet is discarded if retransmissions are not successful. Recipients of packets will discard any duplicates. In a PMP system, set retransmissions to the minimum value required as, effectively, the data throughput from Master to Remote is divided by 1 plus the number stored in retransmissions. VALUES 0-255
Roaming	Roaming dictates which radio (by Unit Address (UA)) a Remote unit will 'look' or 'attach to' for its upstream signal path. This feature allows a Remote unit to synchronize with a specified 'upstream' unit (either Master or Repeater). The options are as follows: Roaming=65535: With this value in its roaming register, a Remote will synchronize with an

Tag name	Description
	upstream unit which has the same network address and static mask as the Remote. Should that upstream unit fail, this Remote will attempt to synchronize with another 'upstream' unit within the same network. This ability is particularly well-suited to mobile applications. Roaming=1-254: In most static (fixed) networks, where there are no Repeaters, the default value of 1 is maintained: All Slaves synchronize to the Master (whose unit address (UA) is 1). In networks where Repeaters are present, the value of a Remote's roaming value corresponds to the particular upstream radio, with which a particular Remote is intended to communicate. (e.g. A Slave with a UA=3 may have Roaming=2, where the radio with a UA=2 is a Repeater between the Slave and the Master; the Repeater will have Roaming=1.) When setting up 3 radios for a Master-Repeater-Slave link, be sure to set the Slave's Roaming to the UA of the Repeater, and the Repeater's Roaming to the UA of the Master(1). This will ensure that data is routed from the Slave through the Repeater to the Master; otherwise, if the Slave's Roaming is left at the default value of 1, the Slave will communicate directly with the Master and bypassing the Repeater altogether. VALUES: 65535 Full Roaming 1-254 Specific (fixed) UA of Master or Repeater with which to associate
Voltage	Supply voltage as measured on motherboard.
VSWR	Voltage Standing Wave Ratio. Ideally 1:1 (or 1.00), this value gives an indication of how much power is being reflected back to the radio from the antenna relative to how much is being transmitted.
Operation Mode	The operating mode defines the role of a radio. An IHFS radio may be configured for any role required within a radio network. This is convenient for reasons of familiarity with any/all units, as well as for hardware sparing purposes. The default operating mode is dependent on which factory default option is selected. MASTER: Only one per network. In all network types data either originates at, is destined to, or 'passes through' the Master. REPEATER: May act simply as a 'Repeater' to store and forward data to/from an upstream unit to/from a downstream unit (e.g. when there is a long distance between the latter units), or, may act as a Repeater/Slave in which case the above function is performed AND the unit may also exchange data as a Slave within the network. SLAVE: Interfaces with remote devices and communicates with Master either directly or via Repeater(s). Communications between 2 or more Slaves is possible - through the Master. A 'Remote' (non-Master) modem is either a Repeater or a Slave. If a Repeater is not being used as a Repeater/Slave (i.e. there is no device attached to its local data port), leave its handshaking OFF (&K0) and set the serial baud rate (S102) to 115200bps. VALUES: Master Repeater Slave

<table>
<tr><th>Tag name</th><th>Description</th></tr>
<tr><td>Link Rate</td><td>This register determines the rate at which RF communications will occur over a given network.

All radios within a particular network must be configured with the same wireless link rate.

Faster link rates result in greater throughput, however, for each 'step' increase in link rate, there is an approximately 1dB reduction in sensitivity.

VALUES

bits per second (bps)
19200
115200
172800
230400
270000
340000</td></tr>
<tr><td>RF Output Power</td><td>This setting establishes the transmit power level which will be presented to the antenna connector at the rear of the radio. Unless required Output Power should be set not for maximum, but rather for the minimum value required to maintain an adequate system fade margin.

FCC regulations allow for up to 36dBi effective isotropic radiated power (EIRP). The sum (in dBm) of the transmitted power, the cabling loss, and the antenna gain cannot exceed 36dBi.

VALUES

<table>
<tr><th>dBm</th><th>(mW equivalent)</th></tr>
<tr><td>20</td><td>(100)</td></tr>
<tr><td>21</td><td>(125)</td></tr>
<tr><td>22</td><td>(160)</td></tr>
<tr><td>23</td><td>(200)</td></tr>
<tr><td>24</td><td>(250)</td></tr>
<tr><td>25</td><td>(320)</td></tr>
<tr><td>26</td><td>(400)</td></tr>
<tr><td>27</td><td>(500)</td></tr>
<tr><td>28</td><td>(630)</td></tr>
<tr><td>29</td><td>(800)</td></tr>
<tr><td>30</td><td>(1000)</td></tr>
</table></td></tr>
<tr><td>Network Type</td><td>Defines the type of network: point-to-multipoint, point-to-point, peer-to-peer, or everyone-to-everyone

In a point-to-multipoint (PMP) network, the Master broadcasts data to all units, and all remote units send their data (ultimately) to the Master.

A point-to-point (PTP) network involves a Master and a Slave (with 0 or more Repeaters in-between).

Peer-to-Peer involves either communication between 2 (typically remote) units (P2P) or between all units (everyone-to-everyone - E2E).

ALL modems in a network must have the SAME value for Network Type.

VALUES

Point-to-Multipoint

Point-to-Point

Peer-to-Peer or Everyone-to-Everyone</td></tr>
</table>

Tag name	Description
Channel Mode	Defines the physical serial interface which will be used for data communications. VALUES RS-232 half-duplex RS-485 full-duplex RS-485
Data Baud Rate	The serial baud rate is the rate at which the modem is to communicate with the attached local asynchronous device. VALUES bits per second (bps) 300, 600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400
Data Format	This value determines the format of the data on the serial port. The default is 8 data bits, No parity, and 1 Stop bit. VALUES 8N1 8N2 8E1 8O1 7N1 7N2 7E1 7O1 7E2 7O2
Radio Received Bytes	Number of bytes received by the Radio(RF).
Radio rEceived Packets	Number of packets received by the Radio(RF).
Radio Transmitted Bytes	Number of bytes transmitted by the Radio(RF).
Radio Transmitted Packets	Number of packets transmitted by the Radio(RF).
Repeaters in System	This setting applies to the Master only. The default value is No, stating there are no Repeaters in the network. If there are 1 or more Repeaters in the network, configure this setting as Yes.

1.3 System Requirements

The following system requirements are the recommended minimum specifications to successfully install and run RadioLinx OPC Driver.

- Microsoft Windows compatible PC
- Windows XP Professional with Service Pack 2 or higher, Windows VISTA, or Windows 2003
- Microsoft .NET Framework version 3.0 or higher
- 300 mHz Pentium processor (or equivalent)
- 128 megabytes of RAM
- 300 megabytes of available disk space

1.4 Set Up Network

See the ProSoft Technology documentation on your radio.

2 Installing the Server

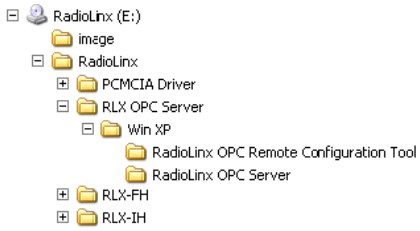
In This Chapter

2.1 Choosing the Right RadioLinx OPC Server Project for Your Application

1. Go to www.prosoft-technology.com, or use the ProSoft Technology supplied CD to retrieve RLX OPC software!
2. Open setup file and follow the install directions. The install process will copy the RLX OPC Server and OPC Configuration Tool onto your PC.

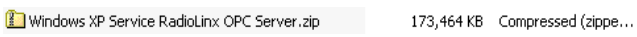
Note: Before installing, verify that you have the Microsoft .NET Framework (version 3.0 or greater) already installed. If you don't then download this from Microsoft.com and continue installing RadioLinx OPC Server. Select the ServerInstaller.msi file to install.

This is an example of the Tree structure you will see. See descriptions below and select the version for your system.



The Window XP Service RadioLinx OPC Server is the recommended version.

- Windows XP Service RadioLinx OPC Server



This is the primary server project. The configuration tool will also be installed.

2.2 Installation Process

1. Launch the ServerInstaller.msi file to begin the installation process. You will be asked for a directory to install to. Select a directory that Windows will have access to for all user accounts and you would like to make the project available to.

   A registry entry will be placed in the Windows Run folder in order to load some applications at Windows start up. These applications can only be launched by a Windows session if the current user account has access to the directory where the applications reside.

2. During the server installation process, you will be asked to install the OPC Core Components 2.00 Redistributable.

Note: Unless you are 100% sure that you already have these "Core" components installed, it is highly recommended that you complete this install as well.

3. When the installation is complete, you must restart your computer.

If you choose not to install the OPC Core Components and then later change your mind, you can find the setup file for the core components in the "\Setup" subdirectory of the main RadioLinx OPC Server folder.

3 Configuring the Server

In This Chapter

3.1 Opening the Configuration Tool

When you first install the server and configuration tool, the server will not be configured to monitor your wireless radio network. The server is configured using a separate utility. The first step in the configuration process is to open the server and this utility.

Start OPC Monitor)

1. Click Start / Programs / RadioLinx OPC Server / RadioLinx OPC Monitor

   -or-

2. Double-click on **desktop icon** for server

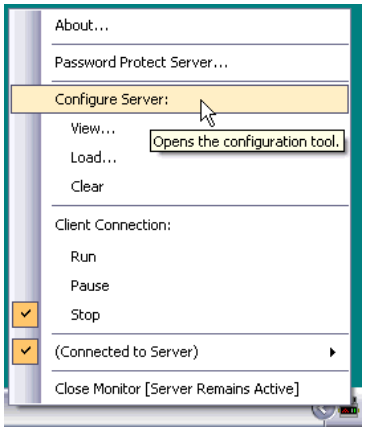
Start OPC Configuration Tool - *to open as a Client*

1. Click **Start / Programs / RadioLinx OPC Server / RadioLinx OPC Configuration Tool**

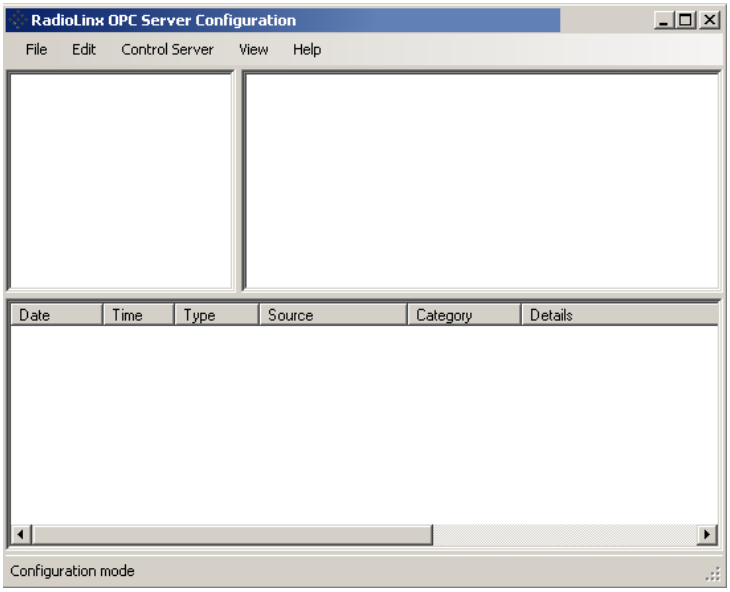
   -or-

   Double-click on **RadioLinx OPC Monitor** system tray icon, 

Or right click on icon, then select **Configure Server**.



One of the above processes brings up the RadioLinx OPC Server Configuration screen shown below.



3.2 Creating a Configuration

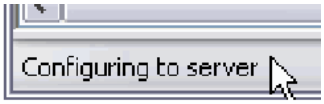
There are two methods for configuring the server. You can connect to the server and then configure it directly, or you can save your configuration to disk and then load it into the server manually.

3.2.1 Configure to Server Mode

When you use the Configure to Server mode, you will connect to a server running on the same machine as the Configuration Tool. The Configure to Server will save your work to the server.

The status bar (bottom of box) should now say "Configuring to file." When you connect to local or remote server it will change to "Configuring to server."

Status bar showing that utility is configured to save to a file mode.



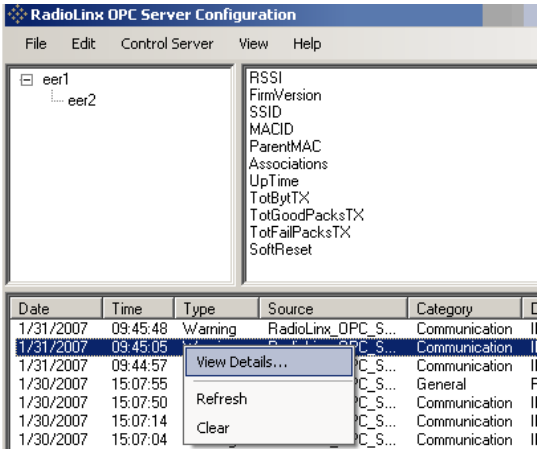
Status bar showing that utility is configured to server mode.

Note: If you have not created and saved a file for your radio, please follow the instructions in Configure to File Mode for Adding a Channel (page 27), Radio (page 30) and Tags. (page 31)

Local Server Procedure

1 Click **File / Configure to Server / Connect to Server / Local Server**

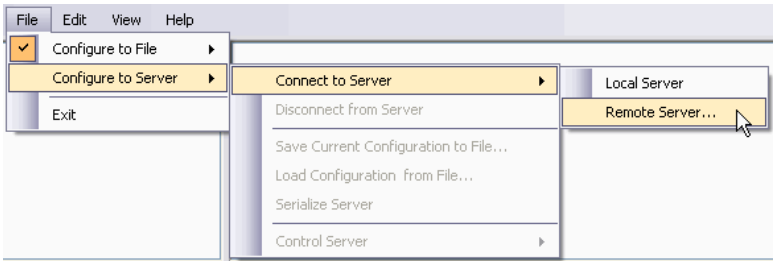
The RadioLinx OPC Server Configuration box appears with Channel and Radio (upper left panel), Tags (upper right) and Server Time Log on bottom. If you right click on a date in Time Log, you can view details of that incident.



You can also configure a server that is running on another machine.

Remote Server Procedure

1 Click **File / Configure to Server / Connect to Server / Remote Server**



Enter the IP address or the name of the computer that the remote server is running on.
You can choose to attempt a secure remote connection, or not.

Note: If the IP address is not valid, you will receive a "Connection Failed" message.

Secure connections require certain Windows security options to be in place before they will work. The unsecured remote connection is a lot more reliable, but it is possible for others to intercept and interpret the messages that are sent.

2 Click **OK** button.

3.2.2 Configure to File Mode

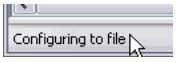
This section details how to create a custom configuration for your server.

Note: Do not connect to a server using the Configuring to Server method.

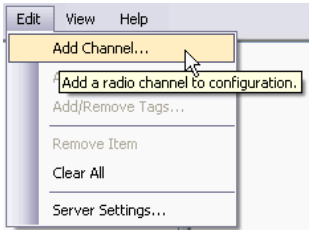
If you are connected to the server, disconnect before proceeding.

1 Select **File / Configure to Server / Disconnect from Server**.

The status bar (bottom of screen) should now say "Configuring to file."

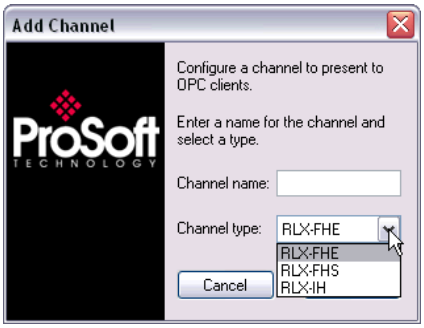


2 Add a Channel. Select **Edit / Add Channel**



3 Choose a Channel name and Channel type.

4 Click **Next**. FHS is for serial connections.

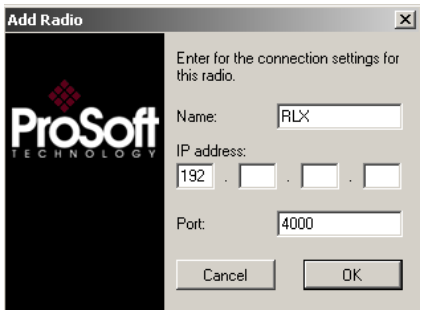


5 A dialog box will appear for connection timeout. Default is 2000 milliseconds, but you can decide your speed. Click **OK**.

6 Add a Radio. Select **Edit / Add Radio.**

- or -

7 Now that you have a Channel, you can right click on your Channel name and select **Add Radio**. This will bring up the dialogue box below.

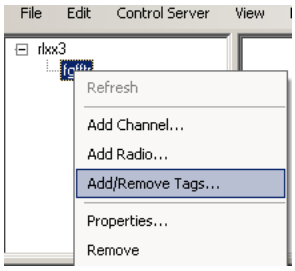


8 Choose a Name and give it your specific IP address. Click **OK** to accept.

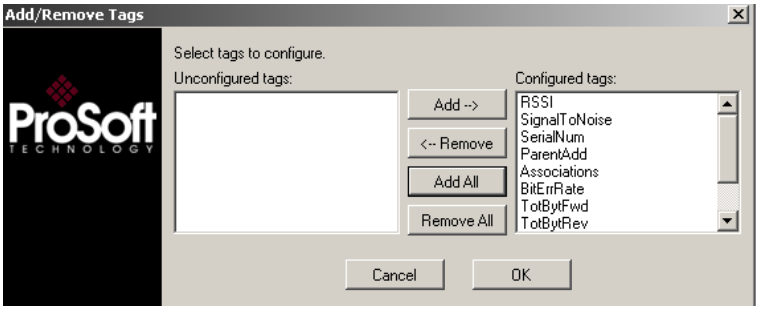
9 Add or Remove Tags. Select **Edit / Add/Remove Tags**

- or -

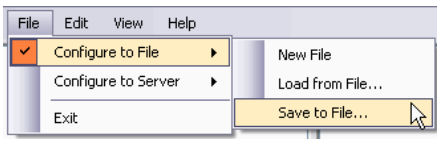
10 You can right click on your Radio name and select **Add/Remove Tags**.



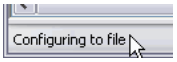
11 To Add or Remove tags, click on appropriate button. Then, click **OK**.



12 Click **File / Configure to File / Save to File**



13 Choose a directory and file name and click **Save**. The Status bar shows utility in "Configuring to file".



If you want more detailed information on the procedures above please go to Adding a channel**,** Adding a radio**,** Adding tags, and adjusting an existing radio or channel in this manual.

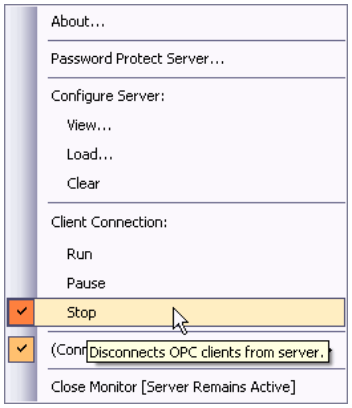
3.3 Loading Your Configuration

When you are finished creating and saving your configuration in the RLX OPC Configuration Tool, you should Close it.

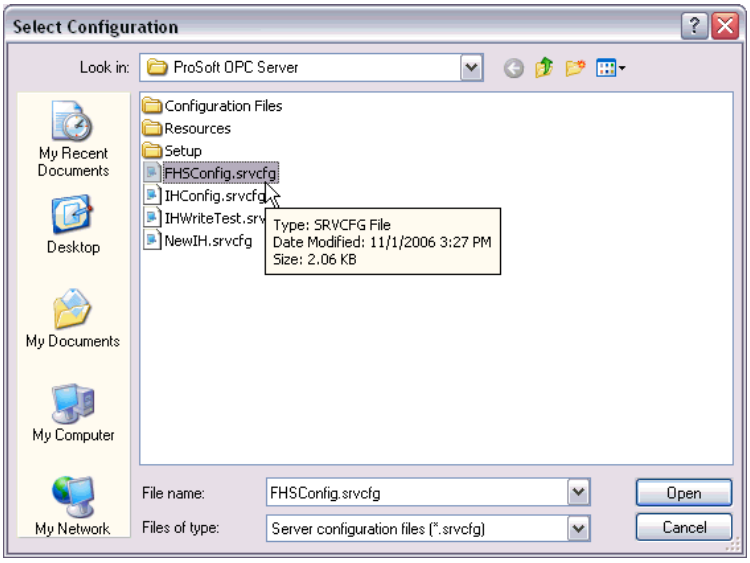
Note: If you saved your configuration to file, you will now need to load it into the RLX OPC Server.

If you chose the Configure to server method, none of the following steps are necessary. Skip to "Validating Your Configuration."

1 Right click on the **RLX OPC Server** system tray icon and make sure that the server is stopped. If Stop is checked, the server is stopped.

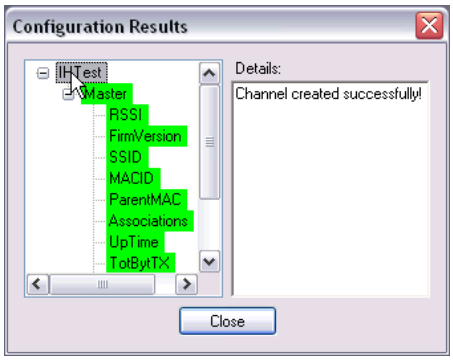


2 If the server is running, select **Stop** to stop the server.
3 Right-click on the **RLX OPC Server** system tray icon and select **Load Configuration.** The "Select Configuration" box opens.
4 Navigate to the directory where you saved your file and open it.



When the configuration is finished loading, the Configuration Results dialog will appear.

The Configuration Results dialog describes the configuration that was loaded into the server. Items that are listed green were successfully configured. Red items could not be configured. Select an item in order to see more details about why it could not be loaded.



3.4 Validating Your Configuration

Before you attempt to connect to the server with your OPC client, you may want to test your configuration and make sure everything is configured properly.

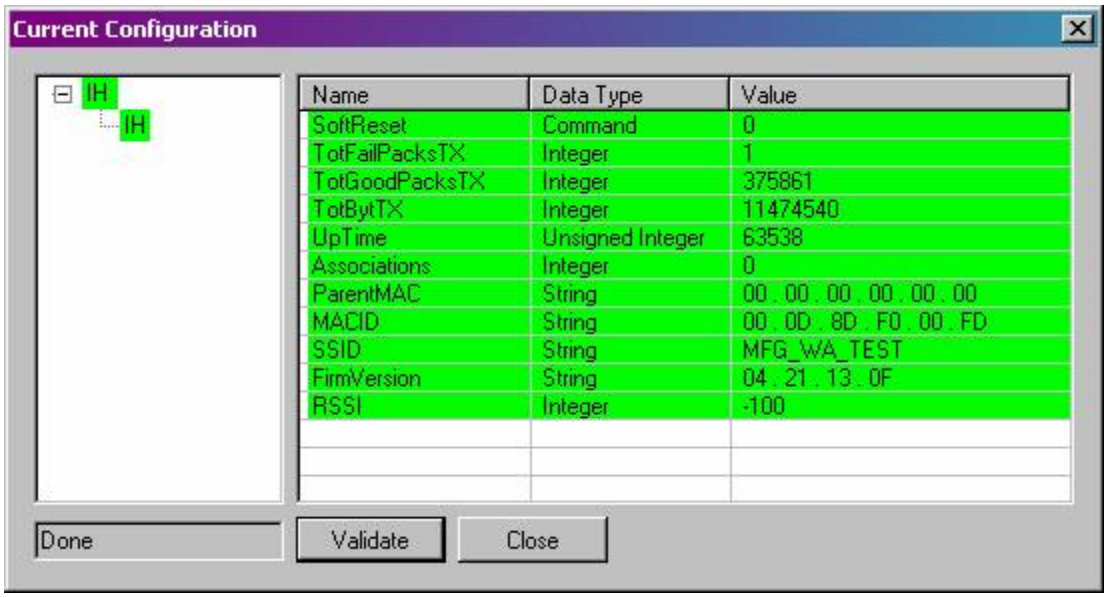
1. Right-click on the **RLX OPC Server** system tray icon and select **View Configuration.**

   The view pane on the left of the dialog shows you what channels and radios are configured. The view pane on the right shows what tags are configured for each radio.

2. Click **Validate** to test the configuration.

   The server will attempt to communicate to your wireless radios. After a pause, the items in the two view panes will turn green or red. Green items were contacted successfully. Red items could not be contacted.

Radios or channels that remain white have no tags associated with them. No attempt is made to contact these items. Notice that the current values of the tags are also displayed after validating.



Note: You can re-verify you are connected by pressing validate again. This will update the values.

3 Click **Close** when you are finished.

Notes: Only one process can communicate to a radio at the same time. Attempting to communicate with more than one process at a time can cause unpredictable results.
In order to prevent multiple processes from communicating to a radio at the same time, switch the RadioLinx OPC Server into pause mode while running ControlScape.
In addition, the validation option on the server will be disabled when the server is running.

3.5 Adding a Channel

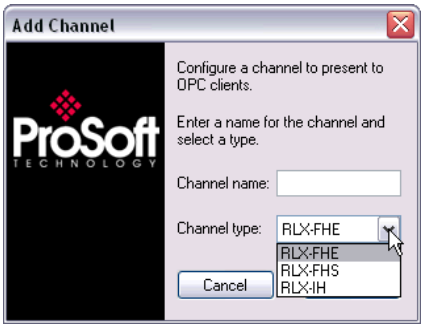
Wireless radio networks are composed of RadioLinx radios of the same type configured to communicate together. In the server, these networks are represented by channels. A channel is a communications stream for communicating to a specific type or model of radio.

The first step in configuring the server is to add a channel for your wireless network.

1 Click **Edit / Add Channel**

-or-
Right click on top left pane and select **Add Channel** from the context menu.

A dialog opens.



2 Enter a custom name for the channel.
3 Select the RadioLinx product that the channel will communicate to from the drop down list.
4 Click **OK**.

   Another dialog opens.

5 Enter the settings specific to your radio network into this dialog.

   (See also: **Channel Settings**)

6 Click **OK**.

   A channel with the given name appears in the top left view pane.

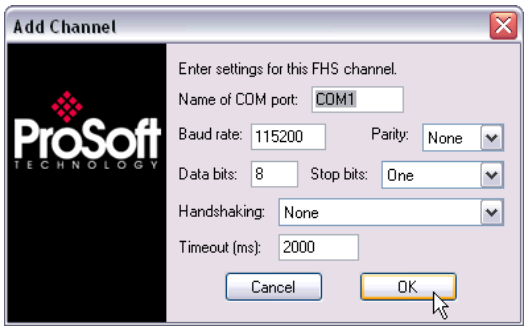
3.6 Channel Settings

Connection Timeout: The time the server will wait for a response from the radio.

3.6.1 RLX-IH Channel

3.6.2 RLX-FHE Channel

3.6.3 RLX-FHS Channel



Name of COM port: The label of COM port that you are using to communicate to the radio.

Baud rate: The baud rate of the COM port.

Parity: The parity settings for the COM port.

Data bits: The number of data bits used for communication via the COM port.

Stop bits: The number of stop bits used for communication via the COM port.

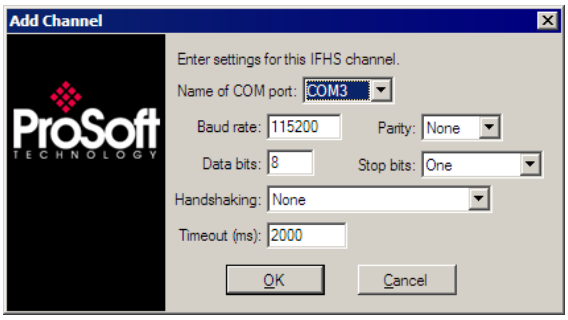
Handshaking: The flow control used by the COM port.

Timeout: The number of milliseconds that the server will wait for a response from the radio.

Note: The settings can be copied from the properties window of the COM port that you are using to connect to the radio network.
Note: The settings you enter for your FHS channel must be compatible with your com port.

3.6.4 RLX-IFHE Channel

3.6.5 RLX-IFHS Channel



3.7 Adding a Radio

Purpose: Add radios that are part of your network to server configuration so that OPC clients can monitor radio tags.

1. Select appropriate channel.
2. Click Edit / Add Radio.

   -or-
   Right click on appropriate channel / **Add Radio**…
   "Add Radio" dialog opens.

3. Enter a custom name for the radio.
4. Enter settings for communicating to radio.

   See **Radio Settings** for more details.

3.8 Radio Settings

3.8.1 IH Radios

IP: The IP address of the IH radio to connect to. For more details, browse for radios using the RadioLinx IH Browser.

Port: Defaults to 161. Only change if you have good reason for doing so.

Community: The SNMP community of this radio. Defaults to public. Enter a new value if you have changed the SNMP community of any of your radios.

3.8.2 FHE Radios

IP: The IP address of the FHE radio to connect to. For more details, inspect your ControlScape wireless network settings.

Port: Defaults to 4000. Only change if you have good reason for doing so.

3.8.3 FHS Radios

Radio address: The radio address of the radio to communicate to. For more details, inspect your ControlScape wireless network settings.

3.8.4 IFHE Radios

IP: The IP address of the FHE radio to connect to. For more details, inspect your ControlScape wireless network settings.

Port: Defaults to 4000. Only change if you have good reason for doing so.

3.8.5 IFHS Radios

Radio address: The radio address of the radio to communicate to. For more details, inspect your ControlScape wireless network settings.

3.9 Adding Tags

Purpose: To select specific values to present to OPC clients.

1. Select radio.
2. Click Edit / Add/Remove Tags.

   -or-
   Right click on radio or top right pane and select **Add/Remove Tags.**
   The Add/Remove Tags dialog opens.
3. Select the tags you wish to allow clients to monitor and click the **ADD** button.
4. Select the tags you no longer want clients to monitor and click **Remove**.
5. Click **Add All** or **Remove All** to add or remove all tags.
6. Click **OK** for tag changes to be accepted.

3.10 Changing the Server's Update Rate

Purpose: To change the update rate of the server.

1 Click **Edit / Server** settings…
2 Enter a new refresh rate.
3 Click **OK**.

Warning: It is not advisable to set the refresh rate lower than 3 to 5 seconds.

3.11 Adjusting an Existing Radio or Channel

3.11.1 Removing Items

1 Select item to remove.
2 Click Edit / Remove Item.
3 Confirm removal.

-or-
Right-click on item to remove and select **Remove**… from drop down menu.

4 Confirm removal.

-or-
Click File / Clear All to remove all items from the configuration.

3.11.2 Properties

Purpose: To change the settings or rename an existing item.

1 Select an item.
2 Click View / Properties.
3 The Properties dialog opens.
4 Make necessary changes.

Click **OK**.
-or-
Right-click on an item and select **Properties.**

3.12 OPC Reset Tags / Commands

The following OPC tags behave differently than the rest:

- ResetStats
- SoftReset

These OPC tags are referred to as commands. They are used for sending messages to radios instead of monitoring values.

Commands have 3 possible values: -1, 0, 1.

The default value is 0.

-1 indicates that an error occurred when trying to send a message to a radio.

0 indicates success when trying to send a message to a radio.

1 instructs the server to send the message to the radio.

The value of a command is solely driven by write requests from OPC clients. This value will not be updated except in response to write requests.

To send a specific message to a radio, write a 1 to the respective OPC tag. The server will forward the request to the radio and will then assign the OPC tag a value of 0 or -1. 0 if the request was completed successfully, -1 if it failed.

You can set or clear the status of a command by writing a 0 or -1 value to it. The server will only send the specified message to the radio when the command is set to 1.

3.13 Description of OPC "Commands"

3.13.1 ResetStats (RLX-FH radios)

Clears the following radio values to zero:

- TotBytFwd
- TotBytRev
- TotGoodPacks
- TXPackErrs

3.13.2 SoftReset (RLX-IH radios)

SoftReset causes the RLX-IH radio to reboot. The radio will be temporarily unavailable while rebooting. It is normal for other tags from this radio to change to quality "OPC_QUALITY_LAST_KNOWN" while the radio is unavailable. After 5 to 30 seconds this situation should right itself automatically. Any attempt to send a SoftReset command while the radio is rebooting will fail and SoftReset will get a -1 value from the server.

Rebooting RLX-IH radios causes the following tags to be reset to zero:

- TotBytTX
- TotFailPacksTX
- TotGoodPacksTX

4 Security and Password Protection

In This Chapter

4.1 Password Protection for the Server

4.1.1 Password Protecting the Server

You can create a password for the server in order to prevent anyone from modifying your configuration.

1. Right-click on the system tray icon for the ProSoft OPC Server.
2. On the context menu that appears, select Password Protect Server…

   A dialog opens.

3. Enter a password for the server and then retype the password in the confirmation box.
4. Click **OK**.

   A confirmation dialog pops up.
   You will now be required to enter this password whenever you wish to make any changes to the server.

4.1.2 Removing Server Protection Password

After creating a password for the server, you can choose to remove the password to allow easier access to the server, either temporarily or permanently.

1. Right-click on the system tray icon for the ProSoft OPC Server.
2. On the context menu that appears, select Password Protect Server.

   A dialog opens requesting the current server protection password to continue.

3. Enter your server protection password. Remember, this value is case sensitive.
4. Click **OK**.

   The Password Protection dialog opens.

5. Click **Clear Password** to remove password protection.

   A confirmation dialog will appear.

5 DCOM Configuration

In This Chapter

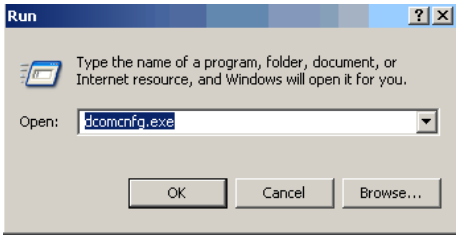
5.1 DCOM Configuration

The following are instructions that will enable an OPC client in Windows XP and Windows Vista to connect to the Local or Remote RadioLinx OPC Server.

This connection was performed where the user logged into the Local and the Remote PC. Both PCs are in the same domain. Consult with your IT person about DCOM Configuration for RadioLinx OPC Server when the OPC Server is located on a separate domain from the OPC Client.

Caution: In the following examples the "permissions" have been given to all potential users on the domain. You need to configure permissions to the specific users only, to fully take advantage of the DCOM security options.

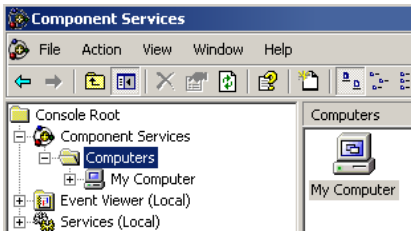
1 **Click Start / Run.** Enter **dcomcnfg.exe**



2 Click **OK**.

Follow this branch for going to My Computer in Component Services window.

3 Console Root / Component Services / Computers / My Computer

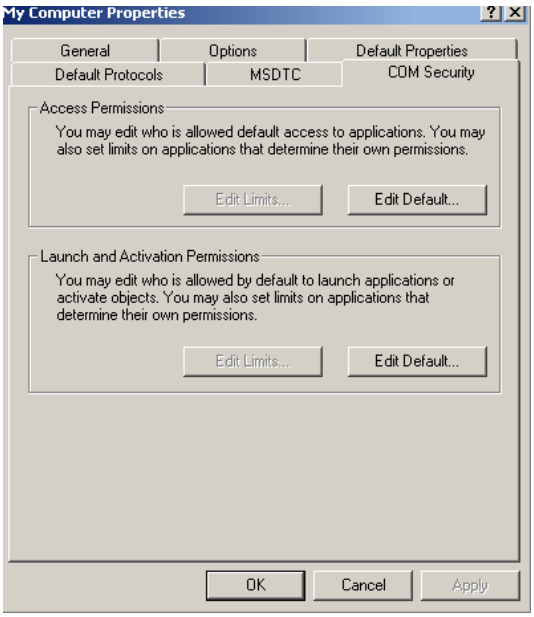


4 Right click on **My Computer**. Select **Properties**. This will bring up the My Computer Properties screen.

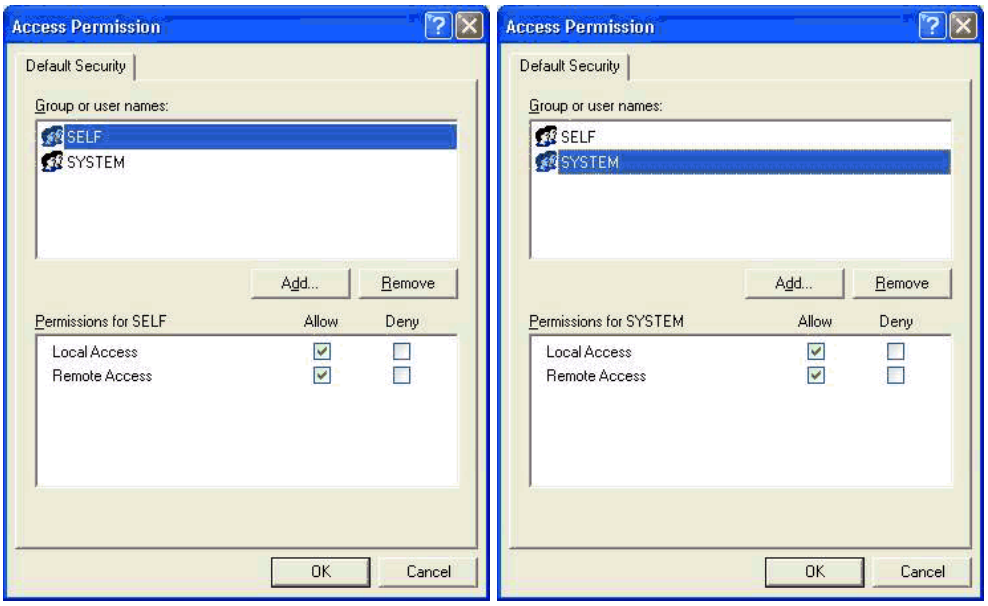
Note: Verify with your network administrator regarding Allow and Deny checks for each of the following steps.

5.2 My Computer Properties Checks

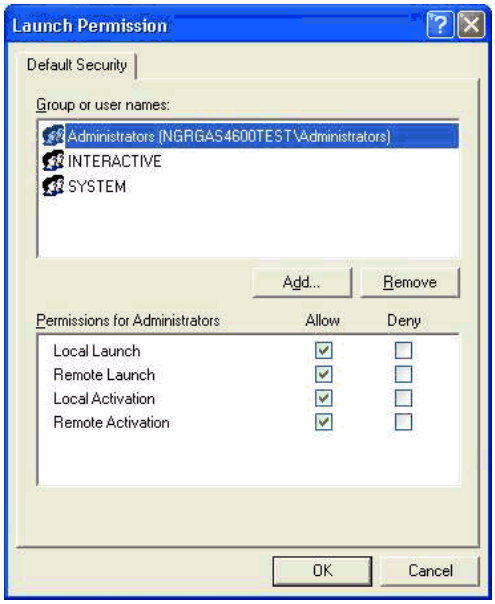
1 The next tasks will be to click on each tag, General, Options, Default Properties, Default Protocols, MSDTC and COM Security. Each one will have Allow and Deny checks that need to be made.
2 Select **COM Security**. Notice the two fields in dialog box. Click **Edit Default** for Access Permissions.

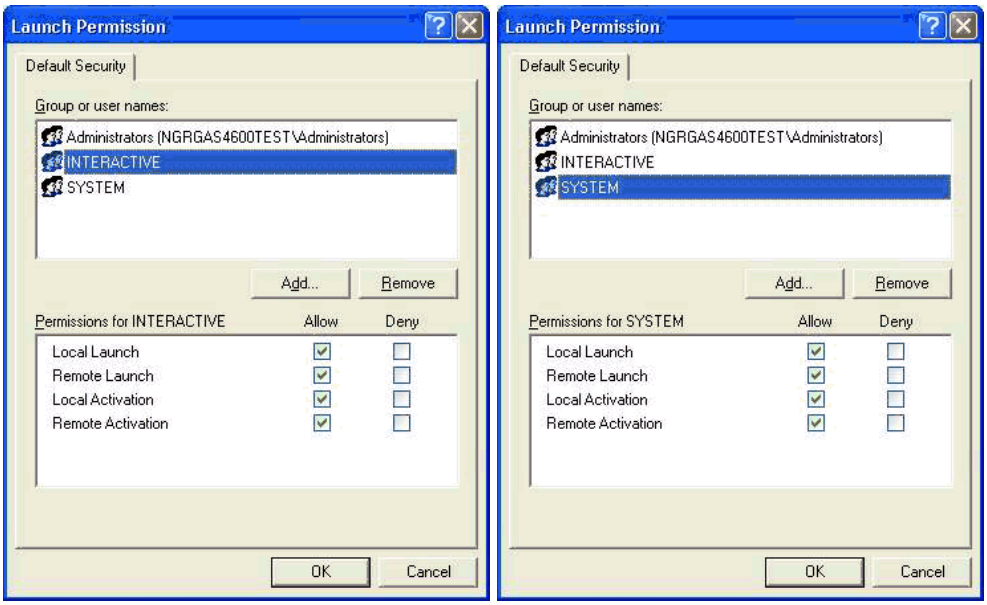


Select **Allow or Deny** per your installation / application requirements. **Unsure?** Contact your IT or network administrator.

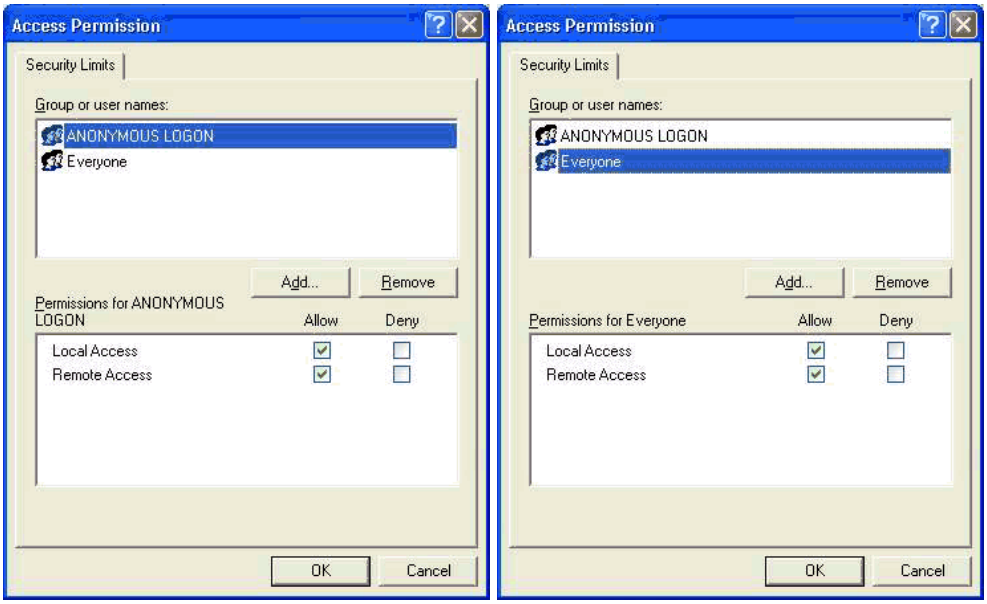


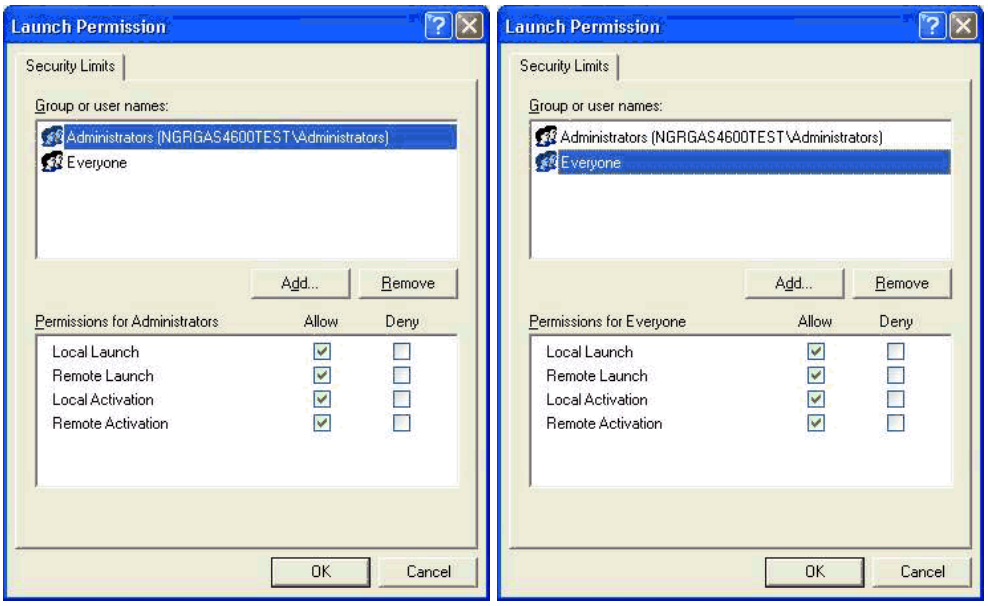
3 Click **Edit Default** for Launch Permissions. Click on each group and select **Allow or Deny.**



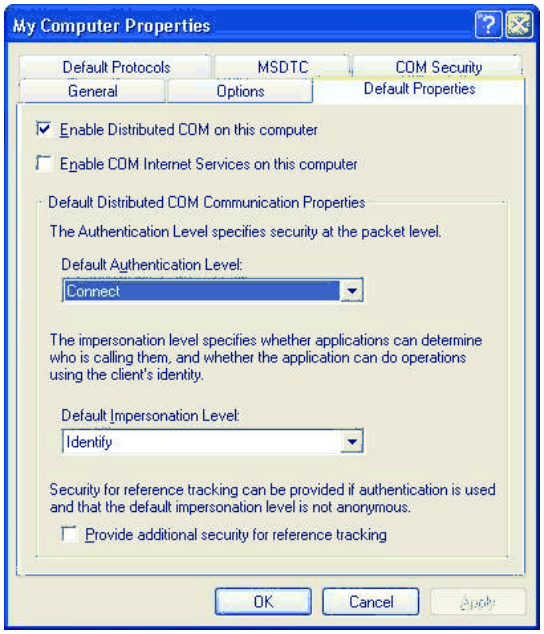


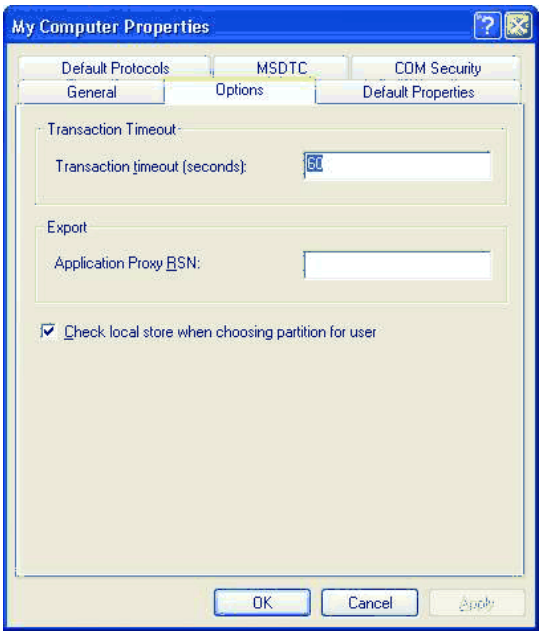
4 Click Security Limits for Access and Launch Permissions. Click on each group to select **Allow or Deny.**



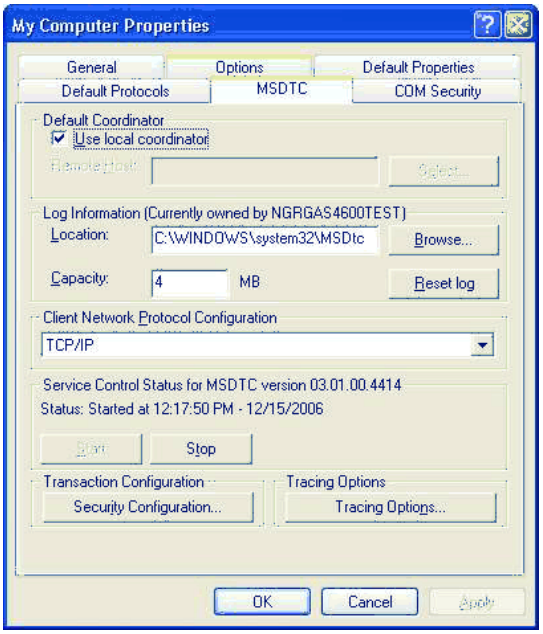


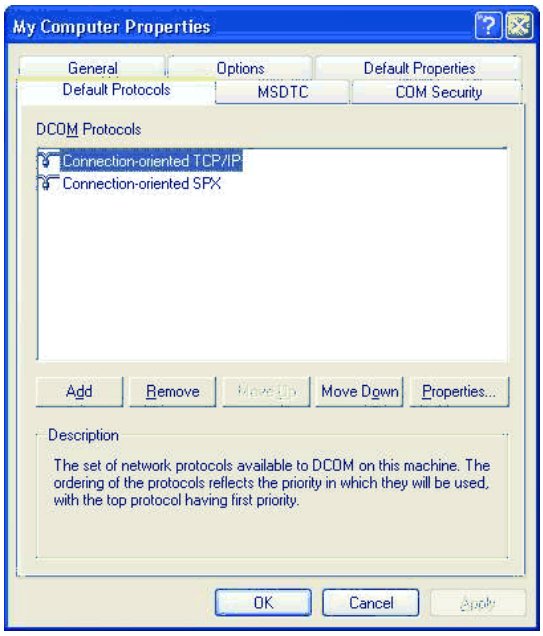
5 Click **Default Properties**. Click on your selection. Then, select **Options** and complete menus.

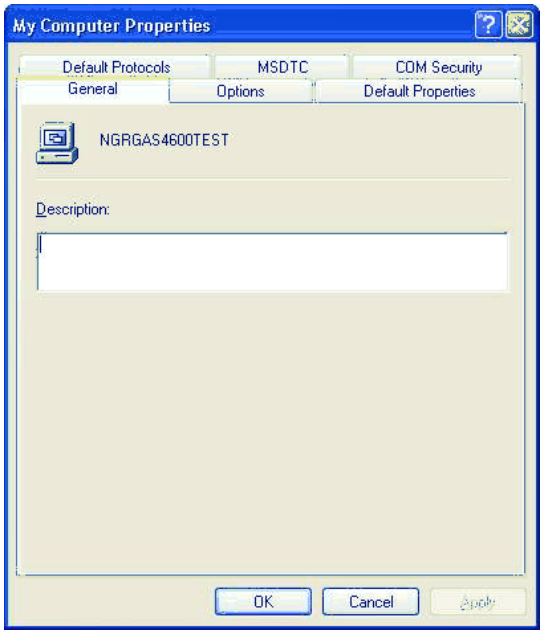




6 Select **MSDTC**, **Default Protocols** and **General** and complete each.

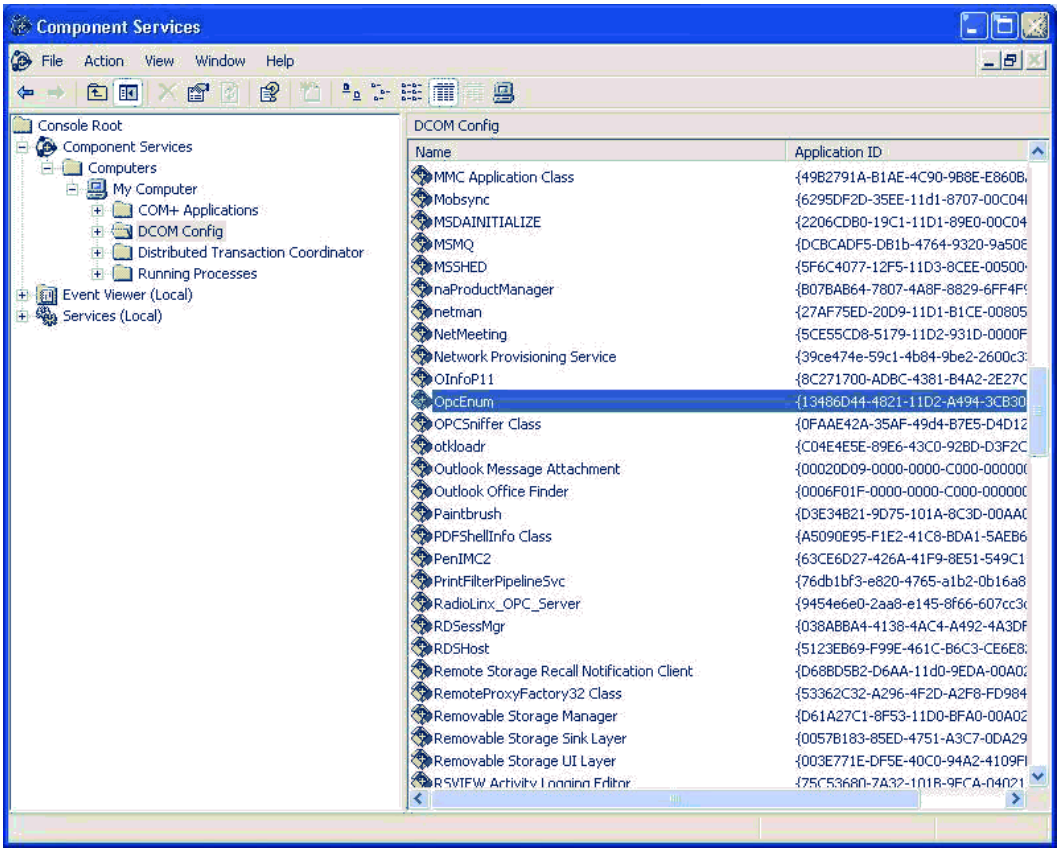



My Computer Properties
General
Options
Default Properties
Default Protocols
MSDTC
COM Security
DCOM Protocols
Connection-oriented TCP/IP
Connection-oriented SPX
Add
Remove
Move Up
Move Down
Properties...
Description
The set of network protocols available to DCOM on this machine. The ordering of the protocols reflects the priority in which they will be used, with the top protocol having first priority.
OK
Cancel
Apply

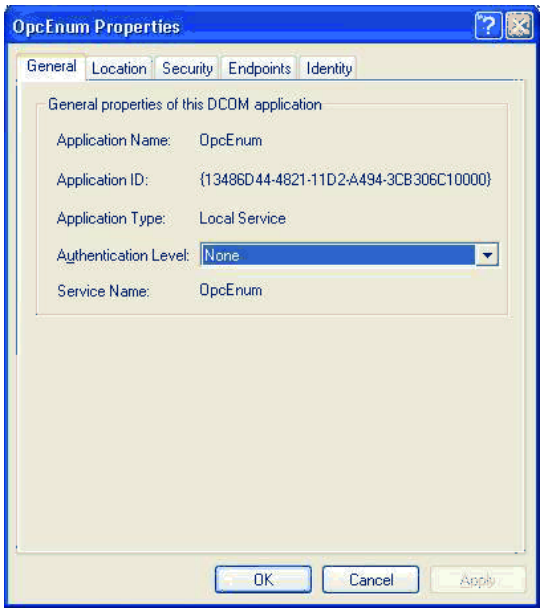

My Computer Properties
Default Protocols
MSDTC
COM Security
General
Options
Default Properties
NGRGAS4600TEST
Description:
OK
Cancel
Apply

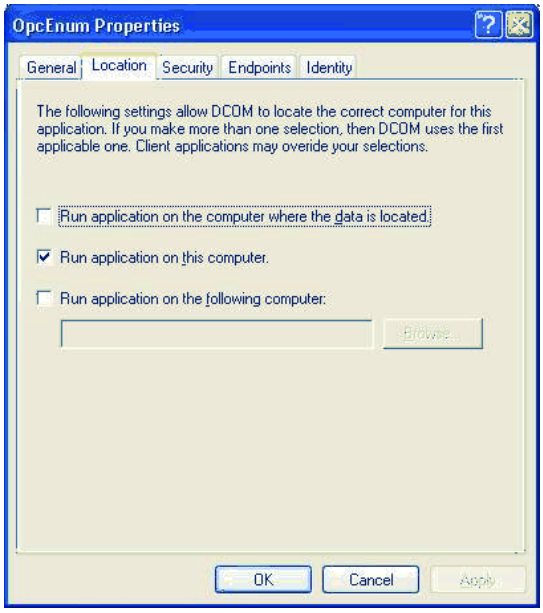
5.3 Component Services

1 Go to **DCOM Config** folder and right click on **OpcEnum** and select "**Properties**."

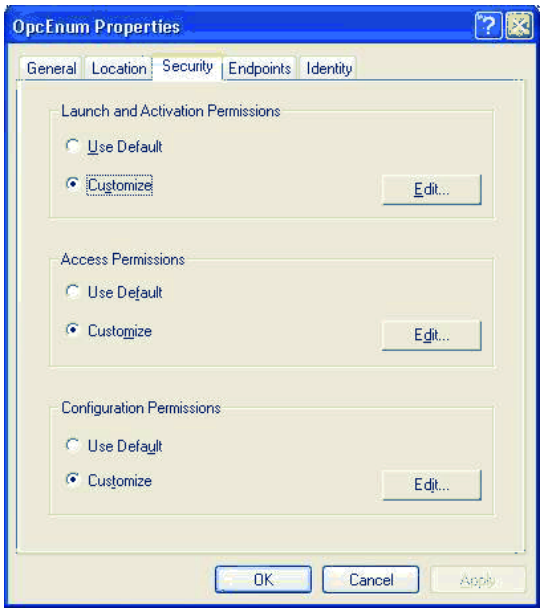


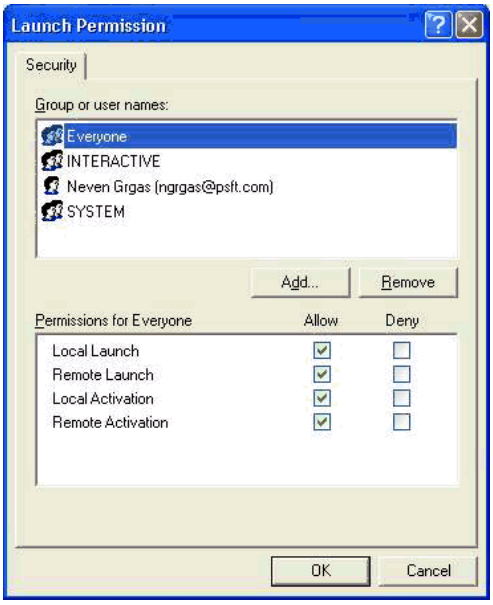
2 Select and complete **General** and **Location** tabs.

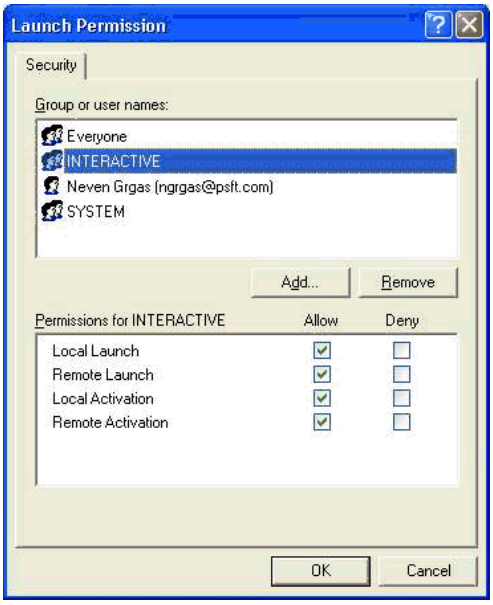


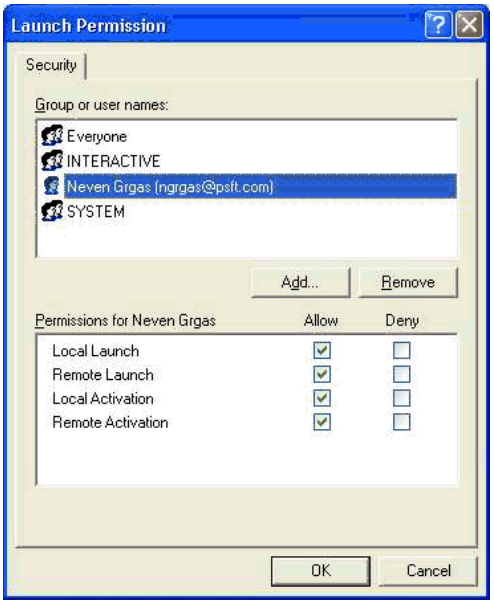


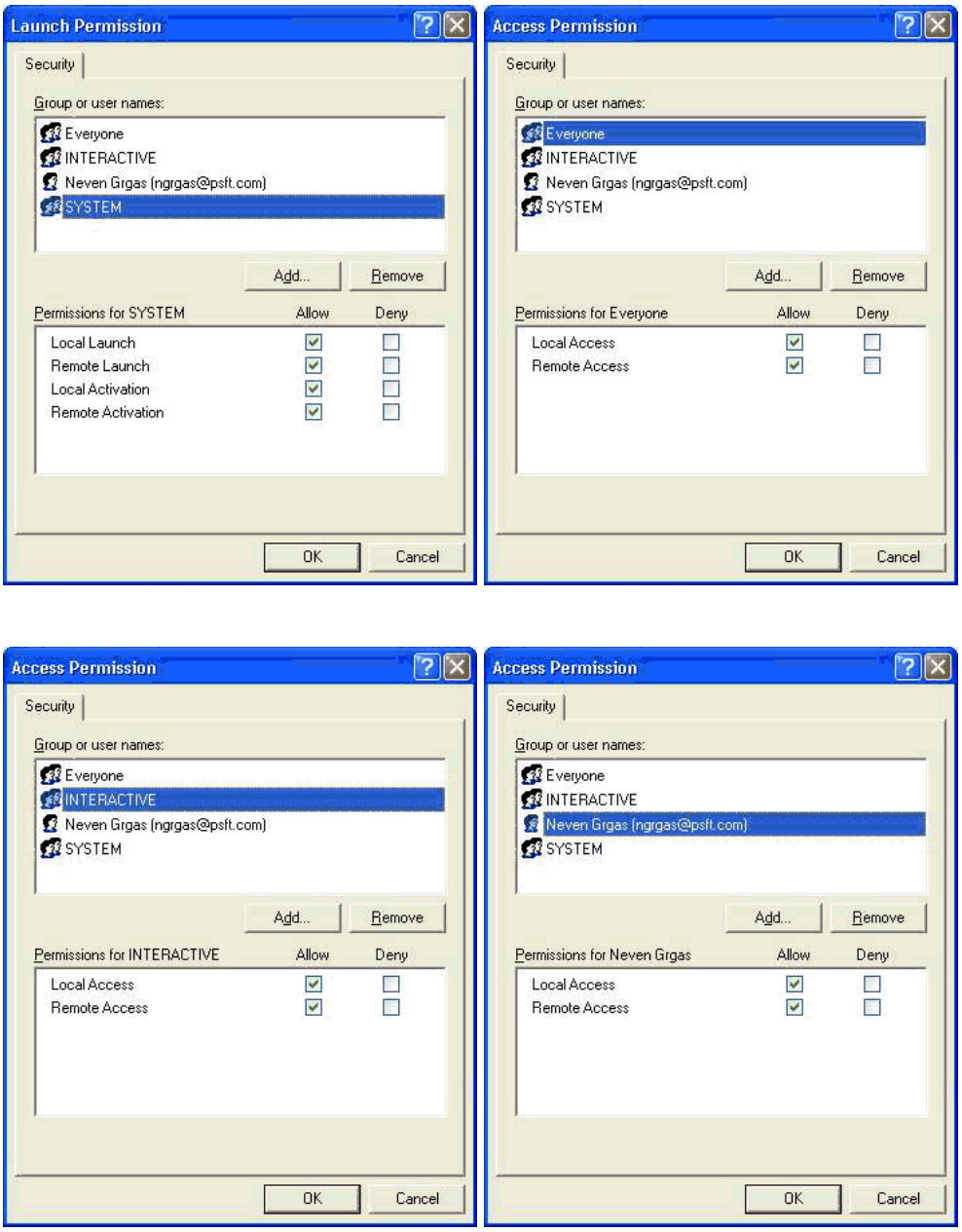
3 Select **Security** tab. For each of the three areas, select **Customize** and **Edit**. For each, you will check **Allow** or **Deny** according to your needs.

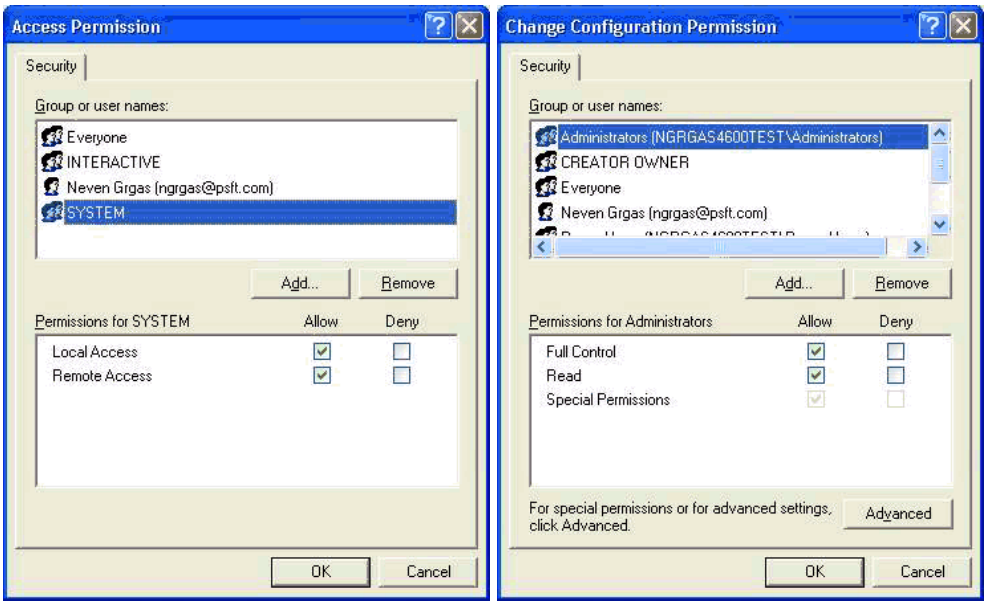

OpcEnum Properties
General
Location
Security
Endpoints
Identity
Launch and Activation Permissions
Use Default
Customize
Edit...
Access Permissions
Use Default
Customize
Edit...
Configuration Permissions
Use Default
Customize
Edit...
OK
Cancel
Apply

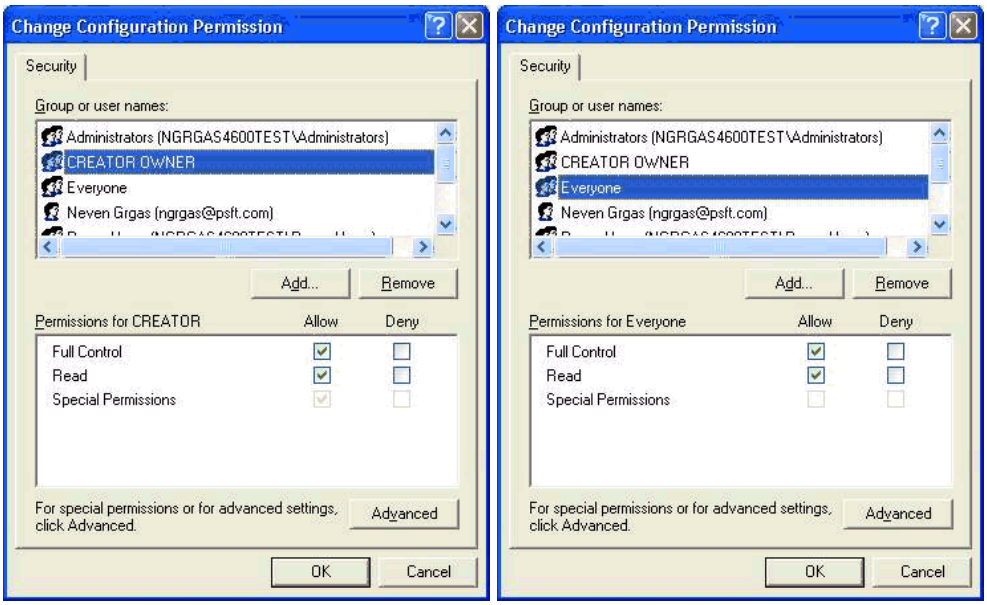

Launch Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for Everyone
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel

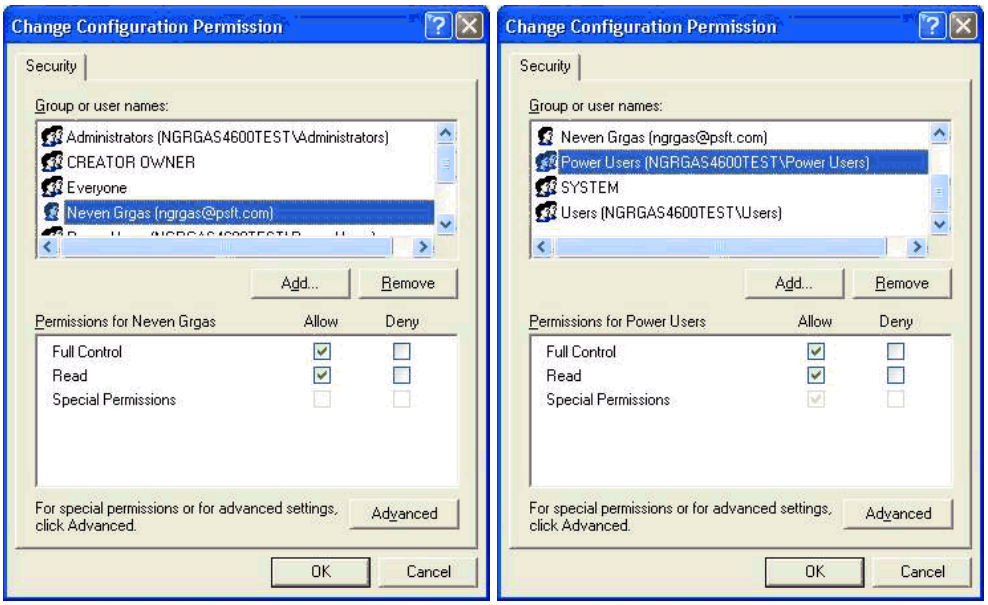

Launch Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for INTERACTIVE
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel

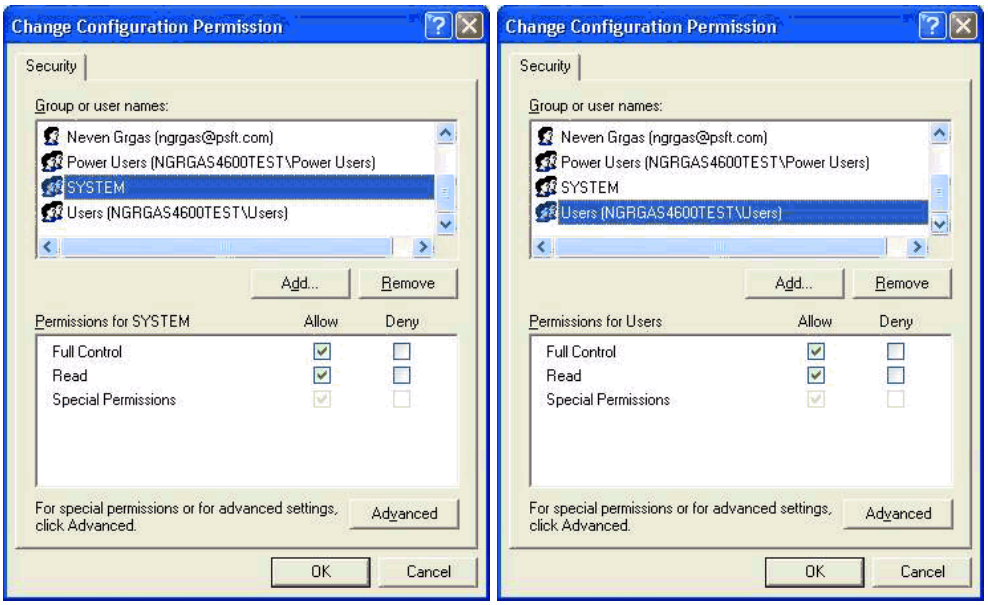

Launch Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for Neven Grgas
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel


Launch Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel
Access Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for Everyone
Allow
Deny
Local Access
Remote Access
OK
Cancel
Access Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for INTERACTIVE
Allow
Deny
Local Access
Remote Access
OK
Cancel
Access Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for Neven Grgas
Allow
Deny
Local Access
Remote Access
OK
Cancel


Access Permission
Security
Group or user names:
Everyone
INTERACTIVE
Neven Grgas (ngrgas@psft.com)
SYSTEM
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Local Access
Remote Access
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Administrators
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel

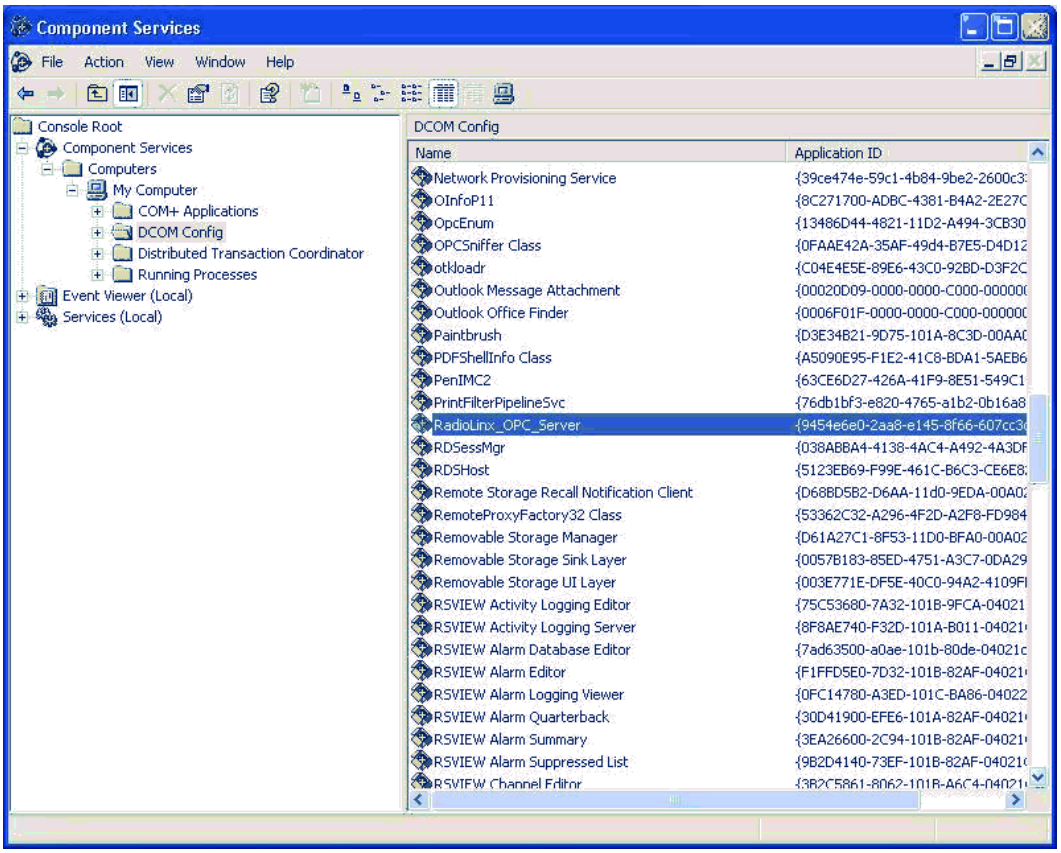

Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for CREATOR
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Everyone
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel


Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Neven Grgas
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for Power Users
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel

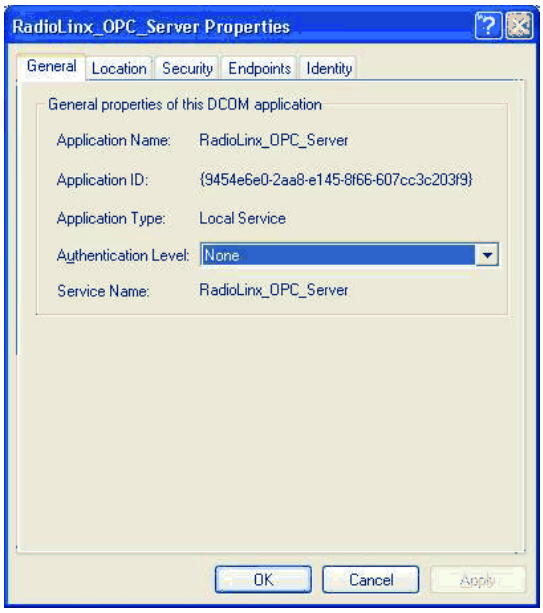

Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for Users
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel

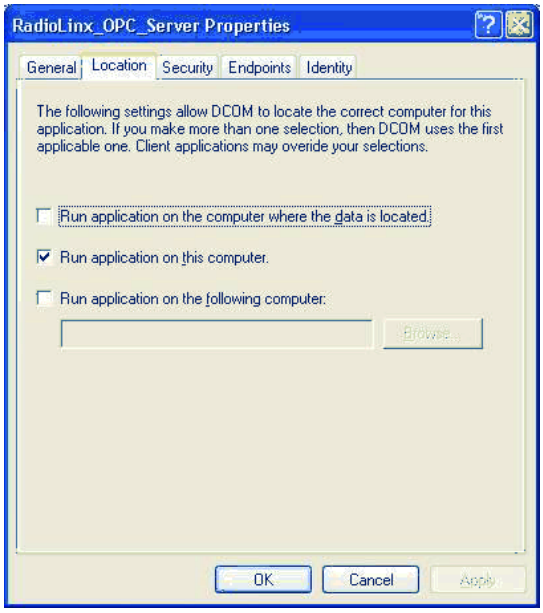
5.4 RadioLinx OPC Server Properties

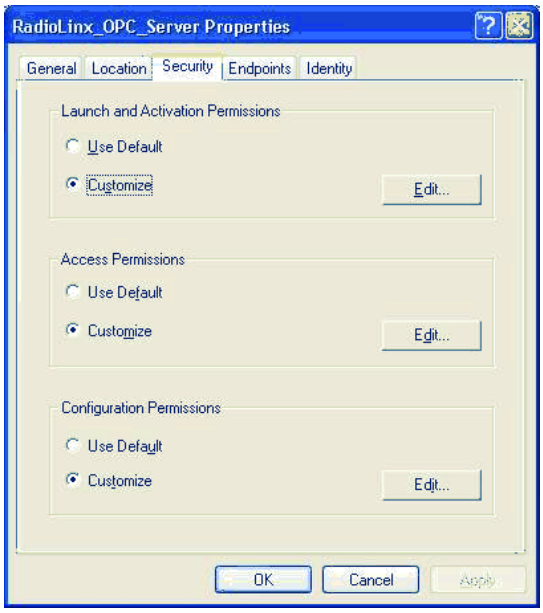
1 Go to DCOM Config and right click on RadioLinx_OPC_Server and select "Properties." Then, select each tab; General, Location, Security, Endpoints and Identity. Complete each dialog box for each.

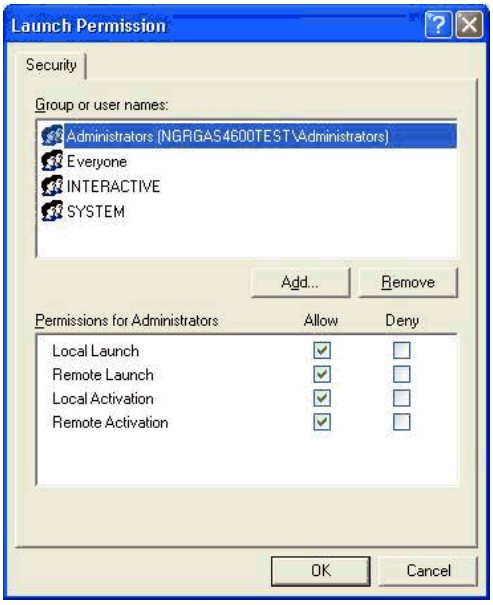


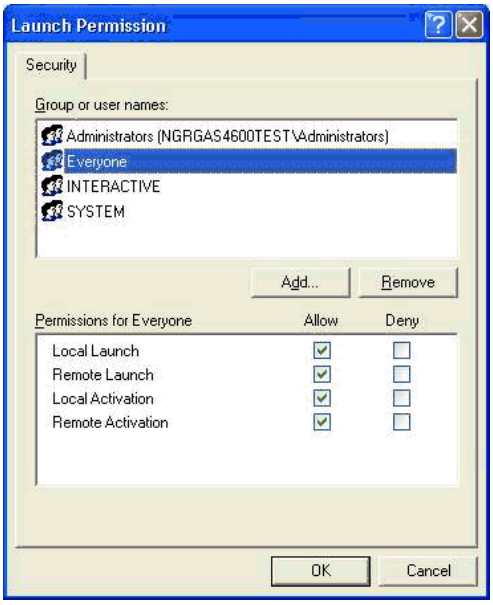
Note: As you walk yourself through each dialog box, verify decisions with your IT person or administrator for your environment.

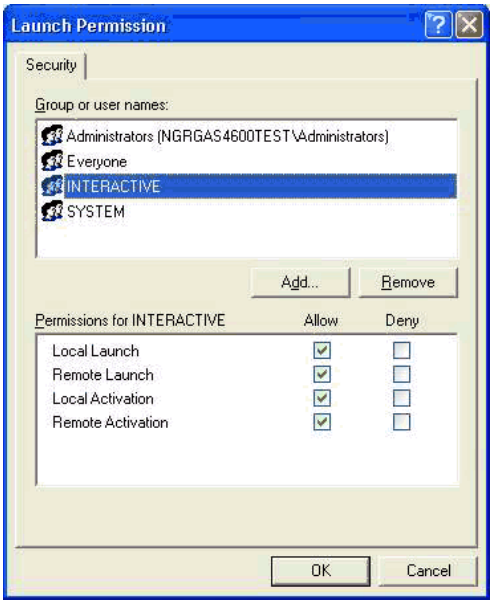

RadioLinx_OPC_Server Properties
General
Location
Security
Endpoints
Identity
General properties of this DCOM application
Application Name:
RadioLinx_OPC_Server
Application ID:
{9454e6e0-2aa8-e145-8f66-607cc3c203f9}
Application Type:
Local Service
Authentication Level:
None
Service Name:
RadioLinx_OPC_Server
OK
Cancel
Apply

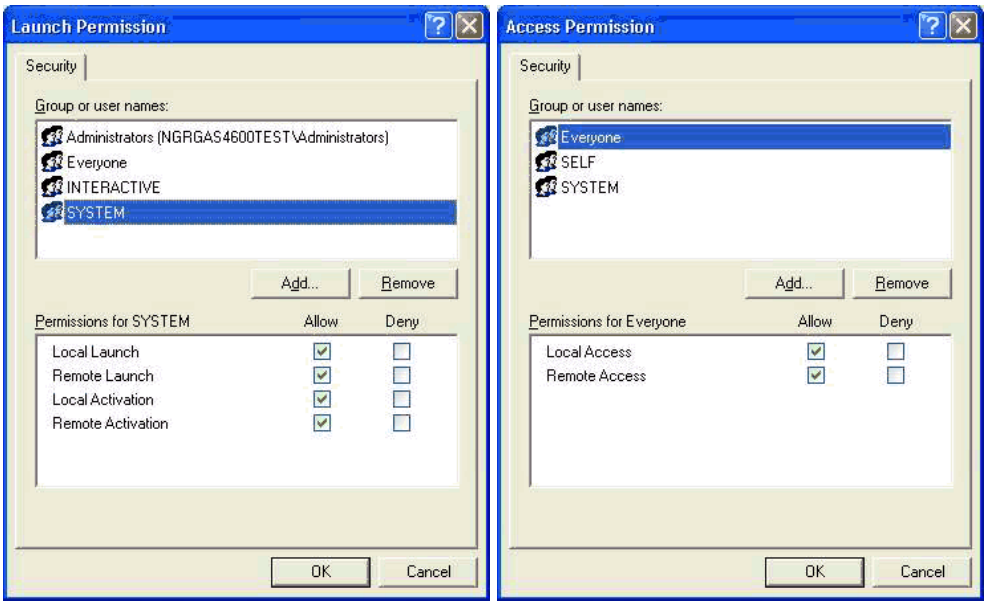

RadioLinx_OPC_Server Properties
General
Location
Security
Endpoints
Identity
The following settings allow DCOM to locate the correct computer for this application. If you make more than one selection, then DCOM uses the first applicable one. Client applications may overide your selections.
Run application on the computer where the data is located.
Run application on this computer.
Run application on the following computer:
Browse...
OK
Cancel
Apply

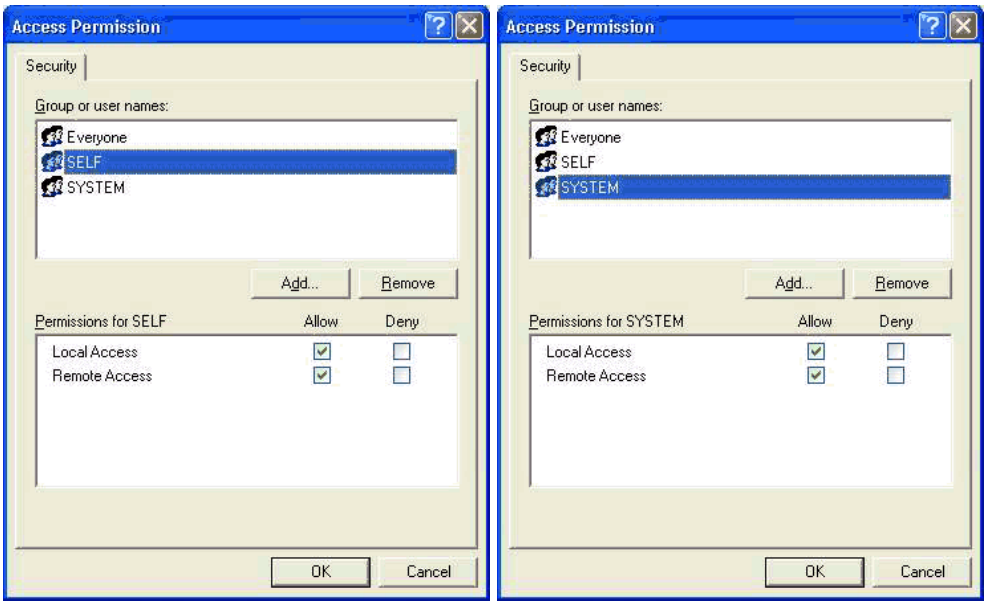

RadioLinx_OPC_Server Properties
General
Location
Security
Endpoints
Identity
Launch and Activation Permissions
Use Default
Customize
Edit...
Access Permissions
Use Default
Customize
Edit...
Configuration Permissions
Use Default
Customize
Edit...
OK
Cancel
Apply

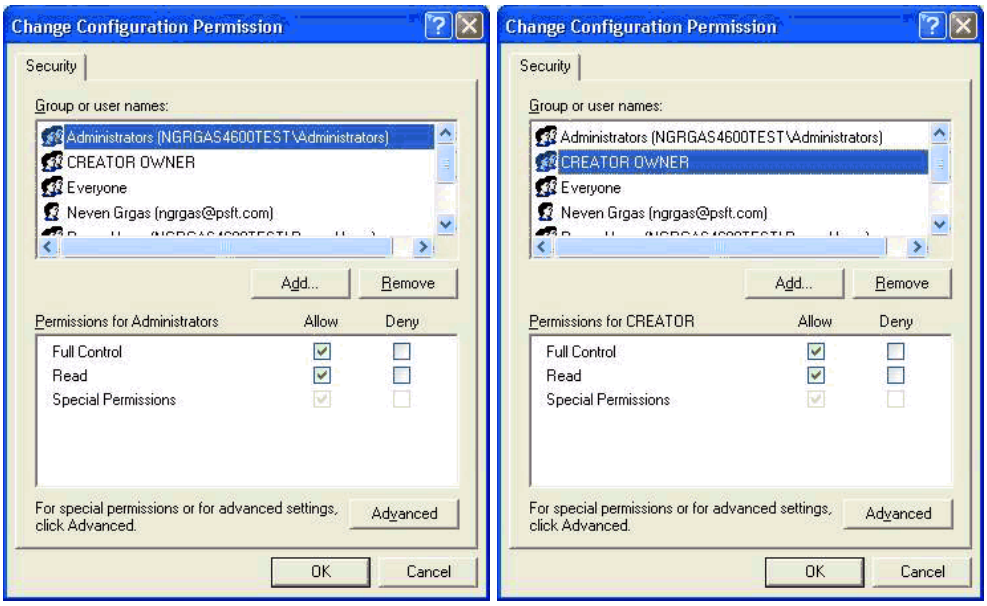

Launch Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
Everyone
INTERACTIVE
SYSTEM
Add...
Remove
Permissions for Administrators
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel

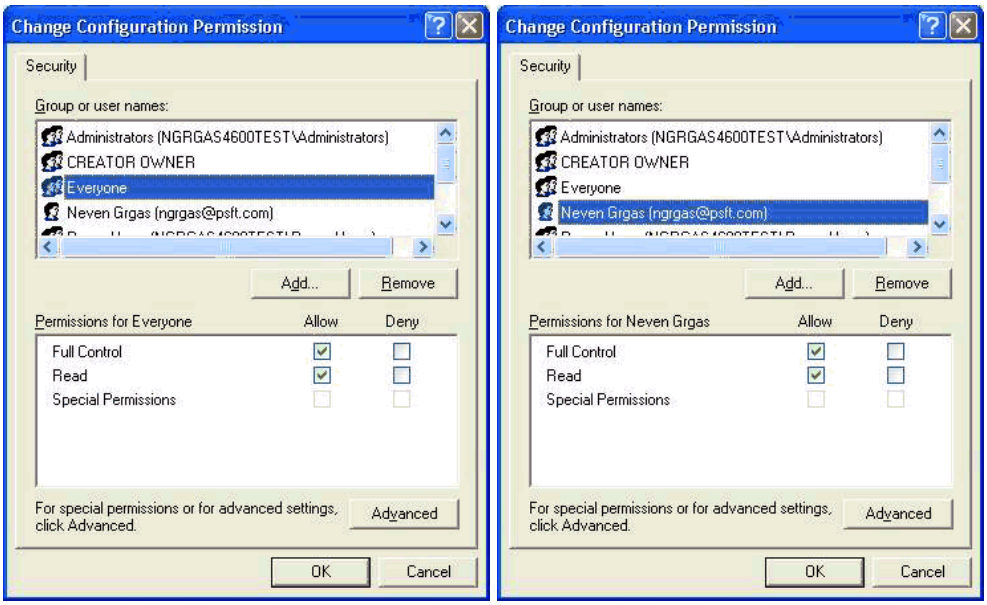

Launch Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
Everyone
INTERACTIVE
SYSTEM
Add...
Remove
Permissions for Everyone
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel

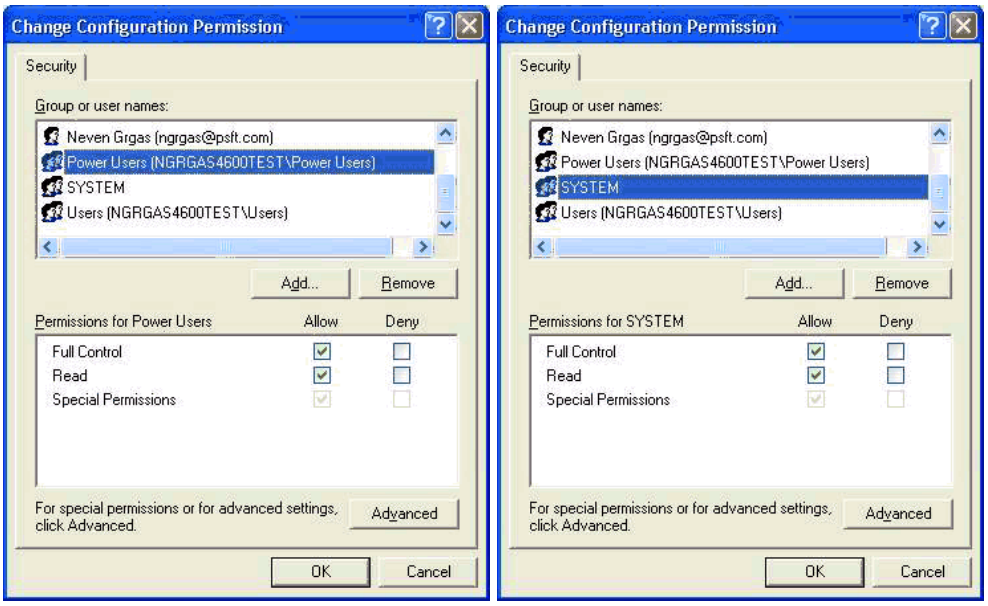

Launch Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
Everyone
INTERACTIVE
SYSTEM
Add...
Remove
Permissions for INTERACTIVE
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel

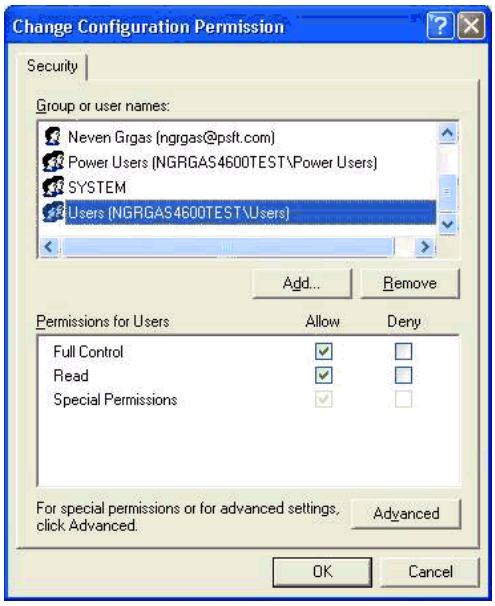

Launch Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
Everyone
INTERACTIVE
SYSTEM
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Local Launch
Remote Launch
Local Activation
Remote Activation
OK
Cancel
Access Permission
Security
Group or user names:
Everyone
SELF
SYSTEM
Add...
Remove
Permissions for Everyone
Allow
Deny
Local Access
Remote Access
OK
Cancel


Access Permission
Security
Group or user names:
Everyone
SELF
SYSTEM
Add...
Remove
Permissions for SELF
Allow
Deny
Local Access
Remote Access
OK
Cancel
Access Permission
Security
Group or user names:
Everyone
SELF
SYSTEM
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Local Access
Remote Access
OK
Cancel


Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Administrators
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for CREATOR
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel


Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Everyone
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Administrators (NGRGAS4600TEST\Administrators)
CREATOR OWNER
Everyone
Neven Grgas (ngrgas@psft.com)
Add...
Remove
Permissions for Neven Grgas
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel


Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for Power Users
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for SYSTEM
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel


Change Configuration Permission
Security
Group or user names:
Neven Grgas (ngrgas@psft.com)
Power Users (NGRGAS4600TEST\Power Users)
SYSTEM
Users (NGRGAS4600TEST\Users)
Add...
Remove
Permissions for Users
Allow
Deny
Full Control
Read
Special Permissions
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel

6 Connect to Server and Monitor Tags

In This Chapter

This chapter provides a few examples of software programs and using the RLX OPC server. They show typical installation and helpful steps.

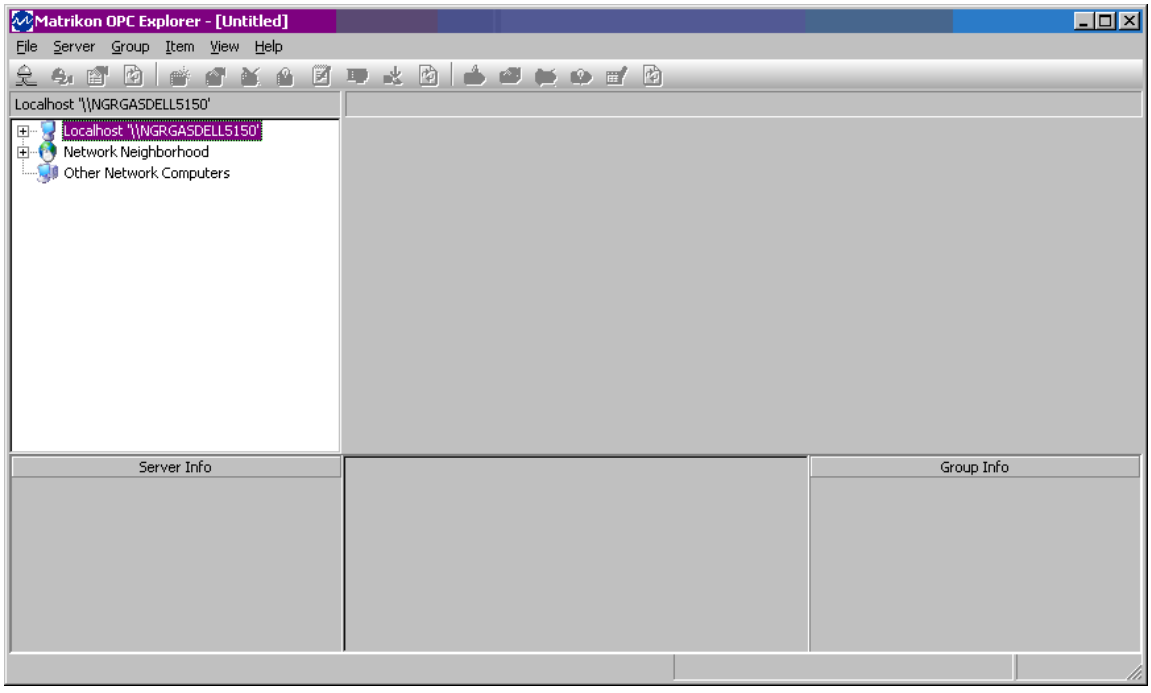
6.1 Matrikon Example

6.1.1 Connections

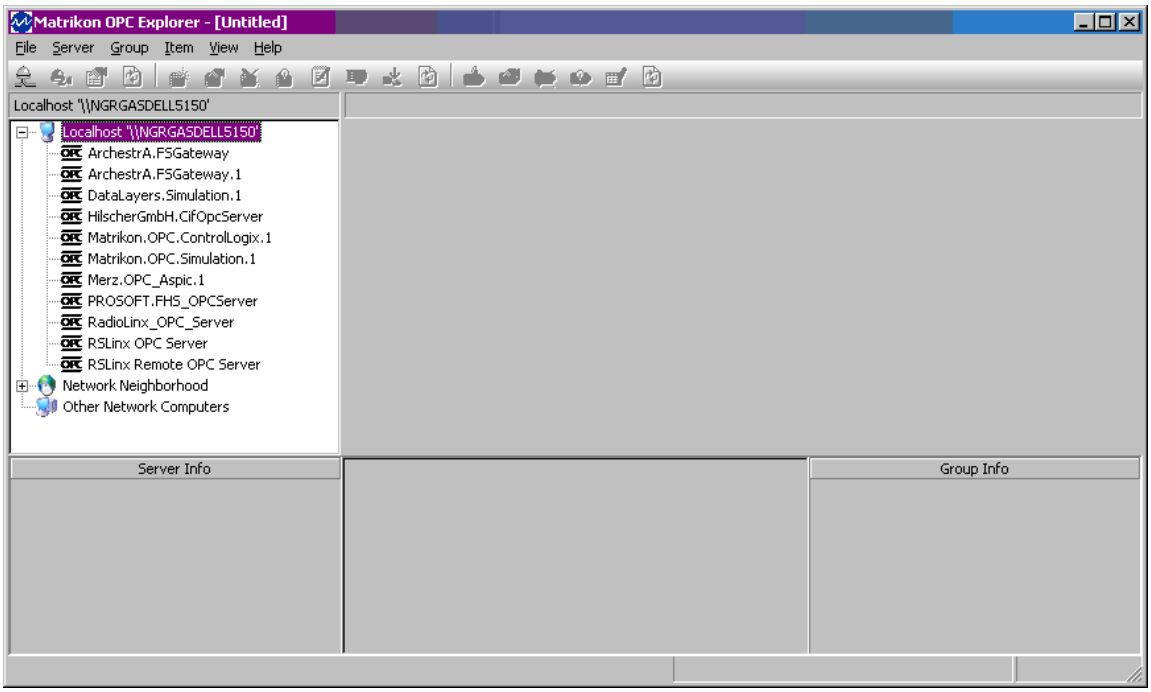
The following procedure will be for a Local Connection.

For the Remote Connection, the user will expand the Network Neighborhood branch and select the appropriate computer in the Network that contains the RadioLinx OPC Server. Then follow the identical sequence as in creating a Local Connection.

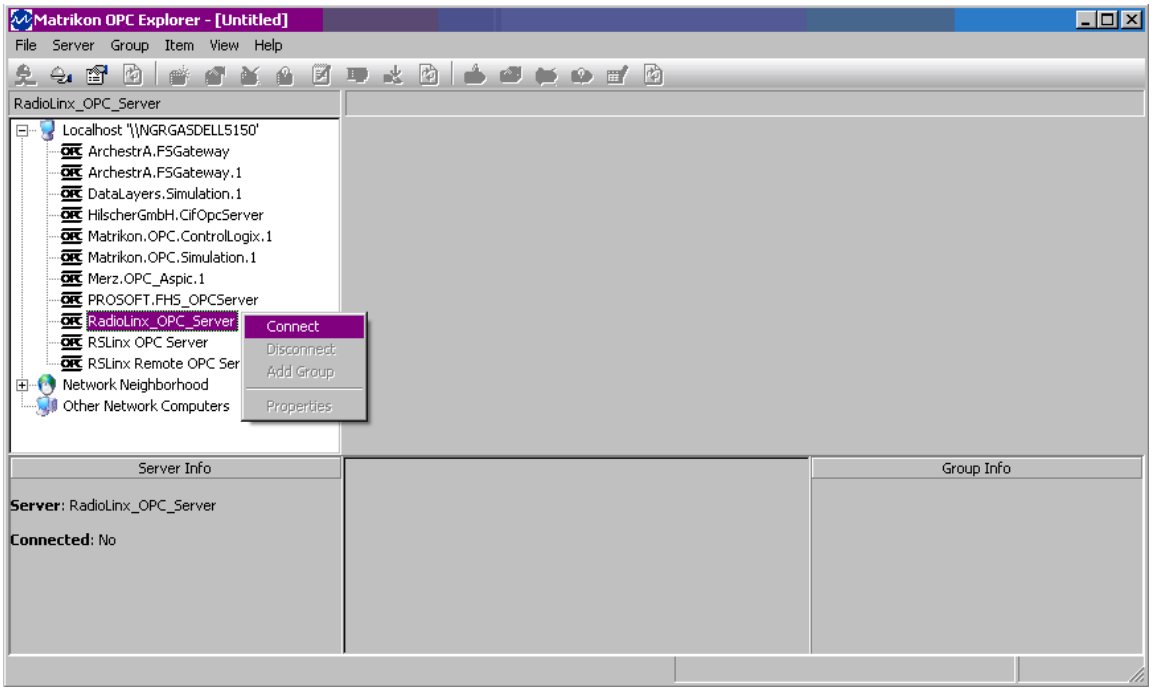
2 Select a local (Localhost\\...) or remote (Network Neighborhood) branch to expand.



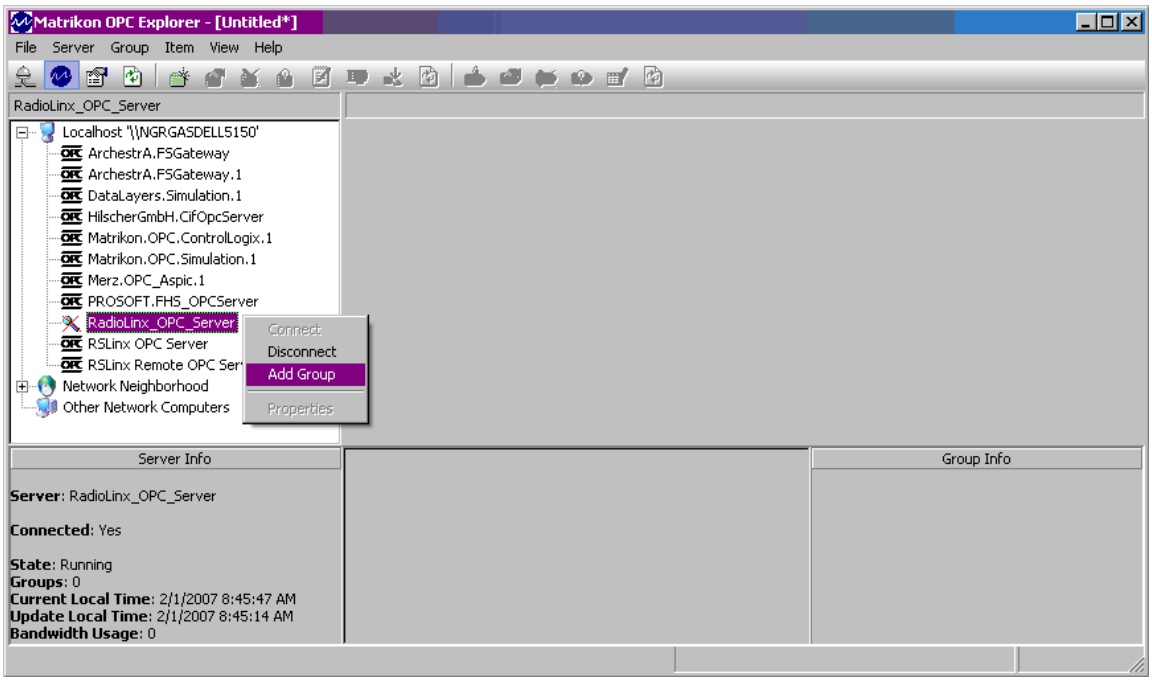
3 The expanded branch displays the installed and available OPC Servers in the selected computer.



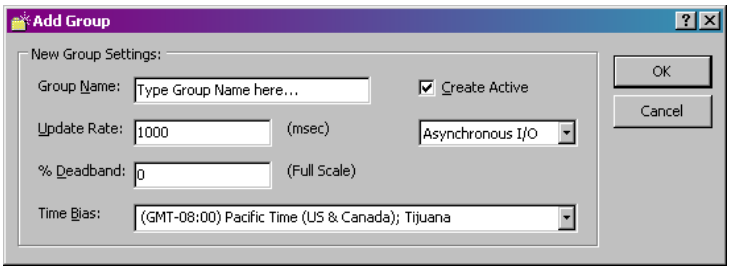
4 Select RadioLinx_OPC_Server. Right-click and select Connect to create a connection between Matrikon OPC Client and the RadioLinx_OPC_Server.



5 Right-click and select **Add Group** to create a group that will hold Server Tags.

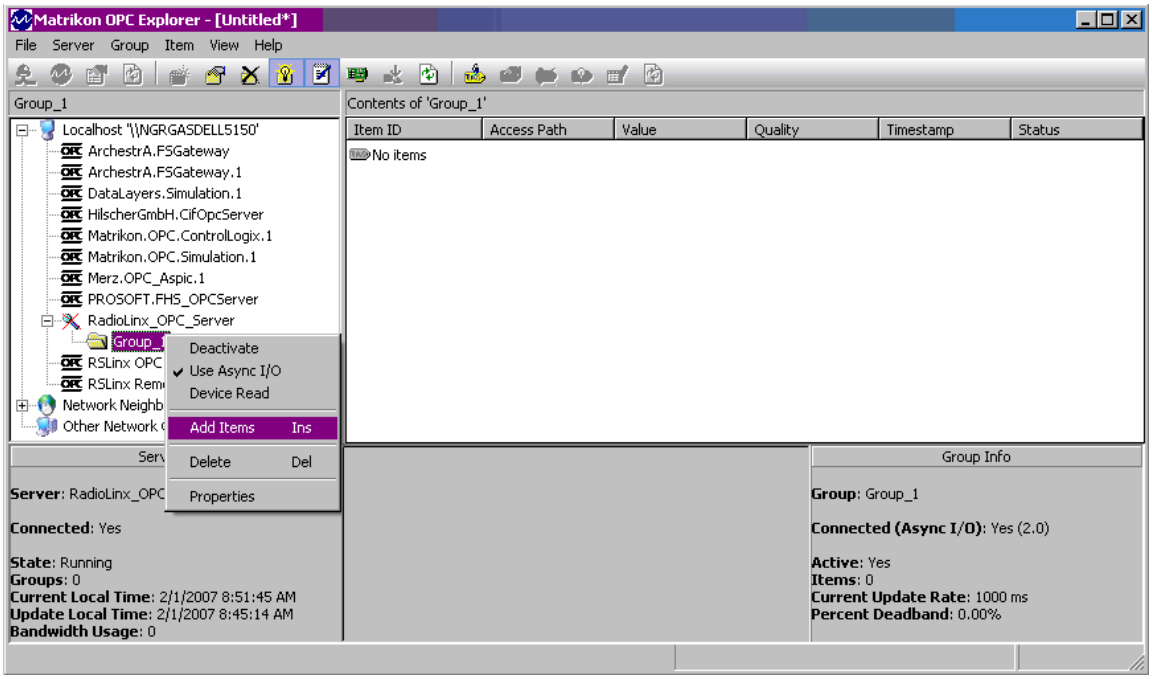


6 Enter a Group Name. Modify options as desired, and then click OK to accept the Selections.

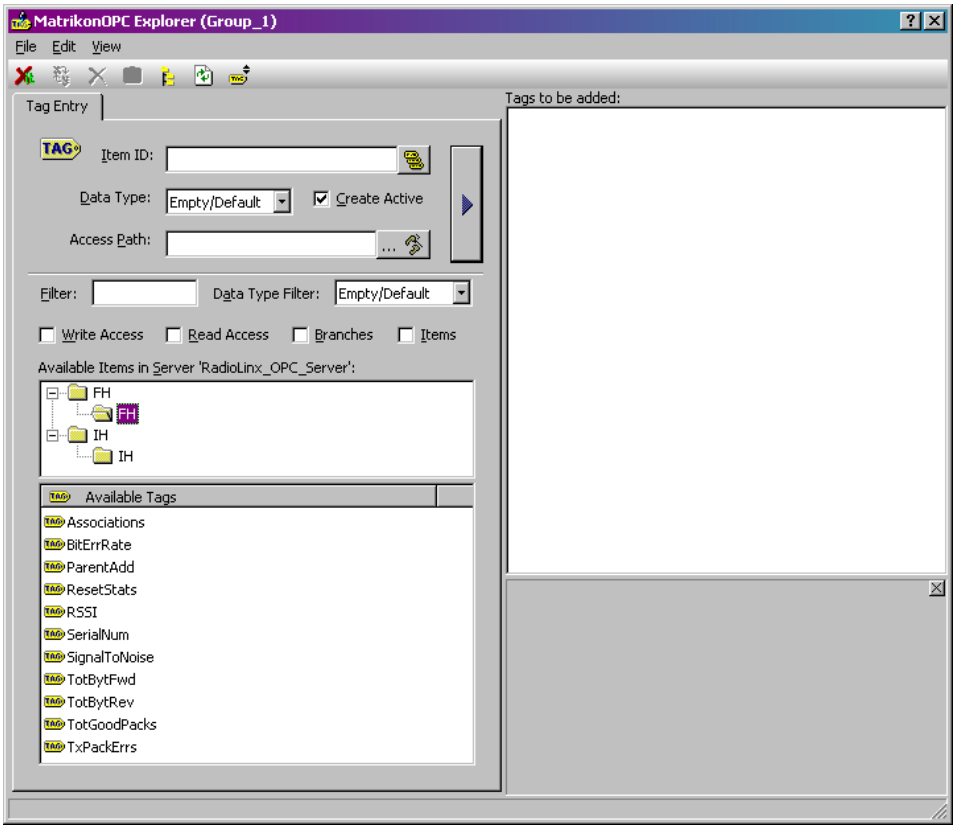


The new group is created (Group_1).

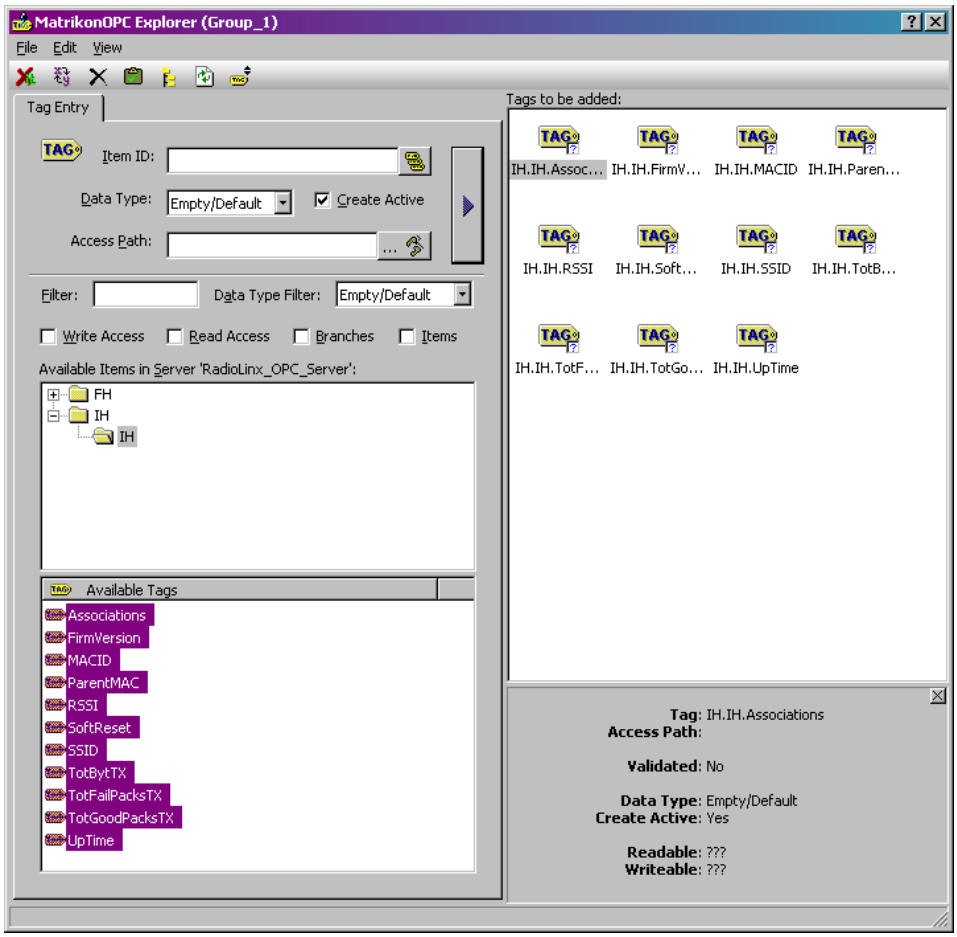
7 Right click on **Group_1** and select **Add Items**. This will enable specific Tag selection.



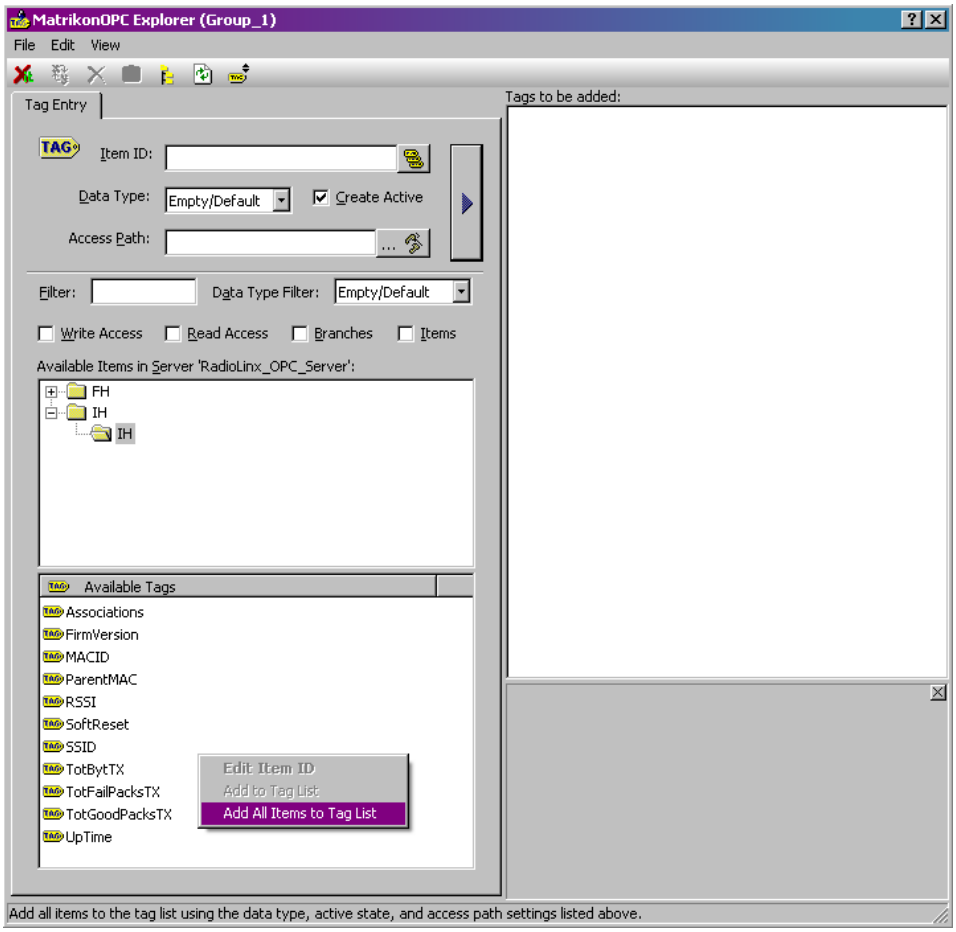
8 Expand the branches in the "Available Items in Server 'RadioLinx_OPC_Server':" field to display the available Server Tags.



9 Right click (Highlight) on Available Tags field empty section to add All tags, or right click over a specific Tag to add specifically it to the list for monitoring.

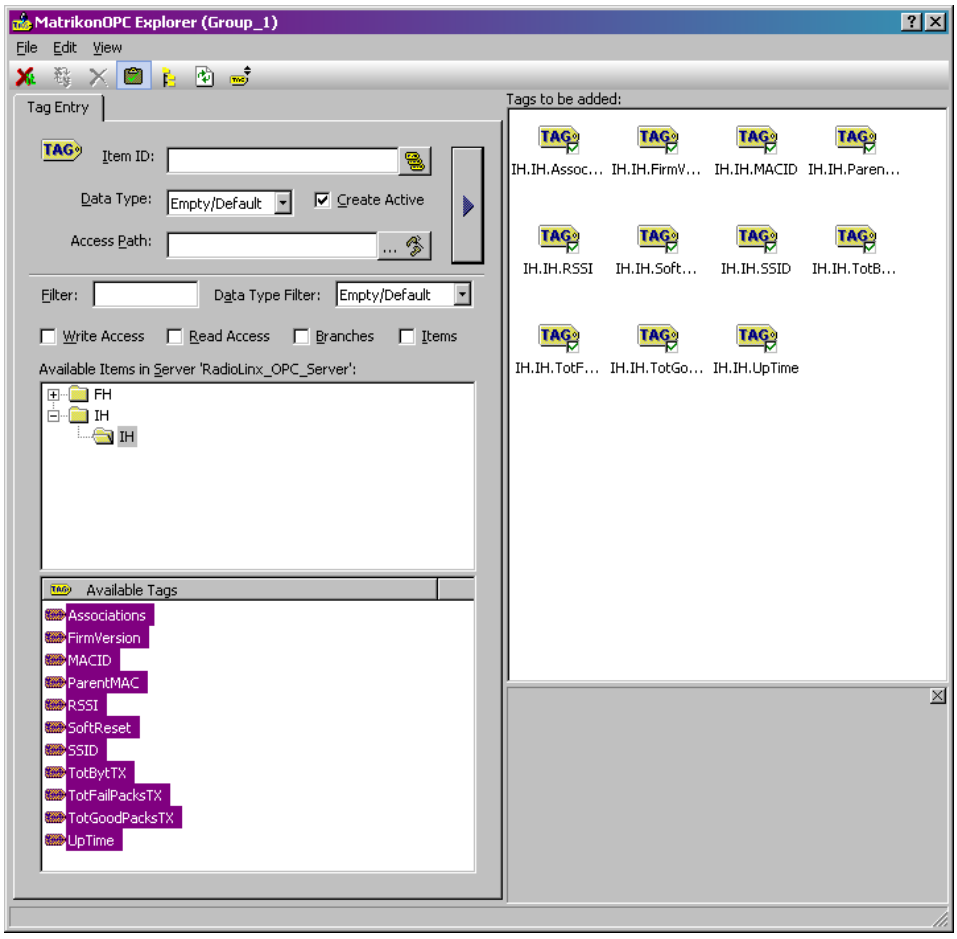


10 Tags that will be added to the OPC client.

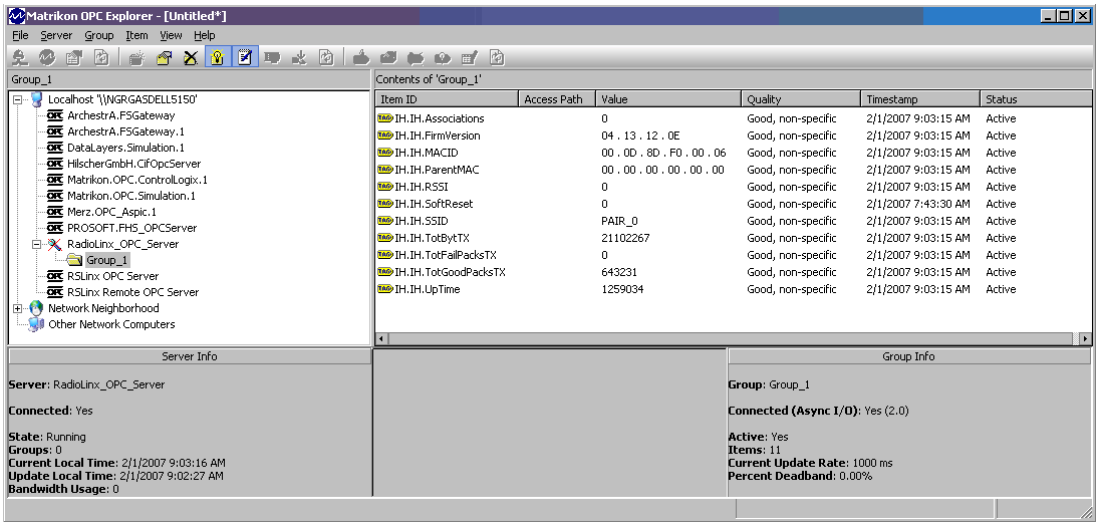


11 Click on the **Clipboard icon** to Validate the Tags. A *green checkmark* next to the Tag icon in the "Tags to be added:" field indicates that it is a Valid tag.

12 Click the **Red X** icon to Close the Item Browser and add the Selected Items to the Client Monitor.



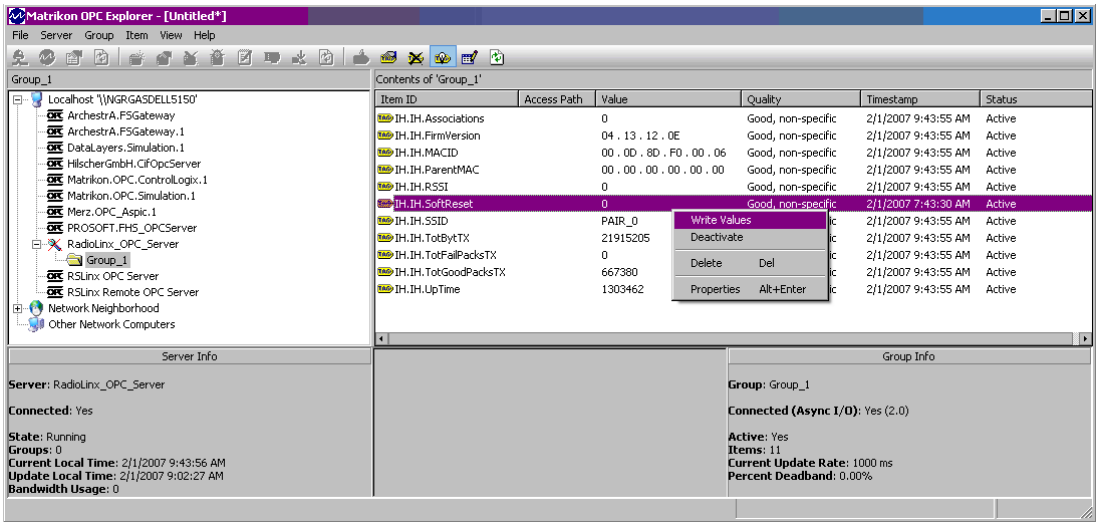
13 The selected RadioLinx OPC Server tags are being monitored by Matrikon OPC Explorer.



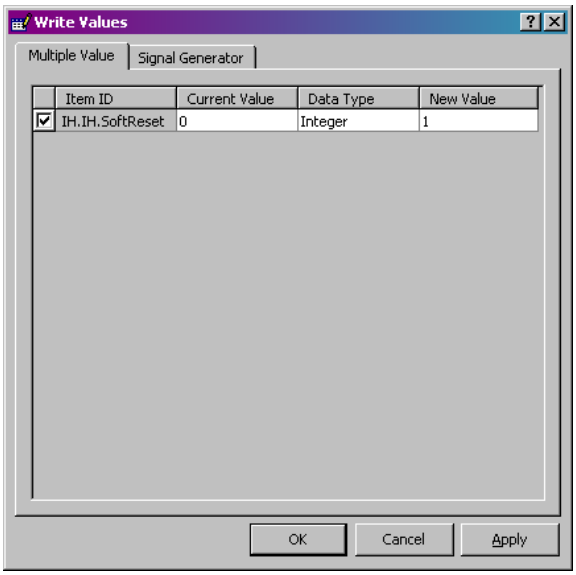
There is one Tag that may be controlled from the Matrikon OPC Explorer. That tag is labeled "SoftReset".

This is the example on how to activate the SoftReset tag.

1 Right-Click over the SoftReset Tag. Select the Write Values option.



2 Enter 1 into the New Value field and Click OK. This action will reset the values of the Following Tags: (TAG1, TAG2…)



6.2 RSView Example

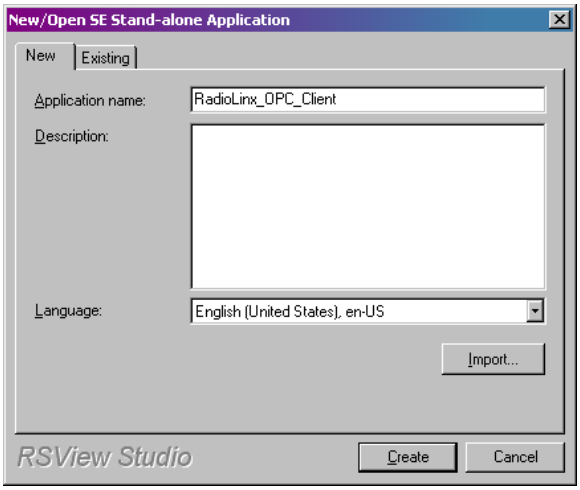
6.2.1 Connections

The following procedure will be for a Local Connection.

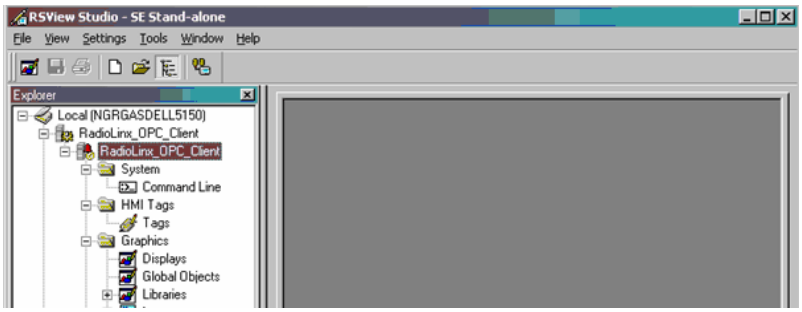
For the **Remote Connection**, refer to **Step 5**. Then follow the identical sequence as in creating a Local Connection**.**

1 In this example the SE Stand-alone is being demonstrated. Click on **Continue** button.

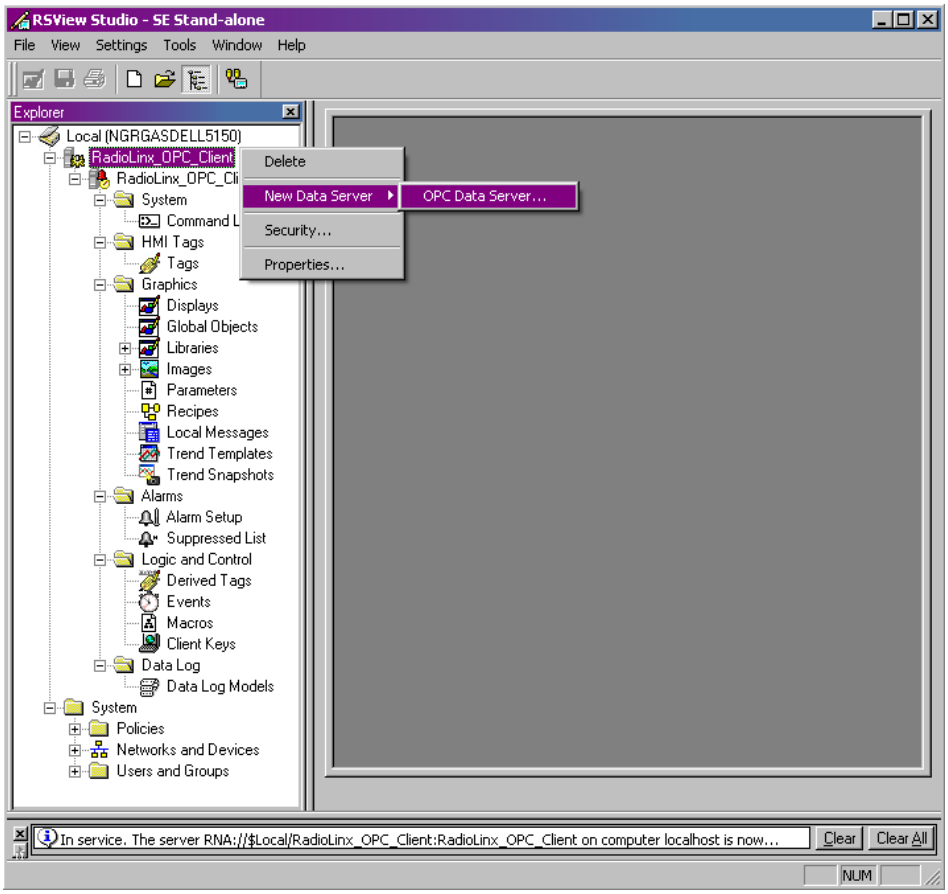
2 **Enter a desired OPC Client name into the** "Application Name:" field. **Click on** Create**.**



3 After about a minute the following window is generated by RSView Studio program.

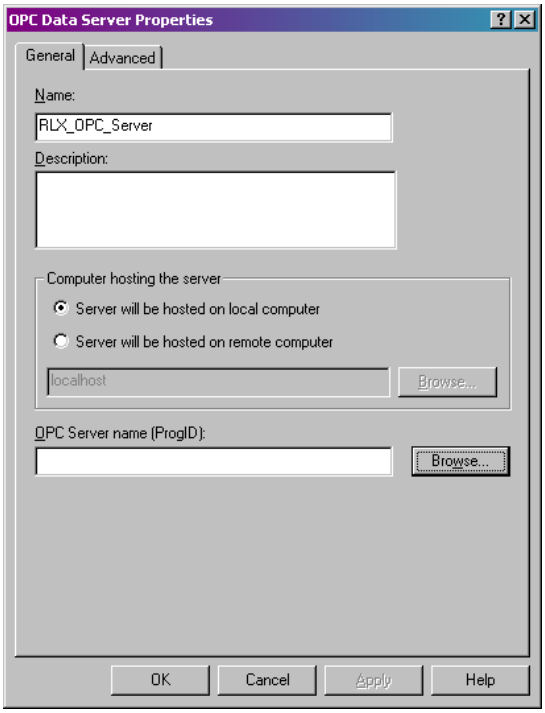


4 **Right Click over the** RadioLinx_OPC_Client **branch to select the** RadioLinx OPC Server**.**

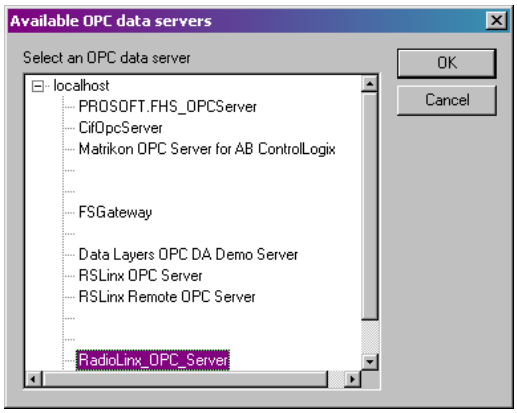


5 Enter a desired name for the OPC Data Server.

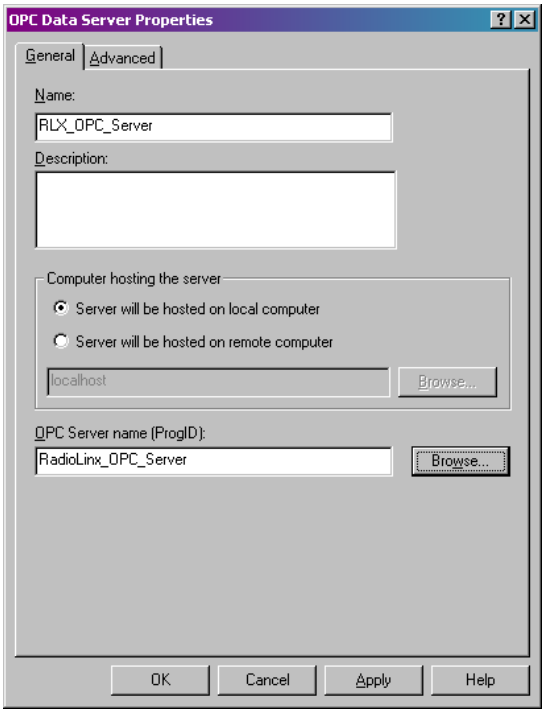
Select **Local** server host, then click on **Browse** button to select RadioLinx OPC Server in installed in the Local Computer.
- or -
Select **Remote** server host, then click on **Browse** button to select RadioLinx OPC Server in installed in the Remote Computer.



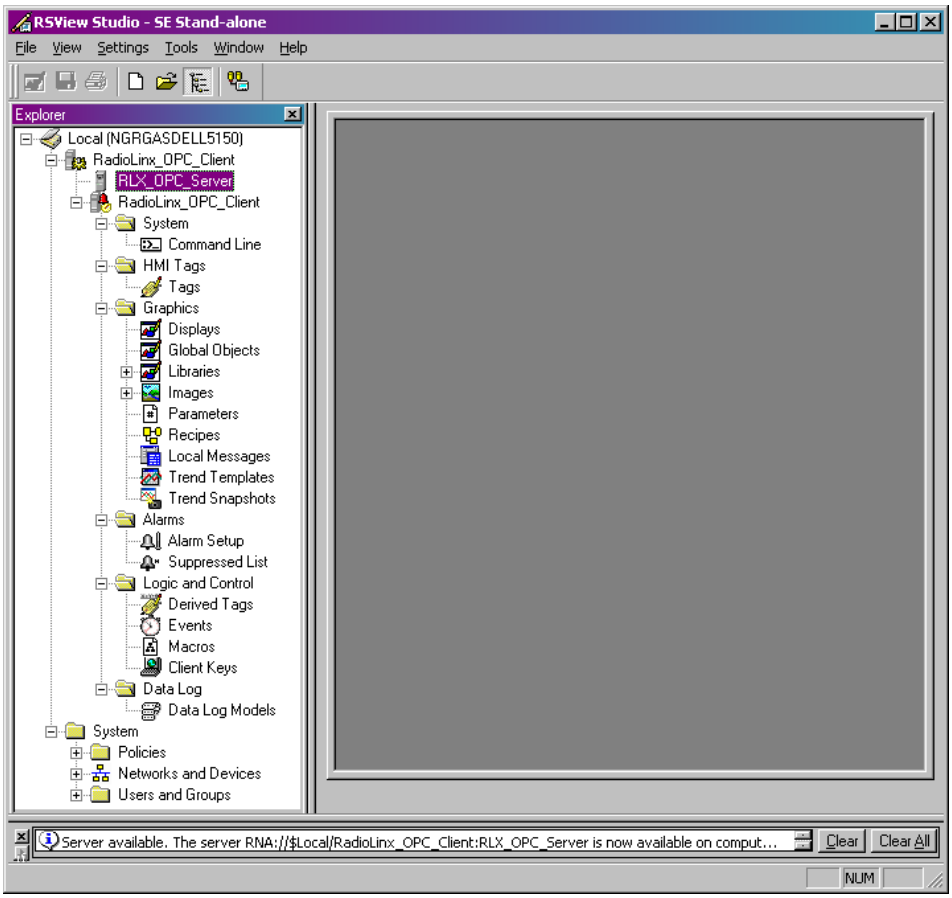
6 Select the **RadioLinx_OPC_Server** and Click **OK**.



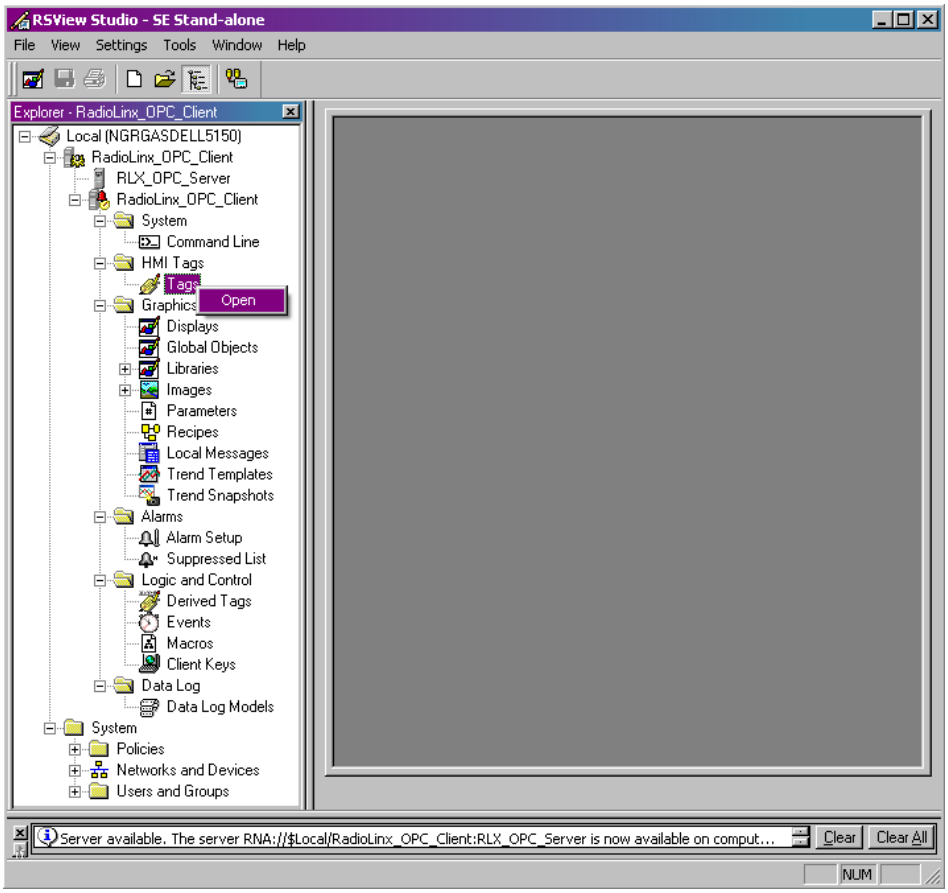
7 Proper OPC Server has been browsed for and selected. Click OK.



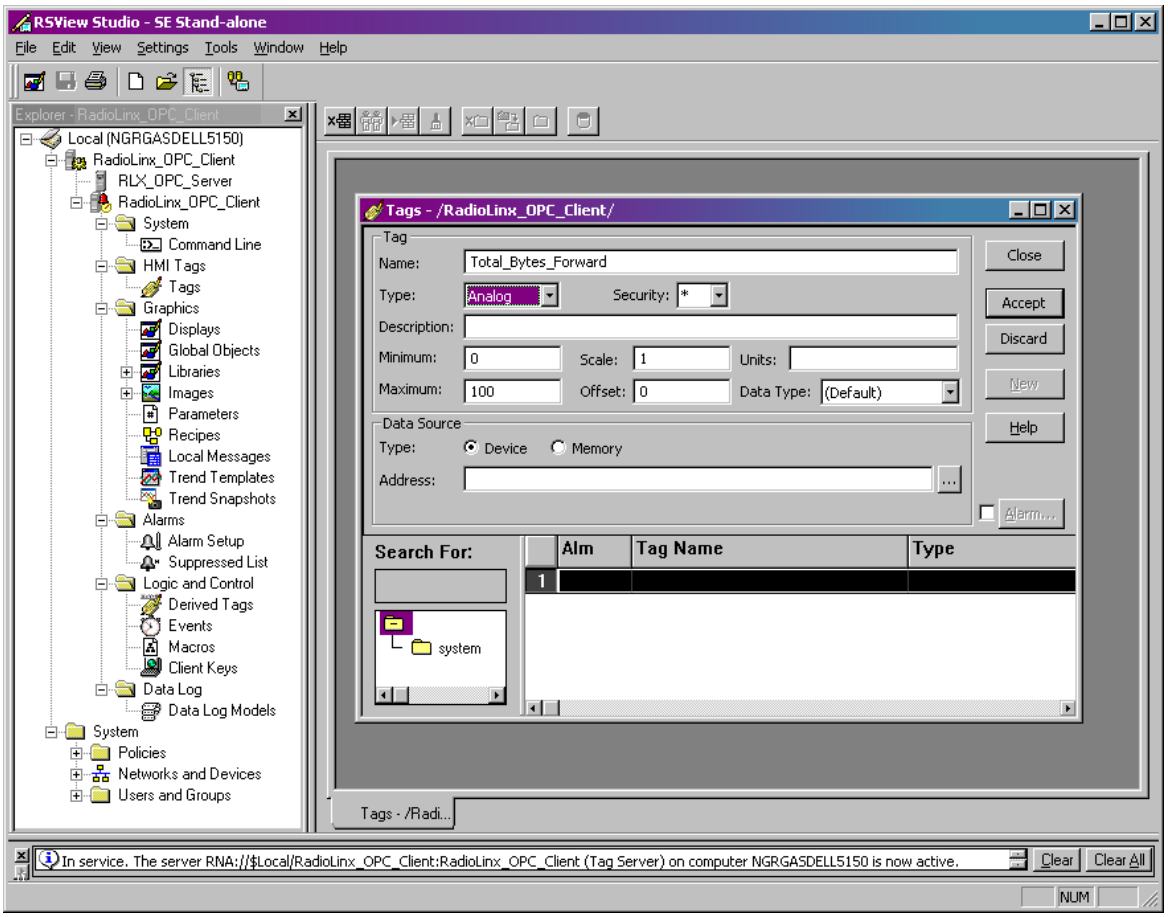
The appropriate OPC Server has been added to the project.



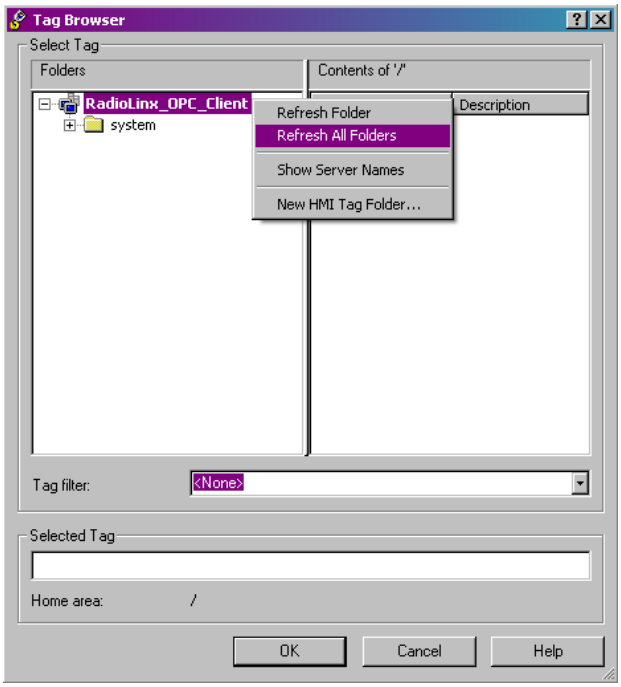
8 Right click over Tags to start creating RSView tags that will be connected to the RadioLinx OPC Server. Select Open.


RSView Studio - SE Stand-alone
File View Settings Tools Window Help
Explorer - RadioLinx_OPC_Client
Local (NGRGASDELL5150)
RadioLinx_OPC_Client
RLX_OPC_Server
RadioLinx_OPC_Client
System
Command Line
HMI Tags
Tags
Open
Graphics
Displays
Global Objects
Libraries
Images
Parameters
Recipes
Local Messages
Trend Templates
Trend Snapshots
Alarms
Alarm Setup
Suppressed List
Logic and Control
Derived Tags
Events
Macros
Client Keys
Data Log
Data Log Models
System
Policies
Networks and Devices
Users and Groups
Server available. The server RNA://$Local/RadioLinx_OPC_Client:RLX_OPC_Server is now available on comput...
Clear
Clear All
NUM

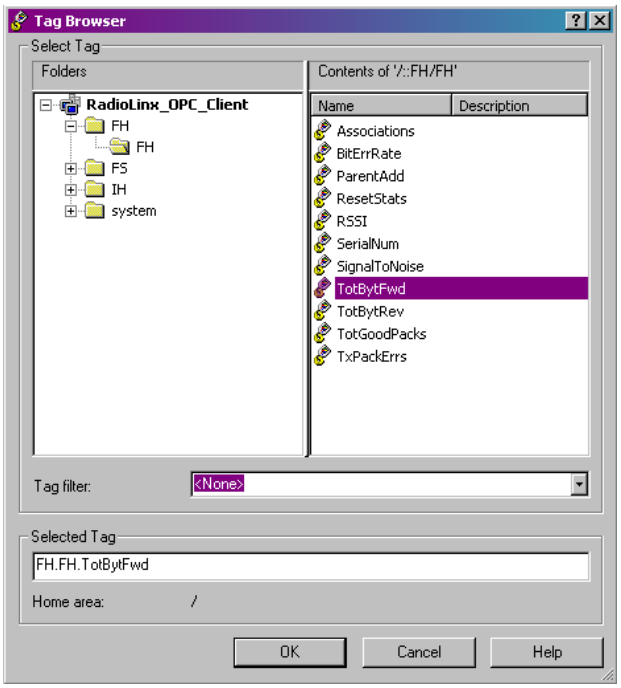
9 Enter the desired tag name into "**Name:**" field. Select the RSView Tag **Type**. Click on the **Data Source** Address selection button.



10 Right-click over the selected branch and select Refresh All Folders.

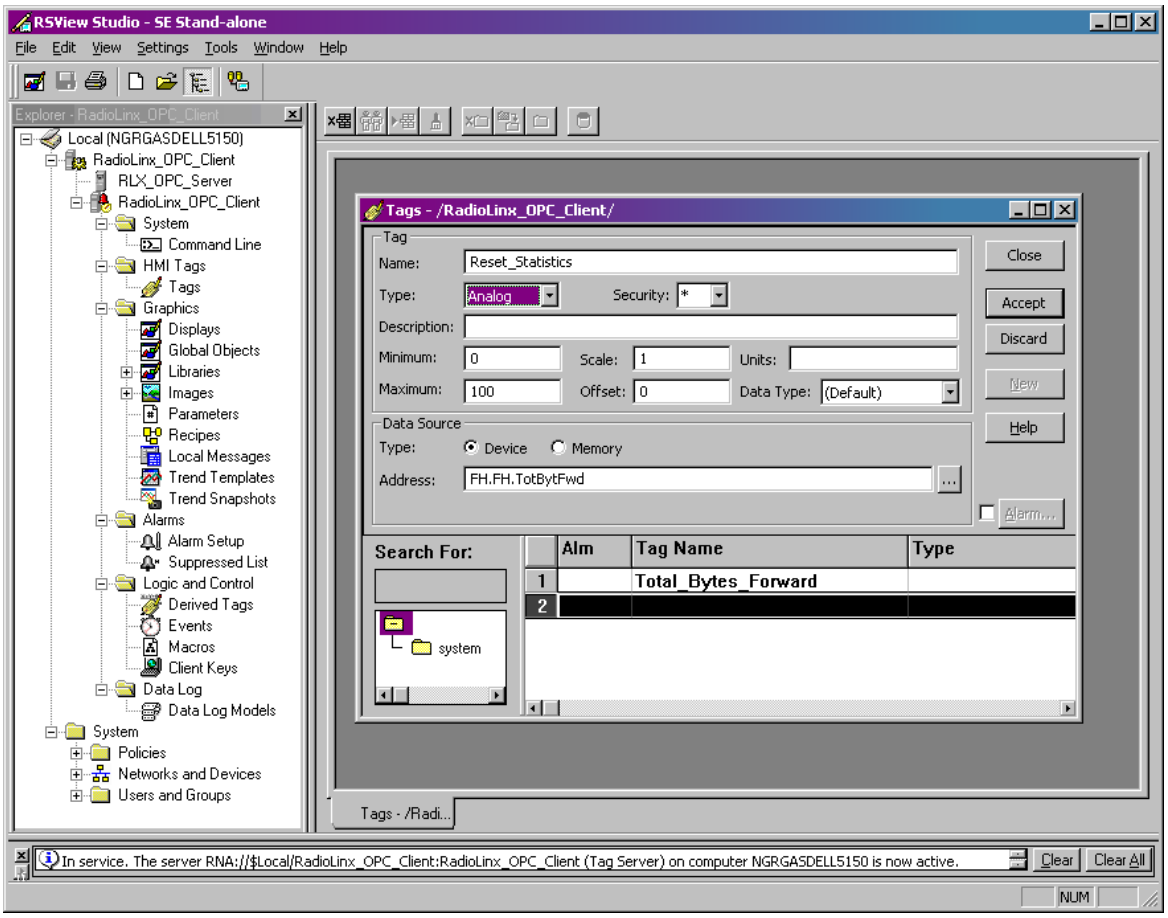


11 Expand the branches and select **TotBytFwd** RadioLinx OPC Server Tag name. Click **OK** to continue.

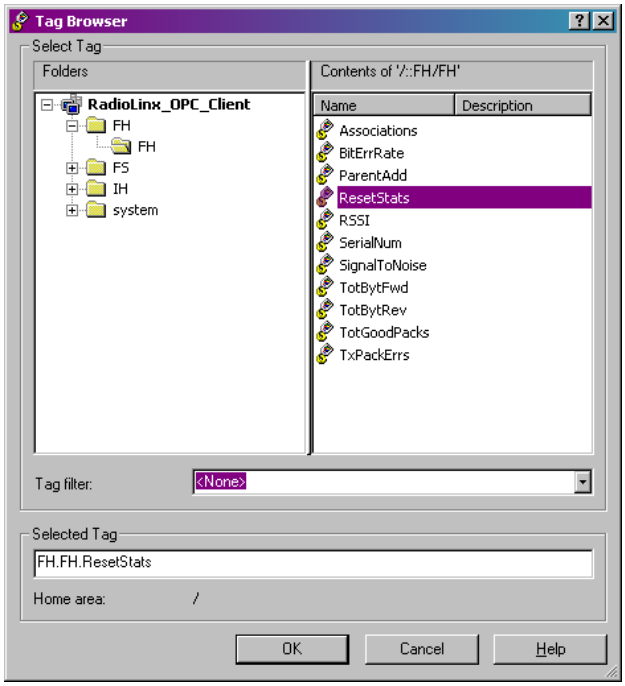


12 The RSView Tag name Total_Bytes_Forward has been linked to the RadioLinx OPC Server tag name TotBytFwd. In the Tag group select the (Default) Data Type. Click Accept to Continue.

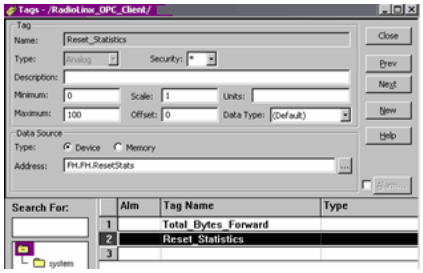
13 Enter another tag name into Name: field. Select the RSView Tag Type. Click on the Data Source Address selection button.



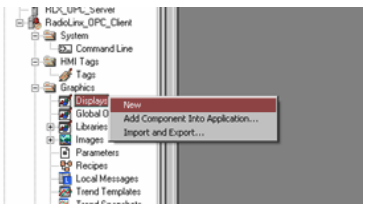
14 Select **ResetStats** RadioLinx OPC Server Tag name. Click **OK**.



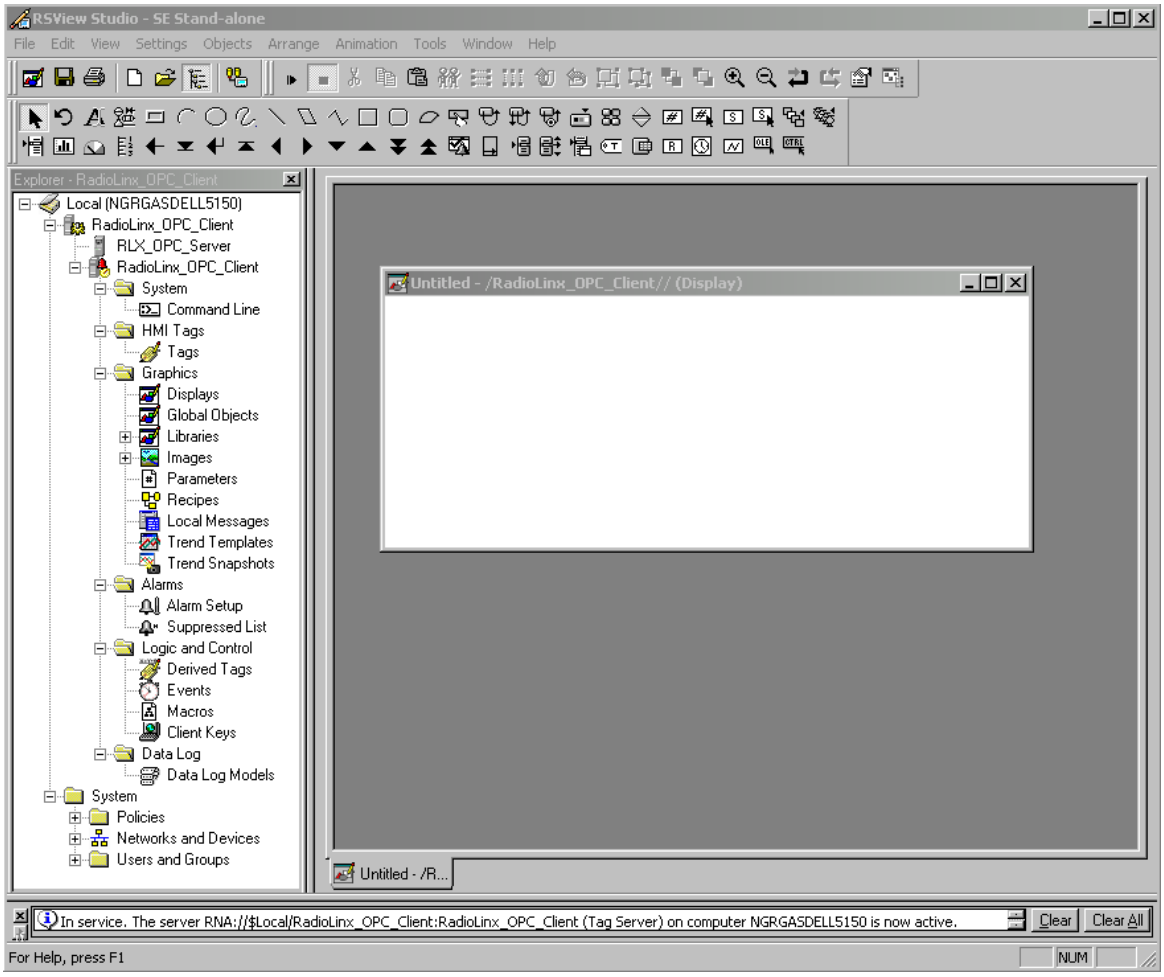
15 After clicking on the Accept button, the second sample RSView tag name has been linked with the second RadioLinx OPC Server Tag name (as indicated in this screen capture). Click Close.



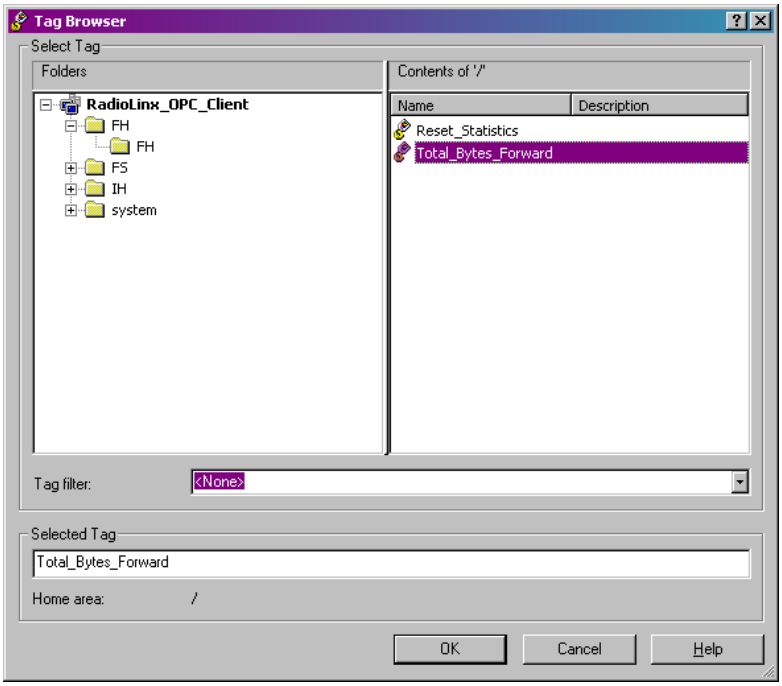
16 Let's create a display for the two tags link.



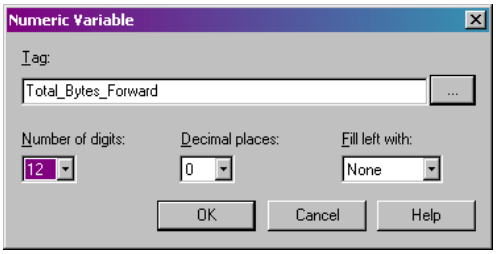
Getting ready to create two tag displays.



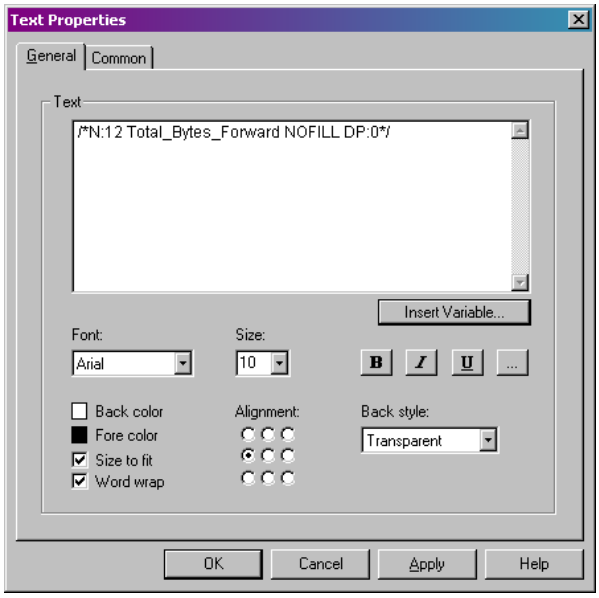
17 Selecting the RSView tag that has already been linked its RadioLinx OPC Server Tag.



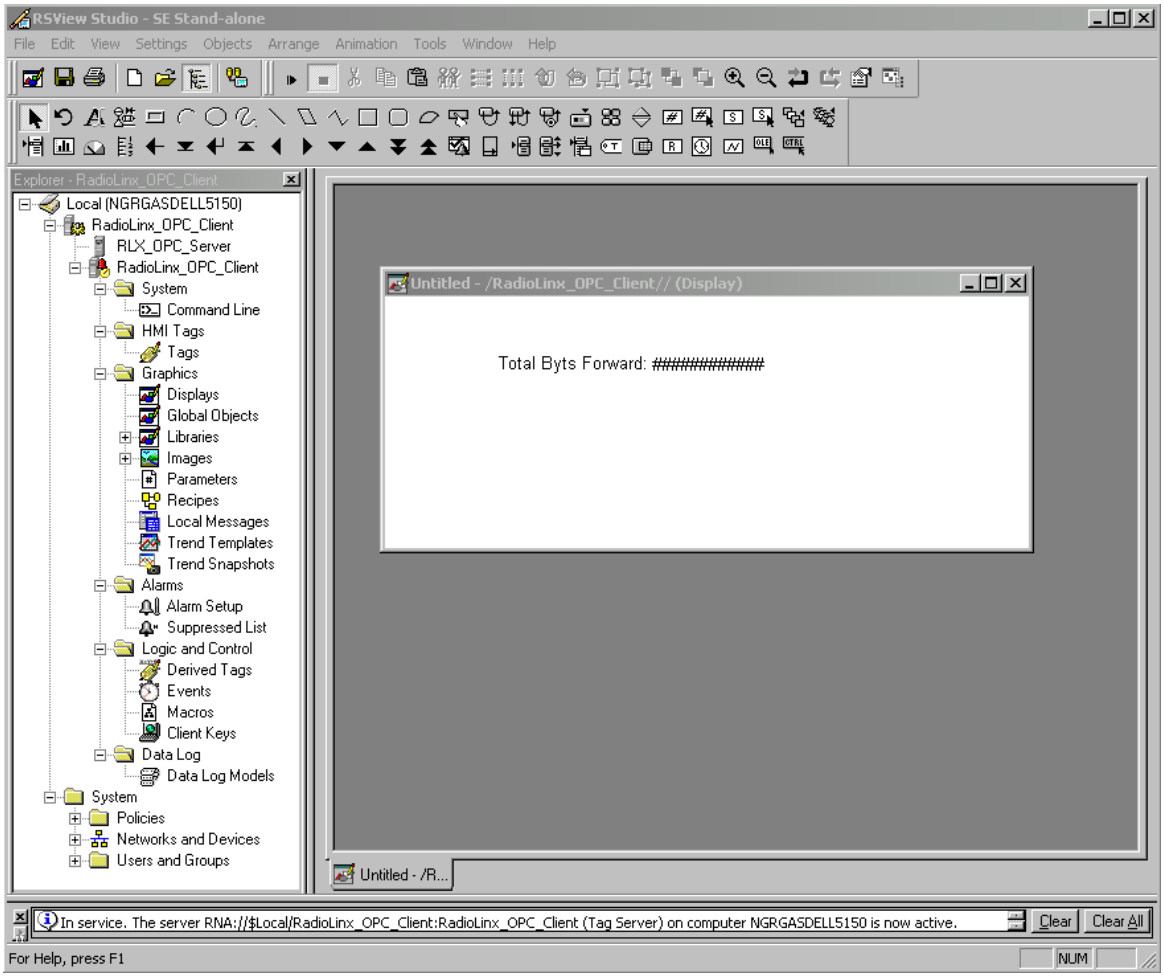
18 Formatting the appearance of the RSView Tag.



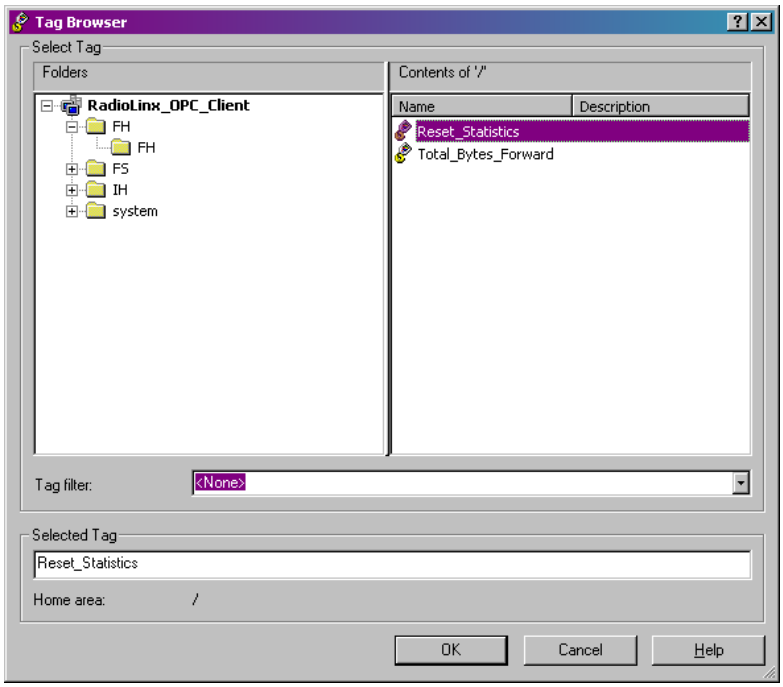
19 Formatting of the RSView Text Property.



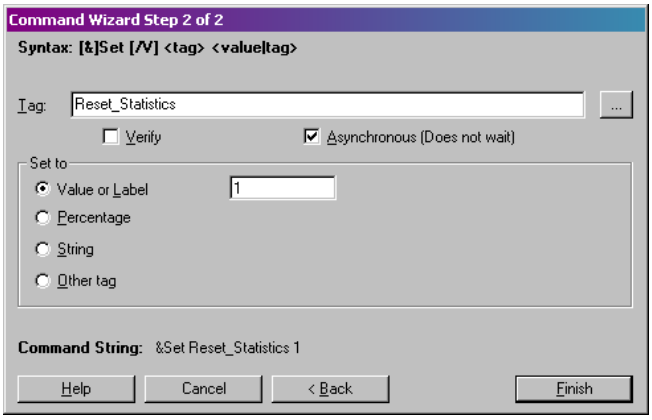
20 One Tag's label and RadioLinx OPC Server link has been created.



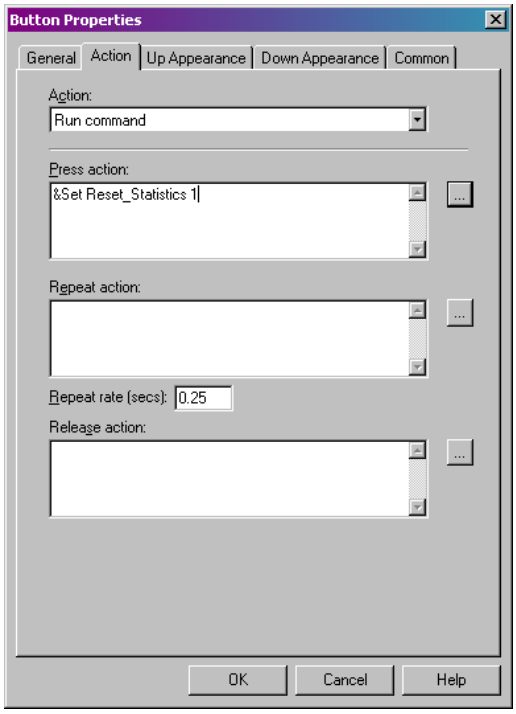
21 Select the appropriate RSView tag to display the RadioLinx OPC tag's value.



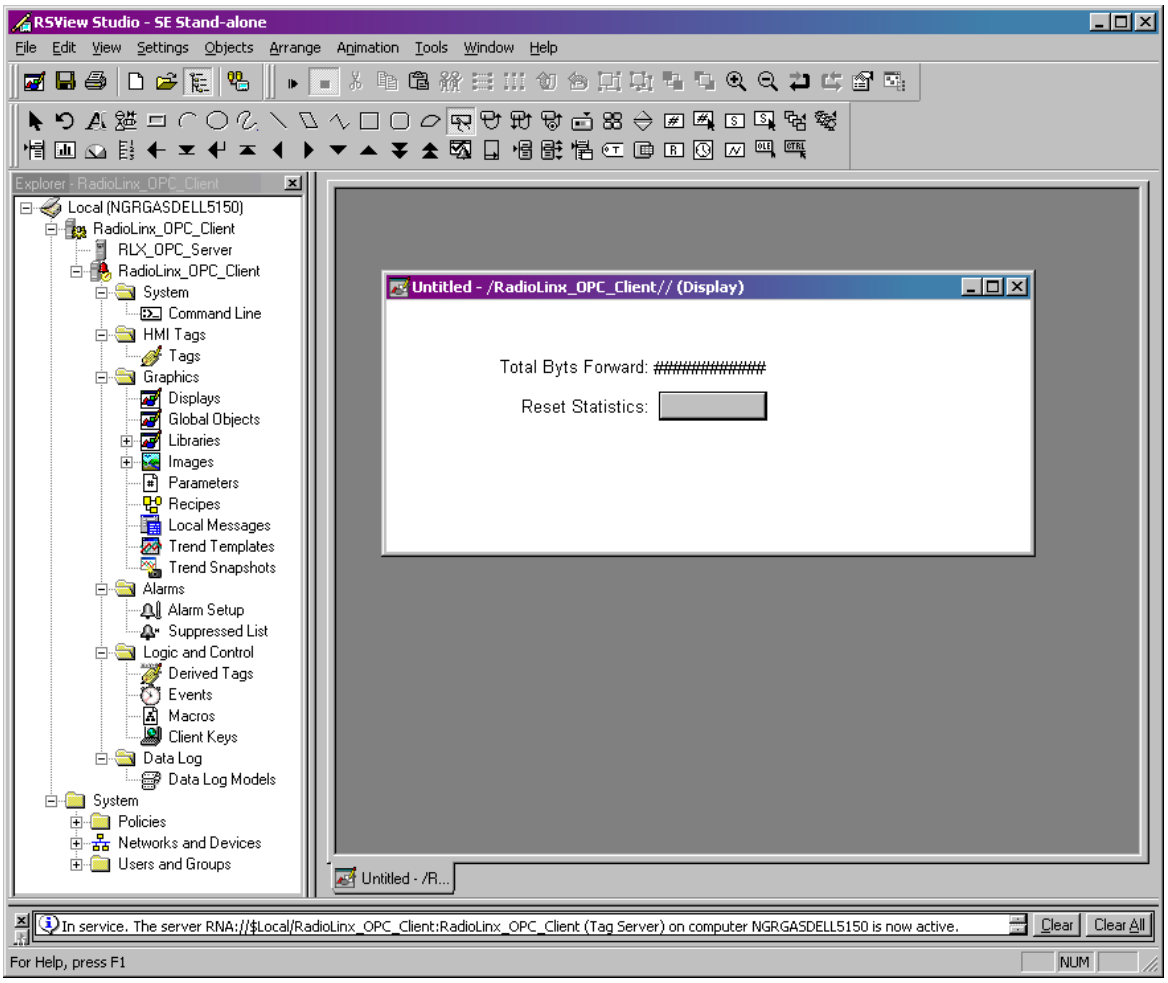
22 In this example the value must be set to 1.



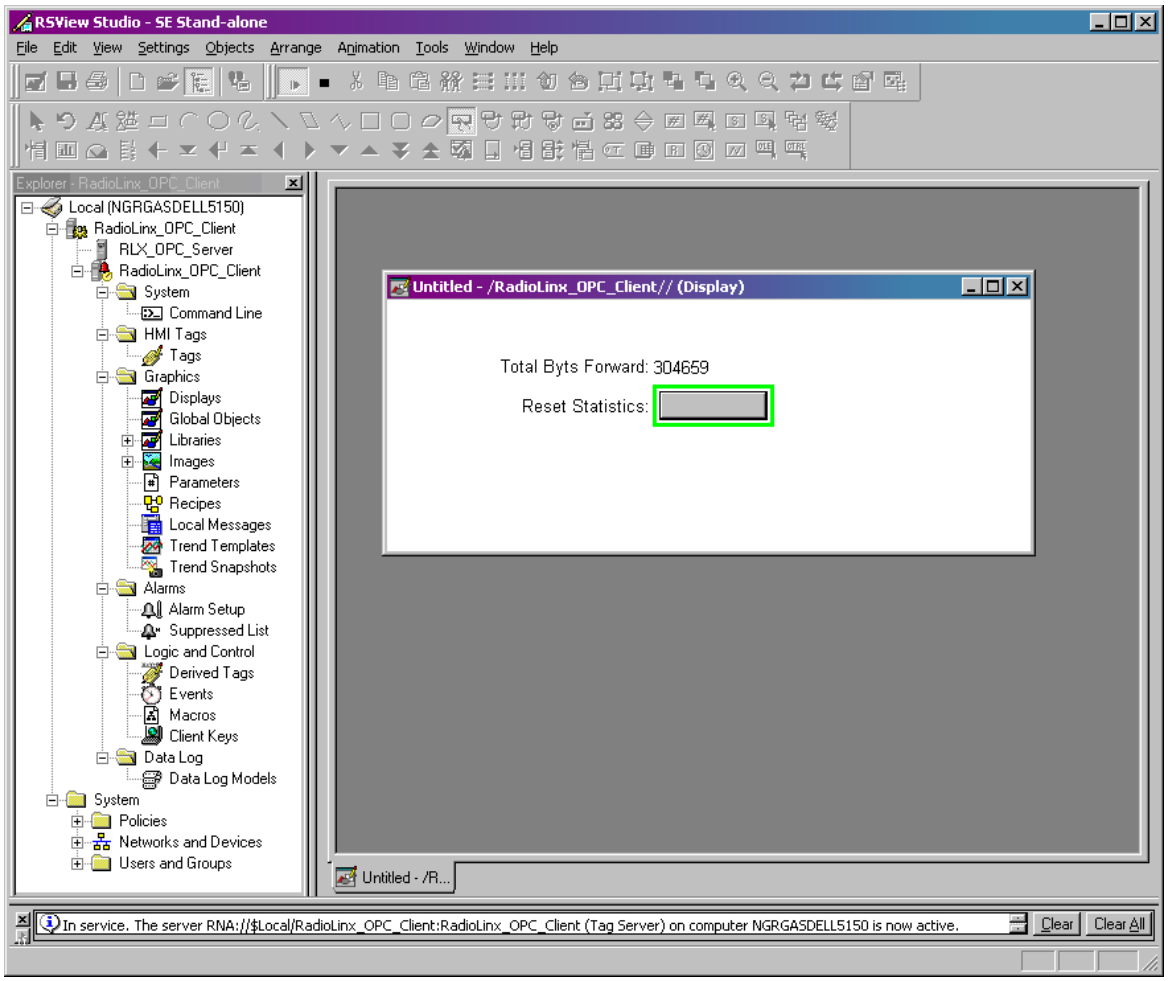
23 Either **Press Action** or **Release Action** may be used.



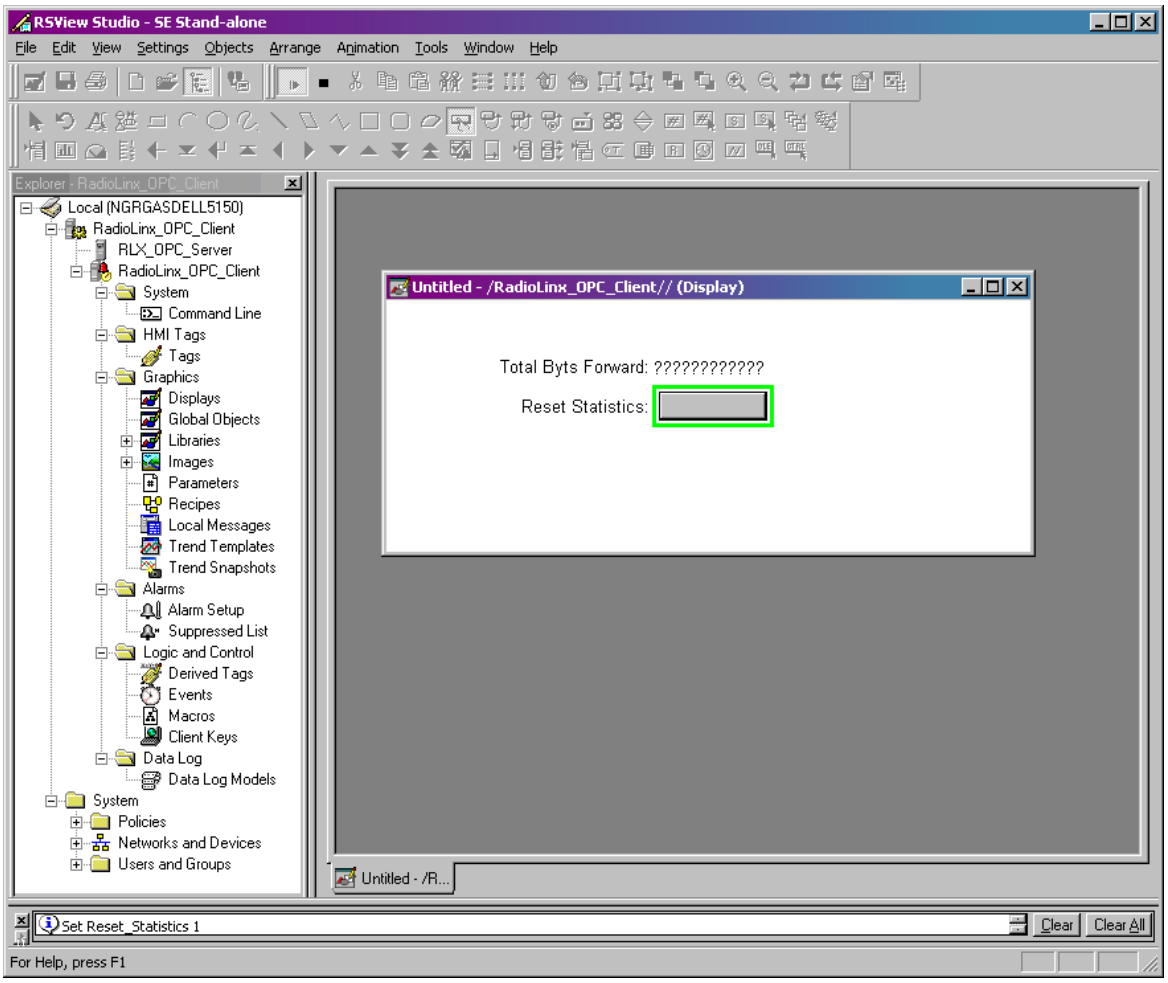
24 Appearance of the Total Bytes Forward tag's appearance and the Reset Statistics button appearance in the Edit window.



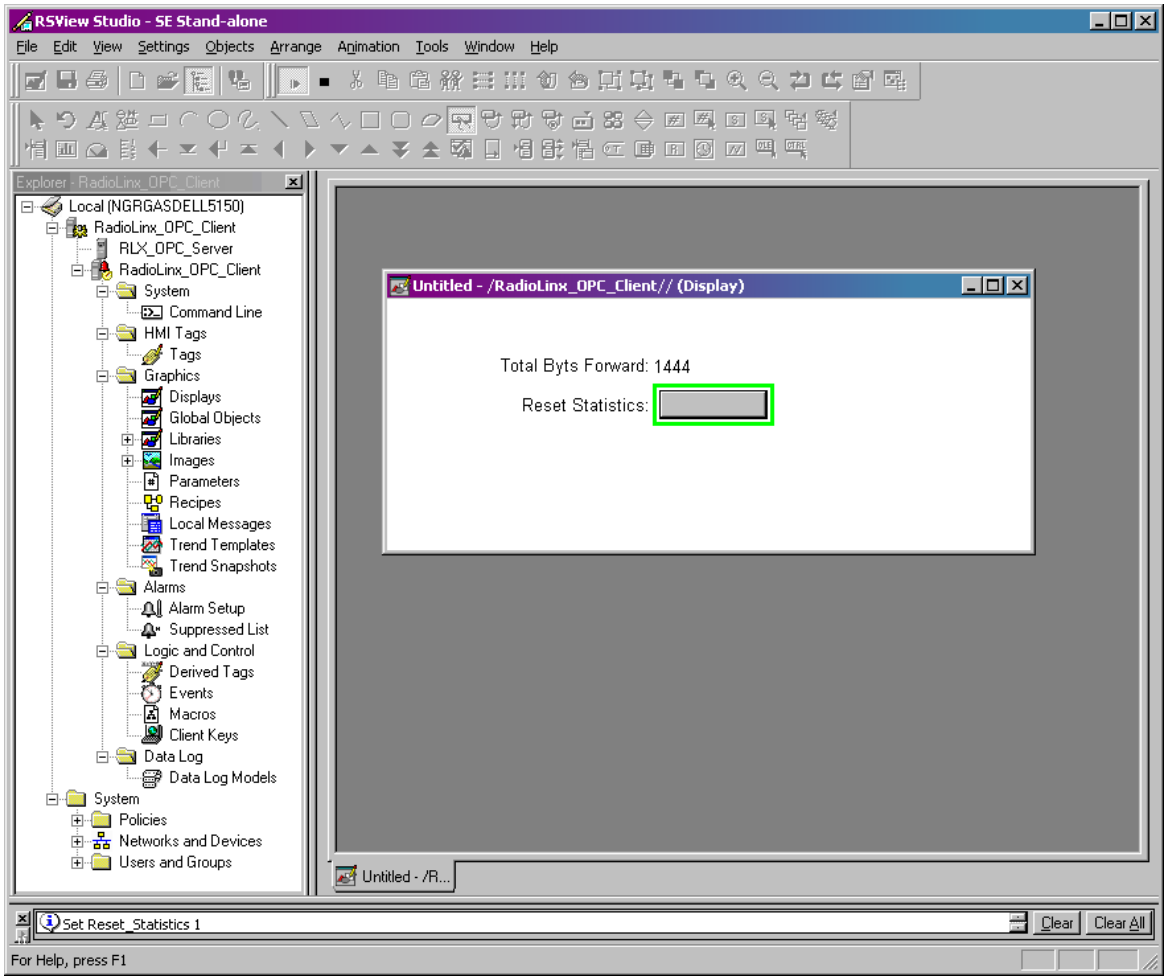
25 Activating the Run Mode. Observe the display of the Total bytes Forward Tag's value as polled by the RSView's OPC Client Run window from the RadioLinx OPC Server communicating to RLX-FHE radio. Click on the **Reset Statistics** button to reset the value of the Total Bytes Forward tag.



26 The question marks may or may not show up for a few seconds. It will depend on the Ethernet traffic.

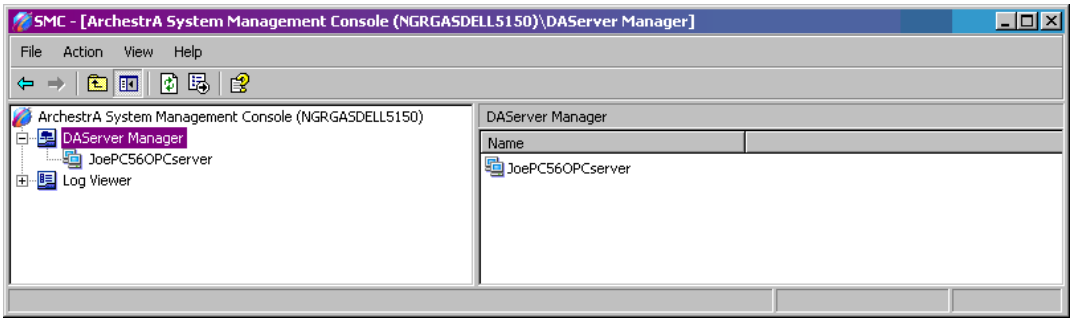


27 After a few seconds notice the lower value for the Total Bytes Forward tag. We are not able to observe a value of 0 (zero) because, by the time RLX-FHE radio receives the Command to reset its statistics to the time the Radio receives the pole request from RSView OPC Client to display the reset value, the radio has already incremented it's Total Bytes Forward count.

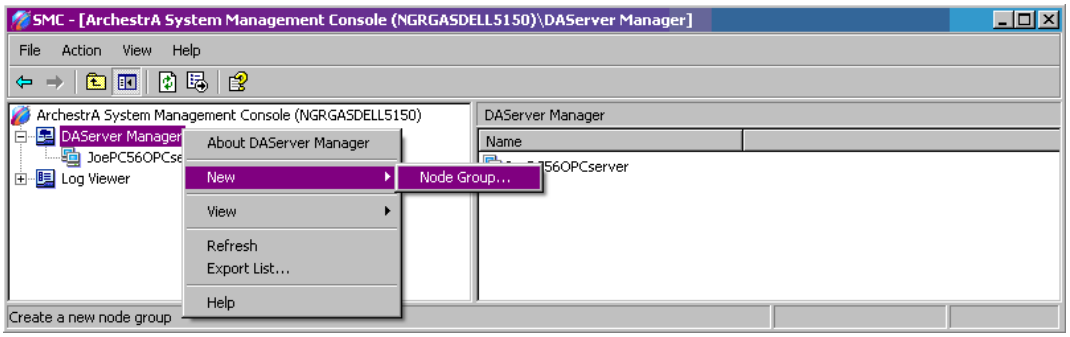


6.3 WonderWare Example

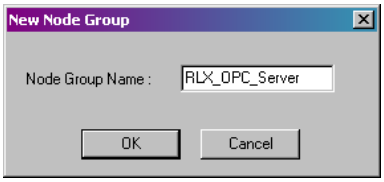
1 Select or expand the **DAServer Manager**.



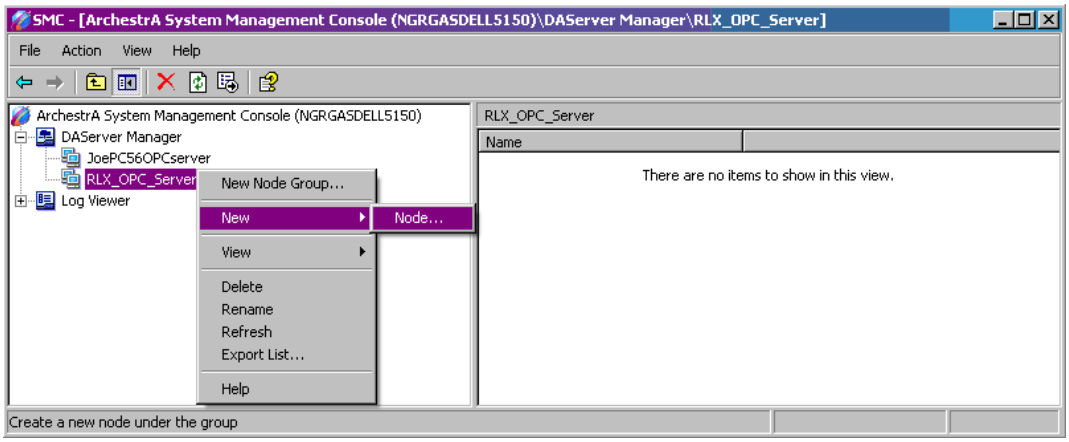
2 Start a new **Node** Group



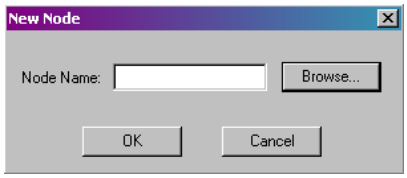
3 Give the **Node Group** a name.



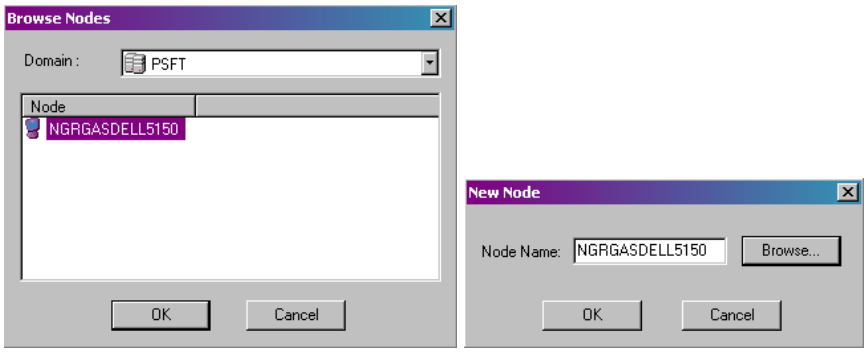
4 Start the selection of a Node (PC in the network) in the Group.



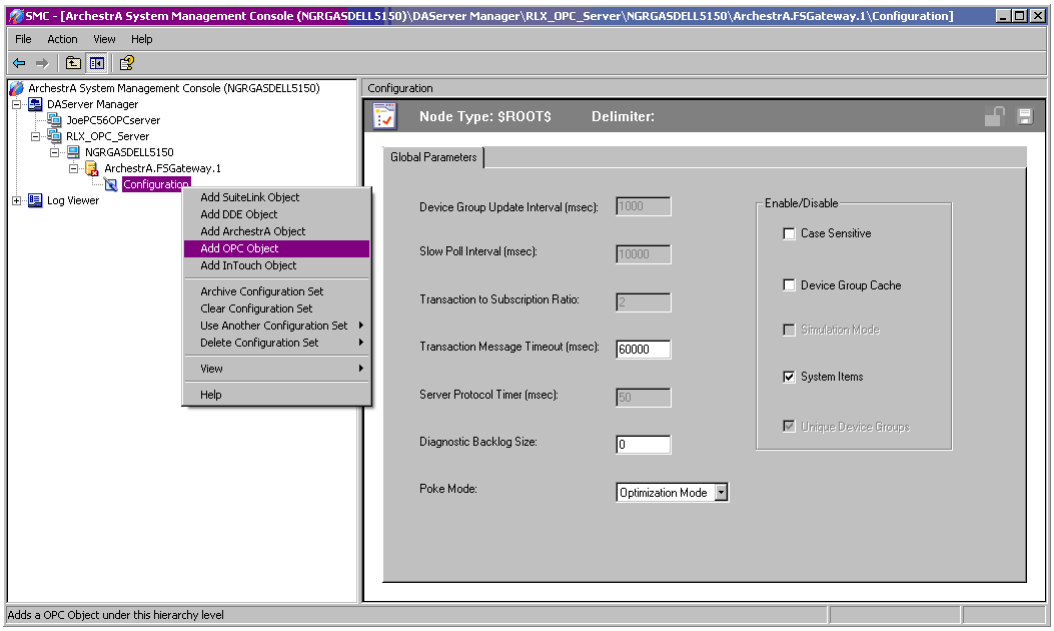
5 Click Browse to see the available Nodes (PCs in the network) that will contain the RadioLinx OPC Server.



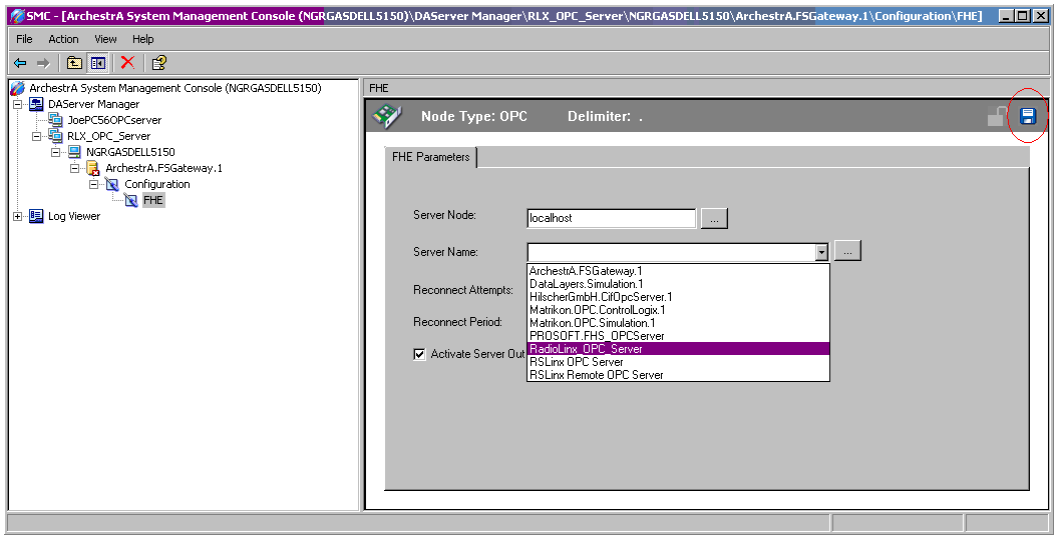
6 Select the desired Node, and then click **OK** to make the connection to the selected Node.



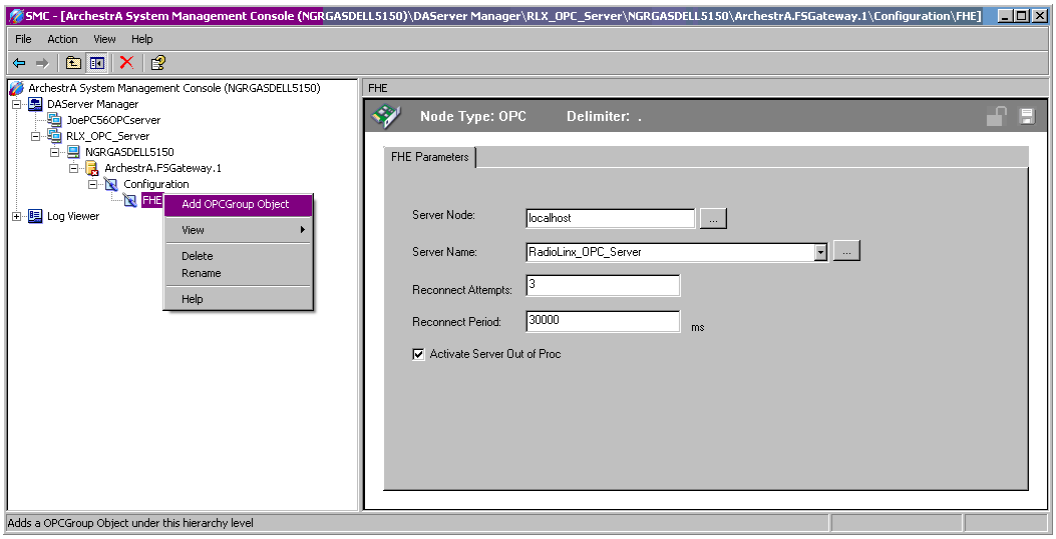
7 Expand the Node Tree and right-click on the **"Add OPC Client**."



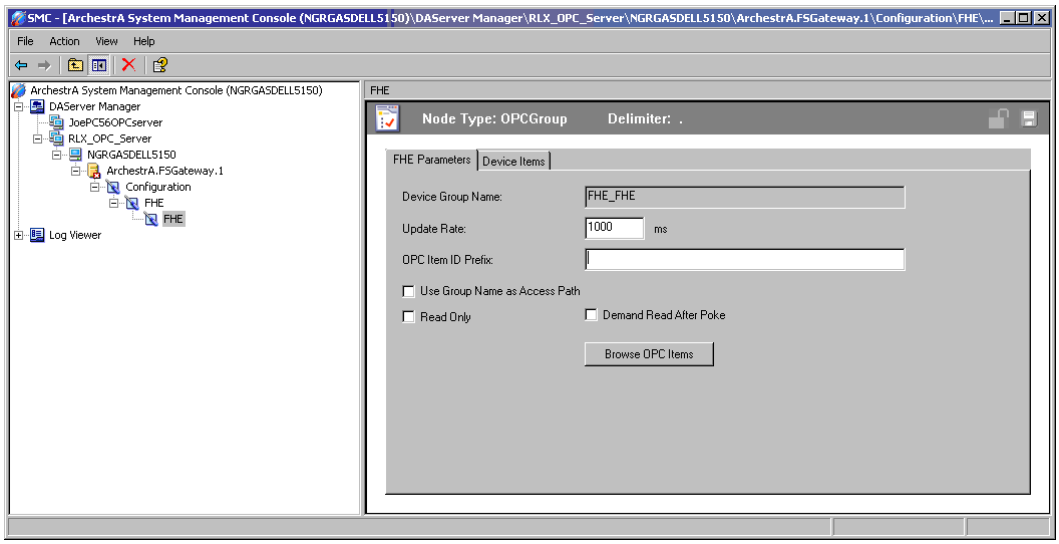
8 Name the configuration in the left pane and in the right pane for the 'Server Name:' field select RadioLinx_OPC_Server. Then click on the blue floppy icon to save the configuration.



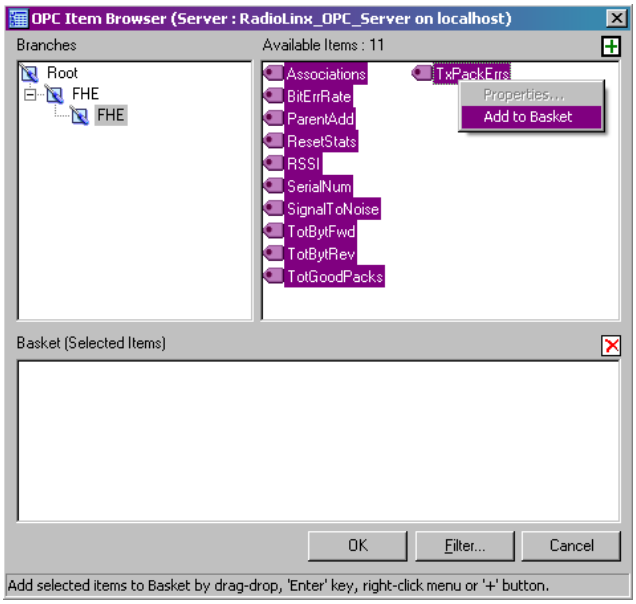
9 Add an OPCGroup Object **to the newly created configuration.**



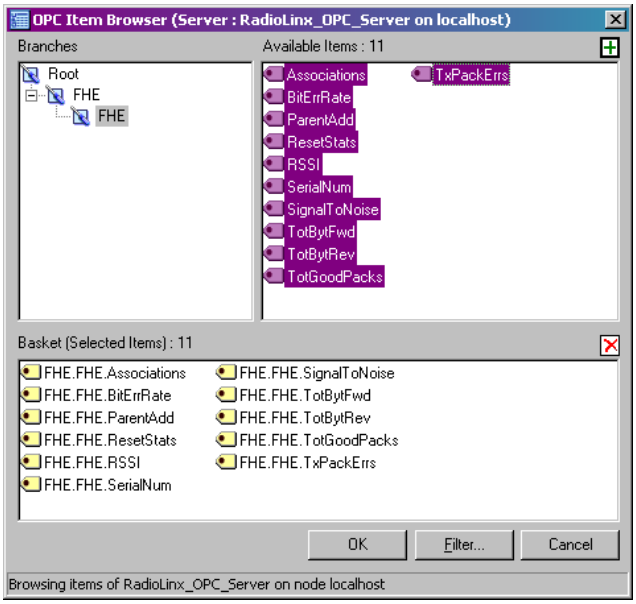
10 New OPC group has been created. Click on the 'Browse OPC Items' button to select tags from the RadioLinx OPC Server.



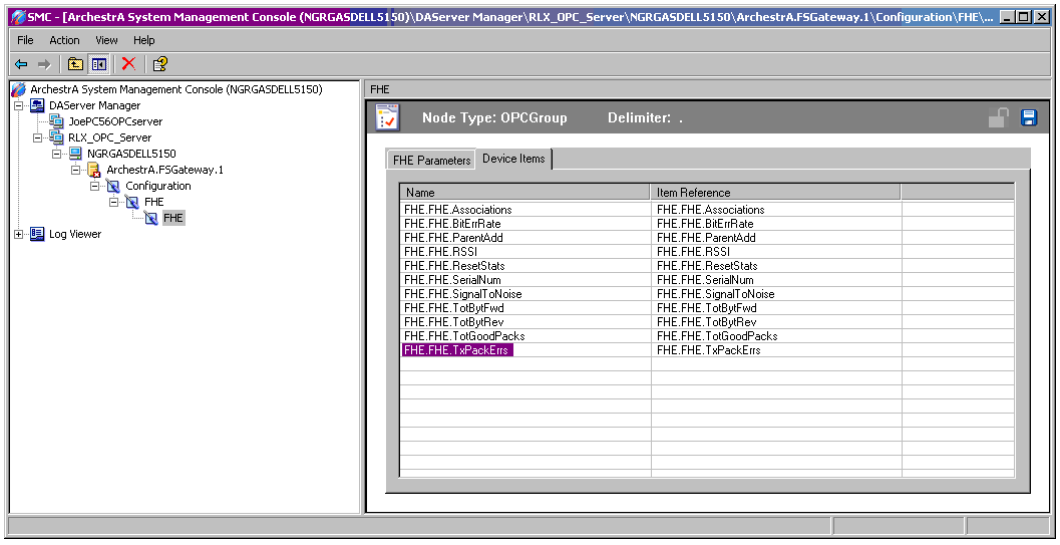
11 Expand the Selected OPC Server Tree. In the upper right pane, select all Tags and right-click to add the OPC Server Tags to the Basket.



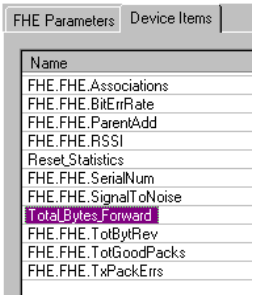
12 Click **OK** to add the Tags in the Basket to the Device Items.



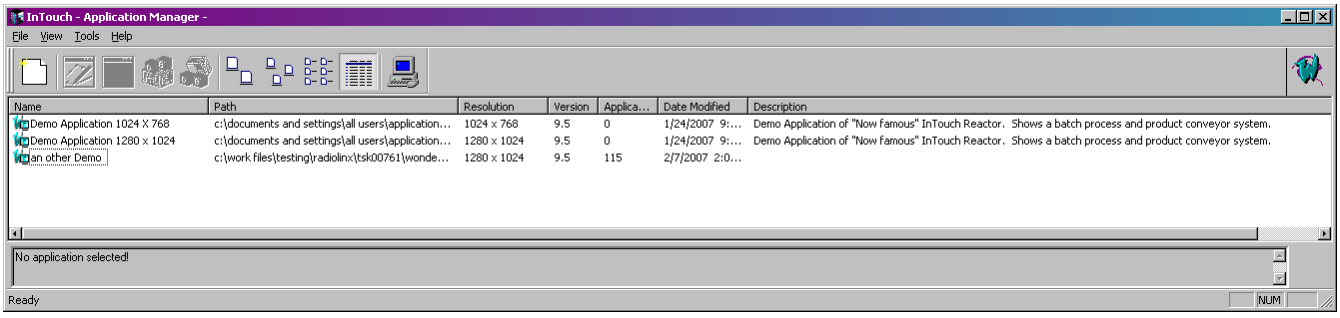
Tags have been added to the OPC group.



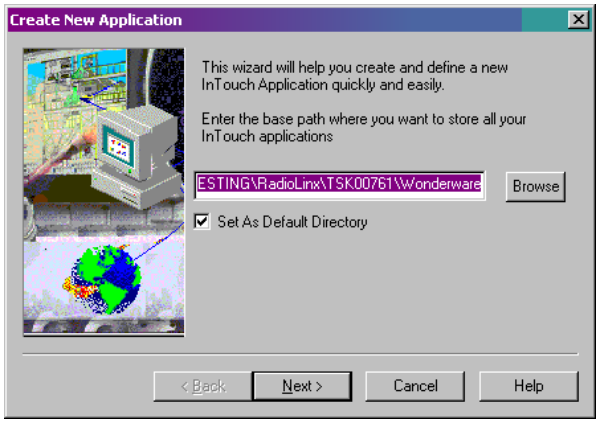
13 Rename the desired OPC Server Tag names with more descriptive names. This completes the RadioLinx OPC Connection to the Wonderware OPC Client that is to be developed next.



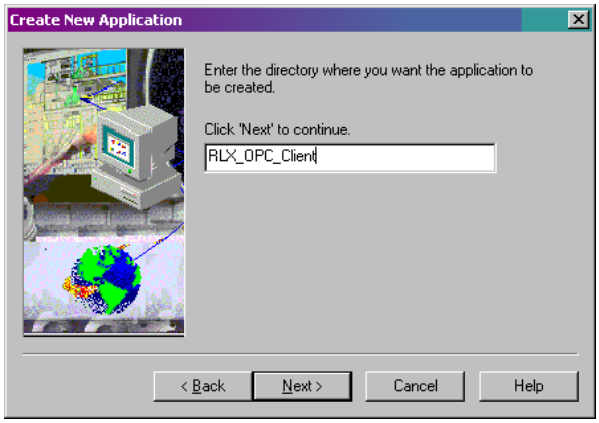
14 Activate the InTouch Application manager.



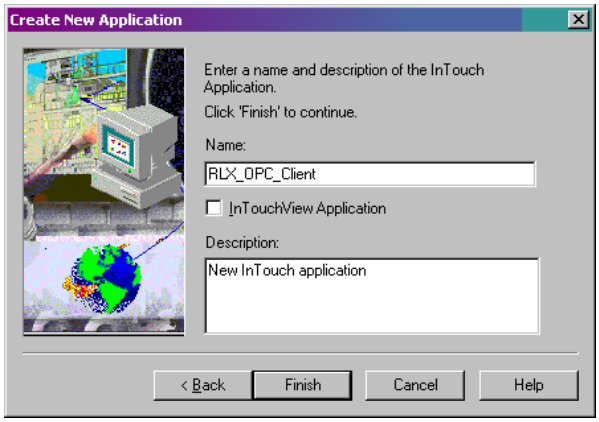
15 Select where to develop the new application.



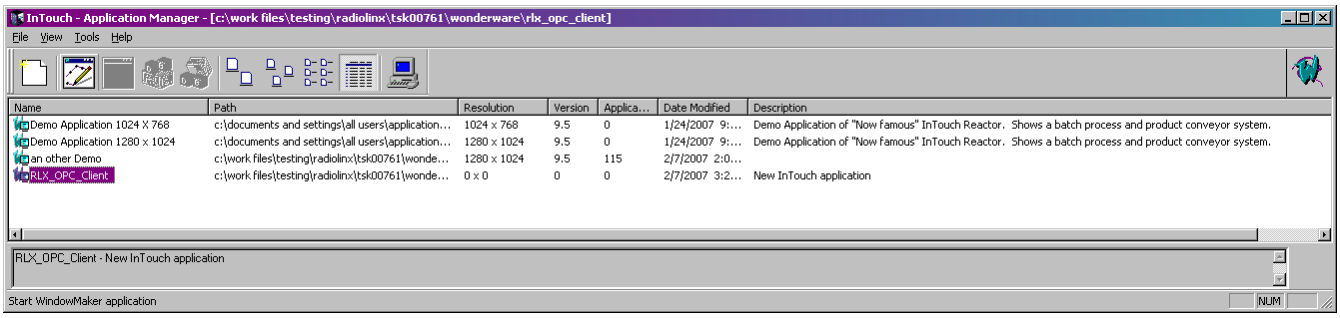
16 Create a Directory name for the OPC Client application.



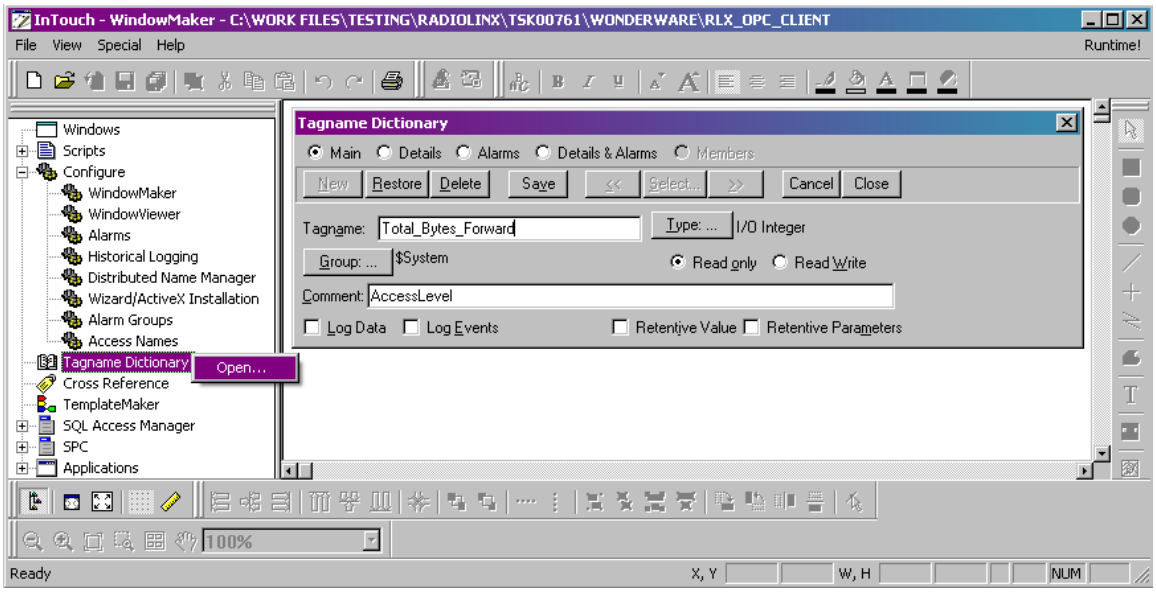
17 Create the new application name.



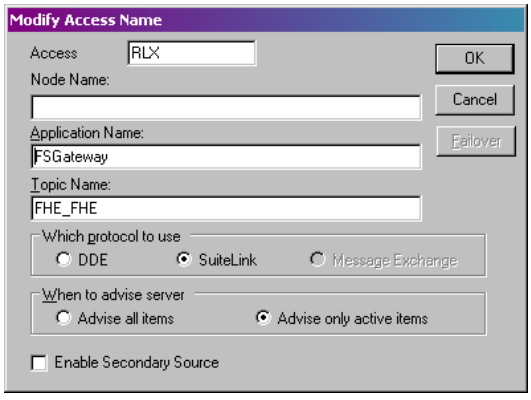
18 The application new name has been created. Start Window Maker application.



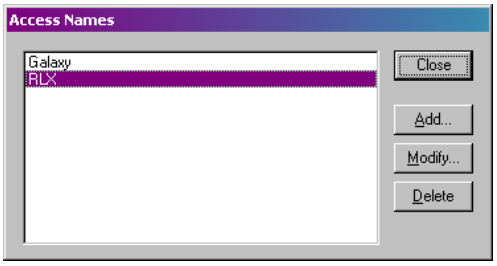
19 In WindowMaker open up the Tagname Dictionary and crate an appropriate InTouch tag name for connecting to the RadioLinx OPC Server tag name.



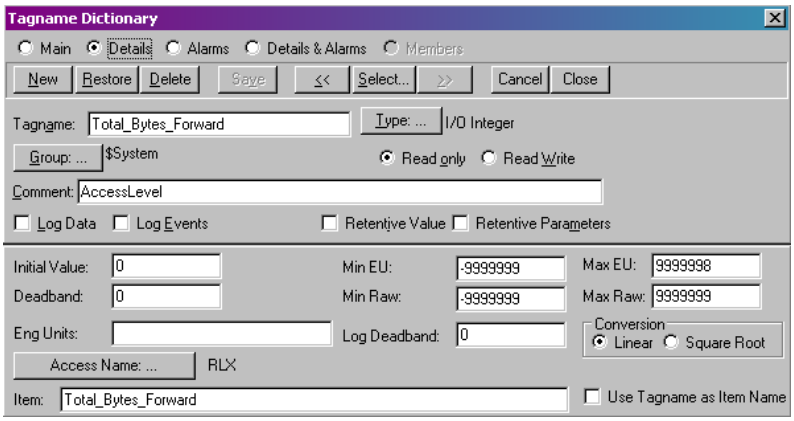
20 In the "Topic Name:" field enter the name as shown in "Device Group Name:" in the OPC Group tab.



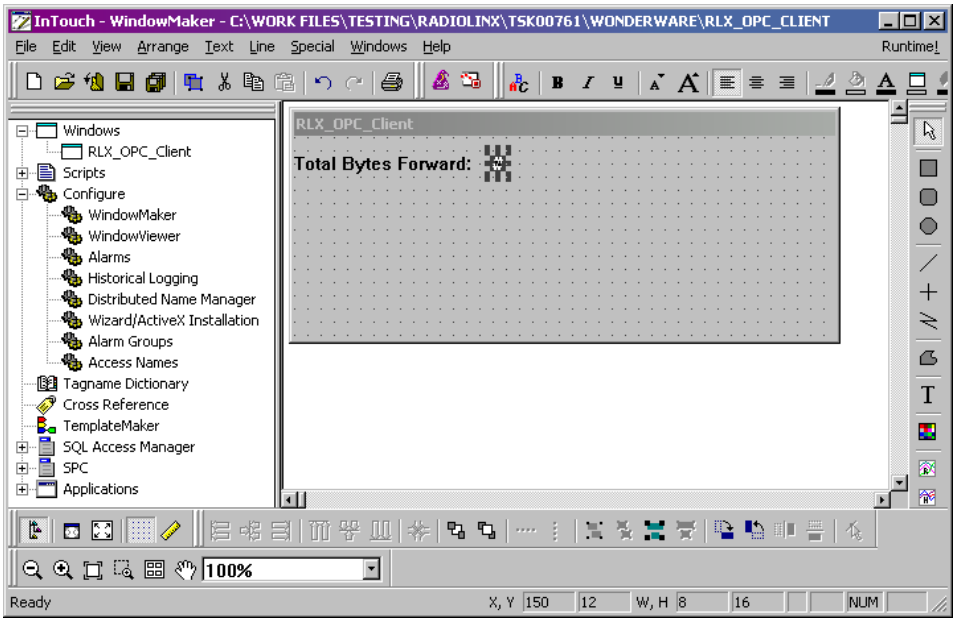
21 Select the appropriate **Access Name**.



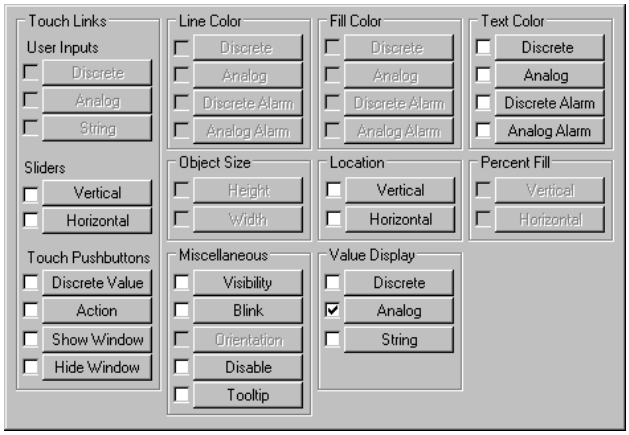
22 The InTouch Tag name to the RadioLinx OPC Server tag name.



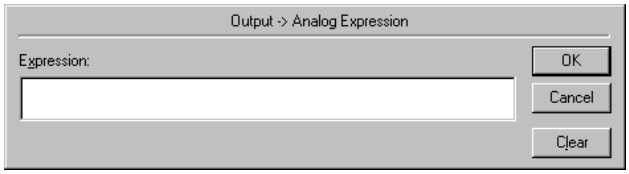
23 Create a display that links the InTouch tag name to the RLX OPC Server tag name.



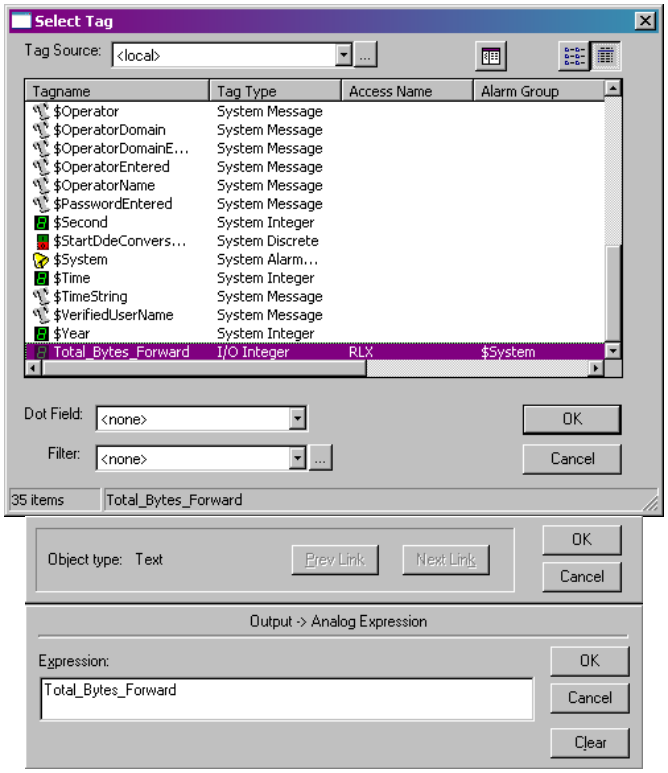
24 Click on the selected Analog button.



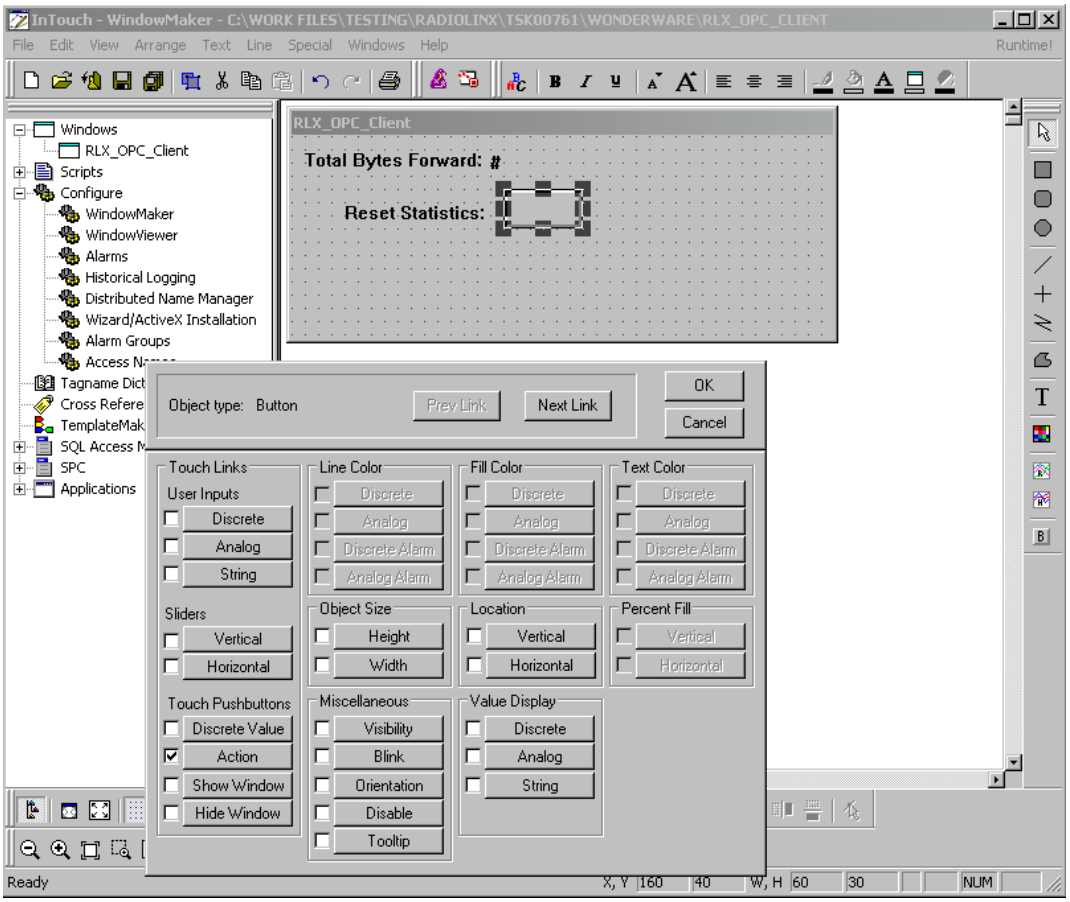
25 Double-click in the **Expression:** field.



26 Select the desired InTouch Tag name. The selected tag enters the expression field.

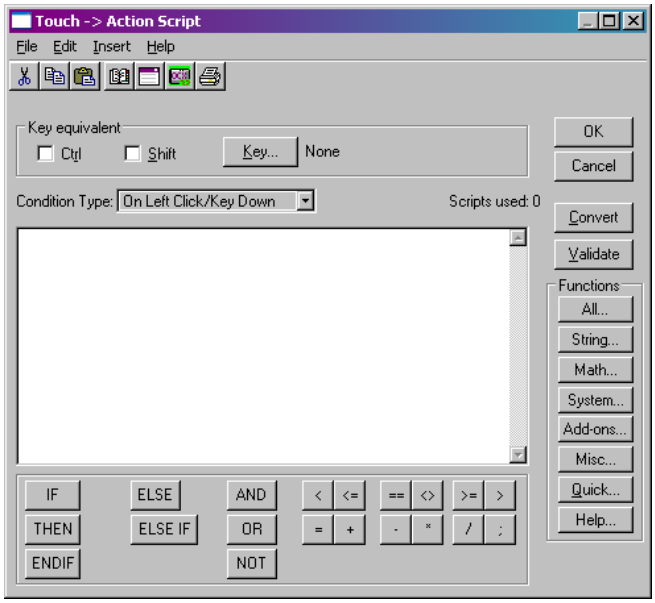


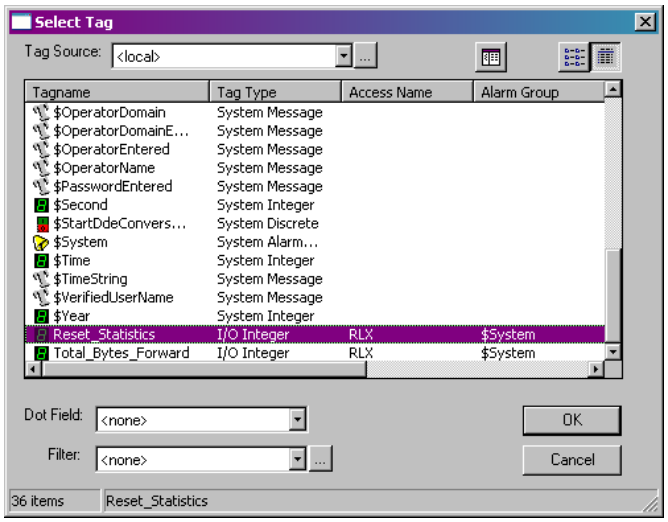
27 Connecting the button to the Reset_Statistics tag.



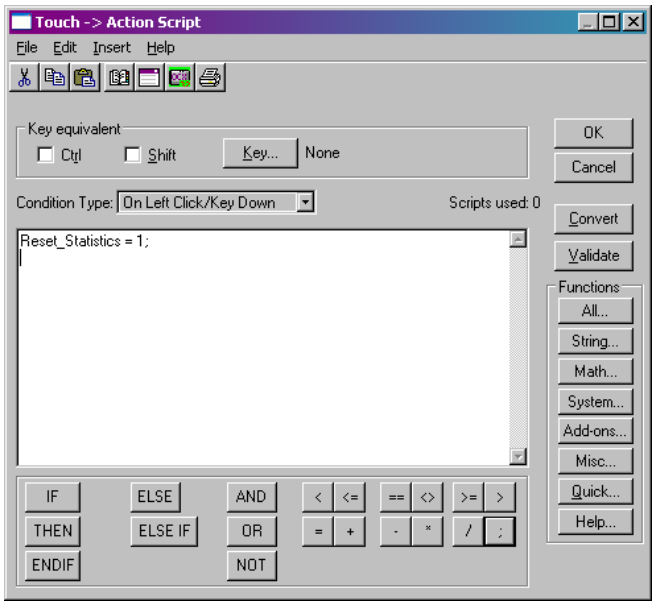
28 Create button and the link from InTouch Client tag to RadioLinx OPCServer tag.

29 Double-Click in the large empty field. Select the appropriate InTouch tag.

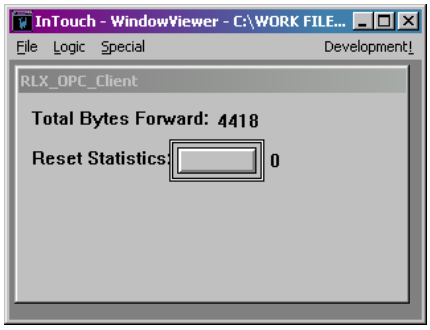

Touch -> Action Script
File Edit Insert Help
Key equivalent
Ctrl
Shift
Key...
None
OK
Cancel
Condition Type:
On Left Click/Key Down
Scripts used: 0
Convert
Validate
Functions
All...
String...
Math...
System...
Add-ons...
Misc...
Quick...
Help...
IF
ELSE
AND
THEN
ELSE IF
OR
ENDIF
NOT


Select Tag
Tag Source:
<local>
Tagname
Tag Type
Access Name
Alarm Group
$OperatorDomain System Message
$OperatorDomainE... System Message
$OperatorEntered System Message
$OperatorName System Message
$PasswordEntered System Message
$Second System Integer
$StartDdeConvers... System Discrete
$System System Alarm...
$Time System Integer
$TimeString System Message
$VerifiedUserName System Message
$Year System Integer
Reset_Statistics I/O Integer RLX $System
Total_Bytes_Forward I/O Integer RLX $System
Dot Field:
<none>
Filter:
<none>
OK
Cancel
36 items
Reset_Statistics

30 Set the controlling tag to a value of 1 that will issue the resetting command to the radio.



31 Run-Time view of the two tags. You are finished.



7 Support, Service & Warranty

In This Chapter

ProSoft Technology, Inc. (ProSoft) is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

1 Product Version Number
2 System architecture
3 Network details

If the issue is hardware related, we will also need information regarding:

1 Module configuration and contents of file
   - Module Operation
   - Configuration/Debug status information
   - LED patterns

2 Information about the processor and user data files as viewed through and LED patterns on the processor.
3 Details about the serial devices interfaced, if any.

7.1 How to Contact Us: Technical Support

Internet	Web Site: http://www.prosoft-technology.com/support
	E-mail address: support@prosoft-technology.com

Asia Pacific

+603.7724.2080, support.asia@prosoft-technology.com
Languages spoken include: Chinese, English

Europe (location in Toulouse, France)

+33 (0) 5.34.36.87.20, support.EMEA@prosoft-technology.com
Languages spoken include: French, English

North America/Latin America (excluding Brasil) (location in California)

+1.661.716.5100, support@prosoft-technology.com
Languages spoken include: English, Spanish
*For technical support calls within the United States, an after-*hours *answering system allows pager access to one of our qualified technical and/or application support engineers at any time to answer your questions.*

Brasil (location in Sao Paulo)

+55-11-5084-5178 , eduardo@prosoft-technology.com
Languages spoken include: Portuguese, English

7.2 Return Material Authorization (RMA) Policies and Conditions

The following RMA Policies and Conditions (collectively, "RMA Policies") apply to any returned Product. These RMA Policies are subject to change by ProSoft without notice. For warranty information, see "Limited Warranty". In the event of any inconsistency between the RMA Policies and the Warranty, the Warranty shall govern.

7.2.1 All Product Returns:

a) In order to return a Product for repair, exchange or otherwise, the Customer must obtain a Returned Material Authorization (RMA) number from ProSoft and comply with ProSoft shipping instructions.
b) In the event that the Customer experiences a problem with the Product for any reason, Customer should contact ProSoft Technical Support at one of the telephone numbers listed above (page 99). A Technical Support Engineer will request that you perform several tests in an attempt to isolate the problem. If after completing these tests, the Product is found to be the source of the problem, we will issue an RMA.
c) All returned Products must be shipped freight prepaid, in the original shipping container or equivalent, to the location specified by ProSoft, and be accompanied by proof of purchase and receipt date. The RMA number is to be prominently marked on the outside of the shipping box. Customer agrees to insure the Product or assume the risk of loss or damage in transit. Products shipped to ProSoft using a shipment method other than that specified by ProSoft or shipped without an RMA number will be returned to the Customer, freight collect. Contact ProSoft Technical Support for further information.
d) A 10% restocking fee applies to all warranty credit returns whereby a Customer has an application change, ordered too many, does not need, etc.

7.2.2 Procedures for Return of Units Under Warranty:

A Technical Support Engineer must approve the return of Product under ProSoft's Warranty:

a) A replacement module will be shipped and invoiced. A purchase order will be required.
b) Credit for a product under warranty will be issued upon receipt of authorized product by ProSoft at designated location referenced on the Return Material Authorization.

7.2.3 Procedures for Return of Units Out of Warranty:

a) Customer sends unit in for evaluation
b) If no defect is found, Customer will be charged the equivalent of $100 USD, plus freight charges, duties and taxes as applicable. A new purchase order will be required.

c) If unit is repaired, charge to Customer will be 30% of current list price (USD) plus freight charges, duties and taxes as applicable. A new purchase order will be required or authorization to use the purchase order submitted for evaluation fee.

The following is a list of non-repairable units:

- 3150 - All
- 3750
- 3600 - All
- 3700
- 3170 - All
- 3250
- 1560 - Can be repaired, only if defect is the power supply
- 1550 - Can be repaired, only if defect is the power supply
- 3350
- 3300
- 1500 - All

7.2.4 Purchasing Warranty Extension:

a) ProSoft's standard warranty period is three (3) years from the date of shipment as detailed in "Limited Warranty (page 101)". The Warranty Period may be extended at the time of equipment purchase for an additional charge, as follows:

- Additional 1 year = 10% of list price
- Additional 2 years = 20% of list price
- Additional 3 years = 30% of list price

7.3 LIMITED WARRANTY

This Limited Warranty ("Warranty") governs all sales of hardware, software and other products (collectively, "Product") manufactured and/or offered for sale by ProSoft, and all related services provided by ProSoft, including maintenance, repair, warranty exchange, and service programs (collectively, "Services"). By purchasing or using the Product or Services, the individual or entity purchasing or using the Product or Services ("Customer") agrees to all of the terms and provisions (collectively, the "Terms") of this Limited Warranty. All sales of software or other intellectual property are, in addition, subject to any license agreement accompanying such software or other intellectual property.

7.3.1 What Is Covered By This Warranty

a) *Warranty On New Products*: ProSoft warrants, to the original purchaser, that the Product that is the subject of the sale will (1) conform to and perform in accordance with published specifications prepared, approved and issued by ProSoft, and (2) will be free from defects in material or workmanship; provided these warranties only cover Product that is sold as new. This Warranty expires three years from the date of shipment (the "Warranty Period"). If the Customer discovers within the Warranty Period a failure of the Product to conform to specifications, or a defect in material or workmanship of the Product, the Customer must promptly notify ProSoft by fax, email or telephone. In no event may that notification be received by ProSoft later than 39 months. Within a reasonable time after notification, ProSoft will correct any failure of the Product to conform to specifications or any defect in material or workmanship of the Product, with either new or used replacement parts. Such repair, including both parts and labor, will be performed at ProSoft's expense. All warranty service will be performed at service centers designated by ProSoft.
b) *Warranty On Services*: Materials and labor performed by ProSoft to repair a verified malfunction or defect are warranteed in the terms specified above for new Product, provided said warranty will be for the period remaining on the original new equipment warranty or, if the original warranty is no longer in effect, for a period of 90 days from the date of repair.

7.3.2 What Is Not Covered By This Warranty

a) ProSoft makes no representation or warranty, expressed or implied, that the operation of software purchased from ProSoft will be uninterrupted or error free or that the functions contained in the software will meet or satisfy the purchaser's intended use or requirements; the Customer assumes complete responsibility for decisions made or actions taken based on information obtained using ProSoft software.
b) This Warranty does not cover the failure of the Product to perform specified functions, or any other non-conformance, defects, losses or damages caused by or attributable to any of the following: (i) shipping; (ii) improper installation or other failure of Customer to adhere to ProSoft's specifications or instructions; (iii) unauthorized repair or maintenance; (iv) attachments, equipment, options, parts, software, or user-created programming (including, but not limited to, programs developed with any IEC 61131-3, "C" or any variant of "C" programming languages) not furnished by ProSoft; (v) use of the Product for purposes other than those for which it was designed; (vi) any other abuse, misapplication, neglect or misuse by the Customer; (vii) accident, improper testing or causes external to the Product such as, but not limited to, exposure to extremes of temperature or humidity, power failure or power surges; or (viii) disasters such as fire, flood, earthquake, wind and lightning.

c) The information in this Agreement is subject to change without notice. ProSoft shall not be liable for technical or editorial errors or omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance or use of this material. The user guide included with your original product purchase from ProSoft contains information protected by copyright. No part of the guide may be duplicated or reproduced in any form without prior written consent from ProSoft.

7.3.3 Disclaimer Regarding High Risk Activities

Product manufactured or supplied by ProSoft is not fault tolerant and is not designed, manufactured or intended for use in hazardous environments requiring fail-safe performance including and without limitation: the operation of nuclear facilities, aircraft navigation of communication systems, air traffic control, direct life support machines or weapons systems in which the failure of the product could lead directly or indirectly to death, personal injury or severe physical or environmental damage (collectively, "high risk activities"). ProSoft specifically disclaims any express or implied warranty of fitness for high risk activities.

7.3.4 Intellectual Property Indemnity

Buyer shall indemnify and hold harmless ProSoft and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not ProSoft is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless ProSoft and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party. ProSoft makes no warranty that the product is or will be delivered free of any person's claiming of patent, trademark, or similar infringement. The Buyer assumes all risks (including the risk of suit) that the product or any use of the product will infringe existing or subsequently issued patents, trademarks, or copyrights.

a) Any documentation included with Product purchased from ProSoft is protected by copyright and may not be duplicated or reproduced in any form without prior written consent from ProSoft.
b) ProSoft's technical specifications and documentation that are included with the Product are subject to editing and modification without notice.
c) Transfer of title shall not operate to convey to Customer any right to make, or have made, any Product supplied by ProSoft.
d) Customer is granted no right or license to use any software or other intellectual property in any manner or for any purpose not expressly permitted by any license agreement accompanying such software or other intellectual property.

e) Customer agrees that it shall not, and shall not authorize others to, copy software provided by ProSoft (except as expressly permitted in any license agreement accompanying such software); transfer software to a third party separately from the Product; modify, alter, translate, decode, decompile, disassemble, reverse-engineer or otherwise attempt to derive the source code of the software or create derivative works based on the software; export the software or underlying technology in contravention of applicable US and international export laws and regulations; or use the software other than as authorized in connection with use of Product.

f) **Additional Restrictions Relating To Software And Other Intellectual Property**

   In addition to compliance with the Terms of this Warranty, Customers purchasing software or other intellectual property shall comply with any license agreement accompanying such software or other intellectual property. Failure to do so may void this Warranty with respect to such software and/or other intellectual property.

7.3.5 Disclaimer of all Other Warranties

The Warranty set forth in What Is Covered By This Warranty (page 102) are in lieu of all other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

*7.3.6 Limitation of Remedies ***

In no event will ProSoft or its Dealer be liable for any special, incidental or consequential damages based on breach of warranty, breach of contract, negligence, strict tort or any other legal theory. Damages that ProSoft or its Dealer will not be responsible for included, but are not limited to: Loss of profits; loss of savings or revenue; loss of use of the product or any associated equipment; loss of data; cost of capital; cost of any substitute equipment, facilities, or services; downtime; the claims of third parties including, customers of the Purchaser; and, injury to property.

** Some areas do not allow time limitations on an implied warranty, or allow the exclusion or limitation of incidental or consequential damages. In such areas, the above limitations may not apply. This Warranty gives you specific legal rights, and you may also have other rights which vary from place to place.

7.3.7 Time Limit for Bringing Suit

Any action for breach of warranty must be commenced within 39 months following shipment of the Product.

7.3.8 No Other Warranties

Unless modified in writing and signed by both parties, this Warranty is understood to be the complete and exclusive agreement between the parties, suspending all oral or written prior agreements and all other communications between the parties relating to the subject matter of this Warranty, including statements made by salesperson. No employee of ProSoft or any other party is authorized to make any warranty in addition to those made in this Warranty. The Customer is warned, therefore, to check this Warranty carefully to see that it correctly reflects those terms that are important to the Customer.

7.3.9 Allocation of Risks

This Warranty allocates the risk of product failure between ProSoft and the Customer. This allocation is recognized by both parties and is reflected in the price of the goods. The Customer acknowledges that it has read this Warranty, understands it, and is bound by its Terms.

7.3.10 Controlling Law and Severability

This Warranty shall be governed by and construed in accordance with the laws of the United States and the domestic laws of the State of California, without reference to its conflicts of law provisions. If for any reason a court of competent jurisdiction finds any provisions of this Warranty, or a portion thereof, to be unenforceable, that provision shall be enforced to the maximum extent permissible and the remainder of this Warranty shall remain in full force and effect. Any cause of action with respect to the Product or Services must be instituted in a court of competent jurisdiction in the State of California.

Index

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