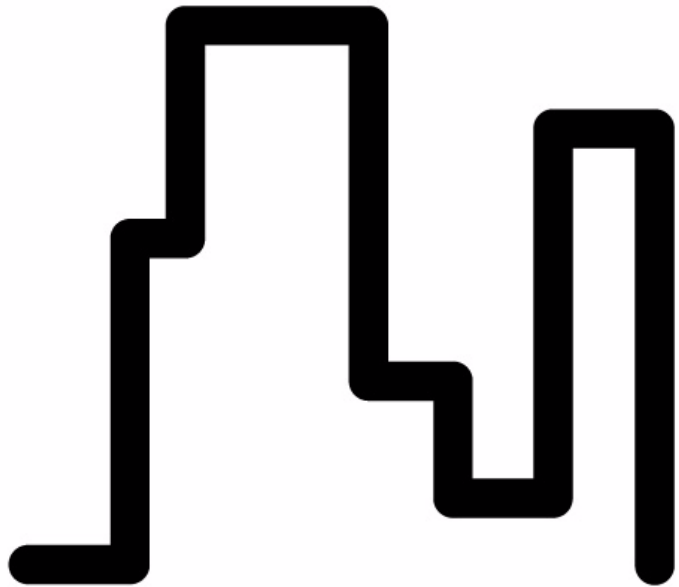


Andover Continuum

Remote Communication Configuration Guide



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Schneider Electric
One High Street
North Andover, MA 01845
(978) 975-9600
Fax: (978) 975-9782
<http://www.schneider-electric.com/buildings>

Remote Communication Configuration Guide

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Chapter 1

Remote Communication Setup

Before You Get Started with Remote Communications

Before you get started installing and configuring your system for remote communications, ensure that you have all of the items in the following checklist.

- Installed Software
 - Continuum CyberStation
 - Modem Specific Drivers (The modem being used on the Workstation must be on the Windows Hardware Compatibility List)

Note: Ensure that you do not have “Proxy Server” enabled on your workstation. This may cause contention issues.

- Installed Hardware
 - Continuum Controller that supports remote access communications (called RAS) with an Andover Continuum modem or Schneider Electric approved external modem. (The only approved external modems are US Robotics Courier V. Everything 56k External, or Viking V.90 56k External)
 - Internal or external modem (Must be on the Windows Hardware Compatibility List)

- Privileges
 - You must be able to logon to the Windows with administrative privileges (for dialing in purposes)
 - You must be able to logon to the remote controller with administrative privileges
- Communications
 - An available dedicated analog phone line for the remote controller or a direct cable connection
 - The remote controller's area code and phone number

Conventions Used in this Guide

Throughout the following pages the term “Windows” applies to any version of Microsoft Windows that is supported for the version of CyberStation you are using. Any serious differences that exist between versions are identified.

Throughout the following pages the term “workstation” refers to a personal computer (PC) containing a Windows operating system with Continuum CyberStation installed and running.

Setting Up Location, Modem, and Routing

In order to set up remote communications between a local workstation and a remote controller you must configure modems and dialup connections through a comm port at both the workstation and the remote controller. We begin performing the follow steps on the workstation.

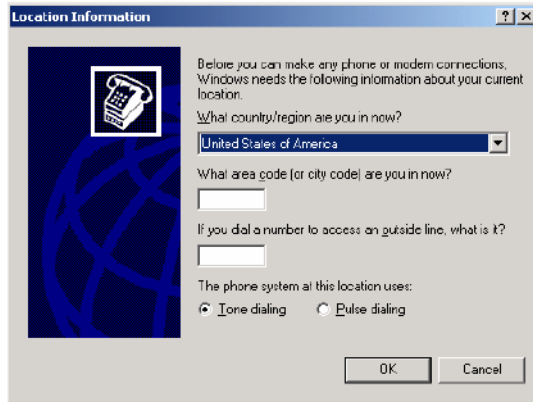
- Windows location configuration
- Windows modem configuration
- Window routing and remote access connection services

Windows Location Configuration

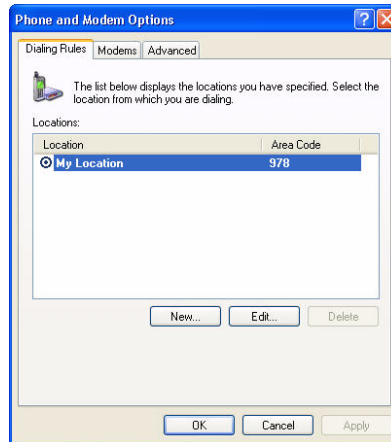
Follow the steps below to create a location in a Windows system.

- Step 1:** Click on **Start** in the Windows task bar and select **Settings** and then **Control Panel**.
- Step 2:** Double click or right click on the **Phone and Modem Options** icon.
- Step 3:** A **Location Information** dialog appears prompting you for the telephone number location information. Enter the appropriate information about your location and click **OK**.

Note: This step is only necessary the first time you open **Phone and Modem Options**. Once you create the location you will not be prompted again.



Step 4: The **Phone and Modem Options** editor appears.



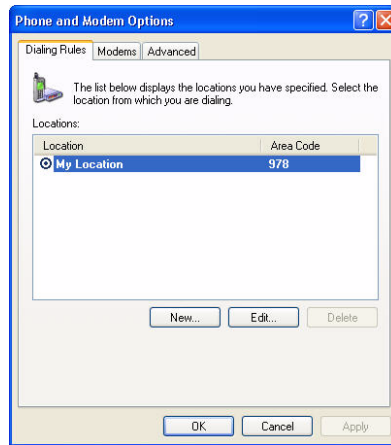
In the **Dialing Rules** tab, click the **Edit** button to open the **Edit Location** dialog. This dialog allows you to specify when to use the area code during dialing. It also allows you to enter other phone call-specific information, such as the use of a phone calling card.

Step 5: Enter any necessary information into this dialog and click **OK** when complete. You are returned to the **Phone and Modem Options** dialog.

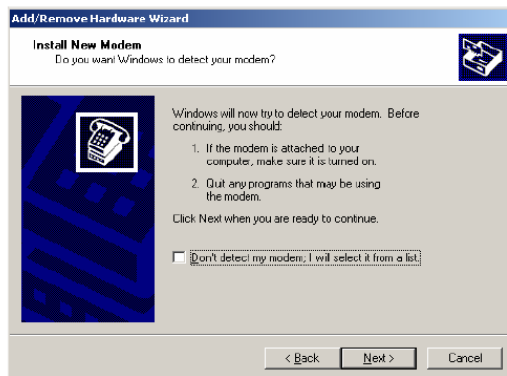
Windows Modem Configuration

Follow the steps below to add a modem in a Windows system.

Step 1: From the **Phone and Modem Options** editor, select the **Modems** tab and click the **Add** button.

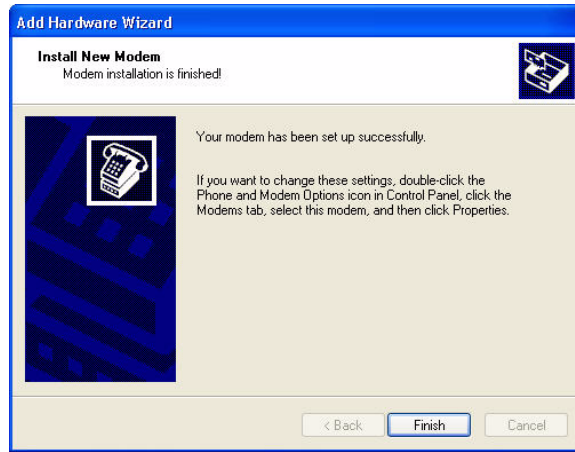


Step 2: The **Add/Remove Hardware Wizard** dialog appears asking, “Do you want Windows to detect your modem?” Read and follow steps 1 and 2, then click the **Next** button.

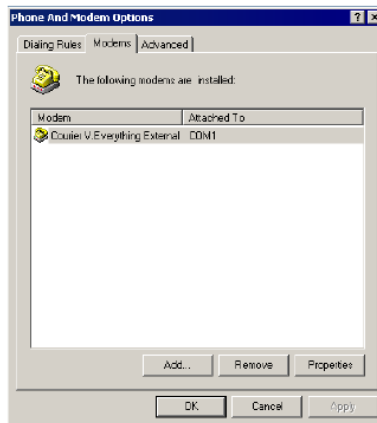


Step 3: Once Windows detects your modem, the **Found New Hardware Wizard** screen appears. Click the **Next** button and let Windows find a driver for your modem. Since Windows detect the modem, you do not have to select a port.

Step 4: When the process is complete, you receive a message stating that the modem has been set up successfully, and you are given one more chance to change the settings. If you are done, click **Finish**.



The **Modems** tab of the **Phone and Modem Options** editor appears with the specified modem listed in the **Modem** column.

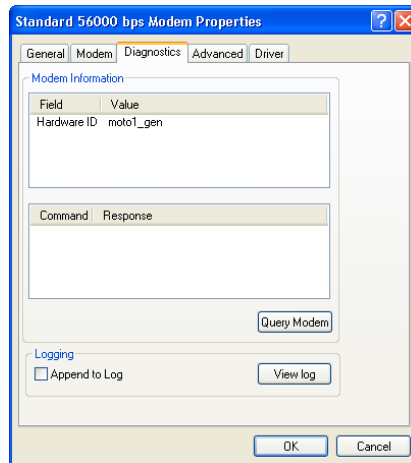


Step 5: Click the modem to highlight it, and then click the **Properties** button. The **Modem Properties** editor appears.



Step 6: In the **Modem** tab, set the **Maximum Port Speed**. For best performance, set this to the highest rate that the PC supports.

Step 7: Select the **Diagnostics** tab and click the **Query Modem** button to verify that the modem is functioning.



Step 8: Click **OK** to return to the **Modem Properties** editor.

Step 9: Click **OK** on the **Modem Properties** editor to close and save the changes. The modem installation and configuration are now complete.

Routing and Remote Access and Network Connections Services

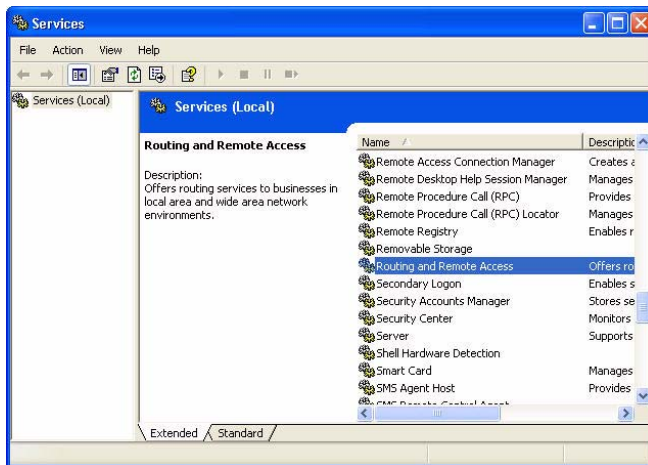
After the location and modems have been installed and configured, you must set up the Routing and Remote Access and Network Connection services to start automatically when Windows starts. This ensures that all of the required services start automatically in the event that the workstation needs to be restarted.

Perform the following procedure to setup these services.

Step 1: At the workstation, select **Start** then select **Control Panel**.

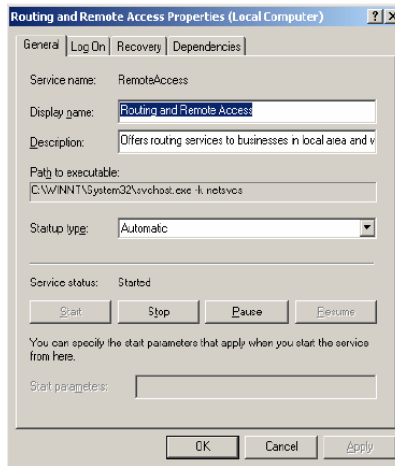
Step 2: On the Control Panel screen, select **Administrative Tools**.

Step 3: Select **Services** from the **Administrative Tools** menu.



Step 4: On the **Services** dialog, scroll to **Routing and Remote Access** and double click it.

Step 5: On the **Routing and Remote Access Properties (Local Computer)** editor, select **Automatic** from the **Startup Type** dropdown menu.



Step 6: Click the **Start** button if the service has not already been started.

Step 7: Repeat steps 1, 2, and 3 from the beginning of this section.

Step 8: Back at the **Services** dialog, locate **Network Connections** and double click.

Step 9: On the **Network Connections Properties (Local Computer)** editor, select **Automatic** from the dropdown menu in the **Startup Type** field.

Step 10: Click the **Start** button if the service has not already been started.

Chapter 2

Configuring the Remote Network and Controller

Overview

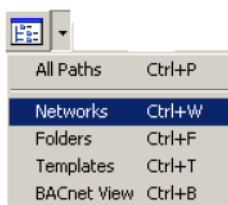
The next step is to configure remote networks and remote controllers. Each remote site that has a CX controller that can be dialed into must reside on its own network in Continuum. The configuration of remote communications includes:

- Creating the remote network
- Creating the remote controller
- Creating the network dialup object

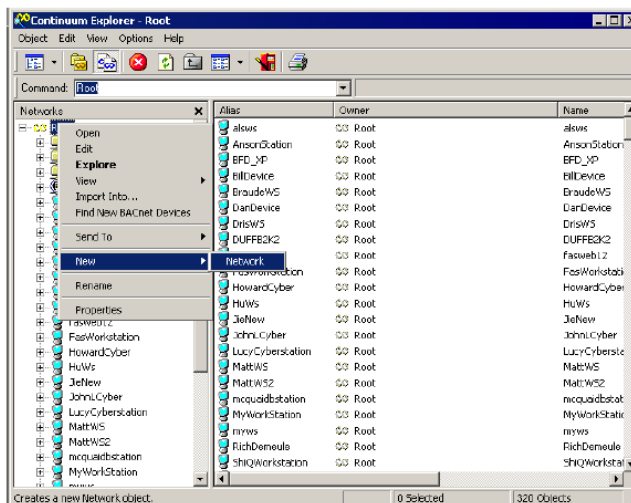
Creating the Remote Network

Use the following steps to create a remote network.

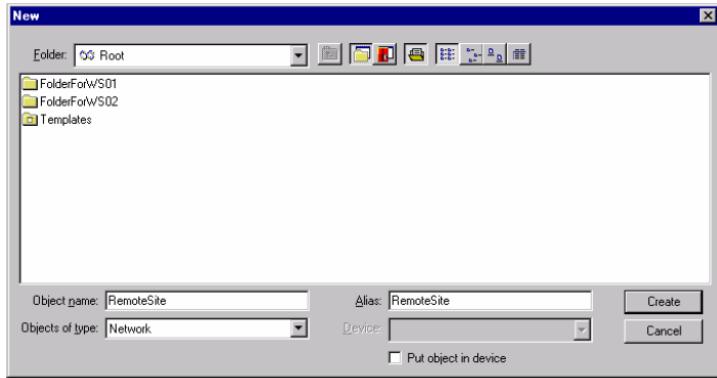
Step 1: Open Continuum Explorer and select **Networks** from the quick pick toolbar.



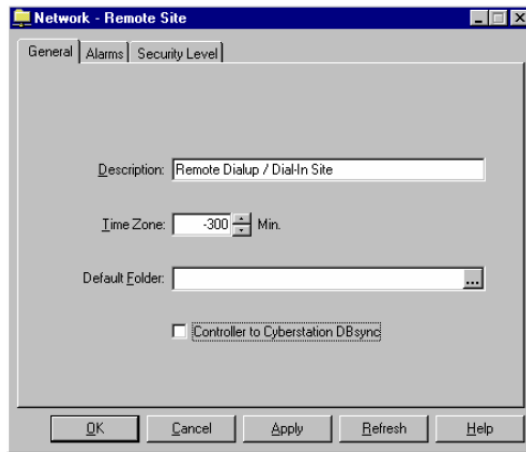
Step 2: Right click on **Root** and select **New and Network**.



Step 3: From the **New** dialog, give the new network object an appropriate name (“RemoteSite” is used in the example shown below) and click **Create**.



Step 4: The **Network** editor appears. Enter a description (optional). Adjust the time zone setting based upon the time zone of the network location. Ensure that the **Controller to Cyberstation Dbsync** check box is deselected (unchecked). Click **Apply**.



Once the network object has been create, it appears in the navigation (left) pane of the Explorer. If it does not appear, refresh the screen.

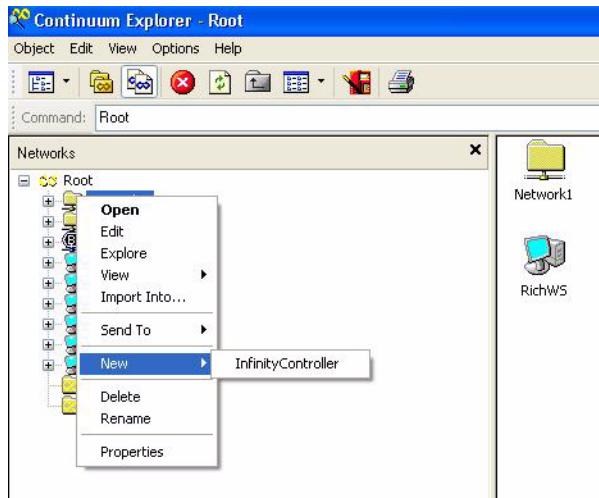
Creating the Remote Controller

Now that the remote network has been created, you will need to add the remote controller(s) to the network. Follow the steps below to create a remote controller.

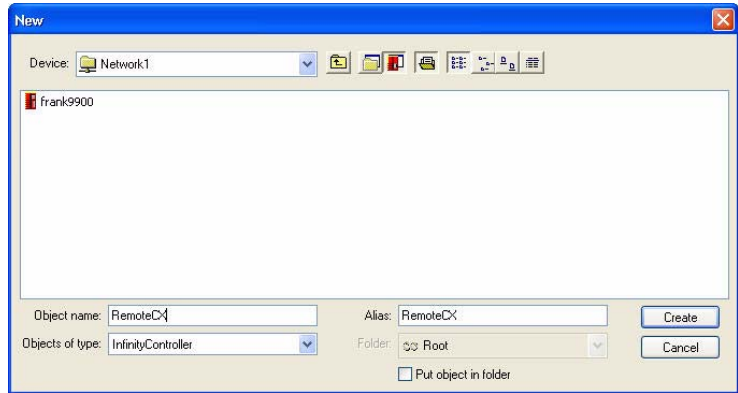
Step 1: Right click on the red Workstation Status icon in the Continuum icon tray, and select **Go Offline**.



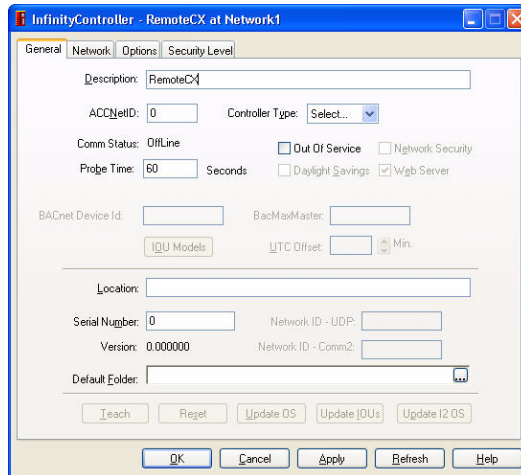
Step 2: In the Explorer's navigation (left) pane, right click on the remote site network object that was created earlier and select **New and InfinityController**.



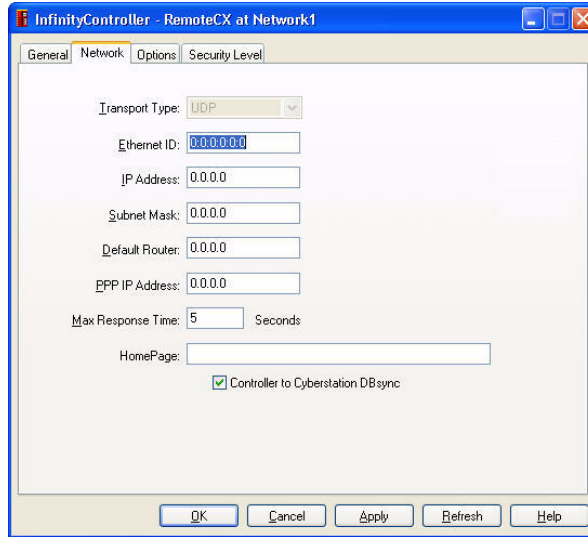
Step 3: In the **New** dialog supply an appropriate name for the controller and click **Create**.



Step 4: The **InfinityController** editor appears. On the **General** tab, enter an optional **Description**, the controller's **ACCNetID** number, select the **Controller Type** and click **OK**.



Step 5: Select the **Network** tab on the **InfinityController** editor.



Step 6: Make sure the **Controller to CyberStation DBSync** checkbox is unchecked. For a single controller, with or without a Network Interface Card (NIC) and with a modem on the remote site, set the controller’s **IP Address**, **Subnet Mask**, **Default Router**, and **PPP IP Address** as follows:

Table 1 Single Controller with or without a NIC

Item	Controller with NIC	Controller without NIC
IP Address	Specify the appropriate IP address OR set to 0.0.0.0	0.0.0.0
Subnet Mask	Specify the appropriate Subnet Mask for your IP address OR set to 0.0.0.0	0.0.0.0
Default Router	0.0.0.0	0.0.0.0

Table 1 Single Controller with or without a NIC

Item	Controller with NIC	Controller without NIC
PPP IP Address (see note below)	A unique address that is in a different subnet from your workstation.	A unique address that is in a different subnet from your workstation.

Note: If there is a workstation that has this controller listed in its database, the PPP IP Address of this controller **must** match the PPP IP Address for the controller in the database.

For configuring multiple controllers on the remote site, specify an IP Address and Subnet Mask that is the same as the gateway controller. Refer to [Configuring a Remote Site with Multiple Controllers](#) for more information.

If you are planning on adding a NIC to a controller on a remote site at some point in the future and you want to reserve its IP address now, set the network addresses of the controller and the workstation as follows:

Table 2 Reserve Controller Addresses for future NIC

Item	Controller	Continuum Cyberstation
IP Address	Specify the IP address.	0.0.0.0
Subnet Mask	Specify the Subnet Mask for your IP address.	0.0.0.0
Default Router	0.0.0.0	0.0.0.0
PPP IP Address	A unique address that is in a different subnet from your workstation.	A unique address that is in a different subnet from your workstation.

Refer to [Configuring the Remote Controller](#) for further information.

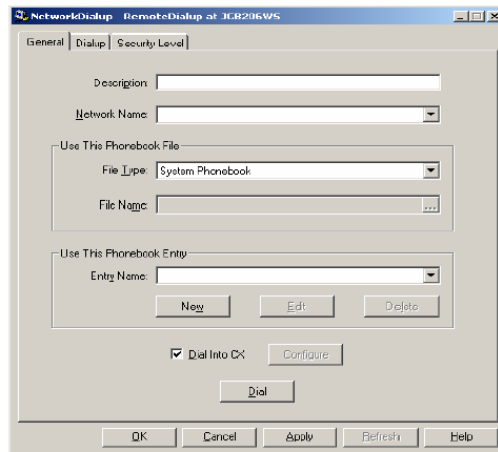
Creating the Network Dialup Object

The network dialup object is created under the workstation object in the Network view of the Continuum Explorer. If more than one workstation is connecting to the same remote site, each workstation requires its own Network Dialup object in order to connect to the remote controller at that site.

Each workstation can have many Network Dialup objects, allowing a single workstation to contact multiple remote sites. Each Network Dialup object is required to connect to a different remote site and needs a unique phone book entry. Dialup networking supports as many concurrent dialup connections as there are modems connected to the workstation.

To create a Network Dialup object:

- Step 1:** Create the Network Dialup object in the Continuum Explorer's Network view. Right click on the workstation device icon and select **New** and **Network Dialup**.
- Step 2:** In the **New** dialog, supply an appropriate name for the Network Dialup object and click **Create**.
- Step 3:** The **NetworkDialup** editor appears. Enter an optional description for the object in the **Description** field.

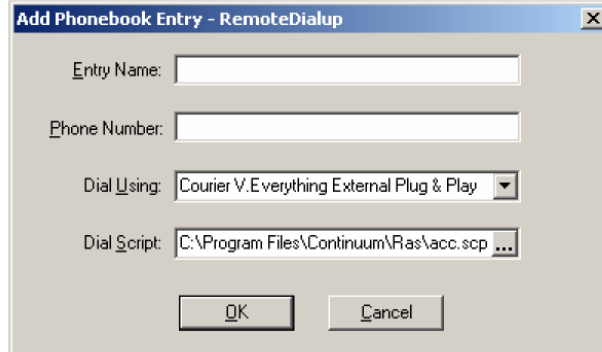


Step 4: From the **Network Name** dropdown menu, select the remote network that was previously created.

The **Use this Phonebook File** section contains a **File Type** field and a **File Name** field. The default value for the file type is “System Phonebook” and the default value for the filename is grayed out. Alternate phonebook files are not supported.

Note: In the next step you work with the **Use this Phonebook Entry** section where you indicate the actual phone number of the connected remote controller. The modem on the workstation dials this number and executes any script required to make the connection.

Step 5: To create a new phone book entry, click the **New** button in the **Use this Phonebook Entry** section. The **Add Phonebook Entry** dialog appears. You use it to enter a unique entry name, phone number to dial, modem to use to dial the number, and a dial script. In Windows, the default dial script is located in: \Program Files\Continuum\Ras\acc.scp



Note: These phone book entries may also be created outside of Continuum using the network and dialup connections application in Windows.

Step 6: In the **Entry Name** field, enter a unique entry name.

Step 7: In the **Phone Number** field, enter a phone number to dial.

Note: If you are using a direct serial cable connection, the phone number is not required.

Step 8: In the **Dial Using** field, select the modem from the dropdown menu.

Step 9: Leave the **Dial Script** field at default, **\Program Files\Continuum\Ras\acc.scp**.

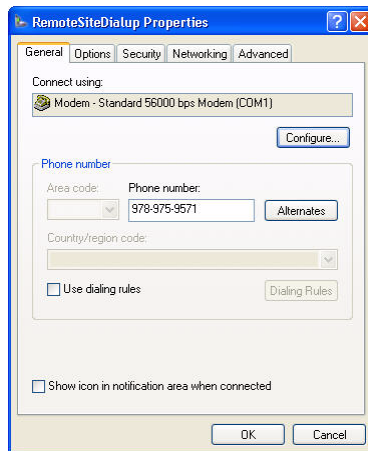
Step 10: Click **OK**.

Step 11: To verify the configuration of the phone book entry, deselect the **Dial Into CX** checkbox on the **General** tab. Once this is deselected, the **Configure** button is enabled.

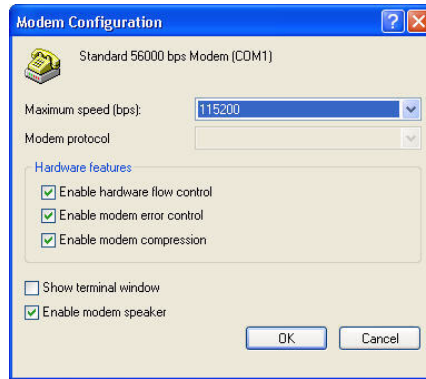
Step 12: Click the **Configure** button.

Step 13: The **Network Connections** dialog appears. Click the **Properties** button to view the **RemoteSiteDialup Properties** editor.

Step 14: In the **General** tab, verify the proper modem is listed in the **Connect using** field for dialing into the controller. Also, verify that the correct phone number is listed in the **Phone number** section.



Step 15: Click the **Configure** button. The **Modem Configuration** dialog appears.



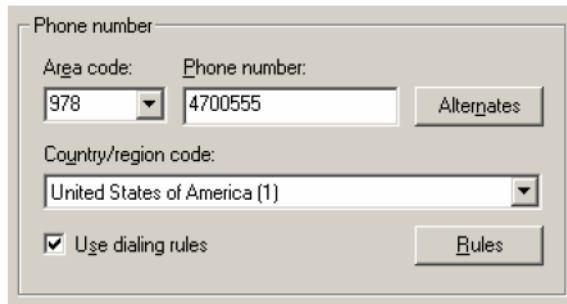
Step 16: Verify the modem speed in the **Maximum speed (bps)** field is set to the highest rate that the PC supports.

Step 17: Check the following:

- **Enable hardware flow control**
- **Enable modem error control**
- **Enable modem compression**

Step 18: Click **OK** and return to the **RemoteSiteDialup Properties** editor.

Step 19: In the **Phone Number** section of the **General** tab, verify that the **Area code** and **Phone Number** are correct.



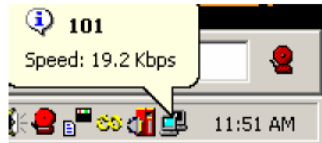
Step 20:Select **Use dialing rules** if you need to dial 1 or use an area code to dial out. This causes the modem to use the area code you typed for your location. Refer to [Windows Location Configuration](#) for further information.

Step 21:Click the **Dialing Rules** button and view the location and modem options to verify that they are configured properly.

Step 22:In the **Number Properties** dialog, select **Show icon in taskbar when connected** (optional) to have the modem icon appear on your toolbar.

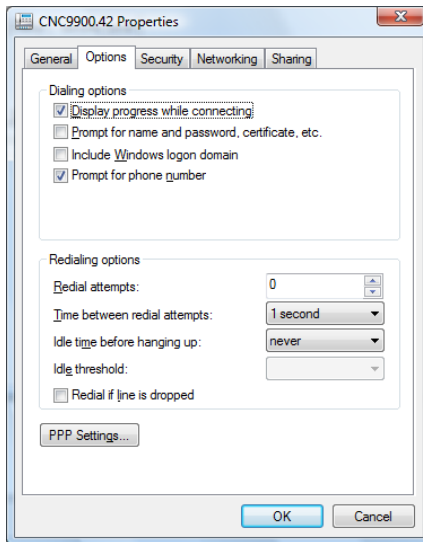


This action displays the icon below when the modem is connected to the controller.

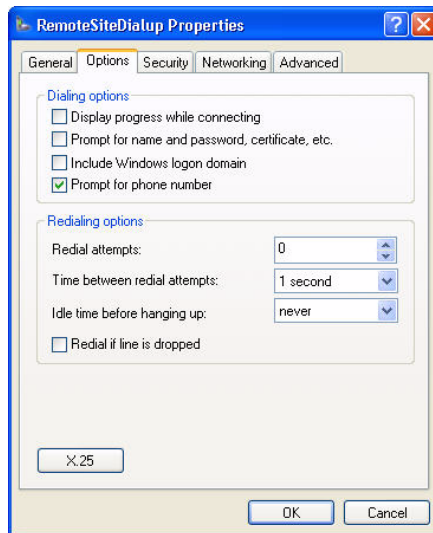


Step 23:Click the **Options** tab on the **RemoteSiteDialup Properties** editor.

In Windows Vista:



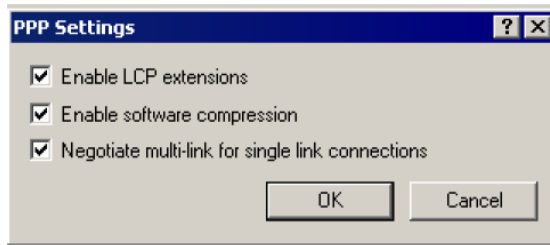
In Windows XP:



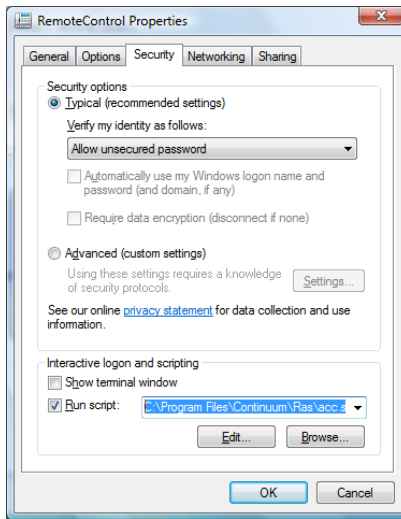
Step 24: In the **Dialing options** area, select **Display progress while connecting**.

Step 25:In the **Redialing options** area, leave the fields at their default values. If there is a time in the **Idle time before hanging up** field, set it to never.

Step 26:For Windows Vista Only, click the **PPP Settings** button, and on the **PPP Settings** dialog, select all the checkboxes and click **OK**.



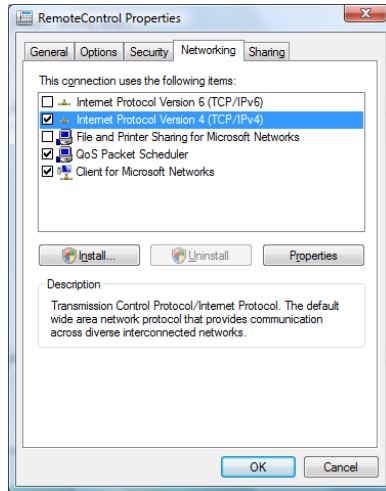
Step 27:Click the **Security** tab.



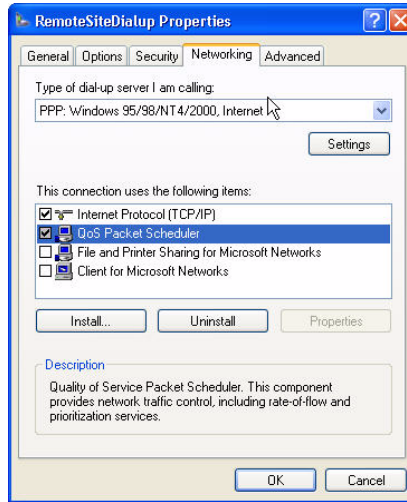
Step 28:On the **Security** tab, leave the security options at their default values and verify that the acc script is selected in the **Run script** field.

Step 29:Click the **Networking** tab.

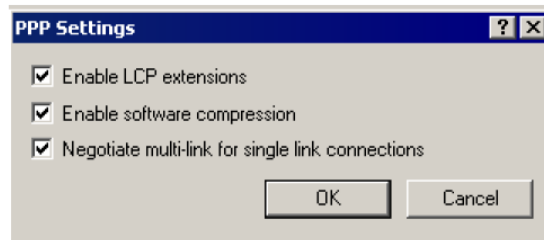
Step 30:For Windows Vista, click **Internet Protocol Version 4 (TCP/IPv4)**.



For Windows XP, verify that **PPP Windows** is selected in the **Type of dial-up server that I am calling** field, then click the **Settings** button.

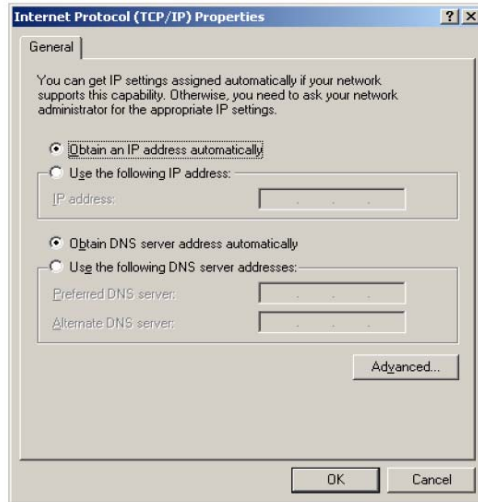


For Windows XP, select all the checkboxes and click **OK**.



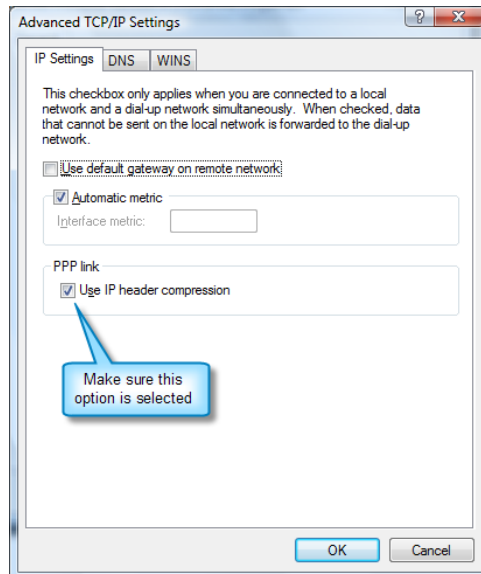
Step 31: Verify that the **File and Printer Sharing** and **Client for Microsoft Networks** are NOT selected, and then click the **Properties** button.

Step 32:The **Internet Protocol (TCP/IP) Properties** dialog appears. Leave the settings as shown (default).



Step 33:Click the **Advanced** button.

Step 34:The **Advanced TCP/IP Settings** dialog appears. Leave the default settings as shown.



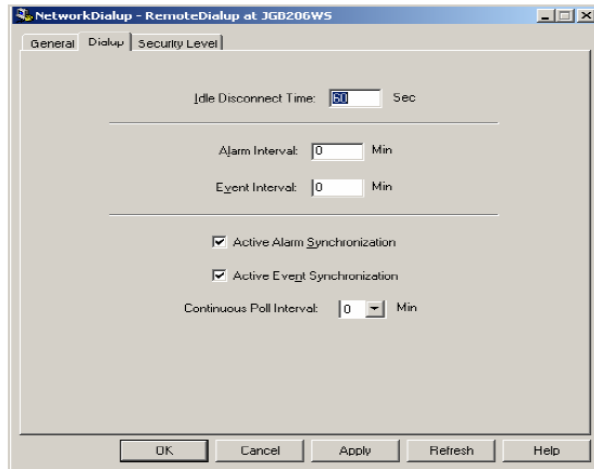
Step 35: Click **OK** to save and close the **Advanced** dialog, **Internet Protocol Properties** dialog, and the **RemoteSiteDialup Properties** editor.

Step 36: Click **Close** on the **Network Connections** dialog.

Step 37: You should be back in the Continuum **NetworkDialup** editor. In the **General** tab, verify that the phone book entry you created in an earlier step is in the **Entry Name** field of the **Use This Phonebook Entry** section.

Step 38: Check the **Dial Into CX** checkbox. Notice the **Configure** button is now grayed out again.

Step 39: Click the editor's **Dialup** tab.



Step 40: Enter information on this tab. The following table describes its attributes.

Table 3 NetworkDialup - Dialup Tab

Fields	Description
Idle Disconnect Time	Number of network inactivity seconds, before the remote connection is dropped. The idle disconnect is not affected by setting a continuous poll interval.

Table 3 NetworkDialup - Dialup Tab

Fields	Description
Alarm Interval	Number of minutes until Continuum automatically calls the remote site to update alarms.
Event Interval	Number of minutes until Continuum automatically calls the remote site to update events.
Active Alarm Synchronization	If selected, Continuum will synchronize alarms at the remote site at the selected Poll Interval. If not selected, Continuum will only retrieve Active Alarms once when the connection to the remote site is established.
Active Event Synchronization	If selected, Continuum will synchronize events at the remote site at the selected Poll Interval. If not selected, Continuum will only retrieve Active Events once when the connection to the remote site is established.
Continuous Poll Interval	Number of minutes Continuum will wait to poll for Alarm and Event information after a connection is established. Setting the continuous poll interval does not reset the Idle disconnect timer.

Step 41:Click **OK** to save the object.

Step 42:Right click on the workstation icon and select **Go Online**.

Chapter 3

Configuring Windows to Receive Incoming Calls

Receiving Calls on Windows XP

This section describes how to set your workstation to receive incoming calls from the controller, and how to set up a controller to dial into a Windows XP workstation.

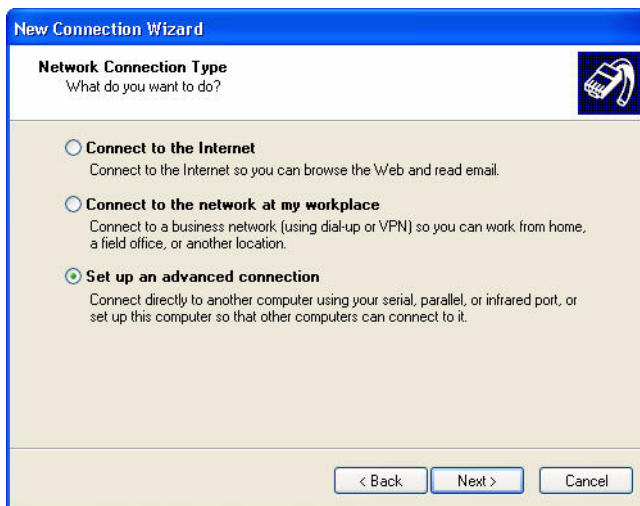
Note: If you are working with Windows 2003 Server, refer to [Receiving Calls on Windows 2003 Server](#).

Step 1: On your Windows desktop, click **Start** then **Control Panel**. Then double click **Create a new connection**.

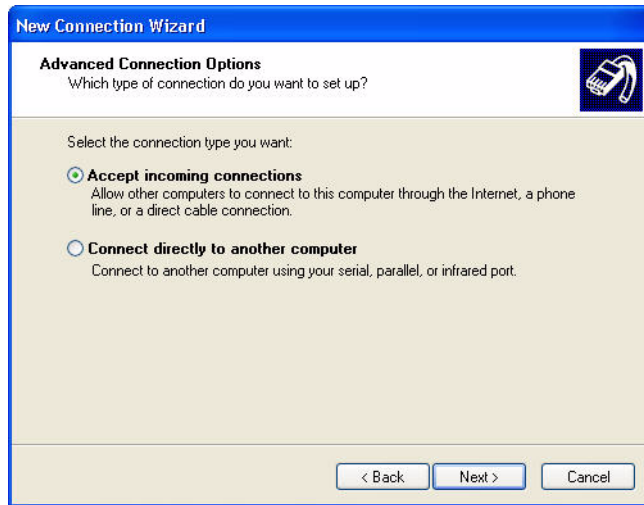
Step 2: In the **Network Connection Wizard**, click the **Next** button.



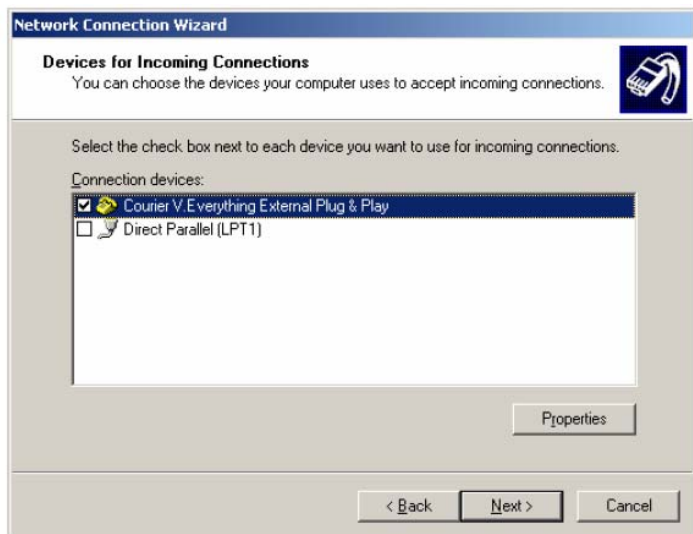
Step 3: In the **Network Connection Wizard** dialog, select **Set up an advanced connection** and click the **Next** button.



Step 4: In the **Advanced Connection Options** dialog, select **Accept incoming connections** and click the **Next** button.

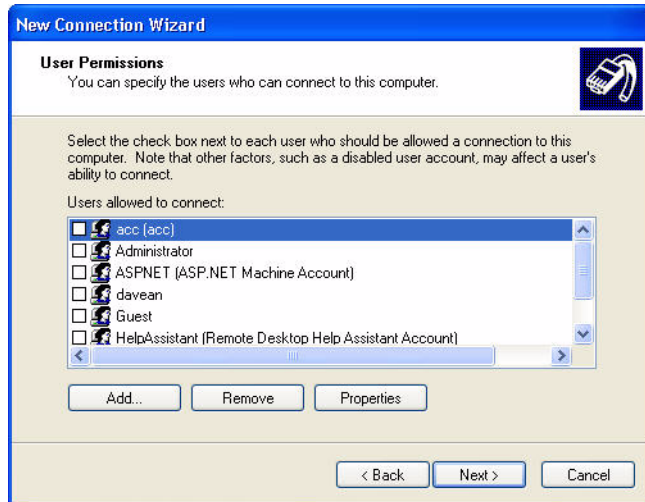


Step 5: Select your modem in the **Device for Incoming Connection** dialog and then click the **Next** button.



Step 6: Select **Do not allow virtual private connection** in the **Incoming Virtual Private Connection** dialog and then click the **Next** button.

Step 7: Select **acc (acc)** in the **User Permissions** dialog (this allows user **acc** to dial in), and then click the **Next** button.



Step 8: In the **Networking Software** dialog, highlight **Internet Protocol (TCP/IP)**, and then click the **Properties** button.

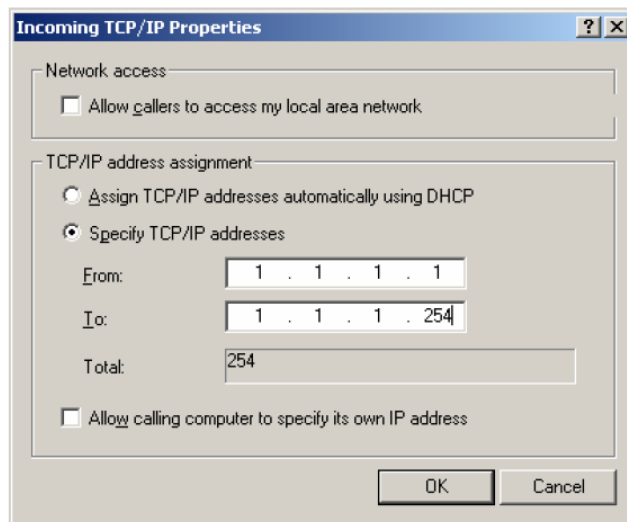


Step 9: In the **Incoming TCP/IP Properties** dialog:

- Deselect **Allow callers to access my local area network**.
- In the **TCP/IP address assignment** section, select **Specify TCP/IP addresses**.

Note: You must enter a valid range that is not within your local subnet range.

- In the **TCP/IP address assignment** section, deselected **Allow calling computer to specify its own IP address**.



Step 10: Click **OK** and then click the **Next** button on the **Networking Components** dialog.

Step 11: Click the **Finish** button on the **Completing the Network Connection** Wizard page.

Note: Windows will not allow you to change the incoming connection object name.

The workstation is now configured to receive incoming calls from selected users over its TCP/IP network.

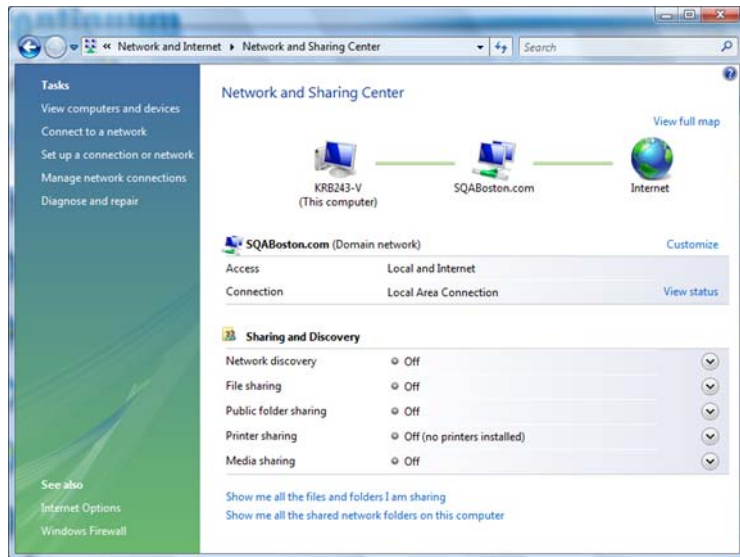
Receiving Calls on Windows Vista

This section describes how to set your workstation to receive incoming calls from the controller and how to set up a controller to dial into a Windows Vista workstation.

Note: If you are working with Windows 2003 Server, refer to [Receiving Calls on Windows 2003 Server](#).

Step 1: On your Windows desktop, click **Start** and then click **Control Panel**.

Step 2: Click the **Network and Internet** link. Then, click the **Network and Sharing Center** link.



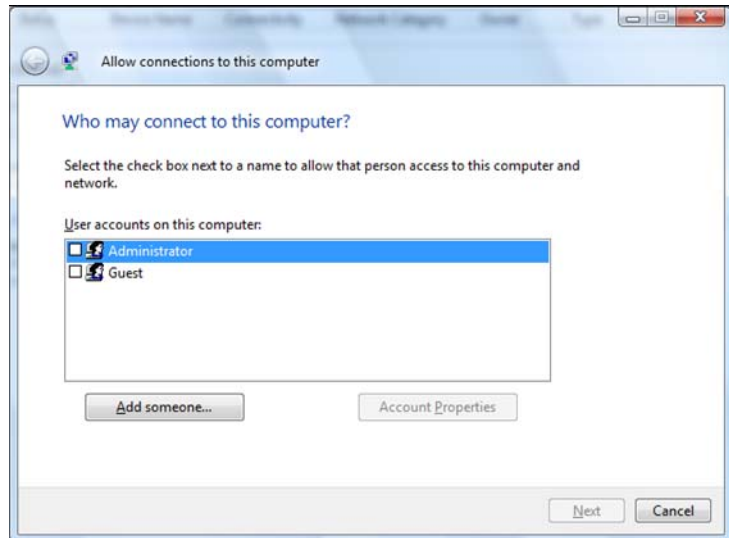
Step 3: Click the **Manage network connections** link.

Step 4: In the **Network Communications** window, press **Alt + F** to open the file menu.

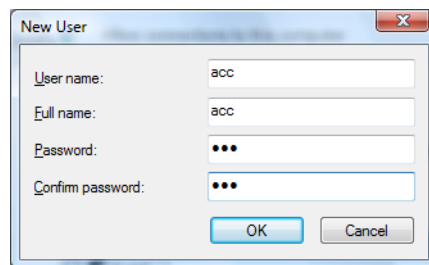
Step 5: Click **New Incoming Connection**.

Step 6: At the **User Account Control** prompt, click the **Continue** button.

Step 7: In the **Who may connect to this computer?** page of the **Allow connections to this computer** dialog, click **Add someone**.



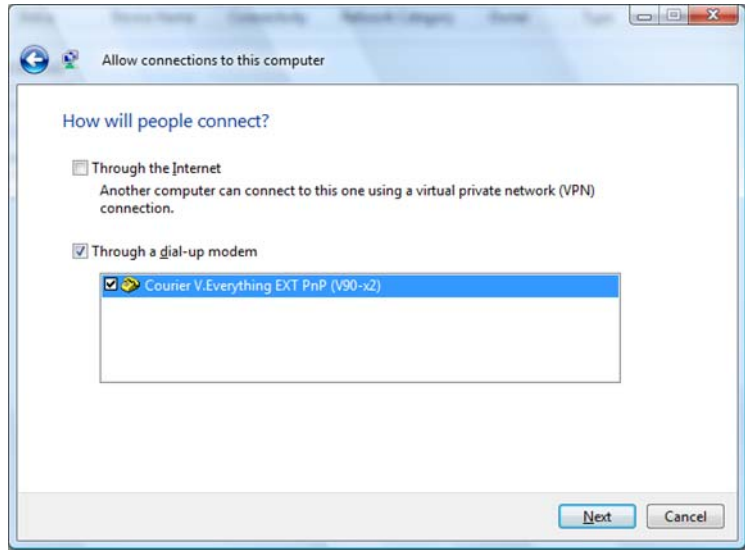
Step 8: In the **New User** dialog, enter **acc** in all fields and then click **OK**.



Note: The password field is case-sensitive. Do not enter **acc** in capital letters.

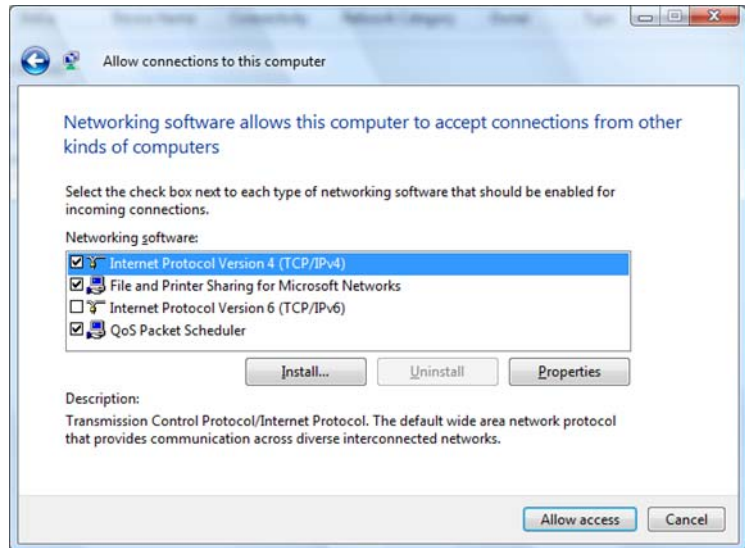
Step 9: Click **Next**.

Step 10:In the **How will people connect?** page of the **Allow connections to this computer** dialog, select **Through a dial-up modem**.

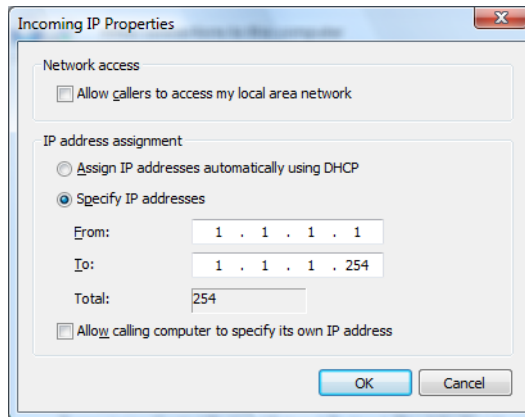


Step 11:Select the modem you want and then click **Next**.

Step 12:In the **Networking software** allows this computer to accept connections from other kinds of computers page, select **Internet Protocol Version 4 (TCP/IP4)**.



Step 13:Click **Properties**.



Step 14:In the **Incoming TCP/IP Properties** dialog:

- Deselect **Allow callers to access my local area network**.

- In the **TCP/IP address assignment** selection, select **Specify TCP/IP addresses**.

Note: You must enter a valid range that is not within your local subnet range.

- In the **TCP/IP address assignment** selection, deselect **Allow calling computer to specify its own IP address**.

Step 15: Click **OK**, then click **Allow access** in the **Networking software allows this computer to accept connections from other kinds of computers** page of the **Allow connections to this computer** dialog.

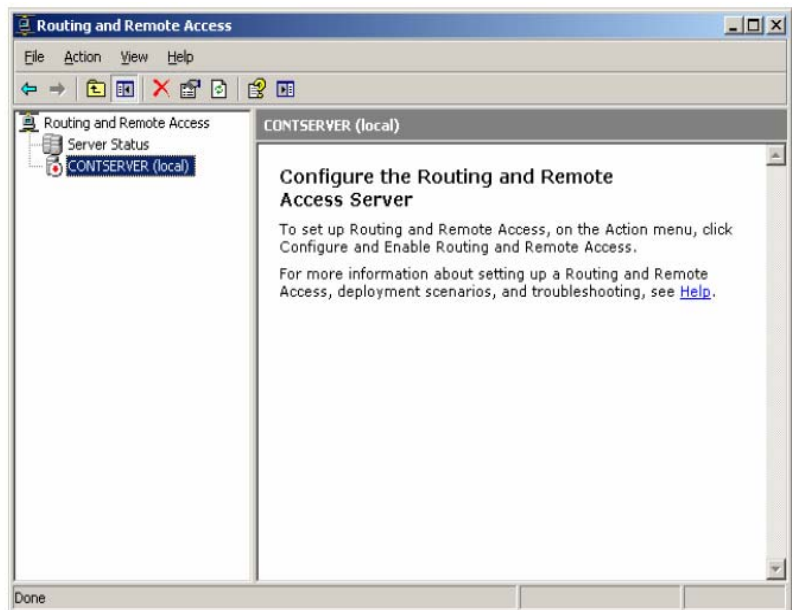
Step 16: Click **Close**.

Receiving Calls on Windows 2003 Server

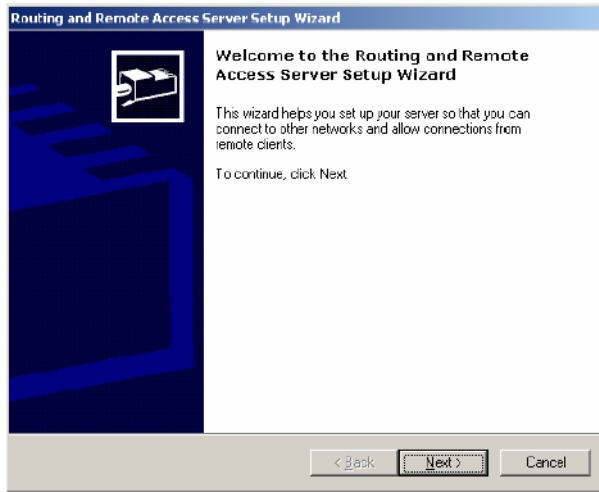
This section describes how to set your workstation to receive incoming calls from the controller and how to set up a controller to dial into a Windows 2003 Server workstation.

Step 1: Click the **Start** button in your task bar.

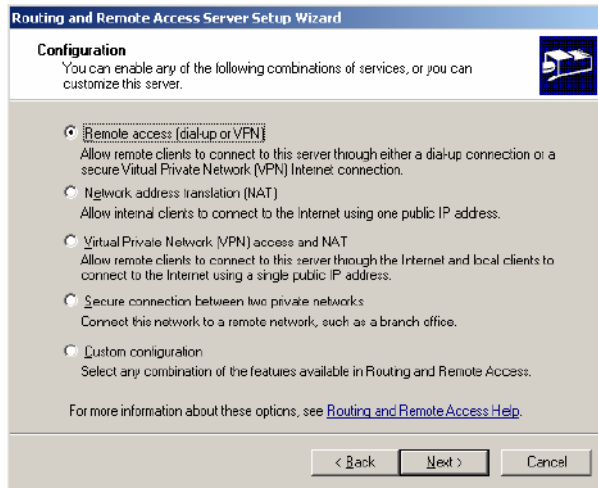
Step 2: Select **Administrative Tools > Routing and Remote Access**. The **Routing and Remote Access** dialog appears.



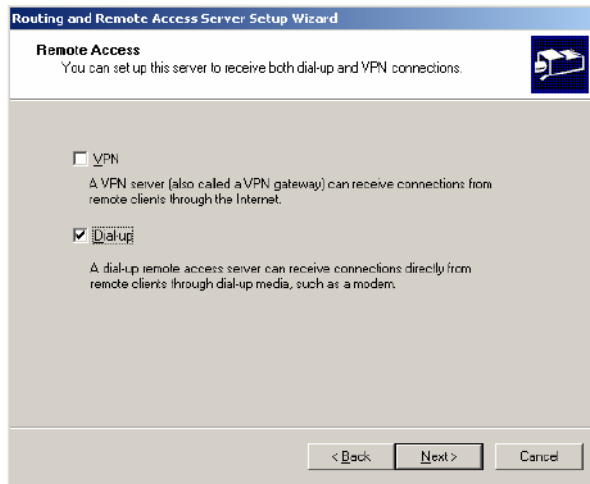
Step 3: From the **Action** menu bar, select **Configure and Enable Routing and Remote Access**. The **Setup Wizard** appears.



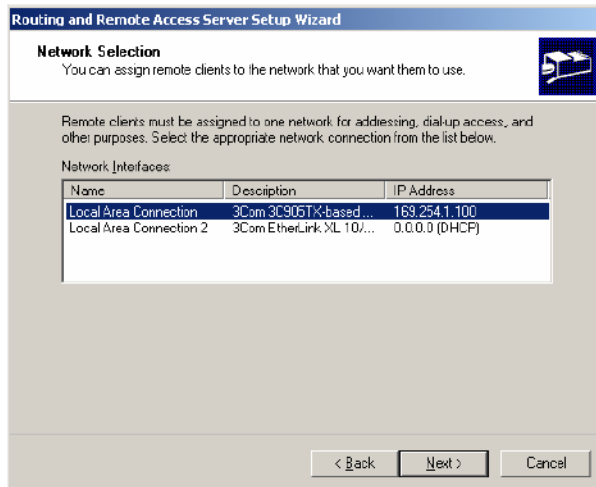
Step 4: Click **Next**. The **Configuration** dialog appears.



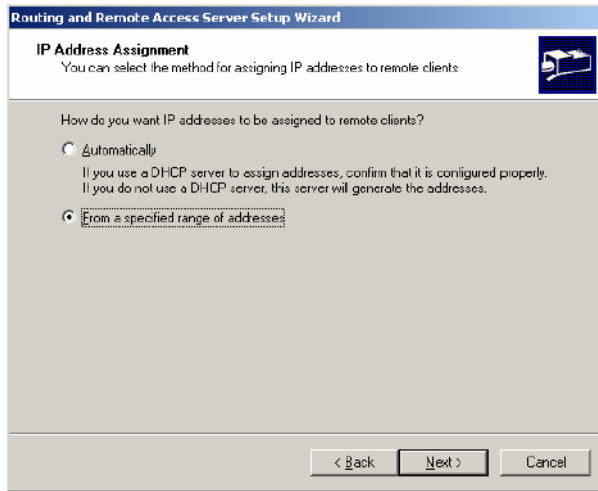
Step 5: Select **Remote Access (dial-up for VPN)**. Be sure to leave all other checkboxes cleared, and click **Next**. The **Remote Access** dialog appears.



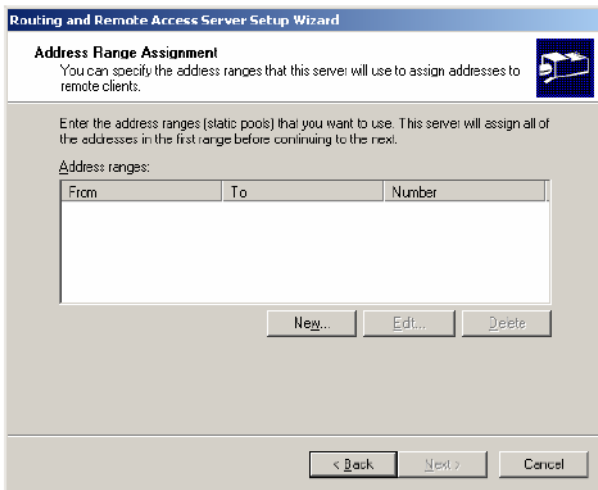
Step 6: Check the **Dial-up** checkbox, and click **Next**. The **Network Selection** dialog appears.



Step 7: Select the appropriate interface, and click **Next**. The **IP Address Assignment** dialog appears.



Step 8: Select from a specified range of addresses, and click **Next**. The **Address Range Assignment** dialog appears.



Step 9: Click **New**. The **New Address Range** dialog appears.

New Address Range ? X

Type a starting IP address and either an ending IP address or the number of addresses in the range.

Start IP address: 100 . 100 . 100 . 1

End IP address: 100 . 100 . 100 . 254

Number of addresses: 254

OK Cancel

Step 10: Enter an appropriate **Start IP address**, **End IP address**, and **Number of Addresses**, and click **OK**.

Step 11: Click **Next**. The **Managing Multiple Remote Access Servers** dialog appears.

Routing and Remote Access Server Setup Wizard

Managing Multiple Remote Access Servers

Connection requests can be authenticated locally or forwarded to a Remote Authentication DialIn User Service (RADIUS) server for authentication.

Although Routing and Remote Access can authenticate connection requests, large networks that include multiple remote access servers often use a RADIUS server for central authentication.

If you are using a RADIUS server on your network, you can set up this server to forward authentication requests to the RADIUS server.

Do you want to set up this server to work with a RADIUS server?

No, use Routing and Remote Access to authenticate connection requests

Yes, set up this server to work with a RADIUS server

< Back Next > Cancel

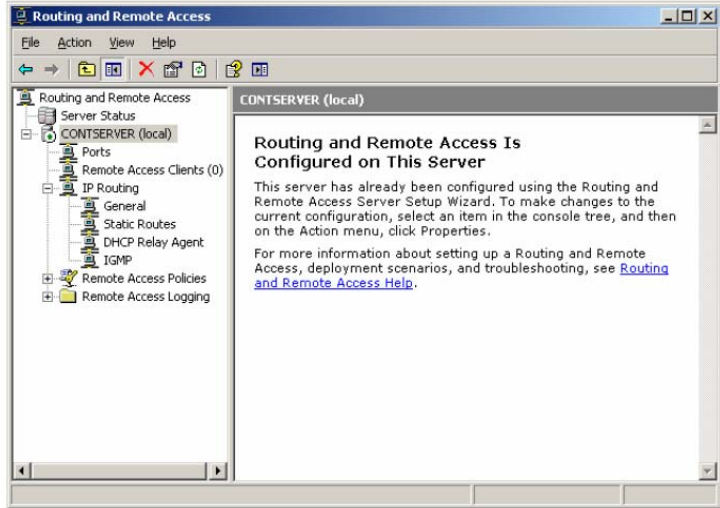
Step 12: Select **No, use Routing and Remote Access to authenticate connection requests**, and click **Next**.

Step 13: Click **Finish**.

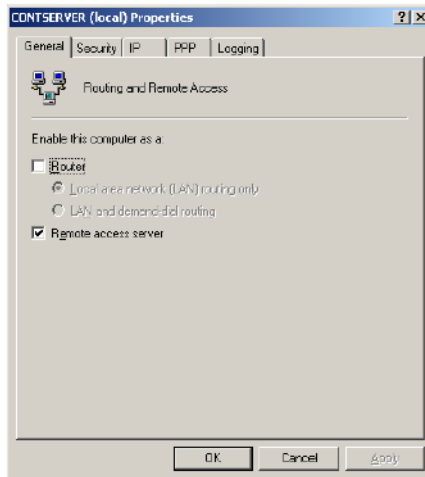
Step 14: Click the **Start** button in your taskbar.

Step 15:Select **Administrative Tools**.

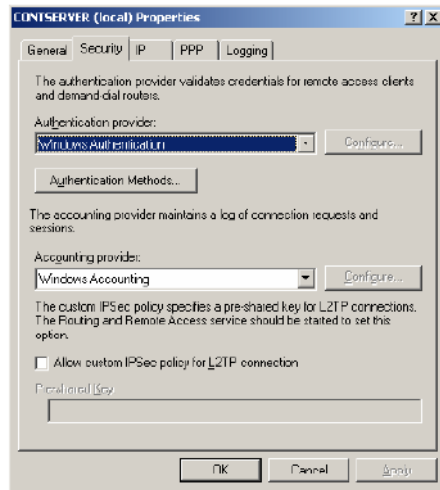
Step 16:Select **Remote Access**. The **Routing and Remote Access** dialog appears.



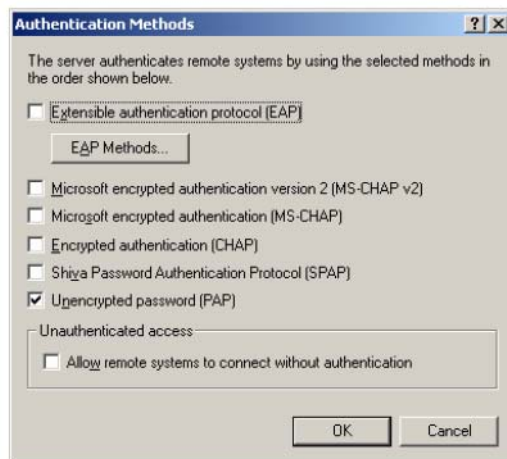
Step 17:In the tree, right click on the local server and select **Properties**. The server **Properties** dialog appears.



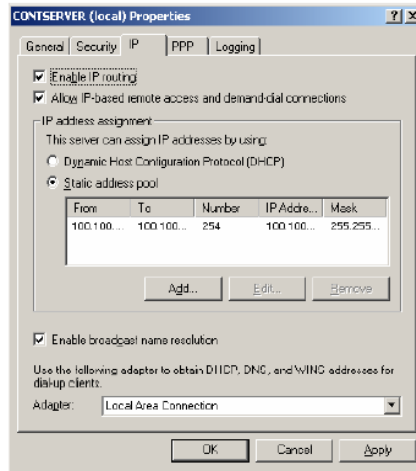
Step 18: On the **General** tab, check the **Remote access server** checkbox, and then select the **Security** tab.



Step 19: On the **Security** tab, click **Authentication Methods**. The **Authentication Methods** dialog appears.



Step 20: Check the **Unencrypted authentication (PAP)** checkbox, and click **OK**.

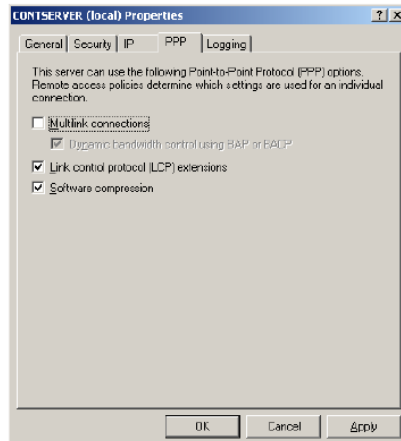


Step 21: Select the **IP** tab of the **Properties** dialog and check the **Enable IP routing** checkbox.

Step 22: Check the **Allow IP-based remote access and demand-dial connections** checkbox.

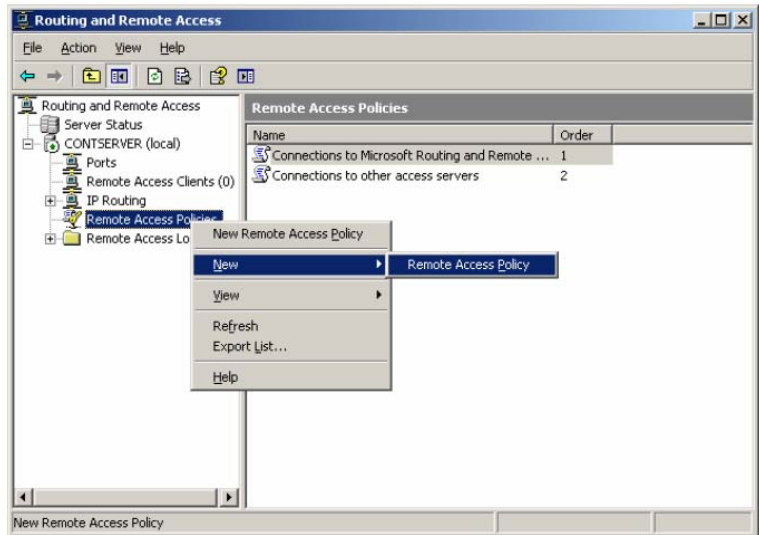
Step 23: Select **Static address pool**.

Step 24: Check the **Enable broadcast name resolution** checkbox. Select the **PPP** tab.

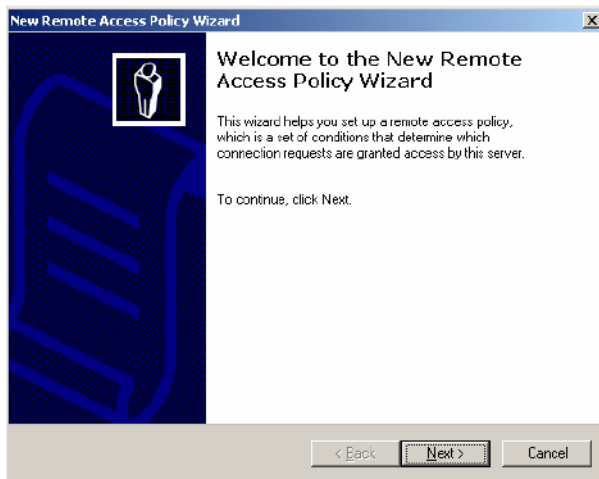


Step 25: On the **PPP** tab, check the **Multilink connection** checkbox, and click **OK**. The **Routing and Remote Access** dialog appears again.

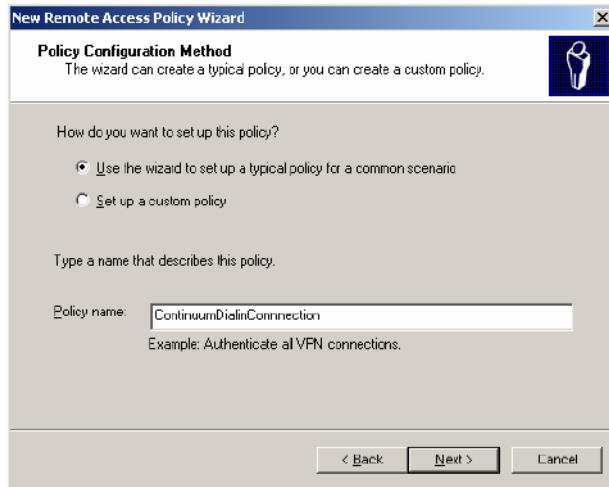
Step 26: In the tree, right click **Remote Access Policies**.



Step 27: Select **New > Remote Access Policy**. The **New Remote Access Policy Wizard** dialog appears.

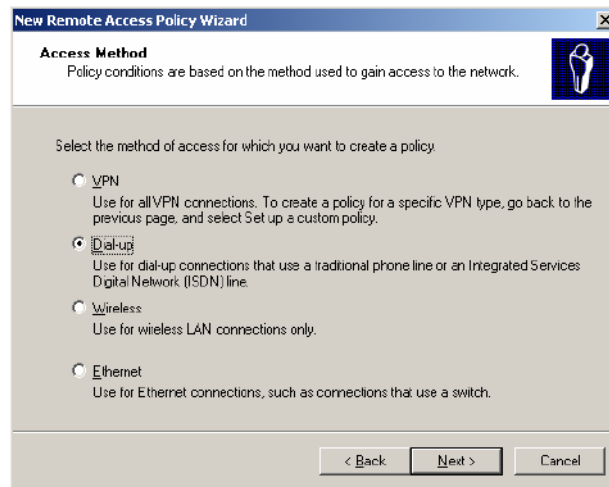


Step 28: Click **Next**. The **Policy Configuration Method** dialog appears.

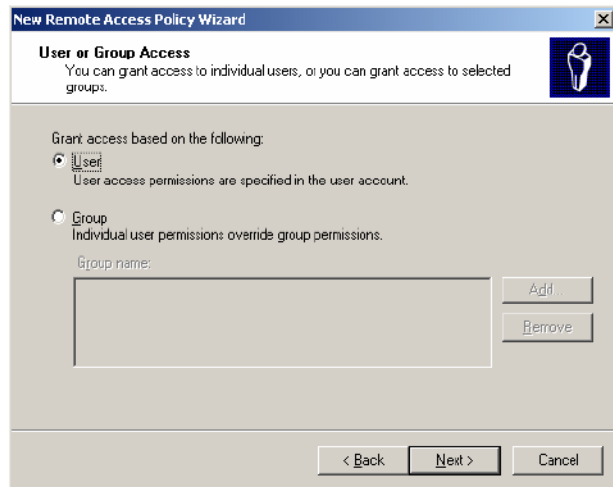


Step 29: Select **Use the wizard to set up a typical policy for a common scenario**.

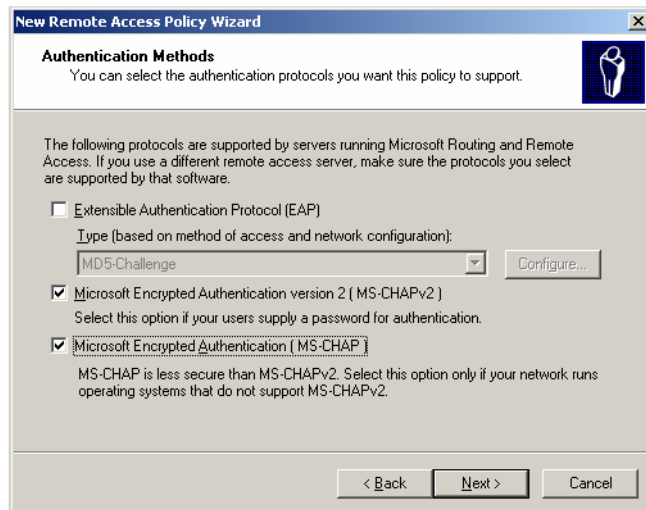
Step 30: Enter a name in the **Policy Name** field and click **Next**. The **Access Method** dialog appears.



Step 31:Select **Dial-up**, and click **Next**. The **User or Group Access** dialog appears.



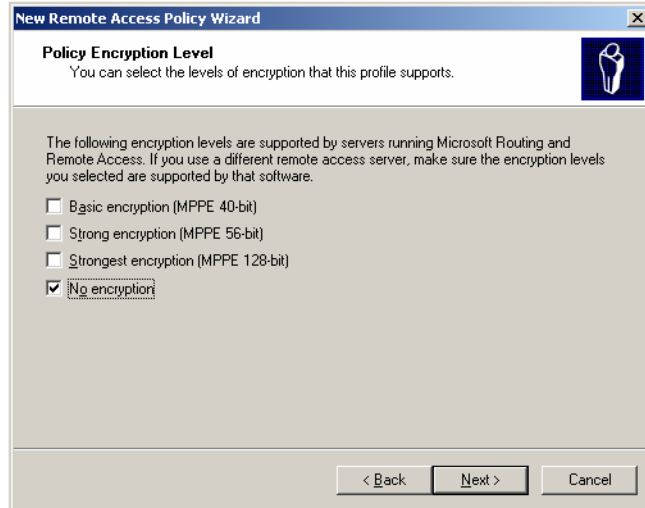
Step 32:Select **User**, and click **Next**. The **Authentication Methods** dialog appears.



Step 33:Check the **Microsoft Encrypted Authentication version 2 (MS-CHAPv2)** checkbox. If your network runs operating systems that do not support MS-CHAPv2, check the

Microsoft Encrypted Authentication (MS-CHAP) checkbox.

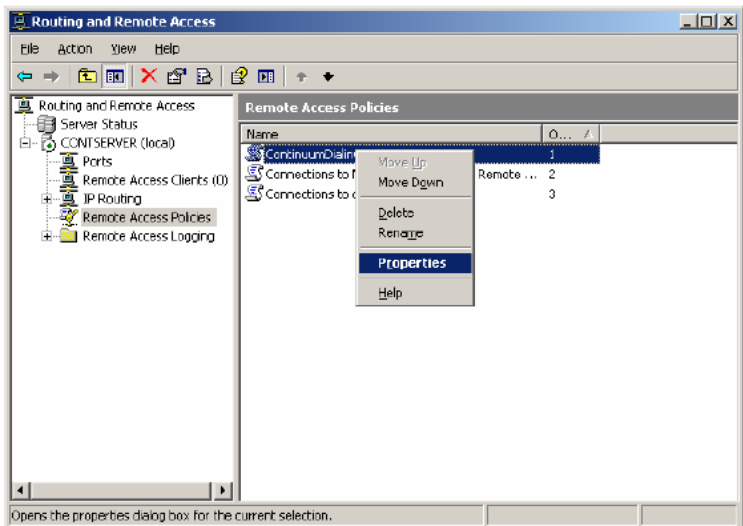
Step 34: Click **Next**. The **Policy Encryption Level** dialog appears.



Step 35: Check the **No encryption** checkbox, and click **Next**.

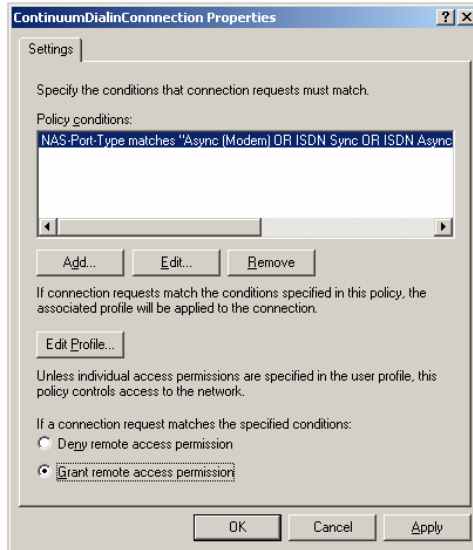
Step 36: Click **Finish**.

Step 37: In the **Routing and Remote Access** dialog, right click on your remote access policy, and select **Properties**.



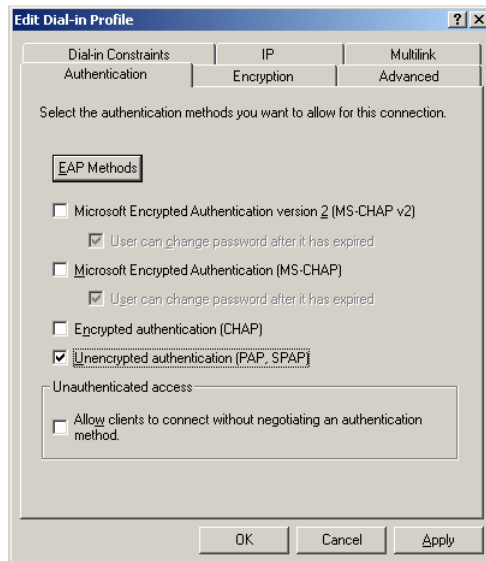
The **DialinConnection Properties** dialog appears.

Step 38: Click Edit Profile.

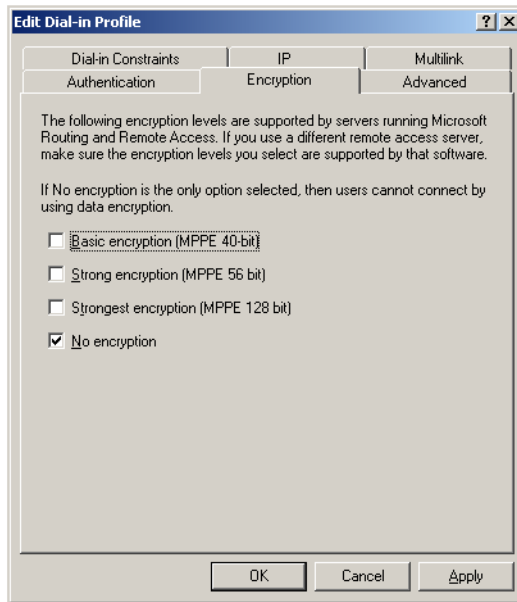


The **Edit Dial-in Profile** dialog appears.

Step 39: On the Authentication tab, check the Unencrypted authentication (PAP, SPAP) checkbox.



Step 40: On the **Encryption** tab, check the **No encryption** checkbox, and click **Apply**.



Step 41: Click **OK**.

Windows Remote Communication User Configuration

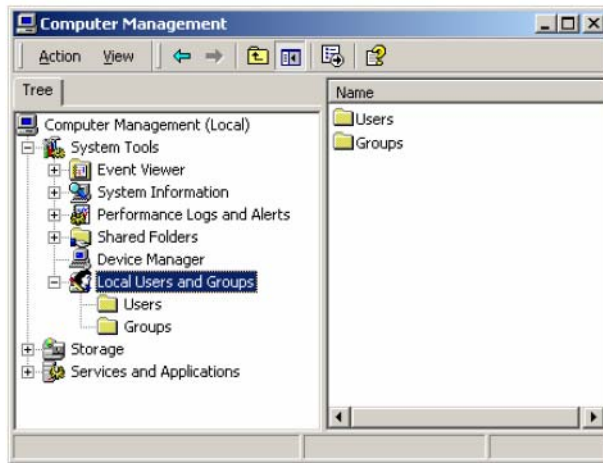
Prior to a controller's dialing into a workstation, a new Windows user must be created on the local workstation. Perform the following steps to create a new Windows user.

Note: If you are using Windows 2003 Server, refer to [Windows 2003 Server Remote Communication User Configuration](#).

Note: If your configuration uses a direct serial cable connection (no modem), this section is not required.

Step 1: From the Windows desktop, click the **Start** button, then **Control Panel**.

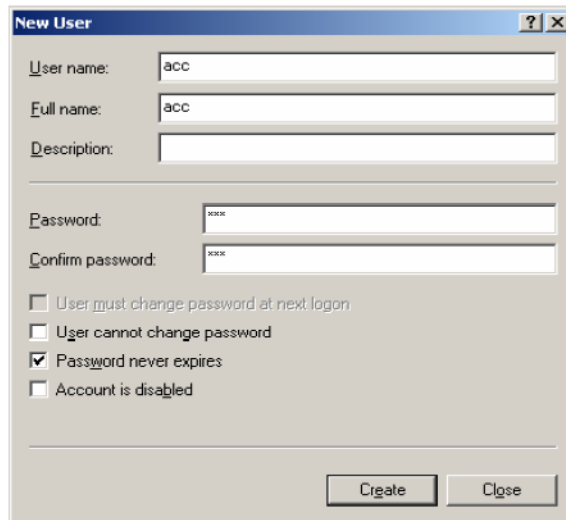
Step 2: Double click on **Administrative Tools**, then **Computer Management** and **Local Users and Groups**.



Step 3: Highlight **Users**, click **Action** and select **New User** from the dropdown menu.



Step 4: In the **New User** dialog, type in **acc** in the **User name**, **Full name**, and **Password** fields.

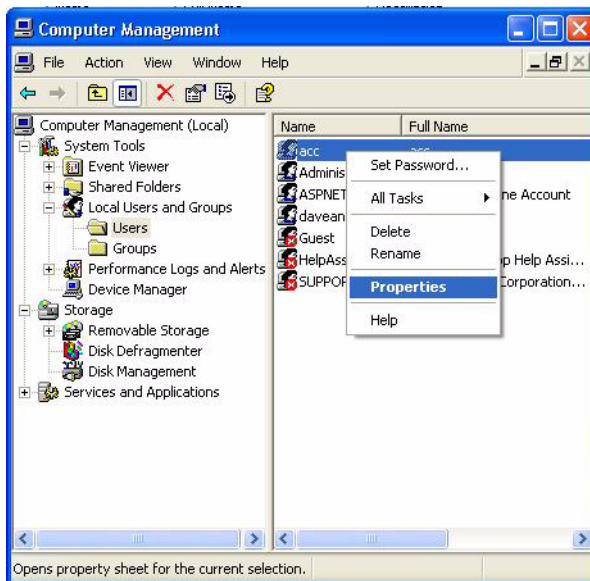


Note: The password field is case sensitive, do not type acc in capital letters.

Step 5: Deselect the **User must change password at next logon** checkbox and check the **Password never expires** checkbox.

Step 6: Click **Create** and then **Close** to create the new user and close the dialog.

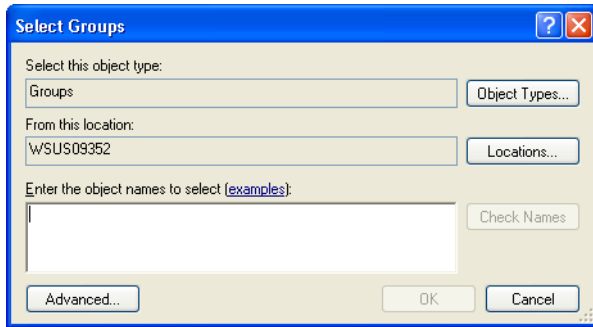
Step 7: Highlight and right click the new user **acc** and from the popup menu select **Properties**.



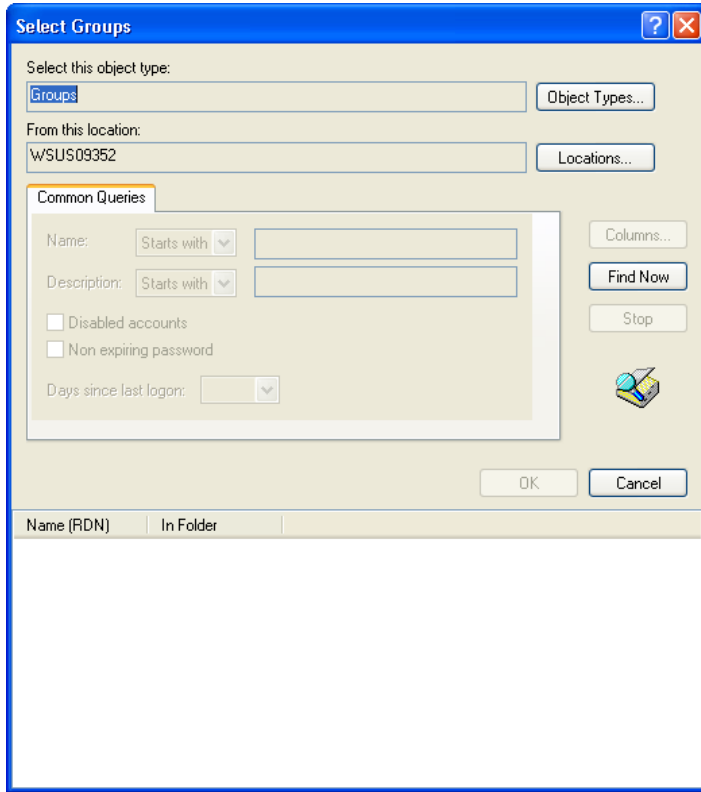
Step 8: Select the **Member Of** tab.

Step 9: Click the **Add** button.

Step 10:The **Select Groups** dialog appears. Click **Advanced**.



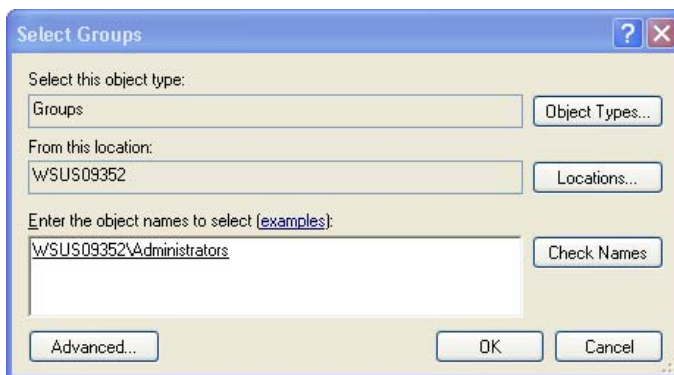
Step 11:The **Select Groups** dialog reappears with the advanced search options available. Click **Find Now**.



Step 12:In the **Select Groups** dialog, the search results appear. Highlight **Administrators**. Click **OK**.

Name (RDN)	In Folder
Administrators	WSUS09352
Backup Oper...	WSUS09352
Debugger Us...	WSUS09352
Guests	WSUS09352
HelpServices...	WSUS09352
Network Confi...	WSUS09352
Offer Remote ...	WSUS09352
Power Users	WSUS09352
Remote Desk...	WSUS09352
Replicator	WSUS09352
Users	WSUS09352

Step 13:The initial **Select Groups** dialog appears. The object name displays in the **Enter the object names...**field. To apply the selections, click **OK**.



Step 14:To exit, click **OK**.

Windows 2003 Server Remote Communication User Configuration

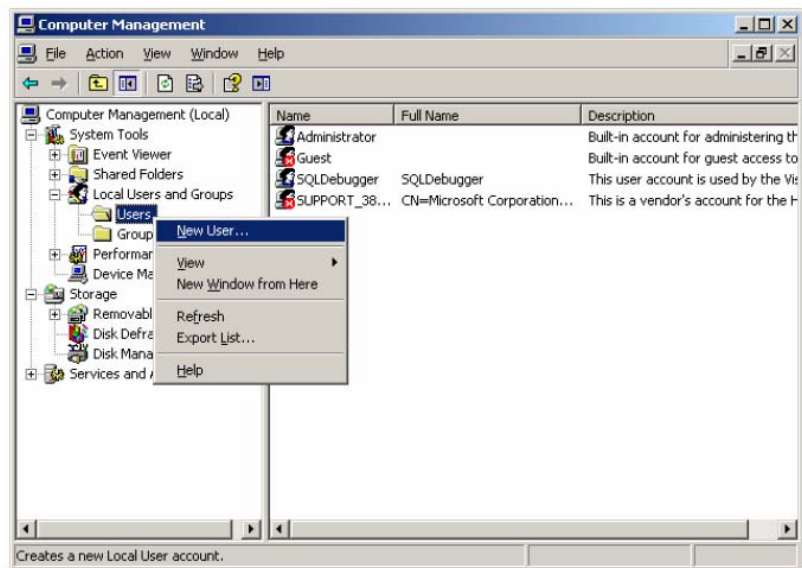
Prior to a controller's dialing into a workstation, a new Windows user must be created on the local workstation.

Note: Refer [Windows Remote Communication User Configuration](#) for further information.

Perform the following steps to create a new Windows 2003 Server user.

Step 1: Click the **Start** button in your task bar.

Step 2: Select **Administrative Tools**. The **Computer Management** dialog appears.

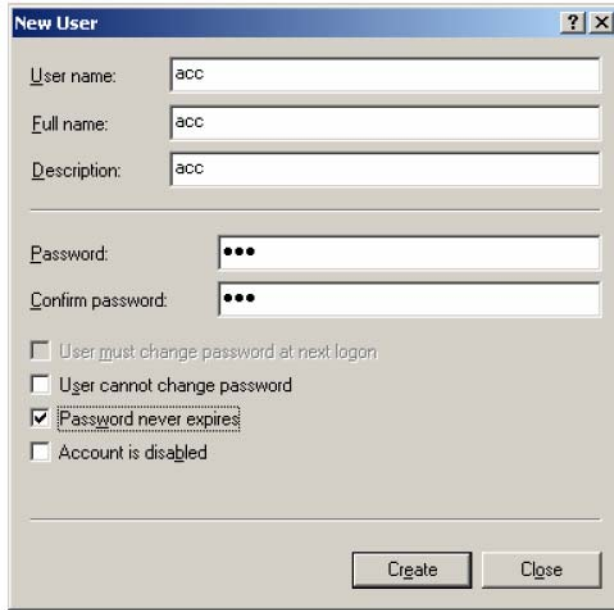


Step 3: In the tree, expand **Local Users and Groups**.

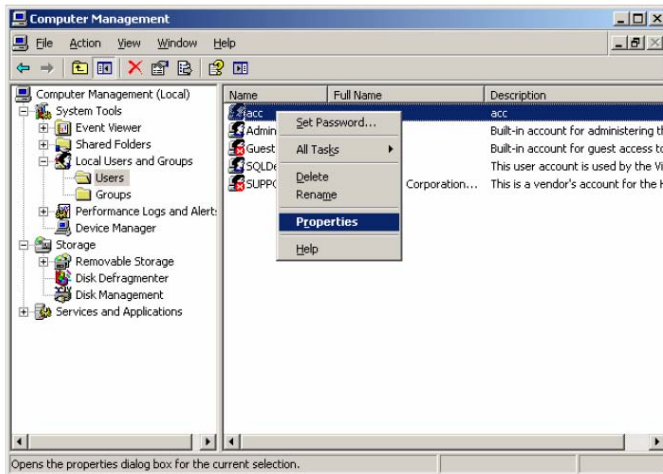
Step 4: Right click **Users**.

Step 5: Select **New User**. The **New User** dialog appears.

Step 6: Check the **Password never expires** checkbox, and click **Create**.

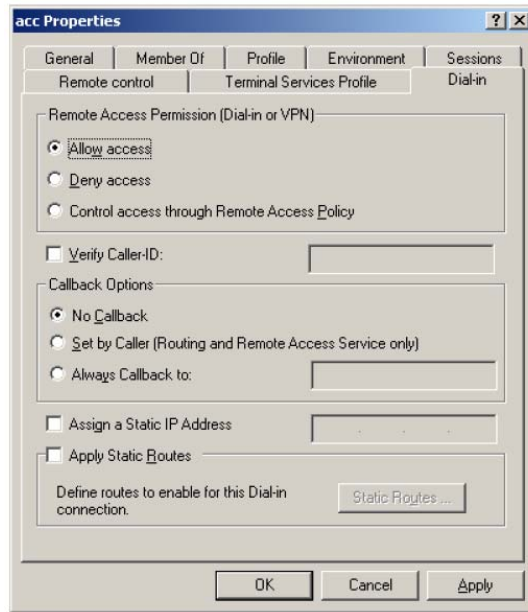


Step 7: In the **Computer Management** dialog, right click on the newly created user, and select **Properties**.



The **Properties** dialog appears.

Step 8: On the **Dial-in** tab, select **Allow access** and **No Callback**.



Step 9: Click **Apply**, and then **OK**.

Chapter 4

Configuring and Connecting to Remote Controllers

Configuring the Remote Controller

Before establishing a dialup connection to the remote site from the NetworkDialup object, the CX Controller needs to be configured with the correct IP and PPP information. Depending on the model of the controller this is done using a command terminal RS-232/ASCII interface or through an HTML page served over the Ethernet interface. It is beyond the scope of this manual to explain the use of the configuration utility for each controller. CX9201, CX94xx, and CX99xx controllers are configured using the command terminal interface. All other controllers use HTML embedded web configuration pages.

The following information outlines what needs to be configured for remote communications to operate correctly. Refer to the appropriate document to learn the details of configuring the controller.

Step 1: Set the appropriate COMM port's default baud rate. For best performance, select the highest supported baud rate.

Note: For CX series controllers, set the default baud to 19200.

Note: For the bCX1 series (9640 controller), set the default baud to 38400.

Step 2: Set the IP address, Subnet Mask, Default Router, and PPP IP address.

For the CX9201, CX94xx, and CX99xx:

- If the controller does have a Network Interface Card (NIC) or built-in NIC, then you must specify the PPP address. You may optionally specify an IP address and Subnet mask for the controllers NIC. If there is a workstation that has this controller listed in its database, the PPP address must match that specified in the controller; however, the IP address and subnet mask may be set to all zeros, if this controller is not a Remote Gateway, or set to match the settings in the controller.
- If the controller does not have a NIC, then you must specify the PPP address. You may optionally specify the IP address, Subnet Mask for the controller or (preferably) you may specify all zeros for the IP address and Subnet Mask. If you are planning on adding a NIC to this controller at some point in the future and you want to reserve its IP address now, then you may specify its IP address on the controller itself, but the workstation must show an IP address of all zeros for this controller.

For the CX9640, CX9702, bCX1 Series:

The IP address defaults to 169.254.1.1 and the PPP address defaults to 125.1.1.1

Note: In Windows, you only have to enter the PPP address in the CyberStation in order for the controller to send the alarm into the workstation.

Step 3: If you are configuring a controller using a dumb terminal interface (CX9201, CX94xx, CX99xx) log out of the configuration setup screen. If you are configuring a controller using a web interface, save the changes and restart the controller.

Step 4: After logging off the controller, you must physically press the controller's **Clear Memory Reset** button for the IP information to be written to the controller properly.

Step 5: Once the controller has been reset, allow 1 to 2 minutes for the controller to go through its startup routine. After the startup routine is finished, verify that the IP configuration information was accepted and is configured correctly.

Changing the ACC Password

For enhanced security, you can change the ACC password. Changing the acc user's password in the controller does not affect the remote communications operation. This simply protects from configuration logins by unauthorized users.

Testing and Verifying Communication

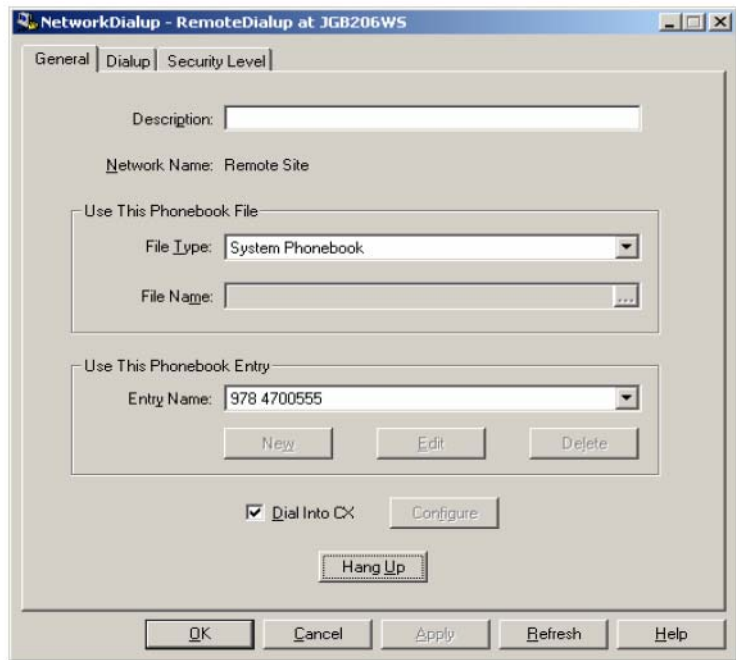
Once the CX is configured, test the modems and phone lines by using HyperTerminal from the Windows Workstation to dial into the controller. Be sure you use the modem that the network dialup will use on the workstation. This step is simply to verify that the hardware and phone lines are working properly before moving on.

Connecting to the Controller Using Network Dialup

Follow the steps below to connect a controller using network dialup. From the Continuum Explorer:

Step 1: Open the Network Dialup object editor for the NetworkDialup object that was created for this remote site.

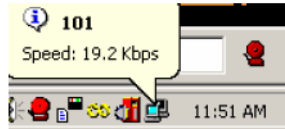
Step 2: On the **General** tab, click the **Dial** button. You may see a small amount of delay before the modem on the workstation actually begins to dial. Once the modem begins dialing, the **Dial** button changes to a **Hang Up** button.



Step 3: Click **OK** to close this window.

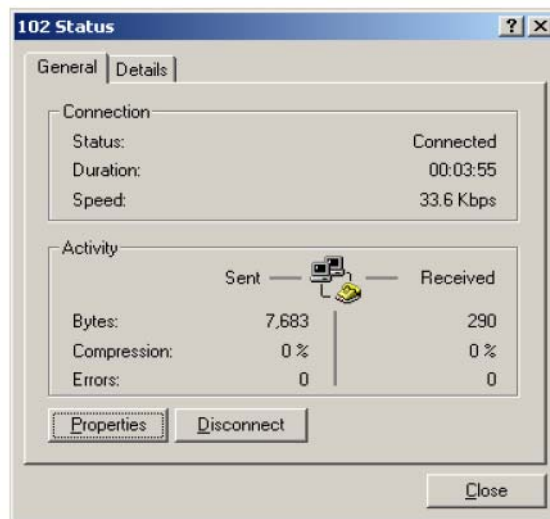
Monitoring the Connection with Dialup Networking Monitor

The Windows Dialup Monitor appears in the system tray as an icon next to the system clock.



For troubleshooting and testing, it is a good idea to display the dialup monitor on the system tray to give you a visual display of carrier detect, transmit, and receive.

To view the connection details, double click on the icon. A status dialog, similar to the one below, appears.



Verifying Communication to the Controller

Once a valid connection has been made using the network dialup object, verify proper connection to the controller.

Step 1: Attempt to ping the controller’s PPP address from the workstation with the dialup connection.

For controllers with only one Comm User port:
The Local IP Address will always be the address that was set up and the Remote PPP Client IP Address will be the local IP address plus 1.

For controllers with four Comm ports:
A unique PPP IP address is assigned to each comm port during system startup. For example, when a CyberStation dials into COMM 3, the controller automatically assigns the remote PPP client (in this case, the workstation) an IP address using COMM 3’s local IP address plus 1. If the PPP base IP address for a controller is 20.20.20.1, the IP addresses assigned to each comm port and its remote PPP client would be as follows:

Table 4 Example Comm Port Assignments

Comm Port	Sample IP Address
COMM1 Local IP Address	20.20.20.1
COMM1 Remote PPP Client IP Address	20.20.20.2
COMM2 Local IP Address	20.20.20.3
COMM2 Remote PPP Client IP Address	20.20.20.4
COMM3 Local IP Address	20.20.20.5
COMM 3 Remote PPP Client IP Address	20.20.20.6
COMM4 Local IP Address	20.20.20.7
COMM4 Remote PPP Client IP Address	20.20.20.8

In this case, when the workstation dials into the controller with a modem on COMM3, the workstation's PPP interface gets the PPP IP address of 20.20.20.6. The controller's PPP IP address will be 20.20.20.5.

Now, ping 20.20.20.5 from the workstation, you will see that the TD/RD lights will flash and the pinging of the IP address will return a response.

Step 2: Edit the remote controller. Notice that the **Carrier Detect** light in the monitor is green and the transmit and receive lights are flashing.

Step 3: Verify the controller is online.

Step 4: Perform a "teach" on the controller while connected.

Note: It is also important that you edit the appropriate Comm Port on the controller and verify that the baud rate is set to 19200. By default, the database stores a value of 9600. If the default baud is not edited, the database will not be updated with the correct value that the controller has stored. Any future reloads of the controller would fail since there would be a discrepancy in the database and the controller for the Comm Port's baud rate.

You may now add points, programs, IO modules, and doors to the controller. Refer to *CyberStation Online Help* for further information.

Configuring a Remote Site with Multiple Controllers

Continuum Remote Communications supports dialup connections to a remote site of one or more CX series controllers. If the remote site consists of its own network of controllers, each with a Network Interface Card (NIC), the controller with the modem will serve as the gateway (or default router) for the other controllers on the remote network. For details on configuring the controller with the modem, refer to [Creating the Remote Controller](#).

After establishing remote communications with the controller that has the modem, add any additional controllers on the remote network under the same Network Object, as follows:

- Step 1:** Create the additional controller(s) under the same network as the controller that has the modem.
- Step 2:** Set the IP Address in the same subnet with a unique host ID.
- Step 3:** Set the subnet mask.
- Step 4:** Leave the PPP IP address as 0.0.0.0
- Step 5:** Set the default Gateway to the IP address of the remote controller with the modem.
- Step 6:** Connect to the remote site.
- Step 7:** Edit the remote gateway controller and perform a **Teach**.
- Step 8:** Edit the other controller(s) on the remote subnet and verify that they are online.

The additional controllers will be in the same subnet as the controller with the modem and do not require a PPP IP address. The additional controllers use the gateway controller's IP address as their default router. The following table provides an example:

Table 5 Gateway and Additional Controllers

Controller	IP	PPP	Subnet Mask	Default Router
Infinity1 (modem attached, serves as gateway controller)	172.16.100.1	20.20.20.1	255.255.255.0	0.0.0.0
Infinity2 (no modem, default router is gateway controller)	172.16.100.2	0.0.0.0	255.255.255.0	172.16.100.1
Infinity3 (no modem, default router is gateway controller)	172.16.100.3	0.0.0.0	255.255.255.0	172.16.100.1

Appendix A

Using the Plain English Update Command

Overview

This section provides you with examples of different Plain English programs that can be created to utilize the Update command. The purpose of the Update command is to have the controller dial the phone number of a workstation and then send its alarms and events to the workstation.

Note: For a bCX1 9640 controller, updates can be configured using the controller's internal web pages. See the *bCX1 Series Controller Technical Reference*, 30-3001-890, and the controller's online help.

The format of the Update command is as follows:

```
Update (user, phone_number, comport, timeout)
```

Replace **user** with the name and password of the user assigned to the workstation.

Replace **phone_number** with the phone number of the workstation.

Replace **comport** with the controller's dial up comport number.

Replace **timeout** with the number of seconds before a PPP session is initiated with the workstation.

Sample Programs

Using the **Update** command will force the controller to dialout to the workstation and **Send** its alarms and events to the workstation. The connection is dropped when all alarms and events have been successfully sent up to the controller.

```
'Simple FallThru Program to Update Alarms and Events'

'Triggered by the Controllers NewAlarmCount system variable'

Initialize:
  'Send the modem init string to the modem (assuming Andover
  'Continuum internal modem)

          InitModem(comm3)

Delay:
  If ts <30 then goto Delay

SendUpdates:
  'The first argument to the update command is the name and
  'password of the user added previously to the workstation
  'and granted dialin permission. The user name and password
  'is embedded in double quotes and separated by a colon.
  'The second argument is the phone number to the
  'workstation, the third argument is the commport to dialout
  'of, and the fourth argument is the number of seconds to
  'wait before establishing a ppp session with the
  'workstation.

          Update ("acc:acc", "511", comm3, 4)

  'Alternatively, you can pass a phone number string pre-
  'fixed with AT commandments

  'The phone number string "ATD,T,,511" will issue the ATD
  'command to the modem followed by a pause, then T and
  'then two more pauses.

  'This feature is useful for 3rd part modems or Cellular
  'Modems that require something other than "ATDT" to command
  'dialing.

          Update ("acc:acc", ATD,T,,511", comm3, 4)

  'The controller will call the workstation. When the
  'workstation sees that an update is needed, it will call
  'the controller back to "pull" the updates.

EndProg:
  Stop
```

Update Alarms Only Based on Alarm Count

Using the same base program noted previously, the NewAlarmCount variable could trigger the update program.

```
'Simple FallThru Program to Update Alarms'  
'Triggered by the Controllers alarms system variable'
```

```
CheckAlarms:  
  If NewAlarmCount > 0 then  
    Goto Initialize  
  Else  
    Goto EndProg  
  Endif  
  
  Initialize:  
    InitModem(comm3)  
  
  Delay:  
    If ts <30 then goto Delay  
  
  SendUpdates:  
    Update ("acc:acc", "511", comm3, 4)  
|  
  
  EndProg:  
    Stop
```

Note: Simply using the Alarms keyword shows that there are active alarms in the system.

Update Events Only Based on AccessLog

Using a looping program, the update program can be used to update events when the AccessLog has reached a certain number of entries.

'Simple Looping Program to Update Alarms'

'Monitors the AccessLog System variable sends updates to the Workstation when the EventLogSize is 10 percent full.'

CheckLogSize:

```

If (AccessLog > 10%) then
    Goto Initialize
Else Goto
    CheckLogSize
Endif

```

Initialize:

```

    InitModem(comm3)
    Goto Delay

```

Delay:

```

    If ts >30 then goto SendUpdates

```

SendUpdates:

```

    Update ("acc:acc", "511", comm3, 4)

```

EndProg:

```

    Goto CheckLogSize

```

Update Alarms and Events at an Interval

Using a FallThru program, force the controller to send its updates after a given time interval.

```
'Program Triggered by minute system variable to update alarms and  
'events every 15 minutes.
```

```
Numeric FailedAttempt, UpdateStatus
```

```
Initialize:
```

```
    FailedAttempt=0
```

```
    If(Minute Mod 15) = 0 then  
        Goto SendUpdates
```

```
    Else
```

```
        Goto EndProg
```

```
    Endif
```

```
SendUpdates:
```

```
    UpdateStatus = Update("acc:acc", "1234567", comm3, 4)
```

```
CheckUpdate:
```

```
    If UpdateStatus = Success then Goto EndProg
```

```
    Failed Attempt = FailedAttempt + 1
```

```
AltUpdate:
```

```
    UpdateStatus = Update("acc:acc", "2345678", comm3, 4)
```

```
CheckAltUpdate:
```

```
    If UpdateStatus = Success then Goto EndProg
```

```
    FailedAttempt = FailedAttempt + 1
```

```
    If FailedAttempt < 4 then Goto SendUpdates
```

```
EndProg:
```

```
    Stop
```

Update Alarms and/or Events upon LAN Failure

The Update command may be used on regular LAN based controllers to ensure the delivery of Alarms and/or Access Events in the case of a Network failure. Alarms and/or Access Events can be delivered to a Workstation using PPP by writing an appropriate Plain English program that utilizes the “Update” keyword.

Note: For a bCX1 9640 controller, updates can be configured using the controller’s internal web pages. See the *bCX1 Series Controller Technical Reference*, 30-3001-890, or the controller’s online help for further information.

Requirements

The controller requirements are as follows:

- Controller must be version 1.53 or higher (1.2 or higher for the CX9702).
- Controller must have the Redundant RAS option enabled.
- Controller must be configured as a LAN Controller.
- Controller must have an External modem or an Andover Continuum internal modem. Refer to [Using External Modems](#) for further information.
- Controller must not be configured as a Remote Site Controller.
- Workstation must have a modem attached and be configured to accept incoming connections. Refer to [Configuring Windows to Receive Incoming Calls](#) for further information.

Operation

With normal LAN Communications, alarms and events are automatically delivered to the Workstation(s). When a LAN segment fails and the controller is unable to communicate normally with a workstation, alarms and events are buffered at the controller.

During this period when the LAN is down, there are a variety of methods available to the Plain English programmer to determine when normal delivery of alarms and events has failed.

Monitoring controller system variables, such as NewAlarmCount, AccessLog, and Workstation CommStatus, are acceptable indicators. Once it has been determined that alarms and events are being buffered at the controller due to a network outage, it is incumbent upon the programmer to determine the scheme of when to issue the “Update” command to deliver alarm and/or event information to the workstation.

This scheme could be based on the number of Events in the AccessLog, the NewAlarmCount and Alarm system variables, the amount of time passed since the Workstation CommStatus has changed from Online to Offline, or various combinations of all of these factors.

Example Plain English Program

```
'This program will attempt to use the Update command to deliver alarms
'and events to the Cyberstation of a PPP connection if it is determined
'that the Cyberstation named "Cyberstation251" is offline

Numeric UpdateStatus

CheckCyberStatus:

'Check the CommStatus of the Cyberstation

    If CyberStation251 CommStatus = Offline then

        Goto CheckAlarms

    Else

        Goto CheckCyberStatus

    Endif

CheckAlarms:

'Check the NewAlarmCount Sytem Variable

    If NewAlarmCount > 0 then

        Goto AlmOverPPP

    Else

        Goto CheckCyberStatus

    Endif

AlmOverPPP:

    UpdateStatus = Update("acc:acc", 102, comm3, 3)

CheckStatus:

    If(UpdateStatus=Success) then

        Goto CheckCyberStatus

    Else

        Goto AlmOverPPP

    Endif
```


Appendix B

Using External Modems

Comm Port and Modem Connections

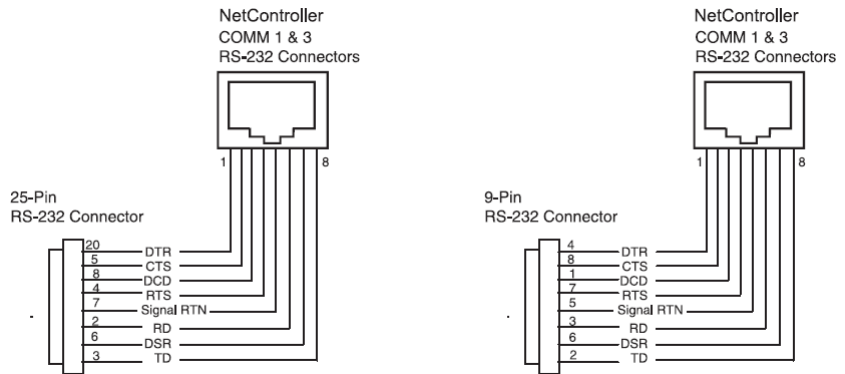
If you are going to use an external modem, connected to a comm port of a controller, you need to build a cable to go from the controller's comm port to the modem's connector. The following is a table of the required pin connections.

Table 6 Comm Port and Modem Connections

Controller Pin Numbers	25 Pin Serial Connector Pin Numbers	9 Pin Serial Connector Pin Numbers
8	3 TD	2 TD
7	6 DSR	6 DSR
6	2 RD	3 RD
5	7 RTN (ground)	5 RTN (ground)
4	4 RTS	7 RTS
3	8 DCD	1 DCD
2	5 CTS	8 CTS
1	20 DTR	4 DTR

Note: The cable that ships with the controller is a direct connect cable (null modem) for connecting two like Date Terminal Equipment devices (DTE to DTE). To connect an external modem (Data Communications Equipment) to a commport (DCE to DCE) you **must** build an appropriate cable.

The following illustration indicates the pin numbers as they are viewed from the outside of the connector on the controller.



Program for US Robotic External Modem

If your remote controller is to dial in to a CyberStation using a *US Robotic Courier V.Everything* external modem, then you must load a Plain English program onto that remote controller to initiate communication with CyberStation. The following looping program is an example:

```

Open Port:
    Open(Comm3)

SendInitString1:
    Print "AT&F" to Comm3

WaitCompletion1
    If TS >= 5 then
        Goto SendInitString2
    Else
        Goto WaitCompletion1

Goto WaitCompletion1
    Endif

SendInitString2
    Print "ATE" to Comm3

WaitCompletion2:
    If TS >=5 then
        Goto SendInitString3
    Else
        Goto WaitCompletion2
    Endif

SendInitString3:
'For 19200 Baud use the following modem init string:
    Print "ATV&C1&D2&N10&S1S0=1&W" to Comm3
'For 9600 Baud use the following modem init string:
' Print "ATV&C1&D2&N6&S1S0=1&W" to Comm3

WaitCompletion3:
    If TS > 10 then
        Goto ClosePort
    Else
        Goto WaitCompletion3
    Endif

ClosePort:
    Close(Comm3)

```


Appendix C

Troubleshooting

This appendix provides troubleshooting information for remote access issues. The topics are arranged in a frequently asked questions format.

Why can't I connect to my remote site?

Make sure that the baud rate setting of the comm port you are using matches that of the remote site. Check the Workstation's modem properties page, port setting, and the controller's comm setting. The optimal setting is 19200 bps. Also make sure that your controller's DefaultBaud attribute is set to 19200 (example: set COMM3 DefaultBaud = Baud19200).

Check the Phonebook Entry in the NetworkDialup object of Continuum and make sure that the number you are dialing is correct.

- Ensure that you do not have "Proxy Server" enabled on your PC. This may cause contention issues.
- Ensure that the modem installed at the controller has been initialized. After the controller has been configured, go to the command prompt and issue: Initmodem(comm3)
- Confirm that dialup to the controller can be established from Windows Dialup Networking.

Why don't I get alarms or events while I have an active connection between the CyberStation and the remote site?

Check the **Continuous Polling** attribute in the Networkdialup object editor in Continuum; it should be 1, 3, or 5 in order to receive alarms and/or events while a connection is active. When the continuous polling interval is set to 0, CyberStation will receive alarms only upon dialup, not during contiguous connection.

Why am I not receiving alarms or events from my remote site(s) using the "Update" keyword?

- Verify that you created a Windows User and granted that user dial-in privileges in the Incoming Call Object.
- Ensure that the InfinitySystemVariable "EventLogSize" is set to 10,000 so that you can receive Access Events in the Event Viewer. It is also important that the AccessServer system variable be set to the EnergyNet ID of the Controller.
- Verify in Remote Access Configuration, under Network setup, the following:

Step 1: Dial out Protocol is set to PPP-TCP/IP only.

Step 2: Number Properties - Encryption Settings: Set to Typical.

Step 3: In Incoming Connection Object - Check the specified IP is correct.

- Check that the parameters of the Update Keyword Program is correctly setup.
- Verify that you are a recipient of those alarms in the Event Notification.
- Check the NT Event Viewer under Start, Programs, Administrative Tools, and Event Viewer to see if any error was logged.

Why won't my modem receive or initiate calls?

You must execute a Modem Initialization of External Modems (third party - on the remote site).

Use Windows HyperTerminal to check the modem. Verify that Windows recognizes your modem and that you can dial out using the HyperTerminal program. Use the following steps to check the modem:

Step 1: Click **Start**, select **Programs > Accessories > HyperTerminal**.

Step 2: When the **New Connection Wizard** is displayed, click **Cancel**.

Step 3: On the **File** menu, click **Properties**, and then click the modem you want to test to select it in the **Connect Using** list.

Step 4: Click **Configure**, verify that your modem is set to use the correct port, and then click **OK**.

Step 5: Type *AT* in the HyperTerminal window, and then press **Enter**.

If *AT* is displayed in the HyperTerminal window as you type it and *OK* is displayed after you press **Enter**, the HyperTerminal recognizes the modem properly.

If *AT* is not displayed as you type it or if *OK* is not displayed after you press **Enter**, review the previous steps above to verify that your modem is installed properly in Windows.

Step 6: Verify that your modem can dial out using HyperTerminal. On the **File** menu, click **NewConnection**, and then follow the instructions on your screen.

Step 7: Click **Dial**. If the modem's speaker is enabled, you should hear a dial tone and the sound of the modem dialing the phone number.

What does this Windows error message mean?

The following table contains Windows error messages and the corresponding explanation.

Table 7 Windows Error Messages

Error	Message
600	An operation is pending.
601	The port handle is invalid.
602	The port is already open.
603	Caller's buffer is too small.
604	Wrong information specified.
605	Cannot set port information.
606	The port is not connected.
607	The event is invalid.
608	The device does not exist.
609	The device type does not exist.
610	The buffer is invalid.
611	The route is not available.
612	The route is not allocated.
613	Invalid compression specified.
614	Out of buffers.
615	The port was not found.
616	An asynchronous request is pending.
617	The port or device is already disconnecting.
618	The port is not open.

Table 7 Windows Error Messages

Error	Message
619	The port is disconnected.
620	There are no endpoints.
621	Cannot open the phone book file.
622	Cannot load the phone book file.
623	Cannot find the phone book entry.
624	Cannot write the phone book file.
625	Invalid information founding the phone book.
626	Cannot load a string.
627	Cannot find key.
628	The port was disconnected.
629	The port was disconnected by the remote machine.
630	The port was disconnected due to hardware failure.
631	The port was disconnected by the user.
632	The structure size is incorrect.
633	The port is already in use or is not configured for Remote Access dialout.
634	Cannot register your computer on the remote network.
635	Unknown error.
636	The wrong device is attached to the port.

Table 7 Windows Error Messages

Error	Message
637	The string could not be converted.
638	The request has timed out.
639	No asynchronous net available.
640	A NetBIOS error has occurred.
641	The server cannot allocate NetBIOS resources needed to support the client.
642	One of your NetBIOS names is already registered on the remote network.
643	A network adapter at the server failed.
644	You will not receive network message popups.
645	Internal authentication error.
646	The account is not permitted to log on at this time of day.
647	The account is disabled.
648	The password has expired.
649	The account does not have Remote Access permission.
650	The Remote Access server is not responding.
651	Your modem (or other connecting device) has reported an error.
652	Unrecognized response from the device.

Table 7 Windows Error Messages

Error	Message
653	A macro is required by the device was not found in the device .INF file section.
654	A command or response in the device .INF file section refers to an undefined macro.
655	The <message> macro was not found in the device .INF file section.
656	The <defaultoff> macro in the device .INF file section contains an undefined macro.
657	The device .INF file could not be opened.
658	The device name in the device .INF or media .INI file is too long.
659	The media .INI file refers to an unknown device name.
660	The device .INF file contains no responses for the command.
661	The device .INF file is missing a command
662	Attempted to set a macro not listed in the device .INF file section.
663	The media .INI file refers to an unknown device type.
664	Cannot allocate memory.
665	The port is not configured for Remote Access.

Table 7 Windows Error Messages

Error	Message
666	Your modem (or other connecting device) is not functioning.
667	Cannot read the media .INI file.
668	The connection dropped.
669	The usage parameter in the media .INI file is invalid.
670	Cannot read the section name from the media .INI file.
671	Cannot read the device type from the media .INI file
672	Cannot read the device name from the media .INI file.
673	Cannot read the usage from the media .INI file.
674	Cannot read the maximum connection BPS rate from the media .INI file.
675	Cannot read the maximum carrier BPS rate from the media .INI file.
676	The line is busy
677	A person answered instead of a modem.
678	There is no answer.
679	Cannot detect carrier.
680	There is no dial tone.
681	General error reported by device.
682	Error Writing SectionName.

Table 7 Windows Error Messages

Error	Message
683	Error Writing DeviceType.
684	Error Writing DeviceName.
685	Error Writing MaxConnectBPS.
686	Error Writing MaxCarrierBPS.
687	Error Writing Usage.
689	Error Reading DefaultOff.
690	Error Empty INI File.
691	Access Denied because username and/or password is invalid on the domain.
692	Hardware failure in port or attached device.
693	Error Not Binary Macro.
694	Error DCB Not Found.
695	Error State Machines Not Started.
696	Error State Machines Already Started.
697	Error Partial Response Looping.
698	A response keyname in the device .INF file is not in the expected format.
699	The device response caused buffer overflow.
700	The expanded command in the device . INF file is too long

Table 7 Windows Error Messages

Error	Message
701	The device moved to a BPS rate not supported by the COM driver.
702	Device response received when none expected.
703	Error Interactive Mode.
704	Error Bad Callback Number.
705	Error Invalid Auth State.
706	Error Writing INITBPS.
707	X.25 diagnostic indication.
708	The account has expired.
709	Error changing password on domain.
710	Serial overrun errors were detected while communicating with your modem.
711	RasMan initialization failure. Check the event log.
712	Biplex port is initializing. Wait a few seconds and redial.
713	No active ISDN lines are available.
714	Not enough ISDN channels are available to make the call.
715	Too many errors occurred because of poor phone line quality.
716	The Remote Access IP configuration is unusable.

Table 7 Windows Error Messages

Error	Message
717	No IP addresses are available in the static pool of Remote Access IP addresses.
718	PPP timeout.
719	PPP terminated by remote machine.
720	No PPP control protocols configured.
721	Remote PPP peer is not responding.
722	The PPP packet is invalid.
723	The phone number, including prefix and suffix, is too long.
724	The IPX protocol cannot dial-out on the port because the computer is an IPX router.
725	The IPX protocol cannot dial-in on the port because the IPX router is not installed.
726	The IPX protocol cannot be used for dial-out on more than one port at a time.
727	Cannot access TCPCFG.DLL.
728	Cannot find an IP adapter bound to Remote Access.
729	SLIP cannot be used unless the IP protocol is installed.
730	Computer registration is not complete.
731	The protocol is not configured.

Table 7 Windows Error Messages

Error	Message
732	The PPP negotiation is not converging.
733	The PPP control protocol for this network protocol is not available on the server.
734	The PPP link control protocol terminated.
735	The server rejected the requested address.
736	The remote computer terminated the control protocol.
737	Loopback detected.
738	The server did not assign an address.
739	The remote server cannot use the Windows NT encrypted password.
740	The TAPI devices configured for Remote Access failed to initialize or were not installed correctly.
741	The local computer does not support encryption.
742	The remote server does not support encryption.
743	The remote server requires encryption.
744	Cannot use the IPX net number assigned by the remote server. Check the event log.
752	A syntax error was encountered while processing a script.

**Andover Continuum Remote Communication
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