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Remote Communication Configuration Guide

March, 2010
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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)
Chapter 1: Remote Communication Setup

- 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**.
Chapter 1: Remote Communication Setup

**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.

![Modem Properties Editor](image1)

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.

![Modem Properties Editor](image2)

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.

![Routing and Remote Access Properties (Local Computer) editor](image)

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 1: Remote Communication Setup
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.

![Image of Go Offline](image1)

**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**.

![New dialog](image1)

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**.

![InfinityController editor](image2)
Chapter 2: Configuring the Remote Network and Controller

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

![InfinityController editor](image)

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Controller with NIC</th>
<th>Controller without NIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>Specify the appropriate IP address OR set to 0.0.0.0</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>Specify the appropriate Subnet Mask for your IP address OR set to 0.0.0.0</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>Default Router</td>
<td>0.0.0.0</td>
<td>0.0.0.0</td>
</tr>
</tbody>
</table>

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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

<table>
<thead>
<tr>
<th>Item</th>
<th>Controller with NIC</th>
<th>Controller without NIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP IP Address</td>
<td>A unique address that is in a different subnet from your workstation.</td>
<td>A unique address that is in a different subnet from your workstation.</td>
</tr>
<tr>
<td>PPP IP Address (see note below)</td>
<td>A unique address that is in a different subnet from your workstation.</td>
<td>A unique address that is in a different subnet from your workstation.</td>
</tr>
</tbody>
</table>

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: `C:\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.
Chapter 2: Configuring the Remote Network and Controller

**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.

![Modem Configuration dialog]

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.

![Show icon in taskbar when connected](#)

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

![Modem icon](#)

Step 23: Click the **Options** tab on the **RemoteSiteDialup Properties** editor.
Chapter 2: Configuring the Remote Network and Controller

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)**.
Chapter 2: Configuring the Remote Network and Controller

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.

![RemoteSiteSetup Properties](image)

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

![PPP Settings](image)

**Step 31:** Verify that the **File and Printer Sharing** and **Client for Microsoft Networks** are NOT selected, and then click the **Properties** button.
Chapter 2: Configuring the Remote Network and Controller

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

![Internet Protocol (TCP/IP) Properties dialog](image)

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

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

![Advanced TCP/IP Settings dialog](image)
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>
<thead>
<tr>
<th>Fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle Disconnect Time</td>
<td>Number of network inactivity seconds, before the remote connection is dropped. The idle disconnect is not affected by setting a continuous poll interval.</td>
</tr>
</tbody>
</table>

Table 3 NetworkDialup - Dialup Tab
Table 3  Network Dialup - Dialup Tab

<table>
<thead>
<tr>
<th>Fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm Interval</td>
<td>Number of minutes until Continuum automatically calls the remote site to update alarms.</td>
</tr>
<tr>
<td>Event Interval</td>
<td>Number of minutes until Continuum automatically calls the remote site to update events.</td>
</tr>
<tr>
<td>Active Alarm Synchronization</td>
<td>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.</td>
</tr>
<tr>
<td>Active Event Synchronization</td>
<td>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.</td>
</tr>
<tr>
<td>Continuous Poll Interval</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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

![Network Connection Wizard](image1)

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

![Advanced Connection Wizard](image2)
Chapter 3: Configuring Windows to Receive Incoming Calls

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

![Advanced Connection Options Dialog](image)

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

![Device for Incoming Connections Dialog](image)
Chapter 3: Configuring Windows to Receive Incoming Calls

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**.

![Incoming TCP/IP Properties dialog](image)

**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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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.
Chapter 3: Configuring Windows to Receive Incoming Calls

- 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.
Chapter 3: Configuring Windows to Receive Incoming Calls

**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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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 dialog](image)

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.

![Managing Multiple Remote Access Servers dialog](image)

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.
Chapter 3: Configuring Windows to Receive Incoming Calls

**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.

![Remote access server checkbox and Security tab]


![Authentication Methods dialog]
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**.

Chapter 3: Configuring Windows to Receive Incoming Calls

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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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 **ace** 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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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

![Select Groups dialog]

**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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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.
Chapter 3: Configuring Windows to Receive Incoming Calls

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**.
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.
Chapter 4: Configuring and Connecting to Remote Controllers

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 pin 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>
<thead>
<tr>
<th>Comm Port</th>
<th>Sample IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM1 Local IP Address</td>
<td>20.20.20.1</td>
</tr>
<tr>
<td>COMM1 Remote PPP Client IP Address</td>
<td>20.20.20.2</td>
</tr>
<tr>
<td>COMM2 Local IP Address</td>
<td>20.20.20.3</td>
</tr>
<tr>
<td>COMM2 Remote PPP Client IP Address</td>
<td>20.20.20.4</td>
</tr>
<tr>
<td>COMM3 Local IP Address</td>
<td>20.20.20.5</td>
</tr>
<tr>
<td>COMM 3 Remote PPP Client IP Address</td>
<td>20.20.20.6</td>
</tr>
<tr>
<td>COMM4 Local IP Address</td>
<td>20.20.20.7</td>
</tr>
<tr>
<td>COMM4 Remote PPP Client IP Address</td>
<td>20.20.20.8</td>
</tr>
</tbody>
</table>
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.
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

<table>
<thead>
<tr>
<th>Controller</th>
<th>IP</th>
<th>PPP</th>
<th>Subnet Mask</th>
<th>Default Router</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infinity1 (modem attached, serves as gateway controller)</td>
<td>172.16.100.1</td>
<td>20.20.20.1</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>Infinity2 (no modem, default router is gateway controller)</td>
<td>172.16.100.2</td>
<td>0.0.0.0</td>
<td>255.255.255.0</td>
<td>172.16.100.1</td>
</tr>
<tr>
<td>Infinity3 (no modem, default router is gateway controller)</td>
<td>172.16.100.3</td>
<td>0.0.0.0</td>
<td>255.255.255.0</td>
<td>172.16.100.1</td>
</tr>
</tbody>
</table>
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.
Appendix A: Using the Plain English Update Command

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 comport 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 commands

'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.
Appendix A: Using the Plain English Update Command

**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
Appendix A: Using the Plain English Update Command

**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.

Declare 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
Failed Attempt = FailedAttempt + 1
If FailedAttempt < 4 then Goto SendUpdates

EndProg:

Stop
Appendix A: Using the Plain English Update Command

**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 System 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 A: Using the Plain English Update Command
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>
<thead>
<tr>
<th>Controller Pin Numbers</th>
<th>25 Pin Serial Connector Pin Numbers</th>
<th>9 Pin Serial Connector Pin Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>3 TD</td>
<td>2 TD</td>
</tr>
<tr>
<td>7</td>
<td>6 DSR</td>
<td>6 DSR</td>
</tr>
<tr>
<td>6</td>
<td>2 RD</td>
<td>3 RD</td>
</tr>
<tr>
<td>5</td>
<td>7 RTN (ground)</td>
<td>5 RTN (ground)</td>
</tr>
<tr>
<td>4</td>
<td>4 RTS</td>
<td>7 RTS</td>
</tr>
<tr>
<td>3</td>
<td>8 DCD</td>
<td>1 DCD</td>
</tr>
<tr>
<td>2</td>
<td>5 CTS</td>
<td>8 CTS</td>
</tr>
<tr>
<td>1</td>
<td>20 DTR</td>
<td>4 DTR</td>
</tr>
</tbody>
</table>
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.
Appendix B: Using External Modems

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:

```plaintext
Open Port:
  Open(Comm3)
SendInitString1:
  Print "AT&F" to Comm3
WaitCompletion1
  If TS >= 5 then
    Goto SendInitString2
  Else
    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 "ATVI&C1&D2&N10&G180=1&W" to Comm3
  'For 9600 Baud use the following modem init string:
  ' Print "ATVI&C1&D2&N6&G180=1&W" to Comm3
WaitCompletion3:
  If TS > 10 then
    Goto ClosePort
  Else
    Goto WaitCompletion3
  Endif
ClosePort:
  Close(Comm3)
```

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Appendix B: Using External Modems
Appendix C: Troubleshooting

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.
Appendix C: Troubleshooting

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>
<thead>
<tr>
<th>Error</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>An operation is pending.</td>
</tr>
<tr>
<td>601</td>
<td>The port handle is invalid.</td>
</tr>
<tr>
<td>602</td>
<td>The port is already open.</td>
</tr>
<tr>
<td>603</td>
<td>Caller's buffer is too small.</td>
</tr>
<tr>
<td>604</td>
<td>Wrong information specified.</td>
</tr>
<tr>
<td>605</td>
<td>Cannot set port information.</td>
</tr>
<tr>
<td>606</td>
<td>The port is not connected.</td>
</tr>
<tr>
<td>607</td>
<td>The event is invalid.</td>
</tr>
<tr>
<td>608</td>
<td>The device does not exist.</td>
</tr>
<tr>
<td>609</td>
<td>The device type does not exist.</td>
</tr>
<tr>
<td>610</td>
<td>The buffer is invalid.</td>
</tr>
<tr>
<td>611</td>
<td>The route is not available.</td>
</tr>
<tr>
<td>612</td>
<td>The route is not allocated.</td>
</tr>
<tr>
<td>613</td>
<td>Invalid compression specified.</td>
</tr>
<tr>
<td>614</td>
<td>Out of buffers.</td>
</tr>
<tr>
<td>615</td>
<td>The port was not found.</td>
</tr>
<tr>
<td>616</td>
<td>An asynchronous request is pending.</td>
</tr>
<tr>
<td>617</td>
<td>The port or device is already disconnecting.</td>
</tr>
<tr>
<td>618</td>
<td>The port is not open.</td>
</tr>
</tbody>
</table>
Table 7 Windows Error Messages

<table>
<thead>
<tr>
<th>Error</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>619</td>
<td>The port is disconnected.</td>
</tr>
<tr>
<td>620</td>
<td>There are no endpoints.</td>
</tr>
<tr>
<td>621</td>
<td>Cannot open the phone book file.</td>
</tr>
<tr>
<td>622</td>
<td>Cannot load the phone book file.</td>
</tr>
<tr>
<td>623</td>
<td>Cannot find the phone book entry.</td>
</tr>
<tr>
<td>624</td>
<td>Cannot write the phone book file.</td>
</tr>
<tr>
<td>625</td>
<td>Invalid information founding the phone book.</td>
</tr>
<tr>
<td>626</td>
<td>Cannot load a string.</td>
</tr>
<tr>
<td>627</td>
<td>Cannot find key.</td>
</tr>
<tr>
<td>628</td>
<td>The port was disconnected.</td>
</tr>
<tr>
<td>629</td>
<td>The port was disconnected by the remote machine.</td>
</tr>
<tr>
<td>630</td>
<td>The port was disconnected due to hardware failure.</td>
</tr>
<tr>
<td>631</td>
<td>The port was disconnected by the user.</td>
</tr>
<tr>
<td>632</td>
<td>The structure size is incorrect.</td>
</tr>
<tr>
<td>633</td>
<td>The port is already in use or is not configured for Remote Access dialout.</td>
</tr>
<tr>
<td>634</td>
<td>Cannot register your computer on the remote network.</td>
</tr>
<tr>
<td>635</td>
<td>Unknown error.</td>
</tr>
<tr>
<td>636</td>
<td>The wrong device is attached to the port.</td>
</tr>
</tbody>
</table>
### Table 7 Windows Error Messages

<table>
<thead>
<tr>
<th>Error</th>
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<tbody>
<tr>
<td>637</td>
<td>The string could not be converted.</td>
</tr>
<tr>
<td>638</td>
<td>The request has timed out.</td>
</tr>
<tr>
<td>639</td>
<td>No asynchronous net available.</td>
</tr>
<tr>
<td>640</td>
<td>A NetBIOS error has occurred.</td>
</tr>
<tr>
<td>641</td>
<td>The server cannot allocate NetBIOS resources needed to support the client.</td>
</tr>
<tr>
<td>642</td>
<td>One of your NetBIOS names is already registered on the remote network.</td>
</tr>
<tr>
<td>643</td>
<td>A network adapter at the server failed.</td>
</tr>
<tr>
<td>644</td>
<td>You will not receive network message popups.</td>
</tr>
<tr>
<td>645</td>
<td>Internal authentication error.</td>
</tr>
<tr>
<td>646</td>
<td>The account is not permitted to log on at this time of day.</td>
</tr>
<tr>
<td>647</td>
<td>The account is disabled.</td>
</tr>
<tr>
<td>648</td>
<td>The password has expired.</td>
</tr>
<tr>
<td>649</td>
<td>The account does not have Remote Access permission.</td>
</tr>
<tr>
<td>650</td>
<td>The Remote Access server is not responding.</td>
</tr>
<tr>
<td>651</td>
<td>Your modem (or other connecting device) has reported an error.</td>
</tr>
<tr>
<td>652</td>
<td>Unrecognized response from the device.</td>
</tr>
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<tr>
<th>Error</th>
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<tr>
<td>653</td>
<td>A macro is required by the device was not found in the device .INF file section.</td>
</tr>
<tr>
<td>654</td>
<td>A command or response in the device .INF file section refers to an undefined macro.</td>
</tr>
<tr>
<td>655</td>
<td>The <code>&lt;message&gt;</code> macro was not found in the device .INF file section.</td>
</tr>
<tr>
<td>656</td>
<td>The <code>&lt;defaultoff&gt;</code> macro in the device .INF file section contains an undefined macro.</td>
</tr>
<tr>
<td>657</td>
<td>The device .INF file could not be opened.</td>
</tr>
<tr>
<td>658</td>
<td>The device name in the device .INF or media .INI file is too long.</td>
</tr>
<tr>
<td>659</td>
<td>The media .INI file refers to an unknown device name.</td>
</tr>
<tr>
<td>660</td>
<td>The device .INF file contains no responses for the command.</td>
</tr>
<tr>
<td>661</td>
<td>The device .INF file is missing a command.</td>
</tr>
<tr>
<td>662</td>
<td>Attempted to set a macro not listed in the device .INF file section.</td>
</tr>
<tr>
<td>663</td>
<td>The media .INI file refers to an unknown device type.</td>
</tr>
<tr>
<td>664</td>
<td>Cannot allocate memory.</td>
</tr>
<tr>
<td>665</td>
<td>The port is not configured for Remote Access.</td>
</tr>
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<td>666</td>
<td>Your modem (or other connecting device) is not functioning.</td>
</tr>
<tr>
<td>667</td>
<td>Cannot read the media .INI file.</td>
</tr>
<tr>
<td>668</td>
<td>The connection dropped.</td>
</tr>
<tr>
<td>669</td>
<td>The usage parameter in the media .INI file is invalid.</td>
</tr>
<tr>
<td>670</td>
<td>Cannot read the section name from the media .INI file.</td>
</tr>
<tr>
<td>671</td>
<td>Cannot read the device type from the media .INI file.</td>
</tr>
<tr>
<td>672</td>
<td>Cannot read the device name from the media .INI file.</td>
</tr>
<tr>
<td>673</td>
<td>Cannot read the usage from the media .INI file.</td>
</tr>
<tr>
<td>674</td>
<td>Cannot read the maximum connection BPS rate from the media .INI file.</td>
</tr>
<tr>
<td>675</td>
<td>Cannot read the maximum carrier BPS rate from the media .INI file.</td>
</tr>
<tr>
<td>676</td>
<td>The line is busy</td>
</tr>
<tr>
<td>677</td>
<td>A person answered instead of a modem.</td>
</tr>
<tr>
<td>678</td>
<td>There is no answer.</td>
</tr>
<tr>
<td>679</td>
<td>Cannot detect carrier.</td>
</tr>
<tr>
<td>680</td>
<td>There is no dial tone.</td>
</tr>
<tr>
<td>681</td>
<td>General error reported by device.</td>
</tr>
<tr>
<td>682</td>
<td>Error Writing SectionName.</td>
</tr>
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<td>683</td>
<td>Error Writing DeviceType.</td>
</tr>
<tr>
<td>684</td>
<td>Error Writing DeviceName.</td>
</tr>
<tr>
<td>685</td>
<td>Error Writing MaxConnectBPS.</td>
</tr>
<tr>
<td>686</td>
<td>Error Writing MaxCarrierBPS.</td>
</tr>
<tr>
<td>687</td>
<td>Error Writing Usage.</td>
</tr>
<tr>
<td>689</td>
<td>Error Reading DefaultOff.</td>
</tr>
<tr>
<td>690</td>
<td>Error Empty INI File.</td>
</tr>
<tr>
<td>691</td>
<td>Access Denied because username and/or password is invalid on the domain.</td>
</tr>
<tr>
<td>692</td>
<td>Hardware failure in port or attached device.</td>
</tr>
<tr>
<td>693</td>
<td>Error Not Binary Macro.</td>
</tr>
<tr>
<td>694</td>
<td>Error DCB Not Found.</td>
</tr>
<tr>
<td>695</td>
<td>Error State Machines Not Started.</td>
</tr>
<tr>
<td>696</td>
<td>Error State Machines Already Started.</td>
</tr>
<tr>
<td>697</td>
<td>Error Partial Response Looping.</td>
</tr>
<tr>
<td>698</td>
<td>A response keyname in the device .INF file is not in the expected format.</td>
</tr>
<tr>
<td>699</td>
<td>The device response caused buffer overflow.</td>
</tr>
<tr>
<td>700</td>
<td>The expanded command in the device .INF file is too long</td>
</tr>
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<td>701</td>
<td>The device moved to a BPS rate not supported by the COM driver.</td>
</tr>
<tr>
<td>702</td>
<td>Device response received when none expected.</td>
</tr>
<tr>
<td>703</td>
<td>Error Interactive Mode.</td>
</tr>
<tr>
<td>704</td>
<td>Error Bad Callback Number.</td>
</tr>
<tr>
<td>705</td>
<td>Error Invalid Auth State.</td>
</tr>
<tr>
<td>706</td>
<td>Error Writing INITBPS.</td>
</tr>
<tr>
<td>707</td>
<td>X.25 diagnostic indication.</td>
</tr>
<tr>
<td>708</td>
<td>The account has expired.</td>
</tr>
<tr>
<td>709</td>
<td>Error changing password on domain.</td>
</tr>
<tr>
<td>710</td>
<td>Serial overrun errors were detected while communicating with your modem.</td>
</tr>
<tr>
<td>711</td>
<td>RasMan initialization failure. Check the event log.</td>
</tr>
<tr>
<td>712</td>
<td>Biplex port is initializing. Wait a few seconds and redial.</td>
</tr>
<tr>
<td>713</td>
<td>No active ISDN lines are available.</td>
</tr>
<tr>
<td>714</td>
<td>Not enough ISDN channels are available to make the call.</td>
</tr>
<tr>
<td>715</td>
<td>Too many errors occurred because of poor phone line quality.</td>
</tr>
<tr>
<td>716</td>
<td>The Remote Access IP configuration is unusable.</td>
</tr>
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<td>717</td>
<td>No IP addresses are available in the static pool of Remote Access IP addresses.</td>
</tr>
<tr>
<td>718</td>
<td>PPP timeout.</td>
</tr>
<tr>
<td>719</td>
<td>PPP terminated by remote machine.</td>
</tr>
<tr>
<td>720</td>
<td>No PPP control protocols configured.</td>
</tr>
<tr>
<td>721</td>
<td>Remote PPP peer is not responding.</td>
</tr>
<tr>
<td>722</td>
<td>The PPP packet is invalid.</td>
</tr>
<tr>
<td>723</td>
<td>The phone number, including prefix and suffix, is too long.</td>
</tr>
<tr>
<td>724</td>
<td>The IPX protocol cannot dial-out on the port because the computer is an IPX router.</td>
</tr>
<tr>
<td>725</td>
<td>The IPX protocol cannot dial-in on the port because the IPX router is not installed.</td>
</tr>
<tr>
<td>726</td>
<td>The IPX protocol cannot be used for dial-out on more than one port at a time.</td>
</tr>
<tr>
<td>727</td>
<td>Cannot access TCPCFG.DLL.</td>
</tr>
<tr>
<td>728</td>
<td>Cannot find an IP adapter bound to Remote Access.</td>
</tr>
<tr>
<td>729</td>
<td>SLIP cannot be used unless the IP protocol is installed.</td>
</tr>
<tr>
<td>730</td>
<td>Computer registration is not complete.</td>
</tr>
<tr>
<td>731</td>
<td>The protocol is not configured.</td>
</tr>
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<tr>
<td>732</td>
<td>The PPP negotiation is not converging.</td>
</tr>
<tr>
<td>733</td>
<td>The PPP control protocol for this network protocol is not available on the server.</td>
</tr>
<tr>
<td>734</td>
<td>The PPP link control protocol terminated.</td>
</tr>
<tr>
<td>735</td>
<td>The server rejected the requested address.</td>
</tr>
<tr>
<td>736</td>
<td>The remote computer terminated the control protocol.</td>
</tr>
<tr>
<td>737</td>
<td>Loopback detected.</td>
</tr>
<tr>
<td>738</td>
<td>The server did not assign an address.</td>
</tr>
<tr>
<td>739</td>
<td>The remote server cannot use the Windows NT encrypted password.</td>
</tr>
<tr>
<td>740</td>
<td>The TAPI devices configured for Remote Access failed to initialize or were not installed correctly.</td>
</tr>
<tr>
<td>741</td>
<td>The local computer does not support encryption.</td>
</tr>
<tr>
<td>742</td>
<td>The remote server does not support encryption.</td>
</tr>
<tr>
<td>743</td>
<td>The remote server requires encryption.</td>
</tr>
<tr>
<td>744</td>
<td>Cannot use the IPX net number assigned by the remote server. Check the event log.</td>
</tr>
<tr>
<td>752</td>
<td>A syntax error was encountered while processing a script.</td>
</tr>
</tbody>
</table>