

Connecting to Multiple VersaTenn V's Using a Modem

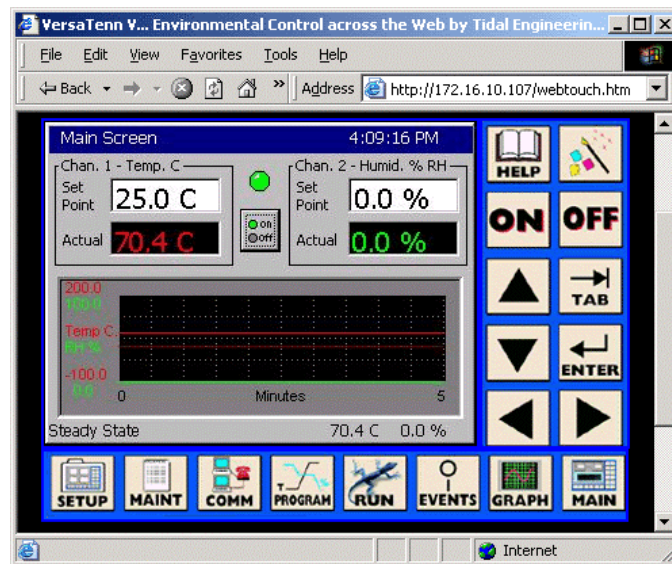


Figure 1 VersaTennV Web Touch Remote

One of the powerful features of the VersaTenn V (Five) is its built-in Ethernet port and the Web and TCP/IP servers that provide Ethernet (TCP/IP) communications. Using these VersaTenn V (VTV) features and a low cost modem router, this application note will show you how to remotely monitor and control your environmental chambers from anywhere using a modem and a telephone line . Once connected you can use your Web Browser, our LinkTenn32 or SimpleComm software or your own LabVIEW, Visual Basic or Visual C++ program to monitor and control your networked environmental chambers. This application note will guide you through the setup of the Netgear RM356 modem router and your PC.



Figure 2 RM356 Modem Router

The connection diagram below illustrates the hypothetical system described in this application note: four VTV controllers connected to a remote PC monitor via modem.

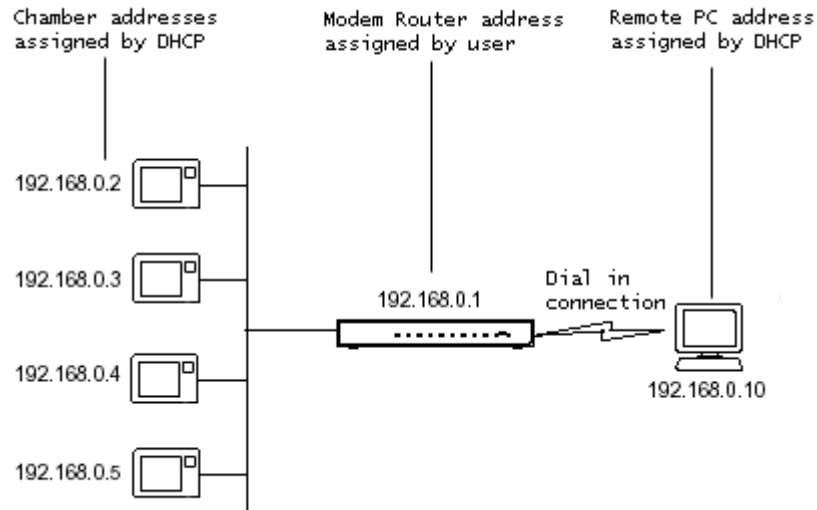


Figure 3 Connection Diagram; Four VersaTenn V's

Setting up the Hardware Connections

Required Equipment

1. PC
 - Modem and telephone cable and connection.
 - Serial Port.
 - Windows 9x, NT, 2000 or XP
2. Netgear RM356 Modem Router
 - DC power supply.
 - 25 pin serial to RJ-45 cable adapter.
3. One or more VersaTenn V Environmental Chamber Controllers.
4. CAT 5 Ethernet patch cables, one for the PC and one for each VTV.
(Do not use crossover cables)

Remote PC Setup

A PC is used to dial into the modem router and can then monitor the VersaTenn V environmental chambers. The PC needs a modem and a standard telephone cable and telephone connection.

Modem Router Setup PC

A PC is also used to setup the modem router. This PC needs a serial port. The same PC can be used to setup the Modem Router and to dial into the modem router since the setup is only required once before use.

Setting up the Software

Remote PC Setup

The remote PC dials out on a phone line to the modem router using Microsoft's Dial Up Networking. We will now set up a new dial up connection on your PC to call the modem router.

To begin, add a new modem connection. The steps you take to create a new modem connection vary depending on your operating system. The following instructions summarize this process for Windows 95, 98, NT, 2000 and XP.

Windows 95

Go to the Start button and navigate to Programs, Accessories, Dial-Up Networking. Click on Make a New Connection.

Windows 98

Go to the Start button and navigate to Programs, Accessories, Communications, Dial-Up Networking. Click on Make a New Connection.

Windows NT & 2000

Go to the Start button and navigate to Programs, Accessories, Communications, Dial-Up Networking. Click on Make a New Connection.

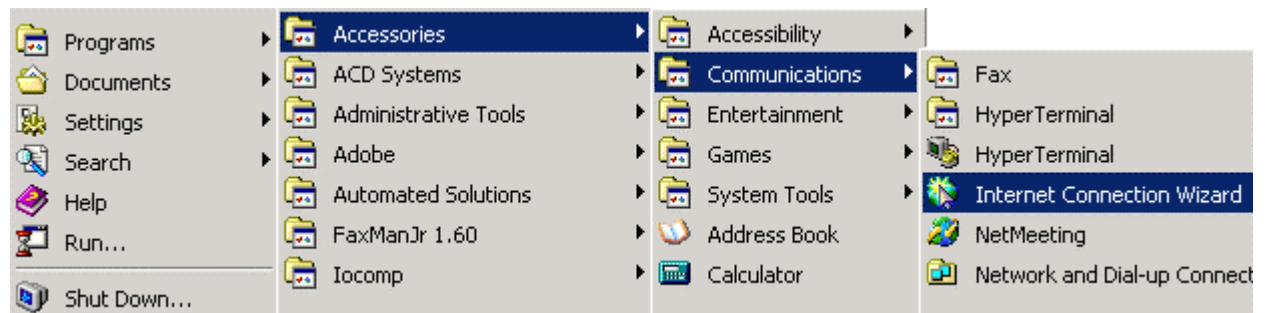


Figure 4 Windows NT & 2000 Connection Wizard

Windows XP

Go to the Start button and navigate to the Control Panel. Click on Network Connections folder and click "Create a new connection".

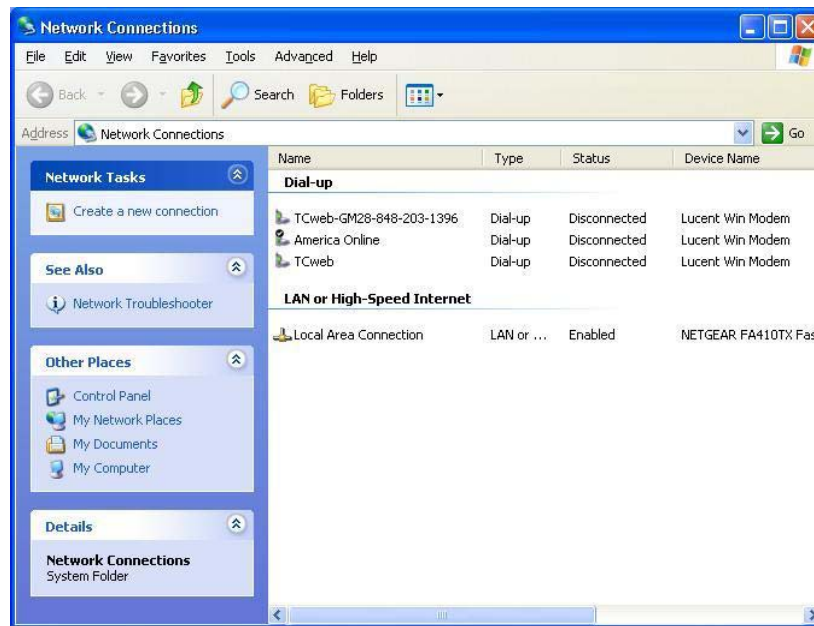


Figure 5 Windows XP Create a New Connection

The next step in adding a new modem connection is to configure its settings. We will walk through the steps required for Window NT & 2000 Network Connection Wizards. The steps you take to set up Window 95, 98 and XP are similar to these steps.

After selecting Internet Connection Wizard, you will see the Welcome to the Network Connection Wizard screen. Select Next to continue.



Figure 6 Windows 2000 Network Connection Wizard

1. The following screen is the Network Connection Type screen. Select the option button for Dial-up to Private Network and press Next.

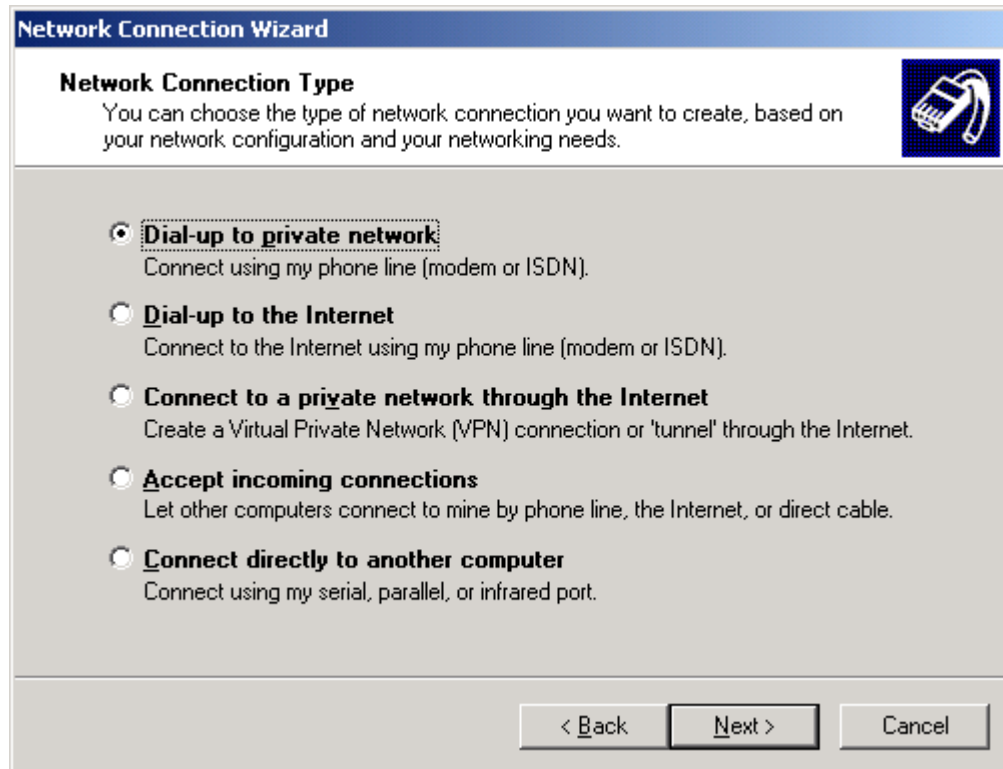


Figure 7 Network Connection Type

2. Select the Modem to use and click Next.

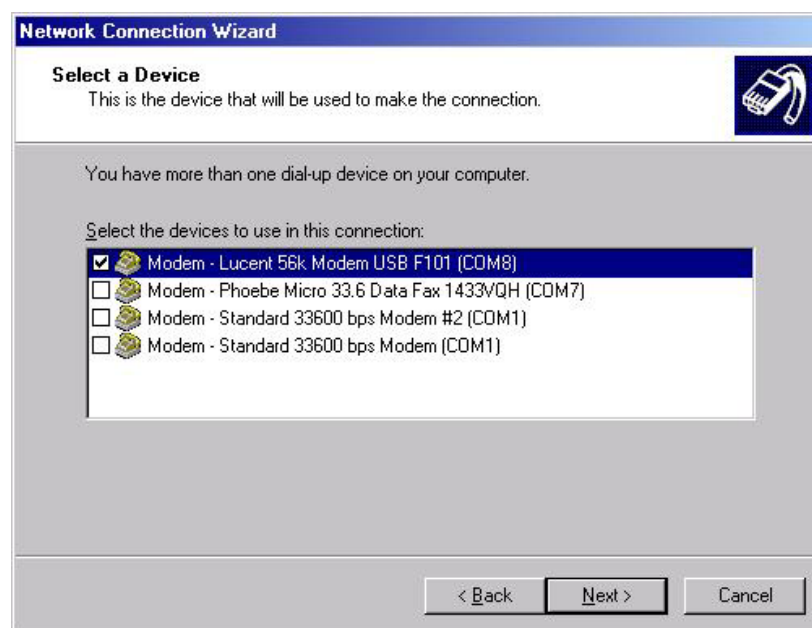
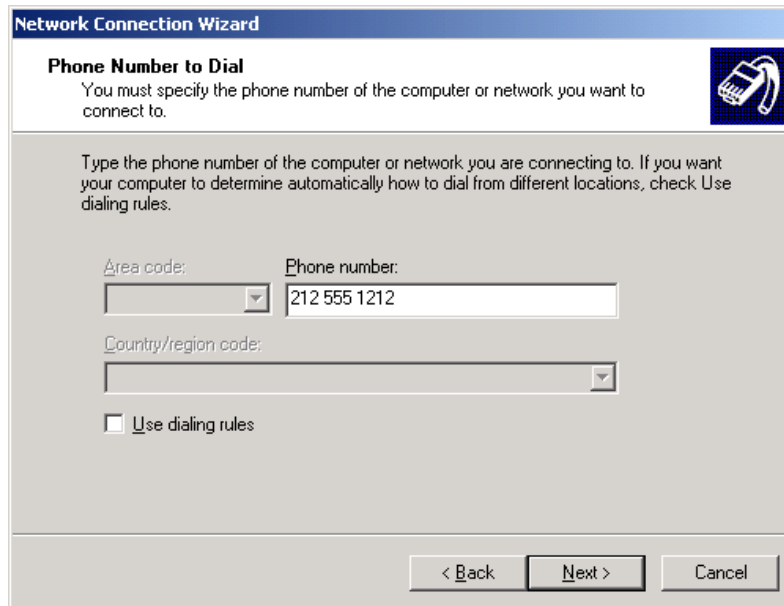


Figure 8 Modem Selection

3. Enter the phone number of the Modem Router. Select Next.



The screenshot shows the 'Network Connection Wizard' window, specifically the 'Phone Number to Dial' step. The window has a blue title bar and a light gray background. On the right side, there is a small icon of a modem. The text inside the window reads: 'Phone Number to Dial', 'You must specify the phone number of the computer or network you want to connect to.', and 'Type the phone number of the computer or network you are connecting to. If you want your computer to determine automatically how to dial from different locations, check Use dialing rules.' Below this text, there are three input fields: 'Area code:' with a dropdown arrow, 'Phone number:' with the text '212 555 1212', and 'Country/region code:' with a dropdown arrow. At the bottom left, there is a checkbox labeled 'Use dialing rules' which is currently unchecked. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Figure 9 Phone Number to Dial

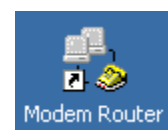
4. Enter a name for the connection and check "Add a shortcut to my desktop". Then click Next.



The screenshot shows the 'Network Connection Wizard' window, specifically the 'Completing the Network Connection Wizard' step. The window has a blue title bar and a light gray background. On the left side, there is a large blue graphic of a globe with a modem icon. The text inside the window reads: 'Completing the Network Connection Wizard', 'Type the name you want to use for this connection:', 'VersaTenn V Dialup Network', 'To create this connection and save it in the Network and Dial-up Connections folder, click Finish.', and 'To edit this connection in the Network and Dial-up Connections folder, select it, click File, and then click Properties.' At the bottom left, there is a checkbox labeled 'Add a shortcut to my desktop' which is currently checked. At the bottom right, there are three buttons: '< Back', 'Finish', and 'Cancel'.

Figure 10 Desktop Modem Connection Icon

5. You have completed the Network Connection Wizard and now have a modem connection icon on your desktop. Click the icon and the Connect Modem Router window will appear.



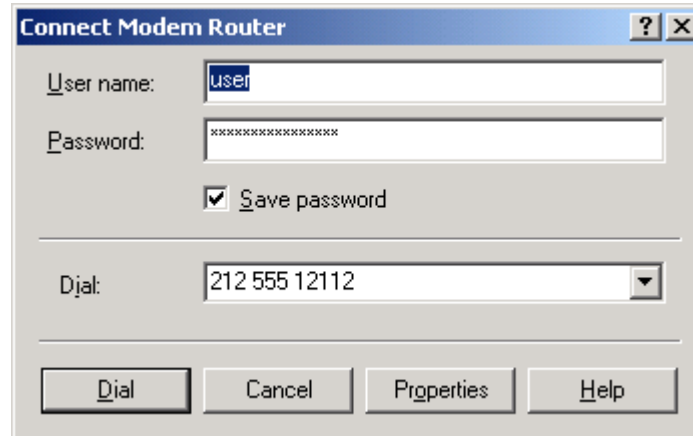


Figure 11 Connect Modem Router

6. To confirm that your computer has located its modem, press the Properties button. Under the General tab you should see the name of your PC's internal modem. The default values on the other tabs are valid for this connection procedure and do not need to be adjusted.

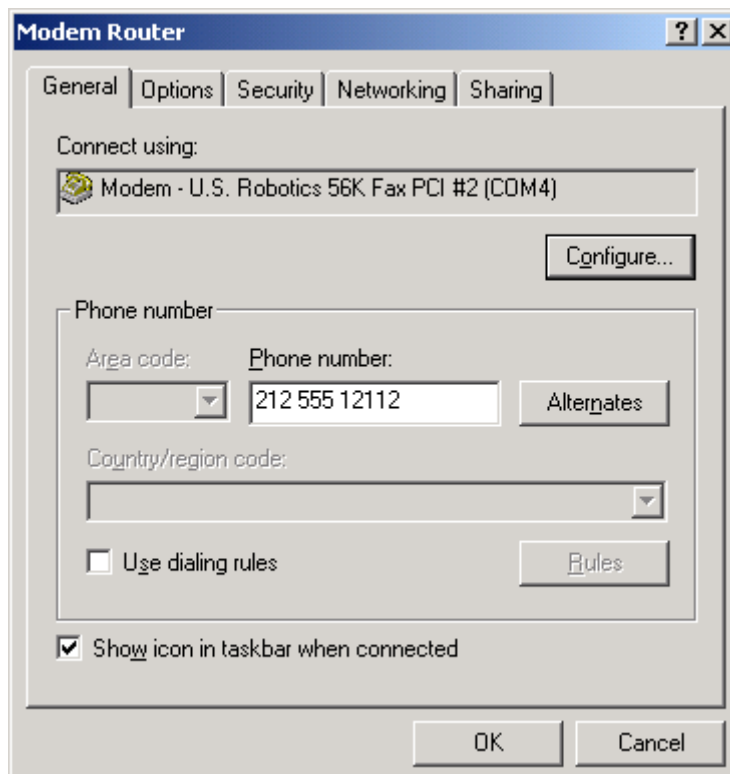


Figure 12 PC Modem Identification Confirmation

7. Next, we will setup the Netgear Modem Router.

Modem Router Setup

Before you use your Modem Router it must be configured through the RJ-45 serial Manager port using a VT100 terminal or a terminal-emulation program on your PC or workstation. If you are using Windows, for example, Microsoft® provides HyperTerminal.

Note:

For screen navigation help for the RM356 Manager, see APPENDIX A: RM356 Modem Router Manager Commands. If you need more detailed information on any of the RM356 Modem Routers parameters discussed here, Refer to Netgear's RM356 Modem Router User Manual.

1. Connect the RM356 to the PC

- a. A PC with a serial port is required to configure the modem router.

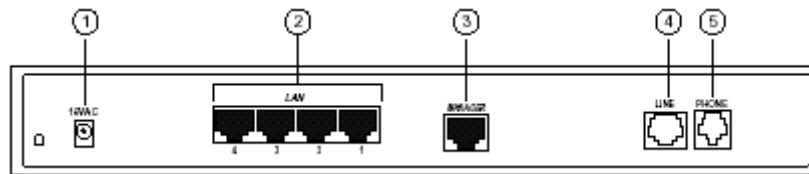


Figure 13 Rear Panel of the RM356 Modem Router

- b. Connect the 25 pin serial/RJ-45 cable to the PC's serial port.
- c. Connect the other end to the RM356 Manager port (3).
- d. Plug one end of a CAT 5 Ethernet cable into one of the available LAN ports on the back of the modem router (2). Plug the other end into the Ethernet jack on a VersaTenn V controller.
- e. Plug the connector of the 16 V AC power adapter into the AC adapter outlet on the router (1) and then plug the adapter into a wall outlet.

2. Accessing the RM356 Main Menu

- a. Confirm that your PC is connected to the modem router over the serial/RJ-45 cable.
- b. From the Start button on your remote PC, navigate to Programs/Accessories/HyperTerminal.
- c. Once HyperTerminal is open, select File then Properties.

Note:

Be sure to set the program for VT100 emulation, including arrow keys.

d. Set Serial port parameters as follows:

- 9600 bps
- 8 data bits
- 1 stop bit
- No parity
- No flow control

e. Press the Call button on HyperTerminal to connect.

Note: When you are connected to the router through Telnet, there is a system timeout of 5 minutes (300 seconds). If you leave it inactive for this timeout period, then the router automatically disconnects you. When the router automatically logs you out it displays a blank screen. If you see a blank screen, press [Enter] to display the password screen again.

f. Turn on power to the router.

Note: Several internal tests are performed by the router during initialization. After the initialization, the start-up display appears.

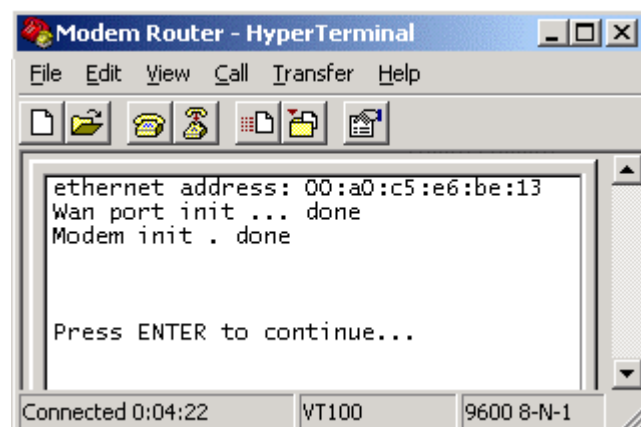


Figure 14 HyperTerminal RM356 Startup Display

g. To continue press [Enter] when prompted.

h. A login screen is displayed and prompts you to enter a password. Enter the default password "1234" to reach the main menu of the Manager.

Enter Password : 1234

RM356 Main Menu	
Getting Started	Advanced Management
1. General Setup	21. Filter Set Configuration
2. MODEM Setup	
3. Ethernet Setup	23. System Password
4. Internet Access Setup	24. System Maintenance
Advanced Applications	
11. Remote Node Setup	
12. Static Routing Setup	
13. Default Dial-in Setup	
14. Dial-in User Setup	
15. SUA Server Setup	99. Exit

For this AppNote demonstration, we will be modifying the following menu items:

- General Setup (Main Menu Item 1)
- MODEM Setup (Main Menu Item 2)
- Ethernet Setup (Main Menu Item 3)
- Default Dial-in Setup (Main Menu Item 13)
- Dial-in User Setup (Main Menu Item 14).

3. General Setup (Main Menu Item 1)

```
Menu 1 - General Setup
System Name= TidalNet
Location= Laptop
Contact Person's Name= Craig Borax
```

- a. From the RM356 Main Menu, type 1 and press [Enter].
- b. Enter the system name in the System Name field of the menu. For identification purposes, choose a descriptive name for the router, such as VersaTenn. The name should be no more than 8 alphanumeric characters. Spaces are not allowed, but dashes "-" and underscores "_" are accepted.
- c. Enter the Location of the Router and a Contact Persons Name.
- d. Press Escape to return to the Main Menu.

4. MODEM Setup (Main Menu Item 2)

Menu 2 configures the internal 56K modem in the modem router.

```
Menu 2 - MODEM Setup
Modem Name= MODEM
Active= Yes
Direction= Incoming
Phone Number=
Edit Advanced Setup= No
```

- a. From the RM356 Main Menu, type 2 and press [Enter].
- b. In the Modem Name field, enter a descriptive name for the internal modem, such as MODEM1.
- c. Set the Active field to Yes to activate the internal modem port. Press the space-bar to toggle [Yes/No].
- d. The Direction field determines whether the router is allowed to place calls, accept calls, or both. The default is Outgoing, use the space bar to change it to Incoming.
- e. In the Phone Number field, enter the telephone number assigned to your modem line by your telephone company.

Note: The router accepts only digits; do not include dashes and spaces in this field.

- f. Press Escape to return to the Main Menu.

5. Ethernet Setup (Main Menu Item 3)

Menu 3 is used for configuring the Ethernet LAN parameters, including interface type, filters, DHCP, and IP address information.

```
Menu 3 - Ethernet Setup
1. General Setup
2. TCP/IP and DHCP Setup
```

- a. From the Main Menu, enter 3 to display Menu 3 - Ethernet Setup. There are two submenus: Menu 3.1 - General Setup and Menu 3.2 - TCP/IP and DHCP Setup.
- b. Type 1 and press [Enter] to access the first sub menu: 3.1 - General Setup.

6. Ethernet Setup: General Ethernet Setup (Submenu Item 3.1)

The General Setup Menu allows the application of filter sets for filtering your Ethernet traffic. Filter sets are used to block certain packets in order to reduce bandwidth or to enhance security.

```
Menu 3.1 - General Ethernet Setup
Input Filter Sets:
  protocol filters=
  device filters=
Output Filter Sets:
  protocol filters=
  device filters=
```

- a. For this demonstration, remove any default filters
- b. Press Escape to return to the previous menu: 3 - Ethernet Setup.
- c. Type 2 and press [Enter] to access the next sub menu: 3.2 - TCP/IP and DHCP Setup.

7. Ethernet Setup: TCP/IP and DHCP Setup (Submenu Item 3.2)

The router has the capability to act as a DHCP server, allowing it to assign IP, DNS, and Default Gateway addresses to attached PCs or VTV controllers. The assigned Default Gateway address is the LAN address of the router, as set in the TCP/IP section. Each pool address is tested before it is assigned to avoid duplicate addresses on the LAN. If your network requires additional modifications beyond the scope of this article, refer to the RM356 User Manual.

```
Menu 3.2 - TCP/IP and DHCP Ethernet Setup

DHCP Setup:
  DHCP= Server
  Client IP Pool Starting Address= 192.168.0.1
  Size of Client IP Pool= 32
  Primary DNS Server= 0.0.0.0
  Secondary DNS Server= 0.0.0.0

TCP/IP Setup:
  IP Address= 192.168.0.1
  IP Subnet Mask= 255.255.255.0
  RIP Direction= Both
  Version= RIP-1
```

- a. Set the DHCP field to Server so the router acts as a DHCP server.
- b. The Client IP Pool Starting Address field is used to set the beginning of the range of addresses assigned by the DHCP server. 192.168.0.1 is a common starting point. Every device on the TCP/IP network must have a unique IP address. Ask your network administrator if there is any question about IP Address conflicts.
- c. Set the Size of Client IP pool field to 32. This field is the number of sequential addresses available for assignment to attached devices. The maximum is 32.
- d. In the IP Address field, enter the IP address of the LAN interface of the router. Using the first address from the client IP pool is a common approach: 192.168.0.1.
- e. An IP address consists of two parts, the network ID and the host ID. The IP Subnet Mask specifies the network ID portion of the address, written in dotted-decimal notation. The router automatically calculates this mask for the class of the IP address that you assign. Unless you have a special need for sub-netting, use the default subnet mask calculated by the router. All hosts on the LAN segment should use the same mask.
- f. The RIP Direction parameter determines how the router handles RIP (Routing Information Protocol) with other routing devices on the LAN. This should be set to Both (default). Refer to your RM356 user manual if you need to change these settings.
- g. The RIP Version field determines which version of RIP (Routing Information Protocol) will be used by the router. Set the version to RIP-1. Refer to your RM356 user manual if you need to change this setting.
- h. Press Escape to return to the previous menu: 3 Ethernet Setup.

- i. Press Escape again to return to the Main Menu.

8. Default Dial-in Setup (Main Menu Item 13)

In Menu 13 you configure the router to receive calls from remote dial-in users. Remote dial-in users are individual users who dial in to the router directly from their PC workstations. If your network requires additional modifications beyond the scope of this article, refer to the RM356 User Manual.

```
Menu 13 - Default Dial-in Setup

Telco Options:                      IP Address Supplied By:
  CLID Authen= None                 Dial-in User= No
                                   IP Pool= Yes
                                   IP Start Addr= 192.168.0.5

PPP Options:
  Recv Authen= PAP
  Compression= No
  Mutual Authen= No
  PAP Login= N/A
  PAP Password= N/A

Session Options:
  Edit Filter Sets= No

Callback Budget Management:
  Allocated Budget(min)=
  Period(hr)=
```

- a. The default setting for the "IP Address Supplied by:Dial-in User" is Yes. Change this to No. When set to No, the remote host uses the IP address assigned by the router from the IP pool.
- b. The default setting for the "IP Address Supplied by:IP Pool" is No. Change it to Yes. When set to Yes, the router then provides the remote host with an IP address from the pool.
- c. In the "IP Start Addr" field, enter the 192.168.0.5 for the IP address that you want to assign the dial-in user.
- d. Press Escape to return to the Main Menu.

9. Dial-in User Setup (Main Menu Item 14)

```
Menu 14 - Dial-in User Setup

1. user
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
```

- a. To add a remote dial-in user, enter 14 from the main menu to display the Dial-in User Setup window.

- b. To edit dial-in user parameters for the first user, type 1 and press [Enter]. This will take you to the sub menu: 14.1 - Edit Dial-in User. You can have a total of eight individual user settings.

10. Dial-in User Setup: Edit Dial-in User (Sub Menu Item 14.1)

The User Name and Password that you enter here are the user name and password that your remote PC will use to connect to the modem router. To edit the PC user name and password, right click on the Network Connection Icon you put on the desktop after completing the Network Connection Wizard (see previous section: Software Configuration – Remote PC).

```
Menu 14.1 - Edit Dial-in User
User Name= user
Active= Yes
Password= *****
Callback= No
  Phone # Supplied by Caller= N/A
  Callback Phone #= N/A
Rem CLID=
Idle Timeout= 300
```

- a. The User Name field is required and used as the login name for authentication. Choose a descriptive word for login (for example, user or johndoe).
- b. Set the Active field to Yes. Setting the field to yes allows dial-in access to this user.
- c. Enter the password in the Password field for the remote dial-in user.

Connecting

VersaTenn V Software Setup and DHCP IP Addressing Verification

1. Make sure your VTV's are connected to the router.
2. In the following order:
 - a. Cycle the power on the router. (Allow it to boot completely).
 - b. Cycle the power on each VTV.

When the VTV's reboot, they broadcast a request for IP addresses from a DHCP server. The DHCP server in the modem router will provide unique IP addresses for the each VTV at this time.

3. To confirm that each VersaTenn V was assigned an address, press the COMM button on the VTV touch screen and press the Ethernet folder icon. You should see a screen similar to the one below. Verify that each field contains non-zero numbers.

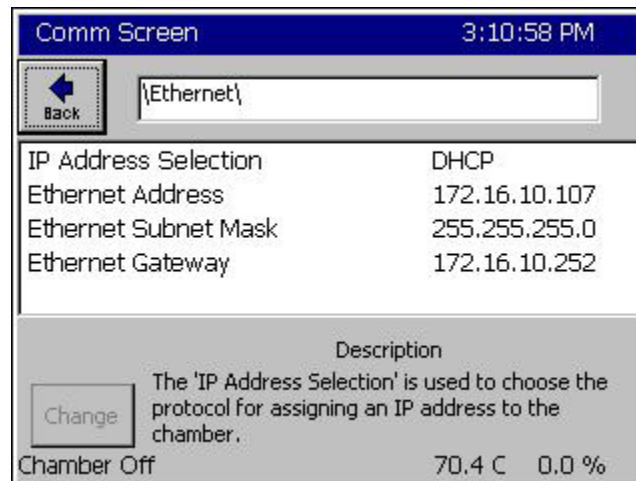


Figure 15 VTV Ethernet Settings

The address in the Ethernet Address field is the IP Address of the VTV controller. Use this address when connecting to the VTV over Ethernet.

If the addresses are blank or 0.0.0.0 then the VTV did not obtain an IP address from the DHCP router. If this is the case, review the previous sections to make sure you have set up the modem router and each VTV correctly. If that doesn't solve the problem, review Netgear's user manual.

VersaTenn V TCP/IP Server Setup

To set up the VersaTenn V for ASCII commands over TCP/IP, press the COMM button at the bottom of the VersaTenn V's touch screen. The Comm Screen window will appear.

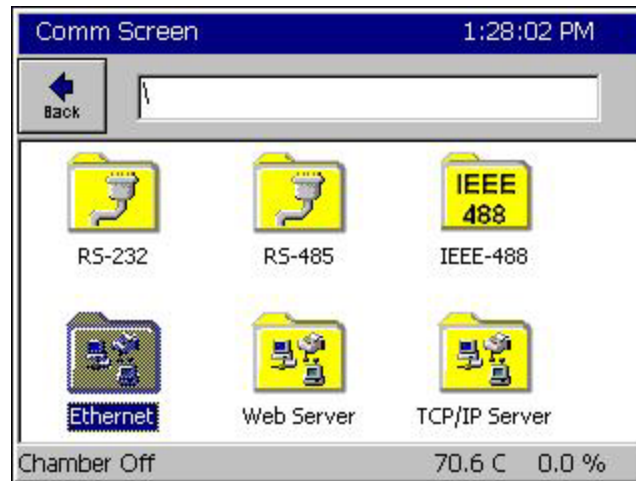


Figure 16 VTV COMM Screen

Press the "TCP/IP Server" folder icon.

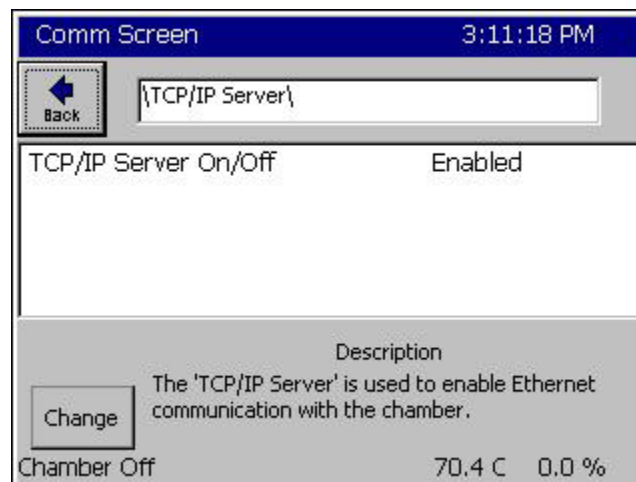


Figure 17 VTV TCP/IP Server Settings

Confirm that the TCP/IP Server On/Off field is set to Enabled. If it is not enabled, press the Change button and enable it. Your VersaTenn V is now configured to accept ASCII commands over TCP/IP.

Note: The Web Server is enabled separately from the TCP/IP Server.

Dialing your Modem Router

1. To connect to the modem router, double click the connection icon. You will then see the Connect Modem Router window.

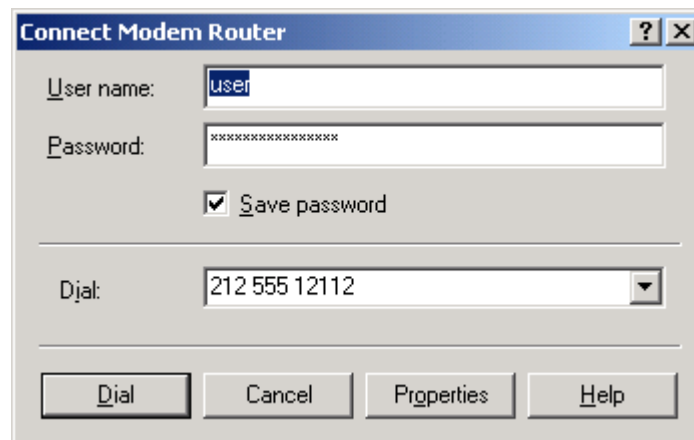


Figure 18 PC Modem Dial Window

2. In the User Name and Password fields, enter the same name and password that you entered when you configured the RM356 Menu Item 14 on the modem router. Press Dial to connect.
3. You should hear your PC's modem dialing and connecting with the RM356 Modem Router.
4. Several messages will appear as the connection progresses including the "Verifying username and password.." message shown below.



5. Once the connection is established you will see an icon and balloon in the lower right corner of your screen as shown below.



Communicating ASCII commands over TCP/IP

To communicate over TCP/IP you can use a Web Browser, a communications program such as Tidal Engineering's LinkTenn 32 or VTV SimpleComm, a custom VisualBasic or LabView program or a third party telnet program.

SimpleComm Setup

SimpleComm is a free communications application from Tidal Engineering that can communicate with VersaTenn V controllers over RS-485, RS-232, IEEE 488 and TCP/IP protocols. This Visual Basic 6.0 application is available from our web site in both executable and source code form with documentation. Go to:

<http://www.tidaleng.com/vtvmain.htm> to download:

- VersaTenn V AppNote 8 - VTV Simple Comm
- VTV SimpleComm Application
- VTV SimpleComm Source Code

To set up the VTV SimpleComm program for TCP/IP, enter the VTV's IP Address, set the port to 5000 and press Connect. In other telnet programs you may need to set the protocol to telnet and the emulation to VT100.

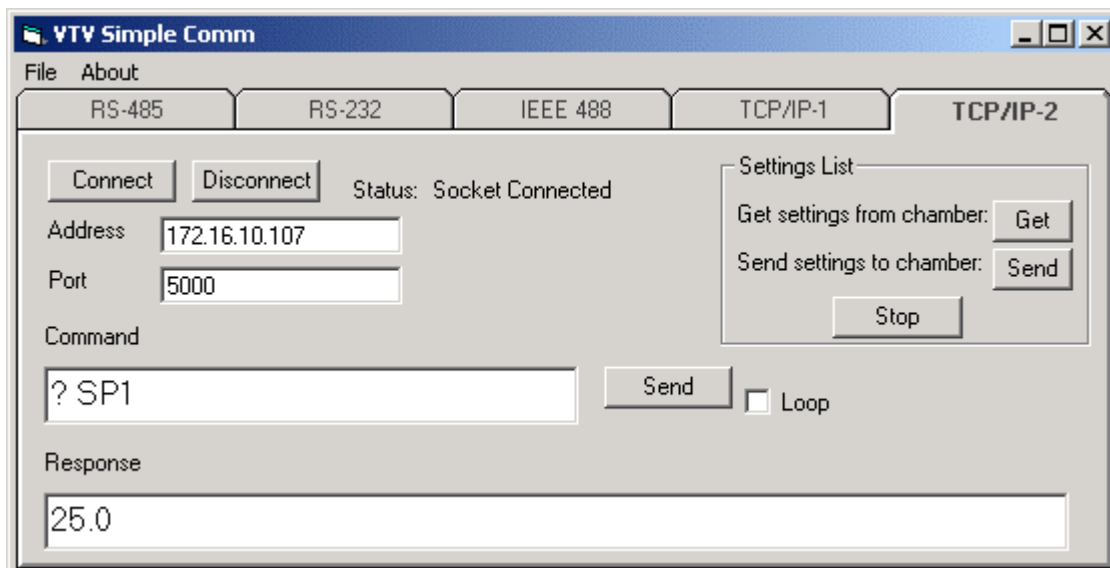


Figure 19 SimpleComm TCP/IP Telnet Connection

Note: Microsoft HyperTerminal cannot be used with the VTV over TCP/IP.

When communicating with the VTV using either SimpleComm or another Telnet program you will want a list of communication commands. This list is available from Tidal Engineering at: www.TidalEng.com/vtvmain.htm. Scroll down to the General Information section and download the appropriate Communication Commands for the VersaTenn V software version on your chamber.

Web Touch Remote

You can operate and monitor your VersaTenn V controller over a network with a web browser. Each controller has a built-in web server that uses Tidal Engineering's Web Touch™ Remote technology (Pat. Pending). This provides a web browser user interface that is identical to the local touch screen interface on the environmental chamber (see Figure below). You can use this feature to remotely monitor chamber settings and readings and for remote troubleshooting.

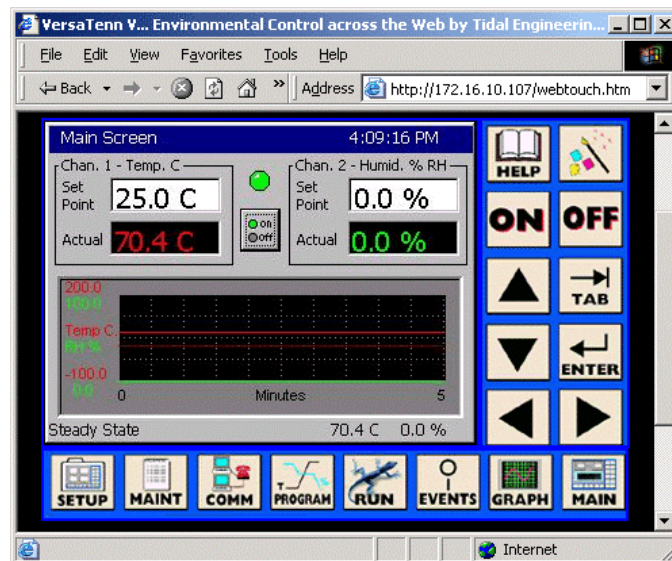


Figure 20 Web Touch Remote Browser Interface

VersaTenn V Web Server Setup

Detailed instructions for setting up the VTV Web server and your Web Browser can be found at www.TidalEng.com/vtvmain.htm in the application note titled: "VersaTenn V AppNote 7 - Using Web Server Rev 3.doc". A brief description of this process follows on the next several pages. The VTV Web server registration key is available from Tenney Environmental. Contact them at www.Tenney.com.

Press the COMM button on the bottom tool bar to navigate to the Communications screen and then press the Web Server folder.

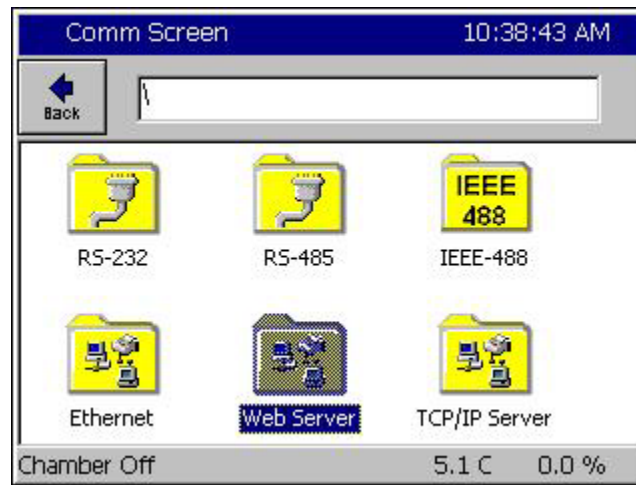


Figure 21 COMM Screen



Figure 22 Web Server Registration Window

Click on the Registration Key text box to display the keypad. Enter the registration key you received from Tenney Environmental using the keypad.

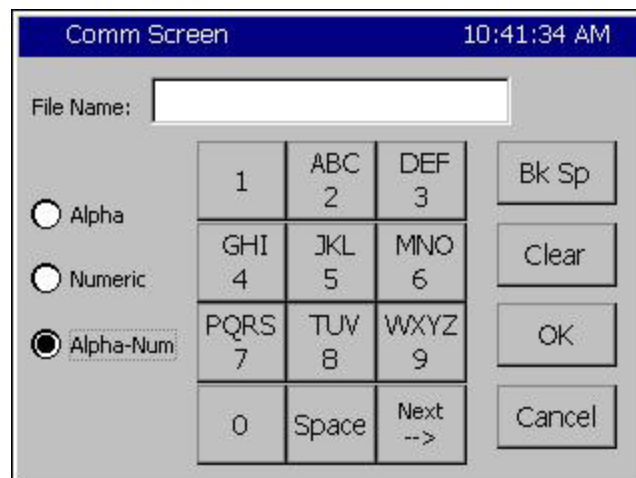


Figure 23 Keypad

Press Register to continue.



Figure 24 Successful Registration

The VersaTenn V will display a message box indicating that the web server key was successfully registered.

Hit OK to proceed to the Web Server Settings page.



Figure 25 Web Server Settings

Assuming you have successfully registered the web server, you can now set a Login Name and Password and enable the web server. Once enabled, you can connect to the VersaTenn V using your web browser.

To change the Web Server On/Off value to Enabled, first press the line in the Web Server screen to highlight it and then press the Change button. From the Web Server On/Off screen, highlight Enabled and press Accept .

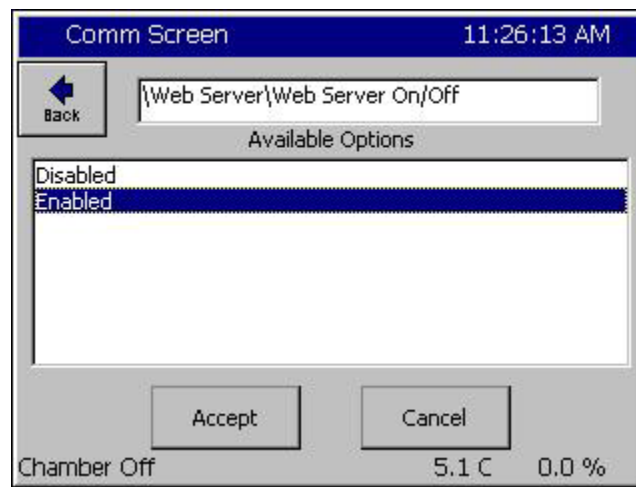


Figure 26 Web Server On/Off Screen

Press the Back button to return to the settings page. Now that the web server is enabled you can open a browser window and type in the IP address of the VTV to view the control panel. Refer to Application Note 7 for the browser settings required.

LinkTenn32

The LinkTenn32 PC based application, developed by Tidal Engineering for use with Tenney Environmental test chambers, can monitor and control multiple chambers from a single PC. It offers advanced logging, profile management and graphing capabilities not only for the VersaTenn V, but also for Tenney's VT IV, VT III and Watlow F4 and 942 controllers.

For more information on the LinkTenn32 go to www.TidalEng.com/linktenn.htm. Contact Tenney at www.Tenney.com to purchase LinkTenn32.

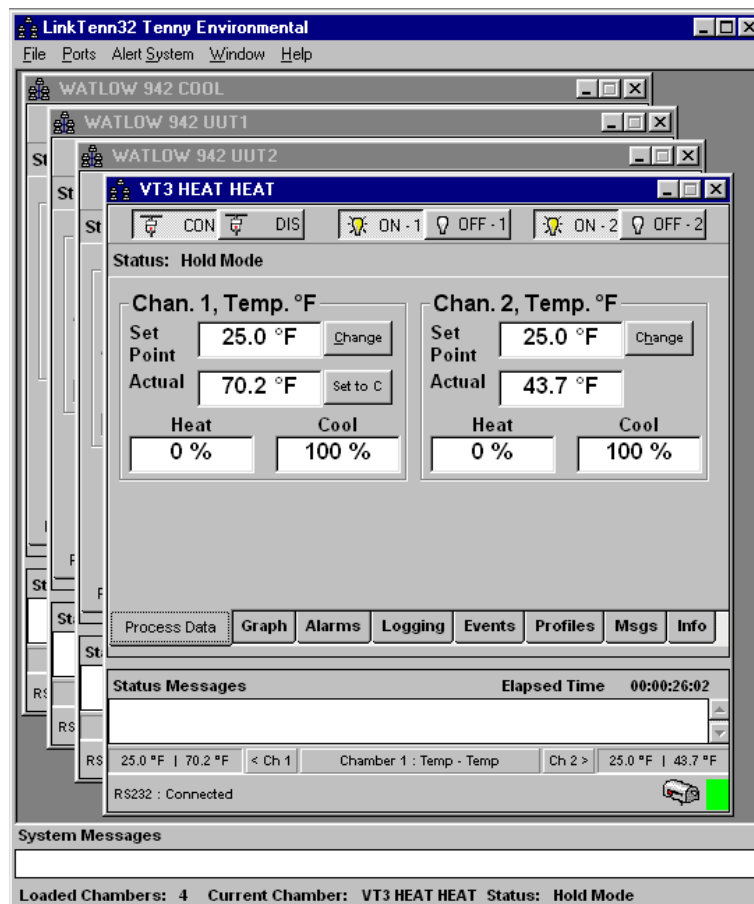


Figure 27 LinkTenn 32 Application

Troubleshooting

If you cannot communicate with the VersaTenn V through the RM356 Modem Router review the specifications in this manual and confirm the remote PC modem settings, the RM356 Modem Router settings and the VTV settings.

Local Troubleshooting

The first step in the troubleshooting process is to check if the modem router is communicating with the VTV. Open the HyperTerminal session you created to set up the modem router from the PC. Recall that this connection is over a serial/RJ-45 cable. From the RM356 Main Menu, select item 24: System Maintenance. Then, from the System Maintenance window, select item 4: Diagnostic. Then select item 12: Ping Host. Type the IP Address of the VersaTenn V and press [Enter]. You can find the address of the VTV controller by pressing the VTV touch screen button labeled COMM then pressing the Ethernet folder icon. The IP Address of the controller is displayed in the field labeled Ethernet Address.

```
Menu 24.4 - System Maintenance - Diagnostic

MODEM                                     System
 1. Drop MODEM                           21. Reboot System
 2. Reset MODEM                          22. Command Mode
 3. Manual Call
 4. Redirect to MODEM

TCP/IP
 11. Internet Setup Test
 12. Ping Host

Enter Menu Selection Number: 12

Manual Call Remote Node= N/A
Host IP Address= 192.168.0.5
```

If the result of the ping is successful, as displayed below, then the RM356 Modem Router is communicating with the VTV. This indicates that there is a problem with communication between the remote PC and the router.

```
Start connection. Wait for 6 seconds for next PING
Resolving 192.168.0.1... 192.168.0.1
192.168.0.1 (10 ms) seq=5
### Enter y to send next PING. any other key to return ###
Resolving 192.168.0.1... 192.168.0.1
192.168.0.1 (0 ms) seq=4
### Enter y to send next PING. any other key to return ###
```

If the ping was unsuccessful, as displayed below, then the problem lies in the communications between the modem router and the VersaTenn V. Refer to the RM356 Router Modem user manual.

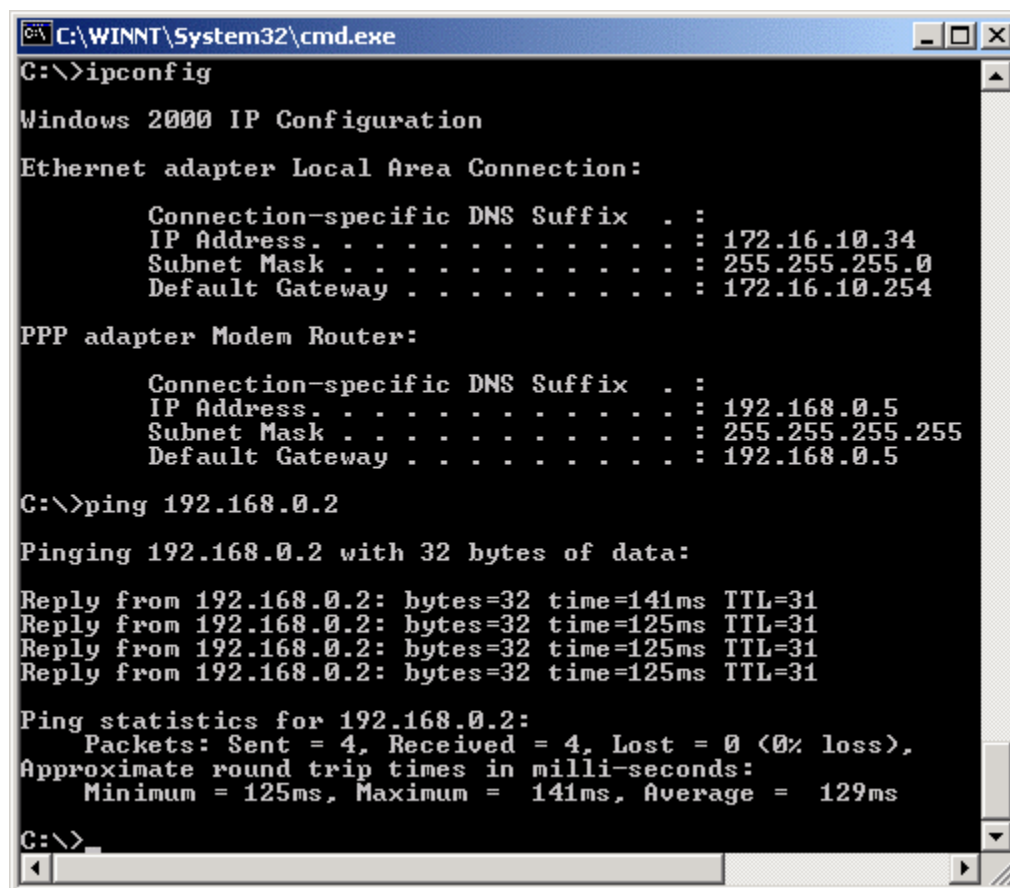
```
Start connection. Wait for 6 seconds for next PING
Resolving 192.168.0.5... 192.168.0.5
### Enter y to send next PING. any other key to return ###
```

You can use the previous ping utility to test the communications from the remote PC and the router by typing in the IP Address of the remote PC, if it is currently connected.

Remote Troubleshooting

To check the communications between the PC and the RM356 Modem Router, first connect to the router by double clicking on the modem connect icon on your desktop and pressing the Dial button. After you have successfully connected, press the Start button on your PC desktop, select Run, type "cmd" and press enter. From the DOS window type "ipconfig" and hit [Enter].

The information displayed under the PPP adapter Modem Router applies to this application. If this information isn't displayed, then the communication between the remote PC and the modem router are in error. Review the PC modem setup and refer to the RM356 Modem Router user manual.



```
C:\WINNT\System32\cmd.exe
G:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 172.16.10.34
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .         : 172.16.10.254

PPP adapter Modem Router:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 192.168.0.5
    Subnet Mask . . . . .             : 255.255.255.255
    Default Gateway . . . . .         : 192.168.0.5

G:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=141ms TTL=31
Reply from 192.168.0.2: bytes=32 time=125ms TTL=31
Reply from 192.168.0.2: bytes=32 time=125ms TTL=31
Reply from 192.168.0.2: bytes=32 time=125ms TTL=31

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 125ms, Maximum = 141ms, Average = 129ms

G:\>
```

Figure 28 Command Prompt Troubleshooting

If the ipconfig response is OK then try pinging both the router and the VTV from the command widow.

To test the router connection, type "ping" then the IP Address of the Modem Router. If the ping is successful then the communications between the PC and the router are OK. If the ping fails then the modem is not connecting with the router. The modem may not be dialing out or may be dialing the wrong number. The user name and or password may also be incorrect. The problem may also lie in the configuration of the RM356 Modem Router. Consult the router's user manual.

To test the VTV connection, type "ping" and then the IP Address of the VTV. If the ping is successful then the PC is successfully communicating with the VTV. If the ping to the router is successful, and the ping from the router to the VTV was successful (as discussed in the Local Troubleshooting section), but the ping from the PC to the VTV fails then the problem may lie in the TCP/IP configuration of the remote PC. If this is the case, review you PC's TCP/IP settings. If this doesn't fix the problem consult you network administrator.

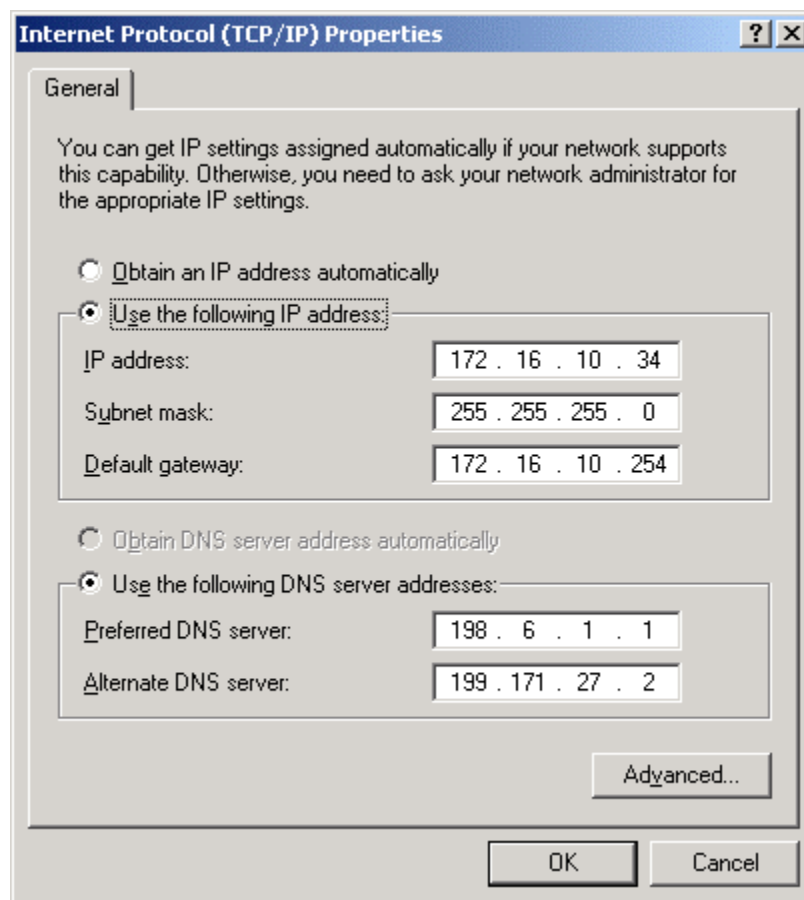


Figure 29 Local PC Internet Protocol Settings

APPENDIX A: RM356 Modem Router Manager Commands

The RM356 Modem Router Manager is the interface that you use to configure your router. The table below lists and describes the commands available to navigate through the menus in the Manager.

Manager Menu Commands

Action	Description
Move forward to another menu	Enter the number of the submenu and press [Enter].
Move back to a previous menu	Press [Esc]. The only exception is the Main Menu, where typing 99 is the only method to exit from the Manager.
Move the cursor	Press [Enter]. You can also use the Up and Down keys to move to the previous and the next field, respectively.
Enter information	There are two types of fields for entering selected parameters. The first requires you to enter the appropriate information. The second gives you options to choose from. When choosing options, press the space bar to toggle through the available options.
Required fields	Some of the fields in the Manager are essential in order to configure the router. The required fields initially show a question mark (?), indicating that the information must be filled in before that menu can be saved.
N/A fields	Some of the fields in the Manager show N/A, meaning the option is not available.
Save your configuration	Press [Enter] when prompted to press ENTER to confirm or ESC to cancel. In most cases, saving the data on the screen takes you to the previous menu.

About Tidal Engineering

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award-winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company further provides product development services together with engineering support, and is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems. Tidal's products are available exclusively through ADI American Distributors Inc., an ISO-9002 certified distributor of electronic and electromechanical components and assemblies.

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