



**Standalone Voice/IP Gateway
Model MVP120**

Proprietary Mode

Quick Start Guide



Quick Start Guide

PN 82060550 Revision A
MultiVOIP 100 Model MVP120

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A	08/10/01	Initial Release.

Patents

This Product is covered by one or more of the following U.S. Patent Numbers: **6151333, 5757801, 5682386**. Other Patents Pending.

Trademarks

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Technical Support

Multi-Tech Systems has an excellent staff of technical support personnel available to help you get the most out of your Multi-Tech product. If you have any questions about the operation of this unit or experience difficulty during installation, you can contact Tech Support via the following:

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Contents

Introduction	4
Related Documentation	5
Overview	6
Unpacking Your MultiVOIP	8
Safety Warnings	8
Cabling Your MultiVOIP	9
Software Installation	11
Configuring the Host MultiVOIP	16
Configuring the Client MultiVOIPs	29
Deploying the VOIP Network	37
VOIP Administrator	37
Remote Site Administrator	38
Limited Warranty	39
FCC Declaration	39

MultiVOIP Quick Start Guide

Introduction

The MultiVOIP model MVP120 enables FXO-only analog voice and fax communication over an IP network. Multi-Tech's new voice/fax gateway technology allows voice and fax communication to ride, with no additional expense, over your existing IP network, which has traditionally been data-only. To access this free voice and fax communication, all you have to do is connect the MultiVOIP to your telephone equipment, and then to your existing Internet connection. Once configured, the MultiVOIP then allows voice and fax to travel down the same path as your traditional data communications.

The MVP120 has one independent voice/fax channel, a 10 Mbps Ethernet LAN interface, and a command port for configuration.

System management is provided through the command port using bundled Windows® software which provides easy-to-use configuration menus and online Help.



Figure 1. MultiVOIP

Related Documentation

The MVP120 Quick Start Guide is intended to be used by qualified systems administrators and network managers. This quick start guide provides the necessary information for a qualified person to unpack, cable, load software, and configure the unit for proper operation.

A detailed MVP120 User Guide is also provided on the system CD with your unit and provides in-depth information on the features and functionality of Multi-Tech's MultiVOIP.

The User Guide is produced using Adobe Acrobat™. To view or print your copy of a user guide, install Acrobat Reader™ on your computer. The Acrobat Reader is included on your system CD or is available as a free download from Adobe's Web site:

<http://www.adobe.com>

The MVP120 User Guide is also available on Multi-Tech's Web site:

<http://www.multitech.com>

MultiVOIP Quick Start Guide

Overview

Install Your MultiVOIP

The basic steps of installing your MultiVOIP network involve unpacking the units, connecting the cables, and configuring the units using the included management software (MultiVOIP Configuration). The recommended installation process includes three phases that, when completed, result in a fully functional Voice Over IP network. A general description of each phase is provided below, and detailed instructions follow throughout the rest of this section.

Configure and Install Your Host MultiVOIP

First, the VOIP administrator configures the MultiVOIP designated as the “Host” unit. This includes the assignment of a unique LAN IP address, subnet mask, and Gateway IP address. Once the VOIP is configured, the administrator builds the Phone Directory Database that will reside with the Host unit.

Configure Your Client MultiVOIPs

Once installation has been completed, the administrator moves on to configure the MultiVOIPs designated as “Client” units. Again, this includes the assignment of unique LAN IP addresses, subnet masks, and a Gateway IP address. When this is done, the Phone Directory Database option is set to Client, and the IP address of the Host MultiVOIP is entered. Once all Client units are configured, the VOIP network can be deployed.

Deploy the VOIP Network

The final phase of the installation is deployment of the network. Through the first two phases, the VOIP administrator controls configuration, so when the Client MultiVOIPs are sent to their remote sites, the remote site administrators need only to connect the units to their LAN and telephone equipment. A full Phone Directory Database (supplied by the Host MultiVOIP) will be loaded into their unit within minutes of being connected and turned on.

The final task of the VOIP Administrator is to develop the VOIP Dialing Directory based on the Phone Directory Database and telephone numbers of the interfacing telephone equipment, at which point, a VOIP user can call any person on the VOIP network.

MultiVOIP Quick Start Guide

Unpacking Your MultiVOIP

Remove all items from the box (See Figure 2).



Figure 2. Unpacking

Safety Warnings

Caution: Danger of explosion if battery is incorrectly replaced.

A lithium battery on the voice/fax channel board provides backup power for the time keeping capability. The battery has an estimated life expectancy of ten years. When the battery starts to weaken, the date and time may be incorrect. If the battery fails, the board must be sent back to Multi-Tech Systems for battery replacement.

Note: The Command and Ethernet ports are not designed to be connected to a Public Telecommunication Network. FXO can be connected to a PBX/FXO port or PSTN Network.

Cabling Your MultiVOIP

Cabling your MultiVOIP involves making the proper connections for power, the command port, the FXO/PBX or PSTN system, and the Internet. Figure 3 shows the back panel connectors and the associated cable connections. The following procedure details the steps necessary for cabling your MultiVOIP.

1. Connect the power supply to a live AC outlet, and then connect it to the MultiVOIP as shown in Figure 3.

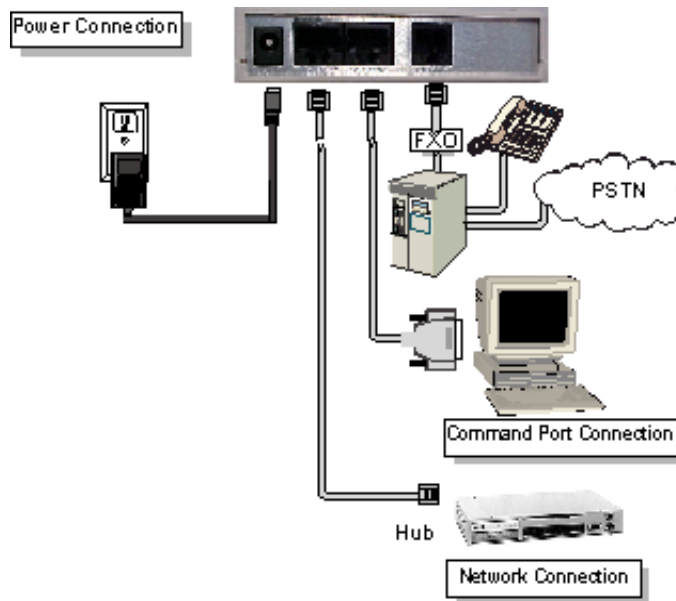


Figure 3. Cable Connections

MultiVOIP Quick Start Guide

2. Connect the MultiVOIP to a PC using the RJ-45 to DB9 (female) cable provided with your unit. Plug the RJ-45 end of the cable into the **Command** port of the MultiVOIP and connect the other end to the PC serial port you are using. See Figure 3.
3. Connect a network cable to the **Ethernet** connector on the back of the MultiVOIP. Connect the other end of the cable to your network.
4. Connect an RJ-11 cable to the **Voice/Fax Channel** connector on the back of the MultiVOIP and the other end to the PSTN or FXO/PBX port.
5. Turn on power to the MultiVOIP by setting the power switch on the right side panel to the On position. Wait for the Boot LED on the MultiVOIP to go off before proceeding. This may take a couple of minutes.

Note: If the Ethernet connection is not active, none of the LEDs will be on after booting. This unit does not have a Power LED.

Software Installation

This section covers software installation. Additional information on the MultiVOIP software is provided in the User Guide supplied with your MultiVOIP.

Note: If you are installing a MultiVOIP behind a firewall, you need to add the following UDP ports to your firewall.

900 Signaling Information	5004 RTP Packets
5000 Status Information	5005 RTCP Packets

Refer to your firewall user documentation to enter and open these ports.

1. Make certain that your MVP120 has been properly cabled and that the power is turned on.

Note: If the Ethernet connection is not active, none of the LEDs will be on after booting. This unit does not have a Power LED.

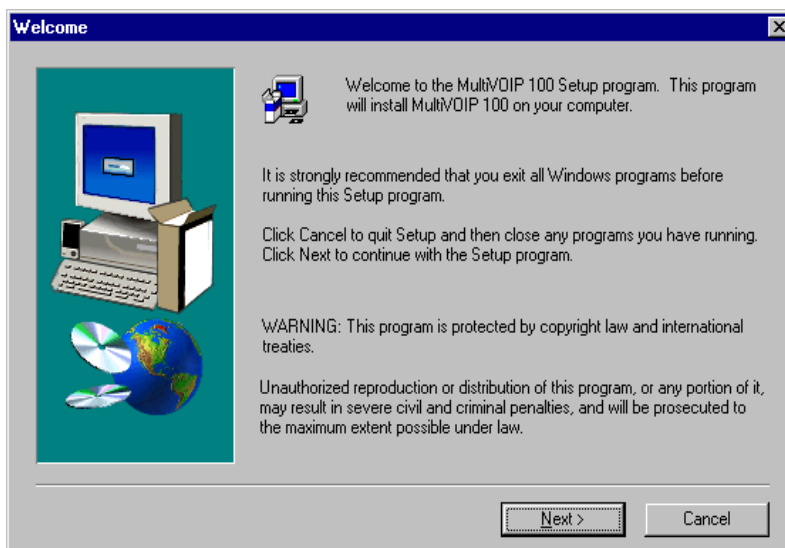
2. Insert the MVP120 CD into your CD-ROM drive. The CD should start automatically. It may take 10 to 20 seconds for the installation window to display.



MultiVOIP Quick Start Guide

If the Multi-Tech Installation CD window does not appear automatically, click **My Computer**, then right-click the **CD-ROM drive icon**, click **Open**, then click the **Autorun** icon.

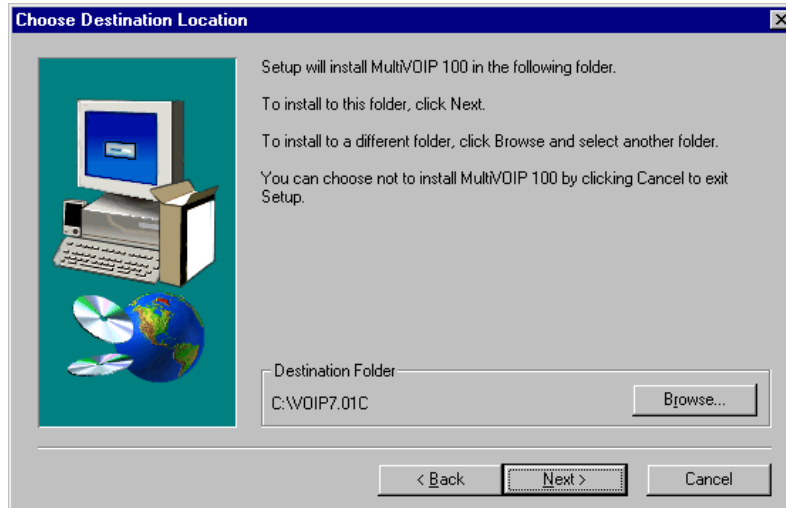
3. When the Multi-Tech Installation CD window displays, click the **Install Software** icon.
 - 3a. Click **Install Software**.
 - 3b. Check **Proprietary**, and then click **OK**.
4. The **MultiVOIP Welcome** window displays.



Press **Enter** or click **Next** to continue.

Software Installation

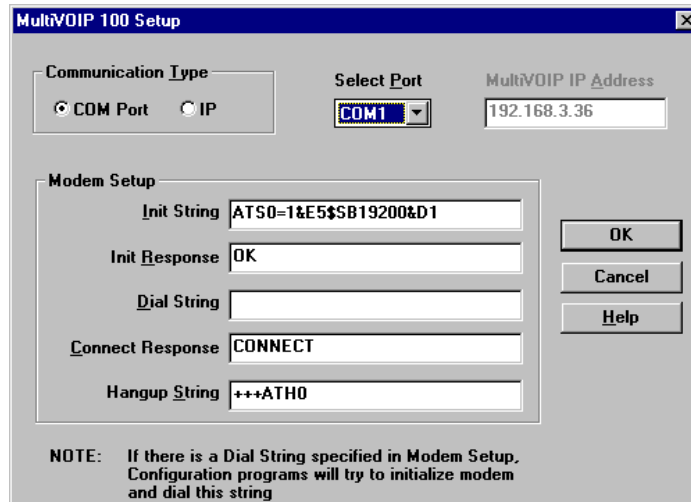
5. Follow the on-screen instructions to install your MultiVOIP software.



You can either choose the Destination Location of your MVP120 software or select the default destination by clicking **Next**. If you click **Browse**, you can select a different destination folder for the MVP120 software.

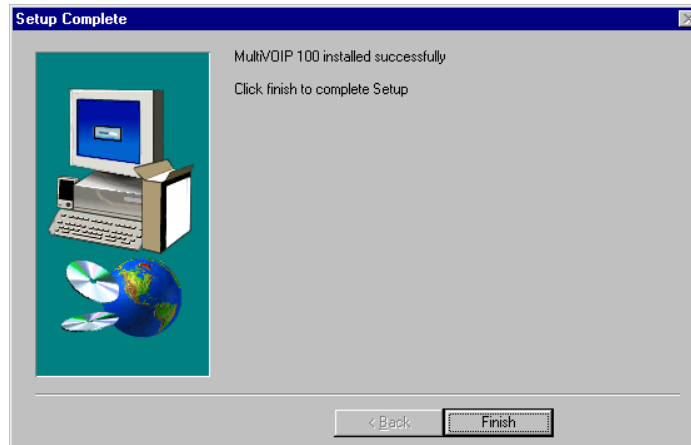
MultiVOIP Quick Start Guide

- The **Setup** dialog box enables you to select the COM port of your PC that is connected to the Command port of the MVP120. From the **Select Port** list, select the COM port of your PC. Click **OK** to continue.



The image shows the 'MultiVOIP 100 Setup' dialog box. It has a title bar with a close button. The main area is divided into sections. At the top, there are three fields: 'Communication Type' with radio buttons for 'COM Port' (selected) and 'IP'; 'Select Port' with a dropdown menu showing 'COM1'; and 'MultiVOIP IP Address' with a text box containing '192.168.3.36'. Below this is the 'Modem Setup' section with five text boxes: 'Init String' (ATS0=1&E5\$B19200&D1), 'Init Response' (OK), 'Dial String' (empty), 'Connect Response' (CONNECT), and 'Hangup String' (+++ATH0). To the right of these boxes are three buttons: 'OK', 'Cancel', and 'Help'. At the bottom, there is a 'NOTE: If there is a Dial String specified in Modem Setup, Configuration programs will try to initialize modem and dial this string'.

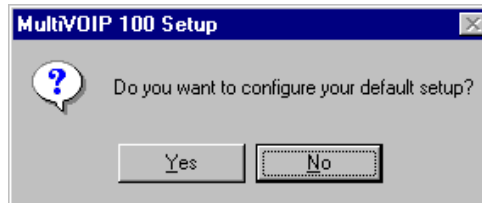
- The **Setup Complete** dialog displays. Click **Finish**.



The image shows the 'Setup Complete' dialog box. It has a title bar with a close button. The main area contains a green graphic on the left showing a computer monitor, keyboard, mouse, and a globe. To the right of the graphic, the text reads: 'MultiVOIP 100 installed successfully' and 'Click finish to complete Setup'. At the bottom, there are two buttons: '< Back' and 'Finish'.

Software Installation

8. The following message displays.



Click **No** to continue.

9. In the Program group, double-click **Upgrade Software**.
This loads the Proprietary software.
10. The following message displays.



Click **Yes** to continue.

11. The **IP Protocol Default Setup** dialog box displays next (see page 16) as you continue configuring your MultiVOIP.

MultiVOIP Quick Start Guide

Configuring the Host MultiVOIP

The following steps provide instructions for configuring your MVP120. The configuration sequence includes IP Protocol default setup, Channel setup, and Phone Directory Database setup.

12. The **IP Protocol Default Setup** dialog box displays.



The default **Frame Type** is **TYPE_II**. If this does not match your IP network, change the Frame Type by selecting SNAP from the **Frame Type** list. The available Frame Type choices are **TYPE_II** and **SNAP**.

13. In the **Ethernet** group, enter your unique LAN IP address in the **IP Address** box, then enter the **Subnet Mask** and **Gateway Address** for your LAN in the corresponding boxes.

The IP address is your unique LAN IP address, and the Gateway address is the IP address of the device connecting your MultiVOIP to the Internet.

Click **OK** when you are finished.

14. The **Channel Setup** dialog box displays. The four tabs in this dialog box define the channel interface, voice/fax parameters, billing/security parameter, and regional telephone parameters (tone pairs).

Configuring the Host MultiVOIP

MultiVOIP 100 - Channel Setup

Interface Voice/Fax Billing/Security Regional

Interface

FXS

FXO

Dialing Options

Regeneration

Pulse

DTMF

Max Dial Digits: 5

Inter Digit Time (in ms): 2000

Flash Hook Time (in ms): 600

FXO Disconnect On

Current Loss

Tone Detection

Silence Detection

None

Disconnect Tone Sequence

Fax + None

Silence Timer (in seconds): 15

Auto Call

Auto Call Enable

Phone Number

FXS Options

Current Loss

Ring: Count 8

OK Cancel Default ?

15. Check with your in-house phone personnel to verify whether your local PBX dial signaling is **Pulse** or **DTMF** (tone). Select the Regeneration option accordingly.

In the **Max Dial Digits** box, enter the maximum number of digits allowed when dialing a phone number. The default number is 5. In the **Inter Digit Time** option defines the maximum amount of time between dialed digits that the unit will wait before mapping the dialed digits to an entry in the Phone Directory Database. If too much time elapses between digits, the wrong number will be mapped and you will hear a rapid busy signal. If this happens, hang up and dial again. The default setting is **2** seconds.

In the **Flash Hook Timer** box, enter the amount of time for the duration of the flash hook signals output on the FXO interface. The default setting is 600 milliseconds.

MultiVOIP Quick Start Guide

For FXO-to-FXO communications, you can enable a specific **FXO Disconnect**: Fix **Current Loss**, **Tone Detection**, or **Silence Detection**. Check with your in-house phone personnel to verify the type of disconnect to use. If **Current Loss** is checked, the VOIP will hangup when it detects a loss of current on the FXO/phone port. For **Tone Detection**, select from the drop down list box one or two tones that will cause the line to disconnect. The person hanging up the call must then press the key or keys that produce those tones to hang up a call. For **Silence Detection**, select **One Way** or **Two Way**. Then enter in the **Silence Timer** box the number of seconds of silence before disconnect. The default value of 15 seconds may be shorter than desired for your application.

To dedicate the local voice/fax channel to a remote voice/fax channel, (so you will not have to dial the remote channel) select the **Auto Call Enable** check box. Enter the phone number of the remote VOIP in the **Phone Number** box.

16. The **Voice/Fax** tab displays the parameters for the voice gain, DTMF (Dual Tone Multi-Frequency) gain, voice coder, faxing, and advanced features such as Silence Compression, Echo Cancellation, and Forward Error Correction.

Configuring the Host MultiVOIP

MultiVOIP 100 - Channel Setup

Interface **Voice/Fax** Billing/Security Regional

Voice

Voice Coder: G.723.1 @ 6.3 kbps

Input Gain: 0 dB

Output Gain: 0 dB

Fax

Fax Enable

Max Baud Rate: 14400

Fax Volume: -9.5 dB

DTMF Gain

Gain High: -4 dB

Gain Low: -7 dB

Duration: 100 ms

Miscellaneous

Silence Compression

Echo Cancellation

Forward Error Correction

OK Cancel Default ?

To change the voice coder, select the new voice coder entry from the **Voice Coder** list. If you change the voice coder, ensure that the same voice coder is used on the voice/fax channel you are calling. Otherwise, you will get a busy signal.

Note: If **Automatic Coder** is selected, enter the bandwidth in the **Max Bandwidth** box. Check with your Network Administrator to determine available bandwidth.

You can set up the **Input Gain** and **Output Gain** so that the volume can be increased or decreased. Input gain modifies the level of the audio coming into the voice channel before it is sent over the Internet to the remote MultiVOIP. Output gain modifies the level of the audio being output to the device attached to the voice channel. Make your selections from the Input and Output drop-down lists in the **Voice** group. The valid range is +31dB to -31dB with a recommended/default value of **0**.

MultiVOIP Quick Start Guide

17. The **Fax** group enables you to select the maximum baud rate for faxes and adjust the fax volume. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.
18. The **Miscellaneous** group lets you set voice/fax advanced features by clicking (checking) **Silence Compression**, **Echo Cancellation**, or **Forward Error Correction**.

The **Silence Compression** option defines whether silence compression is enabled for the voice channel. If silence compression is enabled, the MVP120 will not transmit voice packets when silence is detected, thereby reducing the amount of network bandwidth used by the voice channel.

The **Echo Cancellation** option defines whether echo cancellation is enabled for the voice channel. If echo cancellation is enabled, the MVP120 will remove echo which improves the quality of sound.

The **Forward Error Correction (FEC)** option defines whether forward error correction is selected for the voice channel. The FEC feature allows some of the voice packets that were corrupted or lost to be recovered. FEC adds an additional 50% overhead to the total network bandwidth consumed by the voice channel.

Configuring the Host MultiVOIP

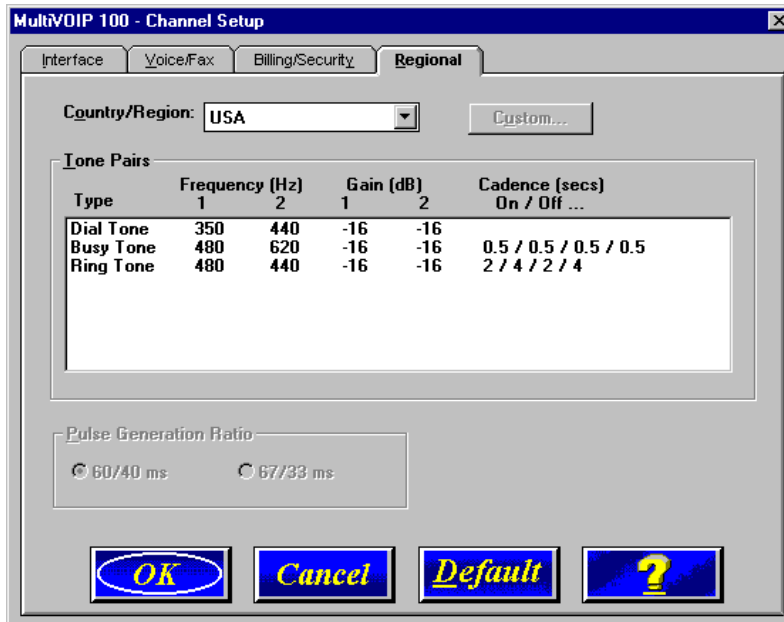
19. The **Billing/Security** tab displays the parameters for billing options, call authentication, and automatic disconnection.

The screenshot shows the 'MultiVOIP 100 - Channel Setup' dialog box with the 'Billing/Security' tab selected. The dialog has four tabs: 'Interface', 'Voice/Fax', 'Billing/Security', and 'Regional'. The 'Billing/Security' tab contains three sections: 'Billing Options', 'Call Authentication', and 'Automatic Disconnection'. In the 'Billing Options' section, there are checkboxes for 'InBound' and 'OutBound', and input fields for 'Charge' (5) and 'Cents Per' (5) with the unit 'Seconds'. In the 'Call Authentication' section, there are checkboxes for 'OutBound' and 'InBound', and a 'Password' input field. In the 'Automatic Disconnection' section, there is an 'Enable' checkbox and a 'Disconnect After' input field (180) with the unit 'Seconds'. At the bottom of the dialog are four buttons: 'OK', 'Cancel', 'Default', and a help button with a question mark.

20. You can set up billing options for inbound and outbound calls by selecting them in the **Billing Options** group and then entering the charge in cents per number of seconds.
21. The **Call Authentication** option enables password protection for outbound and inbound calls on the selected voice/fax channel. If you enable password protection on inbound or outbound calls, you need to enter a password of up to 14 numeric characters in the **Password** box.
22. The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Disconnect After** box. The default value of 180 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).

MultiVOIP Quick Start Guide

23. Click the **Regional Tab** to change the **Tone Pairs** and to select your country/region from the **Country/Region** list.



The **Tone Pairs** group enables you to select and modify the parameters. Click OK when finished.

Click **OK**. The upgrade takes several minutes to complete.

24. From the Program group, double-click **MultiVOIP Configuration**. Click **Phone Book**. The **Phone Directory Database** dialog box displays. You will build your personalized MultiVOIP Phone Directory in the following steps.

Note: The MultiVOIP configured as a "Host" will contain the host database. The host database has the phone numbers of all the MultiVOIPs available for communication on an IP network. This database is downloaded to each Client MultiVOIP as it comes online.

Configuring the Host MultiVOIP

The screenshot shows a dialog box titled "MultiVOIP 100 - Phone Directory Database". At the top, there are three buttons: "Add (+)", "Delete(-)", and "Edit". Below these is a table with four columns: "Phone Number", "IP Address", "Channel", and "Description". The table is currently empty. Below the table, it says "Number of Entries: 0". Under "Database Type", there are two radio buttons: "Host" (which is selected) and "Client". To the right of these is a "Client Status" button. Below the radio buttons is a text field for "Host IP Address:". At the bottom of the dialog are three buttons: "OK", "Cancel", and a help button with a question mark.

Click **Add** to begin building your phone directory database.

25. The **Add/Edit Phone Entry** dialog box displays.


The screenshot shows a dialog box titled "MultiVOIP 100 - Add/Edit Phone Entry". It is divided into two main sections. The "Station Information" section contains text boxes for "Phone Number:" and "Description:", a dropdown menu for "Voice Channel:" (set to "Channel 1"), and a checkbox for "Permit Hunting:". The "MultiVOIP Identification" section has a "Type" group with "Dynamic" and "Static" radio buttons (where "Static" is selected). To the right of this is an "Identified By" group with text boxes for "IP Address:" and "Ethernet: Node ID:". On the right side of the dialog are three buttons: "OK", "Cancel", and a help button with a question mark.

MultiVOIP Quick Start Guide

In the **Station Information** group, enter the unique phone number of the local device connected to Channel 1 in the **Phone Number** box. For example phone number 101.

26. The **Description** is optional, but can be useful in associating the channel to the extension.
27. Enter the **Voice Channel** number corresponding to the phone number entered.
28. Click the **Permit Hunting** box if you want calls to roll over to a second voice/fax channel on an 2, 4, or 8-port client answering MultiVOIP when the first channel is busy.
Note: Hunting will work between channels on the same MultiVOIP. However, hunting between channels on separate MultiVOIPs is not supported in proprietary mode.
Note: The Host MultiVOIP must have a static IP address that the remote MultiVOIP can reference to obtain a downloaded copy of the host phone directory database.
29. In the **MultiVOIP Identification** group, enter the IP address of the Host MultiVOIP in the **IP Address** box. Then obtain the 12-digit Node ID# (0008005xxxxx) from the ID plate on the back panel of the MultiVOIP and enter this number in the **Ethernet Node ID** box. If the ID plate is missing or damaged, you can also Telnet to the MultiVOIP and, on the MultiVOIP Telnet Server menu enter **1** to advance to the Main Menu, then enter **3** for System Information where item 1 is the Ethernet Port Address you want to enter in the **Ethernet Node ID** box.

Configuring the Host MultiVOIP



The dialog box is titled "MultiVOIP 100 - Add/Edit Phone Entry". It contains two main sections: "Station Information" and "MultiVOIP Identification".

Station Information:

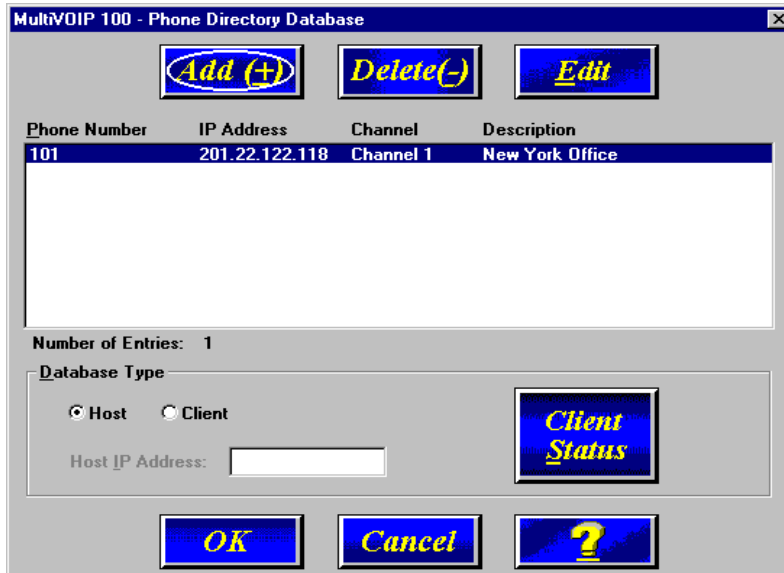
- Phone Number: 101
- Description: New York Office
- Voice Channel: Channel 1 (dropdown menu)
- Permit Hunting

MultiVOIP Identification:

- Type: Dynamic, Static
- Identified By:
 - IP Address: 201.22.122.118
 - Ethernet Node ID: 000800801912

Buttons: OK, Cancel, ?

30. Click **OK** and you are returned to the **Phone Directory Database** dialog box, which now includes phone number 101 with its IP address, channel number, and description.



The dialog box is titled "MultiVOIP 100 - Phone Directory Database". It features a table with one entry and several control buttons.

Buttons: Add (+), Delete(-), Edit

Phone Number	IP Address	Channel	Description
101	201.22.122.118	Channel 1	New York Office

Number of Entries: 1

Database Type: Host, Client

Host IP Address: [text box]

Buttons: Client Status, OK, Cancel, ?

MultiVOIP Quick Start Guide

31. Click **Add** and the **Add/Edit Phone Entry** dialog box displays again.
32. Enter the phone number for the remote MultiVOIP in the **Station Information** group **Phone Number** box. For example, 102.
33. Enter a description for the remote MultiVOIP phone number in the **Description** box.
Note: If the remote MultiVOIP is located behind a proxy server that uses a dynamically assigned IP address, select **Dynamic** (disabling Static IP Address) and leave the IP Address box blank. The Host MultiVOIP will learn the IP address when it is contacted by the remote MultiVOIP.
34. Enter the IP address of the remote MultiVOIP in the **IP Address** box in the **MultiVOIP Identification** group.

The screenshot shows a dialog box titled "MultiVOIP 100 - Add/Edit Phone Entry". It contains two main sections:

- Station Information:**
 - Phone Number: 102
 - Description: Human Resources Desk
 - Voice Channel: Channel 1 (dropdown menu)
 - Permit Hunting
- MultiVOIP Identification:**
 - Type: Dynamic, Static
 - Identified By:
 - IP Address: 201.22.122.119
 - Ethernet Node ID: 00800801935

On the right side of the dialog, there are three buttons: "OK", "Cancel", and a help button with a question mark.

35. Click **OK** and you are returned to the **Phone Directory Database** dialog box, which now includes the second number and related information in the **Phone Number** list.

Configuring the Host MultiVOIP

The screenshot shows a dialog box titled "MultiVOIP 100 - Phone Directory Database". At the top, there are three buttons: "Add (+)", "Delete(-)", and "Edit". Below these is a table with four columns: "Phone Number", "IP Address", "Channel", and "Description". The table contains two entries: 101 (201.22.122.118, Channel 1, New York Office) and 102 (201.22.122.119, Channel 1, Human Resources Desk). Below the table, it says "Number of Entries: 2". Under "Database Type", there are radio buttons for "Host" (selected) and "Client", and a "Client Status" button. There is also a "Host IP Address" text box. At the bottom are "OK", "Cancel", and "?" buttons.

Phone Number	IP Address	Channel	Description
101	201.22.122.118	Channel 1	New York Office
102	201.22.122.119	Channel 1	Human Resources Desk

Number of Entries: 2

Database Type

Host Client

Host IP Address:

Client Status

36. When you have finished, click **OK**. On the Main menu, click **Download Setup**.

37. The **Save Setup** dialog box displays.

The screenshot shows a dialog box titled "MultiVOIP 100 - Save Setup". It contains a checkbox labeled "Save Current Setup as User Default Configuration" which is unchecked. Below this is the text "MultiVOIP will be brought down. OK?". At the bottom are "OK", "Cancel", and "?" buttons.

Save Current Setup as User Default Configuration

MultiVOIP will be brought down. OK?

Click **OK** to proceed.

MultiVOIP Quick Start Guide

38. After the setup is written to the MultiVOIP, the unit is rebooted.
39. Verify that the **BOOT** LED on the MultiVOIP is off after the download is complete. This may take several minutes as the MultiVOIP reboots.
Note: If the Ethernet connection is not active, none of the LEDs will be on after booting. This unit does not have a Power LED.
40. You are returned to your MultiVOIP folder which is open and visible on your desktop.

At this time, your host MultiVOIP is configured. Proceed to the next section to configure the client MultiVOIPs.

Configuring the Client MultiVOIPs

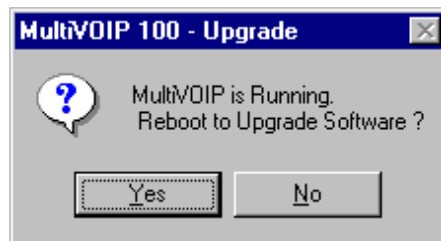
Configuring the Client MultiVOIPs

If you are installing a MultiVOIP behind a firewall, you need to add the following UDP ports to your firewall.

900 Signaling Information	5004 RTP Packets
5000 Status Information	5005 RTCP Packets

Refer to your firewall user documentation to enter and open these ports.

1. Disconnect the PC from the command port of the Host MultiVOIP and connect it to the command port on the Client MultiVOIP.
2. From your desktop, click **Start | Programs | MultiVOIP | Upgrade Software**. The following dialog box displays.



3. Click **Yes**. The **IP Protocol Default Setup** dialog box displays.



The default **Frame Type** is **TYPE_II**. If this does not match your IP network, select the Frame Type from the **Frame Type** list. The Frame Type choices are **TYPE_II** and **SNAP**.

MultiVOIP Quick Start Guide

- In the **Port Address** group, enter the **IP Address** and **IP Mask**. In the **Gateway Address** group, enter the gateway IP address for the client unit.
The IP address is your unique LAN IP address, and the Gateway address is the IP address of the device connected to the Internet/Intranet.
Click **OK** when you are finished. The **Channel Setup** dialog box displays.
- The **Channel Setup** dialog box defines the voice coder, fax parameters, and regional telephone parameters for the voice/fax channel.

MultiVOIP 100 - Channel Setup

Interface Voice/Fax Billing/Security Regional

Interface

FXS

FXD

Dialing Options

Regeneration

Pulse

DTMF

Max Dial Digits: 5

Inter Digit Time (in ms): 2000

Flash Hook Time (in ms): 600

FXD Disconnect On

Current Loss

Tone Detection

Silence Detection

None

Disconnect Tone Sequence

Fax + None

Silence Timer (in seconds): 15

Auto Call

Auto Call Enable

Phone Number

FXS Options

Current Loss

Ring: Count 8

OK Cancel Default ?

- Check with your in-house telephone personnel to verify whether your local PBX dial signalling is **Pulse** or **DTMF** (tone). Select the regeneration option accordingly.

Configuring the Client MultiVOIPs

In the **Max Dial Digits** box, enter the maximum number of digits allowed when dialing a phone number. The default setting is 5. In the **Inter Digit Time** box, enter the maximum amount of time between dialed digits in milliseconds that the unit will wait before mapping the dialed digits to an entry in the Phone Directory Database. If too much time elapses between digits and the wrong numbers are mapped, you hear a rapid busy signal. If this happens, hang up and dial again. This option is available for all interface types. In the **Flash Timer** box, enter the time, in milliseconds, for the duration of flash hook signals output on the interface.

For FXO-to-FXO communications, you can enable a specific **FXO Disconnect: Current Loss, Tone Detection**, or **Silence Detection**. Check with your in-house phone personnel to verify the type of disconnect to use. If **Current Loss** is checked, the VOIP will hang up when it detects a loss of current on the FXO/phone port. For **Tone Detection**, select from the drop down list box one or two tones that will cause the line to disconnect. The person hanging up the call must then press the key or keys that produce those tones to hang up a call. For **Silence Detection**, select **One Way** or **Two Way**. Then enter in the **Silence Timer** box the number of seconds of silence before disconnect. The default value of 15 seconds may be shorter than desired for your application.

To dedicate the local voice/fax channel to a remote voice/fax channel, (so you will not have to dial the remote channel) select the **Auto Call Enable** check box. Enter the phone number of the remote VOIP in the **Phone Number** box.

7. The **Voice/Fax** tab displays the parameters for the voice coder, faxing, DTMF (Dual Tone Multi-Frequency) gain, and the miscellaneous advanced features **Silence Compression**, **Echo Compression**, and **Forward Error Correction**.

MultiVOIP Quick Start Guide

The screenshot shows the 'MultiVOIP 100 - Channel Setup' dialog box with the 'Voice/Fax' tab selected. The dialog has four tabs: 'Interface', 'Voice/Fax', 'Billing/Security', and 'Regional'. The 'Voice/Fax' tab contains the following settings:

- Voice:**
 - Voice Coder: G.723.1 @ 6.3 kbps
 - Input Gain: 0 dB
 - Output Gain: 0 dB
- Fax:**
 - Fax Enable:
 - Max Baud Rate: 14400
 - Fax Volume: -9.5 dB
- DTMF Gain:**
 - Gain High: -4 dB
 - Gain Low: -7 dB
 - Duration: 100 ms
- Miscellaneous:**
 - Silence Compression:
 - Echo Cancellation:
 - Forward Error Correction:

At the bottom of the dialog are four buttons: 'OK', 'Cancel', 'Default', and a help button with a question mark.

To change the voice coder, select the new voice coder entry from the **Voice Coder** list.

If you changed the voice coder, ensure that the same voice coder is used on the voice/fax channel you are calling. Otherwise, you will always get a busy signal.

Note: If **Automatic Coder** is selected, enter the bandwidth in the **Max Bandwidth** box. Check with your Network Administrator to determine available bandwidth.

8. The **Fax** group enables you to select the maximum baud rate for faxes and adjust the fax volume. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.
9. The **Billing/Security** tab displays the parameters for billing options, call authentication, and automatic disconnection.

Configuring the Client MultiVOIPs

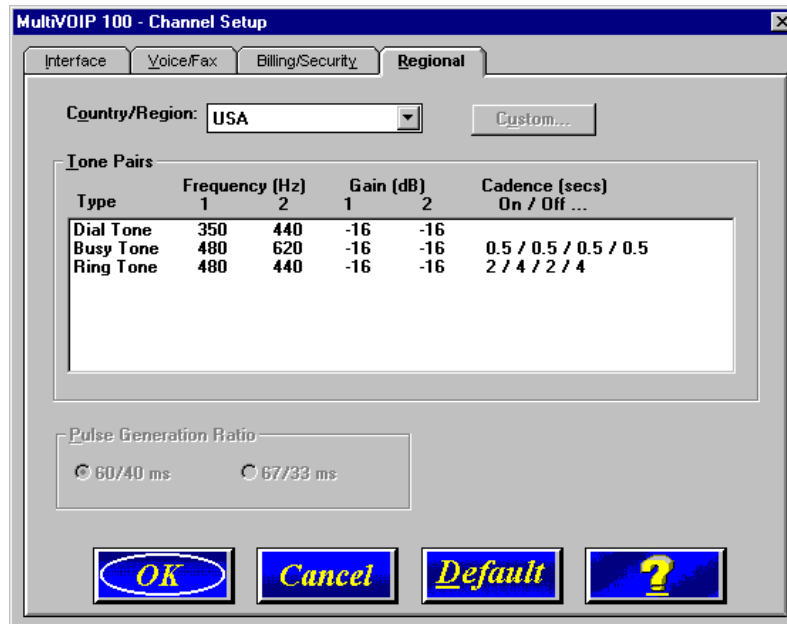
The screenshot shows a dialog box titled "MultiVOIP 100 - Channel Setup" with a close button (X) in the top right corner. The dialog has four tabs: "Interface", "Voice/Fax", "Billing/Security" (which is selected), and "Regional". The "Billing/Security" tab contains three sections:

- Billing Options:** Includes checkboxes for "InBound" and "OutBound". Below these are input fields for "Charge" (set to 5) and "Cents Per" (set to 5), followed by the word "Seconds".
- Call Authentication:** Includes checkboxes for "OutBound" and "InBound". Below these is a "Password:" label followed by an empty text input field.
- Automatic Disconnection:** Includes a checkbox for "Enable". Below this is a "Disconnect After" label followed by an input field (set to 180) and the word "Seconds".

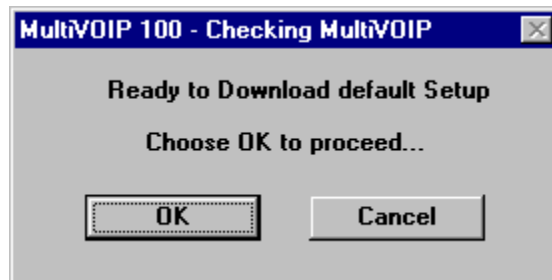
At the bottom of the dialog are four buttons: "OK", "Cancel", "Default", and a question mark icon.

10. You can set up billing options for inbound and outbound calls by selecting them in the **Billing Options** group and then entering the charge in cents per number of seconds.
11. The **Call Authentication** option enables password protection for outbound and inbound calls on the selected voice/fax channel. If you enable password protection on inbound or outbound calls, you need to enter a password of up to 14 numeric characters in the **Password** box.
12. The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Disconnect After** box. The default value of 180 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).
13. Click the **Regional** tab to select your specific country/region from the **Country/Region** list or to change the **Tone Pairs**.

MultiVOIP Quick Start Guide



The **Tone Pairs** group parameters change per your selections. Click **OK**. The following dialog box displays.



14. Click **OK**.

After the download is completed, click **Start | Programs | MultiVOIP | MultiVOIP Configuration**. On the main menu, click **Phone Book** to display the **Phone Directory Database** dialog box.

Configuring the Client MultiVOIPs

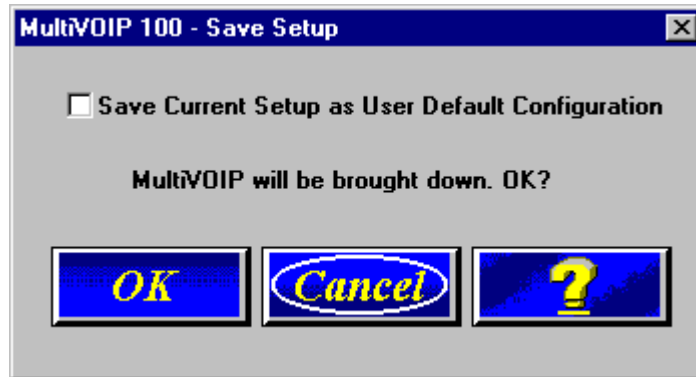
The screenshot shows a window titled "MultiVOIP 100 - Phone Directory Database". At the top, there are three buttons: "Add (+)", "Delete(-)", and "Edit". Below these is a table with four columns: "Phone Number", "IP Address", "Channel", and "Description". The table is currently empty. Below the table, it says "Number of Entries: 0". Underneath is a "Database Type" section with two radio buttons: "Host" (which is selected) and "Client". To the right of these is a "Client Status" button. Below the radio buttons is a "Host IP Address:" label followed by an empty text box. At the bottom of the window are three buttons: "OK", "Cancel", and a help button with a question mark.

In the **Database Type** group, click the **Client** option. The **Host IP Address** box becomes active

15. Enter the IP address of the host MultiVOIP in the **Host IP Address** box.
16. Click **OK** and you are returned to the main menu.

MultiVOIP Quick Start Guide

17. Click **Download Setup** to write the new configuration to the client unit. The **Save Setup** dialog box displays.



18. Select the **Save Current Setup as User Default Configuration** check box and click **OK**. After the setup is written to the MultiVOIP, the unit reboots.
19. Verify that the **Boot** LED on the MultiVOIP is off after the download is complete. This may take several minutes as the MultiVOIP reboots.
20. You are returned to the main menu.

Your MultiVOIP is operational at this time.

Repeat this procedure for each of the client units. When all clients have been configured, proceed with deploying the VOIP network.

Deploying the VOIP Network

Deploying the VOIP network involves the VOIP Administrator developing the VOIP Dialing Directory and deploying the pre-configured client MultiVOIPs to their remote sites. The remote site administrators need only connect power to the pre-configured MultiVOIP, connect it to their Ethernet LAN and predefined telephone equipment, and then wait for the phone directory database to be downloaded.

Perform the following procedure to deploy your VOIP network.

VOIP Administrator

1. Create your VOIP Dialing Directory based on your Phone Directory Database for the numbers to connect the MultiVOIPs to your VOIP network and the telephone extension number you need to connect the Voice/Fax channels. A sample VOIP Dialing Directory is provided below for your consideration and use.

VOIP Dialing Directory		
To Call From	Call Process	Dialing Sequence

2. Send the client MultiVOIPs to their remote sites.

MultiVOIP Quick Start Guide

Remote Site Administrator

1. Connect one end of the power supply to a live AC outlet and connect the other end to the **Power** connection on your MultiVOIP.

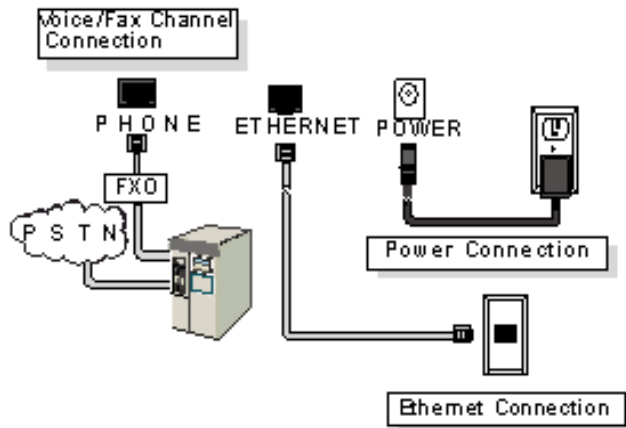


Figure 4. Remote Site Cable Connection

2. Connect a network cable to the **ETHERNET 10Base-T** (RJ-45) connector on the back of your MultiVOIP.
3. If you are connecting to a PSTN or PBX/FXO port, connect one end of an RJ-11 cable to the **Phone** connector on the back of the MultiVOIP and the other end to the PSTN or PBX/FXO port.
4. Turn on power to the MultiVOIP by placing the ON/OFF switch on the right side panel in the ON position. Wait for the Boot LED on the MultiVOIP to go off before proceeding. This may take a couple of minutes.
5. At this time your VOIP network should be fully operational. Dial one of the sites in your network using the dialing directory supplied by your Network Administrator.

Warranty and Regulatory Information

Limited Warranty

Multi-Tech Systems, Inc. ("MTS") warrants that its products will be free from defects in material or workmanship for a period of two years from the date of purchase, or if proof of purchase is not provided, two years from date of shipment. MTS MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty does not apply to any products which have been damaged by lightning storms, water, or power surges or which have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by the customer or any party without MTS's written authorization, or used in any manner inconsistent with MTS's instructions.

MTS's entire obligation under this warranty shall be limited (at MTS's option) to repair or replacement of any products which prove to be defective within the warranty period, or, at MTS's option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS's factory transportation prepaid.

MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PURCHASE PRICE FOR DEFECTIVE PRODUCTS.

FCC Declaration

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

