



Standalone Voice/IP Gateway Model MVP200

Quick Start Guide



Quick Start Guide

82098175 Revision A

MultiVOIP 200 (Model MVP200)

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Record of Revisions

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Patents

This Product is covered by one or more of the following U.S. Patent Numbers: **5.301.274; 5.309.562; 5.355.365; 5.355.653; 5.452.289; 5.453.986.** Other Patents Pending.

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Introduction

Welcome to Multi-Tech's new stand-alone Voice/IP Gateway, the MultiVOIP, model MVP200. The MultiVOIP allows 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 MVP200 has two independent voice/fax channels (each with three voice/fax interfaces), 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 a comprehensive on-line Help system.

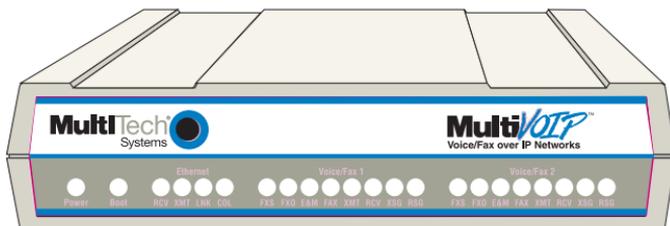


Figure 1. MultiVOIP

Related Documentation

The MultiVOIP200 Quick Start Guide is intended to be used by qualified systems administrators and network managers. This quick start provides the necessary information for a qualified person to unpack, cable, load software, and configure the unit for proper operation.

A detailed MultiVOIP200 User Guide is also provided (on diskette) with your unit and provides in-depth information on the features and functionality of Multi-Tech's MultiVOIP.

The diskette media is produced using Adobe Acrobat™ for viewing and printing the user guide. To view or print your copy of a user guide, load Acrobat Reader™ on your system. The Acrobat Reader is a free download from Adobe's web Site:

<http://www.adobe.com/prodindex/acrobat/readstep.html>

Once loaded on your computer, launch the Reader and select the **.pdf** file from the diskette.

The MultiVOIP200 User Guide is also available on Multi-Tech's Web site at:

<http://www.multitech.com>

Viewing and printing a user guide from the Web also requires that you have the Acrobat Reader loaded on your system. To select the MultiVOIP200 User Guide from the MTS home page, click **Support | Manuals** and then click **MultiVOIP** in the product list. All MultiVOIP documents will be displayed and you can choose *User Guide (MVP200)* to view or download the **.pdf** file.

MultiVOIP Application

In a typical MultiVOIP application, two or more MultiVOIPs are deployed at various sites on the Internet. Each MultiVOIP is assigned a static IP address that must be accessible from the Internet.

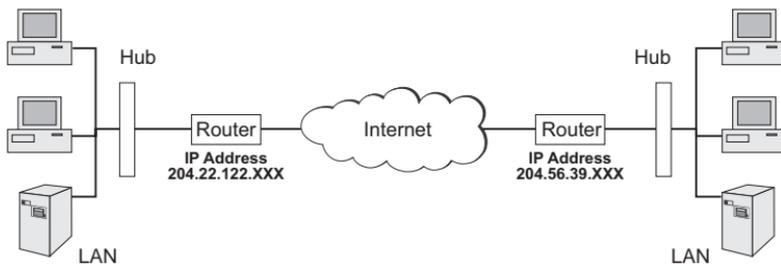


Figure 2. Existing IP Network

When you have an existing network, all you have to do is connect the MultiVOIP into your network, assign a specific static IP address for the MultiVOIP, and then build your personalized phone directory to communicate between MultiVOIPs.

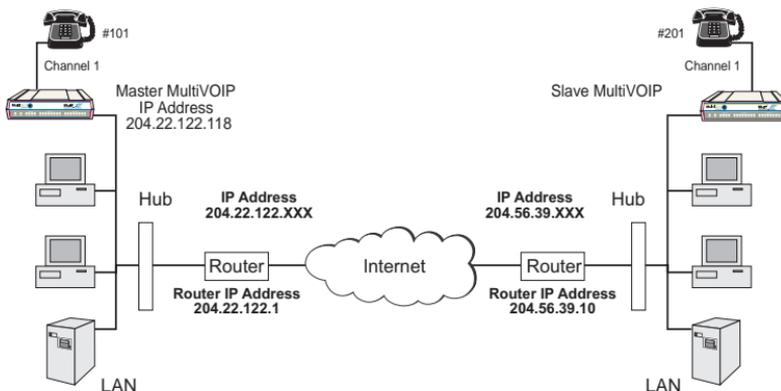


Figure 3. Add MultiVOIPs to Existing IP Network

A phone directory is maintained on one of the MultiVOIPs which is configured as a “master.” This phone directory is retrieved by the remaining “slave” MultiVOIPs on your IP network.

Phone Book			
#	IP Address	Channel	Interface
101	204.22.122.118	1	FXS
201	202.56.39.100	1	FXS

Each phone number entry corresponds to a MultiVOIP’s IP address and associated voice/fax channel number. With this system, you need only update the “master” phone directory when deploying additional MultiVOIPs to your IP network.

In the example application where analog telephones are directly attached to the voice/fax channels; the user simply picks up the attached phone and dials the extension of another MultiVOIP. The phone on the remote MultiVOIP will ring and, if answered, a conversation can take place.

Installing 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.

Phase 1: Configure and Install Your Master MultiVOIP

As the first step, the VOIP administrator configures the MultiVOIP designated as the “Master” unit. This includes the assignment of a unique LAN IP address, subnet mask, and Gateway IP address; as well as the selection of appropriate channel interface type for each of the Voice/Fax channels. Once all connections have been made, the VOIP administrator configures the unit and builds the Phone Directory Database that will reside with the Master unit.

Phase 2: Configure Your Slave MultiVOIP(s)

Once Phase 1 has been completed, the administrator moves on to configure the MultiVOIP(s) designated as “Slave” units. Again, unique LAN IP addresses, subnet masks, and Gateway IP addresses are assigned, and each Voice/Fax channel is configured for the appropriate channel interface type. When this is done, the Phone Directory Database option is set to Slave, and the IP address of the Master MultiVOIP is entered. Once all Slave units are configured, the process moves on to Phase 3.

Phase 3: 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 Slave 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 Master MultiVOIP) will be loaded into their unit within minutes of being connected and powered up.

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.

Unpacking Your MultiVOIP

Remove all items from the box (See Figure 4).

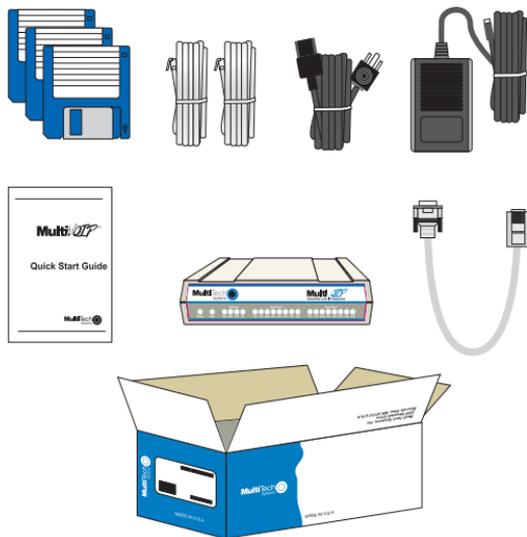


Figure 4. Unpacking

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.

The E&M, FXS, and Ethernet ports are not designed to be connected to a Public Telecommunication Network.

Cabling Your MultiVOIP

Cabling your MultiVOIP involves making the proper Power, Command Port, phone system, and Internet connections.

Figure 5 shows the back panel connectors and the associated cable connections. The following paragraph details the steps necessary for cabling your MultiVOIP.

Note: Before starting to cable your MultiVOIP, perform the E&M Jumper Block Positioning Procedure if either voice/fax channel (1 or 2) will be connected to an E&M trunk that is a Type 1,3,4, or 5 rather than a Type 2 (the default).

Cabling Procedure

- 1 Connect the power supply to a live AC outlet, then connect it to the MultiVOIP as shown in Figure 5. The power connector is a 7-pin circular DIN connector.

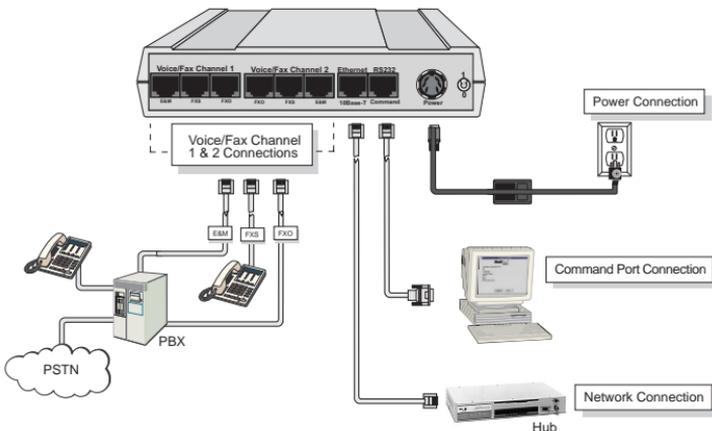


Figure 5. Cable Connections

- 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're using. See Figure 5.

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- 3 Connect a network cable to the **Ethernet 10Base-T** connector on the back of the MultiVOIP. Connect the other end of the cable to your network.
- 4 If you are connecting a station device (e.g., analog telephone, fax machine, or Key Telephone System (KTS) to your MultiVOIP, connect the smaller end of a special adapter cable (supplied) to the **Voice/Fax Channel 1 FXS** connector on the back of the MultiVOIP and the other end to the station device.

If you are connecting a PBX extension to your MultiVOIP, connect the smaller end of a special adapter cable (supplied) to the **Voice/Fax Channel 1 FXO** connector on the back of the MultiVOIP and the other end to the PBX extension.

If you are connecting an E&M trunk from a telephone switch to your MultiVOIP, connect one end of an RJ-45 phone cord to the **Voice/Fax Channel 1 E&M** connector on the back of the MultiVOIP and the other end to the trunk.

If you are connecting to an E&M trunk, you need to ensure that the E&M trunk jumper is in the correct position for the E&M type trunk. The default E&M jumper position is E&M type 2. To change the E&M jumper position, perform the E&M jumper block positioning procedure.

- 5 Repeat the above step to connect the remaining telephone equipment to each Voice/Fax Channel on your MultiVOIP.
- 6 Turn on power to the MultiVOIP by setting the power switch on the back panel to the 1 (up, On) position. Wait for the Boot LED on the MultiVOIP to go Off before proceeding. This may take a couple of minutes.

Proceed to the Software Loading section to load the MultiVOIP software.

E&M Jumper Block Positioning Procedure

Each voice/fax channel on the MultiVOIP has a separate E&M jumper block, located near the jacks on the back panel of the MultiVOIP. Each jumper block has 8 pairs of pins with a jumper plug on three adjacent pairs of pins. The jumper plug must be centered on the E&M type number (see Figure 6) that matches the E&M connection for that channel. Perform the following procedure if you need to move the E&M jumper block from its default (Type 2) position.

- 1 Ensure that the external power supply is disconnected from the MultiVOIP.
- 2 Turn the MultiVOIP upside down and remove the cabinet mounting screw at the center back of the cabinet.
- 3 Turn the MultiVOIP right side up, then slide the base out the rear of the cabinet.

Note: To change a jumper position, lift the jumper plug up off the jumper block, then move it to the new position, ensuring that the middle jumper of the jumper block is centered on the E&M type number (1,3; 4; or 5) as shown on Figure 6.

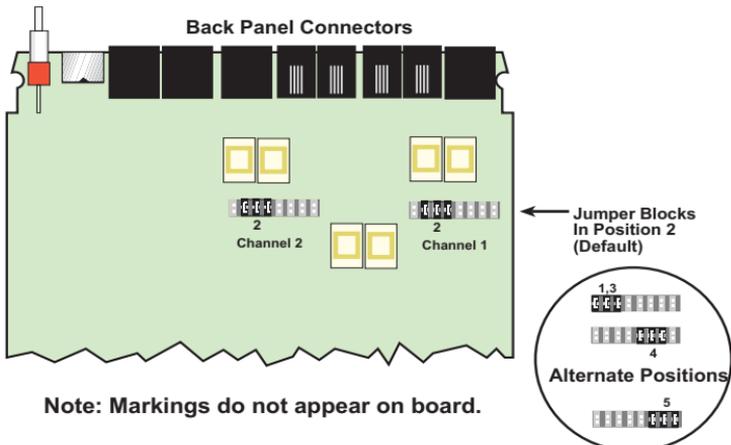


Figure 6. E&M Jumper Block Positions

Phase 1: Configuring Your Master MultiVOIP

Configuring your Master MultiVOIP involves software loading and configuration.

Software Loading

The software loading procedure does not provide every screen or option in the loading process. It is assumed that a technical person with a thorough knowledge of Windows and the software loading process is performing the installation. Additional information on the MultiVOIP software is provided in the User Guide supplied with your MultiVOIP.

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

Q.931 Signaling, Ch1 [900] Q.931 Signaling, Ch2 [902]

Status [5000]

Ch1 RTP [5004]

Ch1 RTCP [5005]

Ch2 RTP [5006]

Ch2 RTCP [5007]

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

- 1 Run Windows on the PC connected to the MultiVOIP.
- 2 Insert the MultiVOIP diskette labeled **Disk 1** into the disk drive on the PC connected to the MultiVOIP.
- 3 *Win3.1 users* - in **Program Manager**, click **File | Run**. In the **Run** dialog box, type **a:\setup** or **b:\setup** (depending on the location of your floppy disk drive) in the **Command Line** field and then click **OK**.

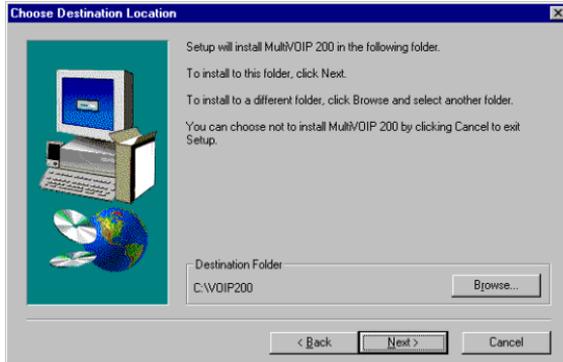
Win95/98/NT users - click **Start | Run**. In the **Run** dialog box click the down arrow and choose **a:\setup** or **b:\setup** (depending on the location of your floppy disk drive), then click **OK**.

- 4 The **MultiVOIP Setup** welcome screen is displayed.



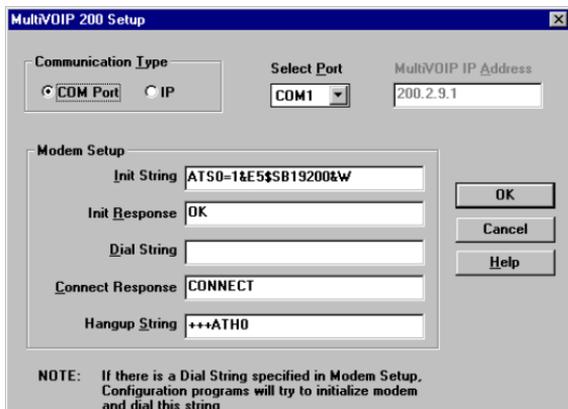
Press **Enter** or click **Next>** to continue.

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



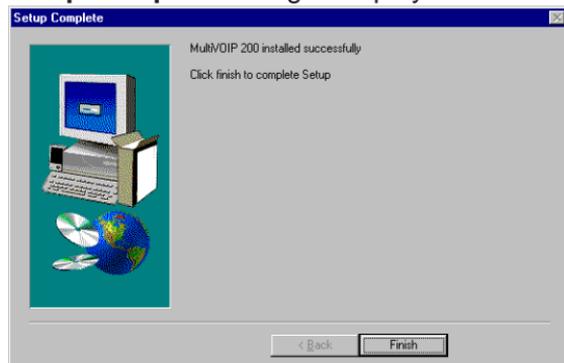
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- 6 The following dialog box selects the COM port of your PC connected to the Command port of the MultiVOIP. From the **Select Port** drop-down list, choose the COM port of your PC.



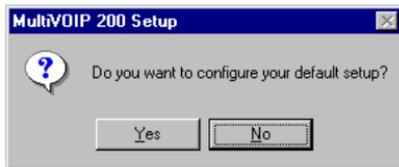
Click **OK** to continue.

- 7 The **Setup Complete** dialog is displayed.



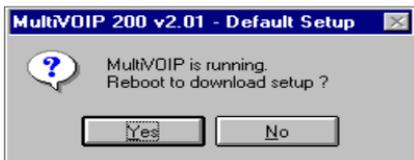
Click **Finish** to continue.

- 8 The following message is displayed:



Click **Yes** to continue.

- 9 The following dialog box is displayed.



Click **YES** to continue.

- 10 The **IP Protocol Default Setup** dialog box is displayed.



The default **Frame Type** is **TYPE_II**. If this does not match your IP network, change the Frame Type by clicking the drop-down arrow and selecting SNAP. The available Frame Type choices are **TYPE_II** and **SNAP**.

- 11 In the **Ethernet** group, enter your unique LAN IP address in the **IP Address** field, then enter the **Subnet Mask** and **Gateway Address** for your LAN in the corresponding fields.

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.

- 12 The **Channel Setup** dialog box is displayed. Its three tabs are used to define the voice/fax channel interface, voice coder, fax parameters, and regional phone parameters (tone pairs) for each channel.



Configure each channel for the type of interface you are connecting to. The Interface tab defaults to **Channel 1** in the **Select Channel** field. To change the channel number, click the drop-down arrow and the list of channels is displayed. Highlight the channel you want to configure.

- 13 The **Interface** group defaults to **FXS (Loop Start)**. Select the interface option that corresponds to the interface type being connected to the Voice/Fax Channel 1 jack on the back panel of the MultiVOIP.

If you are connected to a station device; e.g., an analog telephone, fax machine, or KTS telephone system to the Voice/Fax connector on the back of the unit, **FXS (Loop Start)** will likely be the correct Interface option.

If the station device uses ground start, then choose the **FXS (Ground Start)** option. Refer to the device's user documentation.

If you are using an analog extension from your PBX, then choose the **FXO** option. Check with your in-house phone personnel to verify the connection type.

If you are connecting to an analog trunk on your PBX, then choose the **E&M** option.

If you choose the **FXO** interface, the Dialing Options Regeneration group is enabled. Check with your local in-house phone personnel to verify whether your local PBX dial signaling is **Pulse** or tone (**DTMF**). Then, set the Regeneration option accordingly.

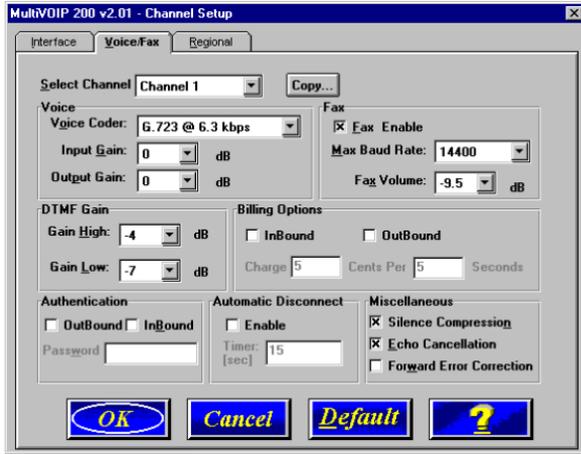
For FXO-to-FXO communications, you can enable a specific type of FXO Disconnect -- either **current loss**, **tone detection**, or **silence detection**. (Check with your in-house phone personnel to verify the preferred type of disconnect to use.) For **tone detection**, you can select from drop-down lists either one or two tones that will cause the line to be disconnected; the person hanging up a call must then hit the key(s) that will produce those tones. For **silence detection**, select **One Way** or **Two Way**, then set the timer for the number of seconds of silence before disconnect. Note: the default value of 15 seconds may be shorter than desired for your application.

If you choose the **E&M** interface, then the E&M Options group is enabled. Check with your local in-house phone personnel to determine if the signaling is **Dial Tone** or **Wink** and if the connection is 2-wire or 4-wire. If Wink signaling is used, then the **Wink Timer** is enabled with a default of 250 milliseconds. The range of the Wink Timer is from 100 to 350 milliseconds. Consult with your local in-house phone personnel for this timer setting.

If you want to dedicate a local voice/fax channel to a remote voice/fax channel (so you will not have to dial the remote channel), click the **Auto Call Enable** option in the **Auto Call** group. Then enter the appropriate phone number in the **Phone Number** field.

Note: After configuring a given channel (1 or 2), you can copy that channel's configuration to the other channel by clicking the **Copy** button. Everything on the **Interface** tab will be copied to the other channel.

- 14 Repeat the above step to configure the interface type for voice/fax channel 2.
- 15 The Voice/Fax tab displays the parameters for the voice coder, faxing, DTMF gain, billing charges for inbound and/or outbound calls, password authentication on inbound and/or outbound calls, and auto disconnect which limits call duration.
- 16 To change the voice coder, first select the channel by clicking the **Select Channel** down arrow and highlighting the channel number, then click the **Voice Coder** down arrow and highlight your new voice coder entry.



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.

- 17 If you selected the FXO interface and are using touchtone dialing, you can set up the DTMF gain (or output level in decibels - dB) for the higher and lower frequency groups of the DTMF tone pair. Make your selections in the drop-down lists in the **DTMF Gain** group.

Note: Only change the DTMF gain under the direction of Multi-Tech Technical Support supervision.

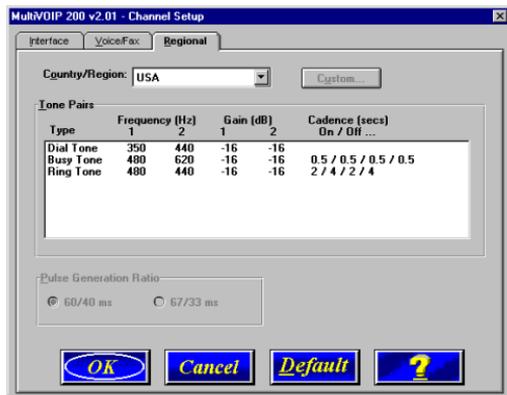
- 18 The **Fax** group enables you to send and receive faxes on the selected voice/fax channel. You can set the maximum baud rate for faxes in the drop-down list in the **Fax** group. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.

- 19 You can set up billing options for inbound and/or outbound calls by checking them in the **Billing Options** group and then typing in the charge in cents per x seconds.
- 20 Password protection can be enabled for outbound and/or inbound calls on the selected voice/fax channel. If you enable password **Authentication** on inbound or outbound calls, you need to also enter a password of up to 14 numeric characters in the **Password** field.
- 21 The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Timer: (sec)** field. The default value of 15 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).

Note: After configuring a given channel (1 or 2), you can copy that channel's configuration to the other channel by clicking the **Copy** button. Everything on the **Voice/Fax** tab will be copied to the other channel.

If your country/region is not the default USA, click the **Regional** tab and proceed to step 22; otherwise, proceed to step 23 to begin building your phone directory database.

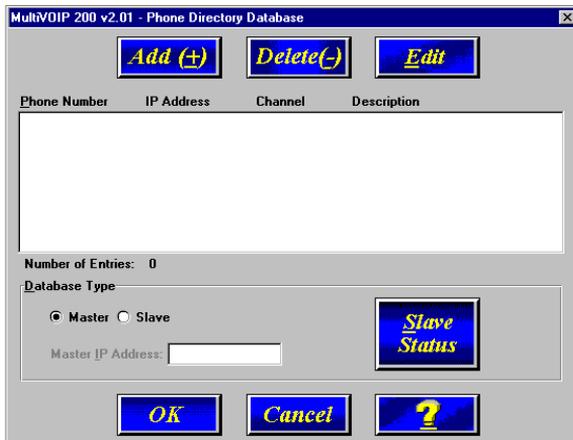
- 22 To change the Tone Pairs on the **Regional** tab, click the **Country/Region** down arrow and highlight your specific country or region.



The **Tone Pairs** group parameters change per your choice. Click **OK** when finished. Proceed to step 23 to begin building your phone directory database.

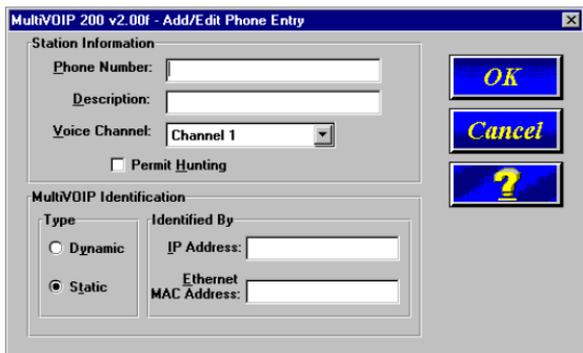
- 23 The **Phone Directory Database** dialog box is displayed. You will build your personalized MultiVOIP Phone Directory in the following steps.

The MultiVOIP configured as a “Master” will contain the master database. The master database has the phone numbers of all the MultiVOIP’s available for communication on an IP network. This database is downloaded to each Slave MultiVOIP as it comes on-line.



Click **Add (+)** to begin building your phone directory database.

- 24 The **Add/Edit Phone Entry** dialog is displayed.



- In the **Station Information** group, enter the unique phone number of the local device connected to Channel 1 in the **Phone Number** field (for example phone number 101).
- 25 The **Description** field is optional, but can be useful in associating the channel to the extension. If you wish, enter a description of your local phone number. This description serves to identify the phone number you entered in the previous step (for example, “Jerry’s Desk”).
- 26 The **Permit Hunting** option enables the answering unit to roll over to a second channel if the first channel is busy. Click **Permit Hunting** if you want the calls to roll over to a second voice/fax channel.

Note: The Master MultiVOIP *must* have a static IP address that the remote MultiVOIP can reference to obtain a downloaded copy of the master phone directory database.

- 27 In the **MultiVOIP Identification** group, enter the IP address of the Master MultiVOIP in the **IP Address** field. For example, 204.22.122.118. 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** field. 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** field.

The screenshot shows a dialog box titled "MultiVOIP 200 v2.00f - Add/Edit Phone Entry". It is divided into two main sections: "Station Information" and "MultiVOIP Identification".

Station Information:

- Phone Number:
- Description:
- Voice Channel:
- Permit Hunting

MultiVOIP Identification:

Type:

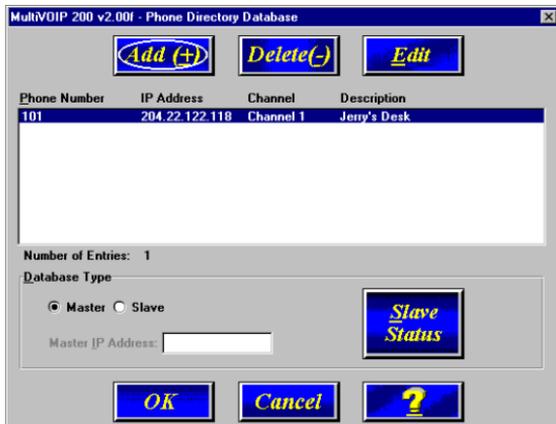
- Dynamic
- Static

Identified By:

- IP Address:
- Ethernet Node ID:

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

- 28 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.



- 29 Click **Add (+)** and the **Add/Edit Phone Entry** dialog box is displayed again.
- 30 Enter the phone number for the remote MultiVOIP in the **Station Information** group **Phone Number** field. For example, 201.
- 31 Click the **Description** field and enter a description for the remote MultiVOIP phone number for Channel 1. For example, "Hari's Office."

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 field blank. The Master MultiVOIP will *learn* the IP address when it is contacted by the remote MultiVOIP.

- 32 Enter the IP address of the remote MultiVOIP in the **IP Address** field in the **MultiVOIP Identification** group. For example, 202.56.39.100.

The dialog box is titled "MultiVOIP 200 v2.00f - Add/Edit Phone Entry". It is divided into two main sections: "Station Information" and "MultiVOIP Identification".

Station Information:

- Phone Number: 201
- Description: Hari's Office
- Voice Channel: Channel 1 (dropdown menu)
- Permit Hunting

MultiVOIP Identification:

- Type: Dynamic, Static
- Identified By:
 - IP Address: 202.56.39.100
 - Ethernet Node ID: 000800501935

Buttons: OK, Cancel, ?

- 33 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.

The dialog box is titled "MultiVOIP 200 v2.00f - Phone Directory Database". It features a table with the following data:

Phone Number	IP Address	Channel	Description
101	204.22.122.118	Channel 1	Jerry's Desk
201	202.56.39.100	Channel 1	Hari's Office

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

Number of Entries: 2

Database Type: Master, Slave

Master IP Address: [text field]

Buttons: OK, Cancel, ?

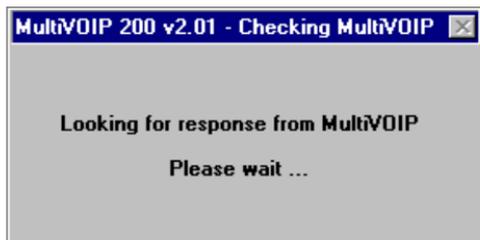
Slave Status button

Note: If only Channel 1 is active, you must enter two phone numbers. The first number will be the local MultiVOIP phone number for Channel 1, and the second number will be the remote MultiVOIP phone number for Channel 1.

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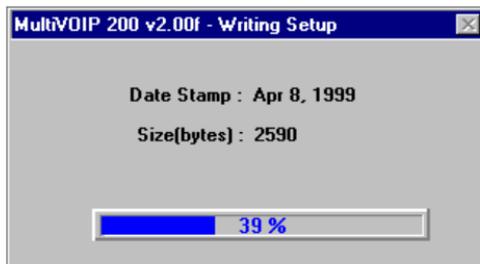
If both Channels 1 and 2 are active, four phone numbers will have to be entered.

- 34 When you have finished, click **OK** to download the setup configuration to the MultiVOIP.
- 35 The **Checking MultiVOIP** dialog box is displayed.

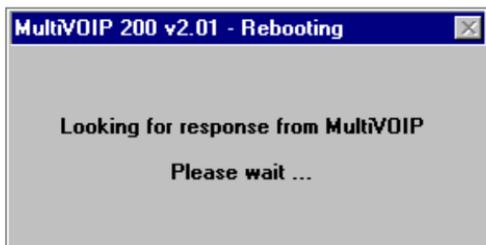


Click **OK** to proceed.

- 36 The **Writing Setup** dialog box is displayed as the setup configuration is written to the MultiVOIP.



- 37 After the setup is written to the MultiVOIP, the unit is rebooted.



- 38 Check to ensure that the **BOOT** LED on the MultiVOIP is Off after the download is complete. This may take several minutes as the MultiVOIP reboots.

- 39 **Win3.1 users** - you are returned to your Program Manager where the MultiVOIP Program Group and Program Items (Windows icons) are displayed.

Win95/98/NT users - you are returned to your MultiVOIP folder which is open and visible on your desktop.

At this time, your master MultiVOIP is configured. Proceed to Phase 2 to configure the slave MultiVOIP(s).

Phase 2: Configure Your Slave MultiVOIPs

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

Q.931 Signaling, Ch1 [900] Q.931 Signaling, Ch2 [902]
Status [5000]

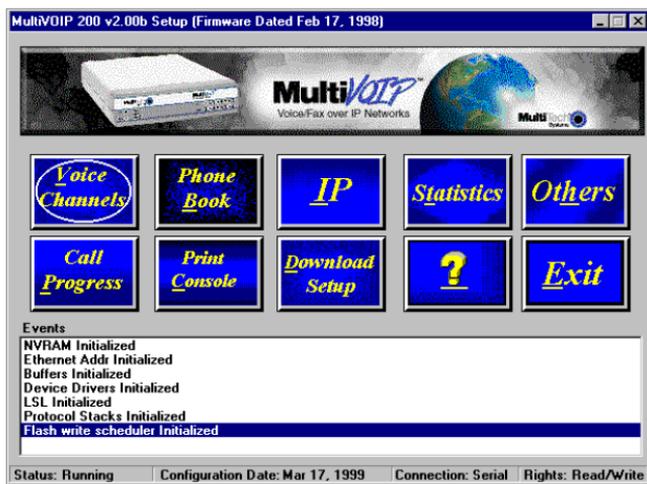
Ch1 RTP [5004] Ch1 RTCP [5005]

Ch2 RTP [5006] Ch2 RTCP [5007]

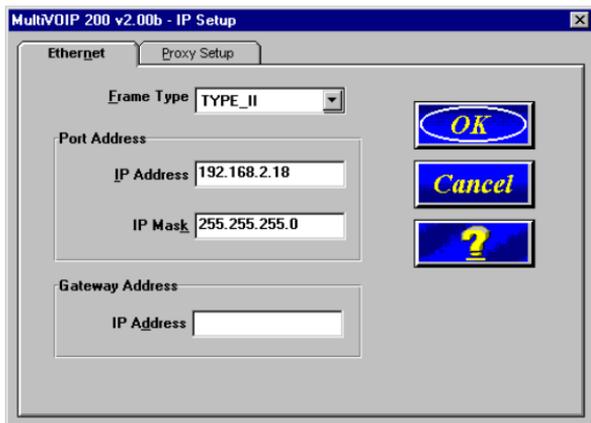
Refer to your firewall user documentation to enter and open these ports.

- 1 Disconnect the PC from the command port of the Master MultiVOIP and connect it to the command port on the Slave MultiVOIP.
- 2 **Win 3.1 users** - from the Program Manager, click the **MultiVOIP Configuration** icon in the MultiVOIP Program Group. The main menu is displayed.

Win95/98/NT users - from your desktop, click **Programs I MultiVOIP I MultiVOIP Configuration**. The main menu is displayed.



- Click **IP** and the **IP Setup** dialog box is displayed.



The default **Frame Type** is **TYPE_II**. If this does not match your IP network, change the Frame Type by clicking on the drop-down arrow. The Frame Type choices are **TYPE_II** and **SNAP**.

- In the **Port Address** group, enter the **IP Address** and **IP Mask**. In the **Gateway Address** group, enter the gateway IP address for the slave 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 main menu is displayed.

- From the main menu, click **Voice Channels** and the **Channel Setup** dialog box is displayed. The three tabs in this dialog box define the channel interface, voice coder, fax parameters, and regional telephone parameters for each channel.



- Configure each channel for the type of interface you are connecting to. The Interface tab defaults to **Channel 1** in the **Select Channel** group. To change the channel number, click the down arrow for the Select Channel and a drop down menu appears with all the channels displayed. Highlight the channel number you want to configure.
- The **Interface** group defaults to **FXS (Loop Start)**. Select the interface option to correspond to the interface type being connected to the Voice/Fax connector on the back panel of the MultiVOIP.

If you are connecting a station device, e.g., analog telephone, fax machine, or Key Telephone System (KTS) to the Voice/Fax connector on the back of the unit, then the **FXS (Loop Start)** will likely be the correct Interface option.

If the station device uses ground start, choose the **FXS (Ground Start)** option. Refer to the device's user documentation.

If you are using an extension from your PBX, then choose the **FXO** option. Check with your in-house telephone personnel to verify connection type.

If you chose an **FXO** interface, then the Dialing Options Regeneration group is enabled. Check with your local in-house telephone personnel to verify whether your local PBX dial signaling is **Pulse** or tone (**DTMF**). Set the Regeneration option accordingly.

For FXO-to-FXO communications, you can enable a specific type of FXO Disconnect -- either **current loss**, **tone detection**, or **silence detection** (Check with your in-house phone personnel to verify the preferred type of disconnect to use). For **tone detection**, you can select from drop-down lists either one or two tones that will cause the line to be disconnected; the person hanging up a call must then hit the key(s) that will produce those tones. For **silence detection**, select **One Way** or **Two Way**, then set the timer for the number of seconds of silence before disconnect.

Note: the default value of 15 seconds may be shorter than desired for your application.

If you are connecting to a trunk on your PBX, then choose the **E&M** option.

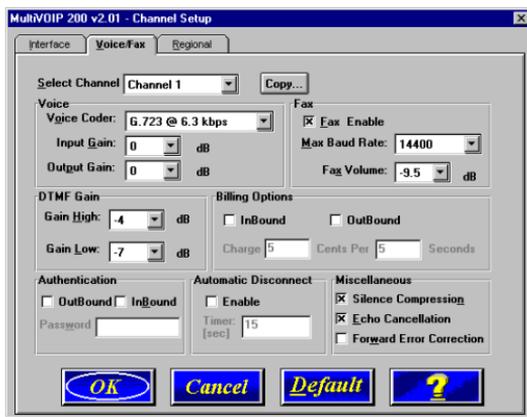
If you chose **E&M** interface, then the E&M Options group is enabled. Check with your local in-house telephone personnel to determine if the signaling is Dial Tone or Wink and if the connection is 2-wire or 4-wire. If Wink signaling is used, then the Wink Timer is enabled with a default of

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250 milliseconds. The range of the Wink Timer is from 100 to 350 milliseconds. Consult with your local in-house telephone personnel for this timer setting.

If you want to dedicate a local voice/fax channel to a remote voice/fax channel (so you will not have to dial the remote channel), click the **Auto Call Enable** option in the **Auto Call** group. Then enter the appropriate phone number in the **Phone Number** field.

- 7 Repeat the above step to configure the interface type for voice/fax Channel 2.
- 8 The Voice/Fax tab displays the parameters for the voice coder, faxing, DTMF gain for FXO interface, billing charges for inbound and/or outbound calls, password authentication on inbound and/or outbound calls, and auto disconnect which limits call duration.
- 9 To change the voice coder, first select the channel by clicking the **Select Channel** down arrow and highlighting the channel number, then click the **Voice Coder** down arrow and highlight your new voice coder entry.



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.

- 10 If you selected the FXO interface and are using Touchtone dialing, you can set up the DTMF gain (or output level in decibels - dB) for the higher and lower frequency groups of the DTMF tone pair. Make your selections in the drop-down lists in the **DTMF Gain** group.

Note: Only change the DTMF gain under the direction of Multi-Tech Technical Support supervision.

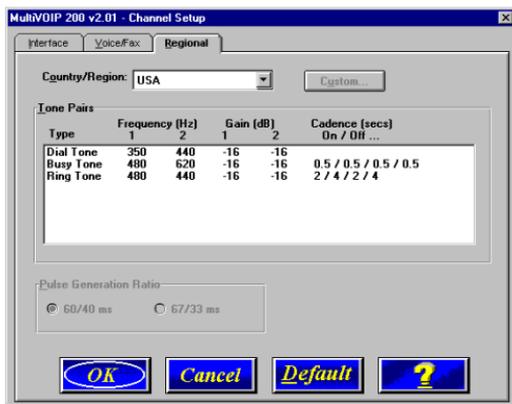
- 11 The **Fax** group enables you to send and receive faxes on the selected voice/fax channel. You can set the maximum baud rate for faxes in the drop-down list in the **Fax** group. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.
- 12 You can set up billing options for inbound and/or outbound calls by checking them in the **Billing Options** group and then typing in the charge in cents per x seconds.
- 13 Password protection can be enabled for outbound and/or inbound calls on the selected voice/fax channel. If you enable password **Authentication** on inbound or outbound calls, you need to also enter a password of up to 14 numeric characters in the **Password** field.
- 14 The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Timer: (sec)** field. The default value of 15 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).

Note: After configuring a given channel (1 or 2), you can copy that channel's configuration to the other channel by clicking the **Copy** button. Everything on the **Voice/Fax** tab will be copied to the other channel.

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If your country/region is not the default USA, click the **Regional** tab and proceed to step 15; otherwise, proceed to step 16 to set up your phone directory database.

- 15 To change the call progress signaling for your **Country/Region**, click the down arrow and highlight your specific country or region.

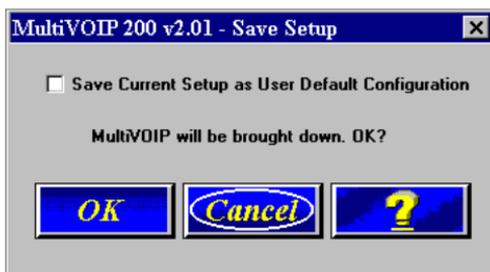


The **Tone Pairs** group parameters change per your choice. Click **OK** and you are returned to the main menu.

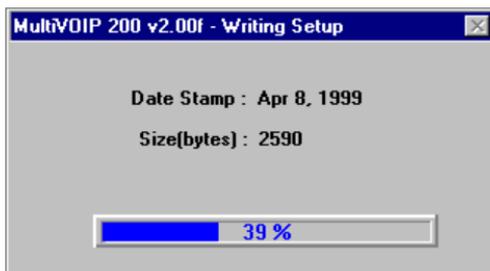
- 16 From the main menu, click **Phone Book** to display the **Phone Directory Database** dialog box.



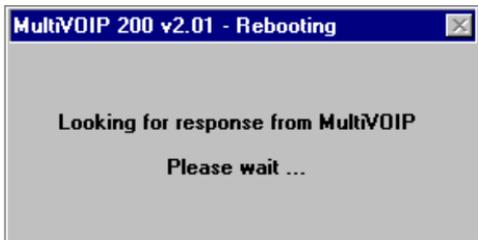
- In the **Database Type** group, click the **Slave** option.
The **Update Database From** group becomes active.
- 17 Enter the IP address of the master MultiVOIP in the **Master IP Address** field.
 - 18 Click **OK** and you are returned to the main menu.
 - 19 Click **Download Setup** to write the new configuration to the slave unit. The **Save Setup** dialog box is displayed.



- 20 Select (check) **Save Current Setup as User Default Configuration** and click **OK**. The **Writing Setup** dialog box is displayed as the setup configuration is written to the MultiVOIP.



After the setup is written to the MultiVOIP, the unit reboots.



21 Check that the **Boot** LED on the MultiVOIP is Off after the download is complete. This may take several minutes as the MultiVOIP reboots.

22 You are returned to the main menu.

Your MultiVOIP is operational at this time.

Repeat Phase 2 for each of the slave units. When all slaves have been configured, proceed with Phase 3.

Phase 3: Deploy the VOIP Network

Phase 3 involves the VOIP Administrator developing the VOIP Dialing Directory and deploying the pre-configured slave 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 Establish your VOIP Dialing Directory based on your Phone Directory Database for the numbers to connect the MultiVOIP's 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 slave MultiVOIPs to their remote sites.

Remote Site Administrator

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

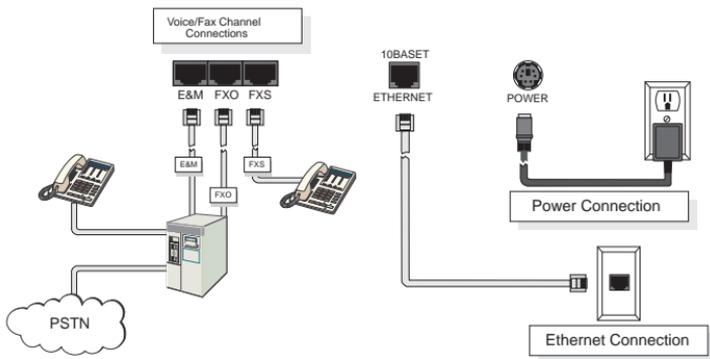


Figure 5. Remote Site Cable Connection

- 5 Connect a network cable to the **ETHERNET 10Base-T** (RJ-45) connector on the back of your MultiVOIP.
- 6 If you are connecting a station device (e.g., analog telephone, fax machine, or Key Telephone System (KTS)) to your MultiVOIP, connect the smaller end of a special adapter cable (supplied) to the **Voice/Fax Channel 1 FXS** connector on the back of the MultiVOIP and the other end to the station device.

If you are connecting a PBX extension to your MultiVOIP, connect the smaller end of a special adapter cable (supplied) to the **Voice/Fax Channel 1 FXO** connector on the back of the MultiVOIP and the other end to the PBX extension.

If you are connecting an E&M trunk from a telephone switch to your MultiVOIP, connect one end of an RJ-45 phone cord to the **Voice/Fax Channel 1 E&M** connector on the back of the MultiVOIP and the other end to the trunk phone jack.

If you are connecting to an E&M trunk, you need to ensure that the E&M trunk jumper is in the correct position for the E&M type trunk. The default E&M jumper position is E&M type 2. To change the E&M jumper position, perform the E&M jumper block positioning procedure.

- 7 Repeat the above step to connect the remaining telephone equipment to each Voice/Fax Channel on your MultiVOIP.
- 8 Turn on power to the MultiVOIP by placing the ON/OFF switch on the back 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 to go OFF.
- 9 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.

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.

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:

Phone:

(800) 972-2439 (USA and Canada)

(612) 785-3500 (international and local)

Internet:

http://www.multitech.com/_forms/email_tech_support.htm

Please have your product information available, including model and serial number.

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.

