AudioCodes Systems for Wireline Networks

Mediant™ 2000 VoP Media Gateway

Mediant™ 2000 Fast Track Installation Guide
MGCP, MEGACO, H.323 & SIP

Version 4.4

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AudioCodes

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used. Only industry-standard terms are used throughout this manual. Hexadecimal notation is indicated by 0x preceding the number.

Related Documentation

For more detailed information than in this Fast Track Guide, you are directed to the following AudioCodes documents:

"Mediant 2000 MGCP-MEGACO User's Manual", Document #. LTRT-698xx (e.g., LTRT-69801)

"Mediant 2000 TrunkPack/Mediant Series Release Notes", Document #. LTRT-819xx

"Mediant 2000 H.323 User's Manual", Document #. LTRT-699xx

"Mediant 2000 H.323 Release Notes", Document #. LTRT-696xx

"Mediant 2000 SIP User's Manual", Document #. LTRT-688xx

"Mediant 2000 SIP Release Notes", Document #. LTRT-690xx

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1   Quick Setup for the Mediant 2000

This guide provides information on how to install the **Mediant 2000** for the first time. Prior knowledge of IP networks is required.

Refer to the configuration procedures, outlined in Figure 1-1, for information on how to install, initialize and configure the device. For detailed information on how to *fully* configure the gateway, refer to the **Mediant 2000** User's Manual.

Figure 1-1: Required Steps to Install the Mediant 2000

1	Unpack the Mediant 2000	Refer to Section 2.1
2	Mount the Mediant 2000	Refer to Section 2.2
3	Connect the cables on the Mediant 2000	Refer to Section 2.3
4	Initialize the Mediant 2000	Refer to Section 3
5	Provision MGCP/MEGACO Parameters Provision H.323 Parameters Provision SIP Parameters	
6	Configure the PSTN Parameters	Refer to Section 3.5
7	Change the Mediant 2000 password	Refer to Section 4
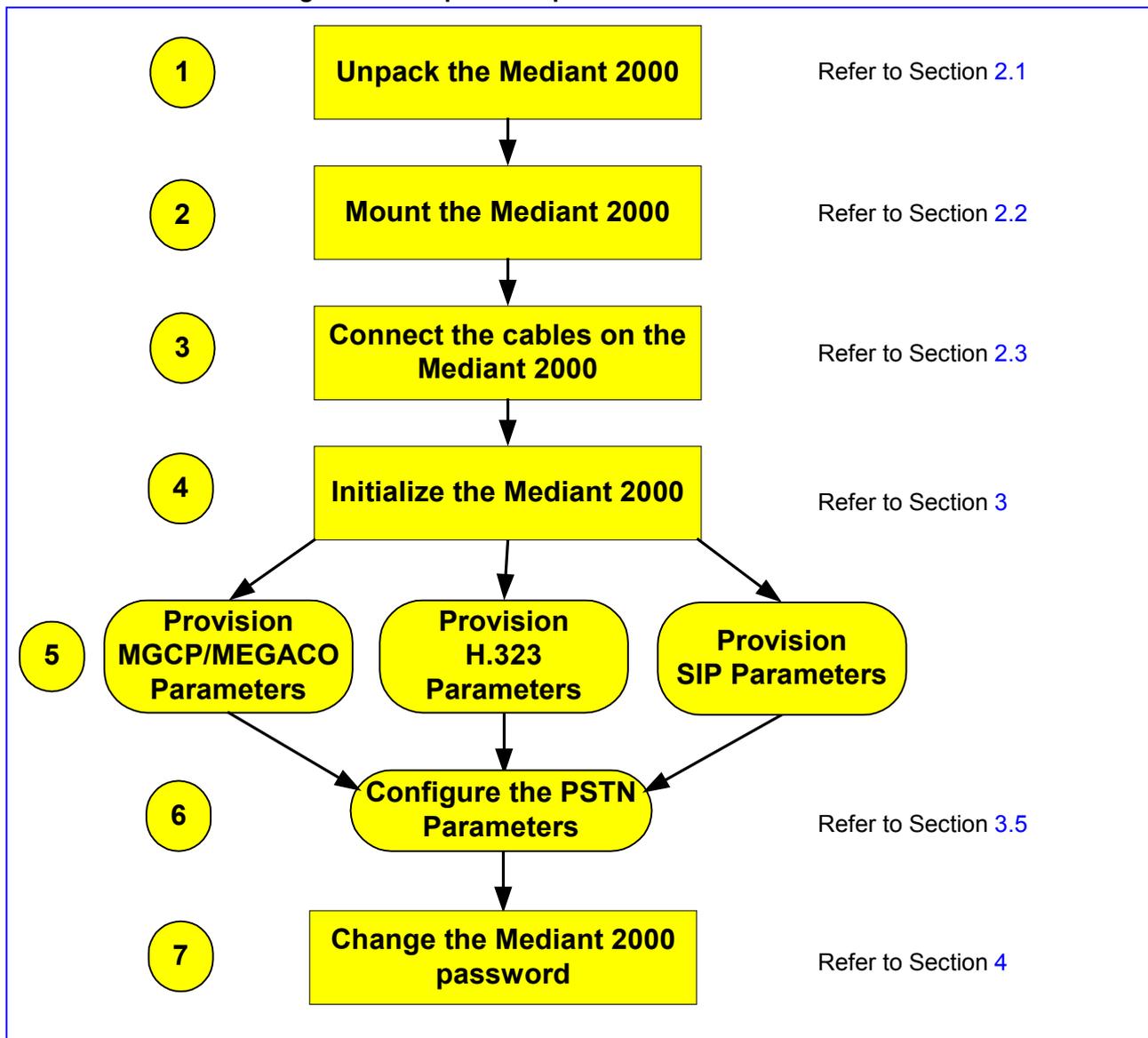
2   Installing the Mediant 2000

Figure 2-1 shows the front view of AudioCodes' **Mediant 2000** media gateway. For information on the **Mediant 2000** LEDs refer to Section 6.1 on page 25.

Figure 2-1: Mediant 2000 Gateway Front View
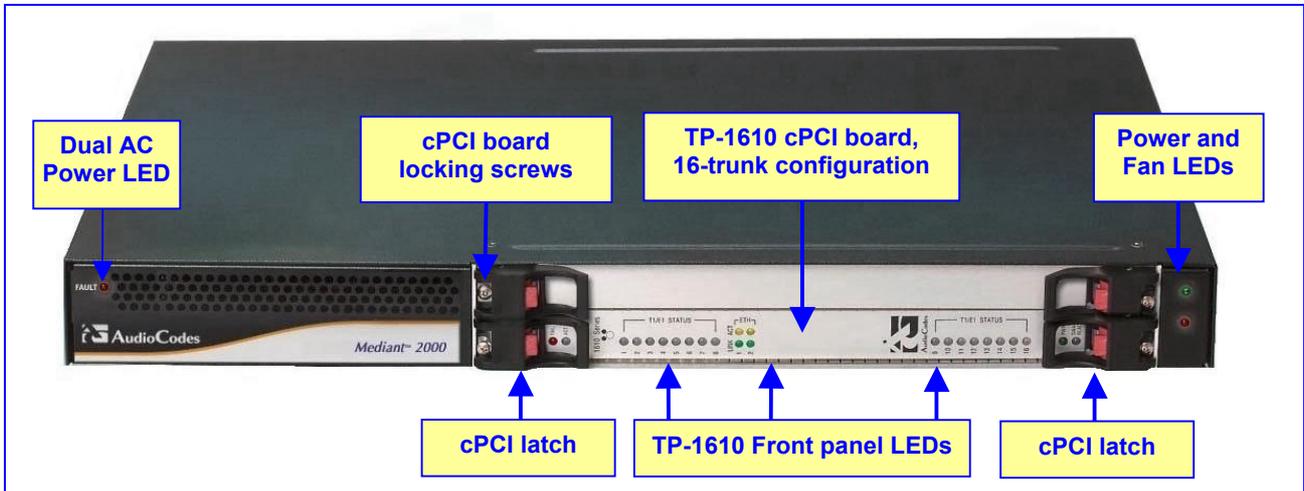
Caution Electrical Shock

The equipment must only be installed or serviced by qualified service personnel.

> ➢ **To install the Mediant 2000 take these 3 steps:**

1. Unpack the **Mediant 2000** (refer to Section 2.1 below).

2. Mount the **Mediant 2000** (refer to Section 2.2 on page 7).

3. Cable the **Mediant 2000** (refer to Section 2.3 on page 9).

After powering-up the **Mediant 2000**, the Ready and LAN LEDs on the front panel turn to green (after a self-testing period of about 60 seconds). Any malfunction changes the Ready LED to red (refer to Section 6.1 on page 25 for details on the **Mediant 2000** LEDs).

You're now ready to get started with the Software Initialization procedure (Section 3 on page 14).

2.1   Unpacking

Electrical Component Sensitivity

Electronic components on printed circuit boards are extremely sensitive to static electricity. Normal amounts of static electricity generated by clothing can damage electronic equipment. To reduce the risk of damage due to electrostatic discharge when installing or servicing electronic equipment, it is recommended that anti-static grounding straps and mats be used.

> ➢ **To unpack the Mediant 2000 take these 6 steps:**

1. Open the carton and remove packing materials.

2. Remove the **Mediant 2000** gateway from the carton.

3. Check that there is no equipment damage.

4. Check, retain and process any documents.

5. Notify AudioCodes or your local supplier of any damage or discrepancies.

6. Retain any diskettes or CDs.

2.1.1 Package Contents

Ensure that the **Mediant 2000** package contains (in addition to the device):

- For the dual AC power supply version, two AC power cables are supplied; for the single AC power supply version, one AC power cable is supplied.

- For the DC power supply version, one connectorized DC power cable (screw connection type) and one DC adaptor (crimp connection type) connected to the rear panel of the **Mediant 2000**; use only one type.

- CD (software and documentation).

- Small plastic bag containing (refer to Figure 2-2):

  ➢ Two brackets and four bracket-to-device screws for 19-inch rack installation option.

  ➢ Four anti-slide bumpers for desktop installation.

Figure 2-2: Plastic Bag Contents

2.2 Mounting the Mediant 2000

AudioCodes' **Mediant 2000** can be mounted on a desktop, or installed in a standard 19-inch rack. Refer to Section 2.3 on page 9 for cabling the **Mediant 2000**.

2.2.1 Mounting the Mediant 2000 on a Desktop

No brackets are required. Optionally, attach the four (supplied) anti-slide bumpers to the base of the **Mediant 2000** and place it on the desktop in the position you require.

2.2.2 Installing the Mediant 2000 in a 19-inch Rack

Users can install the device in a standard 19-inch rack either by placing the device on a shelf preinstalled in the rack (preferred method), or by attaching the device directly to the rack's frame via integral brackets.

Before rack mounting the chassis, attach the two (supplied) brackets to the front sides of the device (refer to Figure 2-3).

➢ **To attach the two supplied brackets to the front sides of the device, take these 3 steps:**

1. Remove the 2 screws nearest the front panel on either side of the device.

2. Align a bracket over 2 holes on one side (so that the bracket's larger holes face front) and with the 2 supplied *replacement* screws, screw in the bracket.

3. Perform the same procedure on the other side.

Figure 2-3: Mediant 2000 Front View with Side Brackets

Rack Mount Safety Instructions (UL)

When installing the chassis in a rack, be sure to implement the following safety instructions recommended by Underwriters Laboratories:

- **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation on the equipment is not compromised.
- **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropri-ate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips.)

➢ **To attach the device directly to a 19-inch rack's frame take these 3 steps:**

1. Position the device in your 19-inch rack and align the left-hand and right-hand bracket holes to holes (of your choosing) in the vertical tracks of the 19-inch rack.

2. Use standard 19-inch rack bolts (not provided) to fasten the device to the frame of the rack.

3. AudioCodes recommends using two additional (not supplied) rear mounting brackets to provide added support.

⚠️ Users assembling the rear brackets by themselves should note the following:
- The distance between the screws on each bracket is 26.5 mm.
- To attach the brackets, use 4-40 screws with a maximal box penetration length of 3.5 mm.

➤ **To place the device on a 19-inch rack's shelf take these 2 steps:**

1. Place the device on the shelf.

2. You're now recommended to take the optional steps of fastening the device to the frame of the rack (as described above) while it is placed on the shelf, so preventing it from sliding when inserting cables into connectors on the rear panel.

2.3   Cabling the Mediant 2000

The **Mediant 2000** is available in *all configuration combinations*, i.e., AC or DC, in the 16-trunk, 8-trunk, 4-trunk, 2-trunk or 1-trunk device. The 16-trunk dual AC (Figure 2-4) and the 8-trunk DC (Figure 2-5) configuration combinations are illustrated here *as representative*.

Figure 2-4: Mediant 2000 Rear Panel Cabling (16 Trunks, AC Power)

Two Category 5 LAN cables, connected to the Ethernet 1 and 2 RJ-45 ports

Two 50-pin Telco connector cables, each supporting 8 trunks

Grounding screw

Dual AC power cables
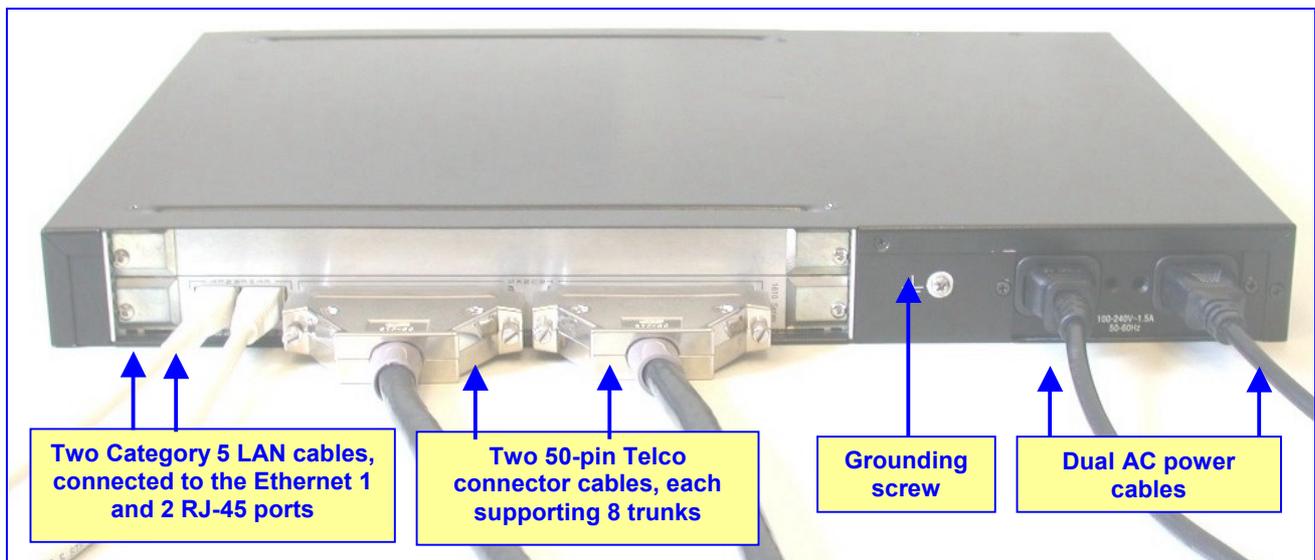
Figure 2-5: Mediant 2000 Rear Panel Cabling (8 Trunks, DC Power))

A Category 5 LAN cable, connected to the Ethernet 1 RJ-45 port

8 RJ-48c ports, each supporting a trunk

Grounding screw

2-pin connector for DC
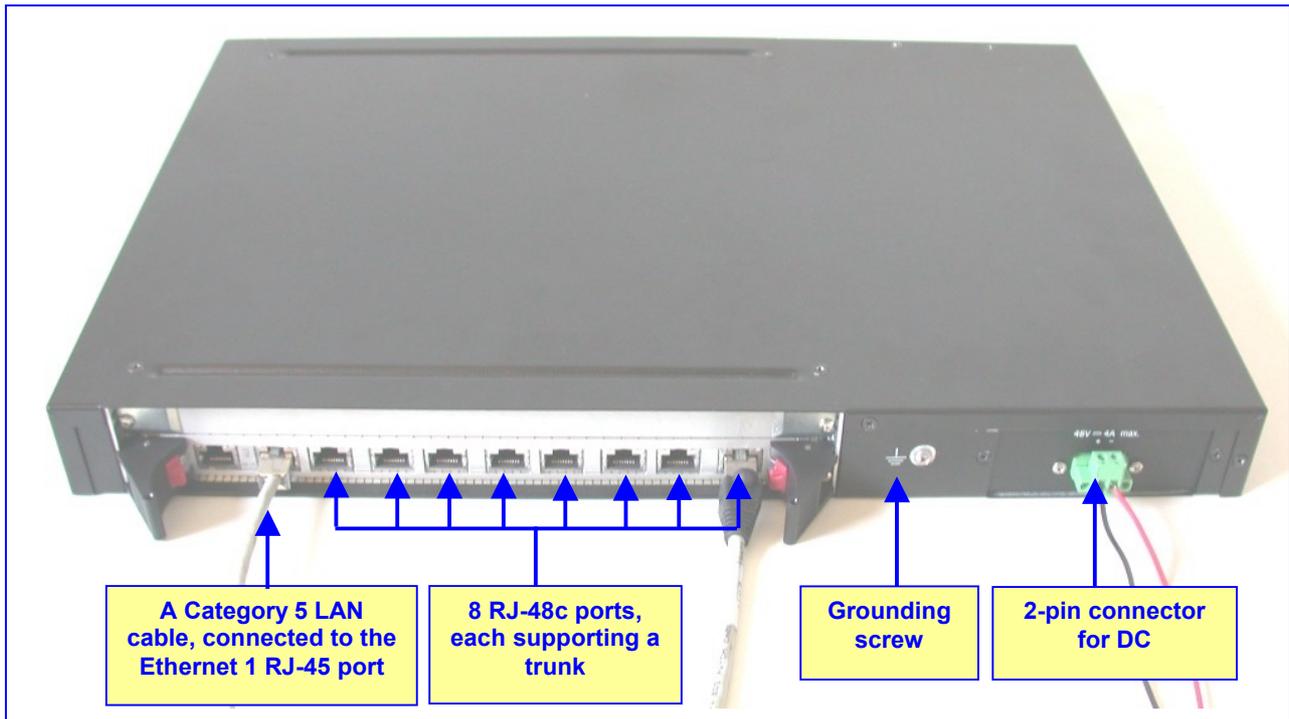
Electrical Grounding

The unit must be permanently connected to ground via the screw provided at the back on the unit. Use 14-16 AWG wire and a proper ring terminal for the grounding.

➢ **To cable the Mediant 2000 take these 4 steps:**

1. Permanently connect the device to a suitable ground with the grounding screw on the rear connector panel, using 14-16 AWG wire.

2. Connect the E1/T1 trunk interfaces (refer to Section 2.3.1 below).

3. Install the Ethernet connection (refer to Section 2.3.2 on page 11).

4. Connect the power supply (refer to Section 2.3.3 on page 12).

2.3.1 Connecting the E1/T1 Trunk Interfaces

Connect the **Mediant 2000** E1/T1 Trunk Interfaces using one of to following methods:

➢ **If you are using Trunk cables with 50-pin Telco connectors (16-trunk device), take these 3 steps:**

1. Attach the Trunk cable with a 50-pin male Telco connector to the 50-pin female Telco connector labeled "Trunks 1→8" on the Rear Transition Module (RTM).

2. Connect the other end of the Trunk cable to the PBX/PSTN switch, or to an MDF adaptor.

3. Repeat steps 1 and 2 for the other Trunk cable but this time connect it to the connector labeled "Trunks 9→16".

The 50-pin male Telco cable connector must be wired according to the pinout in Table 2-1 on page 11, and to mate with the female connector illustrated in Figure 2-6.

Figure 2-6: 50-pin Female Telco Board-Mounted Connector
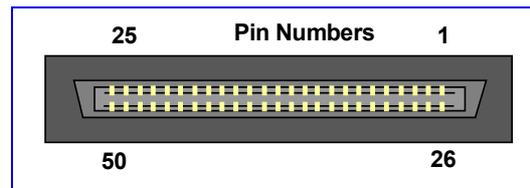
Table 2-1: E1/T1 Connections on each 50-pin Telco Connector

E1/T1 Number		Tx Pins (Tip/Ring)	Rx Pins (Tip/Ring)
1 to 8	9 to 16		
1	9	27/2	26/1
2	10	29/4	28/3
3	11	31/6	30/5
4	12	33/8	32/7
5	13	35/10	34/9
6	14	37/12	36/11
7	15	39/14	38/13
8	16	41/16	40/15

➢ **If you are using Trunk cables with RJ-48c Connectors, take these 2 steps:**

1. Connect the E1/T1 trunk cables to the ports labeled "Trunks 1 to 8" (in the case of the 8-trunk device) on the **Mediant 2000** RTM.

2. Connect the other ends of the Trunk cables to the PBX/PSTN switch.

RJ-48c trunk connectors are wired according to Figure 2-7 below.

Figure 2-7: Pinout of RJ-48c Trunk Connectors
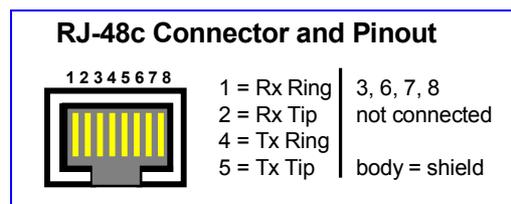
2.3.2   Installing the Ethernet Connection

When initializing (connecting the **Mediant 2000** to the PC for the first time) use one of the following two methods:

- Either use an Ethernet cross-over cable to directly connect the network card on your computer to one of the RJ-45 jacks on the **Mediant 2000**.

- Or use a standard Ethernet cable to connect the network card on your computer to a port on a network hub/switch. Use a second standard Ethernet cable to connect the **Mediant 2000** to another port on the same network hub/switch.

For normal use, connect a standard Category 5 LAN cable to the Ethernet RJ-45 port (and the other as optional redundancy/backup). Connect the other end of the Category 5 LAN cables to your IP network. The Ethernet connectors (labeled Ethernet 1 and Ethernet 2) are wired according to Figure 2-8.

Note that for redundant operation it is recommended to connect each of the Ethernet connectors to a different Switch.

Figure 2-8: Pinout of RJ-45 LAN Connectors

RJ-45 LAN Connector and Pinout


```
1 2 3 4 5 6 7 8       1 = Tx+    4, 5, 7, 8
                      2 = Tx-    not connected
                      3 = Rx+
                      6 = Rx-
```
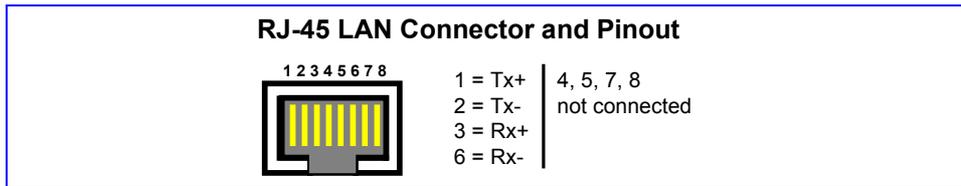
2.3.3 Connecting the Power Supply

Connect the **Mediant 2000** to the power supply using one of the following methods:

2.3.3.1 Connecting the AC Power Supply

➢ **If you are using a single AC power cable:**

Attach one end of the supplied 100/240 VAC power cable to the rear AC socket and connect the other end to the correct grounded AC power supply.

➢ **If you are using a dual AC power cable:**

Attach one end of the supplied 100/240 VAC power cables to the rear AC sockets and connect the other end to a separate grounded mains circuits (for power source redundancy).

> **Note:** For the dual AC connection note the following:
>
> - The LED on the left side of the chassis is only connected when the dual AC is used. It is not relevant to the single AC power connection.
> - If only a single socket is connected to the AC power, (while the other plug is left unconnected) the chassis' LED illuminates Red, indicating a failure.
> - When both the AC power cables are connected, one of the plugs can be disconnected under power without affecting operation.
> - UPS can be connected to either of the AC connections.
> - The dual AC connections provide load-sharing redundancy.

2.3.3.2 Connecting the DC Power Supply

To connect the **Mediant 2000** to a DC power supply use one of these two options:

- DC Terminal block with a screw connection type.
- DC Terminal block with a crimp connection type.

➢ **If you are using terminal block with a screw connection type take these 3 steps:**

1. Create a DC cable by inserting two 14-16 AWG wires into the supplied adaptor (refer to Figure 2-9) and fasten the two screws, each one located directly above each wire.

2. Connect the two insulated wires to the correct DC power supply. Ensure that the connections to the DC power supply maintain the correct polarity.

3. Insert the terminal block to the DC inlet located on the **Mediant 2000**.

Figure 2-9: DC Power Connector with a Screw Connection Type Terminal Block

➢ **If you are using a terminal block with a crimp connection type take these 3 steps:**

1. Remove the DC adaptor (screw connection type) that is attached to the **Mediant 2000** rear panel.

2. Connect the two insulated wires to the correct DC power supply. Ensure that the connections to the DC power supply maintain the correct polarity (refer to Figure 2-10).

3. Insert the terminal block to the DC inlet located on the **Mediant 2000**.

Figure 2-10: Terminal Block with a Crimp Connection Type

2 screws for connecting the crimp terminal block to the Mediant 2000 rear panel
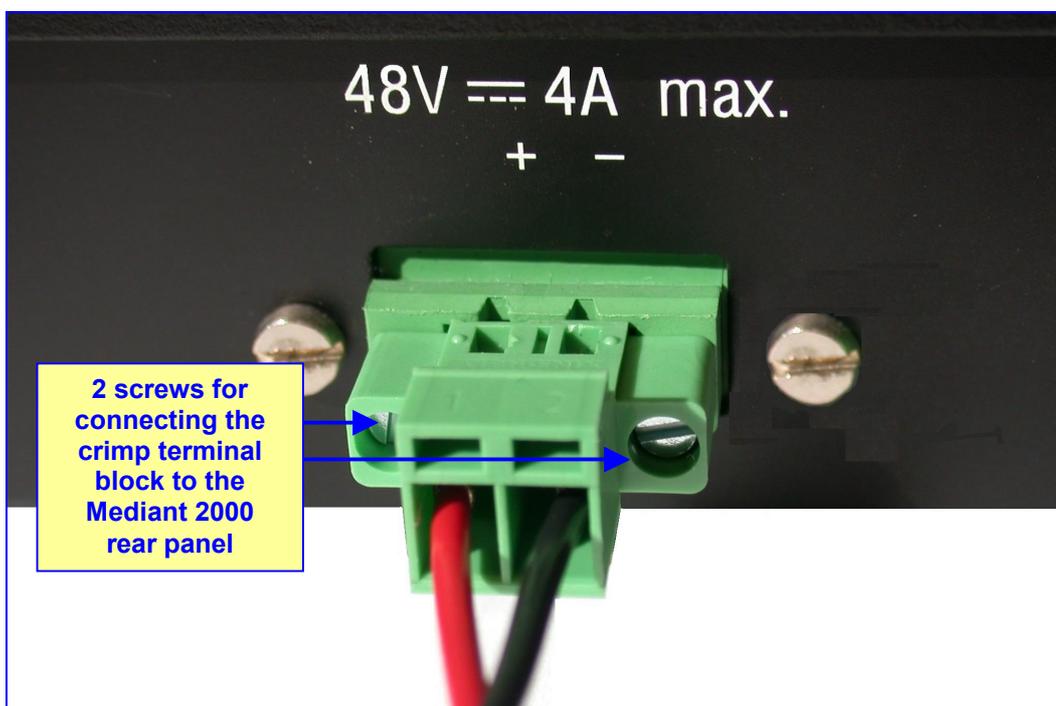
3 Initializing the Mediant 2000

AudioCodes' **Mediant 2000** application software already resides in the device's flash memory when it is supplied (with factory default parameters). **Mediant 2000** devices are also supplied with an Embedded (integrally stored) Web Server.

The following procedure describes how to set up the **Mediant 2000** with basic parameters using a standard Web browser (such as Microsoft ™ Internet Explorer).

> **Note:** Section 3.1 applies equally to MGCP/MEGACO/H.323/SIP.

3.1 Initialization Procedure

> **To initialize the Mediant 2000 take these 12 steps:**

1. Before initializing, connect your computer to the **Mediant 2000**, follow the procedure described in Section 2.3.2 on page 11.

2. Change your PC's IP address and subnet mask to correspond with the **Mediant 2000** factory default IP address and subnet mask, shown in Table 3-1. For details on changing the IP address and subnet mask of your PC, refer to Windows™ Online Help (Start>Help).

Table 3-1: Mediant 2000 Default IP Address & Subnet Mask

Mediant 2000	Default IP Address
Single module	10.1.10.10
Double module	10.1.10.10 (Trunks 1-8) and 10.1.10.11 (Trunks 9-16)
Default subnet mask is 255.255.0.0, default gateway IP address is 0.0.0.0	

> **Note:** The two IP addresses (one IP address for Trunks 1-8 and one for Trunks 9-16) refer to two different modules (AudioCodes' **TPM-1100**) that reside in the same board (AudioCodes' **TP-1610**) inside the **Mediant 2000**.

3. Open a standard Web-browsing application such as Microsoft™ Internet Explorer™ (Version 6.0 and higher) or Netscape™ Navigator™ (Version 7.0 and higher).

4. In the URL field, specify the IP address of the first module of the **Mediant 2000** (i.e., http://10.1.10.10); the Embedded Web Server's 'Enter Network Password' screen appears, shown in Figure 3-1.

Figure 3-1: Embedded Web Server Login Screen

5. Enter the username (default: Admin), and password (default: Admin). Note that the 'User Name' and 'Password' fields are case-sensitive. Click **OK**; the 'Quick Setup' screen is accessed, shown in Figure 3-2 (MGCP/MEGACO), Figure 3-3 (H.323), and Figure 3-4 (SIP).

6. In the 'Quick Setup' screen, set the **Mediant 2000** 'IP Address' and 'Subnet Mask' fields under 'IP Configuration' *to correspond with your network IP settings.*

7. Click the **Reset** button and click **OK** in the prompt; The **Mediant 2000** applies the changes and restarts. This takes approximately 60 seconds to complete. When the **Mediant 2000** has finished restarting, the Ready and LAN LEDs on the front panel are lit green.

> **Tip:** Record & retain the IP address and subnet mask you assign the **Mediant 2000**. Do the same when defining new username and password. If the Embedded Web Server is unavailable (for example, if you've lost your username or password), use AudioCodes' BootP/TFTP configuration utility to access the device, "reflash" the load and reset the password (refer to the **Mediant 2000** User's Manuals for detailed information on using a BootP/TFTP server to access the device).

8. Disconnect your computer from the **Mediant 2000** or from the hub/switch.

9. Reconnect the **Mediant 2000** to the LAN.

10. Restore your PC's IP address and subnet mask to what they originally were. If necessary, restart your PC and re-access the **Mediant 2000** via the Embedded Web Server with its new assigned IP address.

11. Provision the **Mediant 2000** *basic* Control Protocol Parameters in the 'Quick Setup' screen.

   ➤ For MGCP/MEGACO, refer to Section 3.2 on page 16.

   ➤ For H.323, refer to Section 3.3 on page 18.

   ➤ For SIP, refer to Section 3.4 on page 20.

12. Repeat steps 1 to 11 for the **Mediant 2000** second module (if used).

You are now ready to start using the **Mediant 2000**. For information on how to fully configure the VoIP gateway, refer to the **Mediant 2000** User's Manuals.

> **Tip:** Once the gateway is configured correctly back up your settings by making a copy of the VoIP gateway configuration (*ini* file) and store it in a directory on your computer. This saved file can be used to restore configuration settings at a future time. For information on backing up and restoring the gateway's configuration refer to Section 5 on page 24.

3.2 Provisioning MGCP / MEGACO Parameters

After completing steps 1 to 10 (pages 14 & 15) under Section 3.1, the MGCP / MEGACO 'Quick Setup' screen is accessed, as shown in Figure 3-2.

Figure 3-2: Mediant 2000 MGCP/MEGACO Quick Setup Screen

> **To provision basic MGCP / MEGACO parameters take these 16 steps:**

1. In the 'Default Gateway Address' field, enter the IP address for the default gateway. If you do not know the IP address for the default gateway, contact your network administrator. Enter 0.0.0.0 if a default gateway isn't used.

2. If your network features a DNS server, in the fields 'DNS Primary Server IP' and 'DNS Secondary Server IP', enter the IP address of the primary and secondary DNS servers (clarify with your network administrator). Note that the DNS server option is supported for MEGACO but not for MGCP.

3. If your network features a DHCP server, in the 'Enable DHCP' field, select 'Enable'; the 'IP Address', 'Subnet Musk' and 'Default Gateway IP Address' fields are disabled. When the gateway is configured to use DHCP, it attempts to contact the enterprise's DHCP server to obtain the networking parameters (IP address, subnet mask, default gateway and primary/secondary DNS server).

4. Under the section 'Trunk Configuration', select the 'Protocol Type' and the 'Framing Method' you use (For E1 trunks, always set the Framing Method to 'Extended Super Frame'). Note that the Trunk Configuration parameters are *global,* and apply to all trunks. To configure trunks *per trunk*, refer to Section 3.5 on page 22.

5. In the 'Clock Master' field, select the trunk clock source from the drop-down list. Choose either 'Recovered' (the clock is recovered from the trunk; default) or 'Generated' (the trunk's clock source is provided by the internal TDM bus clock source, according to the parameter 'TDM Bus Clock Source'). For detailed information on the parameter 'TDM Bus Clock Source', refer to the **Mediant 2000** MGCP/MEGACO User's Manual.

6. In the 'Line Code' field, select the Line Code. Choose either 'B8ZS' (bipolar 8-zero substitution) for T1 trunks only; 'HDB3' (high-density bipolar 3) for E1 trunks only; or 'AMI' (for both T1 and E1).

7. In the 'ISDN Termination Side' field (applicable only to ISDN protocols), select 'User Side' when the PSTN or PBX side is configured as 'Network side', and vice-versa. If you don't know the **Mediant 2000** ISDN termination side, choose 'User Side' and refer to the 'Status & Diagnostics>Channel Status' screen. If the D-channel alarm is indicated, choose 'Network Side'.

8. Select the control protocol type you use: MGCP or MEGACO, in the field 'Control Protocol Type'.

9. In the 'Call Agent IP' field, enter the Call Agent IP address if your enterprise's network doesn't feature a DNS server that automatically defines the Call Agent's IP address. If you have a DNS server, the field is optional.

10. In the 'Call Agent Port' field, enter the Call Agent port. The default port is 2427 (MGCP) and 2944 (MEGACO).

11. In the 'Call Agent Domain Name' field, enter the Call Agent domain name. When using the DNS server option, enter the domain name of the Call Agent operating with the **Mediant 2000**. The DNS server automatically deduces the Call Agent's IP address from the domain name.

12. In the 'Gateway Name' field, enter a name to the device. (For example: 'gateway1.com'). Ensure that the name you choose is the one that the Call Manager/Agent is configured with to identify your **Mediant 2000**.

13. If you're working with MGCP, in the 'Endpoint Prefix' field, enter an intuitive endpoint prefix. Ensure that the endpoint prefix you choose is the one that the Call Agent works with.
If you're working with MEGACO, in the 'Endpoint Name' field, enter an intuitive endpoint name. Ensure that the endpoint name you choose is the one that the Call Manager works with.

14. In the 'Trunk Name' field, enter an intuitive trunk name. Ensure that the name you choose is the one that the Call Manager/Agent is configured with to identify your **Mediant 2000**.

15. Click the **Reset** button and click **OK** in the prompt; The **Mediant 2000** applies the changes and restarts. This takes approximately 60 seconds to complete. When the **Mediant 2000** has finished restarting, the Ready and LAN LEDs on the front panel are lit green.

16. After the gateway is reset, in the 'PCM Law Select' field (**Advanced Configuration**>**TDM Bus Settings**), select 'A-law' for E1 trunks and 'μ-Law' for T1 trunks.

You are now ready to start using the VoIP gateway.

3.3   Provisioning H.323 Parameters

After completing steps 1 to 10 (pages 14 & 15) under Section 3.1, the H.323 'Quick Setup' screen is accessed, as shown in Figure 3-3.

Figure 3-3: Mediant 2000/H.323 Quick Setup

> **To provision basic H.323 parameters take these 9 steps:**

1. If the **Mediant 2000** is behind a router with NAT enabled, take the following procedures:

    > Determine the "public" IP address assigned to the router (by using, for instance, router Web management). This "public IP address" is used to configure the **Mediant 2000** Static NAT IP address.

    > Enable the DMZ configuration on the residential router for the LAN port where the **Mediant 2000** gateway is connected.

    > Enter the public IP address for the **Mediant 2000** in the 'NAT IP Address' field (in addition to the gateway's local IP address).'

2. In the 'Default Gateway IP Address' field, enter the IP address for the default gateway. If you do not know the IP address for the default gateway, contact your network administrator. Enter 0.0.0.0 if default gateway isn't used.

3. When working with a Gatekeeper, set 'Working with Gatekeeper' field, under 'H.323 Parameters', to 'Yes' and enter the IP address of the primary Gatekeeper in the field 'Gatekeeper IP Address'. When no Gatekeeper is used, the internal routing table is used to route the calls.

4. Leave parameter 'Enable Annex D/T.38 FAX Relay' at its default unless your technical requirements differ.

5. Select the coder that best suits your VoIP system requirements. The default coder is: G.7231 30 msec. To program the entire list of coders you want the **Mediant 2000** to use, click the button on the left side of the '1st Coder' field; the drop-down lists for the 2nd to 5th coders appear. Select coders according to your system requirements. Note that coders higher on the list take precedence over coders lower on the list.

> **Note:** The preferred coder is the coder that the **Mediant 2000** uses as a first choice for all connections. If the far end gateway does not use this coder, the **Mediant 2000** will negotiate with the far end gateway to select a coder that both sides can use.

6. Map outgoing calls to IP addresses (*when Gatekeeper isn't used*) by completing these steps:

    ➢ Click the arrow button next to the 'Tel to IP Routing Table' label; the 'Tel to IP Routing' screen opens.
    Any telephone number that its destination number matches the prefix defined in the 'Destination Phone Prefix' field *and* its source number matches the prefix defined in the adjacent 'Source Phone Prefix' field, is sent to the IP address entered in the 'IP Address' field.

    ➢ Click the **SUBMIT** button; the 'Tel to IP Routing' table is automatically updated.

    ➢ Click the **Close Window** button.

    For more information on the 'Tel to IP Routing' table refer to the H.323 **Mediant 2000** User's Manual.

7. Enable E1/T1 B-channels by completing these steps:

    ➢ Click the arrow button next to the 'Trunk Group Table' label; the 'Trunk Group Table' screen opens.

    ➢ Select the number of the trunk you want to enable from the 'Trunk ID' drop-down list.

    ➢ Enter the number of B-channels you want to enable in the 'Channels' field.

    ➢ Enter the starting phone number in the adjacent 'Phone Number' field (these are virtual numbers, used only to define enabled B-channels).

    ➢ Click the **SUBMIT** button; the 'Trunk Group Table' table is automatically updated.

    ➢ Close the Window.

8. Click the **Reset** button and click **OK** in the prompt; The **Mediant 2000** applies the changes and restarts. This takes approximately 60 seconds to complete. When the **Mediant 2000** has finished restarting, the Ready and LAN LEDs on the front panel are lit green.

9. After the gateway is reset, configure the **Mediant 2000** trunk parameters. For information on configuring the trunk parameters, refer to Section 3.5 on page 22.

You are now ready to start using the VoIP gateway.

3.4 Provisioning SIP Parameters

After completing steps 1 to 10 (pages 14 & 15) under Section 3.1, the SIP 'Quick Setup' screen is accessed, as shown in Figure 3-4.

Figure 3-4: Mediant 2000/SIP Quick Setup

➤ To provision basic SIP parameters, take these 11 steps:

1. If the **Mediant 2000** is behind a router with NAT enabled, take the following procedures:

   ➤ Determine the "public" IP address assigned to the router (by using, for instance, router Web management). This "public IP address" is used to configure the **Mediant 2000** Static NAT IP address.

   ➤ Enable the DMZ configuration on the residential router for the LAN port where the **Mediant 2000** gateway is connected.

   ➤ Enter the public IP address for the **Mediant 2000** in the 'NAT IP Address' field (in addition to the gateway's local IP address).

2. In the 'Default Gateway IP Address' field, enter the IP address for the default gateway. If you do not know the IP address for the default gateway, contact your network administrator. Enter 0.0.0.0 if default gateway isn't used.

3. Under 'SIP Parameters', enter the **Mediant 2000** domain name in the field 'Gateway Name'. If the field is not specified, the **Mediant 2000** IP address will be used instead (default).

4. When working with a Proxy server, set 'Working with Proxy' field to 'Yes' and enter the IP address of the primary Proxy server in the field 'Proxy IP address'. When no Proxy is used, the internal routing table is used to route the calls.

5. Enter the Proxy name in the field 'Proxy Name'. If Proxy name is used, it will replace the Proxy IP address in all SIP messages. This means that messages will still be sent to the physical Proxy IP address but the SIP URI will contain the Proxy name instead.

6. Configure 'Enable Registration' to 'Yes' or 'No':
'No' = the **Mediant 2000** does not register to a Proxy server/Registrar (default).
'Yes' = the **Mediant 2000** registers to a Proxy server/Registrar at power up and every 'Registration Time' seconds. The **Mediant 2000** sends a register request for the entire gateway. For detailed information on the parameter 'Registration Time' refer to the **Mediant 2000** SIP User's Manual.

7. Select the coder that best suits your VoIP system requirements. The default coder is: G.7231 30 msec. To program the entire list of coders you want the **Mediant 2000** to use, click the button on the left side of the '1st Coder' field; the drop-down lists for the 2nd to 5th coders appear. Select coders according to your system requirements. Note that coders higher on the list take precedence over coders lower on the list.

> **Note:** The preferred coder is the coder that the **Mediant 2000** uses as a first choice for all connections. If the far end gateway does not use this coder, the **Mediant 2000** will negotiate with the far end gateway to select a coder that both sides can use.

8. Map outgoing calls to IP addresses (*when Proxy isn't used*) by completing these steps:

➢ Click the arrow button next to the 'Tel to IP Routing Table' label; the 'Tel to IP Routing' screen opens.
Any telephone number that its destination number matches the prefix defined in the 'Destination Phone Prefix' field *and* its source number matches the prefix defined in the adjacent 'Source Phone Prefix' field, is sent to the IP address entered in the 'IP Address' field.

➢ Click the **SUBMIT** button; the 'Tel to IP Routing' table is automatically updated.

➢ Click the **Close Window** button.

For more information on the 'Tel to IP Routing' table refer to the SIP **Mediant 2000** User's Manual.

9. Enable E1/T1 B-channels by completing these steps:

➢ Click the arrow button next to the 'Trunk Group Table' label; the 'Trunk Group Table' screen opens.

➢ Select the number of the trunk you want to enable from the 'Trunk ID' drop-down list.

➢ Enter the number of B-channels you want to enable in the 'Channels' field.

➢ Enter the starting phone number in the adjacent 'Phone Number' field (these are virtual numbers, used only to define enabled B-channels).

➢ Click the **SUBMIT** button; the 'Trunk Group Table' table is automatically updated.

➢ Close the Window.

10. Click the **Reset** button and click **OK** in the prompt; The **Mediant 2000** applies the changes and restarts. This takes approximately 60 seconds to complete. When the **Mediant 2000** has finished restarting, the Ready and LAN LEDs on the front panel are lit green.

11. After the gateway is reset, configure the **Mediant 2000** trunk parameters. For information on configuring the trunk parameters, refer to Section 3.5 on page 22.

You are now ready to start using the VoIP gateway.

> **Note:** The following Sections from here, up to the end of this Fast Track Guide, apply equally to MGCP/MEGACO/H.323/SIP.

3.5   Trunk Configuration

➢ **To configure the trunk settings take these 9 steps:**

1.   Open the 'Trunk Settings' screen (**Advanced Configuration** menu > **Trunk Settings**); the 'Trunk Settings' screen is displayed.

Figure 3-5: Trunk Settings Screen

2.   In the 'Trunk Status' field, click the icon of the specific trunk you want to configure. In the above example, trunk 9 (colored green) is synchronized across all 3 layers; trunks 10-16 (colored red) are unsynchronized. The first parameter named 'Trunk ID' changes according to the trunk you click.

3.   To configuration the selected trunk, click the **Stop Trunk** button; the trunk is stopped, the parameters are no longer grayed and can be modified.

4.   Select the 'Protocol Type' and the 'Framing Method' you use (For E1 trunks, always set the Framing Method to Extended Super Frame).

5.   In the 'Clock Master' field, select the trunk clock source from the drop-down list. Choose either 'Recovered' (the clock is recovered from the trunk; default) or 'Generated' (the trunk's clock source is provided by the internal TDM bus clock source, according to the parameter 'TDM Bus Clock Source'). For detailed information on the parameter 'TDM Bus Clock Source', refer to the **Mediant 2000** User's Manual.

6.   In the 'Line Code' field, select the Line Code. Choose either 'B8ZS' (bipolar 8-zero substitution) for T1 trunks only; 'HDB3' (high-density bipolar 3) for E1 trunks only; or 'AMI' (for both T1 and E1).

7.   Applicable only to ISDN protocols. In the 'ISDN Termination Side' field, select 'User Side' when the PSTN or PBX side is configured as 'Network side', and vice-versa. If you don't know the **Mediant 2000** ISDN termination side, choose 'User Side' and refer to the 'Status & Diagnostics>Channel Status' screen. If the D-channel alarm is indicated, choose 'Network Side'.

8.   Click the **Apply Trunk Settings** button; the changes are applied.

9.   Access the 'TDM Bus Settings' screen (**Advanced Configuration**>**TDM Bus Settings**). In the 'PCM Law Select' field, select 'A-law' for E1 trunks and 'μ-Law' for T1 trunks.

For more detailed information on configuring the **Mediant 2000** trunk settings, refer to the **Mediant 2000** User's Manual.

4   Changing the Mediant 2000 Password

To prevent unauthorized access to the **Mediant 2000**, it is recommended that you change the username and password that is used to access the Embedded Web Server.

➢ **To change the username and password take these 7 steps:**

1. Access the **Mediant 2000** Embedded Web Server via a standard Web browser.

2. Enter the default username (Admin) and default password (Admin).

3. Open the 'Change Password' screen (**Advanced Configuration** menu > **Change Password**); the 'Change Password' screen is displayed.

Figure 4-1: Change Password Screen

4. In the 'User Name' and 'New Password' fields, enter the new username and the new password respectively. Note that the username and password can be a maximum of 7 case-sensitive characters.

5. In the 'Confirm Password' field, reenter the new password.

6. Click the **Change Password** button; the new username and password are applied and the 'Enter Network Password' screen appears, shown in Figure 3-1.

7. Enter the updated username and password in the 'Enter Network Password' screen.

5 Restoring and Backing Up the Mediant 2000 Configuration

The 'Configuration File' screen enables you to restore (load a new *ini* file to the gateway) or to back up (make a copy of the VoIP gateway *ini* file and store it in a directory on your computer) the current configuration the gateway is using.

Back up your configuration if you want to protect your VoIP gateway programming. The backup *ini* file will include only those parameters that were modified and contain other than default values.

Restore your configuration if the VoIP gateway has been replaced or has lost its programming information, you can restore the VoIP gateway configuration from a previous backup or from a newly created *ini* file. To restore the VoIP gateway configuration from a previous backup you must have a backup of the VoIP gateway information stored on your computer.

➢ **To restore or back up the *ini* file:**

- Open the 'Configuration File' screen (**Advanced Configuration** menu > **Configuration File**); the 'Configuration File' screen is displayed.

Figure 5-1: Configuration File Screen
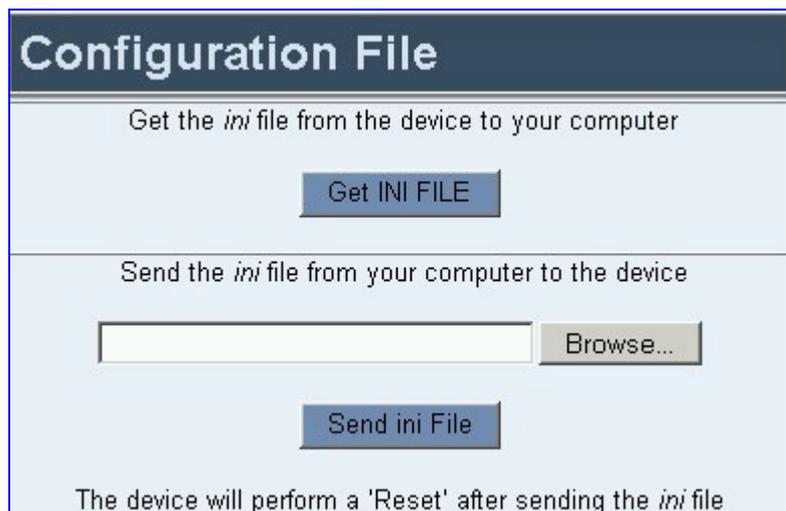
➢ **To back up the *ini* file take these 4 steps:**

1. Click the **Get INI FILE** button; the 'File Download' window opens.

2. Click the **Save** button; the 'Save As' window opens.

3. Navigate to the folder where you want to save the *ini* file.

4. Click the **Save** button; the VoIP gateway copies the *ini* file into the folder you selected.

➢ **To restore the *ini* file take these 4 steps:**

1. Click the **Browse** button.

2. Navigate to the folder that contains the *ini* file you want to load.

3. Click the file and click the **Open** button; the name and path of the file appear in the field beside the **Browse** button.

4. Click the **Send *ini* File** button, and click **OK** in the prompt; the gateway is automatically reset (from the *cmp* version stored on the flash memory).

6   Monitoring the Mediant 2000

The **Mediant 2000** provides several ways of monitoring the status of the gateway:

- Monitoring the **Mediant 2000** LEDs (refer to Section 6.1 below).
- Monitoring the **Mediant 2000** trunks and B-channels via the Embedded Web Server (refer to Section 6.2 on page 26).

6.1   Monitoring the Mediant 2000 LEDs

6.1.1   Mediant 2000 chassis' LED indicators

Table 6-1 provides a detailed description of the **Mediant 2000** chassis' LED indicators.

Table 6-1: Chassis LED Indicators

Location	Color	Function
Right side of front panel	**Green**	The power is on.
Right side of front panel	**Red**	Fan failure - indicates that any of the internal fans has significantly reduced its speed or has frozen.
Left side of front panel	**Red**	Power supply failure - indicates that one of the two AC redundant power supplies is faulty or disconnected from the AC/mains outlet. (This LED is only relevant for the dual AC connection).

6.1.2   TP-1610 Front Panel LED Indicators

The functionality of the front panel LEDs for the **TP-1610** is described in the following four tables. Note that there is a choice of front panels according to the number of channels.

Table 6-2: Status LED Indicators

Label	LED Color	LED Function	
FAIL	**Red**	Normally OFF; Red indicates gateway failure (fatal error)	
ACT	**Green**	Gateway initialization sequence terminated OK	Bi-color LED
	Yellow	N/A	

Table 6-3: E1/T1 Trunk Status LED Indicators

Label	LED Color	Signal Description		
T1/E1 Status 1 to 8 and T1/E1 Status 9 to 16	**Green**	Trunk is synchronized (normal operation)		Bi-color LED
	Red	Loss due to any of the following 4 signals:		
		LOS	Loss of Signal	
		LFA	Loss of Frame Alignment	
		AIS	Alarm Indication Signal (the Blue Alarm)	
		RAI	Remote Alarm Indication (the Yellow Alarm)	

> **Note:** On front panel 16 LEDs are provided for 16-span units and 8 LEDs are provided for 1-span, 2-span, 4-span, and 8-span units. In the case of 1-span, 2-span and 4-span units, the extra LEDs are unused.

Table 6-4: Ethernet LED Indicators

Label	LED Color	LED Function
LINK	Green	Link all OK
ACT	Yellow	Transmit / receive activity

Table 6-5: cPCI LED Indicators

Label	LED Color	LED Function
PWR	Green	Power is supplied to the board
SWAP READY	Blue	The cPCI board can now be removed.
		The cPCI board was inserted successfully.

During correct **Mediant 2000** operation, the ACT LED is lit green, the FAIL LED is off. Changing of the FAIL LED to red indicates a failure.

6.2 Monitoring the Mediant 2000 Trunks and B-channels

➢ **To monitor the status of the trunks and B-channels:**

• Open the 'Trunk & Channel Status' screen (**Status & Diagnostics** menu > **Channel Status**); the 'Trunk & Channel Status' screen is displayed.

Figure 6-1: Trunk & Channel Status Screen

Figure 6-2: Mediant 2000 Trunks Color Coding

The color of each trunk (Figure 6-2) shows the status of that trunk.

- Gray (Disable) indicates this trunk is either disabled or assigned a protocol type none.

- Green (Active - OK) indicates this trunk is synchronized.

- Yellow (RAI Alarm, Remote Alarm Indication) indicates that the far-end gateway has a problem with the signal it is receiving from the local gateway.

- Red (LOS Alarm) indicates a Lost of Signal.

- Blue (AIS Alarm) indicates an Alarm Indication Signal.

- Orange (D-channel Alarm), applicable only to ISDN, indicates that the D-channel isn't synchronized.

The color of each channel (Figure 6-2) shows the status of that channel.

- Gray (Inactive) indicates a currently inactive voice channel.

- Green (Active) indicates an active RTP session.

- Purple (SS7) indicates this channel functions as an SS7 link.

- Black (Non-Voice) indicates this channel functions as a D-channel.

➢ To monitor the details of a B-channel take these 2 steps:

1. In the 'Trunk & Channel Status' screen, click the numbered icon of the specific B-channel whose detailed status you need to check/monitor; the B-channel-specific 'Channel Status' screen appears, shown in Figure 6-3.

2. Click the submenu links to check/view a specific B-channel's parameter settings.

Figure 6-3: Specific B-channel Status Details

7   Upgrading the Mediant 2000

To upgrade the **Mediant 2000** (load new software or auxiliary files onto the VoIP gateway) use the Software Update feature, available through the Embedded Web Server.

The 'Software Update' menu comprises two submenus:

- Software Update Wizard (refer to Section 7.1 below).

- Auxiliary Files (refer to Section 7.2 on page 34).

> **Note:**   When you upgrade the **Mediant 2000** software you *must* load the new *cmp* file with all other related configuration files: CAS, Call Progress Tones, Voice Prompts, VXML and Prerecorded Tones.

7.1   Software Upgrade Wizard

The Software Upgrade Wizard guides users through the process of software upgrade: selecting files and loading them to the gateway. The wizard also enables users to upgrade software while maintaining the existing configuration. Using the wizard obligates users to load a *cmp* file. Users can choose to also use the Wizard to load auxiliary files (*ini,* Call Progress Tones, Voice Prompts, VXML and CAS configuration files*)* but this option cannot be pursued without loading the *cmp* file. For each auxiliary file type, users can choose to reload an existing file, load a new file or not load a file at all.

> **Note:**   The Software Upgrade Wizard requires the device to be reset at the end of the process. This will disrupt any traffic existing on the device. To avoid disruption, disable all traffic on the device before initiating the Wizard.

> ➢ **To use the Software Upgrade Wizard take these 9 steps:**

1. Stop all traffic on the device (refer to the note above).

2. Open the 'Software Upgrade Wizard' (**Software Update** menu > **Software Upgrade Wizard**); the 'Start Software Upgrade' screen appears.

Figure 7-1: Start Software Upgrade Screen
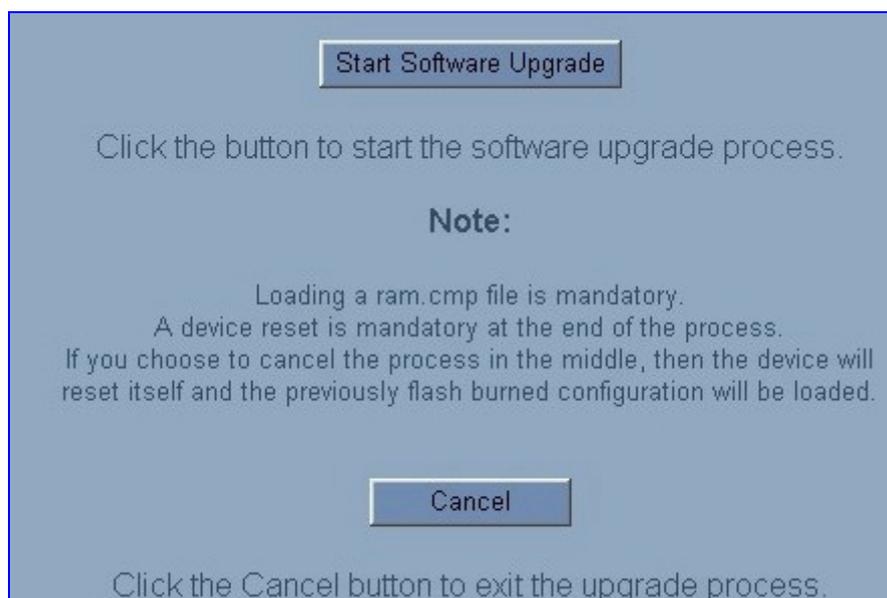
> **Note:** At this point, the process can be canceled with no consequence to the device (click the **Cancel** button). If you continue the process (by clicking the **Start Software Upgrade** button, the process must be followed through and completed with a device reset at the end. If you click the **Cancel** button in any of the consequent screens, the device is automatically reset with the configuration that was previously burned in flash memory.

3. Click the **Start Software Upgrade** button; the 'Load a *cmp* file' screen appears (Figure 7-2).

> **Note:** When in the Wizard process, the rest of the Web application is unavailable and the background Web screen is disabled. After the process is completed, access to the full Web application is restored.

Figure 7-2: Load a *cmp* File Screen

4. Click the **Browse** button, navigate to the *cmp* file and click the button **Send File**; the *cmp* file is loaded to the device and you're notified as to a successful loading (refer to Figure 7-3).

Figure 7-3: *cmp* File Successfully Loaded into the Device Notification

5. Note that the four action buttons (**Cancel**, **Reset**, **Back**, and **Next**) are now activated (following *cmp* file loading).

You can now choose to either:

➢ Click **Reset**; the device resets, utilizing the new *cmp* you loaded and utilizing the current configuration files.

➢ Click **Cancel**; the device resets utilizing the *cmp, ini* and all other configuration files that were previously stored in flash memory. Note that these are NOT the files you loaded in the previous Wizard steps.

➢ Click **Back**; the 'Load a *cmp* File' screen is reverted to; refer to Figure 7-2.

➢ Click **Next**; the 'Load an *ini* File' screen opens; refer to Figure 7-4. Loading a new *ini* file or any other auxiliary file listed in the Wizard is optional.

Note that as you progress, the file type list on the left indicates which file type loading is in process by illuminating green (until 'FINISH').

Figure 7-4: Load an *ini* File Screen
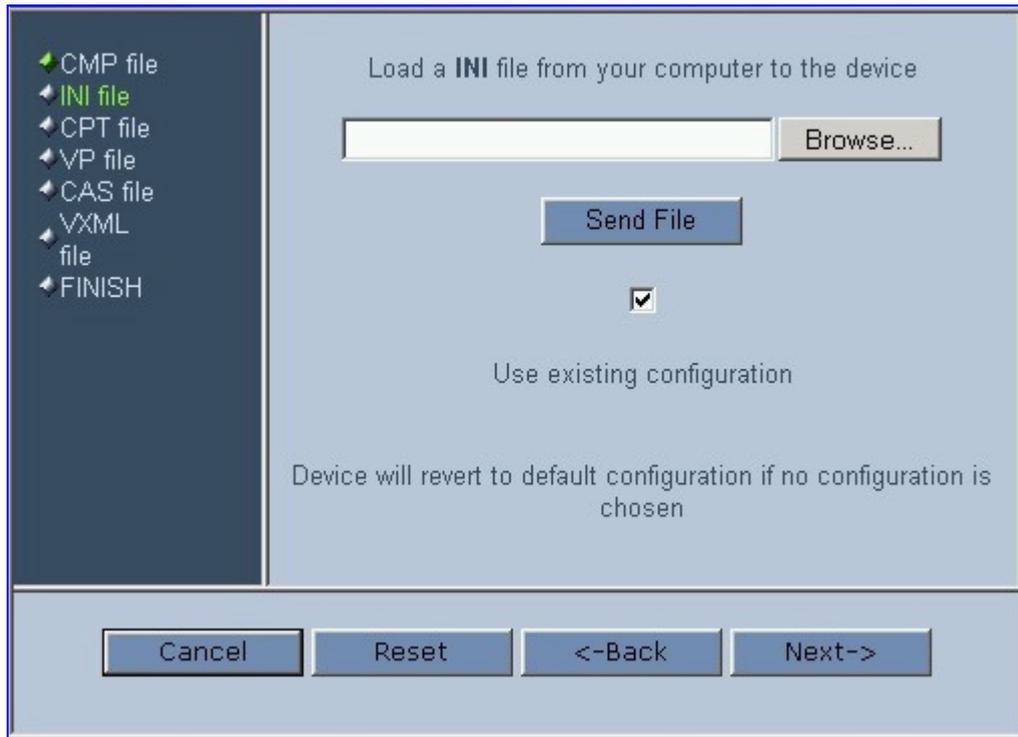
6. In the 'Load an *ini* File' screen, you can now choose to either:

   ➢ Click **Browse** and navigate to the *ini* file; the check box 'Use existing configuration', by default checked, becomes unchecked. Click **Send File**; the *ini* file is loaded to the device and you're notified as to a successful loading.

   ➢ Ignore the **Browse** button (its field remains undefined and the check box 'Use existing configuration' remains checked by default).

   ➢ Ignore the **Browse** button and uncheck the 'Use existing configuration' check box; no *ini* file is loaded, the device uses its factory-preconfigured values.

   You can now choose to either:

   ➢ Click **Cancel**; the device resets utilizing the *cmp, ini* and all other configuration files that were previously stored in flash memory. Note that these are NOT the files you loaded in the previous Wizard steps.

   ➢ Click **Reset**; the device resets, utilizing the new *cmp* and *ini* file you loaded up to now as well as utilizing the other configuration files.

   ➢ Click **Back**; the 'Load a *cmp* file' screen is reverted to; refer to Figure 7-2.

   ➢ Click **Next**; the 'Load a CPT File' screen opens, refer to Figure 7-5; Loading a new CPT file or any other auxiliary file listed in the Wizard is optional.

Figure 7-5: Load a CPT File Screen
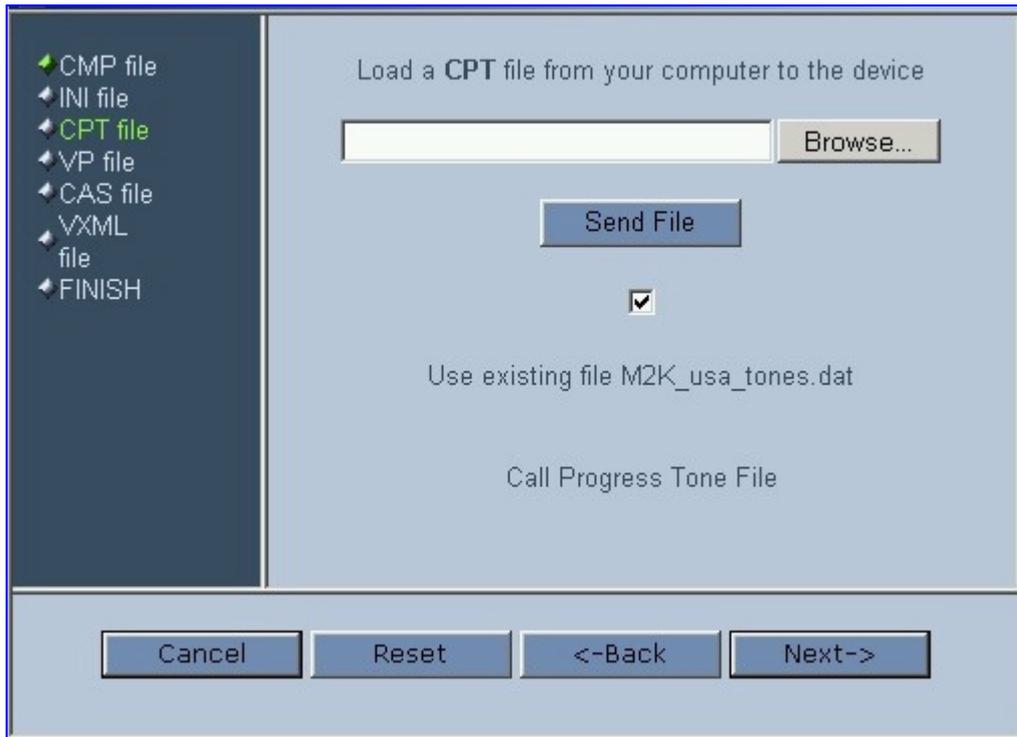
7. Follow the same procedure you followed when loading the *ini* file (refer to Step 6). The same procedure applies to the 'Load a VP file' (not applicable to the **Mediant 2000** gateway) screen and 'Load a coefficient file' screen.

8. In the 'FINISH' screen (refer to Figure 7-6), the **Next** button is disabled. Complete the upgrade process by clicking **Reset** or **Cancel**.

| Button	Result
Reset	The device 'burns' the newly loaded files to flash memory. The 'Burning files to flash memory' screen appears. Wait for the 'burn' to finish. When it finishes, the 'End Process' screen appears displaying the burned configuration files (refer to Figure 7-7).
Cancel	The device resets, utilizing the files previously stored in flash memory. (Note that these are NOT the files you loaded in the previous Wizard steps).

Figure 7-6: FINISH Screen
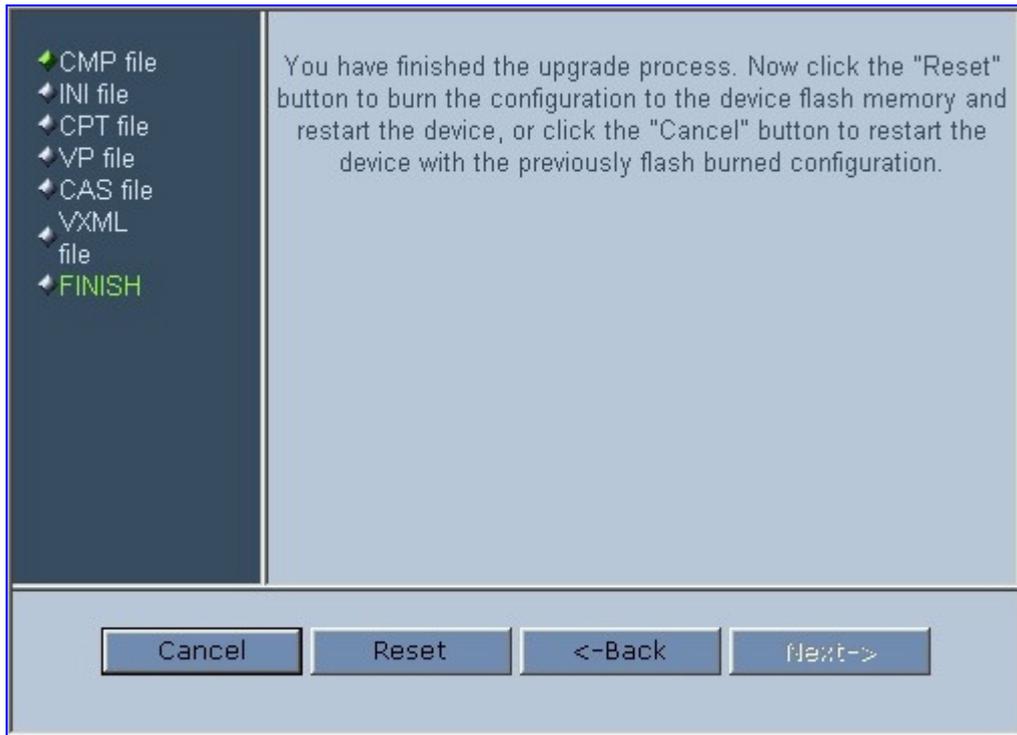
Figure 7-7: 'End Process' Screen
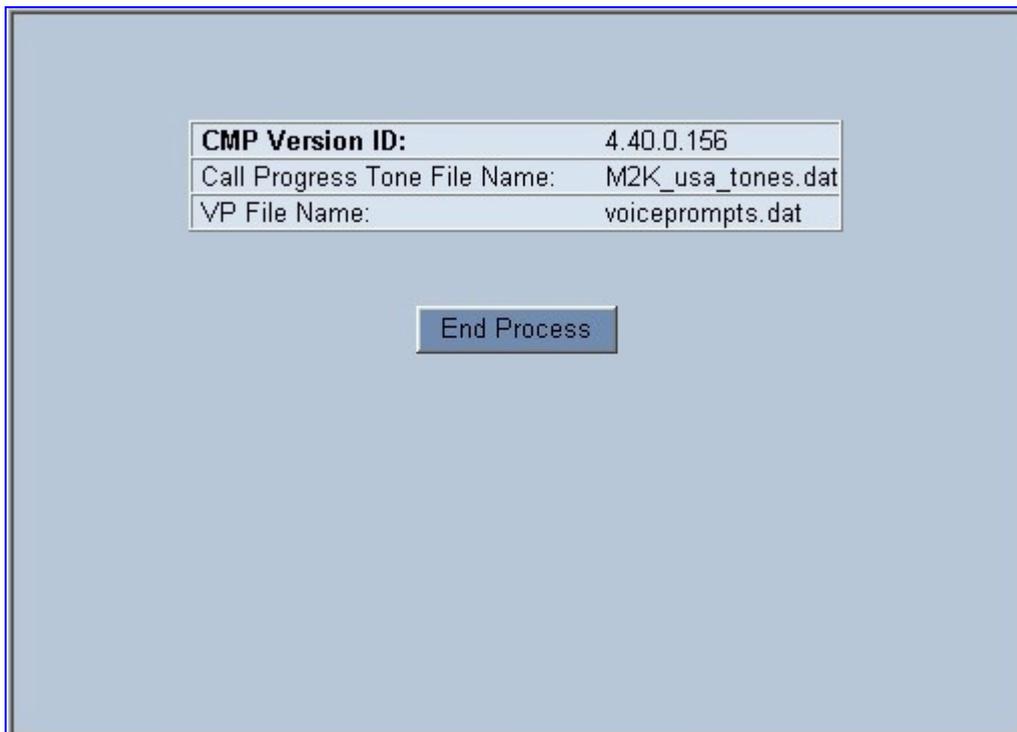
9.   Click the **End Process** button; the 'Quick Setup' screen appears and the full Web application is reactivated.

7.2 Updating the Auxiliary Files

The Auxiliary Files screen enables you to load to the gateway the following files: *ini*, CAS, Voice Prompts, Call Progress Tones (CPT) and Prerecorded Tones (PRT). The PRT file is currently applicable only to MGCP and MEGACO. Table 7-1 presents a brief description of each auxiliary file.

Table 7-1: Auxiliary Files Descriptions

File Type	Description
Ini	Load this file to provision the device's parameters. The Embedded Web Server enables practically full device provisioning but customers may occasionally require new feature configuration parameters in which case this file is loaded. Note that loading the *ini* file only provisions parameters that are contained in the *ini* file. If a parameter is not specified in the *ini* file, values associated with that parameter are reset to a default value. These values may not be the same as the values that were configured for the VoIP gateway at the time of manufacture. **Note:** After the file has completed loading, the VoIP gateway automatically restarts (software is loaded from the flash).
CAS	Up to 8 different CAS files containing specific CAS protocol definitions. These files are provided by AudioCodes to support various types of CAS signaling.
Voice Prompts	The voice announcement file contains a set of Voice Prompts to be played by the Mediant 2000 during operation on Call Agent request. Only MGCP/MEGACO are supported.
Call Progress Tones	This is a region-specific, telephone exchange-dependent file that contains the Call Progress Tones levels and frequencies that the VoIP gateway uses. Default CPT file: U.S.A.
Prerecorded Tones	The *dat* PRT file enhances the device's capabilities to play a wide range of telephone exchange tones. Only MGCP/MEGACO are supported.

➢ To load an auxiliary file take these 6 steps:

1. Open the 'Auxiliary Files' screen (**Software Update** menu > **Load Auxiliary Files**); the 'Auxiliary Files' screen is displayed (shown in Figure 7-8).

2. Click the **Browse** button that is in the field for the type of file you want to load.

3. Navigate to the folder that contains the file you want to load.

4. Click the file and click the **Open** button; the name and path of the file appear in the field next to the **Browse** button.

5. Click the **Send File** button adjacent to the field that contains the name of the file you want to load. An asterisk in the screen section indicates that the file's loading takes effect on-the-fly (e.g., Voice Prompts file).

6. Repeat steps 2 to 5 for each file you want to load.

Figure 7-8: Auxiliary Files Screen

To save the loaded auxiliary files to flash memory, take these 2 steps:

1. Click the **Save Configuration** button on the main menu bar; the 'Save Configuration to the Flash Memory' screen is displayed.

> **Note:** Saving an auxiliary file to flash memory may disrupt traffic on the device. To avoid this, disable all traffic on the device before saving to flash memory.

2. Click the **Save Configuration** button in the middle of the screen; a confirmation message appears when the save is complete.

> **Note:** A device reset is required to activate a loaded CPT file, and may be required for the activation of certain *ini* file parameters.

To reset the Mediant 2000 take these 2 steps:

1. Click the **Reset** button on the main menu bar; the 'Reset' screen is displayed.

2. Click the **Reset** button in the middle of the screen; the auxiliary files are saved into flash and the **Mediant 2000** restarts. This takes approximately 60 seconds to complete. When the **Mediant 2000** has finished restarting, the Ready and LAN LEDs on the front panel are lit green.

8   Regularity Information

Declaration of Conformity

Application of Council Directives: 73/23/EEC (including amendments),
89/336/EEC (including amendments),
1999/5/EC Annex-II of the Directive

Standards to which Conformity is Declared: EN55022: 1998, Class B
EN55024: 1998
ETSI EN 300 386 V1.3.1: 2001
EN61000-3-2: 1995
(including amendments A1: 1998, A2: 1998, A14: 2000)
EN61000-3-3: 1995
EN60950-1: 2001
TBR-4: 1995 (including amendment A1: 1997)
TBR-13: 1996
TBR-12: 1993 (including amendment 1: 1996)

Manufacturer's Name: AudioCodes Ltd.

Manufacturer's Address: 4 HaHoresh Street, Yehud 56470, Israel.

Type of Equipment: Digital VoIP System.

Model Numbers: **IPmedia 2000**, **Mediant 2000**, **Stretto 2000**.

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Signature	30th October, 2003	Yehud, Israel
	Date (Day/Month/Year)	*Location*

I. Zusmanovich, Compliance Engineering Manager

Este producto està en conformidad con la directiva Europea 1999/5, 89/336/EEC, 72/23/EEC
Dette produkt er i overensstemmelse med Europæiske Direktiver 1999/5, 89/336/EEC, 72/23/EEC
Dieses Produkt ist konform mit der europäischen Richtlinie 1999/5, 89/336/EEC, 72/23/EEC
Ce produit est conforme aux exigences de la Directive européenne 1999/5, 89/336/EEC, 72/23/EEC
Questo prodotto è conforme con la normativa europea 1999/5, 89/336/EEC, 72/23/EEC
Este producto està em conformidade com as Diretrizes Européia 1999/5, 89/336/EEC, 72/23/EEC
Tuote on eurooppalaisen säännöstön mukainen 1999/5, 89/336/EEC, 72/23/EEC
Denna product följer europeiska direktiv 1999/5, 89/336/EEC, 72/23/EEC
Το προιόν, είναι σύμφωνο με τους κανονισμούς της Ευρωπαικής Κοινώτητας 1999/5, 89/336/EEC, 72/23/EEC
Tæki þetta er í samræmi við tilskipun Evrópusambandsins 1999/5, 89/336/EEC, 72/23/EEC
Dette produktet er i samhørighet med det Europeiske Direktiv 1999/5, 89/336/EEC, 72/23/EEC

Safety Notices

Installation and service of this gateway must only be performed by authorized, qualified service personnel.

The 2000 must be permanently connected to ground via the protective earth terminal.

Industry Canada Notice

This equipment meets the applicable Industry Canada Terminal Equipment technical specifications. This is confirmed by the registration numbers. The abbreviation, IC, before the registration number signifies that registration was performed based on a declaration of conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Digital Device Warnings

This equipment complies with Part 68 of the FCC rules and the requirements adopted by ACTA. On the bottom of this equipment is a label that contains a product identifier in the format US:AC1ISNANMED2KDC. If requested this number must be provided to the telephone company.

The Telephone company may make changes in the facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service. Should you experience trouble with this telephone equipment, contact: *AudioCodes Inc, San Jose, CA USA. Tel: 1 408 577 0488*

Do not attempt to repair this equipment!

Facility Interface Code:	**04DU9.BN, 04DU9.DN, 04DU9.1KN, 4DU9.ISN**
Service Order Code:	**6.0N**
USOC Jack Type:	**RJ21X or RJ48C**

It this gateway causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also you will be advised of your right to file complaint with the FCC if you believe it is necessary.

Network Information and Intent of Use

The products are for access to ISDN at 2048 kb/s and for access to G.703 Leased lines at 2048 kb/s.

Network Compatibility

The products support the Telecom networks in EU that comply with TBR4 and TBR13.

Telecommunication Safety

The safety status of each port is declared and detailed in the table below:

Ports	Safety Status
E1 or T1	TNV-1
Ethernet (100 Base-T)	SELV

TNV-1: Telecommunication network voltage circuits whose normal operating voltages do not exceed the limits for SELV under normal operating conditions and on which over voltages from telecommunication networks are possible.

SELV: Safety extra low voltage circuit.