CyberData

The IP Endpoint Company

VoIP V3 Zone Controller
4-Port Audio Out
Operations Guide

Part #*011171*

Document Part #*930446E*
for Firmware Version *6.0.2*

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Operations Guide 930446E
SIP Compliant 011171

CyberData
The IP Endpoint Company

Technical Support

The fastest way to get technical support for your VoIP product is to submit a VoIP Technical Support form at the following website:
http://www.cyberdata.net/support/contactsupportvoip.html

Phone: (831) 373-2601, Ext. 333
Email: support@cyberdata.net
Fax: (831) 373-4193
Company and product information is at **www.cyberdata.net**.

Revision History

Revision 930446E, which corresponds to firmware version 6.0.2, was released on October 16, 2012 and has the following changes:

- Updates Table 2-2, "Factory Default Settings".

Contents

1 Product Overview

The CyberData VoIP V3 Zone Controller with Audio-Out enables access to existing paging speakers through a VoIP phone system. The interface is designed to use a standard paging amplifier with audio inputs and supports paging up to 15 zone groups from a VoIP phone.

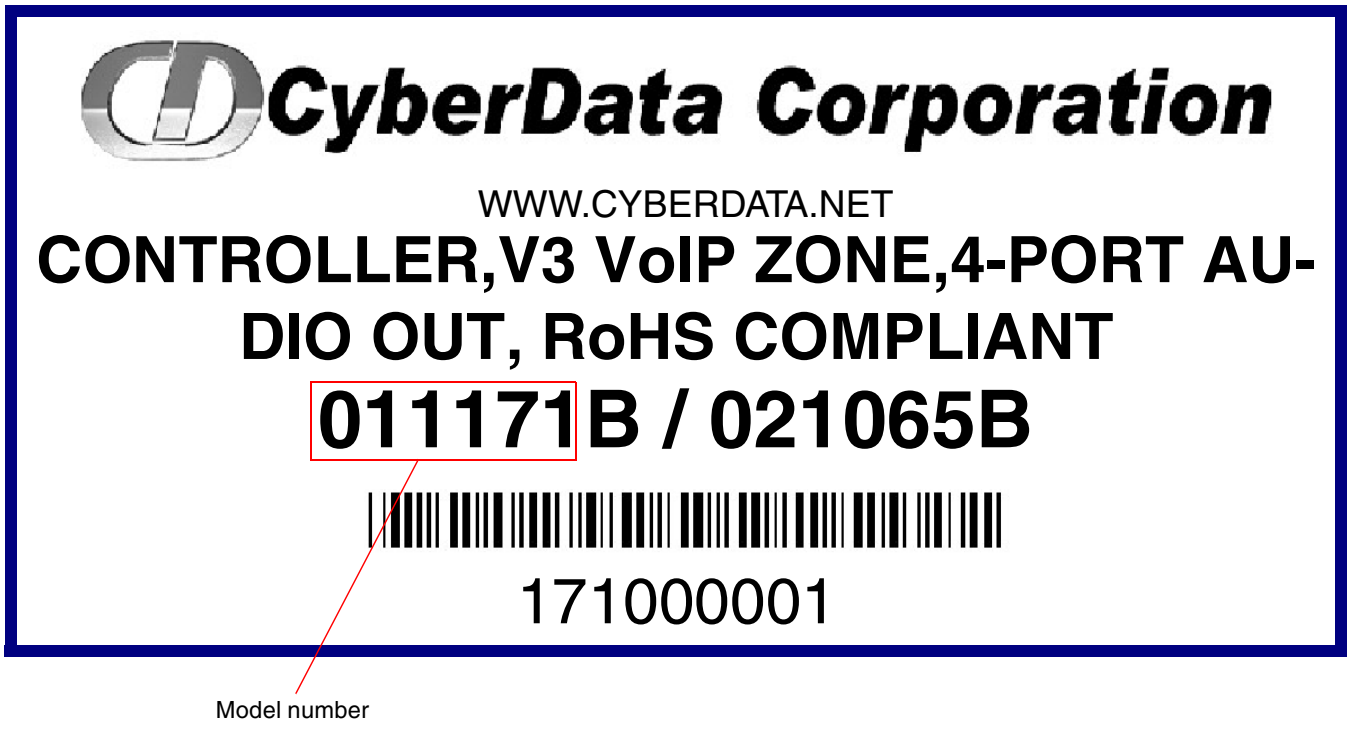
The VoIP Zone Controller is a PoE-enabled, single SIP-endpoint, enabling user-defined paging zones through RCA line level output connections to legacy analog amplifiers to existing legacy analog speakers.

SIP compliant IP-PBX's can now interface with existing legacy analog paging speaker installations.

1.1 How to Identify this Product

To identify the VoIP Zone Controller, look for a model number label similar to the one shown in Figure 1-1. The model number on the label should be **011171**.

Figure 1-1. Model Number Label



1.2 Product features

- Delayed paging
- Night Ringer
- Compatible with more IP/PBX servers
- SIP RFC 3261 compatible
- PoE 802.3af enabled (Power-over-ethernet)
- Dual-speed ethernet 10/100 Mbps
- 4 Paging zones
- 15 Paging zone groups
- Page all
- Web-based configuration
- Web-based firmware upgradeable
- Connector for external power supply
- Small footprint

1.3 Supported

- HTTP Web-based configuration
- Provides an intuitive GUI for easy system configuration and verification of speaker operations.
- DHCP Client
- TFTP Client
- Audio Codec
- G.711 U-law
- DTMF detection

1.4 Product Specifications

Specifications	
Regulatory Compliance	FCC Class A, UL 60950, CE
Power Requirement	PoE or 48V DC
Connection Speed	10/100 Mbps
Protocol	SIP compliant
Part Number	011171
Dimensions	6.11”L x 4.05”W x 1.15” H
Weight	1.2 pounds

2 Implementing the VoIP V3 Zone Controller

The topics in this chapter provide information on setting up, configuring, and using the VoIP Zone Controller.

2.1 Parts List

The packaging for the VoIP Zone Controller includes the parts in this illustration.

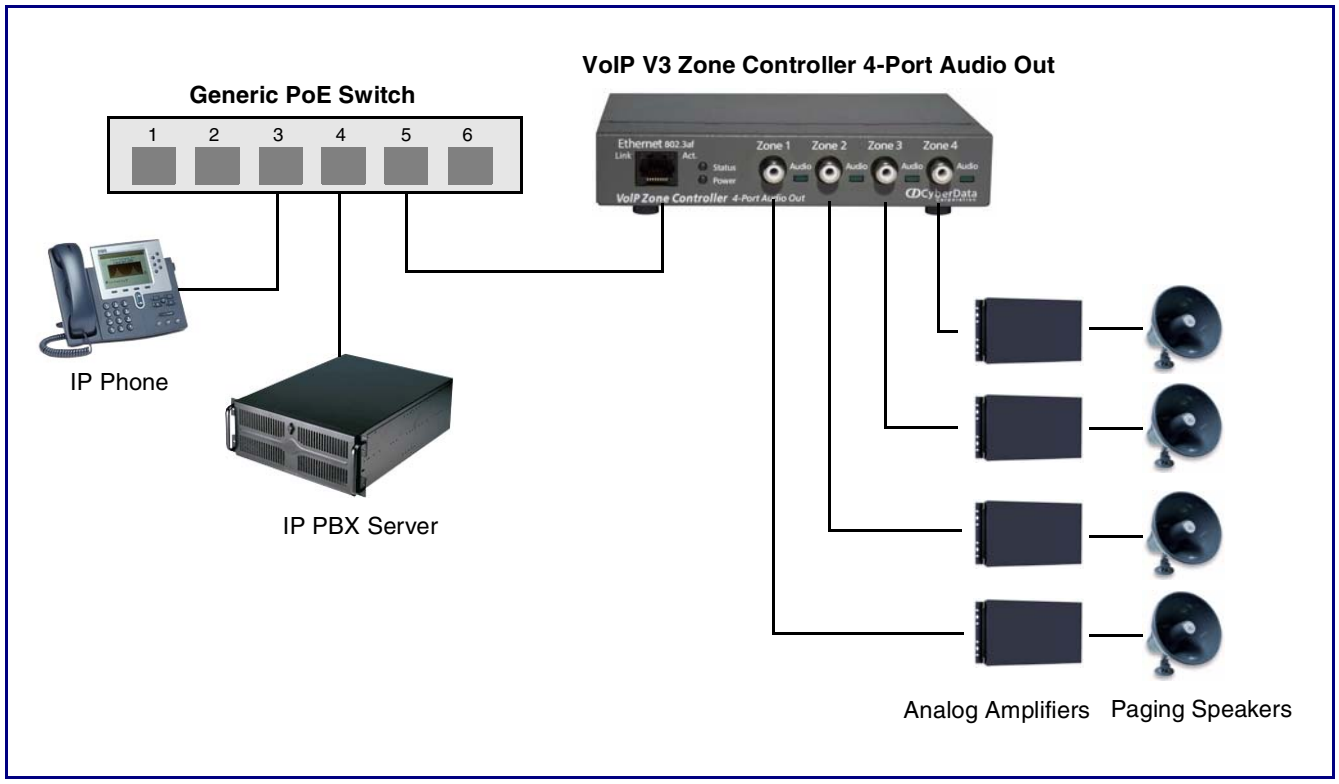
Table 2-1. Parts List

Quantity	Part Name	Illustration
1	VoIP V3 Zone Controller	
1	Installation Quick Reference Guide	
1	Mounting Kit	

2.2 Typical Installation

Figure 2-1 illustrates how the VoIP Zone Controller is normally installed as part of a paging system.

Figure 2-1. Typical Installation



2.3 Setting up the VoIP Zone Controller

Before you set up the VoIP Zone Controller, be sure that you have received all the parts described in Section 2.1, "Parts List".

2.3.1 Cables Used for Connecting to Legacy Analog Amplifiers

The VoIP Zone Controller connects to zones through RCA line level output connections to legacy analog amplifiers to existing legacy analog speakers.

2.3.2 Connect to the Power Source

Figure 2-2. Connecting to the Power Source

PoE

Non PoE (with 48 VDC power supply)

Chassis Ground

To set up the VoIP Zone Controller, connect the device to your network:

Poe

- For **PoE**, plug one end of an 802.3af Ethernet cable into the VoIP Zone Controller Ethernet port. Plug the other end of the Ethernet cable into your network. See the figure on the left.

Non-Poe

- For **Non-PoE**, connect the VoIP Zone Controller to a **48VDC power supply**. See the figure on the left.

Chassis Ground

- If required, connect the earth grounding wire to the **Chassis Ground** on the back of the unit. See the figure on the left.

2.3.3 Connect to the Network

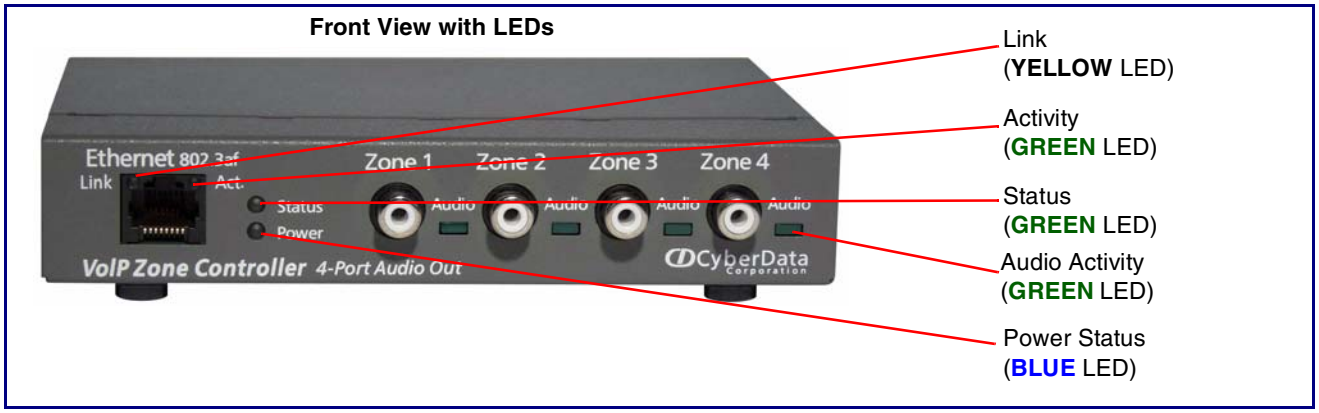
Plug one end of a standard Ethernet cable into the VoIP Zone Controller **Ethernet** port. Plug the other end into your network.

Figure 2-3. Connecting to the Network

2.3.4 Confirm that the VoIP Zone Controller is Up and Running

The indicator LEDs on the front of the VoIP Zone Controller verify the unit's operations.

Figure 2-4. VoIP Zone Controller Indicator LEDs



2.3.4.1 Confirm Power on, Network Connectivity, and Connection Speed

When you plug in the Ethernet cable or power supply:

- The round, **BLUE Power Status** LED on the front of the VoIP Zone Controller comes on indicating that the power is on.
- The square, **YELLOW Link** LED above the Ethernet port indicates that the network connection has been established. The **Link** LED changes color to confirm the auto-negotiated connection speed:
  - This LED is **YELLOW** at 10 Mbps.
  - This LED is **ORANGE** at 100 Mbps.
- The square, **GREEN Activity** LED above the Ethernet port blinks when there is network activity.
- The round, **GREEN Status** LED comes on after the device is booted and initialized. This LED blinks when the unit is operational.
- The square, **GREEN Audio Activity** LEDs turn on solid when a Zone is being paged.

2.3.5 Restore the Factory Default Settings as Required

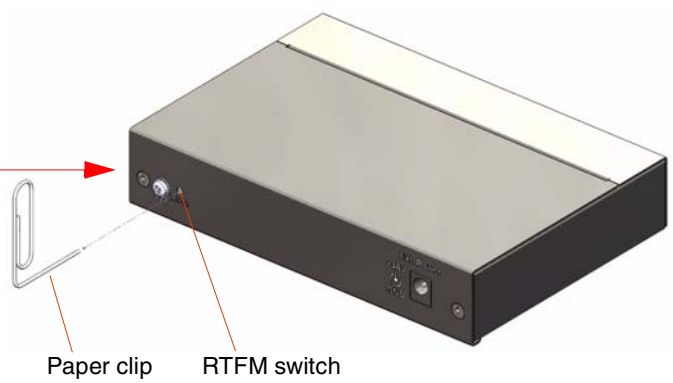
The VoIP Zone Controller is delivered with factory set default values for the following parameters. Use the **RTFM** switch (see Figure 2-5) on the back of the unit to restore these parameters to the factory default settings.

Figure 2-5. RTFM Switch

Back View with RTFM Switch

To restore the VoIP Zone Controller's factory default settings:

1. Use a paper clip to press and hold the **RTFM** switch while all of the indicator LEDs turn off. See the picture on the right.
2. Continue to press the RTFM switch until after the indicator LEDs turn back on.
3. Release the RTFM switch. All of the VoIP Zone Controller settings will be restored to the factory default settings.
4. You will hear the "Restoring defaults..." audio message play through all ports before the device reboots.



Note When you perform the RTFM procedure in Figure 2-5, the factory default settings are restored. The default parameters for access are shown in Table 2-2.

Table 2-2. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	DHCP
IP Address[a]	10.10.10.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask[a]	255.0.0.0
Default Gateway[a]	10.0.0.1

a. Default if there is not a DHCP server present.

2.4 Configuring the VoIP Zone Controller

Use this section to configure the VoIP Zone Controller.

2.4.1 Gather the Required Configuration Information

Have the following information available before you configure the VoIP Zone Controller.

2.4.1.1 Static or DHCP Addressing?

Know whether your system uses static or dynamic (DHCP) IP addressing. If it uses static addressing, you also need to know the values to assign to the following VoIP Zone Controller parameters:

- IP Address
- Subnet Mask
- Default Gateway

2.4.1.2 Username and Password for Configuration GUI

Determine the Username and Password that will replace the defaults after you initially log in to the configuration GUI.

- The Username is case-sensitive, and must be from four to 25 alphanumeric characters long.
- The Password is case-sensitive, and must be from four to 20 alphanumeric characters long.

2.4.1.3 SIP Settings

To configure the SIP parameters, determine whether you want to register the VoIP Zone Controller. If you do, determine the number of minutes the registration lease remains valid, and whether you want to automatically unregister when you reboot. To configure the SIP parameters, you also need to determine the values for these parameters:

- SIP Server IP Address
- Remote and Local SIP Port Numbers
- SIP User ID, and Authenticate ID and Password for this User ID

2.4.2 VoIP Zone Controller Web Page Navigation

Table 2-3 shows the navigation buttons that you will see on every VoIP Zone Controller web page.

Table 2-3. V3 Paging Amplifier Web Page Navigation

Web Page Item	Description
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Multicast Configuration** page.
	Link to go to the **Nightringer** page.
	Link to go to the **Zone Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Event Configuration** page.
	Link to the **Autoprovisioning Configuration** page.
	Link to the **Update Firmware** page.

2.4.3 Log in to the Configuration GUI

1. Open your browser to the VoIP Zone Controller IP address.

Note If the network does not have access to a DHCP server, the device will default to an IP address of 10.10.10.10.

Note Make sure that the PC is on the same IP network as the VoIP Zone Controller.

Note You may also download CyberData's VoIP Discovery Utility program which allows you to easily find and configure the default web address of the CyberData VoIP products.

CyberData's VoIP Discovery Utility program is available at the following website address:

http://www.cyberdata.net/support/voip/discovery_utility.html

The unit ships in DHCP mode. To get to the **Home** page, use the discovery utility to scan for the device on the network and open your browser from there.

Note To work with the VoIP Zone Controller configuration *after* the initial configuration, log in using the IP address you assign to the device. Section 2.4.5, "Configure the Network Parameters" provides instructions for entering the IP address.

2. When prompted, use the following default **Username** and **Password** to open the configuration Home page:

   Username: **admin**

   Password: **admin**

Change the Default Username and Password

To change the default Web access Username and Password:

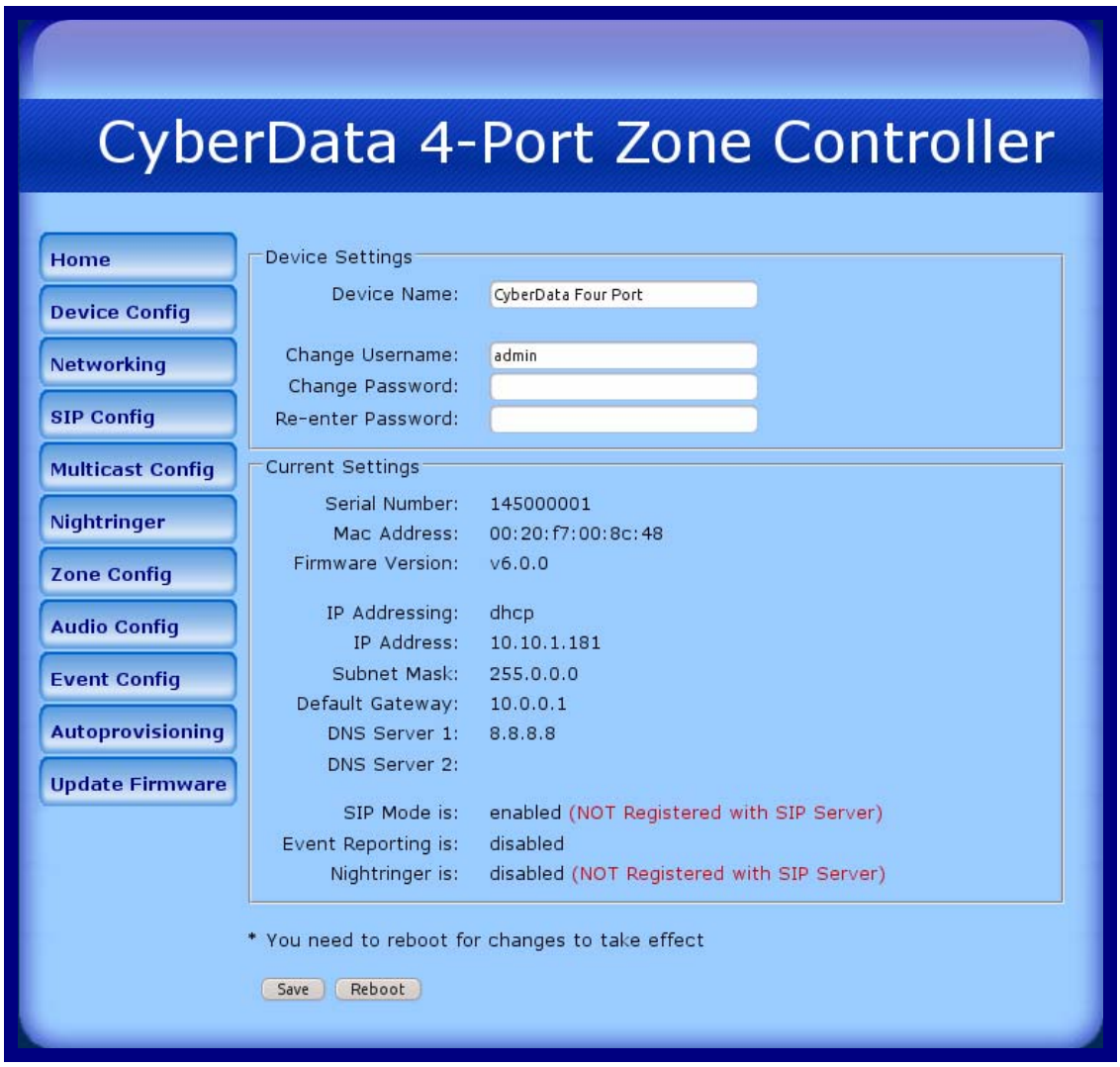
1. Enter the new Username from four to 25 alphanumeric characters in the **Change Username** field. The Username is case-sensitive.

2. Enter the new Password from four to 20 alphanumeric characters in the **Change Password** field. The Password is case-sensitive.

3. Enter the new password again in the **Re-enter New Password** field.

   Click **Save Settings**.

Figure 2-6. Home Page



4. On the **Home Page**, review the setup details and navigation buttons described in Table 2-4.

Table 2-4. Home Page Overview

Web Page Item	Description
Device Settings	
Device Name	Shows the device name (25 character limit).
Change Username	Type in this field to change the username (25 character limit).
Change Password	Type in this field to change the password (19 character limit).
Re-enter Password	Type the password again in this field to confirm the new password (19 character limit).
Current Settings	
Serial Number	Shows the device serial number.
Mac Address	Shows the device Mac address.
Firmware Version	Shows the current firmware version.
IP Addressing	Shows the current IP addressing setting (**DHCP** or **Static**).
IP Address	Shows the current IP address.
Subnet Mask	Shows the current subnet mask address.
Default Gateway	Shows the current default gateway address.
DNS Server 1	Shows the current DNS Server 1 address.
DNS Server 2	Shows the current DNS Server 2 address.
SIP Mode is	Shows the current status of the SIP Mode.
Event Reporting is	Shows the current status of the Event Reporting.
Nightring is	Shows the current status of the Nightringer.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

At this point you can:

- Review the VoIP Zone Controller's **Current Settings**. Use the RTFM switch to restore the factory default settings. See Section 2.3.5, "Restore the Factory Default Settings as Required".
- Configure the network parameters. Click the **Networking** button and refer to Section 2.4.5, "Configure the Network Parameters" for instructions.
- Configure the SIP parameters. Click **SIP Config** and see Section 2.4.6, "Configure the SIP Parameters".
- Configure the Zone parameters. Click **Zone Config** and see Section 2.4.9, "Configure the Zone Parameters" for instructions.

Note Click the **Upgrade Firmware** button any time you need to upload new versions of the firmware. Refer to Section 2.5, "Upgrading the Firmware" for instructions.

2.4.4 Configure the Device Parameters

1. Click the **Device Configuration** button to open the **Device Configuration** page. See Figure 2-7.

Figure 2-7. Device Configuration Page

2. On the **Device Configuration** page, you may enter values for the parameters indicated in Table 2-5.

Table 2-5. Device Configuration Parameters

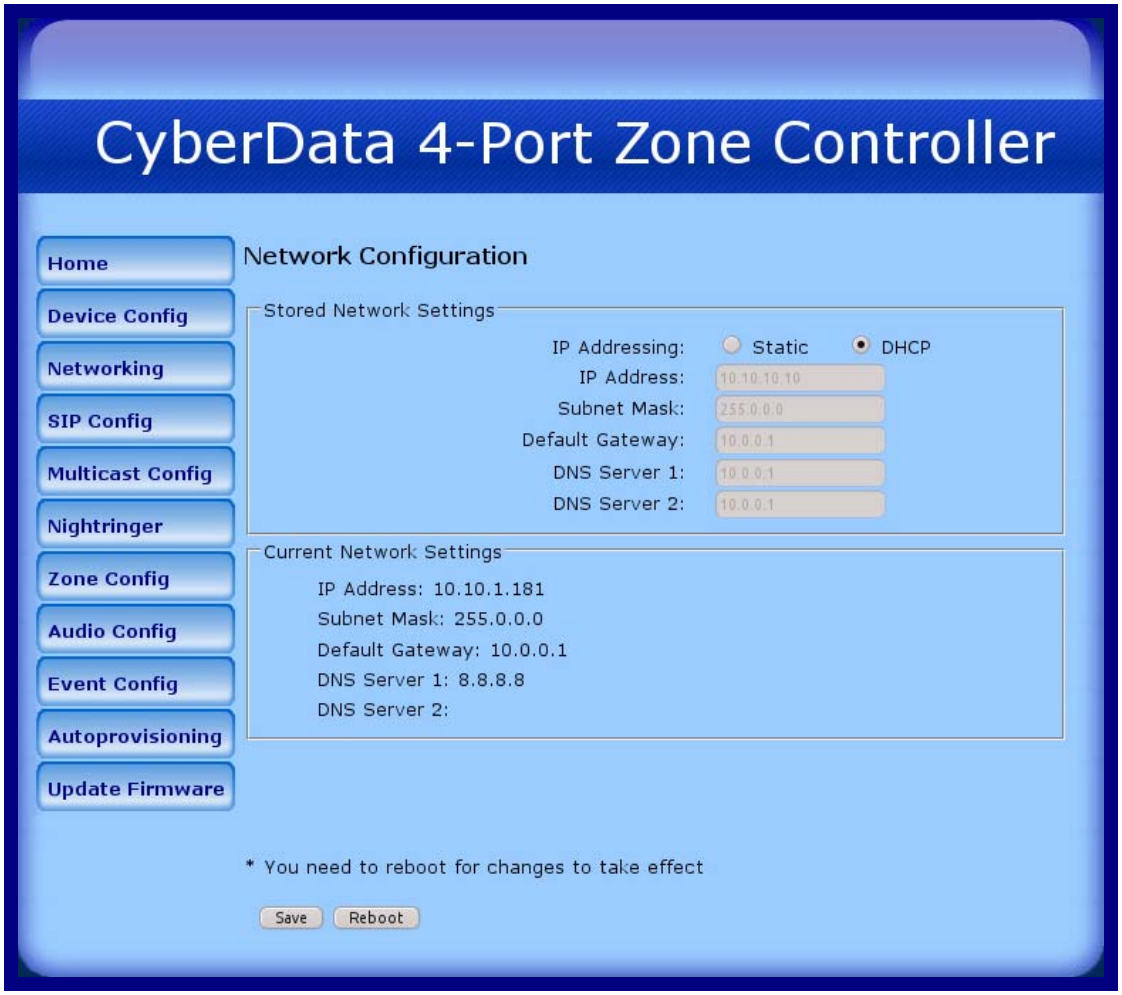
Web Page Item	Description
Miscellaneous Settings	
Beep on Initialization	When selected, you will hear a beep when the speaker initializes.
Beep on Page	When selected, you will hear a beep when a page is sent from the device.
Test Audio	
Port 1 through **Port 4**	Select the desired port(s) for the audio test.
	Click on the **Test Audio** button to do an audio test. When the **Test Audio** button is pressed, you will hear a voice message for testing the device audio quality and volume.
	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click the **Save** button.

2.4.5 Configure the Network Parameters

Configuring the network parameters enables your network to recognize the VoIP Zone Controller and communicate with it. Click **Network Setup** on the Home page to open the **Network Configuration** page.

Figure 2-8. Network Setup Page



On the **Network Setup** page, enter values for the parameters indicated in Table 2-6.

Table 2-6. Network Configuration Parameters

Web Page Item	Description
Stored Network Settings	Shows the settings stored in non-volatile memory.
IP Addressing	Select either **DHCP IP Addressing** or **Static IP Addressing** by marking the appropriate radio button. If you select **Static**, configure the remaining parameters indicated in Table 2-6. If you select **DHCP**, go to Step 3.
IP Address	Enter the Static IP address.
Subnet Mask	Enter the Subnet Mask address.
Default Gateway	Enter the Default Gateway address.
DNS Server 1	Enter the DNS Server 1 address.
DNS Server 2	Enter the DNS Server 2 address.
Current Network Settings	Shows the current network settings.
IP Address	Shows the current Static IP address.
Subnet Mask	Shows the current Subnet Mask address.
Default Gateway	Shows the current Default Gateway address.
DNS Server 1	Shows the current DNS Server 1 address.
DNS Server 2	Shows the current DNS Server 2 address.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

On this page:

1. Specify whether you use **Static** or **DHCP IP Addressing** by marking the appropriate radio button. Then, if you select Static, go to Step 2.
2. For Static IP Addressing, also enter values for the following parameters:

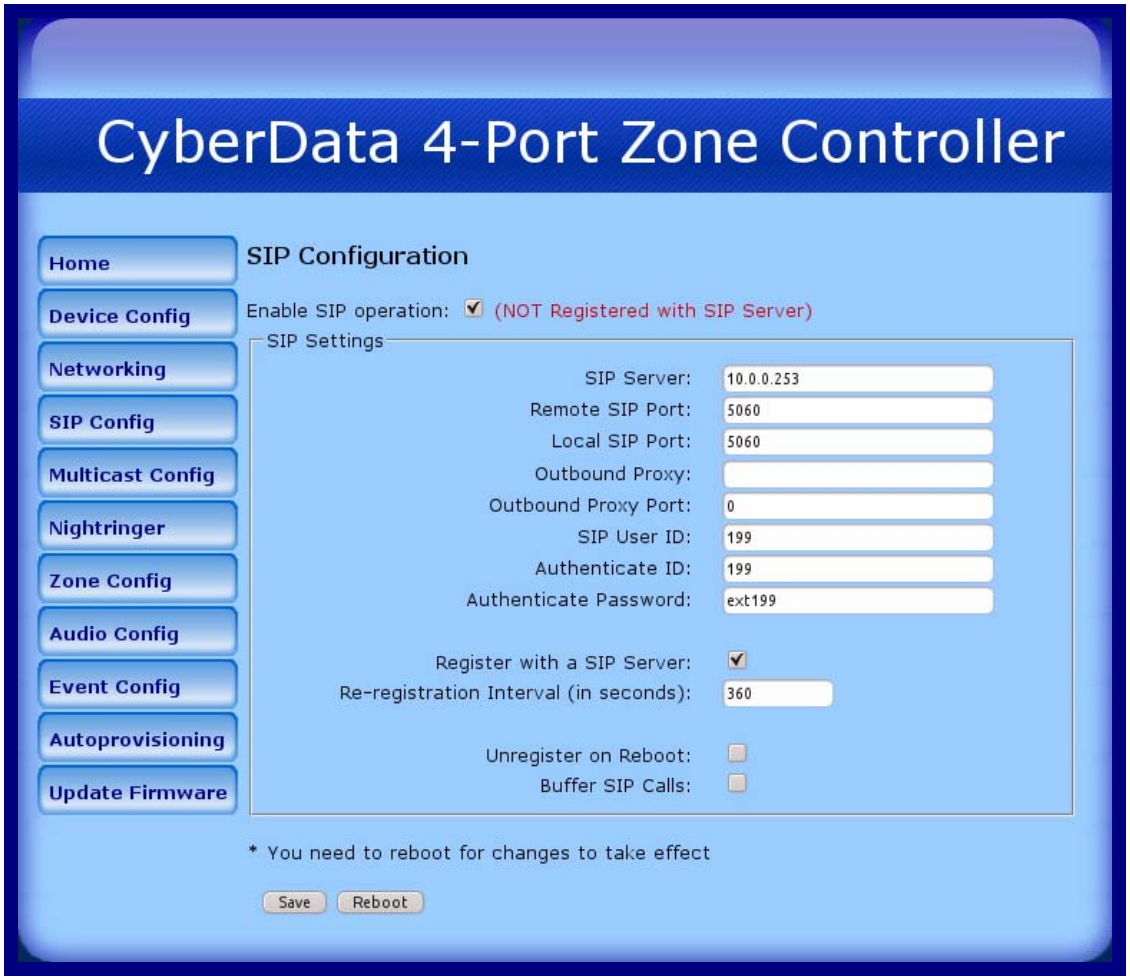
- The VoIP Zone Controller's **IP Address**: The VoIP Zone Controller is delivered with a factory default IP address. Change the default address to the correct IP address for your system.
- The **Subnet Mask.**
- The **Default Gateway.**

3. Click **Save** when you are finished.
4. Click **Reboot** for the new settings to take effect.

2.4.6 Configure the SIP Parameters

The SIP parameters enable the VoIP Zone Controller to contact and register with the SIP server. On the Home page, click **SIP Config** to open the **SIP Configuration** page.

Figure 2-9. SIP Configuration Page



5. On the **SIP Setup** page, enter values for the parameters indicated in Table 2-7.

Table 2-7. SIP Configuration Parameters

Web Page Item	Description
SIP Settings	
SIP Server	Type the SIP server represented as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Remote SIP Port	Type the **Remote SIP Port** number (default 5060) (8 character limit).
Local SIP Port	Type the **Local SIP Port** number (default 5060) (8 character limit).
Outbound Proxy	Type the Outbound Proxy as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Outbound Proxy Port	Type the Outbound Proxy Port number (8 character limit).
SIP User ID	Type the **SIP User ID** (up to 64 alphanumeric characters).
Authenticate ID	Type the **Authenticate ID** (up to 64 alphanumeric characters).
Authenticate Password	Type the **Authenticate Password** (up to 64 alphanumeric characters).
Register with a SIP Server	Enable or disable SIP Registration. For information about Point-to-Point Configuration, see Section 2.4.6.1, "Point-to-Point Configuration".
Re-registration Interval (in seconds)	Type the SIP Registration lease time in seconds (default is 60 minutes) (8 character limit). Re-registration Interval (in seconds)
Unregister on Reboot	When selected, on boot, the device will first register with a SIP server with a expiration delay of 0 seconds. This has the effect of unregistering any current devices on this extension.
Buffer SIP Calls	When this is enabled, SIP calls to the device will be stored in memory and will play when either the call is terminated or the buffer is full. The receive buffer is 2MB in size and this is equal to about four minutes of ulaw encoded audio.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

1. Enter the IP address of the **SIP Server**.
2. Enter the port numbers used for SIP signaling:
   a. **Remote SIP Port**
   b. **Local SIP Port**

3. Enter the SIP registration parameters:
   a. **SIP User ID**
   b. **Authenticate ID**
   c. **Authenticate Password**
4. For **SIP Registration**, designate whether you want the device to register with your SIP server.
5. At **Unregister on Reboot**:
   a. Select **Yes** to automatically unregister the VoIP Zone Controller when you reboot it.
   b. Select **No** to keep the VoIP Zone Controller registered when you reboot it.
6. In the **Register Expiration** field, enter the number of seconds the VoIP Zone Controller registration lease remains valid with the SIP Server. The VoIP Zone Controller automatically re-registers with the SIP server before the lease expiration timeout.
7. Click **Save**.
8. Click **Reboot** for the new settings to take effect.

2.4.6.1 Point-to-Point Configuration

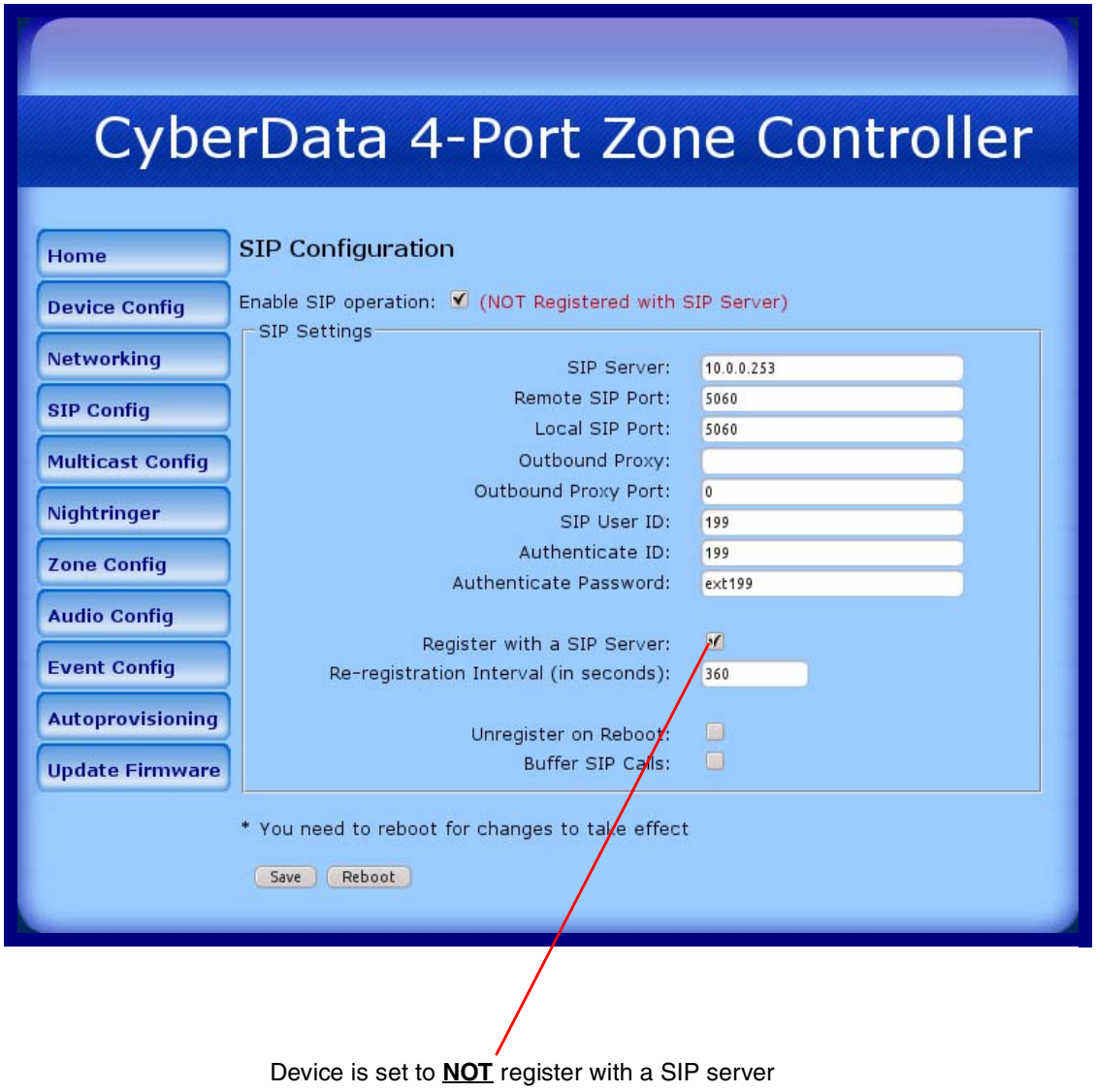
When the board is set to not register with a SIP server, it's possible to set the device to dial out to a single endpoint. To do this, do the following:

1. On the **SIP Configuration** page (Figure 2-10), make sure that the **Register with a SIP Server** parameter is not selected.
2. Type the IP address of the remote device that you want to contact into the **Dial out Extension** field

Note The delayed DTMF functionality is available in the Point-to-Point Mode.

Note Establishing point-to-point SiP calls may not work with all phones.

Figure 2-10. SIP Configuration Page Set to Point-to-Point Mode



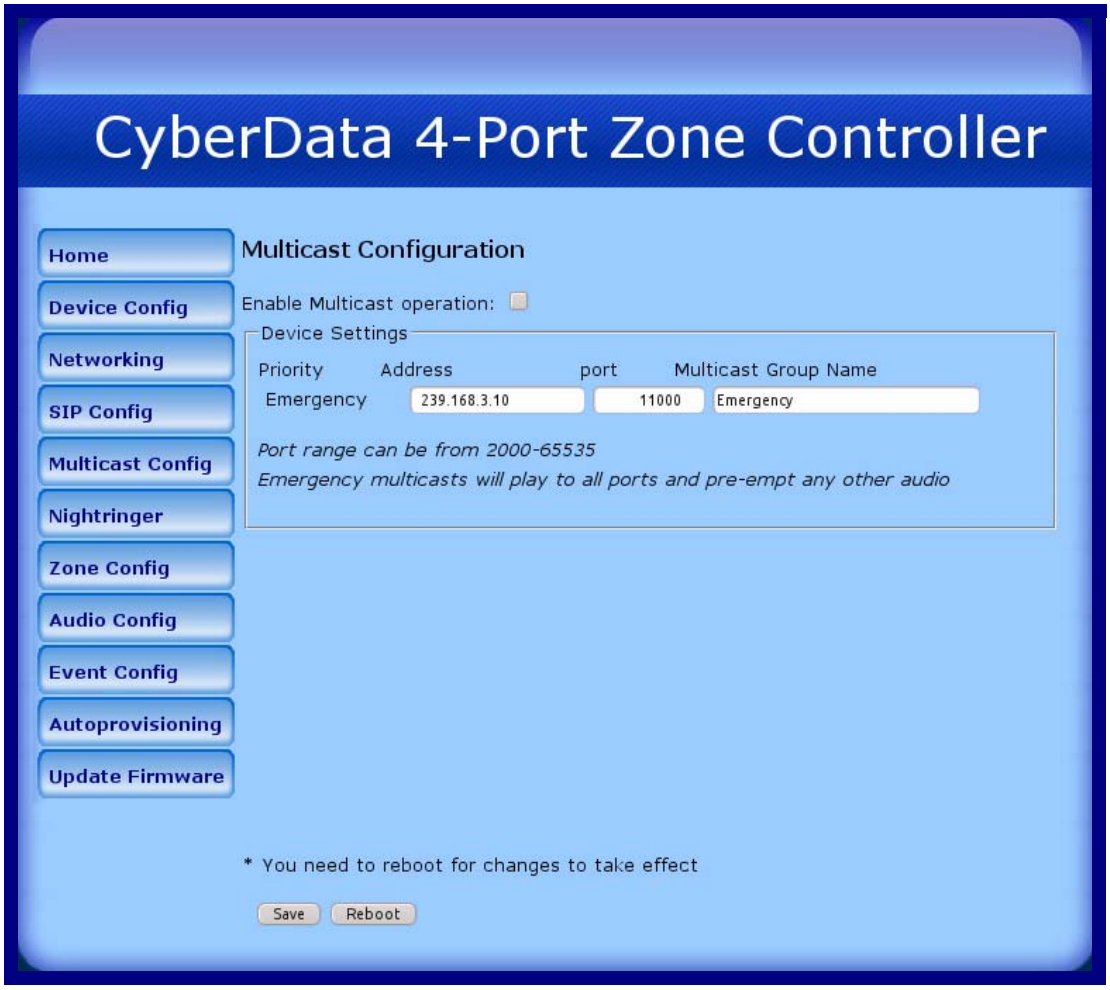
Device is set to **NOT** register with a SIP server

2.4.7 Configure the Multicast Parameters

The **Multicast Configuration** page allows the Zone Controller to join up to one paging zone for receiving an emergency ulaw/alaw encoded RTP audio stream. A paging zone can consist of one or many CyberData multicast group-enabled products. There is no limit to how many devices can be in a given paging zone. A multicast group is defined by a multicast address and port number. Each multicast group is assigned a priority, allowing simultaneously arriving pages to be serviced based on importance. Multicast groups are compatible with IGMP through version three. The Zone Controller will preempt all other audio when receiving a multicast page because it is considered emergency priority.

1. Click on the **Multicast Configuration** button to open the **Multicast Configuration** page. See Figure 2-11.

Figure 2-11. Multicast Configuration Page



2. On the **Multicast Configuration** page, enter values for the parameters indicated in Table 2-8.

Table 2-8. Multicast Configuration Parameters

Web Page Item	Description
Enable Multicast Operation	Enables or disables multicast operation.
Device Settings	
Priority Emergency	The priority is fixed as "Emergency" and it is the only group that is available on this device.
Address	Enter the multicast IP Address for this multicast group (15 character limit).
Port (range can be from 2000 to 65535)	Enter the port number for this multicast group (5 character limit). **Note**: The multicast ports have to be even values. The webpage will enforce this restriction.
Multicast Group Name	Assign a descriptive name for this multicast group (25 character limit).
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click on the **Save** button.

2.4.7.1 Assigning Priority

When playing a multicast stream, all other audio will be preempted as the multicast group is considered an emergency group.

Note SIP calls, multicast streams, ring tones, ringback tones, and nightring tones are all prioritized.

Ringtones and Nightringtones

Ringtones all play at the same priority level. This means that it is possible to have a nightring tone and a normal ringtone playing at the same time.

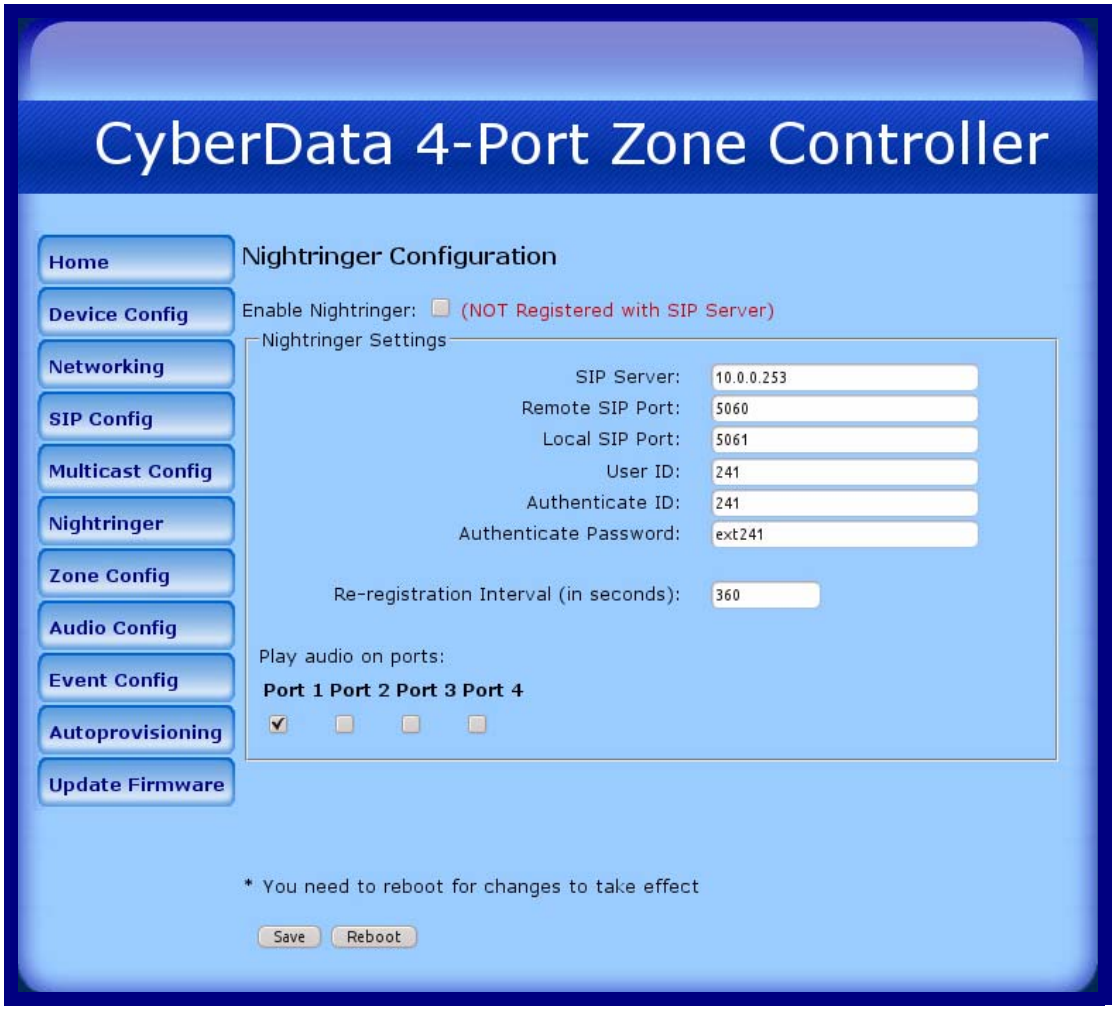
2.4.8 Configure the Night Ringer Parameters

Caution

Nightringer requires SIP Registration. Nightringer cannot be used in peer to peer mode.

1. Click on the **Nightringer** button to open the **Nightringer Configuration** page. See Figure 2-12.

Figure 2-12. Nightringer Configuration Setup



2. On the **Nightringer Configuration** page, enter values for the parameters indicated in Table 2-9.

Table 2-9. Nightringer Configuration Parameters

Web Page Item	Description
Enable Nightringer	When the nightringer is enabled, the unit will attempt to register a second extension with the SIP server. Any calls made to this extension will play a ringtone.
Nightringer Settings	
SIP Server	Type the SIP server represented as either a numeric IP address in dotted decimal notation.
Remote SIP Port	Type the Remote SIP Port number (default 5060) (8 character limit).
Local SIP Port	Type the Local SIP Port number (default 5061) (8 character limit). **Note**: This value cannot be the same as the **Local SIP Port** found on the **SIP Configuration Page**.
User ID	Type the **User ID** (up to 64 alphanumeric characters).
Authenticate ID	Type the **Authenticate ID** (up to 64 alphanumeric characters).
Authenticate Password	Type the **Authenticate Password** (up to 64 alphanumeric characters).
Re-registration Interval (in seconds)	Type the SIP Registration lease time in seconds (default is 60 minutes) (8 character limit). Re-registration Interval (in seconds)
Play audio on ports	When selected, a user-defined audio file is sent to the specified port(s) when the night ringer is activated.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click on the **Save** button.

4. Click **Reboot** for the new settings to take effect.

2.4.9 Configure the Zone Parameters

- Each audio output jack on the VoIP Zone Controller represents a **Zone**.
- A **Group** is comprised of a combination of one or more Zones.
- You will need to plug any Zones that are used on the VoIP Zone Controller into an analog amplifier. Any speakers attached to the amplifier will be present in the Zone.

1. Click on the **Zone Config** button to open the **Zone Configuration** page. See Figure 2-13.

Figure 2-13. Zone Configuration Setup

2. On the **Zone Configuration** page, enter values for the parameters indicated in Table 2-10.

Table 2-10. Zone Configuration Parameters

Web Page Item	Description
Zones	
Bypass DTMF	When selected, the ports in Zone **00** will be paged without waiting for DTMF entry.
Port 1 through **Port 4** Checkboxes	Check the box for the port(s) that comprise the zone.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click on the **Save** button.
4. Click **Reboot** for the new settings to take effect.

2.4.9.1 Operating the VoIP Zone Controller

To operate the VoIP Zone Controller:

1. Call to make a page. The VoIP Zone Controller will generate a tone over the phone.
2. When you hear this tone, enter the two-digit code for the group that you want to page.

   Note If the **Bypass DTMF** setting is enabled, go to Step 4.

3. If the zone is valid, the VoIP Zone Controller will play the user-defined "good zone" sound. Go to Step 4.

   Note If the zone is invalid, the VoIP Zone Controller will play the user-defined "bad zone" sound. Repeat Step 2.

4. When you hear the "good zone" tone, you can begin speaking.

2.4.10 Configure the Audio Parameters

Click the **Audio Config** button to open the **Audio Configuration** page. See Figure 2-14. The **Audio Configuration** page is used to add custom audio to the board. User uploaded audio will take precedence over the audio files shipped with the VoIP Zone Controller.

Figure 2-14. Audio Configuration Page

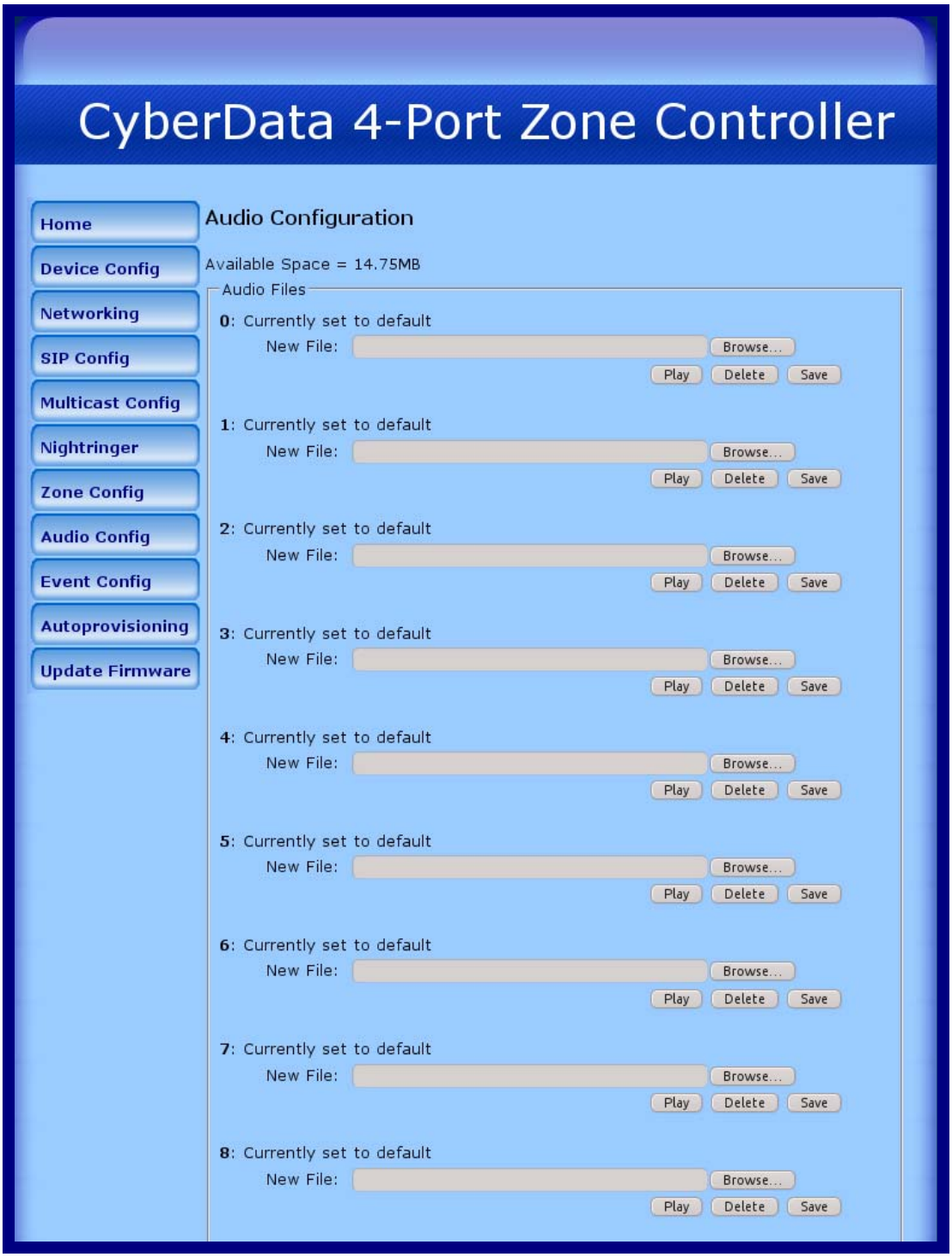


Figure 2-15. Audio Configuration Page

Note To test an audio file, first select the ports (located at the bottom of the **Audio Configuration Page**) that you want to play the audio file to, and then press the **Play** button for the desired audio file.

On the **Audio Configuration** page, enter values for the parameters indicated in Table 2-11.

Note Each entry on the **Audio Configuration** page replaces one of the stock audio files on the board. When the input box displays the word **default**, the VoIP Zone Controller is using the stock audio file. If that file is replaced with a user file, it will display the uploaded filename.

Table 2-11. Audio Configuration Parameters

Web Page Item	Description
Audio Files	
0-9	The name of the audio configuration option is the same as the spoken audio that plays on the board (24 character limit). '0' corresponds to the spoken word “zero.” '1' corresponds to the spoken word “one.” '2' corresponds to the spoken word “two.” '3' corresponds to the spoken word “three.” '4' corresponds to the spoken word “four.” '5' corresponds to the spoken word “five.” '6' corresponds to the spoken word “six.” '7' corresponds to the spoken word “seven.” '8' corresponds to the spoken word “eight.” '9' corresponds to the spoken word “nine.”
Dot	Corresponds to the spoken word “dot.” (24 character limit).
Audiotest	Corresponds to the message “This is the CyberData IP speaker test message...” (24 character limit).
Pagetone	Corresponds to a simple tone that is unused by default (24 character limit).
Invalid Zone	Corresponds to the message “Invalid Zone” (24 character limit).
Your IP Address is	Corresponds to the message “Your IP address is...” (24 character limit).
Rebooting	Corresponds to the spoken word “Rebooting” (24 character limit).
Restoring default	Corresponds to the message “Restoring default” (24 character limit).
Night Ring	Specifies the ringtone for nightring. By default this parameter uses the same audio file that is selected for the **Ring Tone** parameter.
Ports to play test audio	
Port 1 through **Port 4**	Select the desired port(s) for the audio test.
	The **Browse** button will allow you to navigate to and select an audio file.
	The **Play** button will play that audio file.
	The **Delete** button will delete any user uploaded audio and restore the stock audio file.
	The **Save** button will download a new user audio file to the board once you've selected the file by using the **Browse** button. The **Save** button will delete any pre-existing user-uploaded audio files.

2.4.10.1 User-created Audio Files

User created audio files should be saved in the following format:

RIFF (little-endian) data, WAVE audio, Microsoft PCM, 16 bit, mono 8000 Hz

You can use the free utility *Audacity* to convert audio files into this format. See Figure 2-16 through Figure 2-18.

Figure 2-16. Audacity 1

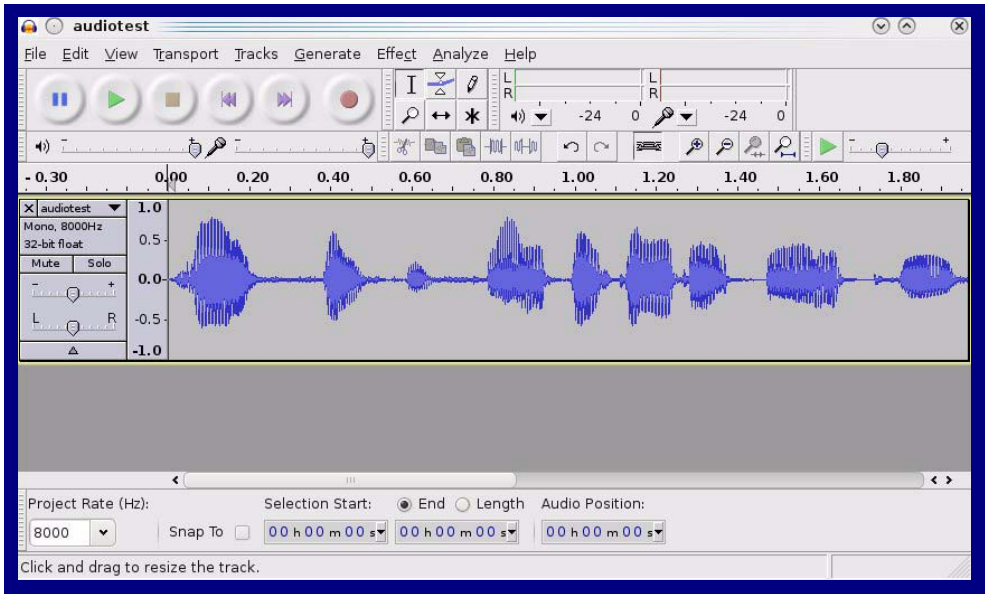
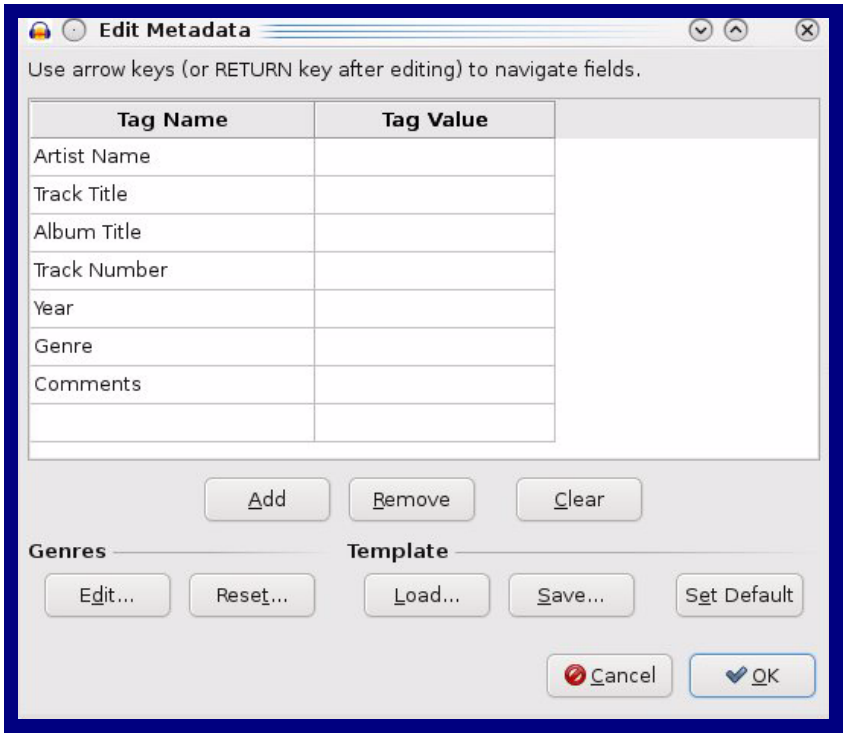


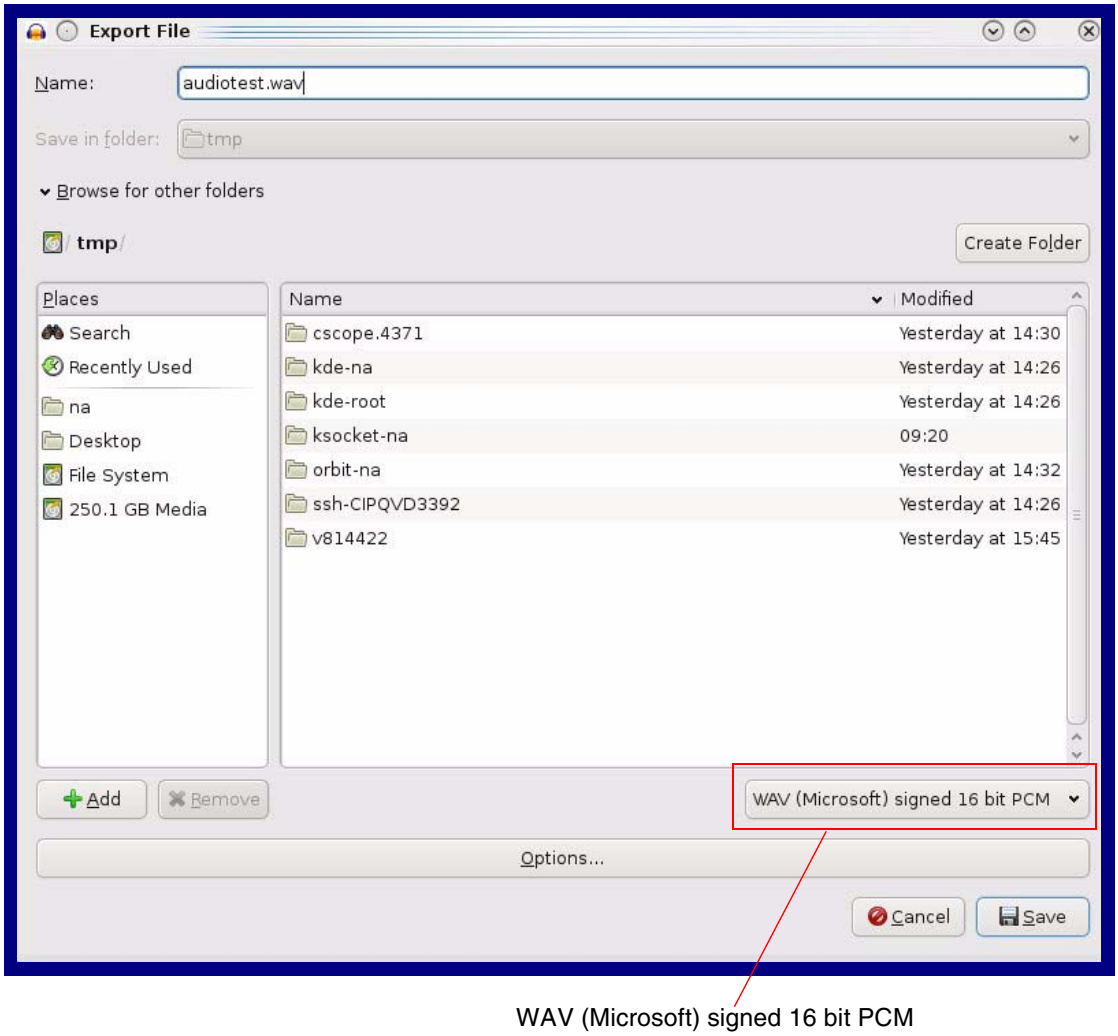
Figure 2-17. Audacity 2



When you export an audio file with Audacity, save the output as:

- **WAV (Microsoft) signed 16 bit PCM**.

Figure 2-18. WAV (Microsoft) signed 16 bit PCM



2.4.11 Configure the Event Parameters

Click the **Event Config** button to open the **Event Configuration** page (Figure 2-19). The **Event Configuration** page specifies a remote server that can be used to receive HTTP POST events when actions take place on the board.

Figure 2-19. Event Configuration Page

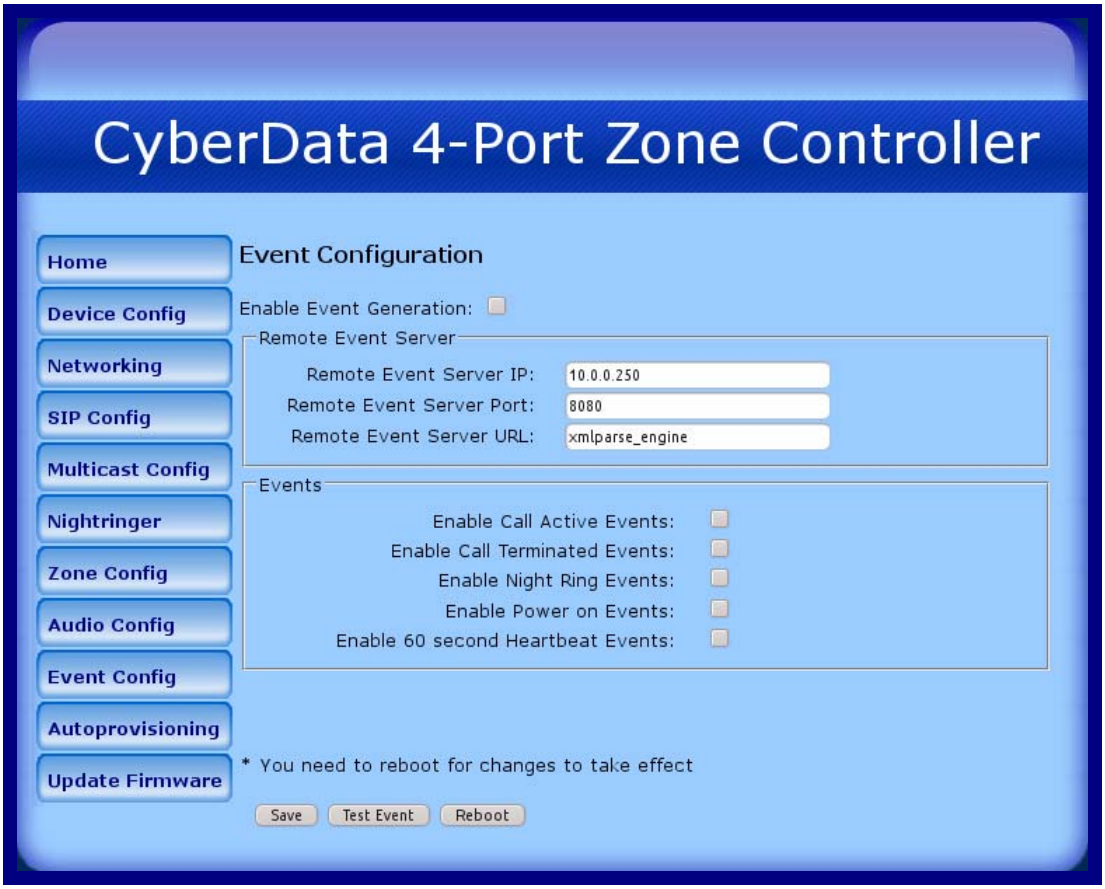


Table 2-12 shows the web page items on the **Event Configuration** page.

Table 2-12. Event Configuration

Web Page Item	Description
Enable Event Generation	When selected, Event Generation is enabled.
Remote Event Server	
Remote Event Server IP	Type the Remote Event Server IP address. (64 character limit)
Remote Event Server Port	Type the Remote Event Server port number. (8 character limit)
Remote Event Server URL	Type the Remote Event Server URL. (127 character limit)
Events	
Enable Call Active Events	When selected, Call Active Events are enabled.
Enable Call Terminated Events	When selected, Call Terminated Events are enabled.
Enable Night Ring Events	When selected, there is a notification when the unit receives a night ring.
Enable Power On Events	When selected, Power On Events are enabled.
Enable 60 Second Heartbeat Events	When selected, 60 Second Heartbeat Events are enabled.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Test Event	Click on the **Test Event** button to test an event.
Reboot	Click on the **Reboot** button to reboot the system.

2.4.11.1 Example Packets for Events

The server and port are used to point to the listening server and the 'Remote Event Server URL' is the destination URL (typically the script running on the remote server that's used to parse and process the POST events).

Note The XML is URL-encoded before transmission so the following examples are not completely accurate.

Here are example packets for every event:

```
POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>POWERON</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 199
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>HEARTBEAT</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 196
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>BUTTON</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 201
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_ACTIVE</event>
</cyberdata>
POST xmlparse_engine HTTP/1.1
```

```
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 205
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_TERMINATED</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RINGING</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_START</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 233
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_STOP</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_ACTIVATED</event>
</cyberdata>
POST xmlparse_engine HTTP/1.1
```

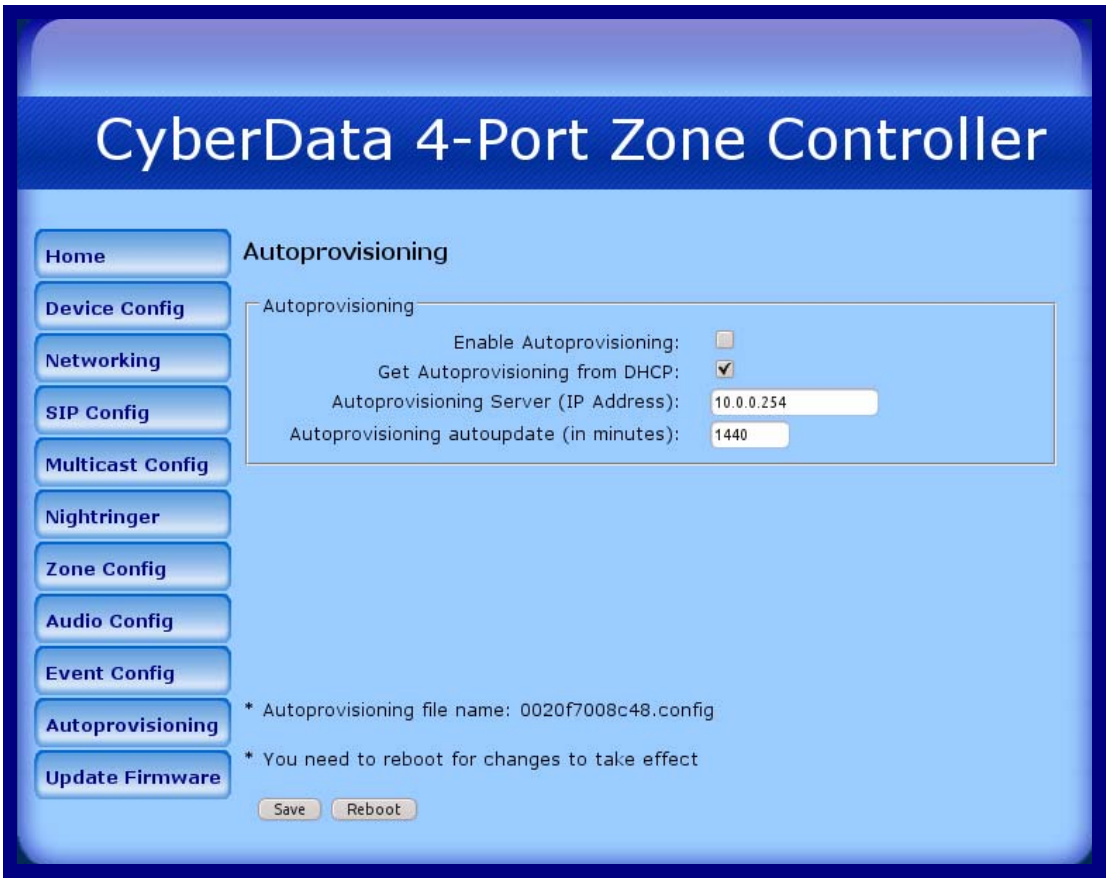
```
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_DEACTIVATED</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>NIGHTRINGING</event>
</cyberdata>
```

2.4.12 Configure the Autoprovisioning Parameters

1. Click the **Autoprovisioning** button to open the **Autoprovisioning Configuration** page. See Figure 2-20.

Figure 2-20. Autoprovisioning Configuration Page



2. On the **Autoprovisioning Configuration** page, you may enter values for the parameters indicated in Table 2-13.

Table 2-13. Autoprovisioning Configuration Parameters

Web Page Item	Description
Autoprovisioning	
Enable Autoprovisioning	See Section 2.4.12.1, "Autoprovisioning".
Get Autoprovisioning from DHCP	See Section 2.4.12.1, "Autoprovisioning".
Autoprovisioning Server (IP Address)	See Section 2.4.12.1, "Autoprovisioning" (15 character limit).
Autoprovisioning Autoupdate (in minutes)	Type the desired time (in minutes) that you want the Autoprovisioning feature to update (6 character limit).
Autoprovisioning file name	Displays the Autoprovisioning file name.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click the **Save** button.

2.4.12.1 Autoprovisioning

Enable Autoprovisioning Option

With autoprovisioning enabled, the board will get its configuration from a remote TFTP server on startup or periodically on a scheduled delay. Autoprovisioned values will override values stored in on-board memory and will be visible on the web page. The board gets its autoprovisioning information from an XML-formatted file hosted from a TFTP server. CyberData will provide a template for this XML file and the user can modify it for their own use.

To use autoprovisioning, create a copy of the autoprovisioning template with the desired settings and name this file with the mac address of the device to configure (for example: **0020f7350058.config**). Put this file into your TFTP server directory and manually set the TFTP server address on the board.

It is not necessary to set every option found in the autoprovisioning template. As long as the XML is valid, the file can contain any subset. Options not autoprovisioned will default to the values stored in the on board memory. For example if you only wanted to modify the device name, the following would be a valid autoprovisioning file:

```
<?xml version="1.0" encoding="utf-8" ?>
<specific>
    <MiscSettings>
        <DeviceName>auto VoIP Zone Controller</DeviceName>
    </MiscSettings>

</specific>
```

Networking

The board will only apply networking settings or firmware upgrades after a reboot.

Get Autoprovisioning from DHCP

When this option is checked, the device will automatically fetch its autoprovisioning server address from the DHCP server. The device will use the address specified in **OPTION 150** (TFTP-server-name) or **OPTION 66**. If both options are set, the device will use **OPTION 150**.

Refer to the documentation of your DHCP server for setting up **OPTION 150**.

To set up a Linux DHCPD server to serve autoprovisioning information (in this case using both option 66 and 150), here's an example dhcpd.conf:

```
# dhcpd.conf
#
# Configuration file for ISC dhcpd (see 'man dhcpd.conf')
#
ddns-update-style ad-hoc;

option option-150 code 150 = ip-address;

subnet 10.0.0.0 netmask 255.0.0.0 {
        max-lease-time 120;
        default-lease-time 120;

        option routers                  10.0.0.1;
        option subnet-mask              255.0.0.0;

        option domain-name              "voiplab";
        option domain-name-servers       10.0.0.1;

        option time-offset              -8;     # Pacific Standard Time

        option tftp-server-name         "10.0.0.254";

        option option-150               10.0.0.254;

        range 10.10.0.1 10.10.2.1;}
```

Autoprovisioning Server (IP Address)

Instead of using DHCP to provide the autoprovisioning tftp server address, you can specify an address manually.

Autoprovisioning Autoupdate

If **Autoprovisioning** is enabled and the **Autoprovisioning Autoupdate** value is something other than **0** minutes, a service is started on startup that will wait the configured number of minutes and then try to re-download its autoprovisioning file. It will compare its previously autoprovisioned file with this new file and if there are differences, it will reboot the board.

Autoprovisioned Firmware Upgrades

An Autoprovisioned firmware upgrade only happens after a reboot, will take roughly three minutes, and the web page will be unresponsive during this time.

The '**FirmwareVersion**' value in the xml file *must* match the version stored in the '**FirmwareFile**'. For example:

```
<FirmwareVersion>v6.0.0</FirmwareVersion>
<FirmwareFile>600-uImage-zonecontroller</FirmwareFile>
```

If these values are mismatched, the board can get stuck in a loop where it goes through the following sequence of actions:

1. The board downloads and writes a new firmware file.
2. After the next reboot, the board recognizes that the firmware version does not match.
3. The board downloads and writes the firmware file again.

CyberData has timed a firmware upgrade at 140 seconds. Therefore, if you suspect the board is stuck in a loop, either remove or comment out the **FirmwareVersion** line in the XML file and let the board boot as it normally does.

Note For information about TFTP servers, see Appendix Section A.1, "Set up a TFTP Server".

Autoprovisioned Audio Files

Audio files are stored in non-volatile memory and an autoprovisioned audio file will only have to be downloaded once for each device. Loading many audio files to the device from the web page could cause it to appear unresponsive. If this happens, wait until the transfer is complete and then refresh the page.

The device uses the file name to determine when to download a new audio file. This means that if you used autoprovisioning to upload a file and then changed the contents of this file at the TFTP server, the device will not recognize that the file has changed (because the file name is the same).

Since audio files are stored in non-volatile memory, if autoprovisioning is disabled after they have been loaded to the board, the audio file settings will not change. You can force a change to the audio files on the board by one of the following two ways:

- Click **Delete** for each file that you want to restore to the factory default audio file on the **Audio Configuration** page**.**
- Change the autoprovisioning file with the word "***default***" set as the file name.

2.5 Upgrading the Firmware

1. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-21.

Figure 2-21. Upgrade Firmware Page

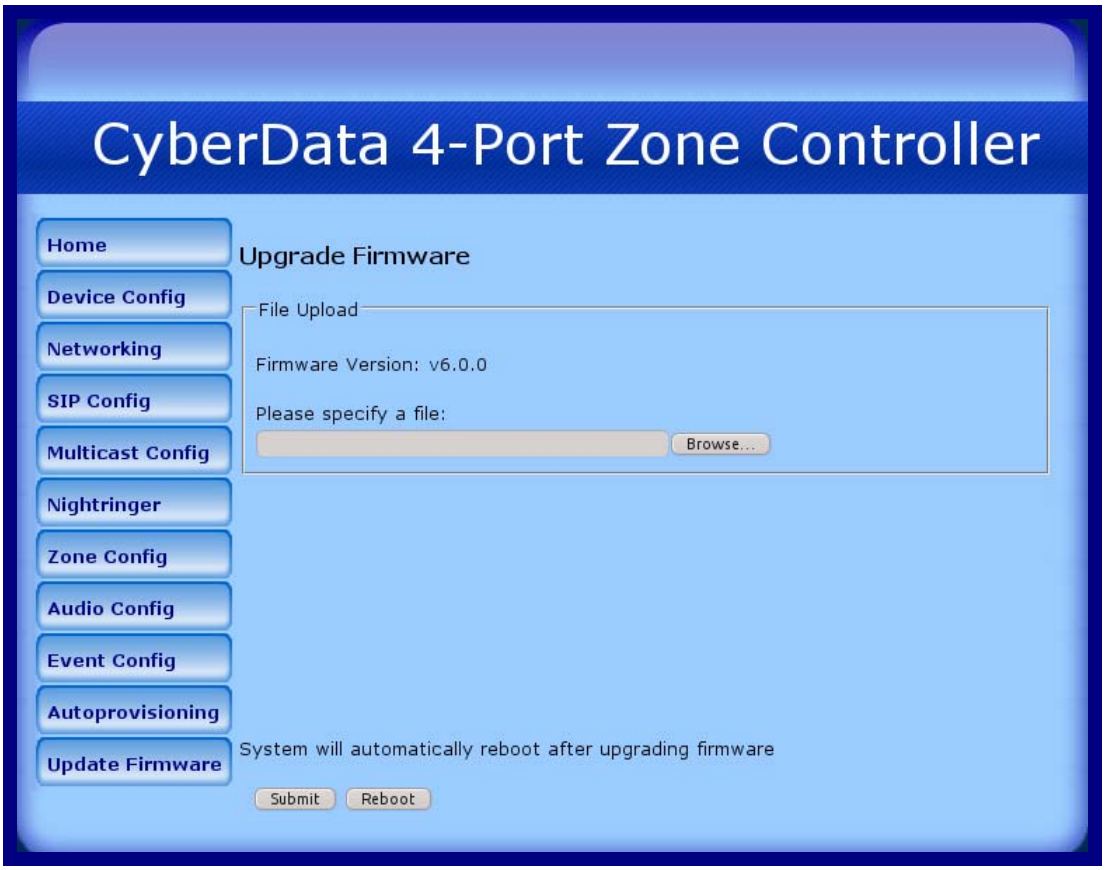


Table 2-14 shows the web page items on the **Upgrade Firmware** page.

Table 2-14. Upgrade Firmware Parameters

Web Page Item	Description
File Upload	
Firmware Version	Shows the current firmware version.
Please specify a file	Click the **Browse** button to navigate to the application firmware file that you want to upload.
Submit	Click on the **Submit** button to automatically upload the selected firmware and reboot the system.
Reboot	Click on the **Reboot** button to reboot the system.

2.5.0.1 Upgrade the Firmware

To upload the firmware from your computer:

1. Retrieve the latest VoIP Zone Controller firmware from the VoIP V3 Paging Server **Downloads** page at:

   http://www.cyberdata.net/products/voip/legacyanalog/pagingzonev3/downloads.html

2. Unzip the VoIP Zone Controller version file. This file may contain the following:

- Firmware file
- Release notes

3. Log in to the VoIP Zone Controller home page as instructed in Section 2.4.3, "Log in to the Configuration GUI".

4. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-21.

5. Click **Browse**, and then navigate to the location of the VoIP Zone Controller firmware file.

6. Click **Submit**.

Note This starts the upload process. Once the VoIP Zone Controller has uploaded the file, the **Uploading Firmware** countdown page appears, indicating that the firmware is being written to flash. The VoIP Zone Controller will automatically reboot when the upload is complete. When the countdown finishes, the **Upgrade Firmware** page will refresh. The uploaded firmware filename should be displayed in the system configuration (indicating successful upload and reboot).

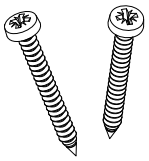
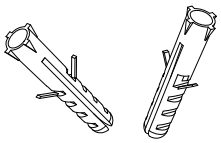
Appendix A: Mounting the VoIP Zone Controller

A.1 Mount the VoIP Zone Controller

A.1.1 Mounting Components

Before you mount the VoIP Zone Controller, make sure that you have received all of the parts for each VoIP Zone Controller. Refer to Table A-1.

Table A-1. Wall Mounting Components (Part of the Accessory Kit)

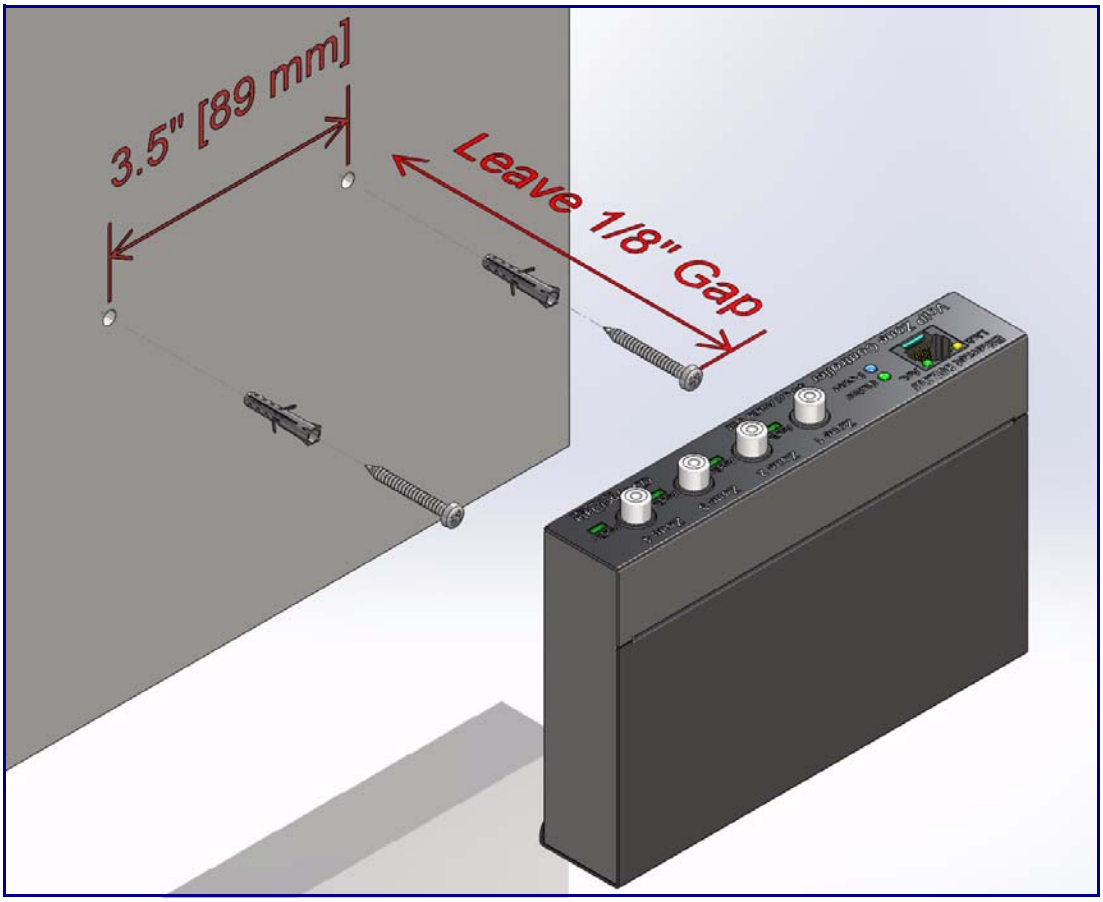
Quantity	Part Name	Illustration
2	#6 x 1 1/2-inch Screws	
2	#6 Plastic-Ribbed Anchors	

A.1.2 Mounting Procedure

To mount the VoIP Zone Controller:

1. On the mounting location, mark and then drill two 3/16-inch (0.1875-inch) holes 3.5 inches apart from and parallel to each other for the plastic-ribbed anchors and screws. See Figure A-1.
2. Insert the plastic-ribbed anchors into the prepared holes. See Figure A-1.
3. Install the #6 screws into the plastic-ribbed anchors and leave approximately 1/8-inch gap from the screw head to the wall. See Figure A-1.
4. Determine which sides of the VoIP Zone Controller will be facing up, and then slide the VoIP Zone Controller down over the screws to latch onto the screws.

Figure A-1. Mounting



Appendix A: Setting Up a TFTP Server

A.1 Set up a TFTP Server

Autoprovisioning requires a TFTP server for hosting the configuration file.

A.1.1 In a LINUX Environment

To set up a TFTP server on LINUX:

1. Create a directory dedicated to the TFTP server, and move the files to be uploaded to that directory.
2. Run the following command where `/tftpboot/` is the path to the directory you created in Step 1: the directory that contains the files to be uploaded. For example:

   ```
   in.tftpd -l -s /tftpboot/your_directory_name
   ```

A.1.2 In a Windows Environment

You can find several options online for setting up a Windows TFTP server. This example explains how to use the Solarwinds freeware TFTP server, which you can download at:

http://www.cyberdata.net/support/voip/solarwinds.html

To set up a TFTP server on Windows:

1. Install and start the software.
2. Select **File/Configure/Security** tab/**Transmit Only**.
3. Make a note of the default directory name, and then move the firmware files to be uploaded to that directory.

Appendix B: Troubleshooting/Technical Support

B.1 Frequently Asked Questions (FAQ)

Go to the following URL to see CyberData's list of frequently asked questions:

http://www.cyberdata.net/products/voip/legacyanalog/pagingzonev3/faqs.html

B.1.1 Documentation

The documentation for this product is released in an English language version only. You can download PDF copies of CyberData product documentation at:

http://www.cyberdata.net/products/voip/legacyanalog/pagingzonev3/docs.html

B.2 Contact Information

Contact	CyberData Corporation 3 Justin Court Monterey, CA 93940 USA www.CyberData.net Phone: 800-CYBERDATA (800-292-3732) Fax: 831-373-4193
Sales	Sales 831-373-2601 Extension 334
Technical Support	The fastest way to get technical support for your VoIP product is to submit a VoIP Technical Support form at the following website: **http://www.cyberdata.net/support/contactsupportvoip.html** Phone: (831) 373-2601, Ext. 333 Email: support@cyberdata.net
Returned Materials Authorization	To return the product, contact the Returned Materials Authorization (RMA) department: Phone: 831-373-2601, Extension 136 Email: RMA@CyberData.net When returning a product to CyberData, an approved CyberData RMA number must be printed on the outside of the original shipping package. No product will be accepted for return without an approved RMA number. Send the product, in its original package, to the following address: CyberData Corporation 3 Justin Court Monterey, CA 93940 Attention: RMA "your RMA number"
RMA Status Form	If you need to inquire about the repair status of your product(s), please use the CyberData RMA Status form at the following web address: **http://www.cyberdata.net/support/rmastatus.html**

B.3 Warranty

CyberData warrants its product against defects in material or workmanship for a period of two years from the date of purchase. Should the product fail within the warranty period, CyberData will repair or replace the product free of charge. This warranty includes all parts and labor.

Should the product fail out-of-warranty, a flat rate repair charge of one half of the purchase price of the product will be assessed. Repairs that are in warranty but are damaged by improper modifications or abuse, will be charged at the out-of-warranty rate. Products shipped to CyberData, both in and out-of-warranty, are shipped at the expense of the customer. Shipping charges for repaired products shipped back to the customer by CyberData, will be paid by CyberData.

CyberData shall not under any circumstances be liable to any person for any special, incidental, indirect or consequential damages, including without limitation, damages resulting from use or malfunction of the products, loss of profits or revenues or costs of replacement goods, even if CyberData is informed in advance of the possibility of such damages.

B.3.1 Warranty & RMA Returns within the United States

If service is required, you must contact CyberData Technical Support prior to returning any products to CyberData. Our Technical Support staff will determine if your product should be returned to us for further inspection. If Technical Support determines that your product needs to be returned to CyberData, an RMA number will be issued to you at this point.

Your issued RMA number must be printed on the outside of the shipping box. No product will be accepted for return without an approved RMA number. The product in its original package should be sent to the following address:

CyberData Corporation

3 Justin Court.

Monterey, CA 93940

Attn: RMA "xxxxxx"

B.3.2 Warranty & RMA Returns Outside of the United States

If you purchased your equipment through an authorized international distributor or reseller, please contact them directly for product repairs.

B.3.3 Spare in the Air Policy

CyberData now offers a *Spare in the Air* no wait policy for warranty returns within the United States and Canada. More information about the *Spare in the Air* policy is available at the following web address:

http://www.cyberdata.net/support/warranty/spareintheair.html

B.3.4 Return and Restocking Policy

For our authorized distributors and resellers, please refer to your CyberData Service Agreement for information on our return guidelines and procedures.

For End Users, please contact the company that you purchased your equipment from for their return policy.

B.3.5 Warranty and RMA Returns Page

The most recent warranty and RMA information is available at the CyberData Warranty and RMA Returns Page at the following web address:

http://www.cyberdata.net/support/warranty/index.html

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