CyberData SIP Page Server V3 Integration with 8x8 – Serial Numbers 1461x

This document covers the integration of CyberData's SIP Page Server V3 with 8x8. This document was written for 8x8 and the following CyberData Products.

- 011146C SERVER,V3 VoIP PAGING (Ver. 12.0.0)
- For Serial numbers starting with 1461

All support and supporting documentation for CyberData should be obtained from CyberData itself. This document also assumes the reader is familiar with setting up CyberData Paging equipment and/or has access to the Manuals for the CyberData equipment, as several sections are left out of this manual such as setting up the network configuration of the CyberData Equipment and pin outs for relay, and audio out usage.

CyberData devices do integrate with both Yealink and Polycom devices, 8x8 suggests using Yealink devices over Polycom if more than one zone is needed. For more information on the integration process see integration section.

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2 Integration

CyberData SIP Paging Server can be integrated in multiple ways with 8x8, each integration option has its unique benefits and draw backs. For the best integration between all types of phones (Polycom, Yealink, and other 3rd party devices) as well as routing and remote devices 8x8 recommends SIP Page and Converted to Multicast.

The CyberData Paging Server will transmit (broadcast) any SIP page it receives to the defined multicast zones.

The CyberData Paging Server provides a method to integrate Multicast Paging with Traditional Paging equipment by providing a line in of 10K Ohms at 2VPP and Output at 10k Ohms at 2VPP. There is also a Page Port that is 600 Ohms at 5VPP option as well as providing Relay Control.

Starting with CyberData firmware 7.2.0 you can integrate Polycom Group Paging with traditional Multicast paging services. This is accomplished via CyberData firmware enhancements to provide Multicast and Group Paging features at the same time, for more information see CyberData's website.

2.1 SIP Page and Converted to Multicast

When integrating the 8x8 with the CyberData SIP Paging Server and Ceiling Speakers, 8x8 recommends integrating the CyberData Paging server into the existing paging functions of 8x8. This will afford the possibility to integrate the Yealink, Polycom and other 3rd party equipment along with the CyberData Paging equipment. Following this method of integration, the Yealink and Polycom phones can be integrated using the traditional SIP Paging methods used by 8x8, but with the integration of the CyberData. The SIP call can automatically be converted to Multicast Paging which is used by the CyberData paging equipment, and can be integrated with the Yealink and Polycom line of phones.

Traditional paging equipment can be integrated into this solution using CyberData SIP Paging Server's Audio Out port and Relays.

Users will simply dial the page extension, select the proper zone, and make their page. A SIP call will be placed to the CyberData Paging Server (and any other device in the page group). The CyberData Page Server will convert the SIP call to Multicast to stream to all Polycom and Yealink devices on the network.

2.2 Pure Multicast

When using CyberData paging equipment you can integrate as a pure multicast solution, in that you will no longer use the paging services of 8x8, and rely purely on Multicast capabilities of the Polycom, Yealink and CyberData equipment. When using CyberData's SIP Paging server and Yealink phones you may either dedicate a unique paging button on the phone per page zone. The Yealink phones only support listening to 5 multicast paging zones. If using Polycom phones, you can only use one of the Polycom paging groups.

Traditional paging equipment can be integrated into this solution using CyberData SIP Paging Server's Audio Out and Relays.

Users will press a predefined paging button on the Polycom and Yealink devices to initiate the page, this will start a multicast from the device to all other devices listening to the same multicast IP address and Port pair.

2.3 Traditional Paging Equipment

Traditional Paging equipment can be integrated into either integration option (SIP or Multicast) by the CyberData SIP Paging Server. It is recommended to use the CyberData SIP Paging Server to integrate with traditional paging equipment input and offers the ability to include relays. The CyberData Paging Server supports a 600 Ohms at 5 VPP output referred to as Page Port and a 10K Ohms at 2 VPP output referred to as Line Out.

If integrating multiple locations with traditional paging equipment it is recommended to use the CyberData Paging Server to integrate additional locations using SIP paging from the 8x8, and the CyberData Paging Server to integrate to the traditional paging equipment.

2.4 Including Ceiling Speakers

When integrating Ceiling speakers, you may use traditional paging equipment, or it is recommended to use CyberData Ceiling Speakers that are fully integrated with the CyberData SIP Paging Server.

3 Multicast Paging

3.1 How Multicast Paging Works

After a user presses a configured “Paging” key on the phone, the phone sends a page message (which is an RTP stream, hereinafter referred to as a “page”) to a preconfigured multicast address. Any device in the local network listens for the page on the preconfigured multicast address. The device will display the multicast page sent/received address to the user. You can define multiple multicast zones by using a different multicast IP or port number, a single device can listen to multiple IP:Port combinations.

The device uses G711 uLaw CODEC for multicast paging.

The recipient can drop the incoming page if required. The recipient can also press Do Not Disturb (DND) or other “ignore” options on the device to ignore/reject any incoming pages.

3.2 Caveats of Multicast Paging

Multicast paging is designed for Yealink and Polycom devices. There is no guaranteed interoperability with any other 8x8 supported phones. CyberData Paging Equipment is an exception, as it has been tested and certified to work properly with the Yealink and Polycom phones. The Virtual Office Desktop Softphone does not support multicast paging.

This service is typically non-routable, and cannot be used to page across the WAN, complex VLANs, or to remote devices.

Note: Multicast page is one-way only - from sender to the receiver.

Note: For outgoing pages, all other existing calls on the phone are put on hold.

If a page session already exists on the phone, and the phone receives another incoming page, the priority is given to the first multicast session and the second multicast session is ignored. The behavior for the incoming calls in this case is also based on the setting for the “Allow Barge In” parameter. The incoming call is handled as if there were an existing call already on the phone.

3.3 Advantages of Multicast Paging

Multicast paging allows for virtually unlimited paging capability in a local network, does not require a session license to operate, and is almost instantaneous, as it does not require the phones to acknowledge the page request.

4 SIP Paging

4.1 How SIP Paging Works

SIP paging works as follows: The 8x8 phone places a SIP call to the device with an auto answer flag, the Cyber Data Paging Server will auto answer when properly configured for auto answer, and DTMF zone selection is disabled. If DTMF zone selection is enabled, the user will be promoted to select a 2-digit zone.

4.2 Caveats of SIP Paging

- Limited to 1 device currently, unless using the Configuration Manager.

4.3 Advantages of SIP Paging

- Works with remote devices.
- Works with the Yealink and Polycom product line.

5 Creating a User Profile on 8x8 for SIP Calls and Night Ring Capabilities

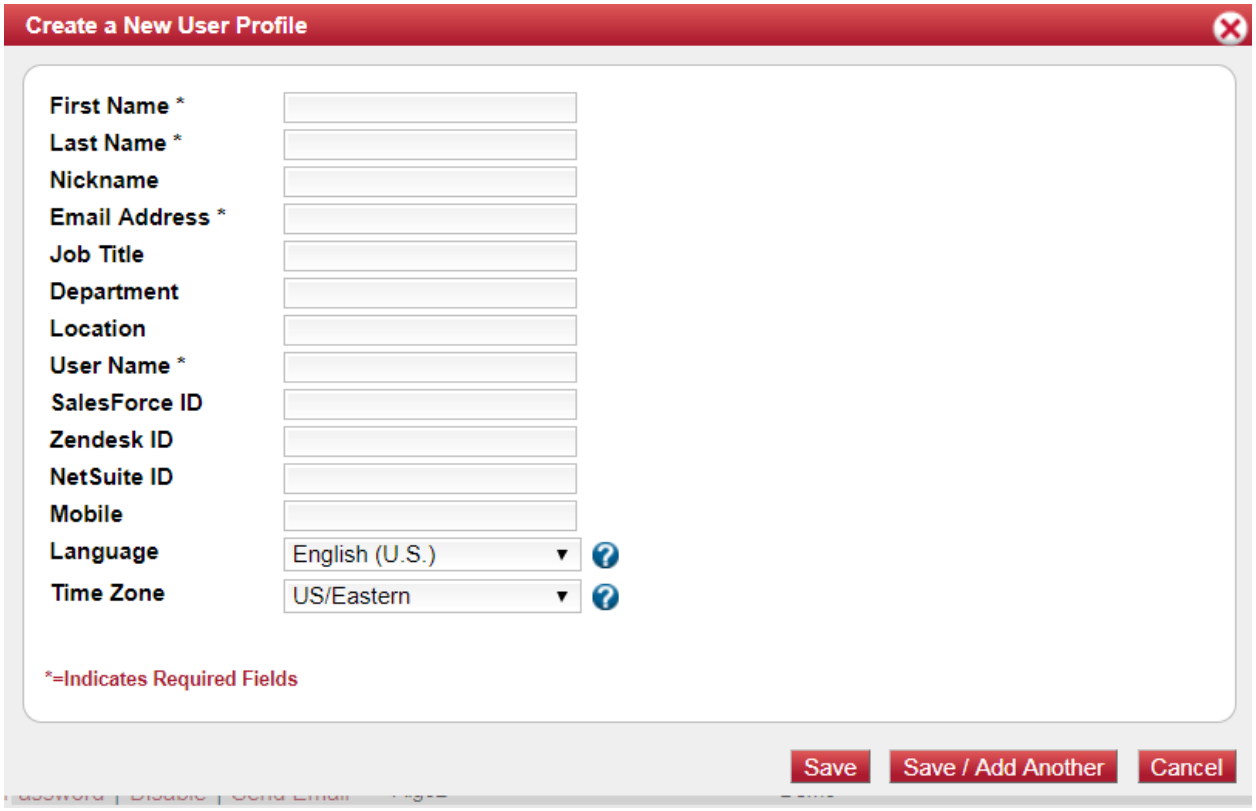
If using the SIP Call and or Night Ring capabilities of the SIP Paging Server, a softphone device should be ordered and a user is required to be created on 8x8. Create a user profile and assign the new user profile to the softphone only device ordered. This will be needed to be done for Each Registration required on the CyberData Device. If not using the SIP Call or Night Ring capabilities of the CyberData equipment this section can be skipped.

5.1 Create User Profile

In account manager, click on Accounts and then User Profiles. Click Create New User Profile. Provide the following information:

- First Name (Required)
- Last Name (Required)
- Nickname (Optional)

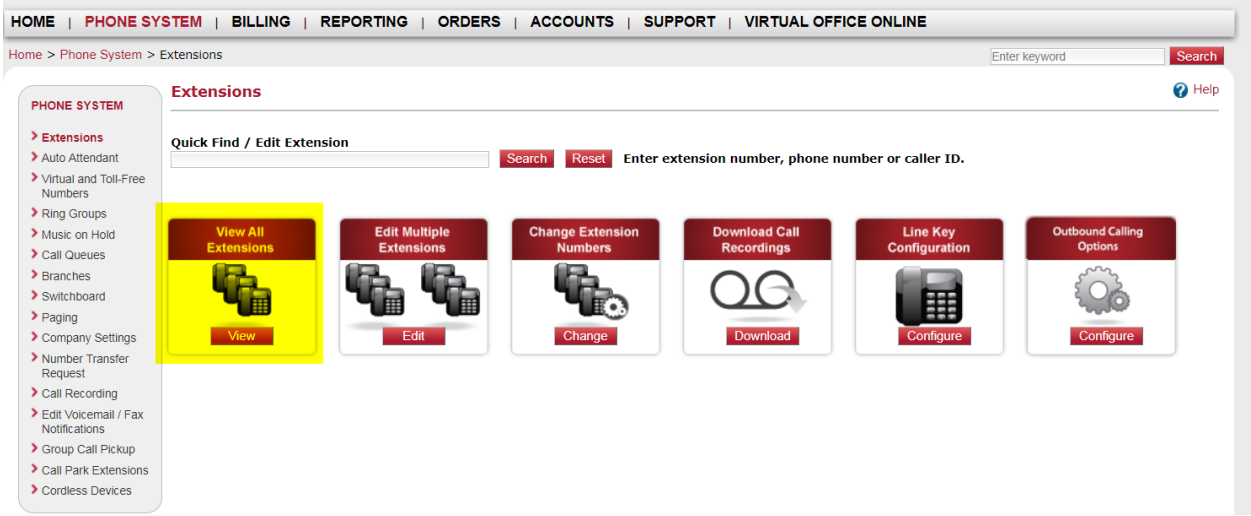
- Email Address (Required, and must be unique)
- Job Title (Optional)
- Department (Optional)
- Location (Optional)
- User Name (Required)
- SalesForce ID (Ignore)
- Zendesk ID (Ignore)
- NetSuite ID (Ignore)
- Mobile (Ignore)
- Language (Optional, Leave as Default)
- Time Zone (Optional, Leave as default)



Click on Save (or Save / Add Another if going to add a Page user as well).

6 Assign User to the Device

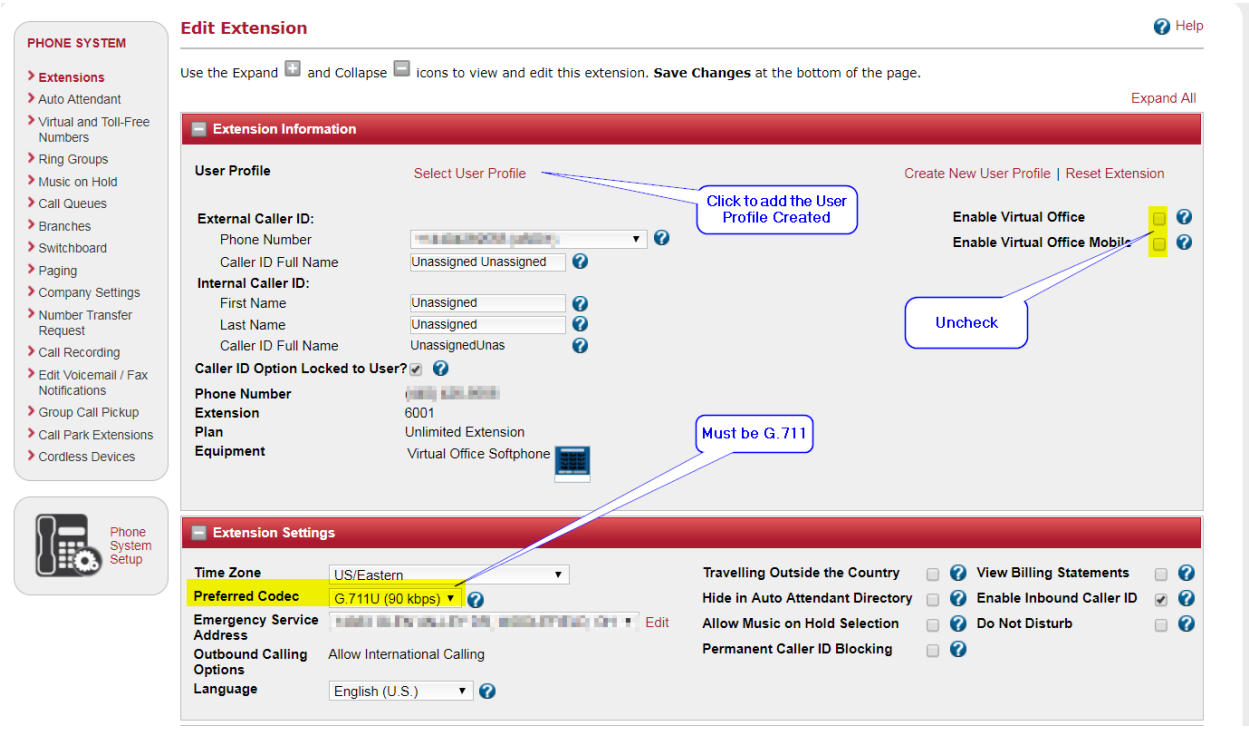
After creating the user profile that will interface with CyberData Equipment, assign the user to the device. In Account Manager select Phone System, and then click on View All Extensions.



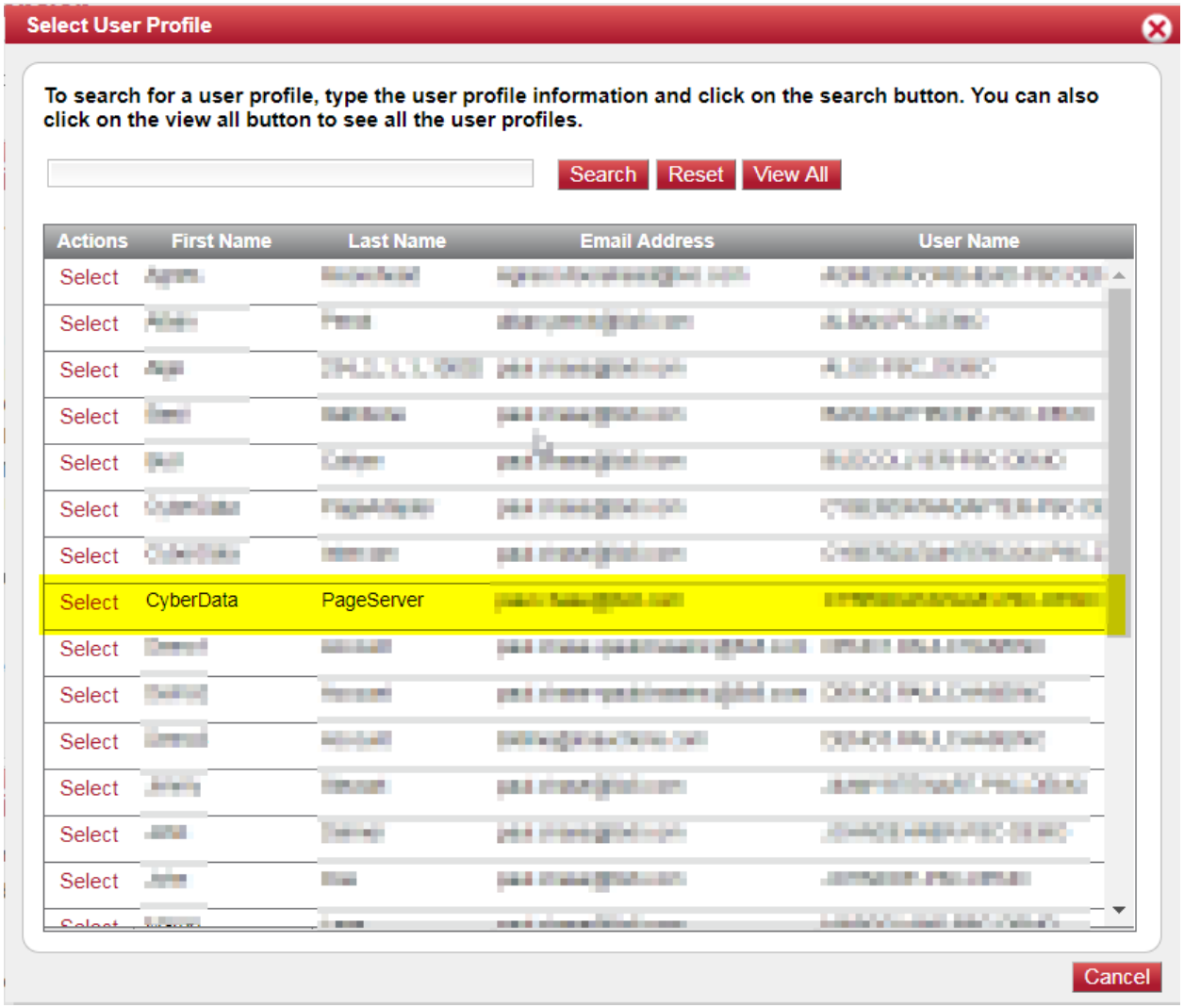
From the list of extensions find the extension ordered for the Cyber Data Device, and click Edit.

Set the following item, the rest can be left as “default”.

- Enable Virtual Office: No/Unchecked
- Enable Virtual Office Mobile: No/Unchecked
- Verify Preferred Codec is set to G.711U (90 kpbs)



Then click on “Select User Profile to add the appropriate User Profile, by clicking the “select” next to the profile you want to use.



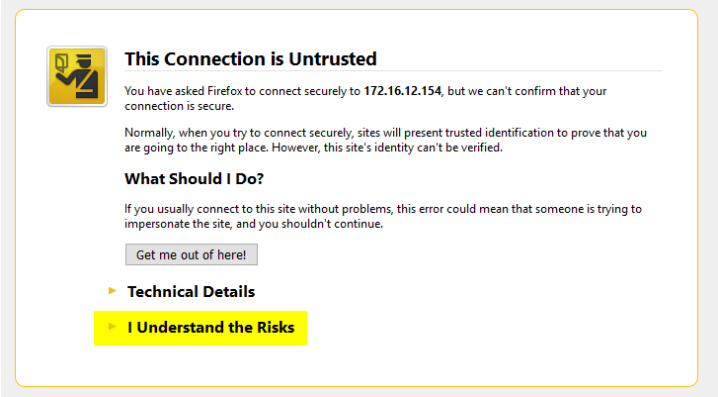
It will return you to the previous screen and click on “Save Changes”.

7 CyberData SIP Paging Server Setup

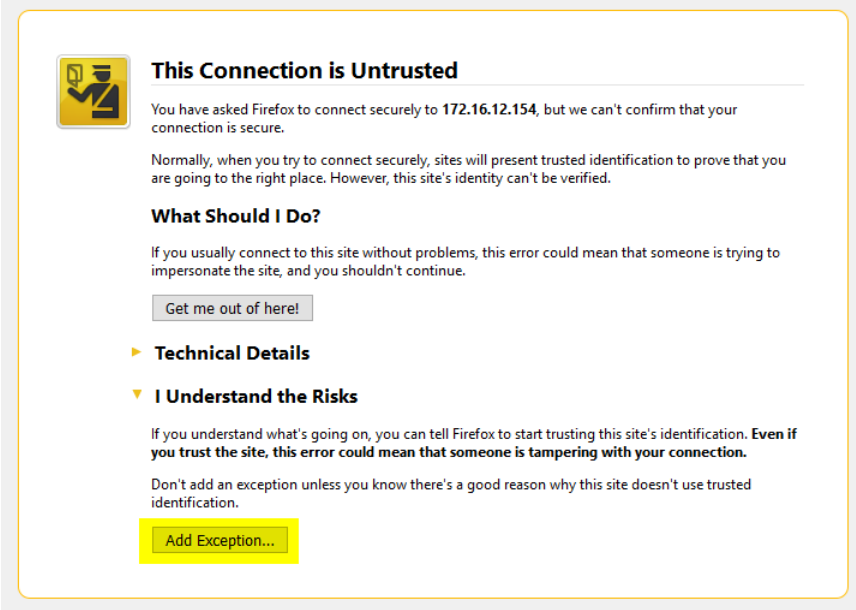
When deploying the CyberData SIP Paging server it is recommended to use DHCP. CyberData provides a “Discovery Utility” that can be downloaded from their website (http://www.cyberdata.net/support/voip/discovery_utility.html) to initially discover the IP address of the SIP Paging Server. Using the CyberData Discovery Utility to obtain the current IP address of the CyberData SIP Paging Server login using a web browser using the default username of “**admin**” and the default password of “**admin**”. For more information on using the discovery utility and basic setup of the CyberData equipment, please refer to the operating manuals from CyberData.

7.1 Connecting to the CyberData SIP Page Server

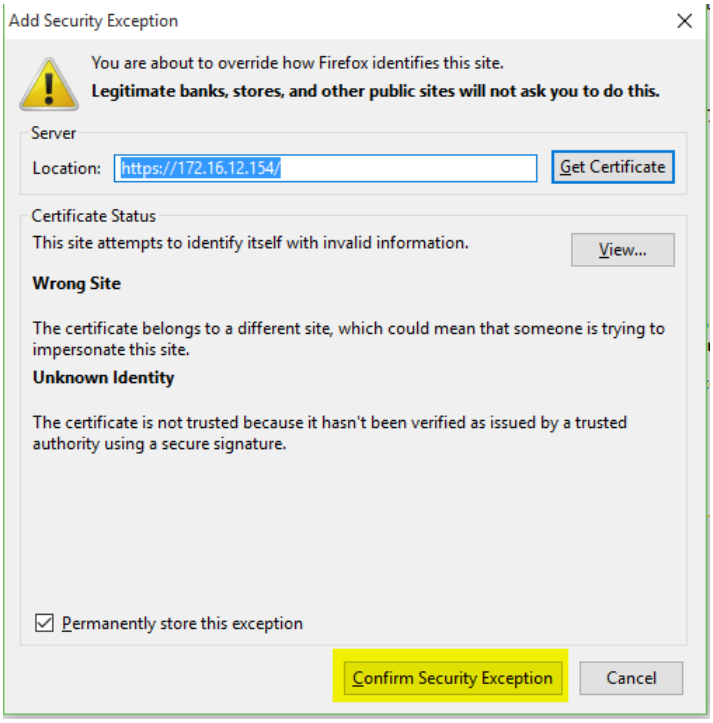
The CyberData SIP Paging Server now uses HTTPS to provision the device. When connecting to the CyberData Paging Server you will be required to accept the Self Signed certificate by clicking on “I understand the risks” link.



Then click “Add Exception”.



And then click Confirm Security Exception.



7.2 Home Screen

After logging into the CyberData SIP Paging server using your favorite browser you are immediately taken to the Home Screen which will display the following information.

On the Top, you will find your navigation options,

Change Username: Type in this field to change the username (25-character limit).

- Default: **admin**

Change Password: Type in this field to change the password (19-character limit).

- Default: **admin**

Confirm Password: Type the password again in this field to confirm the new password (19-character limit).

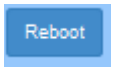
Current Status:

Provides you with the current IP addressing of the device, Mac address and serial number.

The home screen will also show the current registration status, and features enabled on the CyberData SIP Paging Server.

Click on 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.

7.3 Device Configuration

On the device configuration screen, you can configure several default options for the paging server, and perform basic operation tests. The IP addresses and Port Numbers used in this document are example IP and port number, you may select the appropriate multicast IP address range and ports for your deployment.

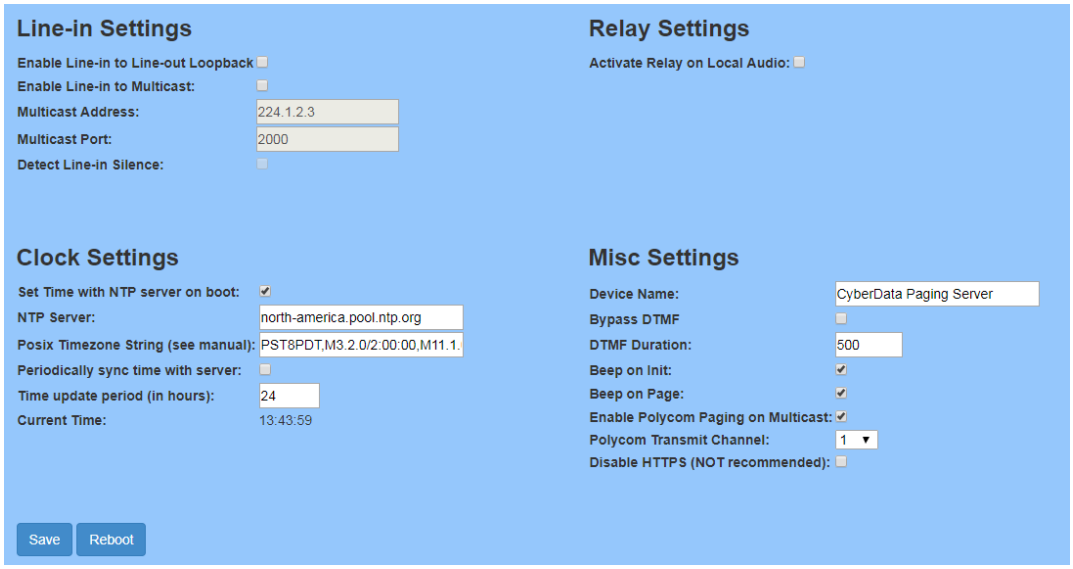
Note: Multicast Address used on this screen cannot be a multicast address used for your paging groups.

Note: The below configuration assumes the installer is NOT using the line/line out options. If you are using Line and Line out options you will want to make required adjustments for Line In/Line Out configuration options.

Device Name: Shows the device name (25-character limit). If using multiple paging servers, please provide a unique name for each server.

Bypass DTMF:

- When integrating with the Yealink or Polycom built in paging function, this option should be CHECKED. This will allow the CyberData SIP Page Server to automatically answer the paging SIP Call and relay the page through PGROUP 00.
- When not integrating with the Yealink or Polycom paging function and the CyberData SIP Page Server will control the zones(s) this option should be left UNCHECKED.



DTMF Duration: The duration, in milliseconds, of DTMF tones played out of the device's analog audio ports (0-65535). :500

Disable HTTPS (NOT recommended): Disables the encrypted connection to the webpage. We do not recommend disabling HTTPS for security reasons. :Unchecked

Beep on Initialization: Checked

Beep on page: Checked

Enable line-in to line-out loop back: Unchecked

Enable line-in to multicast: Unchecked

Multicast Address: IP of your choice.

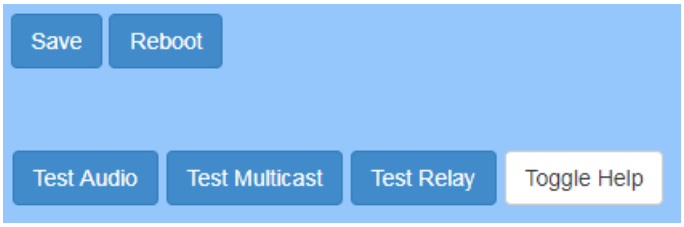
Multicast Port: port of your choice.

Detect line-in silence: Not Checked

Activate relay on local audio: Not Checked

Enable Polycom Paging on Multicast: Check if you wish to enable Polycom Multicast paging.

Polycom Transmit Channel:The channel used to submit the multicast page for Polycom Devices.



Save Click on the Save button to save your configuration settings.

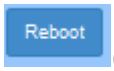
Note: You need to reboot for changes to take effect.

Test Audio When the Test Audio button is pressed, you will hear a voice message for testing the device audio quality and volume.

Test Multicast When the Test Multicast button is pressed, the Paging Server will send a five second canned ULAW message to a predetermined multicast address and port.

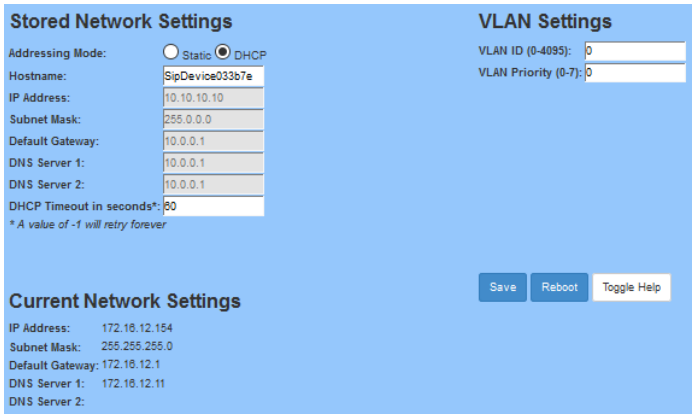
Test Relay Click on the Test Relay button to do a relay test.

Toggle Help Click on the Toggle Help button to see a short description of some of the web page items. First click on the Toggle Help button, and you will see a question mark ( ) appear next to some of the web page items. Move the mouse pointer to hover over a question mark to see a short description of a specific web page item.



Click on the Reboot button to reboot the system.

7.4 Network Configuration



Addressing Node Select either DHCP IP Addressing or Static Addressing by marking the appropriate radio button. DHCP Addressing mode is enabled on
default and the device will attempt to resolve network addressing with the local DHCP server upon boot. If DHCP Addressing fails, the device will revert to the last known IP address or the factory default address if no prior DHCP lease was established.

Hostname This is the hostname provided by the DHCP server. See the DHCP/ DNS server documentation for more information. Enter up to 64 characters.

IP Address Enter the Static IPv4 network address in dotted decimal notation.

Subnet Mask Enter the Subnet Mask in dotted decimal notation.

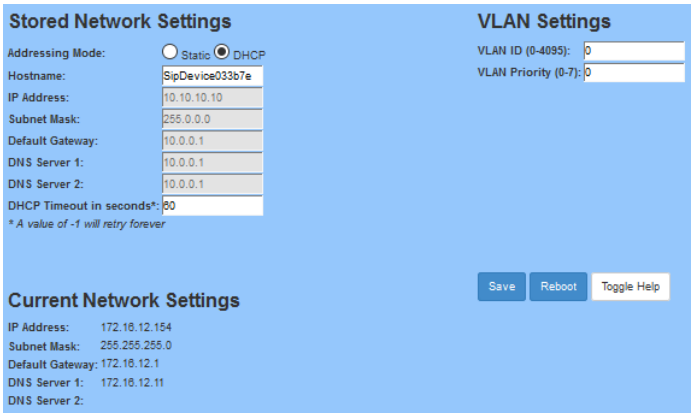
Default Gateway Enter the Default Gateway IPv4 address in dotted decimal notation.

DNS Server 1 Enter the primary DNS Server IPv4 address in dotted decimal notation.

DNS Server 2 Enter the secondary DNS Server IPv4 address in dotted decimal notation.

DHCP Timeout in seconds Specify the desired time-out duration (in seconds) that the device will wait for a response from the DHCP server before reverting to the stored static IP address.

The stored static IP address may be the last known IP address or the factory default address if no prior DHCP lease was established. Enter up to 8 characters. A value of -1 will retry forever.



Save Click on 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.

Toggle Help Click on the Toggle Help button to see a short description of some of the web page items. First click on the Toggle Help button, and you will see a question mark ( ) appear next to some of the web page items. Move the mouse pointer to hover over a question mark to see a short description of a specific web page item.

7.5 SIP Configuration

SIP configuration screen is used to configure the SIP registration parameters used by the CyberData SIP Page Server to register with 8x8 for paging purposes. The SIP User ID and Authentication ID are the same values which is the GUN ID provided by your 8x8 for the device and assigned to the user created previously. Authentication Password is provided by your 8x8 Engineer.

Enable SIP Operation:
Checked

SIP Server: unsbc.8x8.com

Backup SIP Server 1: Not Used

Backup SIP Server 2: Not Used

Remote SIP Port: 5299

Local SIP Port: 5060

Outbound Proxy: must be left blank.

Outbound Proxy Port: 0

SIP User ID: the GUN ID provided by your 8x8 Engineer.

Authentication ID: Same as User ID.

Authentication Password: the SIP Proxy Password provided by your 8x8 engineer.

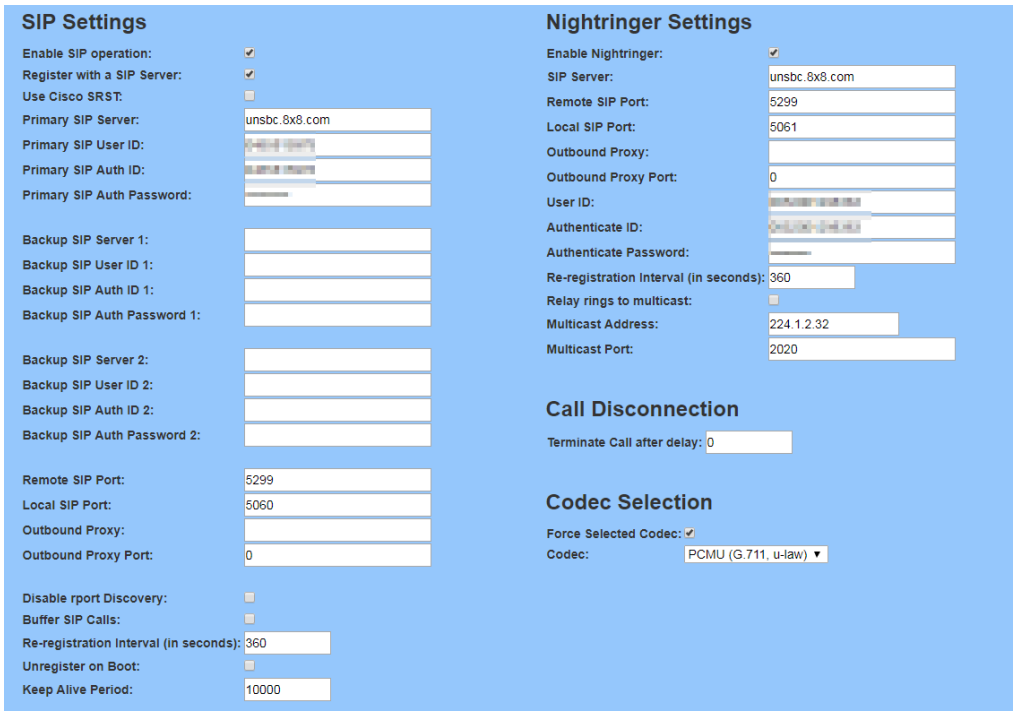
Register with a SIP Server: Checked

Re-registration Interval: 360

Unregister on Reboot: Unchecked

Note: if checked will create an issue on registration, and the device will fail to register.

Buffer SIP Calls: Optional, if checked the CyberData SIP Server will buffer the page, and once the call is disconnected, it will make the page.



7.6 Nightringer Configuration

Nightringer configuration screen is used to configure the SIP registration parameters used by the CyberData SIP Page Server to register with 8x8 for Night Bell or Nightringer purposes. The SIP User ID and Authentication ID are the same values which is the GUN ID provided by your 8x8 for the device and assigned to the user. Authentication Password is provided by your 8x8 Engineer.

Enable Nightringer: Checked

SIP Server: unsbc.8x8.com

Remote SIP Port: 5299

Local SIP Port: 5061, must be Port 5061.

User ID: the GUN ID provided by your 8x8 engineer.

Authentication ID: Same as User ID.

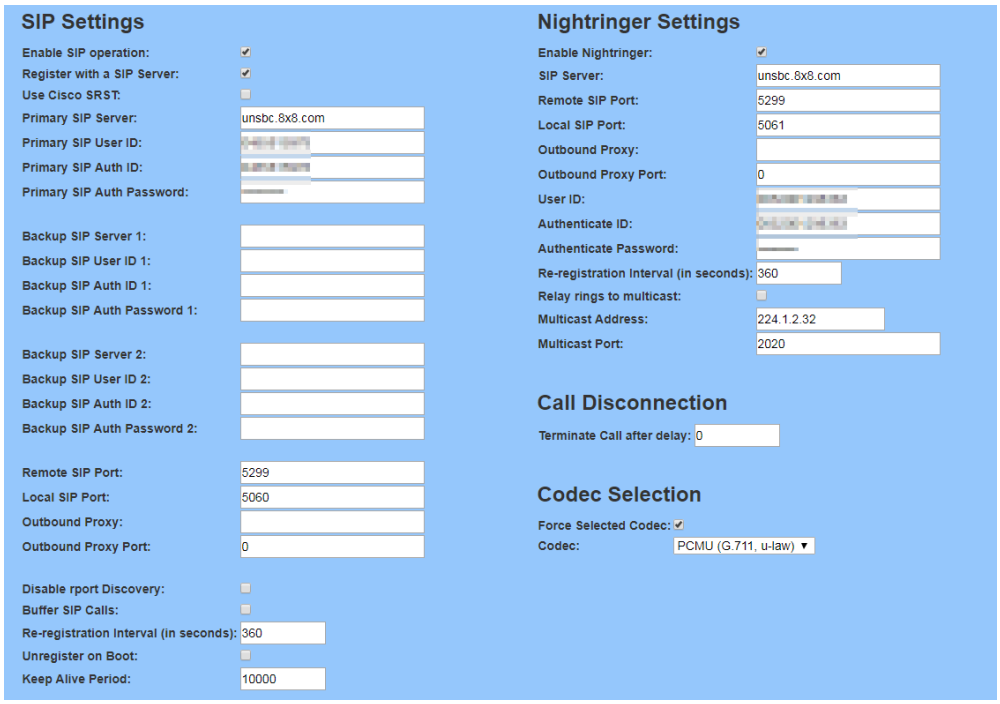
Authentication Password: The SIP Proxy Password for the Device as provided by your 8x8 engineer.

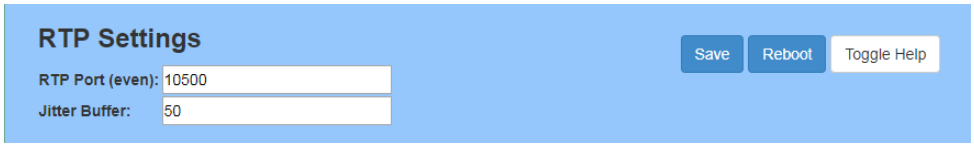
Re-registration Interval: 360

Relay rings to multicast: If you wish all multicast devices to receive the ringer page, CHECK this check box.

Multicast Address: the IP Address to send the nightringer page to.

Multicast Port: The Port Address to send the nightringer page to.





Save Click on 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.

Toggle Help Click on the Toggle Help button to see a short description of some of the web page items. First click on the Toggle Help button, and you will see a question mark ( ) appear next to some of the web page items. Move the mouse pointer to hover over a question mark to see a short description of a specific web page item.

7.7 PGROUPS (Paging Groups)

A PGROUP is a way of assigning multicast IP addresses and port numbers when configuring CyberData multicast paging. To assign a multicast address, you must first configure the Yealink, Polycom and CyberData VoIP speakers that you want to put into a paging zone by entering a particular multicast address and port number combination in the Yealink, Polycom web interface, and web configuration for CyberData VoIP speakers. Each zone must have a unique IP address and Port number. The Port number must be even. The PGROUPS Configuration page consists of four pages. Each page must be saved independently.

Polycom will use a Default IP of 224.0.1.116 and a port of 5001 for its paging functions. 8x8 recommends that when using Polycom phones to set Priority 0 to be your Polycom Paging group by entering the IP of 224.0.1.116 and Port 5000 into Priority 0, the Page server will automatically add 1 to this port for Polycom support.

To edit a paging group, click on the Edit button Edit for the group you wish to edit. In the popup windows enter your configuration options for that paging group.

Address: Enter the IP address of the PGROUP.

- **Note**: To disable a relay on a group, use an IP address of 0.0.0.0.

Port: Enter the port number of the PGROUP.

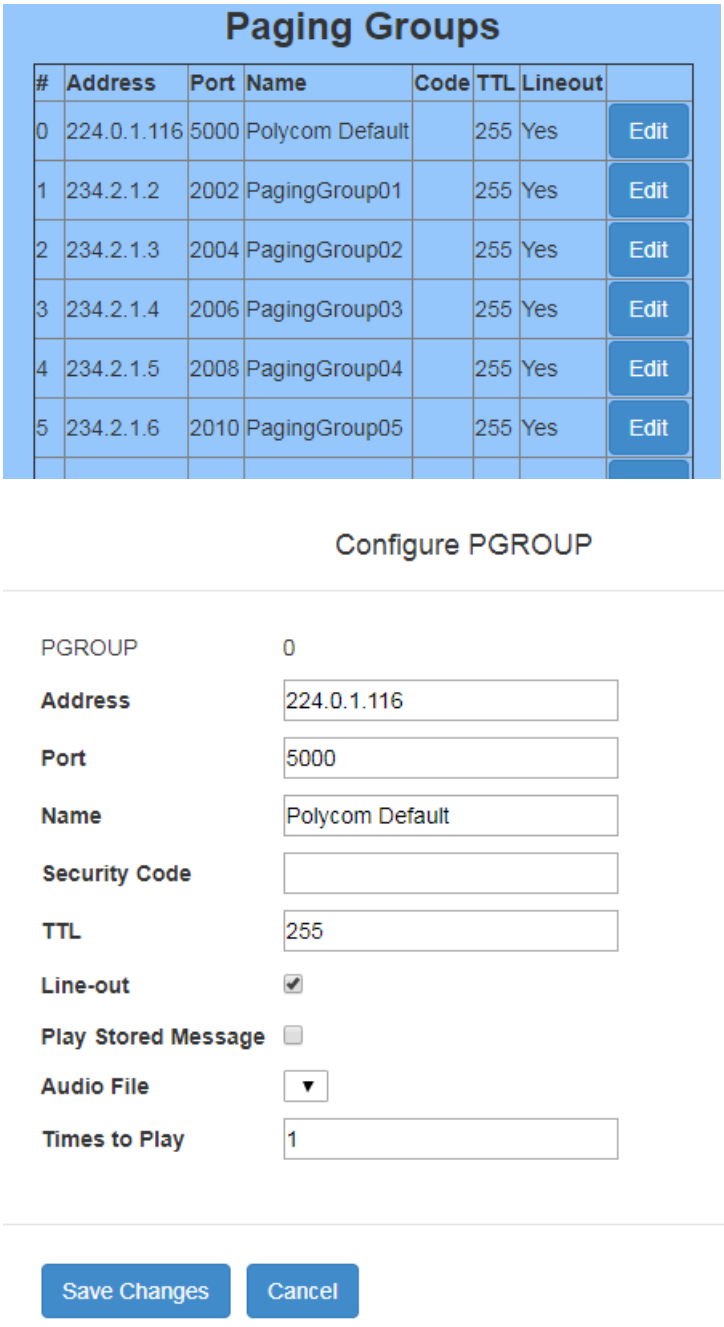
- **Note**: The port range can be from 2000 to 65534 and must be even.

Name: Enter a name for the PGROUP.

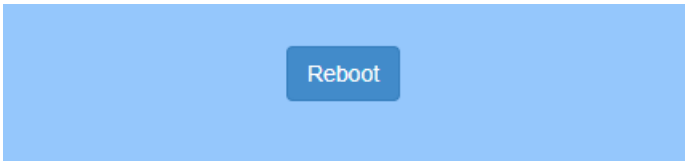
TTL: The TTL field allows you to adjust the TTL. TTL is "time to live" and it describes how many networks (routers) a packet will go through before it is discarded. For more information, 8x8 does not support or recommend routing Multicast Paging.

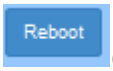
Line-out: The Lineout field determines whether the V3 Paging Server will play audio out of the line-out port in addition to forwarding it to the PGROUP.

Security Code: This field allows the user to add a security code to prevent unauthorized paging to the PGROUP. Code must be between two to five numeric digits (0 through 9). Leave the field empty for no security code. Any security code entered for PGROUP 0 will be ignored if DTMF is bypassed.



Note: You need to reboot for changes to take effect.





Click on the Reboot button to reboot the system.

7.8 Schedules

The CyberData Page Server allows for programing of Bell/Announcement schedules.

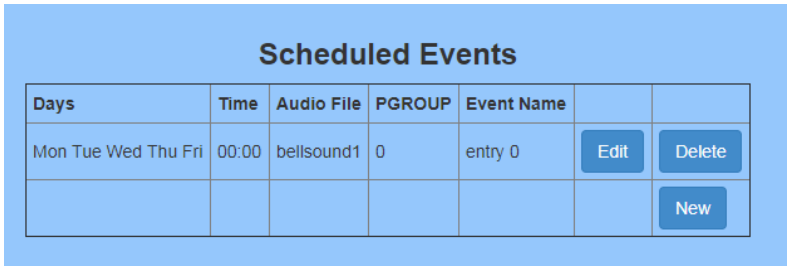
Days Use the box beneath the day to select. Multiple days may be selected.

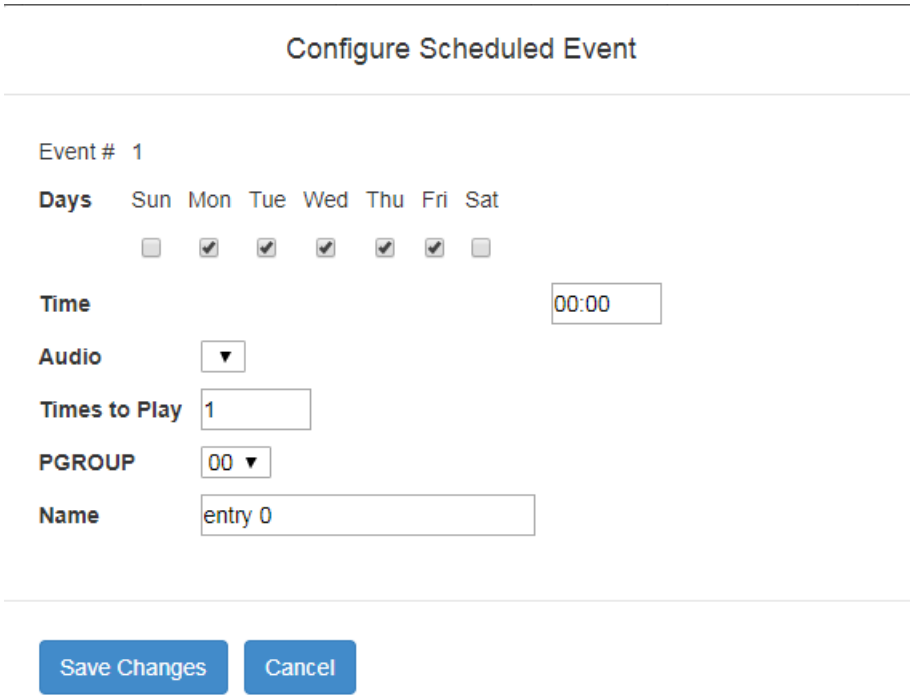
Time Enter time of the event, in the form HH:MM, using the 24 hour clock.

Audio Choose the audio file to be played from the drop-down list, which displays files previously uploaded in the Bells section of the Audio Files web page.

PGroup Select the paging group from the drop-down menu.

Name Enter the name of the event, using a maximum of 16 characters.

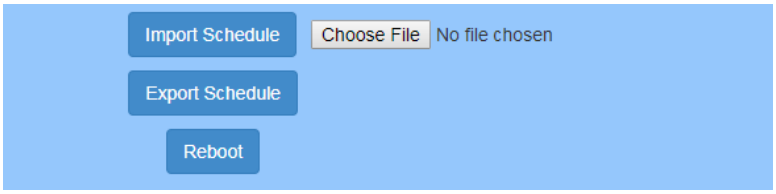




Import a schedule

Export schedules

Reboot the device



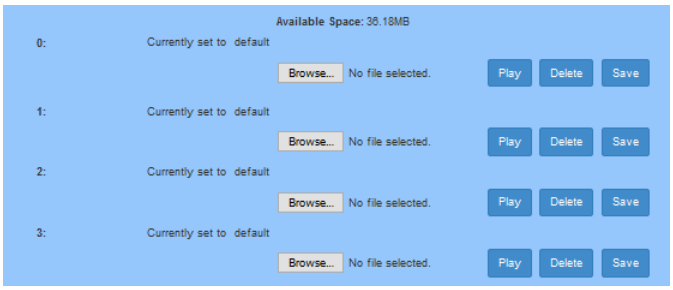
7.9 Audio Files

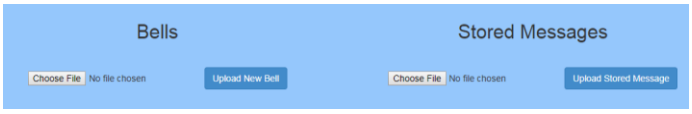
CyberData SIP Paging Server allows you to replace all the prompts used by the paging server with your own custom paging prompts. Custom prompts must be saved as:

```
WAVE audio, Microsoft PCM, 16 bit, mono 8000 Hz
```

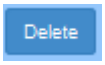
Custom files may be uploaded for all prompts played by the CyberData SIP Paging Server.

You can also upload custom bell sounds as well as Stored Messages.



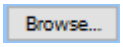


The Save button will download a new user audio file to the board once you've selected the file by using the Browse button.



The Delete button will delete any user uploaded audio and restore the stock audio file.

The Play button will play that audio file



The Browse button will allow you to navigate to and select an audio file