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CyberData SIP Intercom Integration with Zultys MX –Serial Numbers starting with 2141

Author: Zultys Technical Support Department

This document covers the integration of CyberData's SIP Intercom with the Zultys MX. This document was written for MX Version 11.0 and the following CyberData Products

- 011214a v3 intercom w/keypad poe V11.3.1
- Serial Numbers starting with 2141

All support and supporting documentation for CyberData should be obtained from CyberData itself. This document assumes the reader is at least a Zultys Certified Systems Expert (ZCSE), and is familiar with creating Users and Devices in general. This document also assumes the reader is familiar with setting up CyberData 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 usage.

For more information on the integration process see integration section.

1 Contents

2 Integration

CyberData SIP Intercom can be integrated with the Zultys MX, as a “Generic SIP Device” to provide an intercom door box service including relay functions for door strikes/locks.

Zultys highly recommends using the speed dial functions of the CyberData SIP Intercom for placing the intercom calls inside the building, vs. allowing the party to dial direct extensions. This could leave an opening for toll fraud, unless proper toll restrictions are implemented.

This document will concentrate on using the speed dial integration method.

3 Creating a Generic SIP Device on the MX for night ring capabilities

If using the night ring capabilities of the SIP Intercom, a generic SIP device and a user is required to be created on the MX. For basic operation a Generic SIP device is created on the MX and assigned to a user. The CyberData equipment will register as this Generic SIP Device, this device is then invited by the MX when the extension is rang triggering the night ring capabilities of the CyberData equipment. If not using the Night Ring capabilities of the CyberData equipment this section can be skipped.

To answer the night ring call, press the “call” button on the device.

3.1 Create Generic SIP Profile

In order to create a Generic SIP Device, it is recommended to create a unique Generic SIP Device Profile to control the codecs, functions and number of lines used by CyberData Equipment, this device profile should be the same profile used with the paging device.

Make sure that the following options are selected.

Sends SIP Register: Checked.

Supports SIP based configuration: Checked.

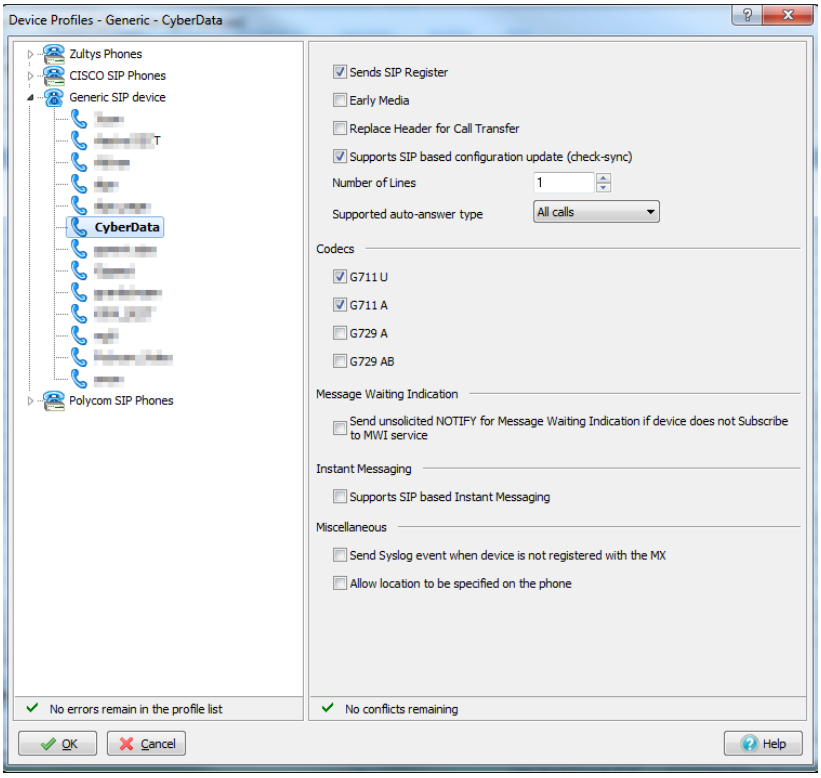
Number of Lines: 1.

Supported auto-answer type: All Calls.

Codecs: G711U and G711A.

Send unsolicited NOTIFY for messages: Unchecked.

Send Syslog event when device is not registered..: This is an optional selection that is recommended to allow the MX to generate a syslog notification if the device is off line



The remaining options are unchecked.

3.2 Create Generic SIP Device

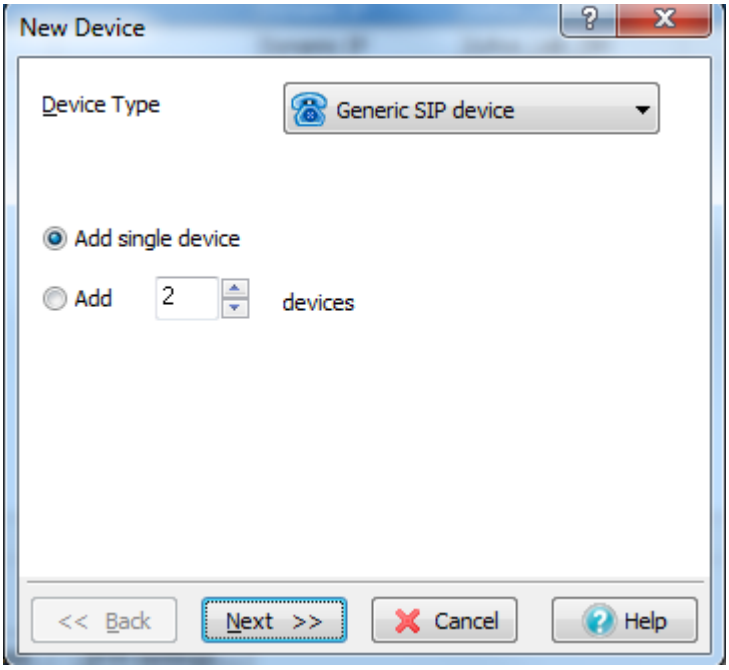
Create a generic SIP device on the MX for the MX to integrate with CyberData Equipment. The CyberData equipment will register with the MX using this Generic SIP Device.

Make sure that the following options are selected.

Device Type: Generic SIP device.

Add Single Device: Selected.

Click *Next* to proceed to the next screen.



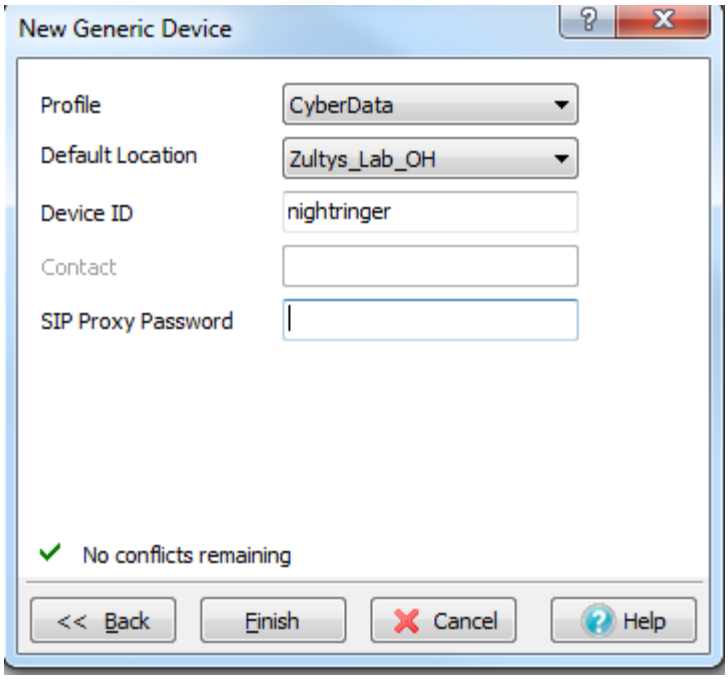
Profile: Select the Generic SIP Device Profile created in section 3.1.

Default Location: Select the proper location from the drop-down.

Device ID: Type the ID to register CyberData Equipment Ringing extension.

Contact: Not used.

SIP Proxy Password: Type the password if required.



3.3 Create User and Assign User to the Device

After creating the device that will interface with CyberData Equipment, create a user and assign the user to this device. This document assumes the reader is a ZCSE trained and a certified technician. Since this process is covered by ZCSE training, it is considered to be outside the scope of this document.

4 Creating a Generic SIP Device on the MX for intercom capabilities

When using the CyberData SIP Intercom for intercom/door box capabilities, Zultys recommends creating a Generic SIP Device and a user for the CyberData equipment. Only a single device and User is required for intercom/door box purposes only, the Night Ringer will require its own user and device. The intercom/door box features of the CyberData Equipment interfaces with the MX system through a preconfigured MX user.

4.1 Create Generic SIP Profile

In order to create a Generic SIP Device, it is recommended to create a unique Generic SIP Device Profile to control the codecs, functions and number of lines used by CyberData Equipment, this device profile should be the same profile used with the night ring device.

Make sure that the following options are selected.

Sends SIP Register: Checked.

Supports SIP based configuration: Checked.

Number of Lines: 1.

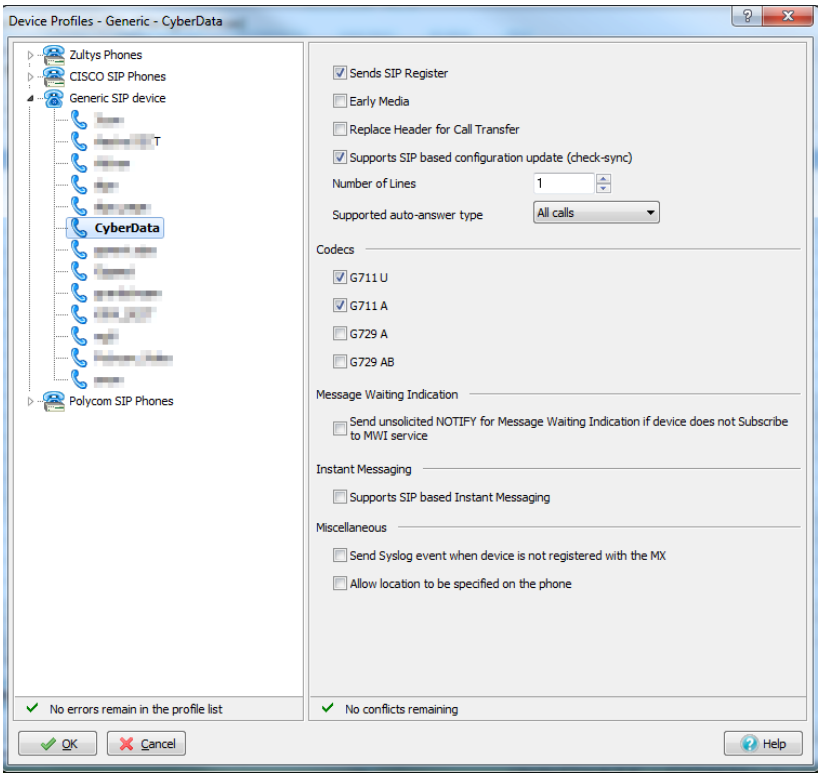
Supported auto-answer type: All Calls.

Codecs: G711U and G711A.

Send unsolicited NOTIFY for messages: Checked.

Send Syslog event when device is not registered..: This is an optional selection that is recommended to allow the MX to generate a syslog notification if the device is off line

The remaining options are unchecked.



4.2 Create Generic SIP Device

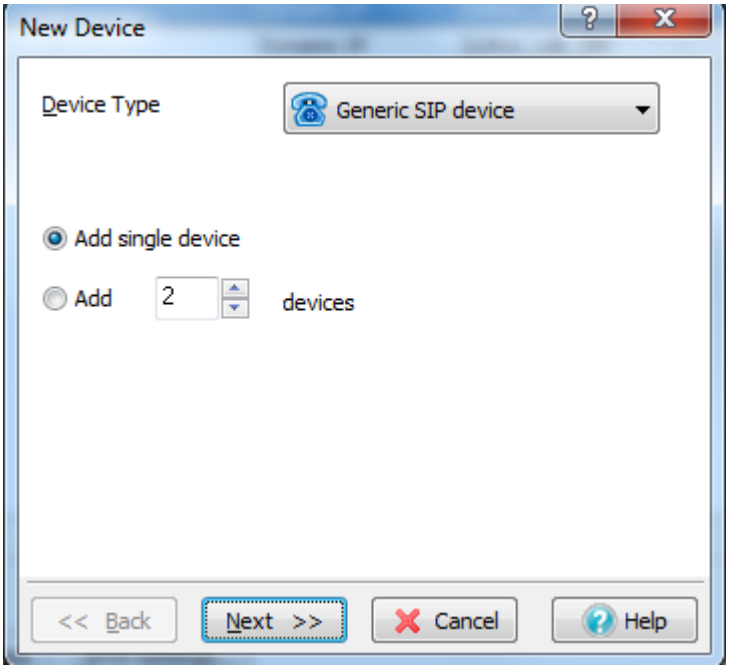
Create a generic SIP device on the MX for the MX to integrate with CyberData Equipment.

Make sure that the following options are selected.

Device Type: Generic SIP device.

Add Single Device: Selected.

Click *Next* to proceed to the next screen.



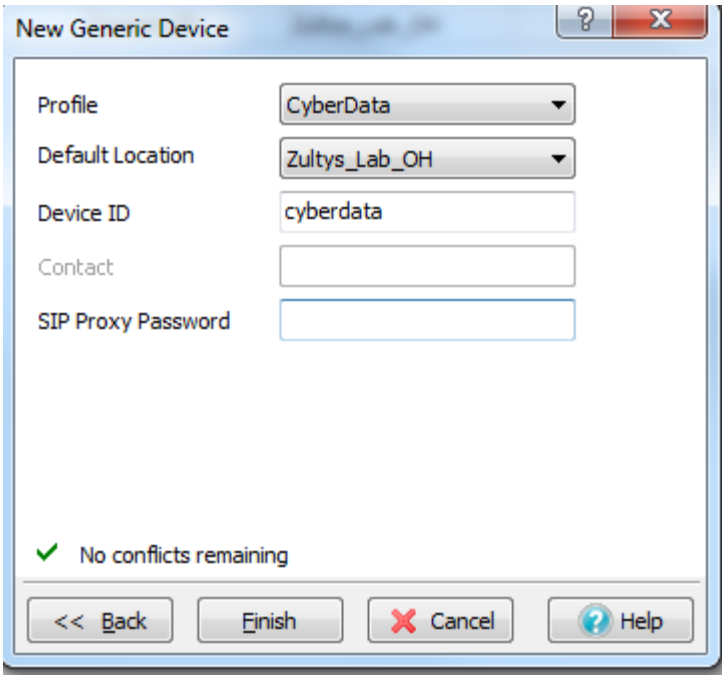
Profile: Select the Generic SIP Device Profile created in section 4.1.

Default Location: Select the proper location from the drop-down.

Device ID: Type the ID to register CyberData intercom extension.

Contact: Not used.

SIP Proxy Password: Type the password if required.



4.3 Create User and Assign User to the Device

After creating the device that will interface with CyberData Equipment, create a user and assign the user to this device. This document assumes the reader is a ZCSE trained and a certified technician. Since this process is covered by ZCSE training, it is

considered to be outside the scope of this document. Note that you need to create and assign a paging profile to the user if they will be using SIP paging.

5 MX User Configuration

This section is covers the basics of the creation of a MX User account to be used for the door box integration. A user is required in most cases, especially if you plan on being able to call the device, or if you implement any toll restriction at all in the MX.

Zultys recommends creating a new user profile that has most if not all features and functions disabled, most importantly Voce Mail, can return calls from voicemail, and register unmanaged accounts. MXIE should also be disabled. These recommendations are made to protect against toll fraud from this account.

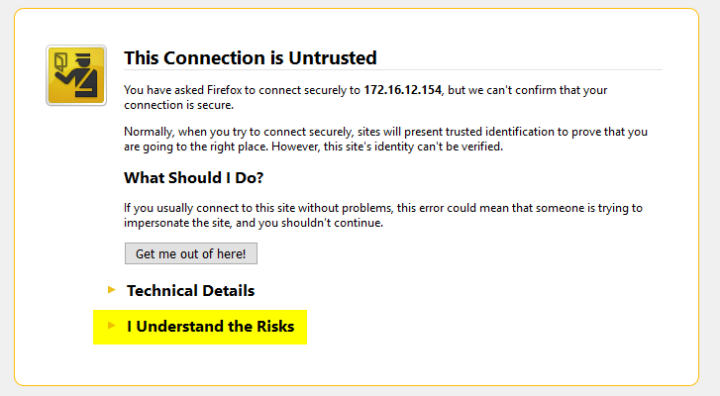
This document assumes the reader is a Zultys Certified Systems Expert (ZCSE), and is familiar with creating Users and user profiles in general, so the details are not included in this document for creating users and user profiles.

6 CyberData SIP Intercom Setup

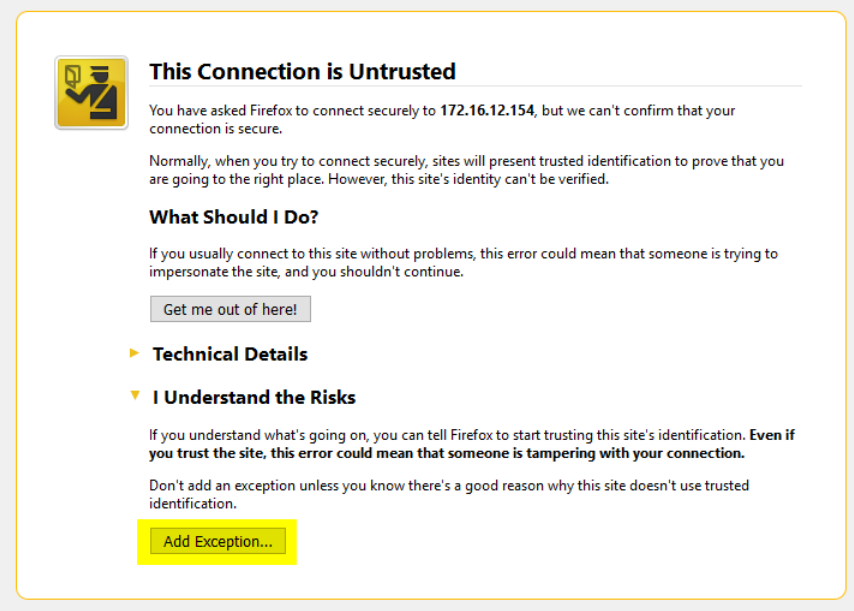
When deploying the CyberData SIP Intercom it is recommended to use DHCP. CyberData provides a “Discovery Utility” that can be downloaded from their website (http://www.cyberdata.net/support/voip/discovery_utility.html) to initially discover the IP address of the SIP Intercom, once configured to register with the Zultys MX, the IP address can be found using the MX’s device status screen in the MXAdministrator UI. Using the CyberData Discovery Utility to obtain the current IP address of the CyberData equipment login using a web browser using the default username of “**admin**” and the default 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.

6.1 Connecting to the CyberData SIP Page Server

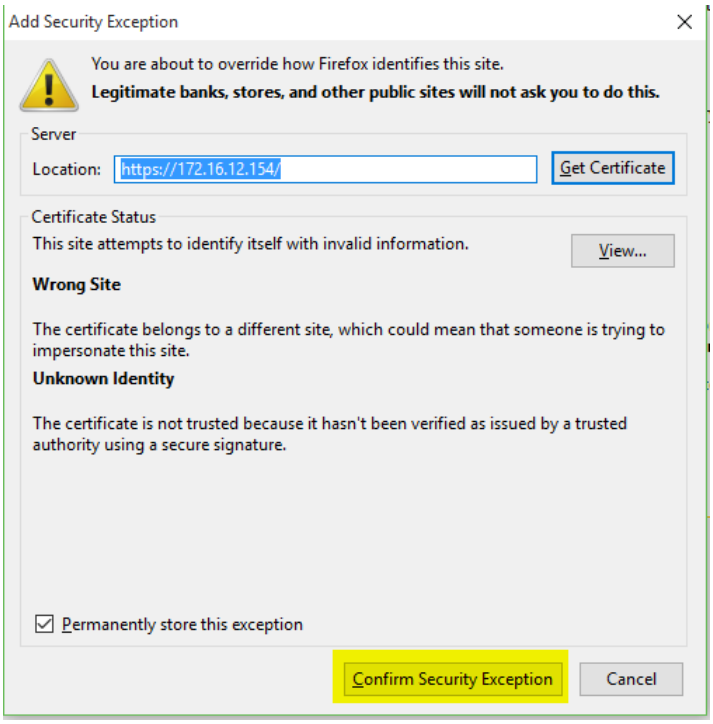
The CyberData SIP Intercom now uses HTTPS to provision the device. When connecting to the CyberData SIP Intercom you will be required to accept the Self Signed certificate by clicking on “I understand the risks” link



Then click “Add Exception”

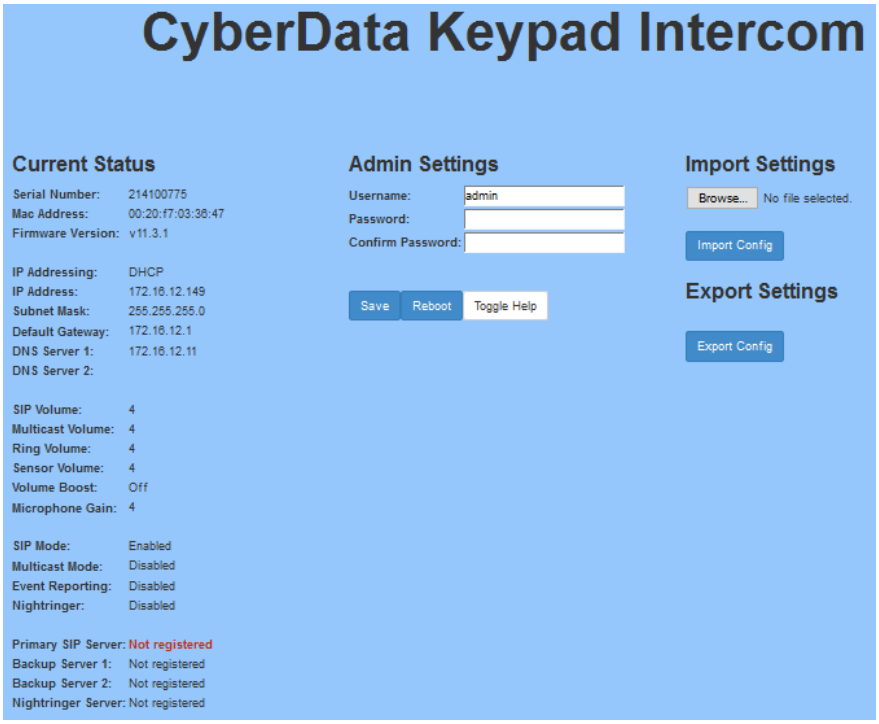


And then click Confirm Security Exception



6.2 Home Screen

After loging into the CyberData SIP Intercom 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**

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

Current Settings:

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

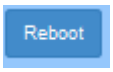
The home screen will also show the current registration status, and features enabled on the CyberData SIP Intercom.

Import/Export Settings

Allows for Importing and Exporting settings of the CyberData Intercom

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.

6.3 Device Configuration

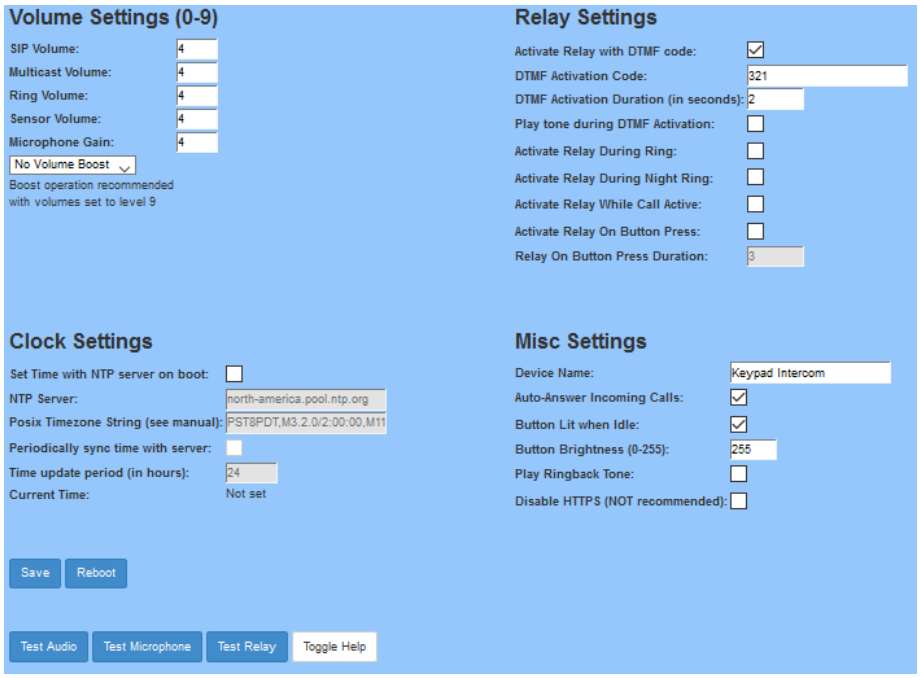
On the device configuration screen, you can configure several default options for the CyberData Intercom, and perform basic operation tests.

SIP Volume Set the speaker volume for a SIP call. A value of 0 will mute the speaker during SIP calls.

Multicast Volume Set the speaker volume for multicast audio streams. A value of 0 will mute the speaker during multicasts.

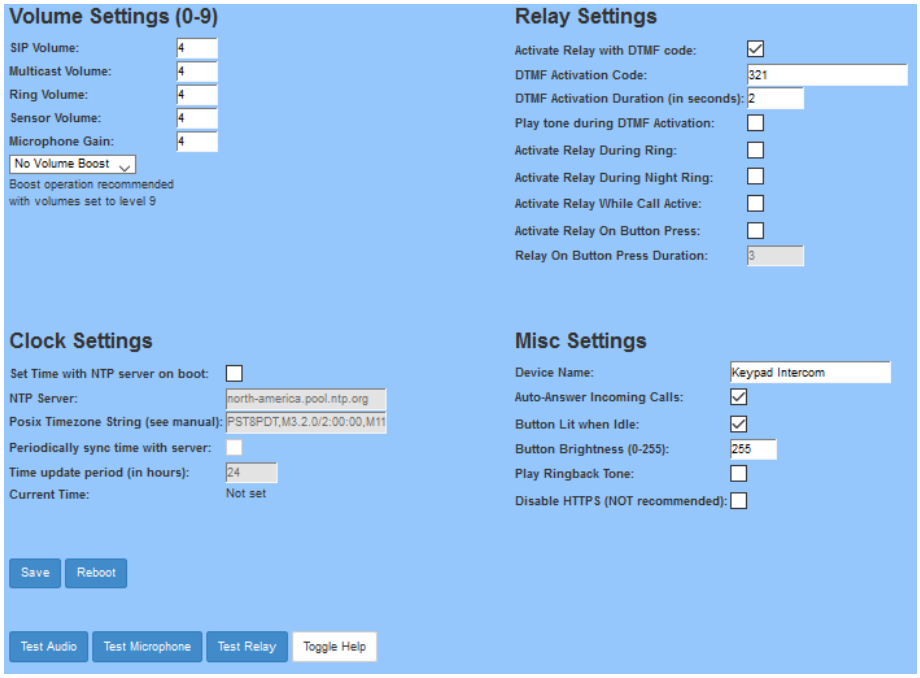
Ring Volume Set the ring volume for incoming calls. A value of 0 will mute the speaker instead of playing the ring tone when Auto-Answer Incoming Calls is disabled.

Sensor Volume Set the speaker volume for playing sensor activated audio. A value of 0 will mute the speaker during sensor activated audio.



Microphone Gain

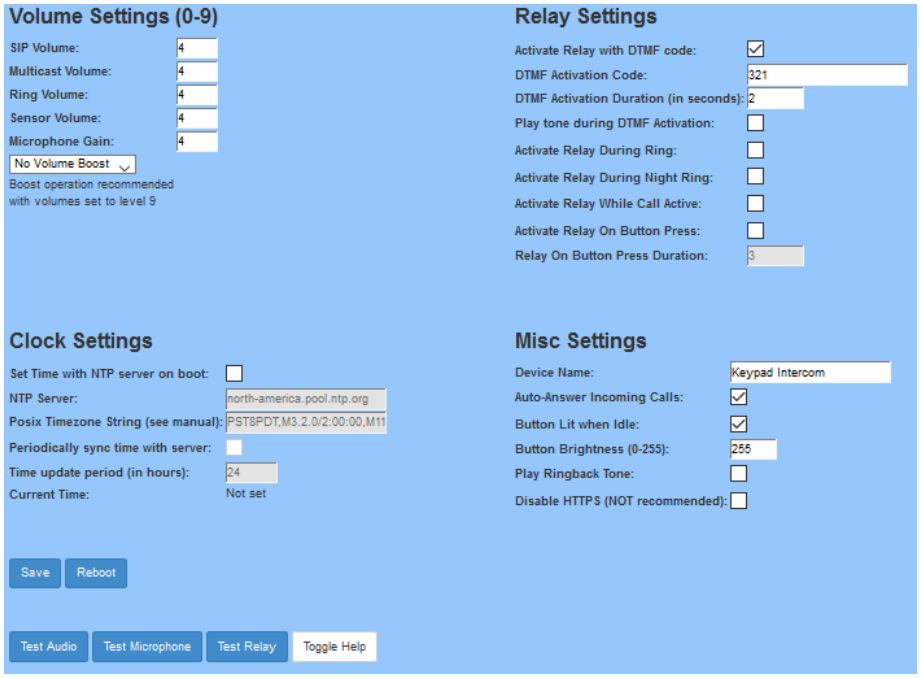
Set the microphone gain level.
Volume Boost:
No Volume Boost
Volume Boost 1
Volume Boost 2
Volume Boost 3
Set the Boost level to increase the volume output of the speaker. Using Volume Boost may introduce audio clips or cause the device to drop from full duplex to half duplex operation. Normal operation of the product can be met with volume levels 0 through 9. 0 being mute and 9 being the loudest volume that in a normal arm's length and average background noise, will enable full duplex operation and give the best quality of sound output.



The volume boost options increase the output of the speaker by:
3db for Boost level 1
6db for Boost level 2
9db for Boost level 3

If the user would like a higher output from the speaker, the Boost settings are available. However, operation in Boost Mode may overdrive or clip the audio if, for example, the phone that is connected has a high microphone gain or if the person has a loud voice talking too close to the microphone.

The acoustic echo canceller also has a harder time maintaining full duplex operation when in the Boost Mode. The product may drop from full duplex operation into half/duplex mode while in Boost Mode.



Activate Relay with DTMF code: Relay can be activated via DTMF Code when checked

DTMF Activation Code: Code used to activate relay

DTMF Activation Duration (in seconds): Duration the relay is activated after the proper code is entered. 0-99 seconds. If 0 is entered the relay is indefinitely activated until the DTMF code is entered a second time.

Activate Relay During Ring: When enabled the relay is activated while the device is ringing. If Auto answer is enabled, this feature is disabled.

Activate Relay During Night Ring: When selected, the relay will be activated as long as the Night ringer extension is ringing

Activate Relay While Call Active: When enabled the relay is activated for the duration of the call automatically.

Activate Relay on Button Press: When enabled, the relay is activated for the duration specified in “Relay on Button Press Timeout” when the call button is pressed.

Relay on Button Press Duration (in seconds): Duration the relay is activated after the call button is pressed 1-9 seconds

Device Name: Type the device name. Enter up to 25 characters

Auto-Answer Incoming Calls: When enabled, the intercom will auto answer all incoming calls

Button Lit when Idle: When enabled, the call button is lit when there is no active call.

Button Brightness (0-255): The desired Call button LED brightness level. Acceptable values are 0-255, where 0 is the dimmest and 255 is the brightest. Enter up to three digits

Turn on Keypad backlight: When enabled, the keypad is backlit.

Play Ringback Tone: When enabled ringback tone is heard when making a call.

Enable Push to Talk: When enabled this will cause the device to be muted normally, and only transmit audio from the microphone while the call button is pressed. You will not be able to terminate the call from the intercom unit.

Enable DTMF Push to Talk: When enabled pressing the * (star) key will disable the speaker and set the microphone gain level to the max, pressing the # (pound/hash) key the mic will be muted and the speaker will be set to its loudest level.

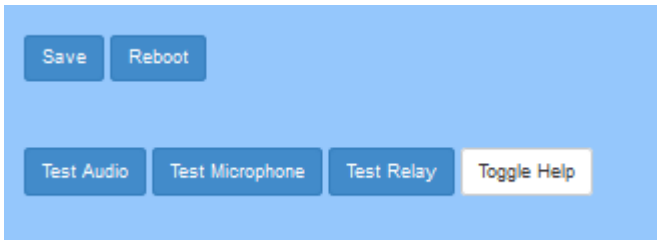
Prevent Call Termination: When enabled the call button cannot be used to terminate the call.

Disable HTTPS (NOT recommended): Disables the encrypted connection to the webpage. We do not

recommend disabling HTT
PS for security reasons

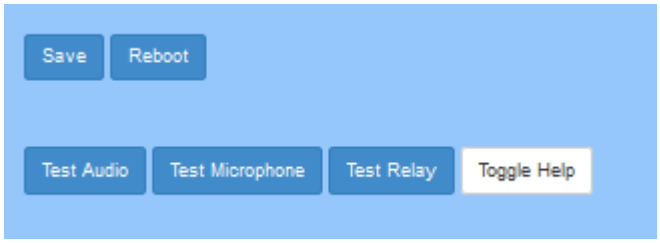
Save Click on the Save button to save your configuration settings.

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



Reboot Click on the Reboot button to reboot the system.

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



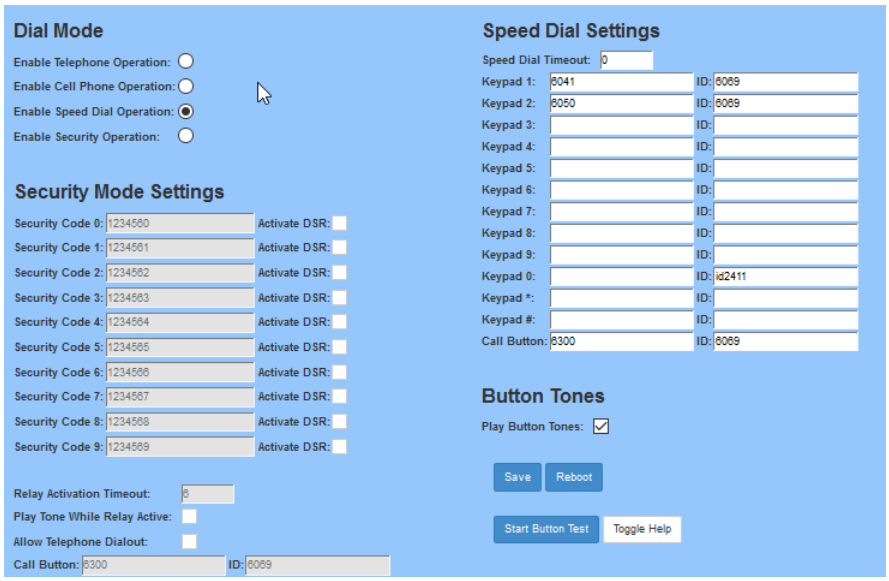
Test Microphone When the Test microphone button is pressed, the Intercom will record 3 seconds of audio, then beep to indicate the end of recording, and play back the recording.

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

6.4 Button Configuration

Button configuration screen is used to configure what happens when the buttons (the Call Button or keys on the key pad) are pressed.

Enable Telephone Operation: Select Enable Telephone Operation to put the Intercom into Telephone Dial Mode. In Telephone Dial Mode, the Intercom will operate like a telephone:



- To make a call in this mode, press the Call Button to go 'off-hook'. The unit will begin playing a dial tone and will wait for keypad input.
- Dial the extension you want to reach and wait.
- Pressing the Call Button at any time in this process will hang up the call (put it back 'on-hook').
- During a call, you can use the keypad to send DTMF tones to the remote extension

Enable Cellphone Operation: Select Enable Cellphone Operation to put the Intercom into Cellphone Dial Mode. In Cellphone Dial Mode, the Intercom will operate like a cellular phone:

- This mode is similar to the telephone operation but you dial in an extension differently.
- To make a call in this mode, dial the extension and then press the call button to 'send' or initiate the call.
- Pressing the call button at any time in this process will hang up the call (put it back 'on-hook').
- During a call you can use the keypad to send DTMF tones to the remote extension

Enable Speed Dial: Select Enable Speed Dial to put the Intercom into

Speed Dial Mode. In this mode the user sets up extensions to dial when a button is pressed.

Speed Dial Timeout (in seconds): The Speed Dial Timeout (in seconds) setting is the number of seconds you need to hold the button before it will place a call. If this value is 0, it will place a call as soon as the button is released.

Keypad (0-9, *, #): Number to be called when this button is pressed (max of 64 characters)

Call Button: Number to be called when this button is pressed (max of 64 characters)

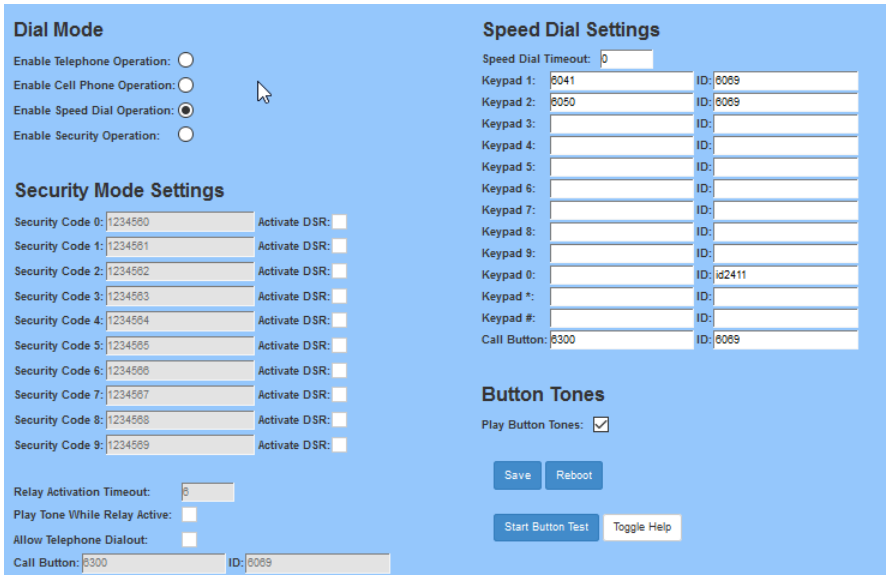
ID: Enter the Extension number assiciated with the Intercom User (64 character limit)

Enable Security Keypad Operation: Select Enable Security Keypad Operation to put the Intercom into Security Dial Mode. In Security Dial Mode, the Intercom will act like a normal, one-button Intercom by calling the extension specified in the Call Button field.

When a security code is entered on the keypad that matches one of the seven-digit fields specified on the page, the relay will be activated.

• This mode is meant for installation with security doors. In Security Dial Mode, the Intercom will act like a normal, one-button Intercom by calling the extension specified in the Call Button field.

• Up to 10 (7-digit maximum) security codes can be registered with the



device. Enter a security code by pressing the # key before entering the code. When one of these codes is typed on the keypad, it will activate the relay for the Relay Activation Timeout (in seconds)setting.

• It is possible to enter a security code both inside and out of calls.

• In this mode normal relay operation is suspended and the following settings are non-operational:

Relay On Button Press, Relay During Call Active, Relay During Ring, Relay During Night-ring

• In this mode, you can't send dtmf to a remote extension using the keypad. You can however setup delayed dtmf tones in the dial out string.

Relay Activation Timeout (in seconds): Type the desired length of time (in seconds) that you want the relay to remain activated after a security code is entered.

Play Time While Relay is Active: Check this box to play an audible tone while the relay is activated

Allow Telephone Dialout: When the Allow Telephone Dialout option is enabled, you can use the keypad to place calls to a dialed extension. To call an extension, dial the number and wait. You can still enter security codes with the Allow Telephone Dialout option enabled by pressing the # key before entering the code. With the Allow Telephone Dialout option disabled, all keypad input will be treated as security input. You can

still use the # key but it is not necessary.

Call Button: Enter the desired dial-out extension number (64 character limit). Security codes are limited to seven characters and are activated with the # key

ID: Enter the Extension number assiciated with the Intercom User (64 character limit)

Security Code (0-9): Enter the desired security code number (7 character limit). When a security code is entered on the keypad that matches one of the seven-digit fields specified on the page, the relay will be activated.

Play Button Tone: Check this box to hear a tone when a keypad button is pushed. This setting applies to all modes and determines whether the device will play an audible sound out of the speaker when doing any of the following:

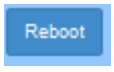
• Entering a security code

• Initiating a speed dial

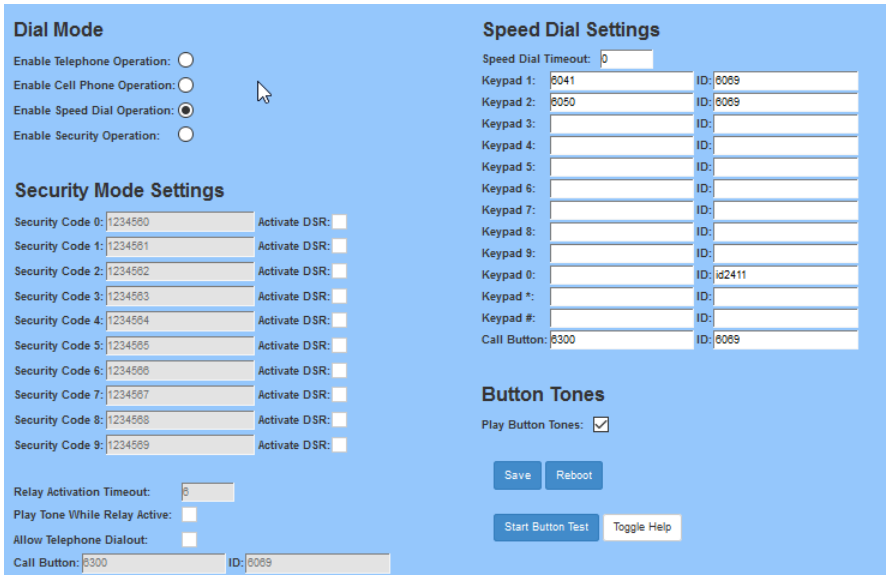
• Pressing the keys in cellphone and telephone modes

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.



6.5 SIP Configuration

SIP configuration screen is used to configure the SIP registration parameters used by the CyberData SIP Page Server to register with the MX for paging purposes. The SIP User ID and Authentication ID are the same values which is the Device ID created in the MX in section 6 and assigned to the user created in section 6. Authentication Password is only used if a SIP Proxy Password is required by the Generic SIP Device created in the MX.

If using MXNetwork with Redundancy it is suggested to add the redundant node to the backup SIP server of the CyberData Paging Server, this way in a failover situation the paging equipment will continue to function with no intervention.

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

Enable SIP Operation: Checked

SIP Server: IP or FQDN of the MX

Backup SIP Server 1: Only Used if using MXNetwork with failover, then will be the IP address or FQDN of the failover node. Will dual register with the MXNetwork Node

Backup SIP Server 2: Not Used

Use Cisco SRST: Unchecked

Remote SIP Port: 5060

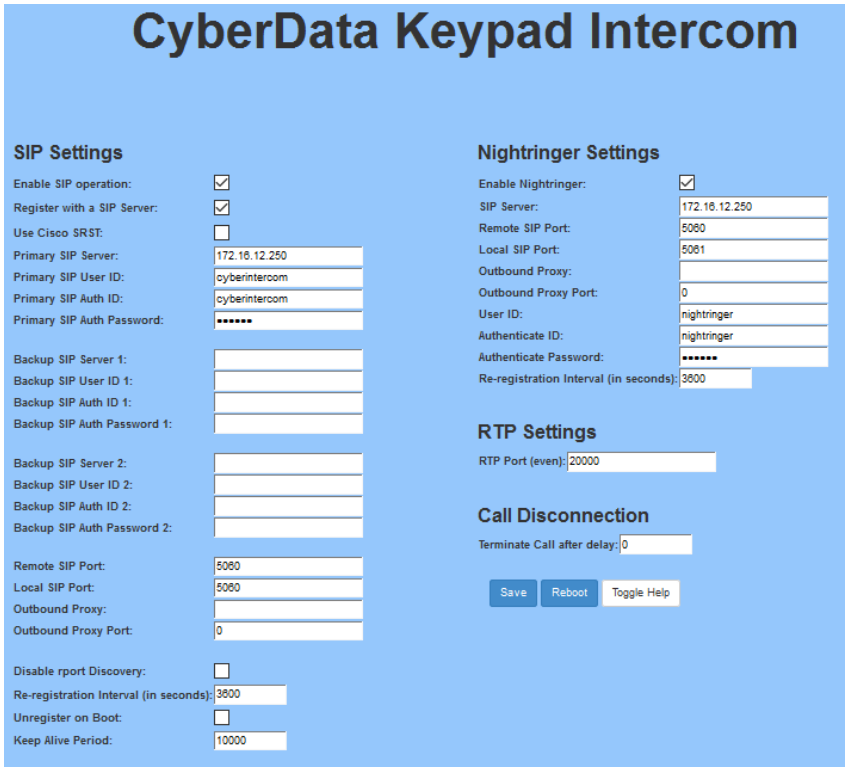
Local SIP Port: 5060

Outbound Proxy: must be left blank

Outbound Proxy Port: 0

SIP User ID: the Device ID created on the MX in Section 4

Authentication ID: Same as User ID



Authentication Password: the SIP Proxy Password for the Device ID created in section 4 (if required)

Register with a SIP Server: Checked

Re-registration Interval: 3600

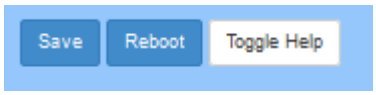
Terminate call after delay (in seconds): Type the desired number of seconds that you want to last before a call is terminated.

Note: A value of 0 will disable this function

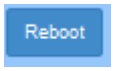
Unregister on reboot: Unchecked

RTP Port: 20000

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.

6.6 Nightringer Configuration

Nightringer configuration screen is used to configure the SIP registration parameters used by the CyberData SIP Intercom to register with the MX for Night Bell or Nightringer purposes. The SIP User ID and Authentication ID are the same values which is the Device ID created in the MX in section 3 and assigned to the user created in section 3. Authentication Password is only used if a SIP Proxy Password is required by the Generic SIP Device created in the MX.

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

Enable Nightringer: Checked

SIP Server: IP or FQDN of the MX

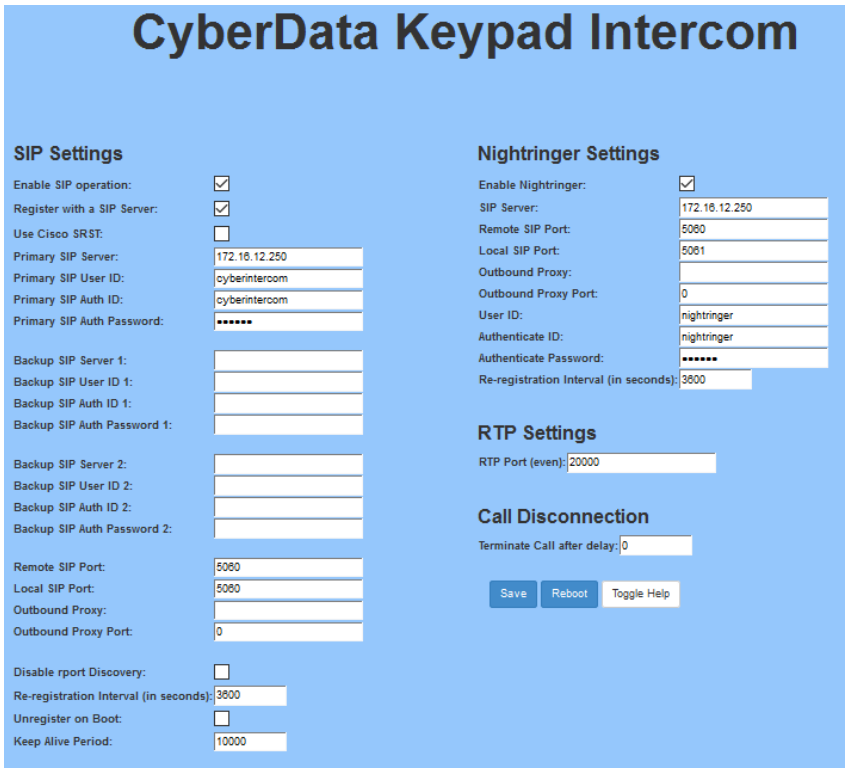
Remote SIP Port: 5060

Local SIP Port: 5061, must be Port 5061

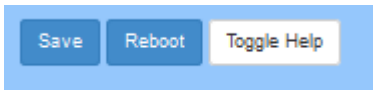
User ID: the Device ID created on the MX in Section 3

Authentication ID: Same as User ID

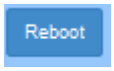
Authentication Password: the SIP Proxy Password for the Device ID created in section 3 (if required)



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.

6.7 Multicast Configuration

Multicast Configuration is used to create multiple zones that the CyberData SIP Intercom will listen to and relay pages that are received, configure each multicast zone to match the multicast Zone. If you are not using Multicast Paging, or do not want to include the Intercom in the paging zone this section can be skipped.

When playing multicast streams, audio on different streams will preempt each other according to their priority in the list. An audio stream with a higher priority will interrupt a stream with a lower priority.

If both SIP and Multicast is enabled, SIP audio streams are considered priority 4.5. SIP audio will interrupt multicast streams with priority 0 through 4 and will be interrupted by multicast streams with priority 5 through 9.

During priority 9 multicast streams, the analog volume control is bypassed and the volume level is set to maximum.

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.

Priority 9 will pay the announcement at maximum volume.

Enable Multicast operation: Checked

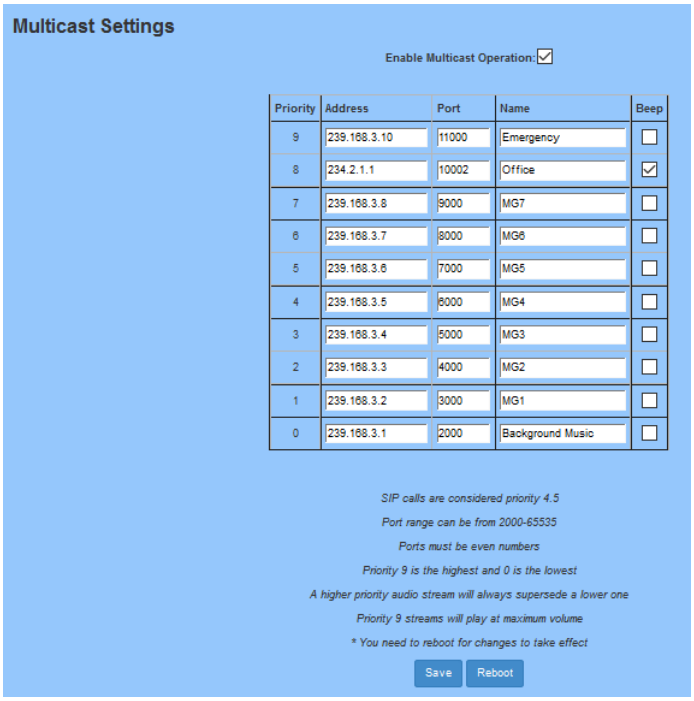
Address: Enter the IP address of the Multicast Group.

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

Port: Enter the port number of the Multicast Group.

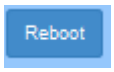
- **Note**: The port range can be from 2000 to 65534.

Name: Enter a name for the Multicast Group.



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.

6.8 Sensor Configuration

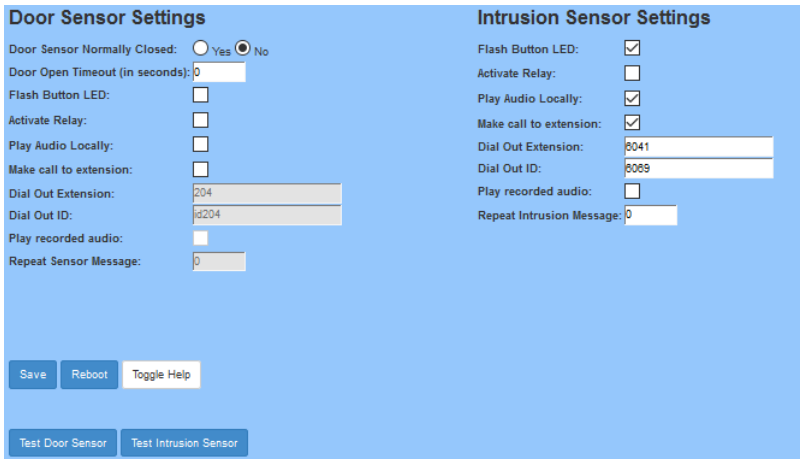
The door sensor (pins 5 and 6) on the header can be used to monitor a door's open or closed state. There is an option on the Sensor Configuration page to trigger on an open

or short condition on these pins. The door sensor alarm will be activated when the Door Open Timeout parameter has been met.

The intrusion sensor is an optical sensor installed on the Intercom board and will be activated when the Intercom is removed from the case. Zultys Highly recommends implementing the Intrusion Sensor Settings.

For each sensor there are five (5) actions the Intercom can take:

- Flash the LED until the sensor is deactivated (roughly 10 times/second)
- Activate the relay until the sensor is deactivated
- Loop an audio file out of the Intercom speaker until the sensor is deactivated
- Call an extension and play a pre-recorded audio file (once)
- Call an extension and establish a 2 way conversation



Door Sensor Normally Closed: Select the inactive state of the door sensors.

Door Open Timeout (in seconds): Select the number of seconds that you want to pass before the door sensor is activated

Flash Button LED: Check this box to flash the LED until the sensor is deactivated (roughly 10 times/second).

Activate Relay: Check this box to activate the relay until the sensor is deactivated.

Play Audio Locally: Check this box to loop an audio file out of the Intercom speaker until the sensor is deactivated.

Make Call to Extension: Check this box to call a preset extension (one time).

Play recorded audio: Check this box to play a pre-recorded audio file (one time).

Dial Out Extension: Enter the desired dial-out extension number

Dial Out ID: Enter in the Extension number associated with the MX Intercom User (64 character limit).

Test Door Sensor: Use this button to test the door sensor.

Flash Button LED*: Check this box to flash the LED until the sensor is deactivated (roughly 10 times/second).

Activate Relay: Check this box to activate the relay until the sensor is deactivated.

Play Audio Locally: Check this box to loop an audio file out of the Intercom speaker until the sensor is deactivated.

Make call to extension: Check this box to call a preset extension (once).

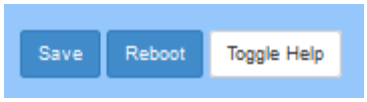
Play recorded audio: Check this box to play a pre-recorded audio file (once).

Dial Out Extension: Enter the desired dial-out extension number.

Dial Out ID: Enter in the Extension number associated with the MX Intercom User (64 character limit).

Test Intrusion Sensor Test Intrusion sensor

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.

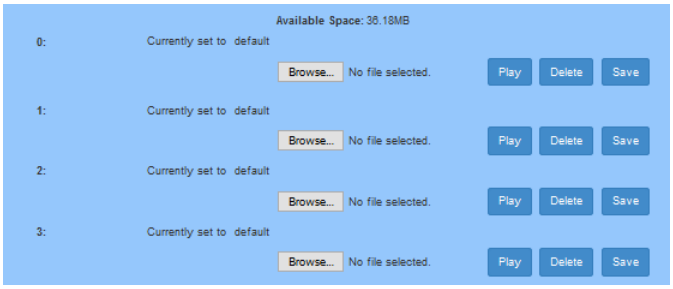
6.9 Audio Files

CyberData SIP-enabled Outdoor Keypad Intercom allows you replace all the prompts used by the intercom with your own custom paging prompts. Custom prompts must be saved as

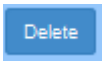
```
WAVE audio, Microsoft PCM, 16 bit, mono 8000 Hz
```

Zultys Technical Support can provide prompts matching the Zultys voice prompts upon request.

Custom files may be uploaded for all prompts played by the CyberData SIP-enabled Outdoor Keypad Intercom

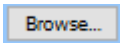


The Save button will download a new user audio file to the board once you've selected the file by using the Browse button.



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

7 Known Issues

7.1 Auto Attendants

Due to known issues in the operation /functionality of the echo canceller in the Cyber Data SIP-enabled Outdoor Keypad Intercom when the intercom is programed to call an MX AutoAttendant/IVR there will be no audio for the first 15-20 seconds. As a workaround disable "*Device Config* | *Miscellaneous Settings* | *Play Ringback Tone*" or contact technical support for additional options if you require ringback tone to be played when calling an extension.