



Zoom Configuration Guide: Paging Amplifier

Document Part # 931708D

CyberData Corporation
3 Justin Court
Monterey, CA 93940
(831) 373-2601

Zoom Configuration Guide: Paging Amplifier Document # 931708D

COPYRIGHT NOTICE:

© 2021, CyberData Corporation, ALL RIGHTS RESERVED.

This configuration guide and related materials are the copyrighted property of CyberData Corporation. No part of this configuration guide or related materials may be reproduced or transmitted, in any form or by any means (except for internal use by licensed customers), without prior express written permission of CyberData Corporation. This configuration guide, and the products, software, firmware, and/or hardware described in this configuration guide are the property of CyberData Corporation, provided under the terms of an agreement between CyberData Corporation and recipient of this configuration guide, and their use is subject to that agreement and its terms.

DISCLAIMER: Except as expressly and specifically stated in a written agreement executed by CyberData Corporation, CyberData Corporation makes no representation or warranty, express or implied, including any warranty or merchantability or fitness for any purpose, with respect to this configuration guide or the products, software, firmware, and/or hardware described herein, and CyberData Corporation assumes no liability for damages or claims resulting from any use of this configuration guide or such products, software, firmware, and/or hardware. CyberData Corporation reserves the right to make changes, without notice, to this configuration guide and to any such product, software, firmware, and/or hardware.

OPEN SOURCE STATEMENT: Certain software components included in CyberData products are subject to the GNU General Public License (GPL) and Lesser GNU General Public License (LGPL) “open source” or “free software” licenses. Some of this Open Source Software may be owned by third parties. Open Source Software is not subject to the terms and conditions of the CyberData COPYRIGHT NOTICE or software licenses. Your right to copy, modify, and distribute any Open Source Software is determined by the terms of the GPL, LGPL, or third party, according to who licenses that software. Software or firmware developed by CyberData that is unrelated to Open Source Software is copyrighted by CyberData, subject to the terms of CyberData licenses, and may not be copied, modified, reverse-engineered, or otherwise altered without explicit written permission from CyberData Corporation.

TRADEMARK NOTICE: CyberData Corporation and the CyberData Corporation logos are trademarks of CyberData Corporation. Other product names, trademarks, and service marks may be the trademarks or registered trademarks of their respective owners.

Revision Information

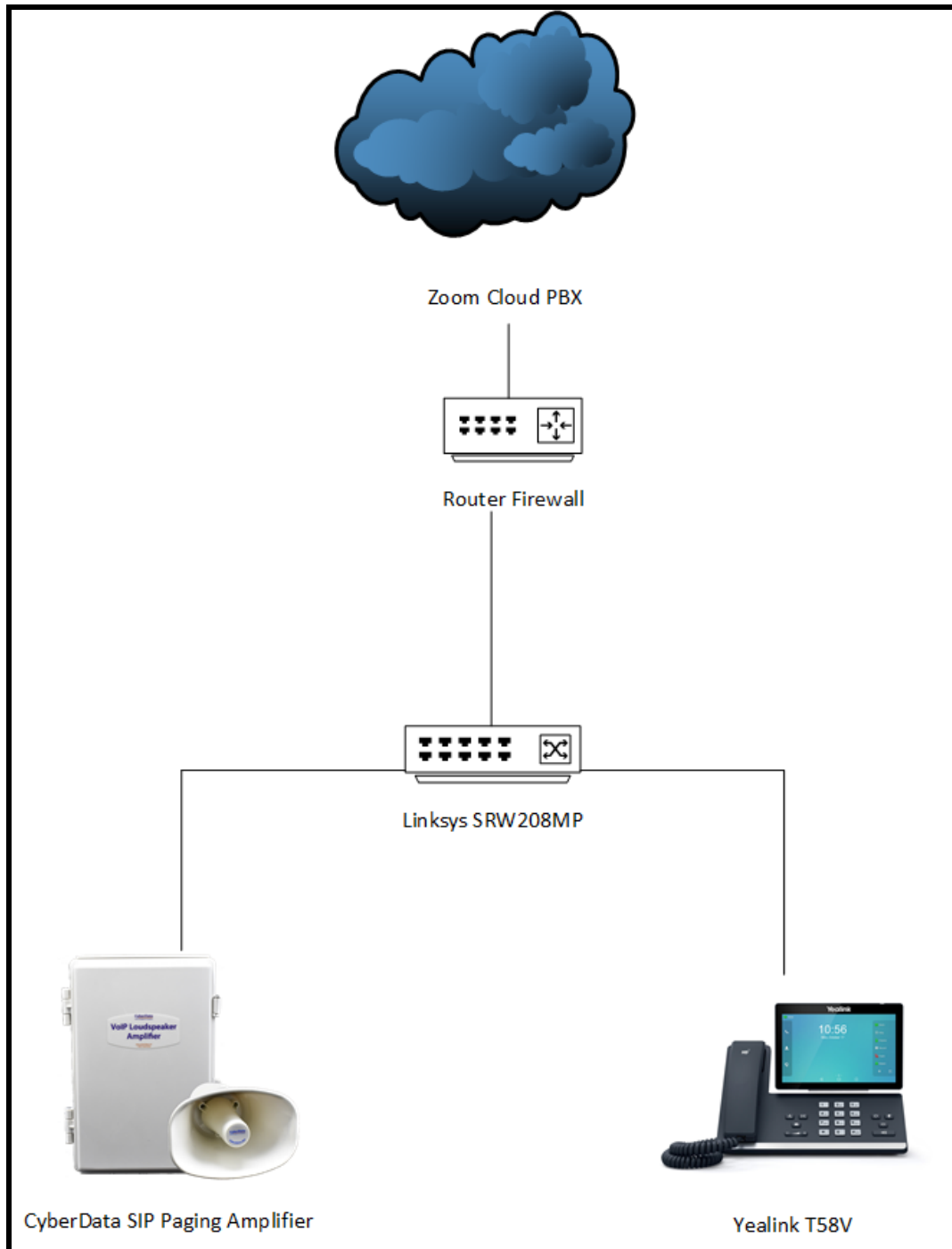
- 9-27-19 Initial Release
- 1-31-20 Updated Device Type creation.
- 3-11-21 Updated registration process.
- 9-21-21 Update to cover new provisioning process.

Table of Contents

Table of Contents	3
1.0 Setup Diagram	4
2.0 Test Setup Equipment	5
3.0 Before You Start	6
4.0 Configuration Procedure: Intercom/Paging Device.....	8
5.0 Configuration Procedure: Setting up the Paging Extension	14
6.0 Configuration Procedure: Setting up the Nightringer extension.....	22
7.0 Using the CyberData SIP Paging Amplifier in a Zoom system.....	30
7.1 Creating a Call queue.....	31
8.0 Contact CyberData Corporation	36

1.0 Setup Diagram

Figure 1-1: Interoperability Test Infrastructure



2.0 Test Setup Equipment

This section describes the products used for interoperability testing with Zoom.

Table 2-1: Setup Equipment

EQUIPMENT	MODEL or PART NUMBER	FIRMWARE VERSION
CYBERDATA SIP PAGING AMPLIFIER	011324	12.1.0
CYBERDATA SIP LOUDSPEAKER AMPLIFIER (POE)	011405	12.1.0
CYBERDATA SIP LOUDSPEAKER AMPLIFIER (AC-POWERED)	011404	12.1.0
YEALINK	T58A	58.83.3.6
LINKSYS SWITCH	SRW208MP	---

3.0 Before You Start

This configuration guide documents the integration process of a CyberData SIP Paging Amplifier.

Network Advisories

Zoom uses a Fully Qualified Domain Name (FQDN) for the SIP server and Outbound Proxy addresses. The CyberData Paging Amplifier needs to perform a DNS A query to resolve the IP address of Zoom's Outbound Proxy FQDN. It is necessary to ensure the configured DNS server(s) have an A record for the Outbound Proxy address.

In addition, be sure to verify the following ports are available for the amp to use:

- TCP 5060-5061, 5091 (SIP)
- UDP 10500 (RTP)

The paging amplifier will need to traverse the public internet in order to operate with Zoom in the cloud.

The amplifier's paging extension uses SIP port 5060 to receive SIP messages. The Nightringer extension uses SIP port 5061 to receive SIP messages. Both extensions will send SIP messages to port 5091, the port used by Zoom's Outbound Proxy.

SIP ports 5060-5061 and RTP port 10500 are the default values on all noted firmware levels.

Alternatively, SIP ports for the paging and Nightringer extension are configurable on the **SIP** page of the web interface.

The RTP port setting on the **SIP** page is used for both extensions.

The CyberData Discovery Utility can be used to locate CyberData devices on your network. You may download it from the following web address:

<https://www.cyberdata.net/pages/discovery>

Note: DHCP addressing mode is enabled on default on all noted firmware levels.

Product Documentation and Utilities

Before you start, download the Operation and Quick Start guides from the Amplifier's product webpage:

SIP Paging Amplifier (011324)

http://files.cyberdata.net/assets/011324/011324_931156K_SIP_Paging_Amplifier_Operations_Guide.pdf

SIP Loudspeaker Amplifier (AC)

http://files.cyberdata.net/assets/011405/011405_931236L_SIP_Loudspeaker_Amplifier_PoE_Operations_Guide.pdf

SIP Loudspeaker Amplifier (PoE)

http://files.cyberdata.net/assets/011404/011404_931240M_SIP_Loudspeaker_Amplifier_AC-Powered_Operations_Guide.pdf

4.0 Configuration Procedure: Intercom/Paging Device

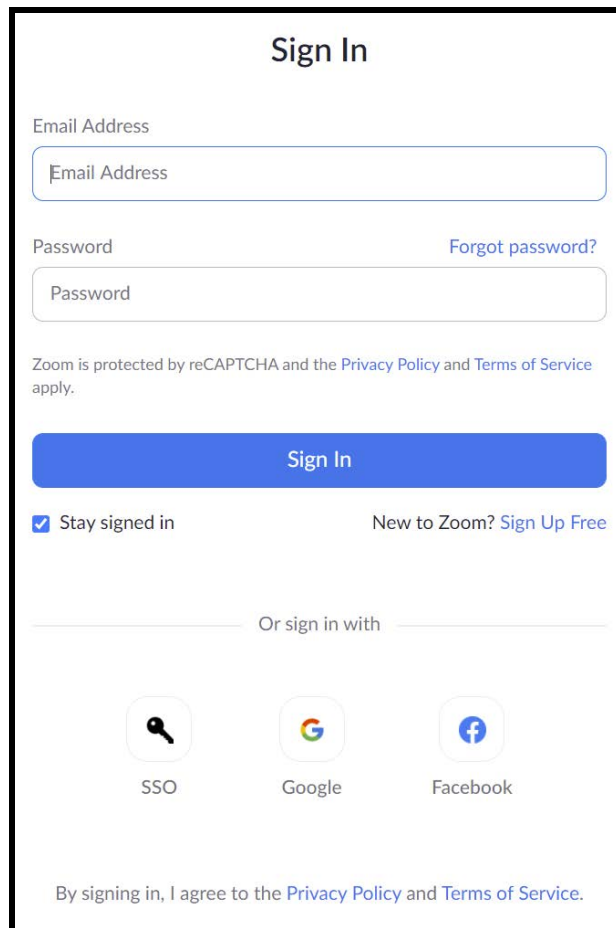
There are several different extension types that can be used on the Zoom platform. This guide provides instructions to register the CyberData Paging Amplifier as an Intercom/Paging Device.

As of 9/26/2021 Zoom has released an update that changes how CyberData products register with Zoom as Zoom has moved to an auto provisioning process. This changes the “CyberData” brand of products for Common Area Phones. Products like the SIP Speaker will continue to be manually provisioned, which is a very simple process. Contact your Zoom account manager and request they enable “Other/Generic” common area phone type. This will allow manual configuration of the CyberData device. Please follow the steps below to configure the device.

If you run into issues please contact our [support department](#).

1. Log into Zoom. <https://zoom.us/signin>

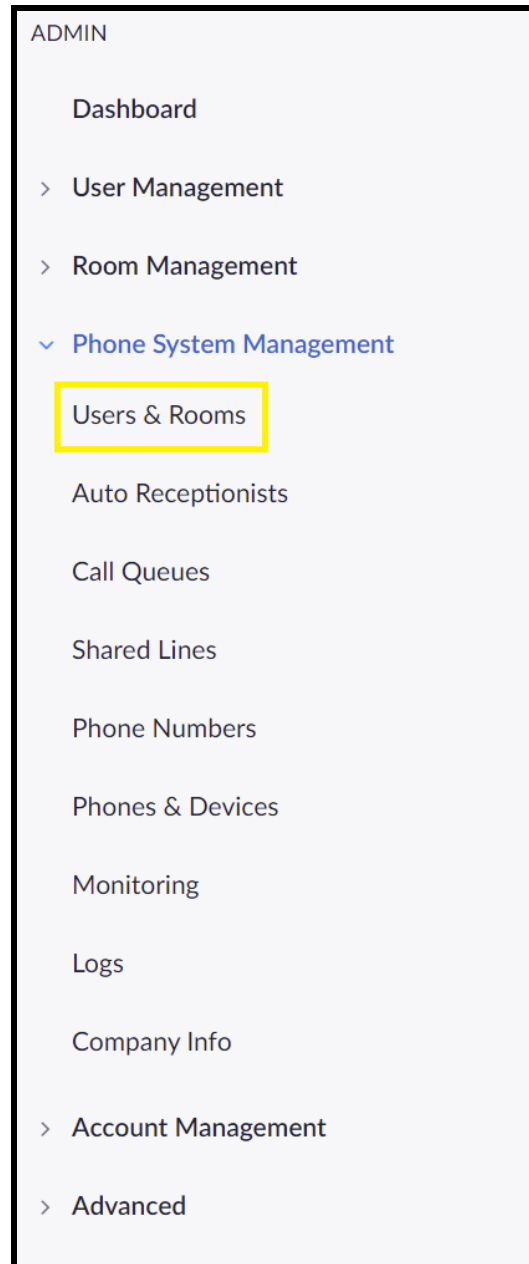
Figure 4-1: Log into Zoom



The image shows a screenshot of the Zoom Sign In page. At the top, it says "Sign In". Below that, there are two input fields: "Email Address" and "Password". The "Email Address" field has a placeholder text "Email Address". The "Password" field has a placeholder text "Password" and a link "Forgot password?" to its right. Below the input fields, there is a line of text: "Zoom is protected by reCAPTCHA and the Privacy Policy and Terms of Service apply." Below this text is a large blue button labeled "Sign In". Underneath the button, there is a checked checkbox labeled "Stay signed in" and a link "New to Zoom? Sign Up Free". Below these elements is a horizontal line with the text "Or sign in with" in the center. Underneath this line are three icons: a key icon labeled "SSO", the Google logo labeled "Google", and the Facebook logo labeled "Facebook". At the bottom of the page, there is a line of text: "By signing in, I agree to the Privacy Policy and Terms of Service."

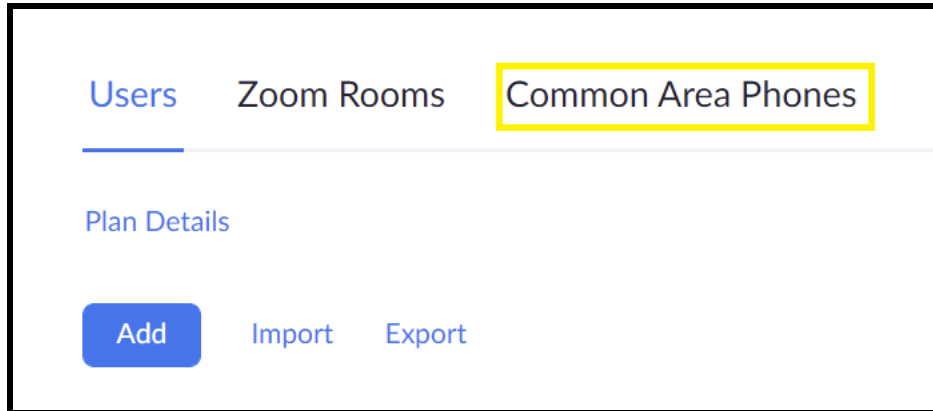
2. From the Profile page select the “Phone System Management” section and the ‘Users & Rooms’ subsection.

Figure 4-2: Profile Landing Page



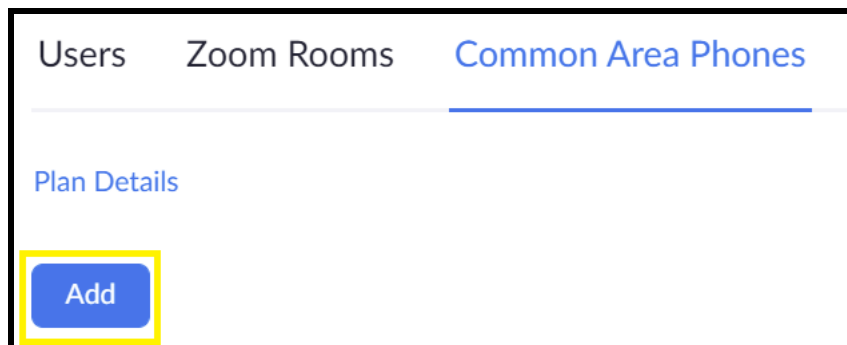
- From the Users & Rooms page navigate to the Common Area Phones tab.

Figure 4-4: Users & Rooms



- Press the Add button on the Common Area Phones tab.

Figure 4-5: Add Common Area Phone



5. After clicking the Add button a Pop-up will appear that allows common area phone creation.

Figure 4-5: Phone Pop-up

The screenshot shows a 'Phone Pop-up' form titled 'Add Common Area Phone'. The form is organized into several sections with horizontal dividers. The first section contains 'Display Name' and 'Description (Optional)' text input fields. The second section contains 'Extension Number' with the value '842' and 'Package' set to 'Zoom Phone Basic (Migrated)' with a help icon and an 'Assign' link below it. The third section contains 'Country' set to 'United States (+1)' and 'Time Zone' set to '(GMT-8:00) Pacific Time (US and Canada)'. The fourth section contains 'MAC Address' and 'Device Type' with two dropdown menus labeled 'Select Brand' and 'Select Model'. At the bottom right are 'Cancel' and 'Save' buttons.

6. Set the Display Name for the device
7. Set the Description to the location of the amplifier..
8. Adjust the extension number as necessary.
9. Set the MAC address of the device.
10. Set the Device Type to **Other**.

Note: Adding the MAC Address will switch the device type to “Algo/CyberData” make sure to set the Device Type to “Other”.

Figure 4-6: Common Area Phone Pop-up – Filled

Add Common Area Phone

Display Name: CyberData SIP Paging Amplifier

Description (Optional): Warehouse 1

Extension Number: 846

Package: Zoom Phone Basic (Migrated) ?
[Assign](#)

Country: United States (+1)

Time Zone: (GMT-7:00) Pacific Time (US and Canada)

MAC Address: 00:20:f7:03:cc:f2

Device Type: Other

Buttons: Cancel, Save

11. Click the Save button to create the Phone.
12. Once saved the browsers will redirect to the newly created extension's page
13. Click on the Provision Button at the bottom of the device's page.

Figure 4-7: Provision

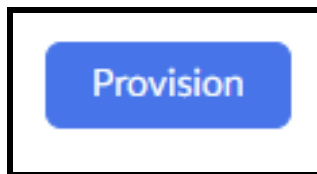
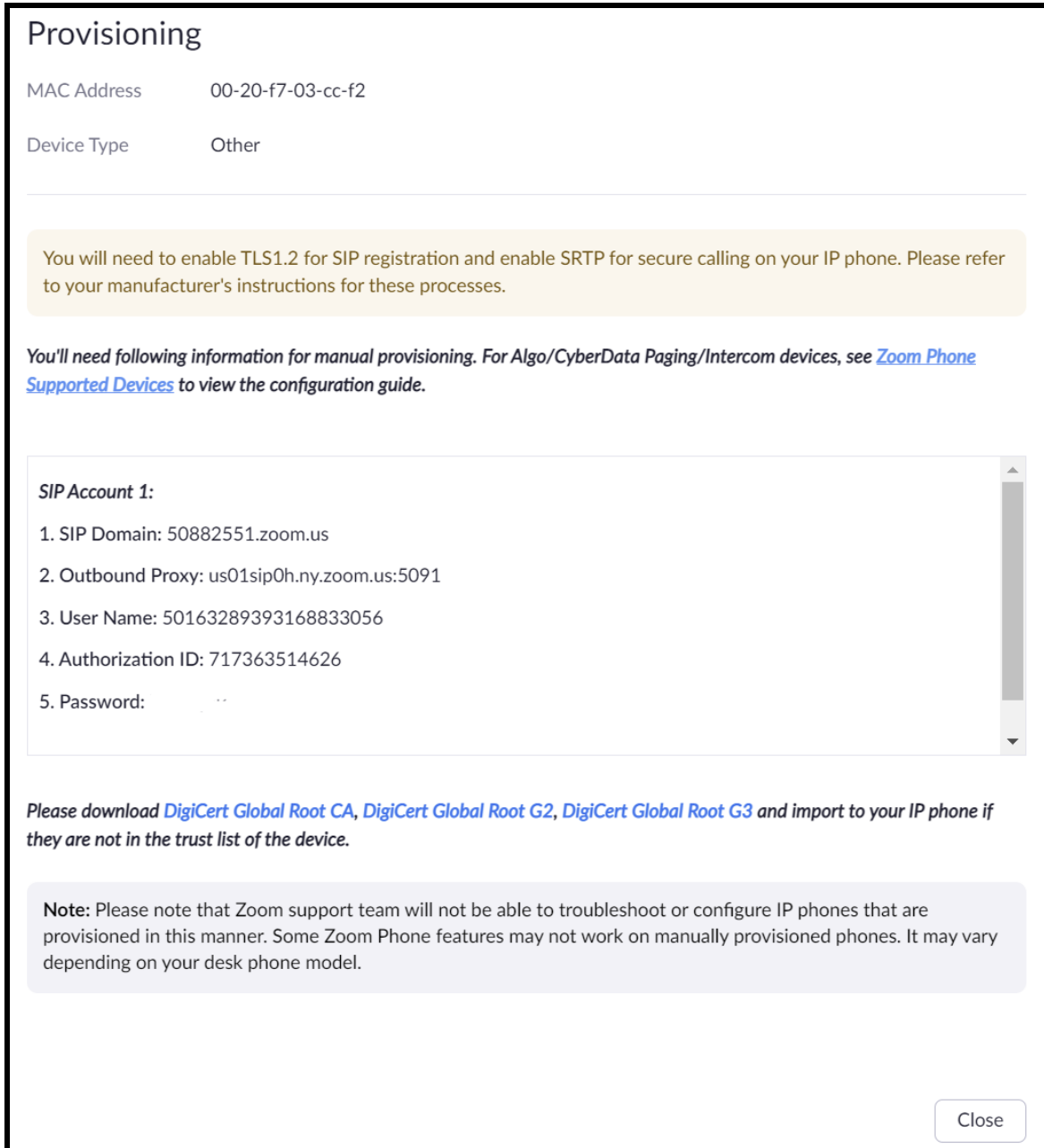


Figure 4-7: Provisioning Pop-up



14. A popup will appear with manual provisioning information to setup the CyberData amplifier. Keep this popup open.

15. Make sure to download all the certificates listed which will be needed for device configuration.

5.0 Configuration Procedure: Setting up the Paging Extension

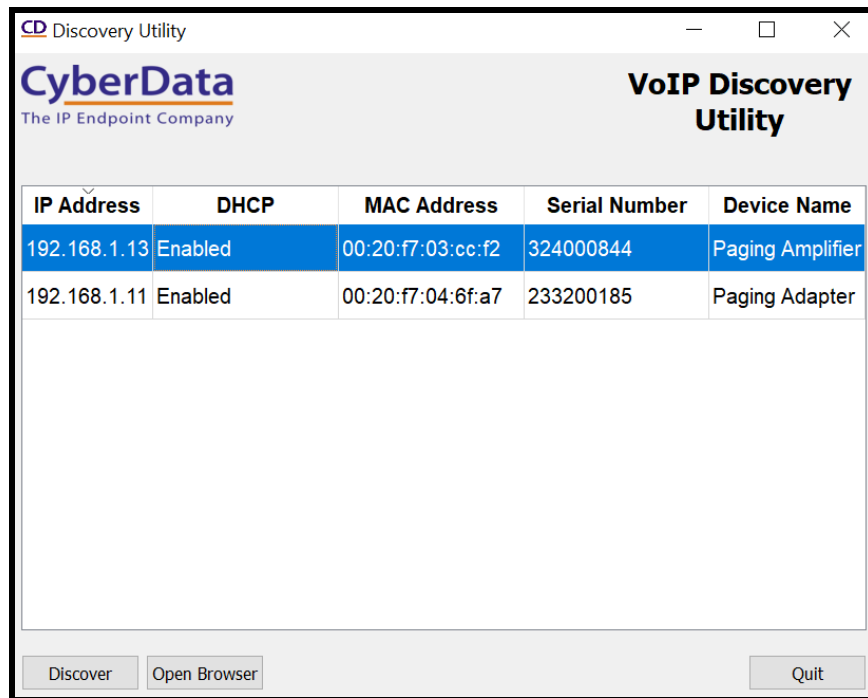
If you are configuring through the web interface, use the following steps to login to the web interface of your CyberData device.

Table 5-1: Setting Name correlation

CyberData Setting	Zoom Provisioning Pop-up
Primary SIP Server	SIP Domain
Outbound Proxy Outbound Proxy Port	Outbound Proxy
Primary SIP User ID	User Name
Primary SIP Auth ID	Authorization ID
Primary SIP Auth Password	Password

1. Click Open Browser from the CyberData Discovery Utility or point your browser to the CyberData device’s IP address to access the Home Page of the web interface.

Figure 5-1: CyberData Discovery Utility



2. Enter the default credentials when prompted and click the Log In button.

Username: admin

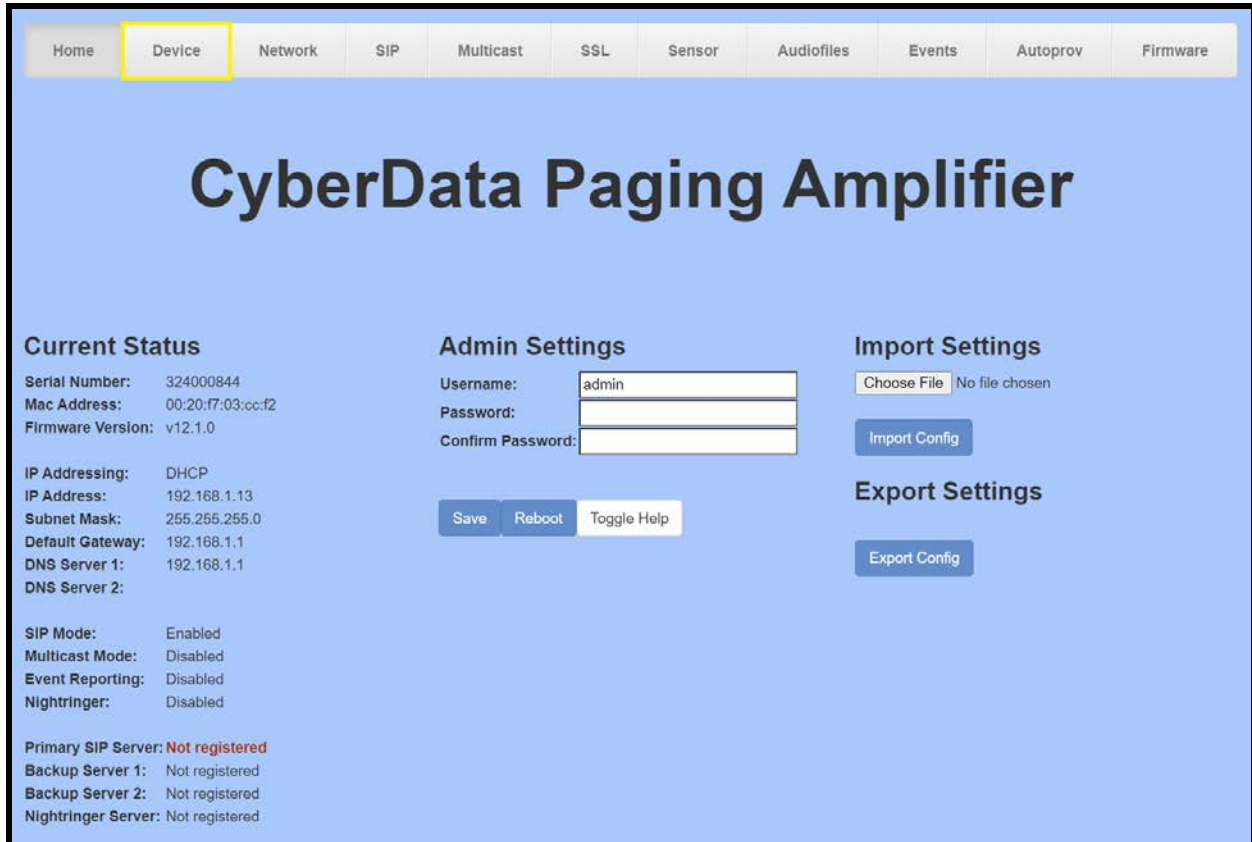
Password: admin

CyberData Corporation
3 Justin Court, Monterey, CA 93940

www.cyberdata.net

P 831.373.2601 | F 831.373.4193

Figure 5-2: Home tab



3. From the Home tab press the 'Device' Tab.

Figure 5-3: Device Tab

The screenshot shows the configuration interface for the CyberData Paging Amplifier, specifically the Device Tab. The interface is divided into several sections:

- Volume Settings (0-9):** Includes checkboxes for 'Disable Volume Control Dial', and sliders for 'SIP Volume', 'Multicast Volume', 'Ring Volume', 'Sensor Volume', and 'Loopback Volume', all set to 4. A 'Volume Boost' dropdown is set to 'No Volume Boost'.
- Line-in Settings:** Includes a checkbox for 'Enable Line-in to Line-out Loopback'.
- DTMF Settings:** Includes checkboxes for 'Require Security Code', 'Enable Stored Message Playback', and a text field for 'Security Code'.
- Relay Settings:** Includes a checked checkbox for 'Activate Relay with DTMF code', and text fields for 'Relay Pulse Code' (123), 'Relay Pulse Duration (in seconds)' (2), 'Relay Activation Code' (456), and 'Relay Deactivation Code' (654). Other options include 'Activate Relay During Ring', 'Activate Relay During Night Ring', and 'Activate Relay While Call Active', all unchecked.
- Clock Settings (highlighted):** Includes a checked checkbox for 'Set Time with NTP server on boot', a text field for 'NTP Server' (north-america.pool.ntp.org), a text field for 'Posix Timezone String (see manual)' (PST8PDT,M3.2.0:2.00:00,M11.1), a checked checkbox for 'Periodically sync time with server', a text field for 'Time update period (in hours)' (1), and a text field for 'Current Time' (14:53:47).
- Power Settings:** Includes a text field for '802.3AT Mode' (Not detected, Disabled), a checkbox for 'Force 802.3AT Mode (NOT recommended)', and a checkbox for 'Auxiliary Power Supply'.
- Misc Settings:** Includes a text field for 'Device Name' (Paging Amplifier), a checked checkbox for 'Auto-Answer Incoming Calls', and checkboxes for 'Beep on Init', 'Beep on Page', 'Disable HTTPS (NOT recommended)', 'Two Speakers Connected', and 'RGB Strobe' (Not installed).

1. Check the box for “Set Time with NTP Server on Boot”.
2. Change the NTP server if necessary.
3. Set the Posix Timezone String to the local area.

Note: See the operations manual for other time zone strings.

4. Check the box for “Periodically sync time with server”.
5. Set the “Time update period (in hours)” to 1.
6. Save.
7. Go to the SIP Tab.

Figure 5-4: SIP Tab

SIP Settings

Enable SIP operation:

SIP Transport Protocol: TLS NTP enabled

TLS Version: 1.2 only (recommended)

Verify Server Certificate:

Register with a SIP Server:

Use Cisco SRST:

Primary SIP Server: 50882551.zoom.us

Primary SIP User ID: 50163289393168833056

Primary SIP Auth ID: 717363514626

Primary SIP Auth Password:

Backup SIP Server 1:

Backup SIP User ID 1:

Backup SIP Auth ID 1:

Backup SIP Auth Password 1:

Backup SIP Server 2:

Backup SIP User ID 2:

Backup SIP Auth ID 2:

Backup SIP Auth Password 2:

Remote SIP Port: 5060

Local SIP Port: 5060

Outbound Proxy: us01sip0h.ny.zoom.us

Outbound Proxy Port: 5091

Disable rport Discovery:

Buffer SIP Calls:

Re-registration Interval (in seconds): 360

Unregister on Boot:

Keep Alive Period: 10000

Nightringer Settings

Enable Nightringer:

SIP Server: 10.0.0.253

Remote SIP Port: 5060

Local SIP Port: 5061

Outbound Proxy:

Outbound Proxy Port: 0

User ID: 241

Authenticate ID: 241

Authenticate Password:

Re-registration Interval (in seconds): 360

RTP Settings

RTP Port (even): 10500

Jitter Buffer: 50

SRTP: Enabled

Call Disconnection

Terminate Call after delay: 0

Codec Selection

Force Selected Codec:

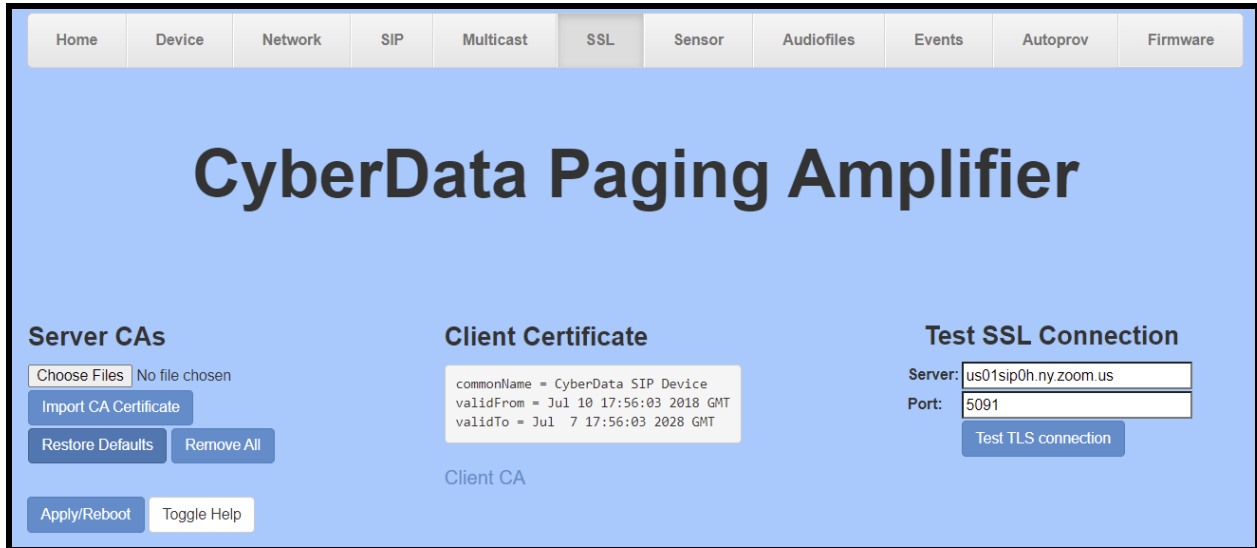
Codec: PCMU (G.711, u-law)

8. Set the ‘SIP Transport Protocol’ to TLS.
9. Keep TLS version set to “1.2 Only (Recommended)”.
10. Check the box for “Verify Server Certificate”.
11. Set the Primary SIP Server to the SIP Domain from the configuration Popup.
12. Set the Primary SIP User ID to the Username from the configuration Popup.
13. Set the Primary SIP Auth ID to the Authorization ID from the configuration Popup.
14. Set the Primary SIP Auth Password to the password provided in the configuration Popup.
15. Set the Outbound proxy and Outbound Proxy port to the address provided in the configuration Popup.

Note: Make sure to separate the port from the outbound proxy information provided by Zoom.

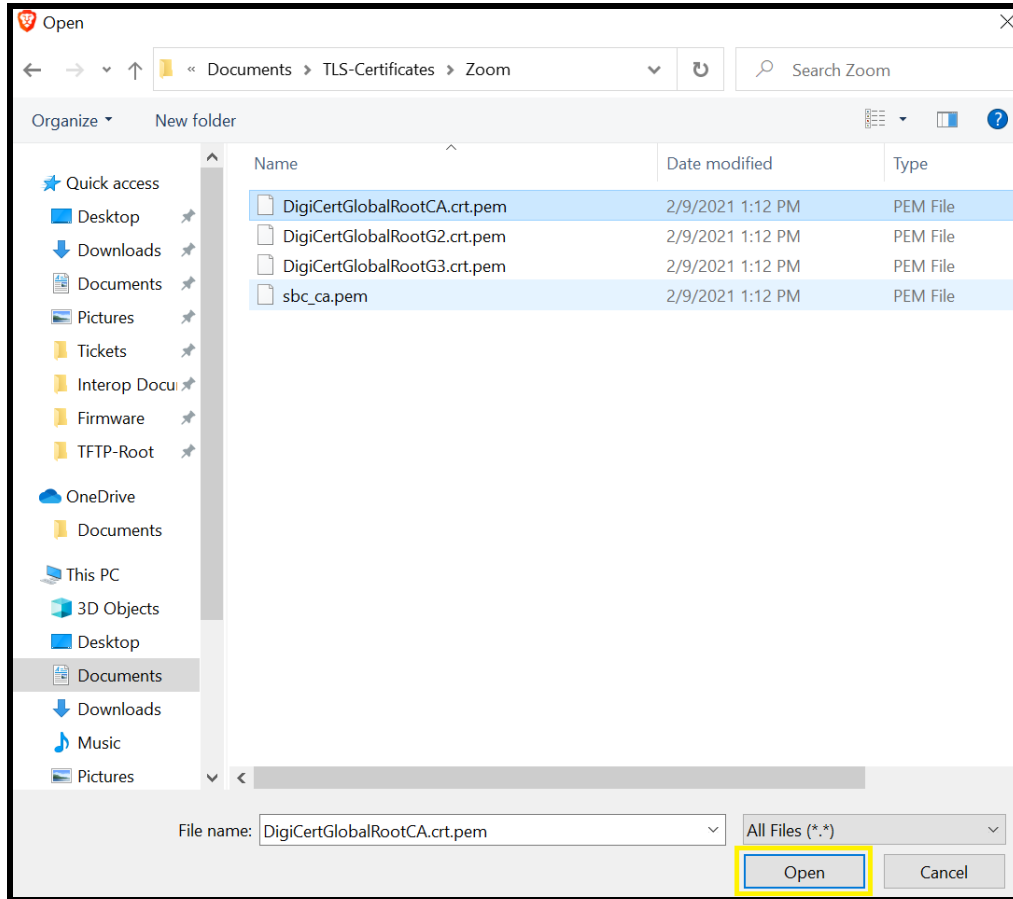
16. Set SRTP to **Enabled**.
17. Check the box for “Force Selected Codec”.
18. Save.
19. Go to the ‘SSL’ Tab.

Figure 5-5: SSL Tab



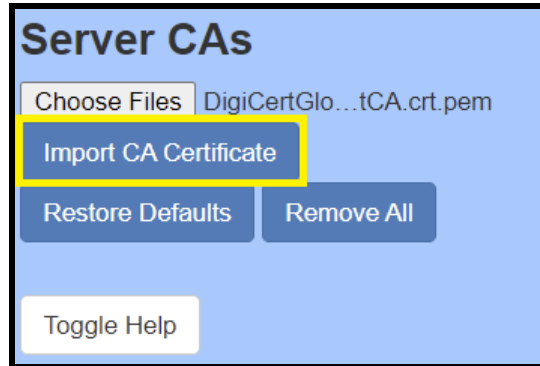
20. Press the 'Choose Files' button.

Figure 5-6: Choose file Pop-up



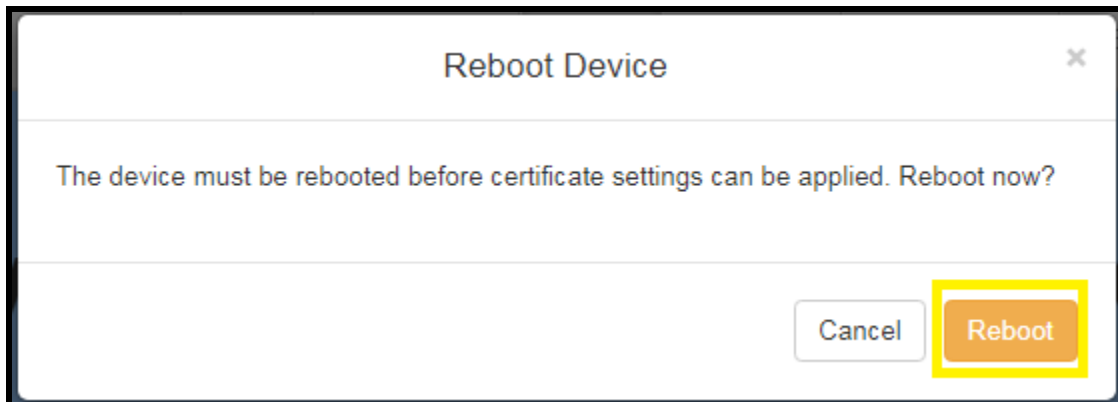
21. Select the certificate file and press the Open button.
22. Press the “Import CA Certificate” button to load the cert.

Figure 5-7: Import CA Certificate



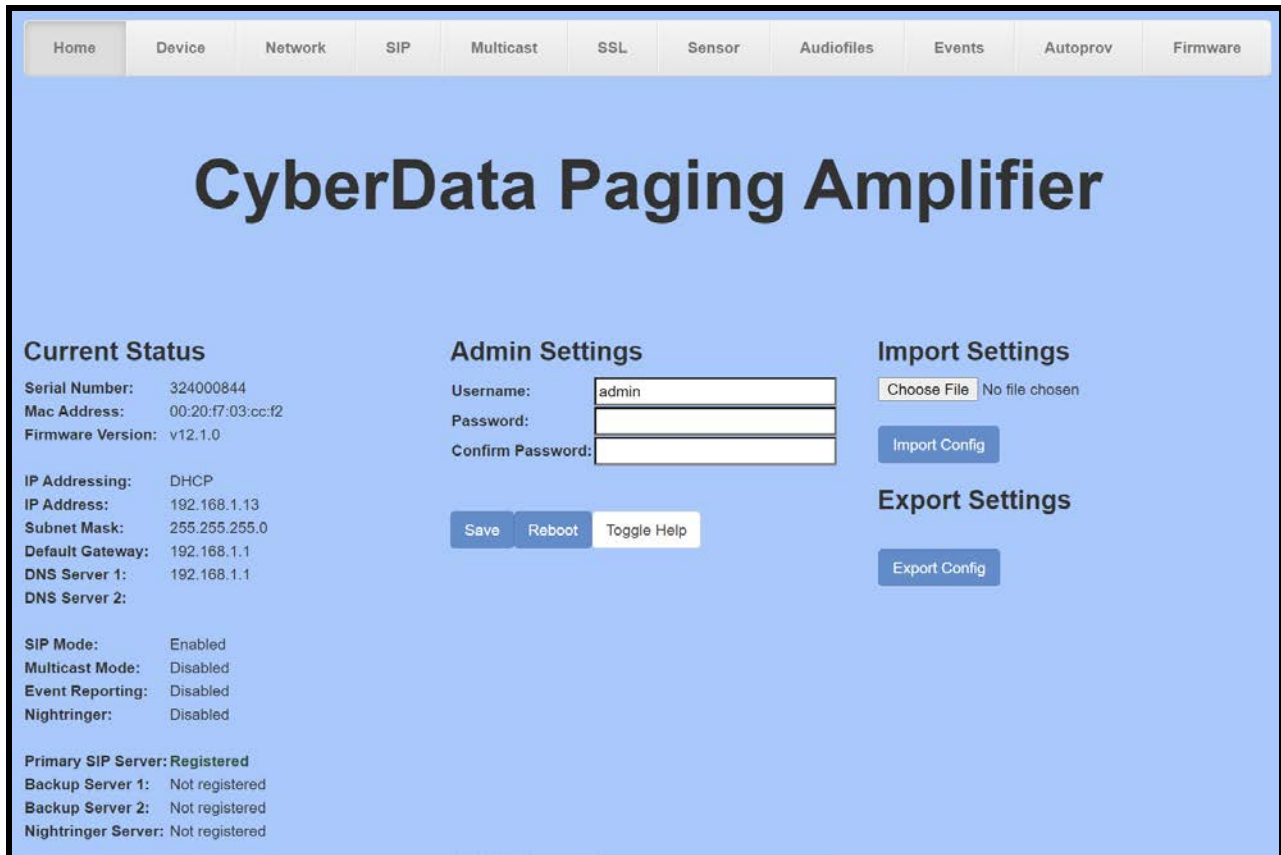
23. Repeat this process for all certificates downloaded during the extension creation process.
24. Once the certificates are loaded a reboot will be required to make the changes take effect
Use the "Apply/Reboot Button.
25. Click Reboot in the Popup.

Figure 5-8: Apply/Reboot Popup



Once rebooted, “Registered” will appear in green in the “Status” section of the Home page.

Figure 5-9: Home page – Registered



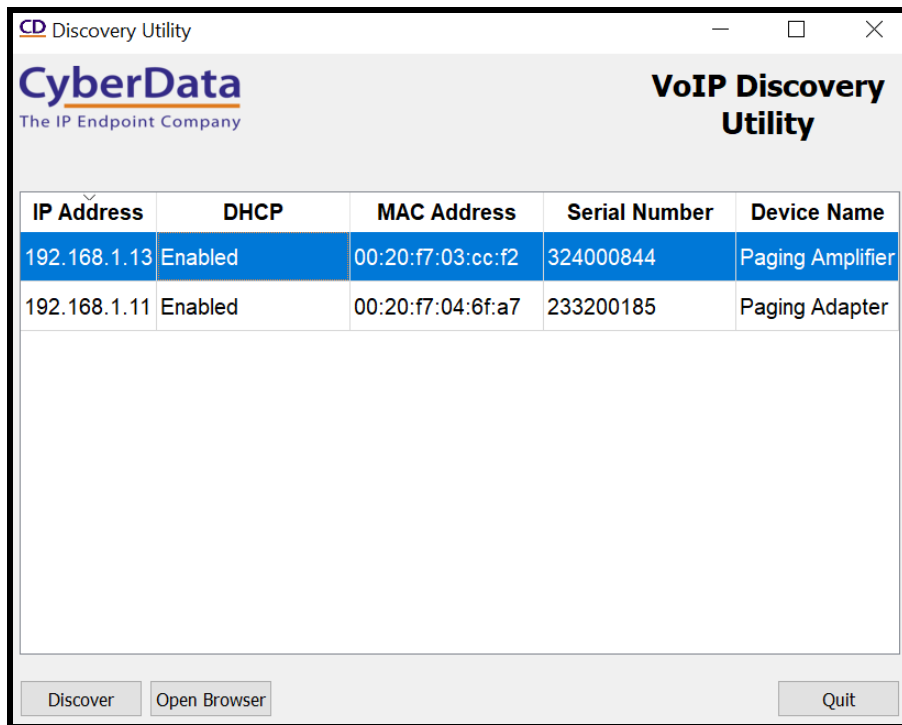
6.0 Configuration Procedure: Setting up the Nightringer extension

Table 6-1: Setting Name correlation

CyberData Setting	Zoom Provisioning Pop-up
SIP Server	SIP Domain
Outbound Proxy Outbound Proxy Port	Outbound Proxy
User ID	User Name
Authenticate ID	Authorization ID
Authenticate Password	Password

1. Click Open Browser from the CyberData Discovery Utility or point your browser to the CyberData device’s IP address to access the Home Page of the web interface.

Figure 6-1: CyberData Discovery Utility



2. Enter the default credentials when prompted and click the Log In button.

Username: admin

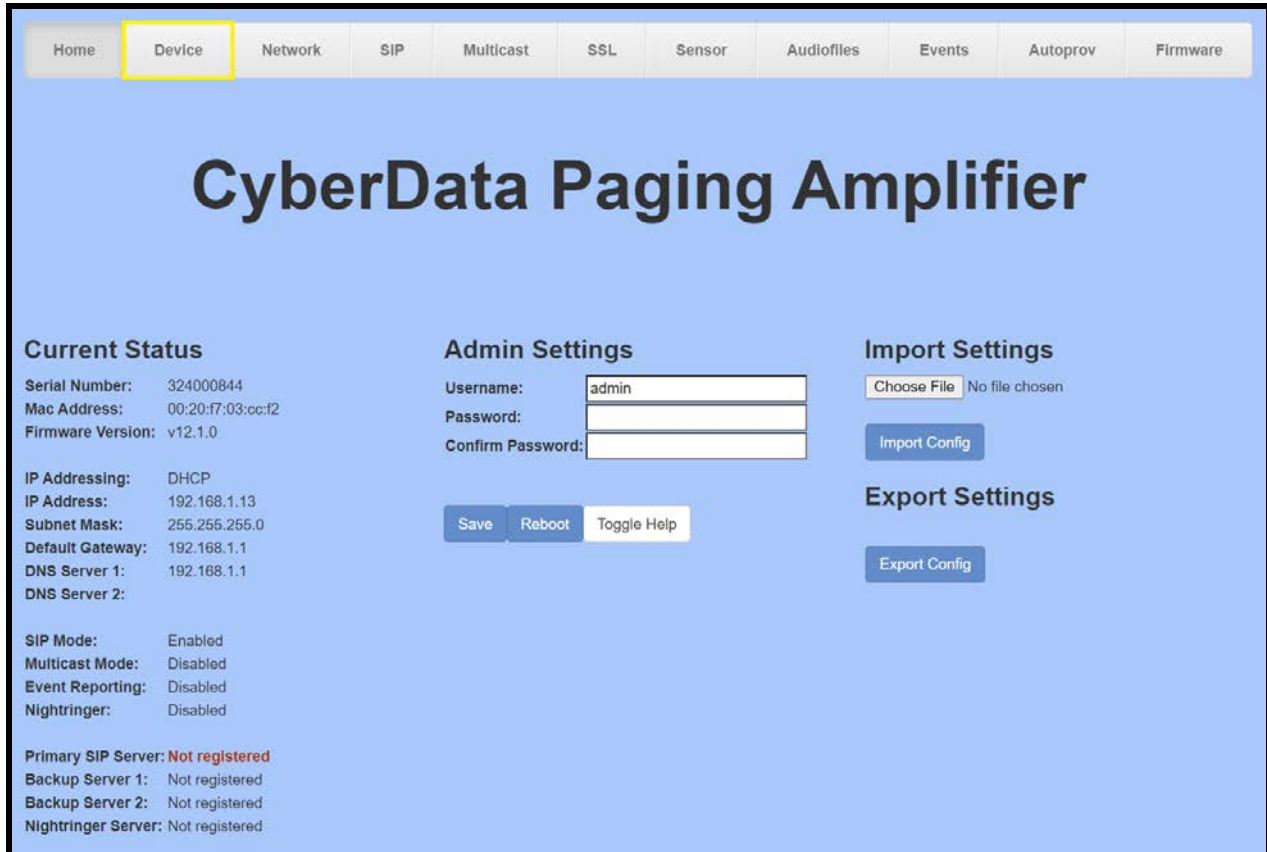
Password: admin

CyberData Corporation
3 Justin Court, Monterey, CA 93940

www.cyberdata.net

P 831.373.2601 | F 831.373.4193

Figure 6-2: Web Interface Login



3. From the Home tab press the 'Device' Tab.

Figure 6-3: Device Tab

The screenshot shows the 'Device' tab of the CyberData Paging Amplifier configuration interface. The 'Clock Settings' section is highlighted with a yellow box. The settings in this section are: 'Set Time with NTP server on boot' (checked), 'NTP Server' (north-america.pool.ntp.org), 'Posix Timezone String (see manual)' (PST8PDT,M3.2.0/2:00:00,M11.1.1.), 'Periodically sync time with server' (checked), 'Time update period (in hours)' (1), and 'Current Time' (14:53:47). Other sections include 'Volume Settings (0-9)', 'Line-in Settings', 'DTMF Settings', 'Relay Settings', 'Power Settings', and 'Misc Settings'.

4. Check the box for “Set Time with NTP Server on Boot”.
5. Change the NTP server if necessary.
6. Set the Posix Timezone String to the local area.

Note: See the operations manual for other time zone strings.

7. Check the box for “Periodically sync time with server”.
8. Set the “Time update period (in hours)” to 1.
9. Save.
10. Go to the SIP Tab.

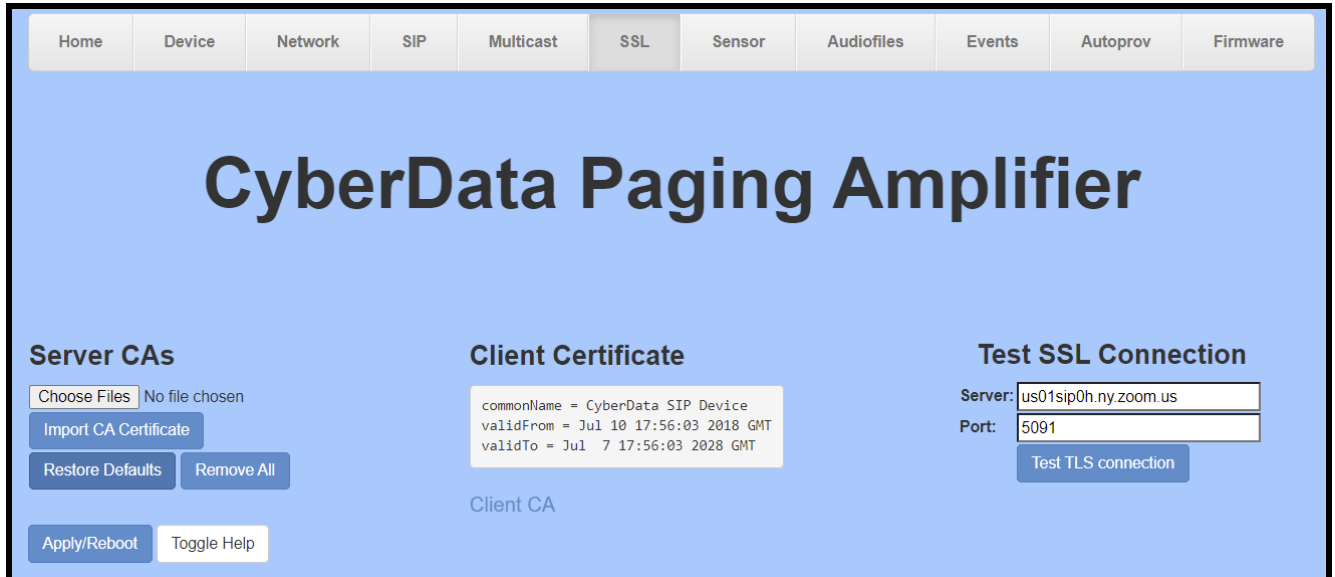
Figure 6-4: SIP Tab

The screenshot displays the SIP configuration interface with the following sections and fields:

- SIP Settings:**
 - Enable SIP operation:
 - SIP Transport Protocol: TLS (dropdown) NTP enabled
 - TLS Version: 1.2 only (recommended) (dropdown)
 - Verify Server Certificate:
 - Register with a SIP Server:
 - Use Cisco SRST:
 - Primary SIP Server: [text box]
 - Primary SIP User ID: [text box]
 - Primary SIP Auth ID: [text box]
 - Primary SIP Auth Password: [text box]
 - Backup SIP Server 1: [text box]
 - Backup SIP User ID 1: [text box]
 - Backup SIP Auth ID 1: [text box]
 - Backup SIP Auth Password 1: [text box]
 - Backup SIP Server 2: [text box]
 - Backup SIP User ID 2: [text box]
 - Backup SIP Auth ID 2: [text box]
 - Backup SIP Auth Password 2: [text box]
 - Remote SIP Port: 5060
 - Local SIP Port: 5060
 - Outbound Proxy: [text box]
 - Outbound Proxy Port: 0
 - Disable rport Discovery:
 - Buffer SIP Calls:
 - Re-registration Interval (in seconds): 360
 - Unregister on Boot:
 - Keep Alive Period: 10000
- Nightringer Settings:**
 - Enable Nightringer:
 - SIP Server: 50882551.zoom.us
 - Remote SIP Port: 5060
 - Local SIP Port: 5061
 - Outbound Proxy: us01sip0h.ny.zoom.us
 - Outbound Proxy Port: 5091
 - User ID: 50163289393168833056
 - Authenticate ID: 717363514626
 - Authenticate Password: [masked]
 - Re-registration Interval (in seconds): 360
- RTP Settings:**
 - RTP Port (even): 10500
 - Jitter Buffer: 50
 - SRTP: Enabled (dropdown)
- Call Disconnection:**
 - Terminate Call after delay: 0
- Codec Selection:**
 - Force Selected Codec:
 - Codec: PCMU (G.711, u-law) (dropdown)

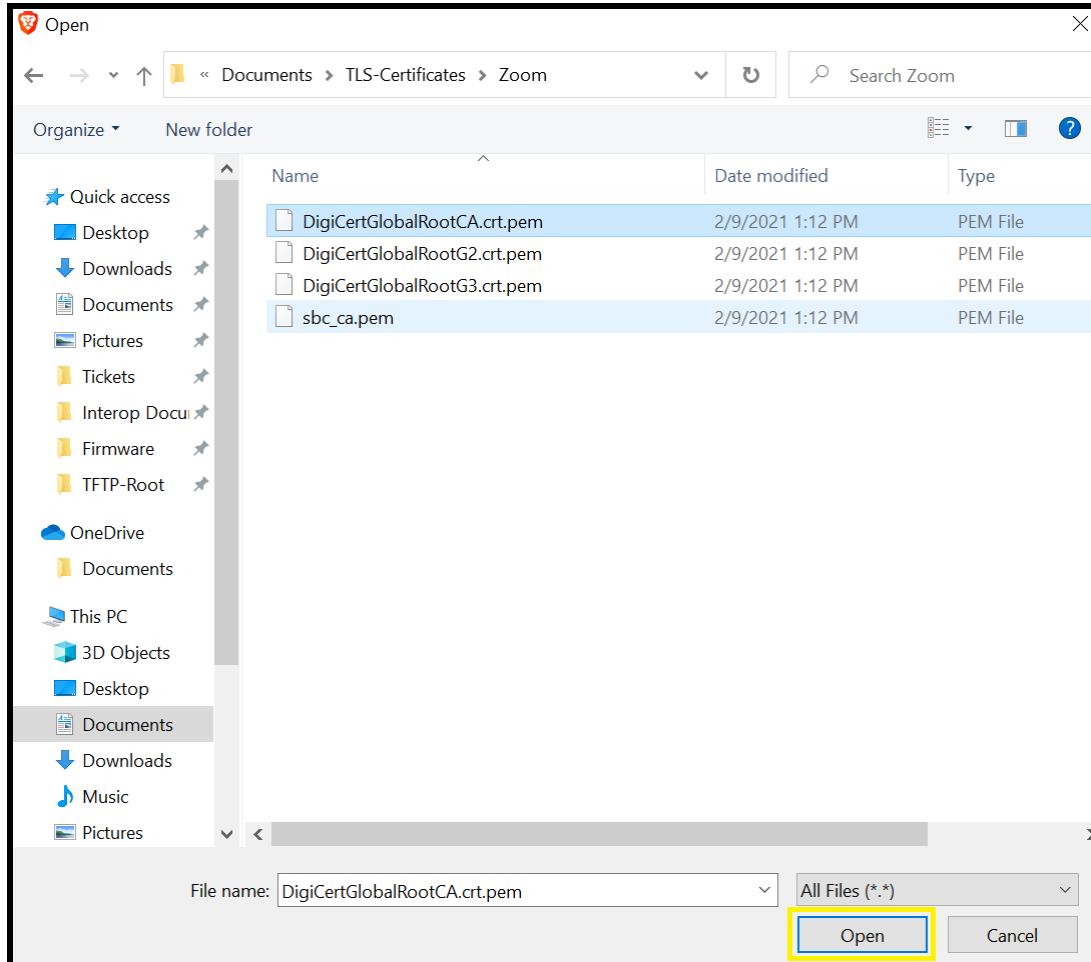
11. Set the ‘SIP Transport Protocol’ to TLS.
12. Keep TLS version set to “1.2 Only (Recommended)”.
13. Check the box for “Verify Server Certificate”.
14. Set the SIP Server to the SIP Domain from the configuration Popup.
15. Set the User ID to the Username from the configuration Popup.
16. Set the Authenticate ID to the Authorization ID from the configuration Popup.
17. Set the Authenticate Password to the password provided in the configuration Popup.
18. Set the Outbound proxy and Outbound Proxy port to the address provided in the configuration Popup.
19. Set SRTP to **Enabled**.
20. Save.
21. Go to the ‘SSL’ Tab.

Figure 6-5: SSL Tab



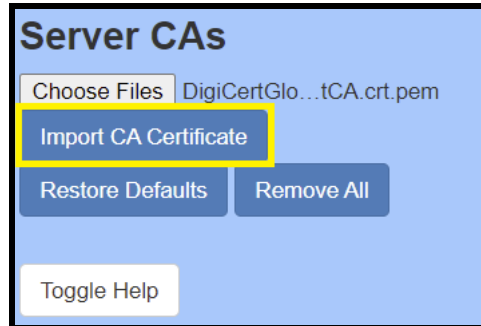
26. Press the 'Choose Files' button.

Figure 6-6: Choose file Pop-up



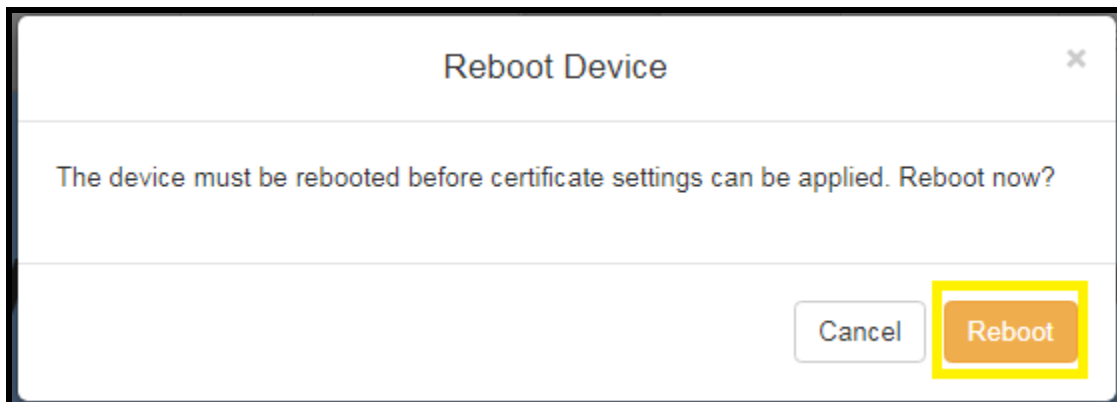
- 27. Select the certificate file and press the Open button.
- 28. Press the “Import CA Certificate” button to load the cert.

Figure 6-7: Import CA Certificate



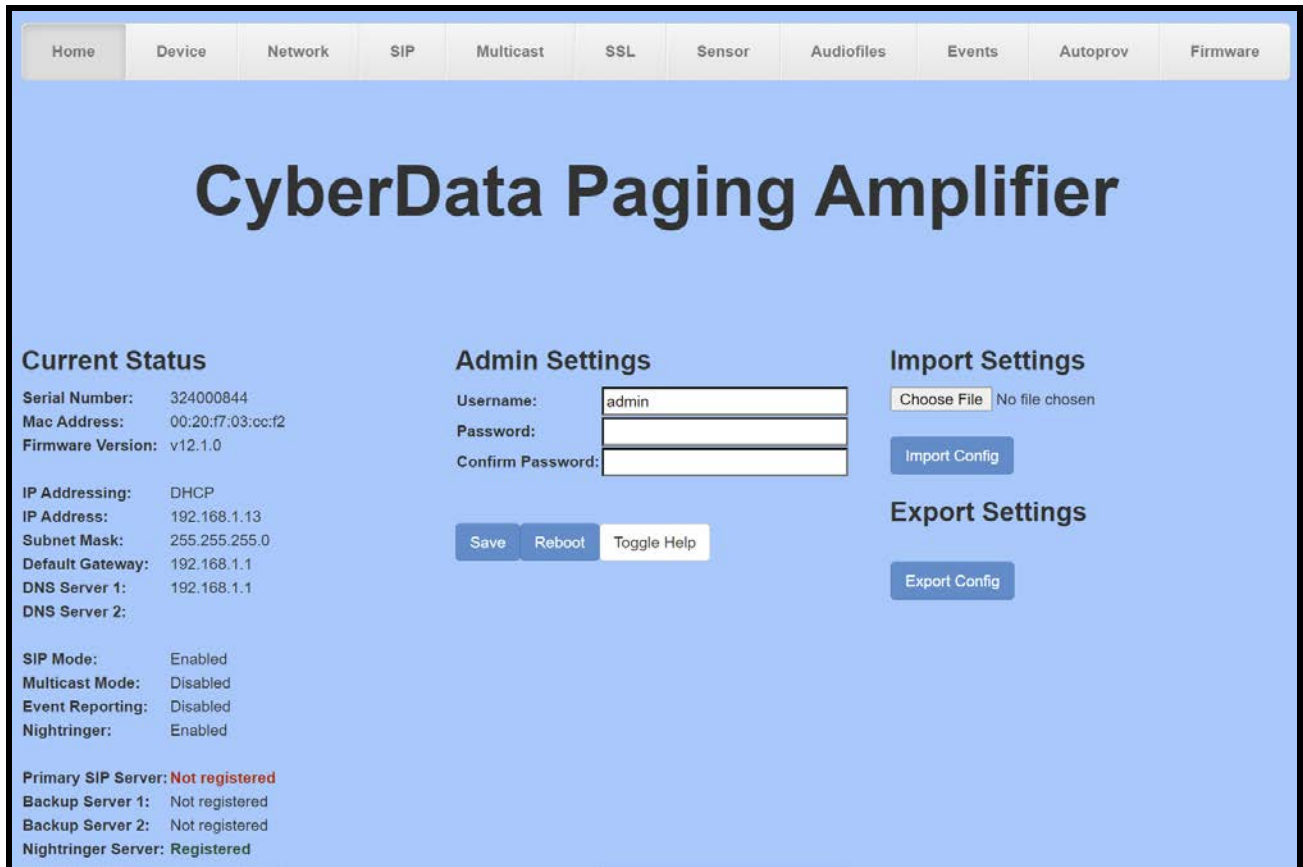
29. Repeat this process for all certificates downloaded during extension creation.
30. Once the certificates are loaded a reboot will be required to make the changes take effect
Use the "Apply/Reboot Button.
31. Click Reboot in the Popup.

Figure 6-8: Apply/Reboot Popup



Once rebooted, “Registered” will appear in green in the “Status” section of the Home page.

Figure 6-9: Home page – Registered



7.0 Using the CyberData SIP Paging Amplifier in a Zoom system.

Once the amplifier is registered with Zoom, it can be used in several ways. The unit can be directly called by dialing the extension number of the unit. It is also possible to add the unit to a call queue to reach multiple endpoints simultaneously. Keep in mind that with a call queue, multiple devices will ring, but only one device may answer. Due to this operation, it is not possible to page to multiple amplifiers at once.

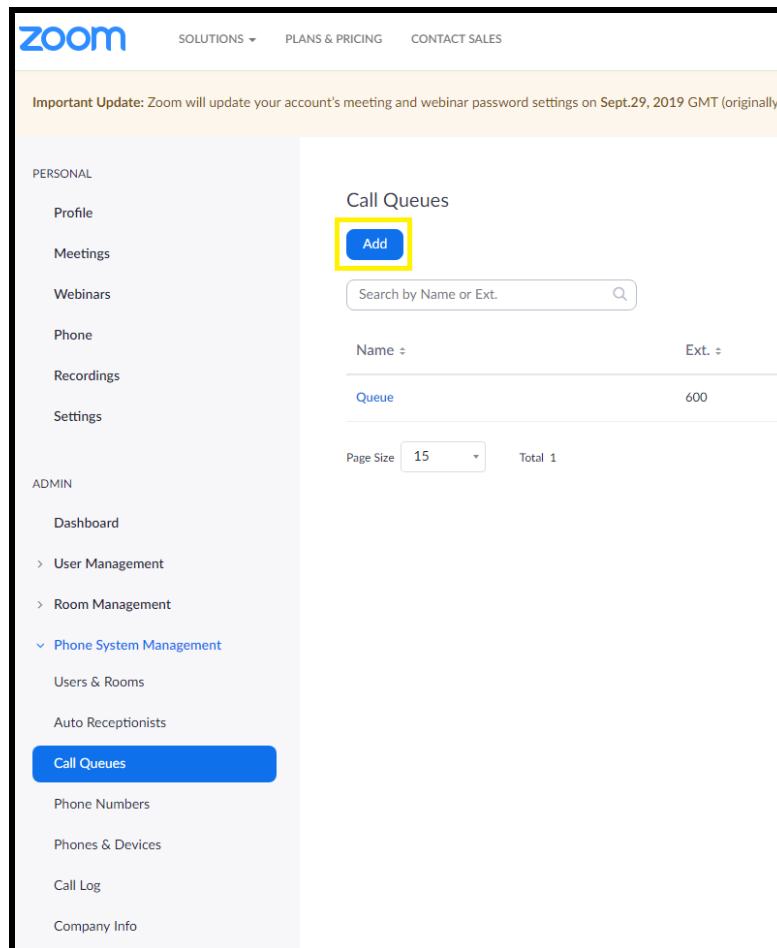
To page multiple amplifiers simultaneously, CyberData recommends using Multicast, which can be sent from most modern SIP phones (e.g. Yealink, Poly, Snom) or a [CyberData Paging Server](#) or [Multicast Microphone](#). (Consult your phone's documentation to enable multicast).

7.1 Creating a Call queue

CyberData recommends using the Nightringer extension as part of a call queue, allowing the amplifier to also serve as an additional notification for incoming calls.

1. From the Phone System Management page select call queues and press the Add button to create a new queue.

Figure 7-1: Add call queue



2. After clicking 'Add' a pop-up will appear that allows naming and assigning a number to the call queue.

Figure 7-2: Name the queue

Call Queues > Add

Name

Description (Optional)

Extension Number

Member(s) [Add](#)

3. Name the queue, set a description and change the extension number if necessary.

Figure 7-3: Add users

Call Queues > Add

Name

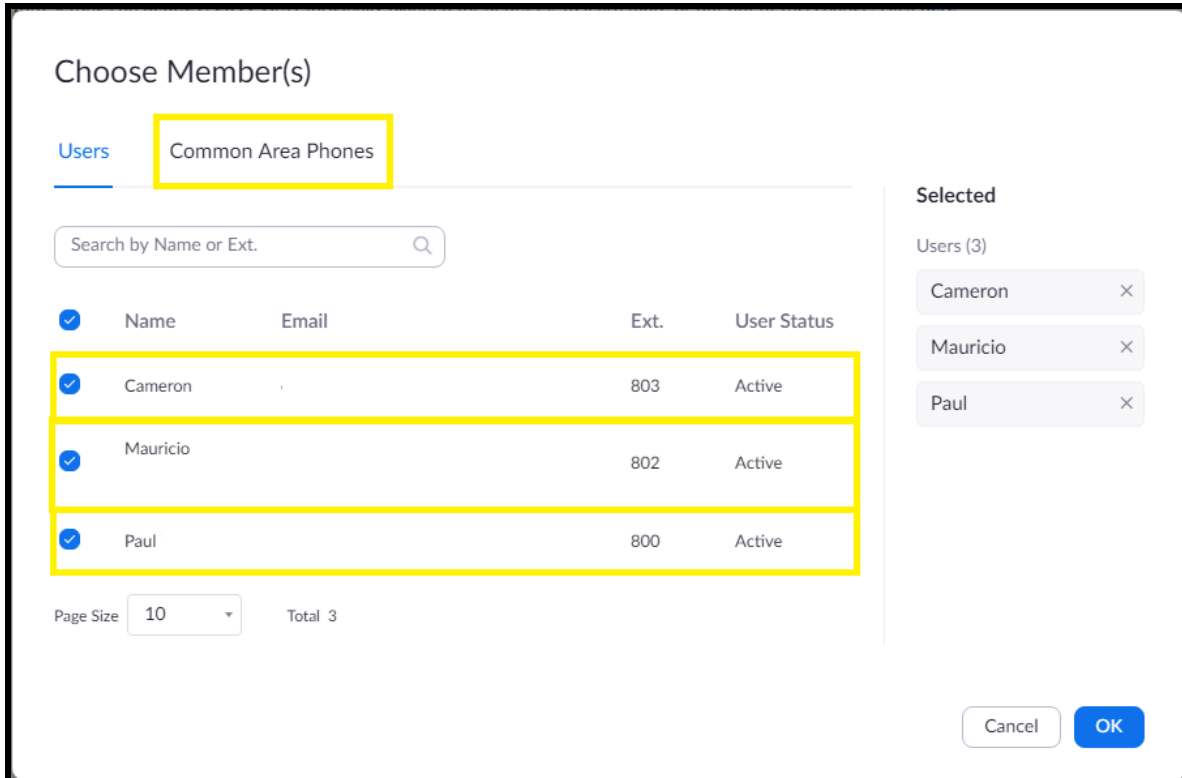
Description (Optional)

Extension Number

Member(s) [Add](#)

4. Press the Add button to add Users and Common Area Phones to the queue.

Figure 7-4: Add Users



5. Select the users who will participate in the call group, then select "Common Area Phones."
6. In the "Common Area Phones" section, select the phones you wish to add to the queue.

Figure 7-5: Add Common Area Phones

Choose Member(s)

Users Common Area Phones

Search by Display Name or Ext.

<input type="checkbox"/>	Display Name	Ext.
<input checked="" type="checkbox"/>	CyberData SIP Paging Amplifier	813
<input type="checkbox"/>	Intercom	812
<input checked="" type="checkbox"/>	CyberData Intercom	809
<input checked="" type="checkbox"/>	Office Ringer	506
<input type="checkbox"/>	Call Button	806
<input type="checkbox"/>	Indoor Intercom	500

Page Size Total 6

Selected

- CyberData SIP Pag... ×
- CyberData Intercom ×
- Office Ringer ×

Cancel

7. Click “OK” to confirm your selections.
8. Finally, press ‘Save’ to complete the queue.

Figure 7-6: Call queue complete

Call Queues > Add

Name

Description (Optional)

Extension Number

Member(s) Selected 6 Member(s) [Add](#)

8.0 Contact CyberData Corporation

Sales

For sales-related questions, please visit our [Contact CyberData Sales](#) web page for more information.

Technical Support

For CyberData Technical Support, please submit a [Contact CyberData VoIP Technical Support](#) form on our website.

The CyberData VoIP Technical Support Contact form initiates a troubleshooting ticket which CyberData uses for quality assurance purposes.

Additionally, the Contact VoIP Tech Support form tells us which phone system you are using, the make and model of the network switch, and other essential troubleshooting information we need to efficiently assist with a resolution. Please also include as much detail as possible in the Describe Problem section of the form. Your installation is extremely important to us.

Documentation Feedback

We realize changes to the software or hardware of the Zoom PBX solution may render this document obsolete. We welcome and encourage documentation feedback to ensure continued applicability.