Zoom Configuration Guide: Paging Amplifier
Revision Information

- 9-27-19 Initial Release
# 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: Common Area Phone ................................................... 8

5.0 Configuration Procedure: Setting up the Paging Extension .................................. 15

6.0 Configuration Procedure: Setting up the Nightringer extension ................................ 24

7.0 Using the CyberData SIP Paging Amplifier in a Zoom system ................................ 33

7.1 Creating a Call queue ............................................................................................ 34

8.0 Contact CyberData Corporation .............................................................................. 39
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

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>MODEL or PART NUMBER</th>
<th>FIRMWARE VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYBERDATA SIP PAGING AMPLIFIER</td>
<td>011324</td>
<td>12.0.4</td>
</tr>
<tr>
<td>CYBERDATA SIP LOUDSPEAKER AMPLIFIER (POE)</td>
<td>011405</td>
<td>12.0.4</td>
</tr>
<tr>
<td>CYBERDATA SIP LOUDSPEAKER AMPLIFIER (AC-POWERED)</td>
<td>011404</td>
<td>12.0.4</td>
</tr>
<tr>
<td>YEALINK</td>
<td>T58A</td>
<td>58.83.3.6</td>
</tr>
<tr>
<td>LINKSYS SWITCH</td>
<td>SRW208MP</td>
<td>---</td>
</tr>
</tbody>
</table>
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)

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: Common Area Phone

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 a Common Area Phone. Registering in a different capacity may require creating a user profile and providing an email address. See Zoom documentation for more details.

1. Log into Zoom.  

   Figure 4-1: Log into Zoom
2. From the Profile page select the “Phone System Management” section and the ‘Users & Rooms’ subsection.

**Figure 4-2: Profile Landing Page**

*Note: Some text from the profile page has been hidden to protect sensitive information.*
3. From the “Users & Rooms” page select ‘Common Area Phones’.

**Figure 4-3: Phone System Management**

*Note: Some text from this page has been hidden to protect sensitive information.*
4. From the “Common Area Phones” press the ‘Add’ Button to create a new common area phone to be used by the device.

*Note: The MAC address of the amplifier will be required to create the common area phone.*

**Figure 4-4: Common Area Phones**

5. After clicking the Add button a Pop-up will appear that allows extension creation.
6. Set the **Display name** of the extension. This will be the main Identifier on the Common Area Phones page.

7. Set the **description** to the location of the amplifier.

8. The **extension number** will be auto generated but can be changed if desired.

9. Set the **MAC address** of the device.

10. Click the **Save** button to create the Common Area Phone.
11. Once created the new extension will appear in the list.

**Figure 4-7:** Common Area Phone list

12. Press the “Provision” button on the extension that was just created.
13. A popup will appear with manual provisioning information to setup the CyberData amplifier. **Keep this popup open.**

14. Make sure to download the “CA Certificate,” which will be needed for device configuration.

---

**Note:** CyberData Devices do not support SRTP at the time of writing this document.
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

<table>
<thead>
<tr>
<th>CyberData Setting</th>
<th>Zoom Provisioning Pop-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary SIP Server</td>
<td>SIP Domain</td>
</tr>
<tr>
<td>Outbound Proxy</td>
<td>Outbound Proxy</td>
</tr>
<tr>
<td>Outbound Proxy Port</td>
<td></td>
</tr>
<tr>
<td>Primary SIP User ID</td>
<td>User Name</td>
</tr>
<tr>
<td>Primary SIP Auth ID</td>
<td>Authorization ID</td>
</tr>
<tr>
<td>Primary SIP Auth Password</td>
<td>Password</td>
</tr>
</tbody>
</table>

1. Click Launch 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.

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
3. From the Home tab press the ‘Device’ Tab.

![Web Interface Login](image_url)
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.
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.*

---

**Figure 5-4: SIP Tab**

![SIP Tab Configuration](image-url)
16. Check the box for “Force Selected Codec”.
17. Save.
18. Go to the ‘SSL’ Tab.

**Figure 5-5: SSL Tab**

19. Press the ‘Choose Files’ button.
20. Select the “sbc_ca.pem” file and press the Open button.
21. Press the “Import CA Certificate” button to load the cert.
22. Once imported, confirm the file is listed with the other certificates.
23. Once the certificate is loaded a reboot will be required to make the changes take effect. Use the “Apply/Reboot Button.

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

**Figure 5-10**: Home page – Registered
6.0 Configuration Procedure: Setting up the Nightringer extension

Table 6-1: Setting Name correlation

<table>
<thead>
<tr>
<th>CyberData Setting</th>
<th>Zoom Provisioning Pop-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Server</td>
<td>SIP Domain</td>
</tr>
<tr>
<td>Outbound Proxy</td>
<td>Outbound Proxy</td>
</tr>
<tr>
<td>Outbound Proxy Port</td>
<td></td>
</tr>
<tr>
<td>User ID</td>
<td>User Name</td>
</tr>
<tr>
<td>Authenticate ID</td>
<td>Authorization ID</td>
</tr>
<tr>
<td>Authenticate Password</td>
<td>Password</td>
</tr>
</tbody>
</table>

1. Click **Launch 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](image)

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

   Username: admin
   Password: admin
3. From the Home tab press the ‘Device’ Tab.
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.
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. Save.
20. Go to the ‘SSL’ Tab.

Figure 5-5: SSL Tab

25. Press the ‘Choose Files’ button.
26. Select the “sbc_ca.pem” file and press the Open button.
27. Press the “Import CA Certificate” button to load the cert.
28. Once imported, confirm the file is listed with the other certificates.
29. Once the certificate is loaded a reboot will be required to make the changes take effect. Use the “Apply/Reboot Button.  
30. Click Reboot in the Popup.

Figure 5-8: Certificate List

Figure 5-9: Apply/Reboot Popup
Once rebooted, “Registered” will appear in green in the “Status” section of the Home page.

**Figure 5-10:** 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.
3. Name the queue, set a description and change the extension number if necessary.

**Figure 7-3: Add users**

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

7. Click “OK” to confirm your selections.
8. Finally, press ‘Save’ to complete the queue.
Figure 7-6: Call queue complete
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.