

# ALGO

## Algo IP Endpoints and Zoom Phone Interoperability

User Guide – Testing & Configuration

The ALGO logo is rendered in a bold, dark blue, sans-serif typeface.The zoom logo is rendered in a blue, lowercase, sans-serif typeface.

For additional support, call (604) 454-3792 or email [support@algosolutions.com](mailto:support@algosolutions.com)

### Information Notices



**Note**

*Note indicates useful updates, information, and instructions that should be followed*

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## 1 GENERAL

### 1.1 Introduction

Algo IP Endpoints can register to Zoom Phone as third-party SIP endpoints and can provide Paging, Ringing, and Emergency Alerting capabilities. Most Algo endpoints support TLS and SRTP for session and media encryption, but some exceptions apply, making them incompatible with Zoom Phone. See the note below.

This document provides instructions to add your Algo endpoints to the Zoom web portal. Interoperability testing results are also available at the end of this document.

All testing has been conducted with the Algo IP 8301 Paging Adapter and Scheduler, 8186 IP Horn, and 8201 IP PoE Intercom. These are representative of all Algo IP speakers, paging adapters, and doorphones, and similar registration steps will apply. Please see exceptions in the note below.



#### **Note**

*The following endpoints are exceptions and cannot register to Zoom, as TLS/SRTP support is not available:*

- 8180 IP Audio Alerter (G1),
- 8028 IP Doorphone (G1),
- 8128 IP Visual Alerter (G1),
- and 8061 IP Relay Controller.

*For more information, please contact Algo support.*

## 2 CONFIGURATION STEPS

### 2.1 Requirements

- Access to Algo’s web interface
- Access to the Zoom Portal
- Firmware 3.2.3 or higher
- Device certificate installed
  - See the *System* → *About* tab on Algo’s web interface.



#### Note

Any Algo endpoint shipping in 2019 or later will have the certificate installed from the factory. If the certificate is not currently installed, please contact Algo’s support team.

### 2.2 Instructions

To register an Algo IP Endpoint to a Zoom Phone, begin by creating a new common area phone in the Zoom web portal. See the Zoom support site for more information.

1. Sign in to the Zoom web portal.
2. Go to *Phone System Management* → [Users & Rooms](#).
3. Select the [Common Area Phones](#) tab.
4. Press **Add** and enter the following information:

The screenshot shows the 'Add Common Area' dialog box in the Zoom web portal. The background shows the 'Common Areas' tab selected in the navigation menu. The dialog box contains the following fields and options:

- Display Name:** Algo 8188 (example)
- Extension Number:** 804
- Package:** Assign (US/CA Unlimited Calling Plan, Pro Features · Unlimited Domestic)
- Country/Region:** Canada (+1)
- Time Zone:** (GMT-7:00) Vancouver
- Specify a template to be assigned to the Common Area
- Buttons:** Cancel, Save

Figure 1: Add Common Area

- **Display Name:** Enter a display name to identify the common area phone.
  - **Extension Number:** Enter an extension number to assign it to the device.
  - **Package:** Select your desired package.
  - **Country/Region:** Select your country.
  - **Time/Zone:** Select your time zone.
5. Press **Save**.
  6. At this point, navigate to *Phone System Management* → [Phones & Devices](#).
  7. Press **Add** and enter the following information:

The screenshot shows the 'Add Desk Phone' dialog box. The background interface has tabs for 'Assigned' and 'Unassigned'. Below the tabs, there is a search bar and a table with columns for 'Display Name', 'Device Type', and 'MAC Address'. One device is listed: '8128 test' with device type 'Algo algo-sip-based-device' and MAC '00-22-ee-06-...'. The dialog box contains the following fields:

- Display Name:** Algo 8188
- Description (Optional):** Classroom 1
- MAC Address:** 00:22:ee:07:04:0b
- Device Type:** Algo
- Sub-type:** algo-sip-based-device
- Assigned To:** Algo 8188 (example) Ext. 804

Buttons: Cancel, Save

Figure 2: Add Desk Phone

- **Display Name:** Enter a display name to identify the device.
- **Description (Optional):** Enter a description to help you identify the device or its location.
- **MAC Address:** Enter the 12-digit MAC address of the Algo Endpoint. The MAC can be found on the product label or in the Algo Web Interface under *Status*.
- **Device Type:** Select “Algo”.



**Note**

*If you do not have the “Algo” option, contact your Zoom sales representative.*

- **Model:** Select “algo-sip-based-device”.
  - **Assigned To:** Select the recently created Common Area Phone or a User in the system.
8. Press **Save**.

9. Under *Actions*, select *Provision* and follow the instructions given. See the example below.

### Provisioning

MAC Address      00-22-ee-07-04-0b

Device Type      Algo algo-sip-based-device

Provisioning URL      [REDACTED] Copy to Clipboard

---

**1 Step 1**

1. Proceed to the [Algo website](#) to confirm the unit has the minimum supported firmware installed.
2. Enter `http://device_IP_address` to the browser to access the device web page.
3. Navigate to **System > About > Product Info > Manufacturer Certificate**, verify the status is **Installed**. If not, contact the vendor to get it installed. When the status is shown **Installed**, proceed to the next step.
4. Navigate to **Advance Settings > Provisioning > Provisioning Settings**.
5. Under **Mode**, select **Enabled** for Provisioning Mode.
6. Under **Settings**, select **Static** for Server Method. Copy Provisioning URL from above of this dialogue and paste to the **Static Server** field. Select **HTTPS** for Download Method. Select **Enabled** for **Validate Server Certificate**. Select **Enabled** for **Force Secure TLS Version**. Leave **Auth User Name** and **Auth Password** as blank. Select **Enabled** for **Partial Provisioning** to allow incremental provisioning.
7. Click the **Save** button on the lower right to save the changes. Navigate to the **System > Maintenance > Reboot**, click the **Reboot** button to reboot and provisioning should happen on reboot.

Next
Close

Status
Basic Settings
Additional Features
Advanced Settings
System
Logout

Network
Admin
Time
Provisioning
Advanced Audio
Advanced SIP
Advanced Multicast

### Provisioning Settings

**Mode**

Provisioning Mode       Enabled    Disabled

**Settings**

Server Method

Auto (DHCP Option 66/160/150)  
 DHCP Option 66 only  
 DHCP Option 160 only  
 DHCP Option 150 only  
 Static  
Auto mode automatically checks all 3 DHCP options for an active provisioning server, in the order listed.

**Static Server**

Download Method       TFTP    FTP    HTTP    HTTPS

Validate Server Certificate       Enabled    Disabled  
Validate the server against common certificate authorities. To validate against additional certificates, use the "System > File Manager" tab to upload a Base64 encoded X.509 certificate file in .pem, .cer, or .crt format to the 'certs/trusted' folder.

Auth User Name     

Auth Password       🔍

Config Download Path     

Firmware Download Path

**Partial Provisioning**       Enabled    Disabled  
Allow support for "-i" incremental provisioning files. Disable for enhanced security if not using this feature.

Figure 3: Provisioning Steps

10. Once the steps are complete, press **Next**.
11. Press **Check** to verify the endpoint was provisioned and registered successfully to the Zoom Phone.

### Provisioning

MAC Address      00-22-ee-07-04-0b

Device Type      Algo algo-sip-based-device

Provisioning URL      <https://provalp.zoom.us/api/v2/pbx/provisioning/Algo/algo-sip-based-device>      [Copy to Clipboard](#)

---

**1** Step 1

If you want to check whether provisioning is successful, click the "Check" button after rebooting is totally completed.

[Check](#)

[Close](#)

*Figure 4: Verify SIP Registration in Zoom Platform*

12. The registration status may also be verified from the Algo's device web interface.

Status
Basic Settings
Additional Features
Scheduler
Advanced Settings
System
Logout

**Device Status**

**Welcome to the Algo 8301 Paging Adapter & Scheduler Control Panel**

Setting up your Paging Adapter & Scheduler:

**Step 1: Configure your Paging Adapter & Scheduler**  
Log in with the default password and use the Basic Settings pages to set up the basic information.

**Step 2: Check network settings (Optional)**  
Use the Network page under the Advanced Settings tab to change network settings. The default setting for the device is to obtain its IP address from a DHCP server. Contact your Network System administrator if you plan to assign a static IP address, Mask, and Gateway to the device.

**Step 3: Secure your Paging Adapter & Scheduler (Optional)**  
Use the Admin page under the Advanced Settings tab to change the administrator password.  
⚠️ Changing the password is extremely important if the device is directly connected to a public network.

**Step 4: Register your Paging Adapter & Scheduler (Optional)**  
Please register your product using the link below:  
<http://www.algosolutions.com/register>

Registration ensures your access to the latest upgrades to this product and important service notices.

**Status**

Device Name	pagingadapter		
SIP Registration	Page	Successful	(Extension 215234142890)
Call Status	Idle		
Proxy Status	Single proxy mode		
Security	TLS	Enabled	
	SRTP	Disabled	
Provisioning Status	None Found		

*Figure 5: Verify SIP Registration in Algo's Web Interface*

### 3 ADVANCED ALGO CONFIGURATION

#### 3.1 Configuring the Device for Ringing or Emergency Alerting

The current standard assisted provisioning method may not be suitable for all deployments, for example, when a user needs to register the Algo endpoint for loud ringing, instead of paging. This and other special types of configurations are possible by manually moving the SIP credentials which were automatically populated in *Basic Settings* → *SIP* tab to a different spot.

It is highly recommended to disable provisioning to avoid issues when advanced configurations are applied. To disable it, navigate to *Advanced Settings* → *Provisioning* tab.

#### 3.2 Registering Two or More Extensions

Zoom Phone currently only supports a single extensions registration through assisted provisioning. With that in mind, there's a workaround. **For that, the generic device registration option must be enabled. Contact your Zoom rep if this is not currently available on the account.** Once that's enabled, the SIP credentials may be entered manually in the desired spot in the Algo device settings.

Steps:

1. Sign in to the Zoom web portal
2. Go to *Phone System Management* → [Phones & Devices](#).
3. Press **Add** and enter the following information:
  - **Display Name:** Enter a display name to identify the device.
  - **Description (Optional):** Enter a description to help you identify the device or its location.
  - **MAC Address:** Enter the 12-digit MAC address. The MAC must be spoofed as the first extension assigned already uses the true address. This is required as part of the workaround to the multi-line limitation. An example would be to change the last character in the MAC address.
  - **Device Type:** Select "Other".



**Note**

*If you do not have the "Other" option, contact your Zoom sales representative.*

- **Assigned To:** Select the recently created Common Area Phone or a User in the system.
4. Press **Save**.
  5. Go to *Provision* to view the SIP credentials. You will need this information to complete provisioning using the Algo web interface.

## Provisioning

MAC Address [redacted]-9e

Device Type Other

You will need to enable TLS1.2 for SIP registration and enable SRTP for secure calling on your IP phone. Please refer to your manufacturer's instructions for these processes.

**You'll need following information for manual provisioning.**

**SIP Account 1:**

1. SIP Domain: [redacted]zoom.us
2. Outbound Proxy: [redacted]zoom.us:5091
3. User Name: [redacted]
4. Authorization ID: [redacted]
5. Password: [redacted]

Please download [DigiCert Global Root CA](#), [DigiCert Global Root G2](#), [DigiCert Global Root G3](#) and import to your IP phone if they are not in the trust list of the device.

**Note:** Please note that Zoom support team will not be able to troubleshoot or configure IP phones that are provisioned in this manner. Some Zoom Phone features may not work on manually provisioned phones. It may vary depending on your desk phone model.

Close

6. Enter the information provided from Zoom as per below. The credentials below and an example, use your credentials as generated by Zoom.



**Note**

The credentials may be inserted in different tabs depending on the desired configuration. For more information, reference the device's user guide.

Go to the *Basic Settings* → *SIP* tab:

- SIP Domain (Proxy Server) – Zoom SIP Domain

The correct tab will depend on the desired configuration:

- Page or Ring Extension or Emergency Alert – Zoom User Name
- Authentication ID – Zoom Authentication ID

- Authentication Password – Zoom Password
7. Go to *Advanced Settings* → *Advanced SIP*.
  8. Set the **SIP Transportation** protocol to “TLS”.
  9. Set **Validate Server Certificate** to “Enabled”.
  10. Enter the **Outbound Proxy** provided by Zoom.
  11. Set **SDP SRTP Offer** to “Standard”.
  12. Set **SDP SRTP Offer Crypto Suite** to “All Suites”.

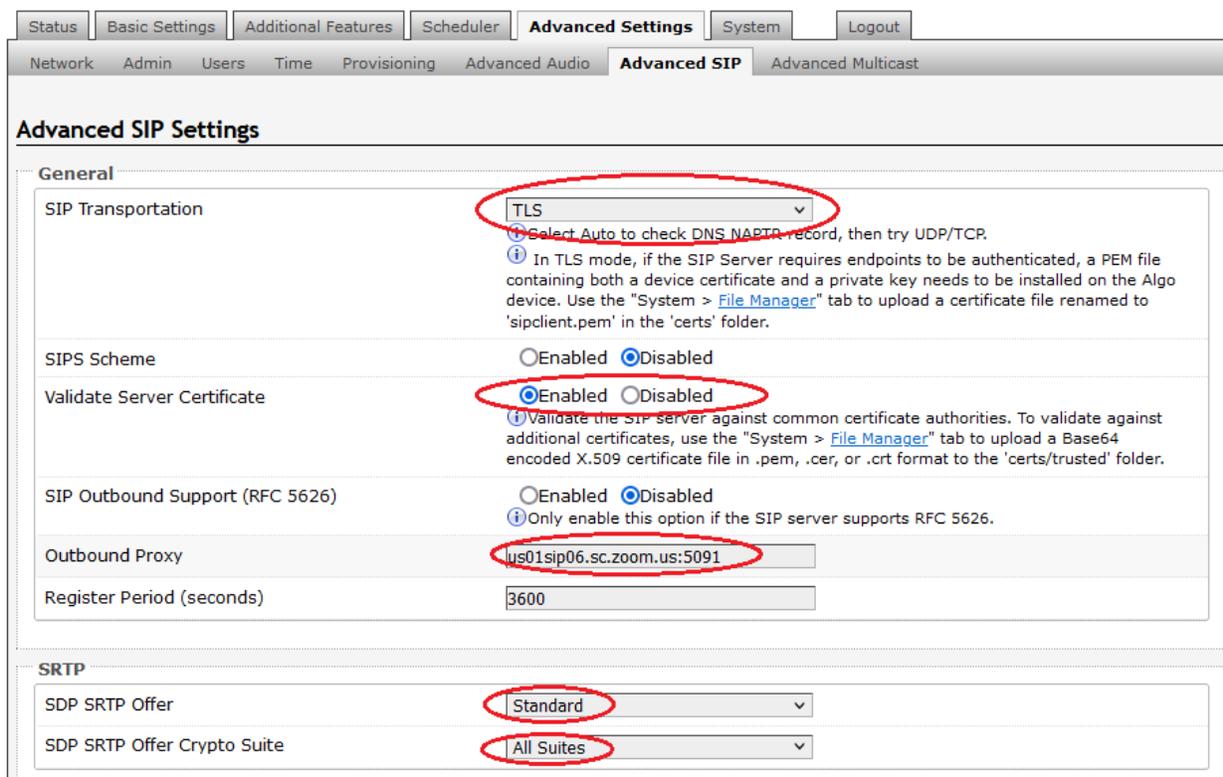


Figure 6: Configure Advanced SIP Settings

13. Ensure the SIP Registration Status shows “Successful” in the *Status* tab.

## 4 INTEROPERABILITY TESTING

### Register to Zoom Phone

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn, 8201 SIP PoE Intercom
- Firmware: 5.2
- Description: Verify 3rd Party SIP Endpoints are registered successfully.
- Result: **Successful**

### Register Multiple SIP Extensions Simultaneously

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn
- Firmware: 5.2
- Description: Verify the server will sustain multiple simultaneous extensions registered to the same endpoint (e.g. page, ring, and emergency alert).
- Result: **Successful**

### One-Way Page

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn
- Firmware: 5.2
- Description: Verify one-way page mode functionality, by calling the registered page extension.
- Result: **Successful**

### Two-Way Page

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn, 8201 SIP PoE Intercom
- Firmware: 5.2
- Description: Verify two-way page mode functionality, by calling the registered page extension.
- Result: **Successful**

### Ringling

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn
- Firmware: 5.2
- Description: Verify ringing mode functionality by calling the registered ring extension.
- Result: **Successful**

### Emergency Alerts

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn
- Firmware: 5.2

- Description: Verify emergency alerting functionality by calling the registered extension.
- Result: **Successful**

### Outbound Calls

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn, 8201 SIP PoE Intercom
- Firmware: 5.2
- Description: Verify emergency alerting functionality by calling the registered extension.
- Result: **Successful**

### TLS for SIP Signaling

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn, 8201 SIP PoE Intercom
- Firmware: 5.2
- Description: Verify TLS for SIP Signaling is supported.
- Result: **Successful**

### SDP SRTP Offer

- Endpoints: 8301 Paging Adapter and Scheduler, 8186 SIP Horn, 8201 SIP PoE Intercom
- Firmware: 5.2
- Description: Verify support for SRTP calling.
- Result: **Successful**

## 5 TROUBLESHOOTING

### 5.1 Assisted Provisioning Failed

**Meaning:** The Algo endpoint failed to get the SIP credentials from Zoom Phone during the provisioning process.

- Ensure the manufacturer device certificate is installed. This information is available under the *System* → *About* tab. If the status is “Not Installed”, please contact Algo Support (support@algosolutions.com).

### 5.2 SIP Registration Status = “Rejected by Server”

**Meaning:** The server received register request from the endpoint and responds with an unauthorized message.

- Ensure the SIP credentials (extension, authentication ID, password) are correct.
- Under *Basic Settings* → *SIP*, press on the blue circular arrows to the right of the Password field. If the Password is not what it should be, the web browser is probably auto filling the password field. If so, any change on a page containing a password could be filled in with an undesired string.

### 5.3 SIP Registration Status = “No reply from server”

**Meaning:** the device is not able to communicate across the network to the phone server.

- Double check the "SIP Domain (Proxy Server)", under *Basic Settings* → *SIP* tab field is filled out correctly with the address of your server and port number.
- Ensure the firewall (if present) is not blocking the incoming packets from the server.
- Ensure TLS is configured for SIP Transportation Method (*Advanced Settings* → *Advanced SIP*).