

Ribbon ATA EdgeMarc 300 R16.2 Interop with Zoom : Interoperability Guide



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Interoperable Vendors



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Document Overview

This document outlines the configuration best practices for the Ribbon solution covering the EdgeMarc 300 series ATA (Analog Telephone Adaptor) when deployed with Zoom.

The Ribbon EdgeMarc 300 is a low-density analog gateway or ATA device that gives small businesses, SOHOs and branch offices with analog voice infrastructures an easy, cost-effective way to capitalize on Voice over Internet Protocol (VoIP) services. The EdgeMarc 300 Series offers a solution, providing support for integrating analog endpoints and the Public Switched Telephone Network (PSTN) and support for all Session Initiation Protocol (SIP) calls. The EdgeMarc 300 supports any-to-any connectivity between analog and SIP devices, enabling branch offices to rapidly migrate analog phones onto SIP-based networks and communicate seamlessly.

The interoperability compliance testing focuses on verifying inbound and outbound call flows between Ribbon EdgeMarc ATA & Zoom Cloud.

This guide contains the following configuration sections:

- [Section A: Ribbon EdgeMarc Configuration](#)
 - Captures general EdgeMarc 300 configurations for provisioning with Zoom.
- [Section B: Zoom Configuration](#)
 - Captures the Zoom configuration.
- All basic calls, along with the supplementary features like call hold, call transfer, and conference can be tested with configurations from Section A and Section B.
- Advanced supplementary features can be configured on Zoom as mentioned in [Supplementary Services Configuration on Zoom](#). These cover:
 - Auto Receptionist
 - Call Flip
 - Shared Line Appearance (SLA) or Call Delegation
 - Shared Line Group (SLG)

Non-Goals

It is not the goal of this guide to provide detailed configurations that will meet the requirements of every customer. Use this guide as a starting point and build the ATA configurations in consultation with network design and deployment engineers.

Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring the Ribbon ATA.

To perform this interop, you need

- to use graphical user interface (GUI) or command line interface (CLI) of the Ribbon product.
- to understand the basic concepts of TCP/UDP/TLS and IP/Routing.

- to have SIP/RTP/SRTP to complete the configuration and for troubleshooting.



Note

This configuration guide is offered as a convenience to Ribbon customers. The specifications and information regarding the product in this guide are subject to change without notice. All statements, information, and recommendations in this guide are believed to be accurate but are presented without warranty of any kind, express or implied, and are provided "AS IS". Users must take full responsibility for the application of the specifications and information in this guide.

Prerequisites

The following aspects are required before proceeding with the interop:

- Ribbon EdgeMarc 300 series
- Public IP Addresses
- Zoom Go account - a special type of Zoom account that has the option to provision the ATA device.
- TLS Certificates for Ribbon EdgeMarc 300 series
 - Refer to [TLS Configuration between Ribbon EdgeMarc and Zoom](#)

Product and Device Details

The sample configuration in this document uses the following equipment and software:

Table 1: Requirements

	Equipment	Software Version
Ribbon Communications	Ribbon EdgeMarc 304	V16.2.0.sm.EM-26519.1
Zoom	Zoom Desktop app	5.7.7 (1105)
	Zoom Mobile app	5.8.1 (2403)
Third-party Phones	Beetel Analog Phone	NA



Note

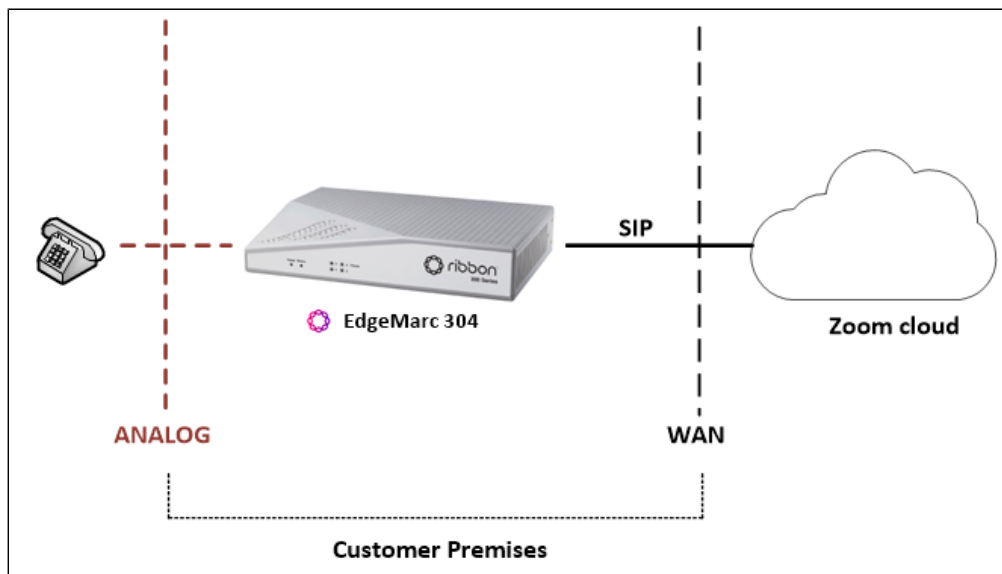
- The Ribbon EdgeMarc 300 portfolio includes EdgeMarc 302, EdgeMarc 304. Hence, this configuration guide is valid for all these devices.
- Zoom Desktop app version is 5.7.7 (1105) or later.
- Zoom Mobile app version is 5.8.1 (2403) or later.

Network Topology Diagram

This section covers the Ribbon EdgeMarc deployment topology and the Interoperability Test Lab Topology.

Ribbon EdgeMarc Deployment Topology

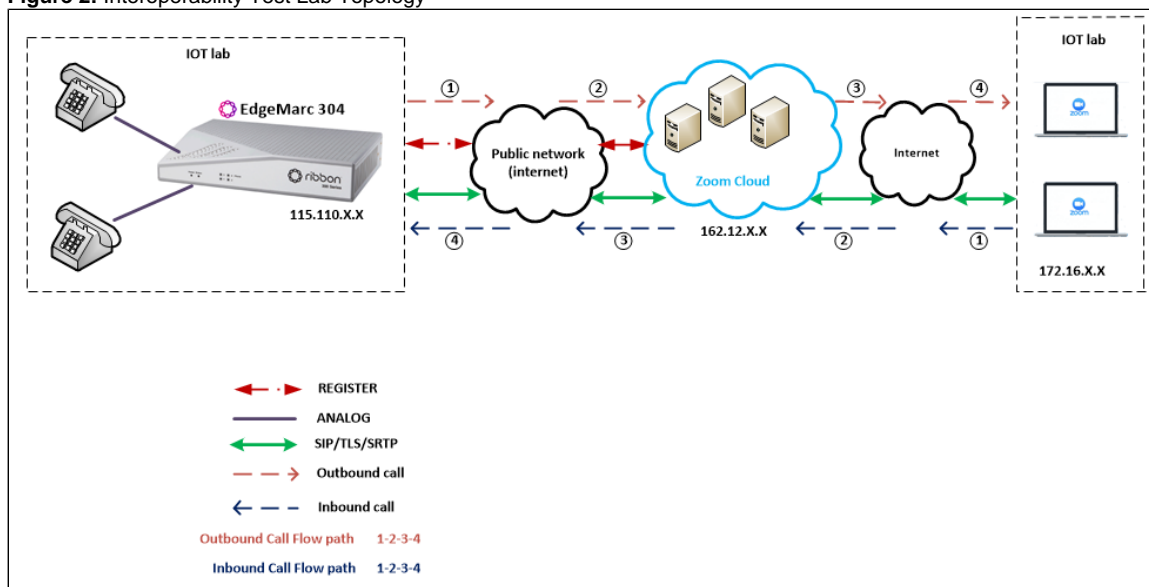
Figure 1: Ribbon EdgeMarc Deployment Topology



Interoperability Test Lab Topology

The following lab topology diagram shows connectivity between Zoom and Ribbon EdgeMarc ATA.

Figure 2: Interoperability Test Lab Topology



Section A: EdgeMarc Configuration

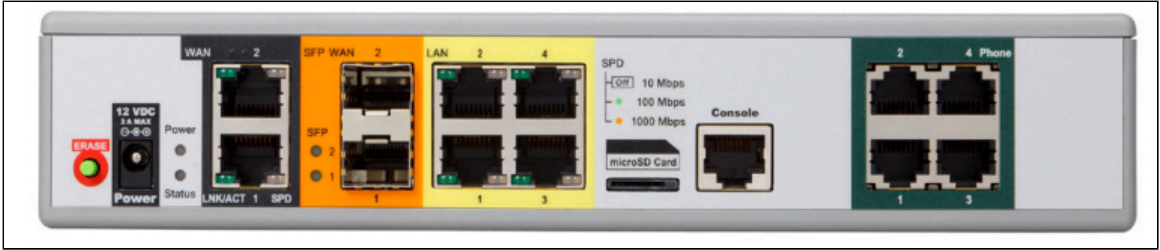
The following EdgeMarc configurations are included in this section:

1. [Connectivity](#)
2. [Network](#)
3. [SIP UA](#)

Connectivity

Below is an image of the EdgeMarc back panel:

Figure 3: EdgeMarc Back Panel



The following table provides details of the EdgeMarc 304 interface/port:

Figure 4: EdgeMarc 304 Interfaces

EdgeMarc 304	
Ports	
LAN 1 Gb/s Ethernet (RJ-45)	4
Phone/FXS (RJ-11)	4
Micro SD (SDXC) slot	1
Console (RJ-45)	1



The current test bed setup uses the following ports:

- **LAN Port** - RJ45 "LAN 1" port is connected to Public network.
- **Phone Port** - RJ11 "Phone 1" and "Phone 2" port connects to a PSTN (Analog) phones.



WAN and SFP WAN ports of EdgeMarc 304 are disabled in the ATA (Analog Telephone Adapter) mode.

Network

To configure the network interface, login to the EdgeMarc as root user and click *Network*.

Figure 5: EdgeMarc Network Interface

ribbon **Network** [Help](#)

Configuration Menu

- + Admin
- **Network**
 - VLAN
 - 802.1X Supplicant
 - Switch Ports
 - Static Routes
 - Network Information
 - Network Restart
 - Network Test Tools
- + Users
- Certificates
- HTTPS Configuration
- + SIP UA

Network Interface Settings

Enable DHCP: ☐

IP Address:

Subnet Mask:

Default Gateway:

Use DNS addresses from provider: ☐

Primary DNS Server:

Secondary DNS Server:

Enable LLDP-MED: ☐

Enable VLAN: ☐

Default VLAN ID:

VLAN Priority:

SIP UA

To configure SIP UA:

1. Navigate to **SIP UA**.

Figure 6: SIP UA

ribbon **FXS/Phone Port Settings - Basic** [Help](#)

Configuration Menu

- + Admin
- + Network
- + Users
- Certificates
- HTTPS Configuration
- **SIP UA**
 - Advanced
 - Fax
 - Distinctive Ring

SIP UA allows voice call from Analog port to IP or PSTN
UA is currently bound to 115.110. . .:5060

Global configuration:

Enable SIPUA: ☒

Use SIP Username for SIP authentication: ☐

Codec Preference:

Use Preferred codec only: ☐

Use REFER for transfer: ☒

Register with proxy: ☒



Port 1 and Port 2 configuration details can be retrieved once the EM 300 ATA is added to the Zoom portal.

To add EM 300 ATA to the Zoom portal, navigate to [Adding MAC address](#).

2. Assign Port 1 and Port 2 with the PSTN number as follows:

Figure 7: Port Level Basic Config


Port Level Basic Configuration

Port 1 Configuration: (Registered)
Hook state: **On-hook**
SIP Display name:
SIP Username:
SIP Authentication name:
Password:
Edit Password: ☐
Password:
Confirm Password:

Port 2 Configuration: (Registered)
Hook state: **On-hook**
SIP Display name:
SIP Username:
SIP Authentication name:
Password:
Edit Password: ☐
Password:
Confirm Password:

3. Navigate to **SIP UA Advanced** and configure as shown below:

Figure 8: Advanced Config



Configuration Menu
+ Admin
+ Network
+ Users
• Certificates
• HTTPS Configuration
- SIP UA
• Advanced
• Fax
• Distinctive Ring
• SIP Proxies

FXS/Phone Port Settings - Advanced
This Page allows advance configuration of FXS/Phone ports..

Enable SIPUA: ☒

Global configuration:

SIPUA bind Port:
Conference URI:
Domain:
RTP Min Port:
RTP Max Port:
Termination Impedance:
Local TimeZone:
Dialed in prefix(Incoming from IP network):
CPC(Call Party Control) timer (in milliseconds):
Ptime:
Inter Digit Delay timer(in seconds):
Enable Access Code (#): ☐
Enable Call Waiting: ☒
Enable Call Waiting CallerID: ☐
Internal Call Ring:
External Call Ring:
Dial-Completion Pattern:
VAD Enable:
Country:

Port Level Advanced Configuration

Port 1 Configuration:

Codec Preference: Global Setting ▾

Use Preferred codec only: ☐

Domain: 10000587.zoom.us

Outbound Proxy Server IP:

Outbound Proxy Server Port: 5091

Outbound proxy Server Transport: TLS ▾

Enable SRTP: Global Setting ▾

TX gain to analog device: 0DB ▾

RX Gain from analog device: 0DB ▾

Enable Access Code (#): ☐

Enable Call Waiting: ☒

Enable Call Waiting CallerID: ☐

VAD Enable: Global Setting ▾

Hotline number:

Restrict CallerID: ☐

Disable Flash Hook: ☐

Port 2 Configuration:

Codec Preference: Global Setting ▾

Use Preferred codec only: ☐

Domain: 10000587.zoom.us

Outbound Proxy Server IP:

Outbound Proxy Server Port: 5091

Outbound proxy Server Transport: TLS ▾

Enable SRTP: On ▾

TX gain to analog device: 0DB ▾

RX Gain from analog device: 0DB ▾

Enable Access Code (#): ☐

Enable Call Waiting: ☒

Enable Call Waiting CallerID: ☐

VAD Enable: Global Setting ▾


Hotline number:

Restrict CallerID: ☐

Disable Flash Hook: ☐

4. Navigate to **SIP UA SIP Proxies**.

Figure 9: SIP Proxies



SIP Proxy Settings

This page allows configuration of SIP Proxy Settings.

[Help](#)

Configuration Menu

- + [Admin](#)
- + [Network](#)
- + [Users](#)
- [Certificates](#)
- [HTTPS Configuration](#)
- [SIP UA](#)
 - [Advanced](#)
 - [Fax](#)
 - [Distinctive Ring](#)
 - [SIP Proxies](#)

List of SIP Servers Delete All			
Priority	SIP Server Address	Port	Action
0	gosp0h.sc.zoom.us	5091	✖ ↑ ↓
	<input style="width: 90%;" type="text"/>	<input style="width: 50%;" type="text"/>	<input type="button" value="Add"/>

Outbound proxy Server Transport: TLS ▼

Enable SRTP ☒

SRTP can be enabled only if Outbound proxy Server Transport is selected as TLS.

SIPUA TLS settings

Port: 5091

TLS Protocol: TLSv1.2 ▼

Ciphers String: TLSv1.2+HIGH:!eNULL:!aNL

Interface: Certificate: Default ▼ Policy: Require and Verify ▼

Section B: Zoom Configuration

Login to Zoom Go account Web portal at <https://go.zoom.us/>.

This section describes the following Zoom configurations:

1. [Adding MAC address to Zoom.](#)
2. [TLS Configuration between Ribbon EdgeMarc and Zoom](#)
3. [Configuring supplementary services configuration on Zoom](#)

Adding MAC Address to Zoom

1. Navigate to **Phone Systems Management > Phones & Devices > Deskphone**.
2. Select **Add Desk Phone** and add the MAC address of the Ribbon EdgeMarc 304.
3. Assign the Zoom Users as shown below and click **Save**.

Figure 10: Add MAC Address

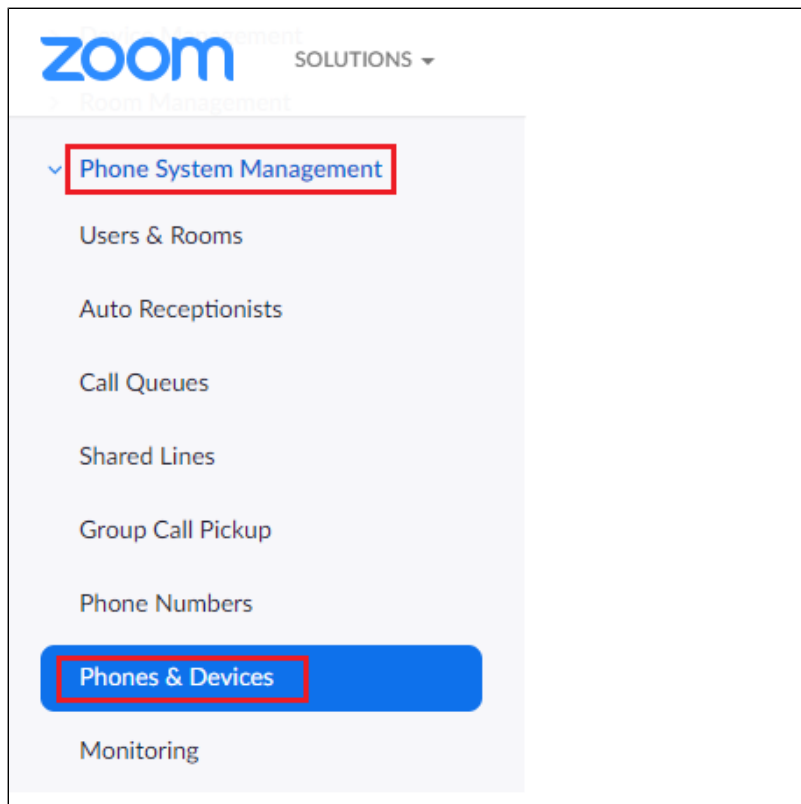


Figure 11: Add Desk Phone

Add Device

Display Name

Description (Optional)

MAC Address

Device Type

This device type supports up to 1 assignee.

Assigned to ankit shukla
Ext. 803

4. Provision the User as follows:

Figure 12: Actions

EdgeMarc 304

Rename

No description

Profile

Site

Main Site (Main Site)

Assigned to

ankit shukla

Ext. 803

×

IP Address

115.110.170.214

Device Type

Other

Firmware Version

--

MAC Address

54-39-68-1b-27-4d

Edit

Provision Template

Unsupported

?

Status

Online

Actions

Remove

Click **Actions > Provision**, as shown above:

Figure 13: Provisioning

Provisioning

MAC Address 54-39-68-1b-27-4d

Device Type EdgeMarc 304

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. For Algo/CyberData Paging/Intercom devices, see [Zoom Phone Supported Devices](#) to view the configuration guide.

----- ankit shukla -----

SIP Account 1:

1. SIP Domain: 10000587.zoom.us
2. Outbound Proxy: gosip0h.sc.zoom.us:5091
3. User Name: 27894760291355532685
4. Authorization ID: 258417410964
5. Password: VVCaGLZr

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

TLS Configuration between Ribbon EdgeMarc and Zoom

As mentioned in the Zoom Desk Phone Provisioning page:



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.

Upload the following certificates to the Ribbon EdgeMarc as follows:

Figure 14: Certificates

Add a Certificate

Certificate Name:

Certificate Type:

Select Certificate File: DigiCertGlo...otCA.crt.pem

Select Key File: No file chosen

Password:

The uploaded certificates are as follows:

Figure 15: Certificates added

[Help](#)

Certificates

	Name	Type	CSR	Password	Certificate	Key
	Digi_GR	CA Certificate			Download	
	Digi_GR_G2	CA Certificate			Download	
	Digi_GR_G3	CA Certificate			Download	

Configuring Supplementary Services Configuration on Zoom

Zoom supports multiple supplementary services. To configure different supplementary services in Zoom, refer to the following links:

- Auto Receptionist: https://support.zoom.us/hc/en-us/articles/360001297663-Getting-started-with-Zoom-Phone-admin-#h_a625f531-94c6-4291-909e-3d68ad685b68
- Call Flip: <https://support.zoom.us/hc/en-us/articles/360034613311-Using-Call-Flip>
- Shared Line Appearance (SLA) or Call Delegation: <https://support.zoom.us/hc/en-us/articles/360032881731>
- Shared Line Group (SLG): <https://support.zoom.us/hc/en-us/articles/360038850792/>

Supplementary Services and Features Coverage

The following checklist depicts the set of services/features covered through the configuration defined in this Interop Guide.

Sr. No.	Supplementary Features/Services	Coverage
1	Basic Registration over TLS	✓
2	Basic Call Setup	✓
3	Basic Call Termination	✓

4	Auto Receptionist (Auto Attendant)	✓
5	Call Hold/Resume	✓
6	Call Transfer - Blind (Cold transfer)	✓
7	Call Transfer - Consult (Warm transfer)	✓
8	Conference	✓
9	Call Waiting	✓
10	Call Queue	✓
11	Shared Line Group (SLG)	✓
12	Shared Line Appearance (SLA) or Call Delegation	✓
13	Call Recording	✓
14	Call Flip	✓
15	Call Park	✓

Legend

✓	Supported
✗	Not Supported
N/A	Not Applicable

Caveats

The following issues were observed during recent interop testing:

- The Message Waiting Indicator (MWI) feature was not available for the Zoom Users behind EM 304 ATA.
- The EdgeMarc 300 was not responding to the INVITE received from Zoom, as it was receiving this INVITE in fragments.
 - This issue is only observed if the INVITE message is large.
 - The issue is resolved in the EM V16.3 release.
- Noise may occur in a conference scenario, when a PSTN (user behind the EM 300) is involved. The fix will be available in upcoming EM releases.

Support

For any support related queries about this guide, contact your local Ribbon representative, or use the details below:

- Sales and Support: 1-833-742-2661
- Other Queries: 1-877-412-8867
- Website: <https://ribboncommunications.com/about-us>

References

For detailed information about Ribbon products & solutions, go to :

<https://ribboncommunications.com/products>

For information about Zoom products & solutions, go to:

<https://zoom.us/>

Conclusion

This Interoperability Guide describes successful configuration covering Zoom interop with Ribbon EdgeMarc ATA.

All features and capabilities tested are detailed within this document - any limitations, notes or observations are also recorded in order to provide the reader with an accurate understanding of what has been covered, and what has not.

Configuration guidance is provided to enable the reader to replicate the same base setup - there maybe additional configuration changes required to suit the exact deployment environment.

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