



**Amazon Chime Voice Connector  
SIP Trunk Configuration Guide:  
Cisco BroadWorks and Cisco  
Unified Border Element (CUBE)**

**March 2021**

## Document History

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# 1 Audience

This document is intended for technical staff and Value Added Resellers (VAR) with installation and operational responsibilities. This configuration guide provides steps for configuring SIP Trunk using **Cisco BroadWorks** and **Cisco Unified Border Element (CUBE)** to connect to **Amazon Chime Voice Connector** for inbound and/or outbound telephony capabilities.

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## 1.1 Amazon Chime Voice Connector

Amazon Chime Voice Connector is a pay-as-you-go service that enables companies to make or receive secure phone calls over the internet or AWS Direct Connect using their existing telephone system or session border controller (SBC). The service has no upfront fees, elastically scales based on demand, supports calling both landline and mobile phone numbers in over 100 countries, and gives customers the option to enable inbound calling, outbound calling, or both.

Amazon Chime Voice Connector uses the industry-standard Session Initiation Protocol (SIP). Amazon Chime Voice Connector does not require dedicated data circuits. A company can use their existing Internet connection or AWS Direct Connect public virtual interface for SIP connectivity to AWS. Voice connectors can be configured in minutes using the AWS Management Console or Amazon Chime API. Amazon Chime Voice Connector offers cost-effective rates for inbound and outbound calls. Calls into Amazon Chime meetings, as well as calls to other Amazon Chime Voice Connector customers are at no additional cost. With Amazon Chime Voice Connector, companies can reduce their voice calling costs without having to replace their on-premises phone system.

## 2 SIP Trunking Network Components

The network for SIP Trunk reference configuration is illustrated below and is representative of **Cisco BroadWorks** using **CUBE** with **Amazon Chime Voice Connector**

IP PBX is used as a secondary PBX in the topology to perform call failover and call distribution

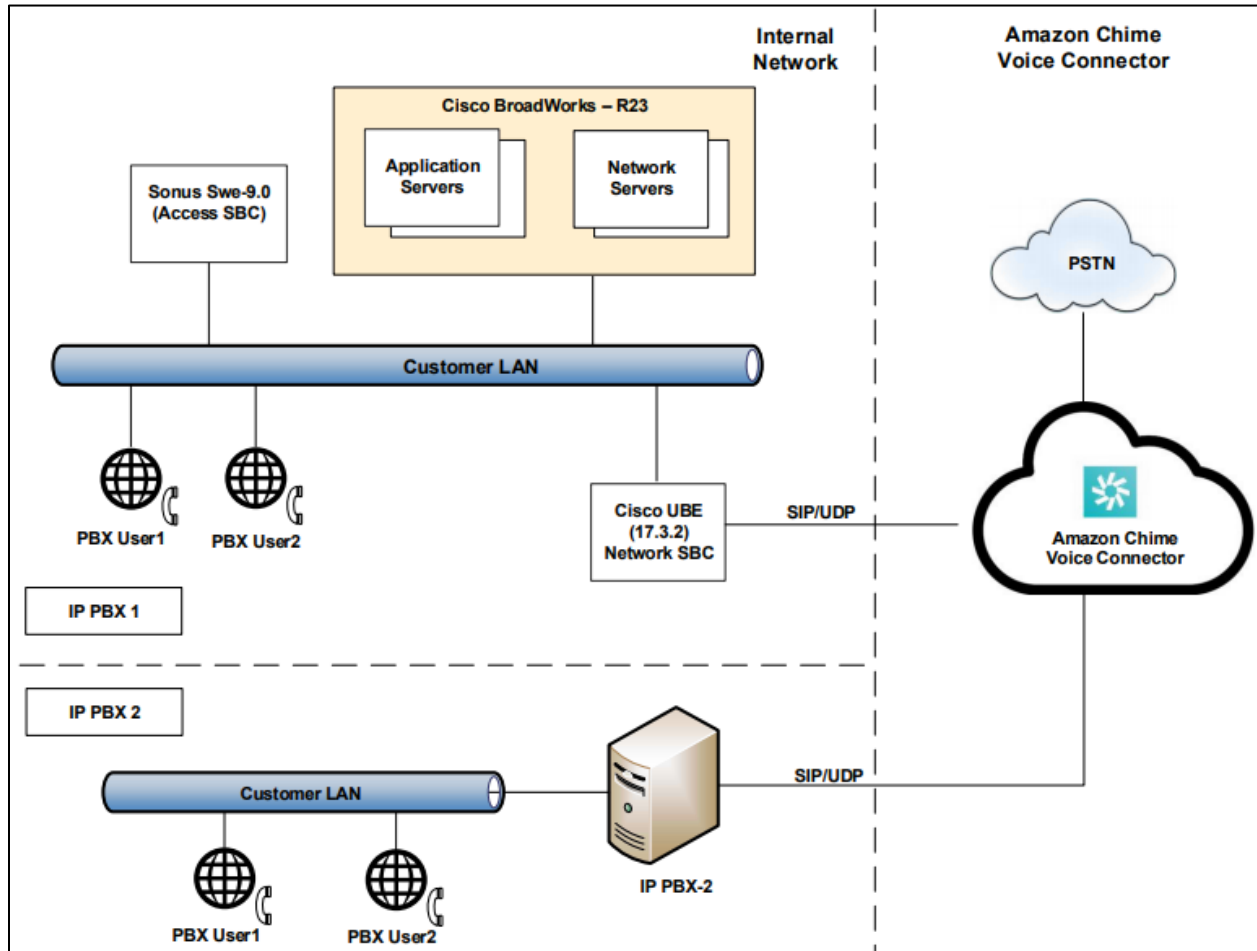


Figure 1 Network Topology

## 2.1 Hardware Components

- UCS-C240 VMWare server running ESXi 5.5 or later used for the following virtual machines
  - Cisco BroadWorks
- Cisco UBE (CUBE) on Cisco ISR 4321 router

## 2.2 Software Requirements

- Cisco BroadWorks – R23
- Cisco UBE: 14.1 running on IOS-XE 17.03.02 (isr4300-universalk9.17.03.02.SPA.bin)

# 3 Features

## 3.1 Features Supported

- Calls to and from non-Toll-Free number
- Calls to Toll Free number
- Calls to Premium Telephone number
- Calling Party Number Presentation
- Calling Party Number Restriction
- Inbound Calls to an IVR
- International Calls
- Anonymous call
- DTMF-RFC 2833
- Long duration calls
- Calls to conference scheduled by Amazon Chime user
- Calls to Amazon Chime Business number
- Call Distribution
- Call Failover

## 3.2 Features Not Supported

- Amazon Chime Voice Connector responds to OPTIONS and TCP Keep Alive messages received from customer equipment, but does not send OPTIONS or TCP Keep Alive messages to customer equipment

## 3.3 Features Not Tested

- None

### 3.4 Caveats and Limitations

- Amazon Chime Voice Connector,
  - does not support SIP NOTIFY or SIP INFO for DTMF
  - does not send SIP session refresher for long duration calls
- Amazon Chime Voice Connector does not support Mutual TLS which is required for secure trunk with CUBE. Encrypted signaling and media with SRTP has not been tested.
- When the WAN link is down and a call is in progress, the PSTN call leg is not disconnected automatically after a period of inactivity. The call must be cleared manually

## 4 Configuration

The specific values listed in this guide are used in the lab configuration described in this document and are for illustrative purposes only. You must obtain and use the appropriate values for your deployment. Encryption is always recommended if supported.

### 4.1 Configuration Checklist

In this section we present an overview of the steps that are required to configure **Cisco BroadWorks** and **CUBE** for SIP Trunking with **Amazon Chime Voice Connector**.

*Table 1 – PBX Configuration Steps*

Steps	Description	Reference
Step 1	Cisco BroadWorks Configuration	<a href="#">Section 4.3</a>
Step 2	CUBE Configuration	<a href="#">Section 4.4</a>
Step 3	Amazon Chime Voice Connector Configuration	<a href="#">Amazon Chime Voice Connector</a>



## 4.2 Cisco BroadWorks Configuration

This section with screen shots taken from Cisco BroadWorks used for the interoperability testing gives a general overview of the Cisco BroadWorks configuration.

### 4.2.1 Cisco BroadWorks Application Server Configuration

#### 4.2.1.1 Cisco BroadWorks Application Server Login

1. Access Cisco BroadWorks Application Server URL and enter the credentials to perform the configuration in Application Server.

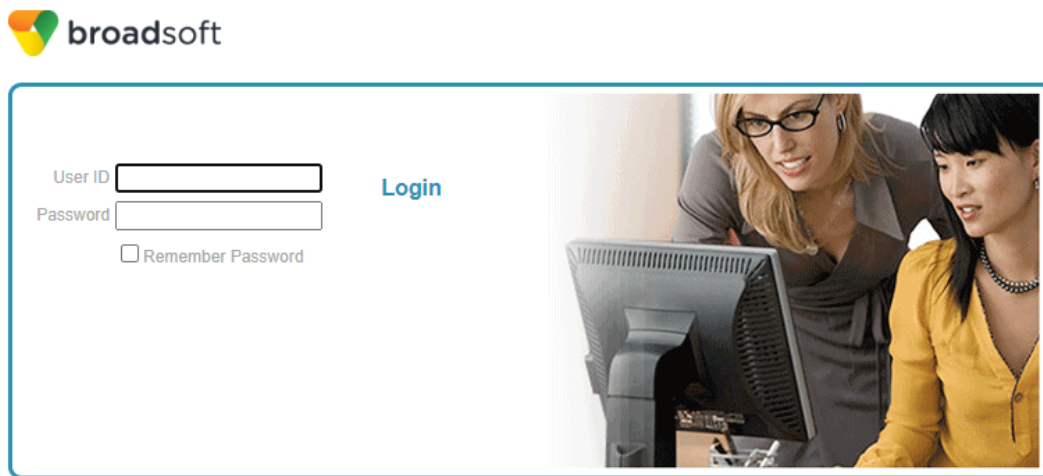
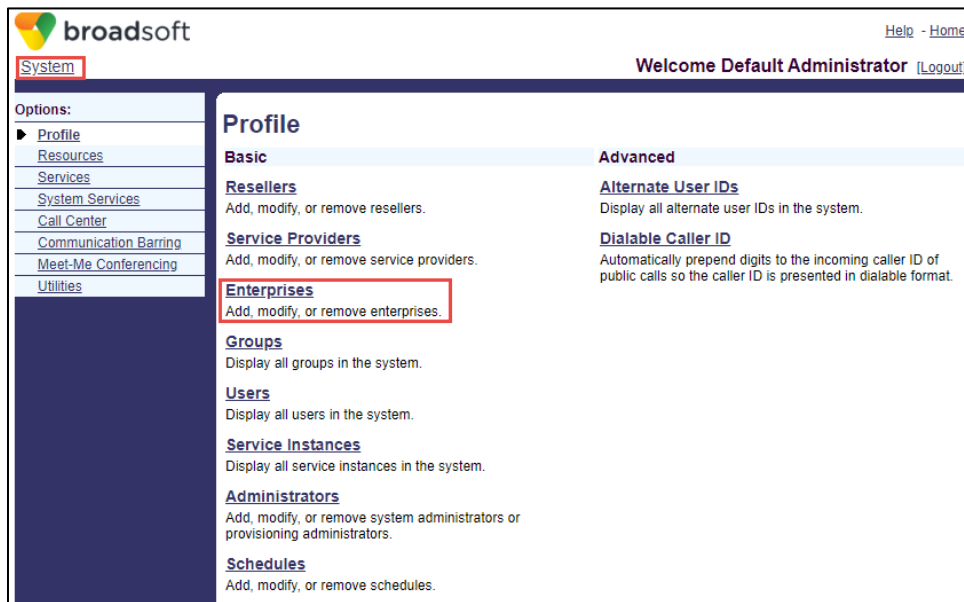


Figure 2: Cisco BroadWorks Application Server Login

## 4.2.1.2 Enterprise Configuration

1. Under **System** choose option **Enterprises**



The screenshot shows the Broadsoft administration interface. At the top left is the Broadsoft logo. The top right corner contains links for 'Help - Home' and 'Welcome Default Administrator [Logout]'. A navigation menu on the left lists various options, with 'System' highlighted. Under the 'System' menu, the 'Enterprises' option is selected and highlighted with a red box. The main content area is titled 'Profile' and is divided into two columns: 'Basic' and 'Advanced'. The 'Basic' column contains several sections: 'Resellers' (Add, modify, or remove resellers.), 'Service Providers' (Add, modify, or remove service providers.), 'Enterprises' (Add, modify, or remove enterprises.), 'Groups' (Display all groups in the system.), 'Users' (Display all users in the system.), 'Service Instances' (Display all service instances in the system.), 'Administrators' (Add, modify, or remove system administrators or provisioning administrators.), and 'Schedules' (Add, modify, or remove schedules.). The 'Advanced' column contains two sections: 'Alternate User IDs' (Display all alternate user IDs in the system.) and 'Dialable Caller ID' (Automatically prepend digits to the incoming caller ID of public calls so the caller ID is presented in dialable format.).

Figure 3: Enterprise Configuration

2. Click on the option **Add Enterprise Wizard**

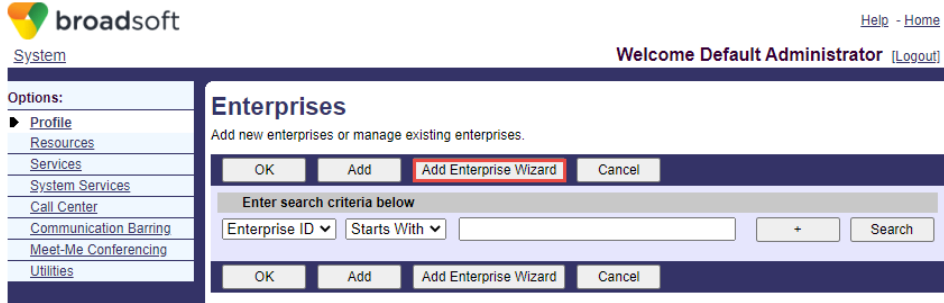


Figure 4: Enterprise Configuration-Contd.,

3. Enter the **Enterprise ID** and **Default domain** as shown below and click on the **Next** button,

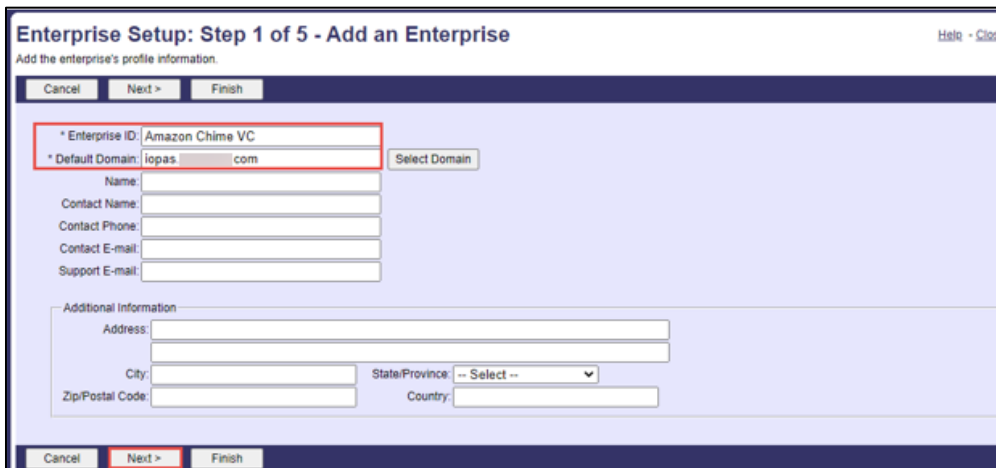


Figure 5: Enterprise Configuration-Contd.,

4. Move the required domain names from **Enterprise Available Domains** to **Enterprise Assigned Domains** and click on **Next**,

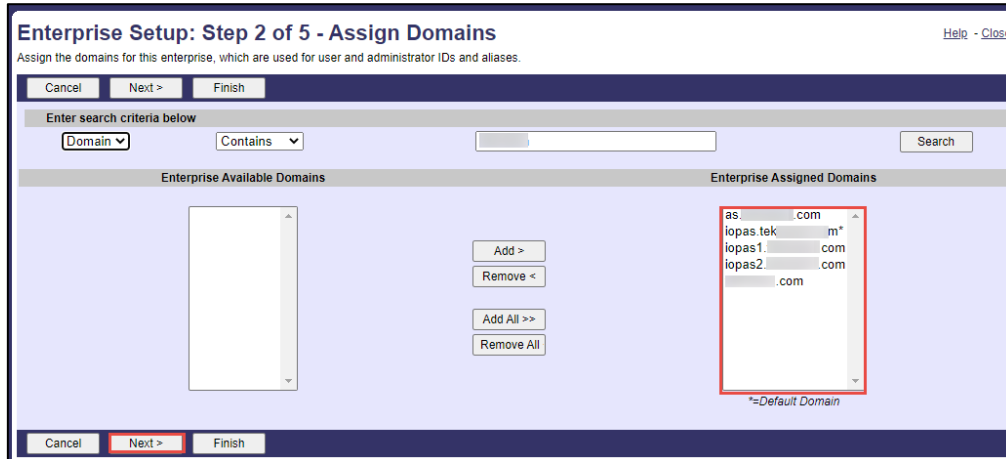


Figure 6: Enterprise Configuration-Contd.,

5. Add an **Enterprise Administrator** with the required login credentials and click on **Next**,

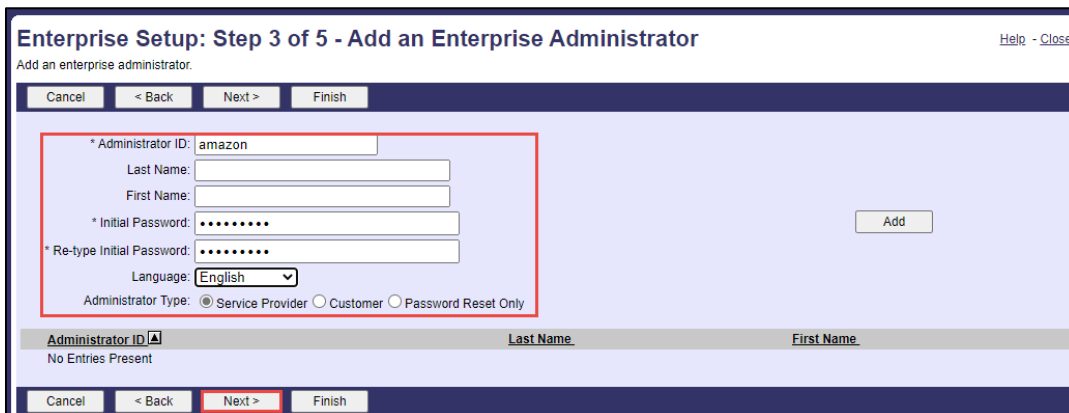


Figure 7: Enterprise Configuration-Contd.,

6. Select the required **Authorize Services** and click on **Next**,

**Enterprise Setup: Step 4 of 5 - Authorize Services** [Help](#) - [Close](#)

Authorize the services that this enterprise can authorize for a group. You can limit the number of service instances this enterprise can authorize.

Authorized	Group Services	Limits
<input checked="" type="checkbox"/>	Account/Authorization Codes	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Auto Attendant - Basic	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Auto Attendant - Basic Video	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Auto Attendant - Standard	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Call Capacity Management	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Call Park	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Call Pickup	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Custom Ringback Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Custom Ringback Group - Video	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Emergency Zones	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Enhanced Outgoing Calling Plan	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Find-me/Follow-me	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Group Paging	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Hunt Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Incoming Calling Plan	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Instant Group Call	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Intercept Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Inventory Report	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Meet-Me Conferencing	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Music On Hold	<input type="checkbox"/> Limited To <input type="text"/>

Figure 8: Enterprise Configuration-Contd.,

<input checked="" type="checkbox"/>	Music On Hold - Video	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Outgoing Calling Plan	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Preferred Carrier Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Route Point	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Series Completion	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Trunk Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Voice Messaging Group	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	VoiceXML	<input type="checkbox"/> Limited To <input type="text"/>

Authorized	User Services	Limits
<input checked="" type="checkbox"/>	Advice Of Charge	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Alternate Numbers	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Anonymous Call Rejection	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Authentication	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Automatic Callback	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Automatic Hold/Retrieve	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Barge-in Exempt	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Basic Call Logs	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Agent	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Anywhere	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Mobility	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Enterprise	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Office	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Small Business	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	BroadWorks Supervisor	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Business Communicator Desktop	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Business Communicator Desktop - Audio	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Business Communicator Desktop - Video	<input type="checkbox"/> Limited To <input type="text"/>
<input checked="" type="checkbox"/>	Business Communicator Mobile	<input type="checkbox"/> Limited To <input type="text"/>

Figure 9: Enterprise Configuration-Contd.,

<input checked="" type="checkbox"/>	Business Communicator Mobile - Audio	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Business Communicator Mobile - Video	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Business Communicator Tablet	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Business Communicator Tablet - Audio	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Business Communicator Tablet - Video	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Busy Lamp Field	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Center - Basic	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Center Monitoring	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Center - Premium	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Center - Standard	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding Always	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding Always Secondary	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding Busy	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding No Answer	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding Not Reachable	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Forwarding Selective	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Line ID Blocking Override	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Line ID Delivery Blocking	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Name Delivery	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Name Retrieval	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Number Delivery	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Calling Party Category	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Me Now	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Notify	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Recording	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Return	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Transfer	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Call Waiting	<input type="checkbox"/> Limited To	

Figure 10: Enterprise Configuration-Contd.,

<input checked="" type="checkbox"/>	Charge Number	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Classmark	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Client License 15	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Client License 16	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Client License 3	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Collaborate - Audio	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Collaborate - Sharing	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Collaborate - Video	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	CommPilot Express	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Communication Barring User-Control	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Conference Room	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Connected Line Identification Presentation	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Connected Line Identification Restriction	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Customer Originated Trace	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Custom Ringback User	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Custom Ringback User - Call Waiting	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Custom Ringback User - Video	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Directed Call Pickup	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Directed Call Pickup with Barge-in	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Directory Number Hunting	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Direct Route	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Diversion Inhibitor	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Do Not Disturb	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Enhanced Call Logs	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Executive	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Executive-Assistant	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	External Calling Line ID Delivery	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	External Custom Ringback	<input type="checkbox"/> Limited To	

Figure 11: Enterprise Configuration-Contd.,

<input checked="" type="checkbox"/>	Fax Messaging	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Flash Call Hold	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Flexible Seating Guest	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Group Night Forwarding	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Hoteling Guest	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Hoteling Host	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	In-Call Service Activation	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Integrated IM&P	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Intercept User	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Internal Calling Line ID Delivery	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Last Number Redial	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Location-Based Calling Restrictions	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Malicious Call Trace	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	MobileLink	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Multiple Call Arrangement	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Music On Hold User	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	MWI Delivery to Mobile Endpoint	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Number Portability Announcement	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	N-Way Call	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Office Communicator Tab	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	PBX Integration	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Personal Assistant	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Physical Location	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Polycom Phone Services	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Pre-alerting Announcement	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Preferred Carrier User	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Prepaid	<input type="checkbox"/> Limited To	

Figure 12: Enterprise Configuration-Contd.,

<input checked="" type="checkbox"/>	Priority Alert	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Privacy	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Push to Talk	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Remote Office	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Resource Priority	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Route List	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Security Classification	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Selective Call Acceptance	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Selective Call Rejection	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Sequential Ring	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 10	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 15	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 20	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 25	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 30	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 35	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Shared Call Appearance 5	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Silent Alerting	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Simultaneous Ring Personal	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	SMDI Message Desk	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Speed Dial 100	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Speed Dial 8	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Terminating Alternate Trunk Identity	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Third-Party MWI Control	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Third-Party Voice Mail Support	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Three-Way Call	<input type="checkbox"/> Limited To	
<input checked="" type="checkbox"/>	Two-Stage Dialing	<input type="checkbox"/> Limited To	

Figure 13: Enterprise Configuration-Contd.,

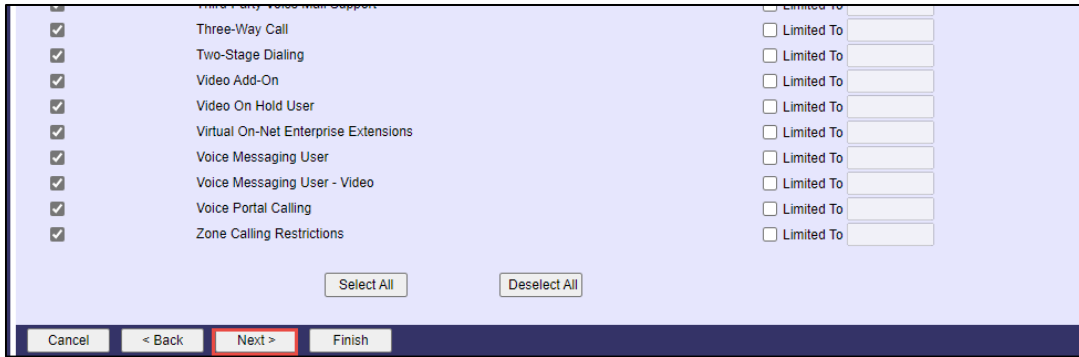


Figure 14: Enterprise Configuration-Contd.,

7. Add the required **Phone numbers** and click on **Finish**,

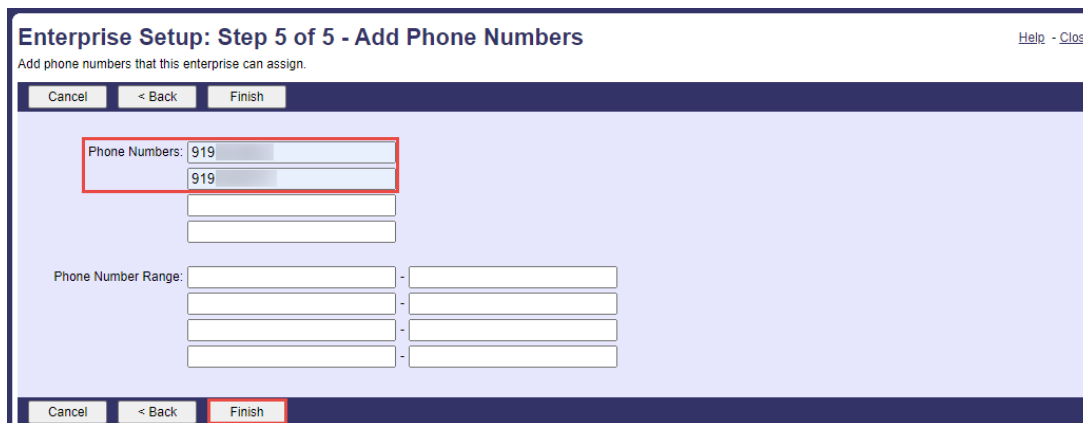


Figure 15: Enterprise Configuration-Contd.,



### 4.2.1.3 Group Configuration

1. Under **System** choose the option **Enterprises** and choose the Enterprise Created for Amazon Chime Voice Connector (**Amazon Chime VC**) as created in the previous steps
2. Choose the option **Groups** and click on **Add Group Wizard**
3. Enter the **Group ID**, Choose the **Default Domain**, Enter the **Group Name** and **Calling Line ID Group Name** and click on **Next**,

Group Setup: Step 1 of 6 - Add a Group Help - Close

Add the group's profile information including the default domain to be used by users in this group.

Cancel Next > Finish

Enterprise ID: Amazon Chime VC

\* Group ID: Amazon CVC Group

Default Domain: iopas.com

Group Name: Amazon CVC Group

Calling Line ID Group Name: Amazon CVC Group

Location Dialing Code:

Contact Name:

Contact Phone:

Contact E-mail:

Time Zone: (GMT-06:00) (US) Central Time

User Limits

\* Limited To: 25

Additional Information

Address:

City:  State/Province: -- Select --

Zip/Postal Code:  Country:

Cancel Next > Finish

Figure 16: Group Configuration

4. Move the **Group Available Domains** to **Group Assigned Domains**,

Group Setup: Step 2 of 6 - Assign Domains Help - Close

Assign the domains for this group, which are used for user and administrator IDs and aliases.

Cancel Next > Finish

Group Available Domains

Group Assigned Domains

as.com

iopas.com\*

iopas1.com

iopas2.com

com

\*=Default Domain

Add >

Remove <

Add All >>

Remove All

Cancel Next > Finish

Figure 17: Group Configuration-Contd.,

## 5. Add **Group Administrator**

**Group Setup: Step 3 of 6 - Add a Group Administrator** [Help](#) - [Close](#)

Add a group administrator.

Cancel < Back Next > Finish

\* Administrator ID: amazon @ iopas. com

Last Name: \_\_\_\_\_

First Name: \_\_\_\_\_

\* Initial Password: \_\_\_\_\_

\* Re-type Initial Password: \_\_\_\_\_

Language: English

Add

Administrator ID  Last Name  First Name

No Entries Present

Cancel < Back Next > Finish

Figure 18: Group Configuration-Contd.,

## 6. Select required **Authorize Services** and click on **Next**,

**Group Setup: Step 4 of 6 - Authorize Services** [Help](#) - [Close](#)

Authorize the service packs and services for this group. For some services you can limit the number of service instances for this group. However, you cannot exceed the limit shown in the Allowed column.

Cancel < Back Next > Finish

Select All Deselect All

Authorized	Service Pack	Limits	Allowed
No Entries Present			
Authorized	Group Services	Limits	Allowed
<input checked="" type="checkbox"/>	Account/Authorization Codes		Unlimited
<input checked="" type="checkbox"/>	Auto Attendant - Basic	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Auto Attendant - Basic Video	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Auto Attendant - Standard	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Call Capacity Management		Unlimited
<input checked="" type="checkbox"/>	Call Park		Unlimited
<input checked="" type="checkbox"/>	Call Pickup	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Custom Ringback Group		Unlimited
<input checked="" type="checkbox"/>	Custom Ringback Group - Video		Unlimited
<input checked="" type="checkbox"/>	Emergency Zones		Unlimited
<input checked="" type="checkbox"/>	Enhanced Outgoing Calling Plan		Unlimited
<input checked="" type="checkbox"/>	Find-me/Follow-me	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Group Paging	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Hunt Group	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Incoming Calling Plan		Unlimited
<input checked="" type="checkbox"/>	Instant Group Call	<input type="checkbox"/> Limited To <input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Intercept Group		Unlimited
<input checked="" type="checkbox"/>	Inventory Report		Unlimited

Next >

Figure 19: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	Meet-Me Conferencing	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Music On Hold			Unlimited
<input checked="" type="checkbox"/>	Music On Hold - Video			Unlimited
<input checked="" type="checkbox"/>	Outgoing Calling Plan			Unlimited
<input checked="" type="checkbox"/>	Preferred Carrier Group			Unlimited
<input checked="" type="checkbox"/>	Route Point	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Series Completion	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Trunk Group	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Voice Messaging Group			Unlimited
<input checked="" type="checkbox"/>	VoiceXML	<input type="checkbox"/> Limited To		Unlimited
<b>Authorized</b>				
	<b>User Services</b>		<b>Limits</b>	<b>Allowed</b>
<input checked="" type="checkbox"/>	Advice Of Charge	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Alternate Numbers	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Anonymous Call Rejection	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Authentication	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Automatic Callback	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Automatic Hold/Retrieve	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Barge-in Exempt	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Basic Call Logs	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Agent	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Anywhere	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Mobility	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Enterprise	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Office	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Receptionist - Small Business	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	BroadWorks Supervisor	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Desktop	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Desktop - Audio	<input type="checkbox"/> Limited To		Unlimited

Figure 20: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	Business Communicator Desktop - Video	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Mobile	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Mobile - Audio	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Mobile - Video	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Tablet	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Tablet - Audio	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Business Communicator Tablet - Video	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Busy Lamp Field	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Center - Basic	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Center Monitoring	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Center - Premium	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Center - Standard	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding Always	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding Always Secondary	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding Busy	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding No Answer	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding Not Reachable	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Forwarding Selective	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Line ID Blocking Override	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Line ID Delivery Blocking	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Name Delivery	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Name Retrieval	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Number Delivery	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Calling Party Category	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Me Now	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Notify	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Recording	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Return	<input type="checkbox"/> Limited To		Unlimited

Figure 21: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	Call Transfer	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Call Waiting	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Charge Number	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Classmark	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Client License 15	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Client License 16	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Client License 3	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Collaborate - Audio	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Collaborate - Sharing	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Collaborate - Video	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	CommPilot Express	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Communication Barring User-Control	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Conference Room	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Connected Line Identification Presentation	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Connected Line Identification Restriction	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Customer Originated Trace	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Custom Ringback User	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Custom Ringback User - Call Waiting	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Custom Ringback User - Video	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Directed Call Pickup	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Directed Call Pickup with Barge-in	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Directory Number Hunting	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Direct Route	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Diversion Inhibitor	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Do Not Disturb	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Enhanced Call Logs	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Executive	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Executive-Assistant	<input type="checkbox"/> Limited To		Unlimited

Figure 22: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	External Calling Line ID Delivery	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	External Custom Ringback	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Fax Messaging	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Flash Call Hold	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Flexible Seating Guest	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Group Night Forwarding	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Hoteling Guest	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Hoteling Host	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	In-Call Service Activation	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Integrated IM&P	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Intercept User	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Internal Calling Line ID Delivery	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Last Number Redial	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Location-Based Calling Restrictions	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Malicious Call Trace	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	MobileLink	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Multiple Call Arrangement	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Music On Hold User	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	MWI Delivery to Mobile Endpoint	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Number Portability Announcement	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	N-Way Call	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Office Communicator Tab	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	PBX Integration	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Personal Assistant	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Physical Location	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Polycom Phone Services	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Pre-alerting Announcement	<input type="checkbox"/> Limited To		Unlimited
<input checked="" type="checkbox"/>	Preferred Carrier User	<input type="checkbox"/> Limited To		Unlimited

Figure 23: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	Prepaid	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Priority Alert	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Privacy	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Push to Talk	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Remote Office	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Resource Priority	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Route List	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Security Classification	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Selective Call Acceptance	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Selective Call Rejection	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Sequential Ring	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 10	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 15	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 20	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 25	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 30	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 35	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Shared Call Appearance 5	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Silent Alerting	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Simultaneous Ring Personal	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	SMDI Message Desk	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Speed Dial 100	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Speed Dial 8	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Terminating Alternate Trunk Identity	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Third-Party MWI Control	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Third-Party Voice Mail Support	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Three-Way Call	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited

Figure 24: Group Configuration-Contd.,

<input checked="" type="checkbox"/>	Two-Stage Dialing	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Video Add-On	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Video On Hold User	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Virtual On-Net Enterprise Extensions	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Voice Messaging User	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Voice Messaging User - Video	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Voice Portal Calling	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited
<input checked="" type="checkbox"/>	Zone Calling Restrictions	<input type="checkbox"/> Limited To	<input type="text"/>	Unlimited

Select All    Deselect All

Cancel    < Back    Next >    Finish

Figure 25: Group Configuration-Contd.,

7. Create and choose the **Identity/Device Profile name** and **type** and click on **Next**,

**Group Setup: Step 5 of 6 - Add Identity/Device Profiles** [Help](#) - [Close](#)

Add identity/device profiles for the group to use.

Cancel < Back Next > Finish

\* Identity/Device Profile Name: Amazon\_DP  
Identity/Device Profile Type: Generic SIP Phone (System) v  
Protocol: SIP 2.0 v  
Host Name/IP Address: \_\_\_\_\_ Port: \_\_\_\_\_  
Transport: Unspecified v  
MAC Address: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Description: \_\_\_\_\_  
Outbound Proxy Server: \_\_\_\_\_  
STUN Server: \_\_\_\_\_  
Physical Location: \_\_\_\_\_

Add

Identity/Device Profile Name	Identity/Device Profile Type	Available Ports	Host Name/IP Address	Status
No Entries Present				

Cancel < Back Next > Finish

Figure 26: Group Configuration-Contd.,

8. Assign the required **Phone numbers** and click on **Finish**,

**Group Setup: Step 6 of 6 - Add Phone Numbers** [Help](#) - [Close](#)

Assign phone numbers to the group from your pool of numbers.

Cancel < Back Finish

Available Range(s)	Available Phone Number(s)	Assigned
	+1-919 +1-919	

Add >  
Remove <  
Add All >>  
Remove All

Cancel < Back Finish

Figure 27: Group Configuration-Contd.,

#### 4.2.1.4 User Configuration

1. Under **System** choose the option **Enterprises**, choose the Enterprise Created for Amazon Chime Voice Connector (**Amazon Chime VC**)
2. Choose the option **Groups** and click on **Group (Amazon CVC Group)**
3. Click the option **Users** and click on **Add**

The screenshot shows the 'Users Add' page in the AWS console. The breadcrumb trail is 'System > Amazon Chime VC > Amazon CVC Group'. The left sidebar has 'Options' with 'Profile' selected. The main content area is titled 'Users Add' and contains a form to add a new user. A red box highlights the main configuration fields, which include: Enterprise (Amazon Chime VC), Group (Amazon CVC Group), User ID (user9177), Last Name (Amazon), First Name (User9177), Calling Line ID Last Name (Amazon), Calling Line ID First Name (User9177), Name Dialing Last Name, Name Dialing First Name, Initial Password, Re-type Initial Password, Department (None), Language (English), Time Zone ((GMT-05:00) (US) Central Time), and Network Class of Service (None). Below this is an 'Additional Information' section with fields for Title, Pager, Mobile, E-mail, YahooID, Location, Address, City, State/Province, and Zip/Postal Code.

Figure 28: User Configuration

4. In the **Users** section, Click on **Addresses**, Enter the **Phone Number, Extension, Identity/Device Profile Name, Line/Port** and **Aliases**

The screenshot shows the 'Addresses' page in the AWS console. The breadcrumb trail is 'System > Amazon Chime VC > Amazon CVC Group > Users: user9177@iopas.com'. The left sidebar has 'Options' with 'Profile' selected. The main content area is titled 'Addresses' and contains a form to manage phone numbers and identities. A red box highlights the main configuration fields, which include: Phone Number (919), Extension (9177), Identity/Device Profile (Amazon\_DP (Group)), and Line/Port (1919). Below this is a 'Contact' section with multiple 'sip:' fields. At the bottom, there is an 'Aliases' section with a red box around the first alias: 'sip: user9177@iopas.com'. There are also 'Configure Identity/Device Profile' and 'Advanced Settings' links on the right.

Figure 29: User Configuration-Contd.,

## 4.2.1 Cisco BroadWorks Network Server Configuration

Login to Cisco BroadWorks Network Server via CLI and perform the following configuration

### 4.2.1.1 Create Instance

Create an Instance as shown below

**Instance Name:** AWS

**Enabled:** true

**CallTypes:** ALL

```
NS_CLI/Policy/SvcCtrRtg> add AWS true CallTypes ALL
```

### 4.2.1.2 Create Profile

Create Profile as shown below and assign the Instance **AWS** to Profile

**Profile Name :** hosting2

```
NS_CLI/Policy/Profile> add hosting2 CallTyping DefaultInst
```

```
NS_CLI/Policy/Profile> add hosting2 FarEndRtg DefaultInst
```

```
NS_CLI/Policy/Profile> add hosting2 MediaSrvSel DefaultInst
```

```
NS_CLI/Policy/Profile> add hosting2 SvcCtrRtg AWS
```

### 4.2.1.3 Assign Profile to Group

Assign the profile created to the Group in the Application Server

**Group Name :** Amazon CVC Group

**Hosting NE:** Application Server-iopas1

**Profile name:** hosting2

```
NS_CLI/SubscriberMgmt/Enterprise/UserGroup> set Amazon CVC Group iopas1  
profile hosting2
```



#### 4.2.1.4 Create Routing NE Address

Configure the CUBE IP Address in Network Server to route the call to CUBE

**Instance Name:** AWS  
**Address:** IP address of CUBE  
**Cost:** 1  
**Weight:** 99  
**Port:** 5060

```
NS_CLI/System/Device/RoutingNE/Address>add AWS <CUBE IP> 1 99 5060 udp
```

#### 4.2.1.5 Create Routing NE

Create Routing NE as shown below

**NE Name:** AWS  
**Location:** 1214242  
**Static Cost:** 1  
**Static Weight:** 1  
**Profile:** routing  
**Poll:** false  
**State:** OnLine  
**Signaling Attributes:** E164Compliant

```
NS_CLI/System/Device/RoutingNE> add AWS 1214242 1 99 routing false onLine  
E164Compliant
```

#### 4.2.1.6 Create Routing Policy

Create Routing Policy as shown below

**Instance name:** AWS  
**callType:** ALL  
**From:** 1919XXXXXXX  
**To:** 1919XXXXXXX  
**Cost :** 1  
**Weight:** 1  
**routingNE :** AWS

```
NS_CLI/Policy/SvcCtrRtg/SCRL> add AWS ALL 1919XXXXXXX 1919XXXXXXX 1 99  
routingNE AWS
```

## 4.3 Cisco UBE Configuration

### 4.3.1 Global Cisco UBE settings

```
voice service voip
ip address trusted list
ipv4 199.xx.xx 255.255.xx.xx
ipv4 3.80.xx.xx 255.255.xx.xx
ipv4 52.55.xx.xx 255.255.xx.xx
ipv4 52.55.xx.xx 255.255.xx.xx
ipv4 34.212.xx.xx 255.255.xx.xx
ipv4 34.223.xx.xx 255.255.xx.xx
address-hiding
no notify redirect ip2ip
mode border-element
media disable-detailed-stats
allow-connections sip to sip
no supplementary-service sip moved-temporarily
no supplementary-service sip refer
no supplementary-service sip handle-replaces
fax protocol t38 version 3 ls-redundancy 0 hs-redundancy 0 fallback
pass-through g711alaw
sip
min-se 900
session refresh
asserted-id pai
early-offer forced
midcall-signaling passthru
privacy-policy passthru
g729 annexb-all
pass-thru headers unsupp
```

### 4.3.2 Codecs

```
voice class codec 1
  codec preference 1 g711u1aw
  codec preference 2 g711a1aw
```

### 4.3.3 Dial Peer

#### **Inbound Dial Peer for Cisco BroadWorks**

```
dial-peer voice 101 voip
  description Incoming dial-peer for BroadWorks
  session protocol sipv2
  session transport udp
  destination dpg 101
  incoming uri via BroadWorks
  voice-class codec 1
  voice-class sip bind control source-interface GigabitEthernet0/0/1
  voice-class sip bind media source-interface GigabitEthernet0/0/1
  dtmf-relay rtp-nte
  no vad
```

### **Inbound Dial Peer for Amazon Chime Voice Connector**

```
dial-peer voice 100 voip
description Incoming dial-peer for AmazonCVC
translation-profile incoming Amazon-In
session protocol sipv2
session transport udp
destination dpg 100
incoming uri to AmazonCVC
voice-class codec 1
dtmf-relay rtp-nte
no vad
```

### **Outbound Dial Peer Group and Dial Peer to Cisco BroadWorks Network Server**

```
voice class dpg 100
description from CUBE to BroadWorks-NS
dial-peer 200 preference 1
dial-peer 201 preference 2

dial-peer voice 200 voip
description Outgoing dial-peer from CUBE to BroadWorks-NS1
destination-pattern BAD.BAD
session protocol sipv2
session target ipv4:199.182.XX.XX
session transport udp
voice-class codec 1
voice-class sip bind control source-interface GigabitEthernet0/0/1
voice-class sip bind media source-interface GigabitEthernet0/0/1
dtmf-relay rtp-nte
no vad
!
dial-peer voice 201 voip
description Outgoing dial-peer from CUBE to BroadWorks-NS2
```

```
destination-pattern BAD.BAD
session protocol sipv2
session target ipv4:199.182.XX.XX
session transport udp
voice-class codec 1
voice-class sip bind control source-interface GigabitEthernet0/0/1
voice-class sip bind media source-interface GigabitEthernet0/0/1
dtmf-relay rtp-nte
no vad
```

### **Outbound Dial Peer Group and Dial Peer to Amazon Chime Voice Connector**

```
voice class dpg 101
description from CUBE to AmazonCVC
dial-peer 202 preference 1

dial-peer voice 202 voip
description Outgoing dial-peer from CUBE to AmazonCVC
translation-profile outgoing Amazon-Out
destination-pattern BAD.BAD
session protocol sipv2
session target sip-server
session transport udp
voice-class codec 1
voice-class sip localhost dns:dtndXXXX.voiceconnector.chime.aws
voice-class sip profiles 100
voice-class sip bind control source-interface GigabitEthernet0/0/0
voice-class sip bind media source-interface GigabitEthernet0/0/0
dtmf-relay rtp-nte
no vad
```

#### 4.3.4 Cisco UBE Running Configuration

```
AWS_BSFT#show running-config
```

```
Building configuration...
```

```
Current configuration : 13046 bytes
```

```
!
```

```
! Last configuration change at 09:15:56 UTC Thu Mar 18 2021
```

```
!
```

```
version 17.3
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
service password-encryption
```

```
service call-home
```

```
platform qfp utilization monitor load 80
```

```
no platform punt-keepalive disable-kernel-core
```

```
!
```

```
hostname AWS_BSFT
```

```
!
```

```
boot-start-marker
```

```
boot system bootflash:isr4300-universalk9.17.03.02.SPA.bin
```

```
boot-end-marker
```

```
!
```

```
!
```

```
vrf definition Mgmt-intf
```

```
!
```

```
address-family ipv4
```

```
exit-address-family
```

```
!
```

```
address-family ipv6
```

```
exit-address-family
```

```
!
```

```
logging queue-limit 1000000000
```

```
logging buffered 10000000
logging rate-limit 10000
enable secret 9
$9$AgSE6krqyAv.0k$3Sx8D9/DwRET/jy4w0jWKHVFLHN1dE.sZtVytLL3ULA
!
no aaa new-model
!
!
ip name-server 8.8.8.8 10.85.0.232 172.16.31.3
!
!
login on-success log
!
subscriber templating
!
!
multilink bundle-name authenticated
no device-tracking logging theft
!
!
crypto pki trustpoint SLA-TrustPoint
  enrollment terminal
  revocation-check crl
!
crypto pki trustpoint TP-self-signed-1017057749
  enrollment selfsigned
  subject-name cn=IOS-Self-Signed-Certificate-1017057749
  revocation-check none
  rsakeypair TP-self-signed-1017057749
!
!
crypto pki certificate chain SLA-TrustPoint
  certificate ca 01
```

30820321 30820209 A0030201 02020101 300D0609 2A864886 F70D0101  
0B050030

32310E30 0C060355 040A1305 43697363 6F312030 1E060355 04031317  
43697363

6F204C69 63656E73 696E6720 526F6F74 20434130 1E170D31 33303533  
30313934

3834375A 170D3338 30353330 31393438 34375A30 32310E30 0C060355  
040A1305

43697363 6F312030 1E060355 04031317 43697363 6F204C69 63656E73  
696E6720

526F6F74 20434130 82012230 0D06092A 864886F7 0D010101 05000382  
010F0030

82010A02 82010100 A6BCBD96 131E05F7 145EA72C 2CD686E6 17222EA1  
F1EFF64D

CBB4C798 212AA147 C655D8D7 9471380D 8711441E 1AAF071A 9CAE6388  
8A38E520

1C394D78 462EF239 C659F715 B98C0A59 5BBB5CBD 0CFEBEA3 700A8BF7  
D8F256EE

4AA4E80D DB6FD1C9 60B1FD18 FFC69C96 6FA68957 A2617DE7 104FDC5F  
EA2956AC

7390A3EB 2B5436AD C847A2C5 DAB553EB 69A9A535 58E9F3E3 C0BD23CF  
58BD7188

68E69491 20F320E7 948E71D7 AE3BCC84 F10684C7 4BC8E00F 539BA42B  
42C68BB7

C7479096 B4CB2D62 EA2F505D C7B062A4 6811D95B E8250FC4 5D5D5FB8  
8F27D191

C55F0D76 61F9A4CD 3D992327 A8BB03BD 4E6D7069 7CBADF8B DF5F4368  
95135E44

DFC7C6CF 04DD7FD1 02030100 01A34230 40300E06 03551D0F 0101FF04  
04030201

06300F06 03551D13 0101FF04 05300301 01FF301D 0603551D 0E041604  
1449DC85

4B3D31E5 1B3E6A17 606AF333 3D3B4C73 E8300D06 092A8648 86F70D01  
010B0500

03820101 00507F24 D3932A66 86025D9F E838AE5C 6D4DF6B0 49631C78  
240DA905

604EDCDE FF4FED2B 77FC460E CD636FDB DD44681E 3A5673AB 9093D3B1  
6C9E3D8B

D98987BF E40CBD9E 1AECA0C2 2189BB5C 8FA85686 CD98B646 5575B146  
8DFC66A8



467A3DF4 4D565700 6ADF0F0D CF835015 3C04FF7C 21E878AC 11BA9CD2  
55A9232C

7CA7B7E6 C1AF74F6 152E99B7 B1FCF9BB E973DE7F 5BDDEB86 C71E3B49  
1765308B

5FB0DA06 B92AFE7F 494E8A9E 07B85737 F3A58BE1 1A48A229 C37C1E69  
39F08678

80DDCD16 D6BACECA EEBC7CF9 8428787B 35202CDC 60E4616A B623CDBD  
230E3AFB

418616A9 4093E049 4D10AB75 27E86F73 932E35B5 8862FDAE 0275156F  
719BB2F0

D697DF7F 28

quit

crypto pki certificate chain TP-self-signed-1017057749

certificate self-signed 01

30820330 30820218 A0030201 02020101 300D0609 2A864886 F70D0101  
05050030

31312F30 2D060355 04031326 494F532D 53656C66 2D536967 6E65642D  
43657274

69666963 6174652D 31303137 30353737 3439301E 170D3231 30333136  
30383036

35315A17 0D333130 33313630 38303635 315A3031 312F302D 06035504  
03132649

4F532D53 656C662D 5369676E 65642D43 65727469 66696361 74652D31  
30313730

35373734 39308201 22300D06 092A8648 86F70D01 01010500 0382010F  
00308201

0A028201 0100AB49 E38ECDC0 5C4450E1 01A1B546 CAD1634E 7923750D  
4EDFD904

1070D73C 6EB2FC02 64C8DCEE A12F43E8 8ABCE1FC 43A986CD 5AFF63E4  
10BAFA6C

BF81E083 199B1090 E6416E1B 2F5ACE93 E3C14378 57A82D07 C501A846  
6DB09B99

ACF6D476 AB681590 E1EF30F3 6C114B69 477B33E5 F5D2D418 0392927A  
6BB9C9B7

43FD9E42 16777903 E79AE77A 1F9C2ABA 59AD53F6 0FF82549 421BB882  
909A985F

084D2FFE 0FECFEEB BC738100 2F5B0D6E CBE7201E C02B34E1 1859E4FB  
E4921FC6

E5B1021E 31C32D3F 3A126F94 582C0377 E92818DC 5A5ACB91 CE443DD8  
10D60AD9

020D54B8 B59DF623 6136DB54 78EE9FF4 92B641C2 22DF91D0 90A8516C  
873A5853

F2381504 639F0203 010001A3 53305130 0F060355 1D130101 FF040530  
030101FF

301F0603 551D2304 18301680 1445E2AB 2D02902B C766B722 7DB9DC41  
E860D0E8

BC301D06 03551D0E 04160414 45E2AB2D 02902BC7 66B7227D B9DC41E8  
60D0E8BC

300D0609 2A864886 F70D0101 05050003 82010100 15773D40 98478AAC  
0A21D59A

C385E79D 5AFD94AA 21984E10 FF6F5316 1A01AAE5 64397CFE D32F2B63  
CBA2813C

97B3E629 2D409587 8083E2C1 2E1AF93B F1F68661 4716EDB0 F9D5AB3B  
4558FF79

458D35E5 6E07D3A8 92BBEA89 F7DB1645 1CAF0C50 4E19999C F82272E6  
03CF6C61

6D0F5551 C0000796 BCA5F355 E09C7BD1 B32974FA 9DB6E42F 1B9FC9FA  
2DCB565C

2C5E3358 F8E7CC54 B60ED3A9 053DD70E 9F4ECA84 14463ECB 3ED03C6B  
BB5CEE9F

31514851 CC7DC40B 53066D78 C1A8BA73 8B82C8BE 3375AE72 C88E58A6  
2564F8F5

3636791A CA0BDA61 8CBAB986 55FBBF30 D34EFA9A C9971718 68A79540  
13833AB4

325C77A1 D249C48F 8C1245DE 65106D20 E16BEF65

quit

!

crypto pki certificate pool  
cabundle nvram:ios\_core.p7b

!

!

!

!

voice service voip

ip address trusted list

ipv4 199.XX.XX 255.255.XX.XX

ipv4 3.80.XX.XX 255.255.XX.XX

```
ipv4 52.55.xx.xx 255.255.xx.xx
ipv4 52.55.xx.xx 255.255.xx.xx
ipv4 34.212.xx.xx 255.255.xx.xx
ipv4 34.223.xx.xx 255.255.xx.xx
address-hiding
no notify redirect ip2ip
mode border-element
media disable-detailed-stats
allow-connections sip to sip
no supplementary-service sip moved-temporarily
no supplementary-service sip refer
no supplementary-service sip handle-replaces
fax protocol t38 version 3 ls-redundancy 0 hs-redundancy 0 fallback
pass-through g711alaw
sip
  min-se 900
  session refresh
  asserted-id pai
  early-offer forced
  midcall-signaling passthru
  privacy-policy passthru
  g729 annexb-all
  pass-thru headers un supp
!
!
voice class uri AmazonCVC sip
  host ipv4:192.xx.xx.xx
!
voice class uri BroadWorks sip
  host dns:iopas.xxxx.com
!
voice class codec 1
  codec preference 1 g711ulaw
```

```

    codec preference 2 g711a1aw
!
voice class sip-profiles 100
    rule 1 request INVITE sip-header X-BroadWorks-DNC remove
!
voice class dpg 100
    description from CUBE to BroadWorks-NS
    dial-peer 200 preference 1
    dial-peer 201 preference 2
!
voice class dpg 101
    description from CUBE to AmazonCVC
    dial-peer 202 preference 1
!
!
!
!
voice translation-rule 10
    rule 1 /\(^.....$\)/ /+1\1/
!
voice translation-rule 11
    rule 1 /\(^.....$\)/ /+1\1/
!
voice translation-rule 20
    rule 1 /\+\.*\)/ /\1/
!
!
voice translation-profile Amazon-In
    translate called 20
!
voice translation-profile Amazon-Out
    translate calling 11
    translate called 10

```

```
!  
!  
!  
license feature hseck9  
license udi pid ISR4321/K9 sn FDO19220MQ9  
memory free low-watermark processor 67123  
!  
diagnostic bootup level minimal  
!  
spanning-tree extend system-id  
!  
username cisco privilege 15 password 7 xxxxxxxxxxxx  
!  
redundancy  
  mode none  
!  
  
interface GigabitEthernet0/0/0  
  description Interface for Amazon Chime VC  
  ip address 192.65.XX.XX 255.255.XX.XX  
  negotiation auto  
!  
interface GigabitEthernet0/0/1  
  description Interface for BroadWorks  
  ip address 10.80.11.18 255.255.255.0  
  media-type rj45  
  negotiation auto  
!  
interface GigabitEthernet0  
  vrf forwarding Mgmt-intf  
  no ip address  
  negotiation auto  
!
```

```
ip http server
ip http authentication local
ip http secure-server
ip forward-protocol nd
ip route 0.0.0.0 0.0.0.0 192.65.xx.xx
ip route 172.16.24.0 255.255.248.0 10.80.11.1
ip route 172.17.0.0 255.255.248.0 10.80.11.1
ip route 199.xx.xx.xx 255.255.255.0 10.80.11.1
!
!
control-plane
!
!
mgcp behavior rsip-range tgcp-only
mgcp behavior comedia-role none
mgcp behavior comedia-check-media-src disable
mgcp behavior comedia-sdp-force disable
!
mgcp profile default
!
!
!
!
dial-peer voice 200 voip
  description Outgoing dial-peer from CUBE to BroadWorks-NS1
  destination-pattern BAD.BAD
  session protocol sipv2
  session target ipv4:199.182.xx.xx
  session transport udp
  voice-class codec 1
  voice-class sip bind control source-interface GigabitEthernet0/0/1
  voice-class sip bind media source-interface GigabitEthernet0/0/1
  dtmf-relay rtp-nte
```

```

no vad
!
dial-peer voice 201 voip
description Outgoing dial-peer from CUBE to BroadWorks-NS2
destination-pattern BAD.BAD
session protocol sipv2
session target ipv4:199.182.XX.XX
session transport udp
voice-class codec 1
voice-class sip bind control source-interface GigabitEthernet0/0/1
voice-class sip bind media source-interface GigabitEthernet0/0/1
dtmf-relay rtp-nte
no vad
!
dial-peer voice 202 voip
description Outgoing dial-peer from CUBE to AmazonCVC
translation-profile outgoing Amazon-Out
destination-pattern BAD.BAD
session protocol sipv2
session target sip-server
session transport udp
voice-class codec 1
voice-class sip localhost dns:dtndXXXX.voiceconnector.chime.aws
voice-class sip profiles 100
voice-class sip bind control source-interface GigabitEthernet0/0/0
voice-class sip bind media source-interface GigabitEthernet0/0/0
dtmf-relay rtp-nte
no vad
!
dial-peer voice 100 voip
description Incoming dial-peer for AmazonCVC
translation-profile incoming Amazon-In
session protocol sipv2

```

```
session transport udp
destination dpg 100
incoming uri to AmazonCVC
voice-class codec 1
dtmf-relay rtp-nte
no vad
!
dial-peer voice 101 voip
description Incoming dial-peer for BroadWorks
session protocol sipv2
session transport udp
destination dpg 101
incoming uri via BroadWorks
voice-class codec 1
voice-class sip bind control source-interface GigabitEthernet0/0/1
voice-class sip bind media source-interface GigabitEthernet0/0/1
dtmf-relay rtp-nte
no vad
!
!
gateway
timer receive-rtp 1200
!
sip-ua
timers connection aging 60
sip-server dns:dtndxxxx.voiceconnector.chime.aws
!
!
line con 0
exec-timeout 0 0
stopbits 1
line aux 0
stopbits 1
```



```
line vty 0 4
  exec-timeout 122 0
  password 7 xxxxxxxxx
  login
  transport input telnet ssh
!
call-home
  ! If contact email address in call-home is configured as sch-smart-
  licensing@cisco.com
  ! the email address configured in Cisco Smart License Portal will be
  used as contact email address to send SCH notifications.
  contact-email-addr sch-smart-licensing@cisco.com
  profile "CiscoTAC-1"
    active
    destination transport-method http
!
end
```

AWS\_BSFT#