



# **Cisco BroadWorks Partner Configuration Guide**

**AXIS I8016-LVE/C1410**

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Document Version 1.2

## Cisco® Guide

### Notification

BroadWorks has been renamed to Cisco BroadWorks. You will begin to see the Cisco name and company logo, along with the new product name on the software, documentation, and packaging. During this transition process, you may see both BroadSoft and Cisco brands and former product names. These products meet the same high standards and quality that both BroadSoft and Cisco are known for in the industry.

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## Document Revision History

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Version	Reason for Change
1.1	Introduced document for AXIS I8016-LVE/AXIS C1410 version 11.7.30 certification with Cisco BroadWorks Release 24
1.2	Edited and published document

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## 1 Overview

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This guide describes the configuration procedures required for the AXIS Network Intercom I-series and AXIS Network Speaker C-series for interoperability with Cisco BroadWorks. This includes the following models:

- AXIS I8016-LVE Network Video Intercom
- AXIS C1410 Network Mini Speaker

The AXIS I8016-LVE Network Video Intercom is a SIP Access device that uses the Session Initiation Protocol (SIP) to communicate with Cisco BroadWorks for call control. AXIS I8016-LVE Network Video Intercom user guide describes the specific configuration items that are important for use with Cisco BroadWorks. For more details, see the *AXIS I8016-LVE Network Video Intercom User Manual* [3] supplied by Axis

Note- Test execution and trace validation are performed using AXIS I8016-LVE with firmware version 11.7.30. Axis Communications AB confirms that both AXIS I8016-LVE and AXIS C1410 share the same firmware version.

## 2 Interoperability Status

This section provides the known interoperability status of the AXIS I8016-LVE Network Video Intercom with Cisco BroadWorks. This includes the version(s) tested, the capabilities supported, and known issues.

Interoperability testing validates that the device interfaces properly with Cisco BroadWorks via the SIP interface. Qualitative aspects of the device or device capabilities not affecting the SIP interface such as display features, performance, and audio qualities are not covered by interoperability testing. Requests for information and/or issues regarding these aspects should be directed to Axis Communications

### 2.1 Verified Versions

The following table identifies the verified AXIS I8016-LVE Network Video Intercom and Cisco BroadWorks versions and the month/year the testing occurred. If the device has undergone more than one test cycle, versions for each test cycle are listed, with the most recent listed first.

*Compatible Versions* in the following table identify specific I8016-LVE Network Video Intercom versions that the partner has identified as compatible so should interface properly with Cisco BroadWorks. Generally, maintenance releases of the validated version are considered compatible and may not be specifically listed here. For any questions concerning maintenance and compatible releases, contact AXIS Communications.

**NOTE:** Interoperability testing is usually performed with the latest generally available (GA) device firmware/software and the latest GA Cisco BroadWorks release and service pack at the time the testing occurs. If there is a need to use a non-verified mix of Cisco BroadWorks and device software versions, customers can mitigate their risk by self-testing the combination themselves using the *Cisco BroadWorks SIP Phone Interoperability Test Plan* [2].

Verified Versions			
Date (mm/yyyy)	Cisco BroadWorks Release	AXIS I8016-LVE/AXIS C1410 Verified Version	AXIS I8016-LVE/AXIS C1410 Compatible Versions
01/2024	Release 24.0	11.7.30	N/A  Note: Test execution and trace validation are performed using AXIS I8016-LVE with firmware version 11.7.30. Axis Communications AB confirms that both AXIS I8016-LVE and AXIS C1410 share the same firmware version.

### 2.2 Interface Capabilities Supported

This section identifies interface capabilities that have been verified through testing as supported by AXIS I8016-LVE Network Video Intercom

The *Supported* column in the tables in this section identifies the AXIS I8016-LVE Network Video Intercom’s support for each of the items covered in the test plan, with the following designations:

- Yes Test item is supported
- No Test item is not supported
- NA Test item is not applicable to the device type
- NT Test item was not tested

Caveats and clarifications are identified in the *Comments* column.

### 2.2.1 SIP Interface Capabilities

The AXIS I8016-LVE Network Video Intercom has completed interoperability testing with BroadWorks using the *Cisco BroadWorks SIP Phone Interoperability Test Plan* [2]. The results are summarized in the following table.

The Cisco BroadWorks test plan is composed of packages, each covering distinct interoperability areas, such as “Basic” call scenarios and “Redundancy” scenarios. Each package is composed of one or more test items, which in turn are composed of one or more test cases. The test plan exercises the SIP interface between the device and Cisco BroadWorks with the intent to ensure interoperability sufficient to support the Cisco BroadWorks feature set.

**NOTE:** *DUT* in the following table refers to the *Device Under Test*, which in this case is the AXIS I8016-LVE Network Video Intercom

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
Basic Call	Register with Authentication	Yes	
	Re-Register	Yes	
	Minimum Registration Time	Yes	
	Inbound Call	Yes	
	Outbound Call	Yes	
	Dial Plan	Yes	
	Session Audit	Yes	Session Audit of Call Held by the DUT is Not Supported.
	Ringback and Early Media	Yes	
	Inband DTMF over G722	No	
	Inband DTMF over G711	No	
	RFC2833 DTMF over G722	No	
	RFC2833 DTMF over G711	No	
	RFC2833 DTMF over G729	No	
	Voice Message Deposit	No	
	Voice Message Retrieval	No	
Solicited MWI/MWI Re-subscribe	No		



Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Unsolicited MWI	No	
	MWI Update During Active Call	No	
	Message Waiting Count	No	
	Message Waiting Saved and Urgent	No	
	Codec Renegotiation and SDP Handling	Yes	Supports with Blind Transfer and Attended Transfer
	Calling Name and Number Presented	No	
	Calling Name and Number Restricted	No	
	Calling Name with Unicode Characters	No	
	Connected Line ID Presentation	No	
	Connected Line ID Presentation with Unicode Characters	No	
	Connected Line ID Restriction	No	
	Connected Line ID Presentation after Call Forward	No	
	Connected Line ID Restriction after Call Forward	No	
	Connected Line ID Presentation on UPDATE	No	
	Connected Line ID Presentation on Re-INVITE	No	
	Remote Reset	No	
	Remote Reset with Authentication Challenge	No	
<b>Call Control</b>	Call Redirect to Phone- Single Redirect	No	
	Call Redirect to Phone- Multiple Redirect	No	
	Call Forward by Phone- Do Not Disturb	Yes	
	Call Forward by Phone- Call Forward Always	No	
	Call Forward by Phone- Call Forward Always with Diversion Inhibitor	No	
	Local Hold/Resume for Inbound Call	No	
	Local Hold/Resume for Outbound Call	No	
	Remote Hold/Resume	Yes	
Remote Hold/Resume with Music On Hold	Yes		

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Call Waiting; Switch between Calls	No	
	Blind Call Transfer	No	
	Blind Call Transfer Recall	No	
	Attended Call Transfer after Answer	No	
	Attended Call Transfer before Answer	No	
	Local Three-Way Conference before/after Answer	NA	The DUT has only one button, Not applicable to enable conference.
	Network 3-Way Conference	No	
	Network 6-Way Conference	No	
	Basic Click-To-Dial	No	
	Basic Click-To-Hold; DUT Originator	No	
	Basic Click-To-Hold; DUT Terminator	No	
	Advanced Click-To-Dial	No	
	Advanced Click-To-Answer	No	
	Advanced Click-To-Hold; DUT Originator	No	
	Advanced Click-To-Hold; DUT Terminator	No	
	Advanced Click-To-Answer for Call Waiting	No	
	Advanced Click-To-Dial Second Call	No	
	Ring Splash	No	
	Distinctive Ring Tone via Priority Alert	No	
	Distinctive Call Waiting Tone via Priority Alert	No	
	Distinctive Ring Tone via Alternate Numbers	No	
	Distinctive Call Waiting Tone via Alternate Numbers	No	
	Silent Ring	No	
Call Decline	No		
Anonymous Call	No		
<b>Video</b>	Inbound Video Call	Yes	
	Outbound Video Call	Yes	
	Video Call with Local Hold/Resume	No	
	Video Call with Remote Hold/Resume	Yes	

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Video Call with Remote Hold/Resume and Video On Hold	No	
	Video Call Waiting	No	
	Video Second Outbound Call	No	
	Video Call Transfer	No	
	Video Call Transferee	Yes	
	Auto Attendant – SD	No	No Keypad
	Auto Attendant – HD	No	No Keypad
	Video Voice Mail Deposit – SD	No	No Keypad
	Video Voice Mail Retrieve – SD	No	No Keypad
	Video Voice Mail Deposit – HD	No	No Keypad
	Video Voice Mail Retrieve – HD	No	No Keypad
	Video Custom Ringback	NA	No Display
	Network Based Video Conference – SD	No	
	Network Based Video Conference – HD	No	
	Collaborate Video – SD	No	
	Collaborate Video – HD	No	
	Collaborate Video – Upgrade to Video	No	
	UC-One Communicator Desktop Client, Inbound Call	No	
	UC-One Communicator Desktop Client, Outbound Call	No	
	UC-One Connect Client, Inbound Call	No	
UC-One Connect Client, Outbound Call	No		
<b>Failover/Failback</b>	REGISTER Failover	No	
	REGISTER Failback	No	
	REGISTER Failover; Increase Retries	No	
	REGISTER Failover on 503	No	
	INVITE Failover	No	
	INVITE Failback	No	
	INVITE Failover; Increase Retries	No	
	INVITE Failover on 503	No	
	Mid-Call Failure- INVITE Failure	No	

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Mid-Call Failure- Bye Failure	No	
<b>Advanced Phone Service: Missed Call Display Synchronization</b>	Missed Call Display Synchronization on Primary Line	No	
	Missed Call Display Synchronization on Alternate Line	No	
<b>Advanced Phone Service: Call Park Notification</b>	Subscribe for Call Park Notification	No	
	Parked Call Indicator	No	
	Retrieve Parked Call for Monitored User	No	
<b>Advanced Phone Service: Busy Lamp Field</b>	Subscribe for BLF	No	
	Add Monitored User	No	
	Remove Monitored User	No	
	Add Monitored User with Long Name	No	
	Add Monitored User with Unicode Characters in Name	No	
	Monitor up to 20 Users	No	
	Monitor User with Outgoing Call	No	
	Monitor User with Incoming Call	No	
	Monitor User with Two Incoming Calls	No	
	Monitor User with Parked Call	No	
	Call to Idle Monitored User	No	
	Call to Active Monitored User	No	
	Directed Call Pickup for Idle Monitored User with Incoming Call	No	
	Directed Call Pickup for Active Monitored User with Incoming Call	No	
	Retrieve Parked Call for Monitored User	No	
<b>Advanced Phone Service: Shared Call Appearance</b>	Line-Seize and Make Call	No	
	Cancel Line-Seize	No	
	Refresh Line-Seize	No	
	Attempt Line-Seize on Active Line	No	
	Subscribe for Call-Info	No	
	Refresh Call-Info Subscription	No	
	Outbound Call	No	
	Inbound Call	No	
Public Hold	No		

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Private Hold	No	
	Make Call on Active Line	No	
	Receive Call on Active Line	No	
	Hybrid Key System- Incoming Calls	No	
	Hybrid Key System- Outgoing Calls	No	
	Hybrid Key System- Mixed Incoming/Outgoing Calls	No	
	Hybrid Key System- Public Hold	No	
	Barge-In on Active Line	No	
	Hold/Retrieve Active Bridge	No	
	Barge-In Silent on Active Line	No	
	Parked Call Indicator	No	
	Parked Call Retrieve	No	
<b>Advanced Phone Service: Feature Synchronization, Private Line</b>	Initial SUBSCRIBE	No	
	Re-SUBSCRIBE	No	
	Activate Do Not Disturb from Phone	No	
	De-Activate Do Not Disturb from Cisco BroadWorks	No	
	Do Not Disturb Ring Splash	No	
	Activate Do Not Disturb from Phone, Multi-Line Phone	No	
	Call Forwarding No Answer	No	
	Call Forwarding Busy	No	
	Call Forwarding Always	No	
	Call Center- Agent Logon from Phone	No	
	Call Center- Agent Logoff from Cisco BroadWorks	No	
	Call Center- Unavailable Code from Phone	No	
	Unavailable Code from Cisco BroadWorks	No	
	Executive and Executive-Assistant	No	
	Call Recording	No	
<b>Advanced Phone Service: Feature Synchronization, Shared Line</b>	SUBSCRIBE	No	
	Do Not Disturb	No	
	Call Forwarding No Answer	No	
	Call Forwarding Busy	No	

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Call Forwarding Always	No	
	Call Center- Agent Logon from Primary Line	No	
	Call Center- Agent Logoff from Alternate Line	No	
	Call Center- Unavailable Code from Primary Line	No	
	Call Center- Unavailable Code from Alternate Line	No	
	Call Recording	No	
<b>Advanced Phone Service: Call Center</b>	Hold Reminder	No	
	Call Information	No	
	Hoteling	No	
	Status	No	
	Disposition Code	No	
	Emergency Escalation	No	
	Customer Originated Trace	No	
<b>Advanced Phone Service: Call Recording</b>	Call Recording Controls	No	
	Call Recording Video	No	
<b>Advanced Phone Service: Conference Event</b>	Conference Creator	No	
	Conference Participant	No	
<b>TLS/SRTP</b>	Register With Authentication	Yes	
	Inbound Call	Yes	
	Inbound Call Disconnected before Answer	Yes	
	Outbound Call	Yes	
	Outbound Call Disconnected before Answer	Yes	
	Session Audit of Call from the DUT	Yes	
	Session Audit of Call to the DUT	Yes	
	Custom Ringback	Yes	
	Voice Message Deposit	No	
	Voice Message Retrieval	No	
	Codec Renegotiation with Attended Transfer	Yes	
	Initial Answer with Hold SDP	No	
	Local Hold/Resume	No	
	Remote Hold/Resume	Yes	

Cisco BroadWorks SIP Phone Interoperability Test Plan Support Table			
Test Plan Package	Test Plan Package Items	Supported	Comments
	Attended Call Transfer	No	
	Local Three-Way Conference	No	
	Network Three-Way Conference	No	
	Video	Yes	Not Applicable for Video call with Hold/Resume and Auto Attendant
	BLF Subscribe	No	
	Feature Synchronization Subscribe	No	
IPV6	Register With Authentication	No	
	Inbound Call	No	
	Outbound Call	No	
	Session Audit	No	
	Custom Ringback	No	
	Voice Message Deposit/Retrieval	No	
	Codec Renegotiation with Attended Transfer	No	
	Initial Answer with Hold SDP	No	
	Call Control	No	
	Video	No	
	BLF Subscribe	No	
	Feature Synchronization Subscribe	No	

### 2.3 Known Issues

This section lists the known interoperability issues between Cisco BroadWorks and specific partner release(s). **Issues** identified during interoperability testing and known issues identified in the field are listed.

The following table provides a description of each issue and, where possible, identifies a workaround. The verified partner device versions are listed with an “X” indicating that the issue occurs in the specific release. The issues identified are device deficiencies or bugs and are typically not Cisco BroadWorks release dependent.

The *Issue Number* is a tracking number for the issue. If it is a Video Intercom issue, the issue number is from AXIS I8016-LVE Network Video Intercom’s tracking system. If it is a Cisco BroadWorks issue, the issue number is from Cisco’s (formerly BroadSoft’s) tracking system.

For more information on any issues related to the particular partner device release, see the partner release notes.

Issue Number	Issue Description	Partner Version		
		11.7.30		
	No issues identified.			



### 3 Cisco BroadWorks Configuration

This section identifies the required Cisco BroadWorks device profile type for the AXIS I8016-LVE Network Video Intercom as well as any other unique Cisco BroadWorks configuration required for interoperability with AXIS I8016-LVE Network Video Intercom.

#### 3.1 Cisco BroadWorks Device Profile Type Configuration

This section identifies the device profile type settings to use when deploying the AXIS I8016-LVE Network Video Intercom with Cisco BroadWorks.

Create a device profile type for the AXIS I8016-LVE Network Video Intercom as shown in the following example. The settings shown are recommended for use when deploying the AXIS I8016-LVE Video Intercom with Cisco BroadWorks. For an explanation of the profile parameters, see the *Cisco BroadWorks Device Management Configuration Guide* [1].

The following device profile type shown provides the *Number of Ports* (number of SIP lines) setting for AXIS I8016-LVE Network Video Intercom. For other models, create a new device profile type and set the *Number of Ports* to match the available number of SIP lines per model according to the following table.

Model	Number of Lines
AXIS I8016 LVE Network Video Intercom	1
AXIS C1410 Network Mini Speaker	1

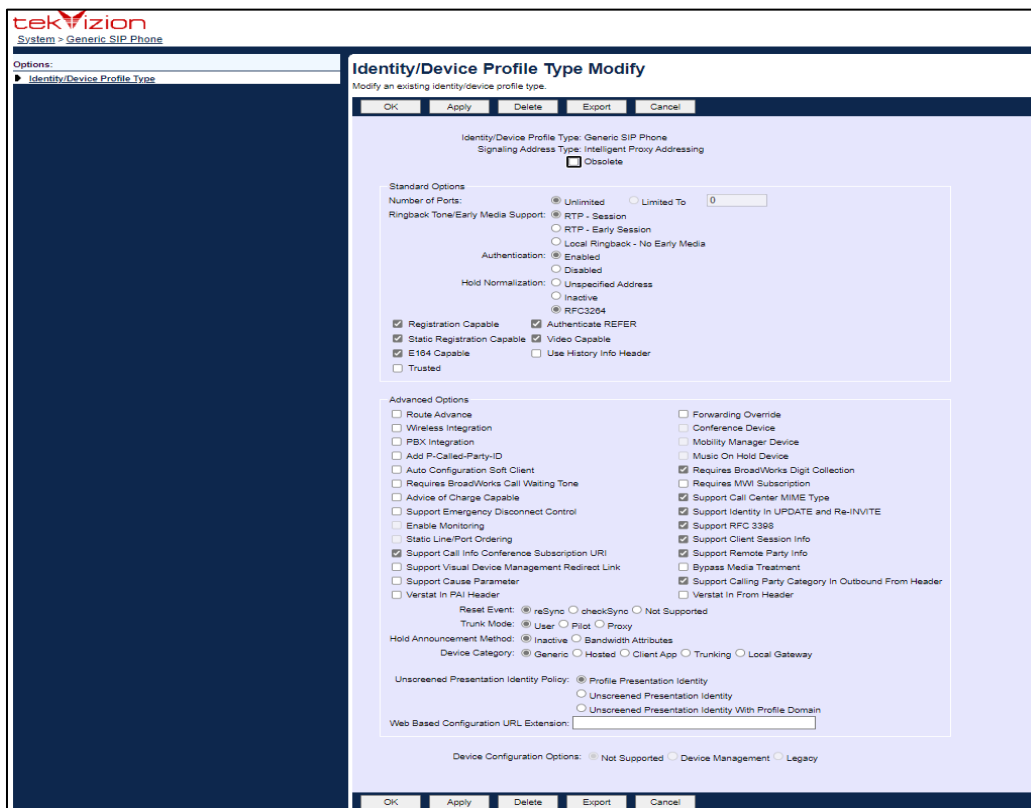


Figure 1: Identity/Device Profile Modify Page

### 3.2 Cisco BroadWorks Configuration Steps

There are no additional Cisco BroadWorks configuration steps required.

## 4 AXIS I8016-LVE Network Video Intercom Configuration

This section describes the configuration settings required for the AXIS I8016-LVE Network Video Intercom integration with Cisco BroadWorks, primarily focusing on the SIP interface configuration. AXIS I8016-LVE Network Video Intercom can be configured from CLI. The AXIS I8016-LVE Network Video Intercom configuration settings identified in this section have been derived and verified through interoperability testing with Cisco BroadWorks. For configuration details not covered in this section, contact: Axis Communications.

### 4.1 SIP Configuration Settings

To initiate calls, first we need to enable the SIP and allow Incoming SIP calls. Navigate to Communications → SIP → Settings → check Enable SIP and Allow Incoming SIP calls as shown in Figure below:

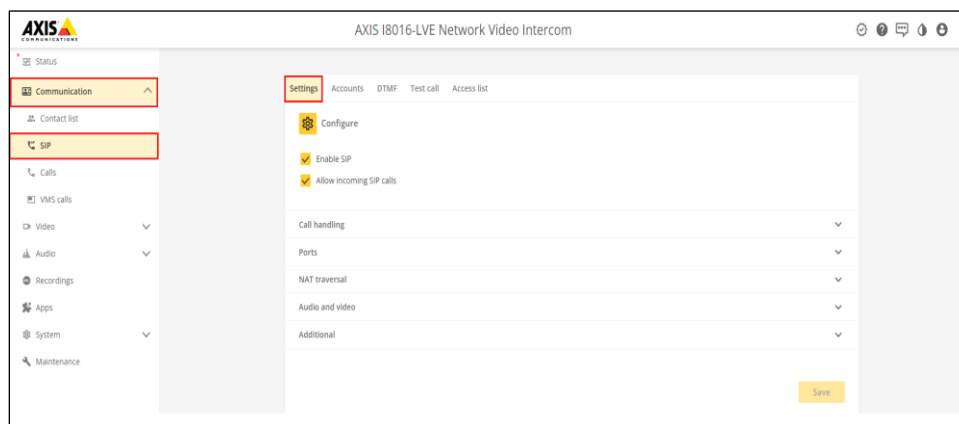


Figure 2: SIP Settings Page

### 4.2 Add Contact Configuration

To create the contacts, Browse to Communications → Contact list. Click “+ Add Contact”

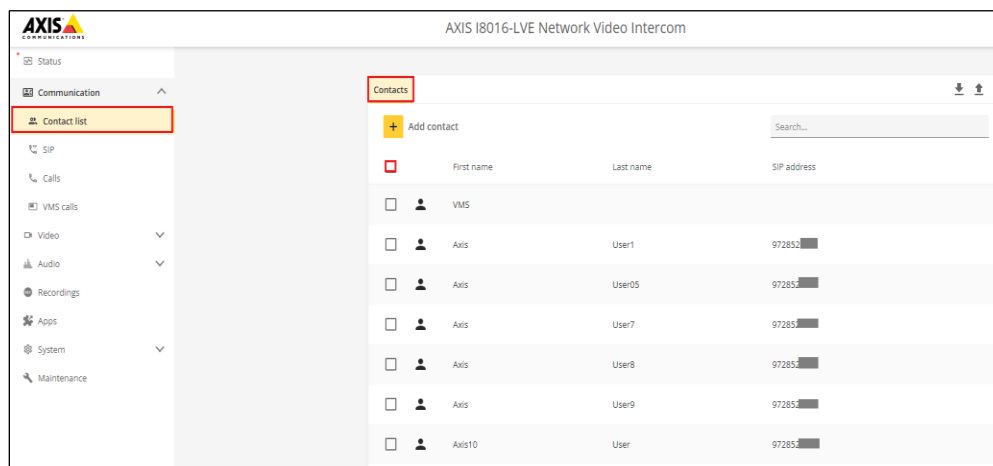


Figure 3: Create Contacts

Enter the first and last name of the contact and enter the contact's SIP address and save as shown below

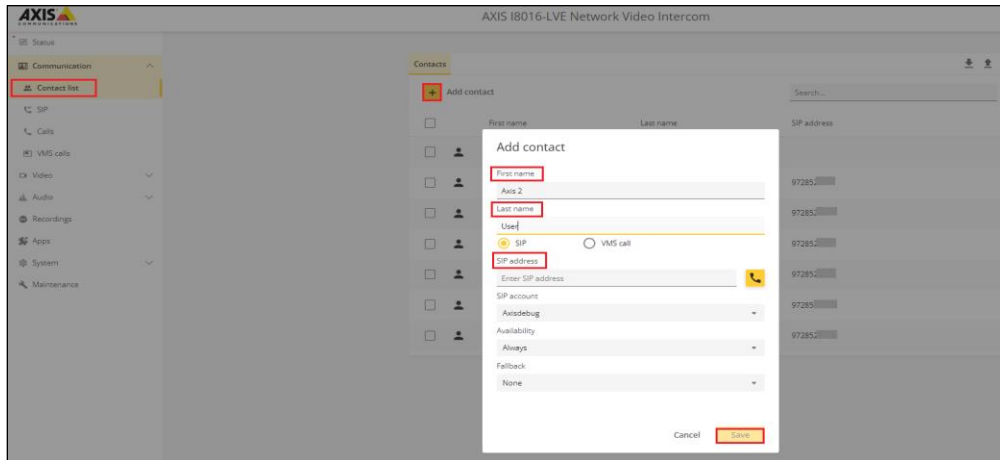


Figure 4: Create contacts configuration

### 4.3 Call Configuration Settings

To make call to Recipients, Browse to Communications→Calls→Call button→Select Contact under Recipients to place the call.

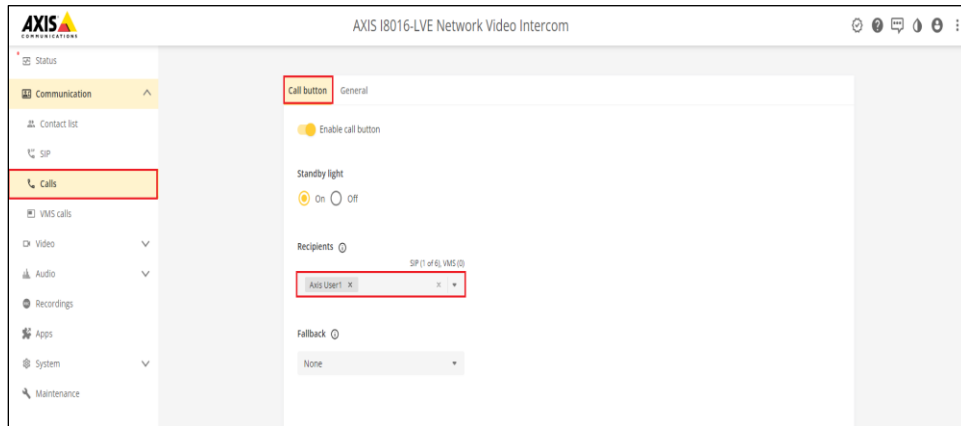


Figure 5: Configure the Call button

## 4.4 Log and Report Settings

To collect logs from the Device under test, Browse to System → Logs. Under Reports, click Download the device server report and under Network trace, click Download.

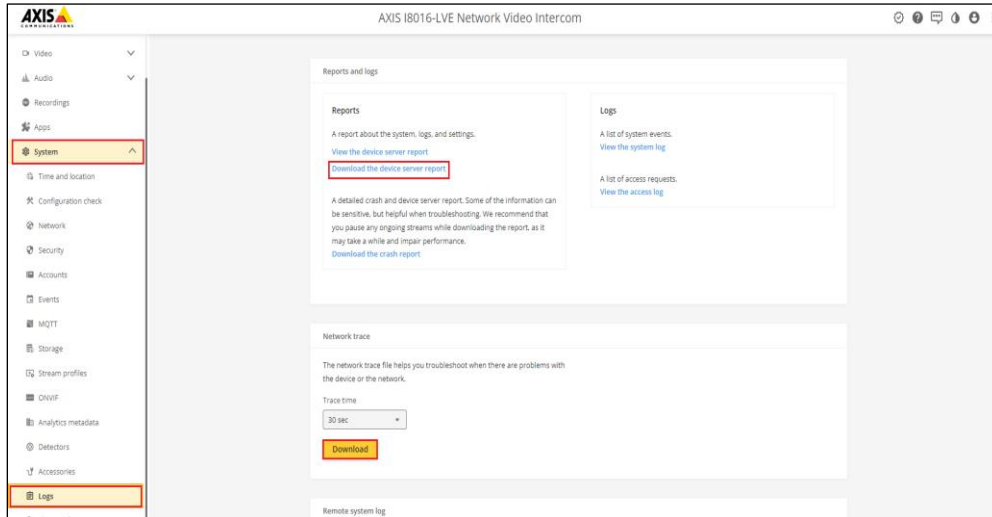


Figure 6: Logs and Reports

## 4.5 TLS/SRTP Configuration

To perform call scenarios using TLS/SRTP (TLS version >1.2), need to setup the DUT by as follow:

Navigate to Communications→SIP→ Accounts→Add Account

- Set Transport mode: TLS
- TLS version: v1.2
- Media Encryption: SRTP mandatory
- Under Proxies:  
Server address: Provide Cisco BroadWorks SBC FQDN  
Provide the Username, Password of the user and Transport to TLS.
- Click on Save

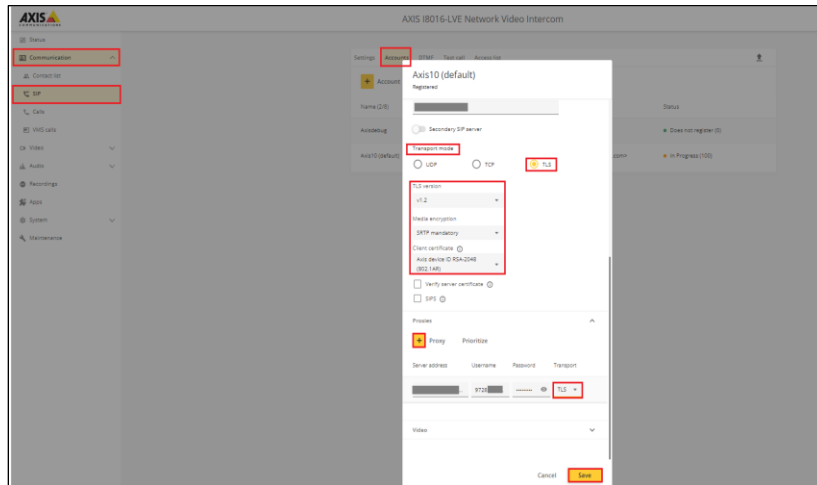


Figure 7:Enable TLS/SRTP

## 4.6 Log Configuration for TLS/SRTP

To collect the logs from the Device under Test, SSH in the DUT and start the SIP stack in a verbose mode. In that way all the SIP traffic is unencrypted. Please follow the steps as below:

1.Enable SSH by providing the below url:

[http://<DUT\\_IP>/axis-cgi/admin/param.cgi?action=update&Network.SSH.Enabled=yes](http://<DUT_IP>/axis-cgi/admin/param.cgi?action=update&Network.SSH.Enabled=yes)

As shown in the below figure, Sign-in with Username and password and click on Sign in.

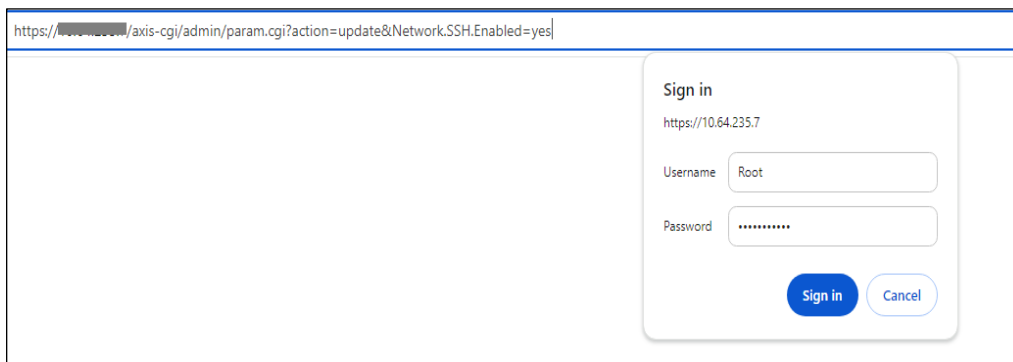


Figure 8:Enable SSH sign-in

OK will be displayed on the webpage as shown indicating the SSH mode has been enabled in DUT

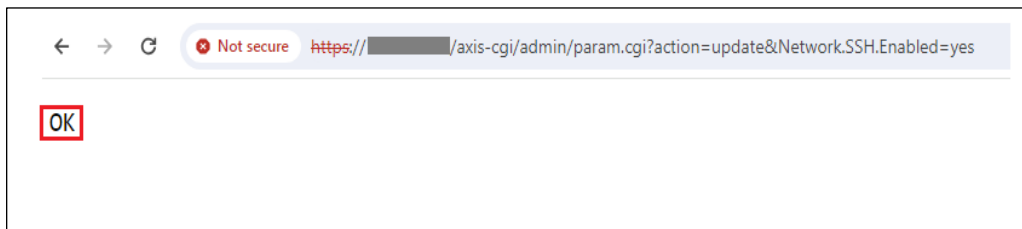


Figure 9:SSH Enabled status

Login DUT IP with username (provide in lowercase) and password via putty. SSH inside the DUT and start sipd in a verbose mode:

- a. Run the following command to stop the sip stack: “systemctl stop sipd”.
- b. Run the following command to start the sip stack in a verbose mode: “sipd -vn”.

## References

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- [1] Cisco Systems, Inc. 2024. *Cisco BroadWorks Device Management Configuration Guide, Release 24.0*. Available from Cisco at <https://solutionpartner.cisco.com/site/index.gsp>
- [2] Cisco Systems, Inc. 2024. *Cisco BroadWorks SIP Phone SIP Interoperability Test Plan, Release 24.0*. Available from Cisco at <https://solutionpartner.cisco.com/site/index.gsp>
- [3] Axis Communications, Inc. 2024. *AXIS I8016-LVE Network Video Intercom – User Manual*  
<https://help.axis.com/en-us/axis-i8016-lve>
- [4] Axis Communications, Inc. 2024. *AXIS C1410 Network Mini Speaker – User Manual*  
<https://help.axis.com/en-us/axis-c1410>