



Avaya Solution & Interoperability Test Lab

Application Notes for Aiphone IX Series Video Door Stations (IX-DA) and Avaya IP Office™ – Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Aiphone IX Series Video Door Stations (IX-DA) which were compliance tested with Avaya IP Office™.

The overall objective of the interoperability compliance testing was to verify Aiphone IX Series Video Door Stations (IX-DA) functionalities in an environment comprised of Avaya IP Office™ and various Avaya endpoints. Aiphone IX Series Video Door Stations are SIP based door phones.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for Aiphone IX Series Video Door Stations (IX-DA) to interoperate with Avaya IP Office (IP Office). During the compliance testing, Aiphone IX-DA was used.

The Aiphone IX Series Video Door Stations (IX-DA) are part of Aiphone IX Series 1 Door Stations. The Video Door Stations act as SIP phones when connected to IP Office. Stations come in both surface mount and flush mount varieties, please see **Appendix A** regarding various versions of IX-DA devices. Aiphone IX Series 1 Door Stations have a camera on the front, that allows for one-way video and two-way audio. All door stations have 2 dry contacts that can be used to release doors when activated by another intercom or phone. They can also be used to trigger external signaling devices like strobes. Video stations can stream video via SIP when talking with a video capable SIP phone, and stream video to a VMS using RTSP or ONVIF Profile S (not tested).

During the compliance test, Avaya IP Office Server Edition was used as a primary system and Avaya IP Office 500V2 as an expansion system. Aiphone IX-DA registered as a 3rd party SIP phone using UDP to the Avaya IP Office Server Edition.

2. General Test Approach and Test Results

The focus of this interoperability compliance testing was to verify that the Aiphone IX-DA can register as a SIP endpoint on IP Office, and is able to originate and receive both audio and video calls to and from the IP Office system.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Aiphone did not utilize secure capabilities.

2.1. Interoperability Compliance Testing

The general test approach was to place calls to and from, Aiphone IX-DA, and exercise basic telephone operations. The main objectives were to verify the following:

- Registration
- Audio and Video calls
- Calls to Avaya SIP Video & Audio endpoints
- Calls to Avaya H.323 Audio endpoints
- Calls to Avaya Digital & Analog endpoints
- Calls to PSTN via SIP Trunks
- Call termination (origination/destination)
- Serviceability

2.2. Test Results

The test objectives were verified, and the features tested worked as expected.

2.3. Support

For technical support on Aiphone IX-DA, please contact Aiphone via the following:

- Web: <https://www.aiphone.co.jp/>
- Phone: 052-228-9961

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of Avaya IP Office components and Aiphone IX-DA.

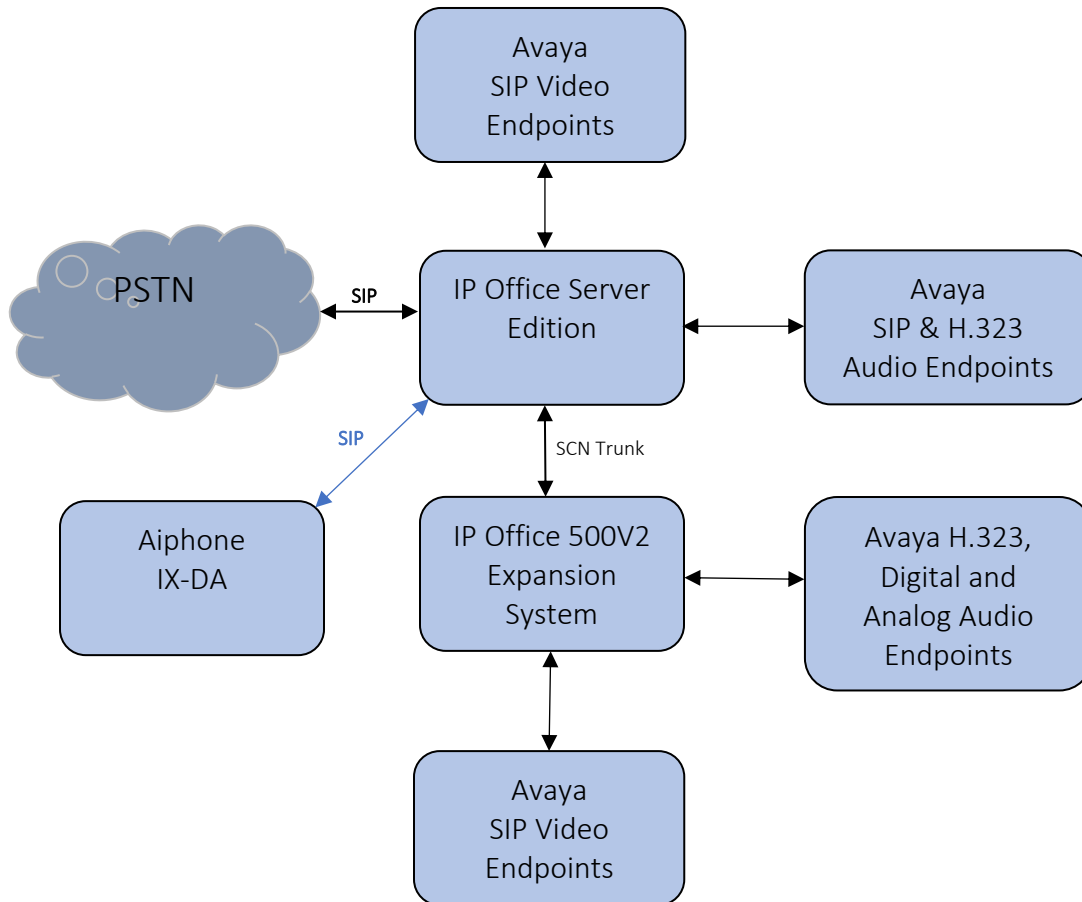


Figure 1: Test Configuration of Aiphone IX-DA with Avaya IP Office

4. Equipment and Software Validated

The following equipment and software were used for the test configuration.

Equipment	Software/Firmware
Avaya IP Office Server Edition	11.0.4.2.0 build 58
Avaya IP Office 500V2	11.0.4.2.0 build 58
Avaya IP Office Manager	11.0.4.2.0 build 58
Avaya 9600 Series H.323 IP Deskphones	6.8002
Avaya J129 SIP Phone	4.0.0.0.21
Avaya IX Workspace	3.7.0.102.3
Avaya H175 Collaboration Station	1.0.2.3
Avaya Vantage K175 Phone	3.5.0
Avaya 9504 Digital Phone	0.55
Avaya 6210 Analogue Telephone	-
Aiphone IX Series Video Door Station IX-DA	5.06.

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP Office™

This section provides the procedures for configuring IP Office. The procedures include the following areas:

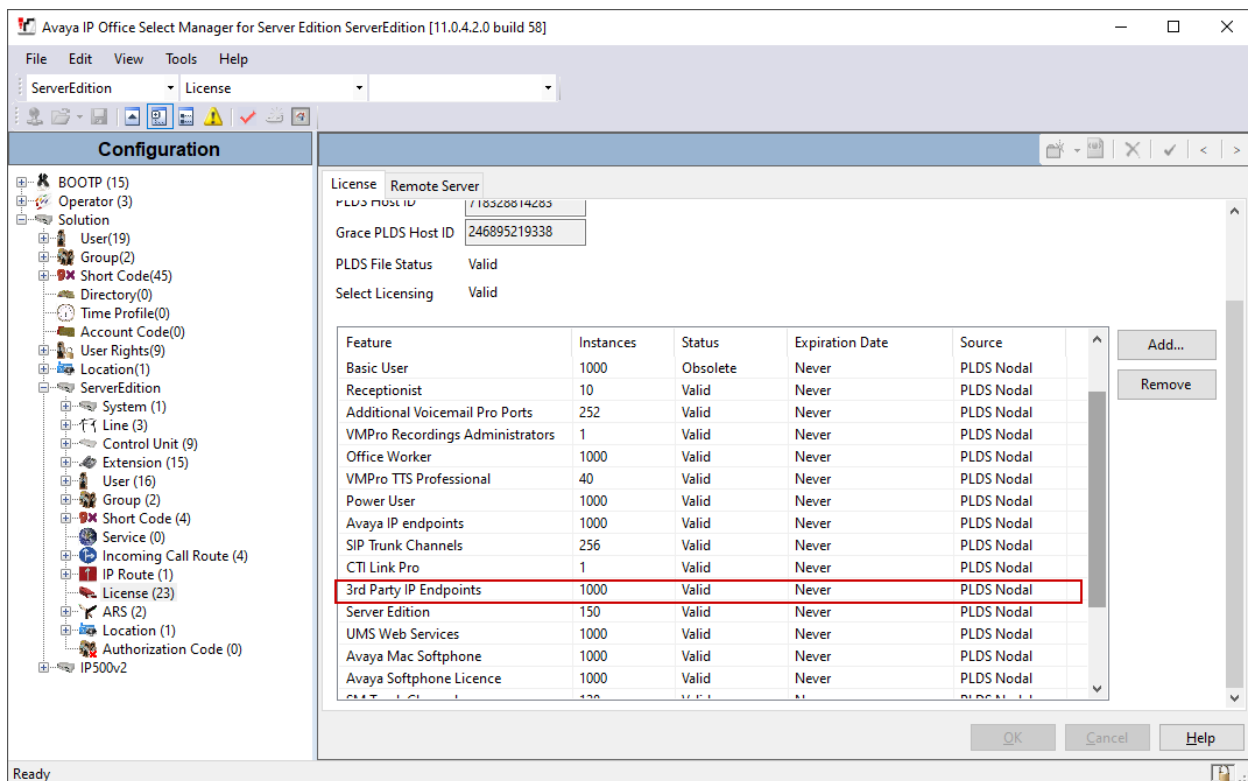
- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

These steps are performed from the Avaya IP Office Manager.

5.1. Verify IP Office License

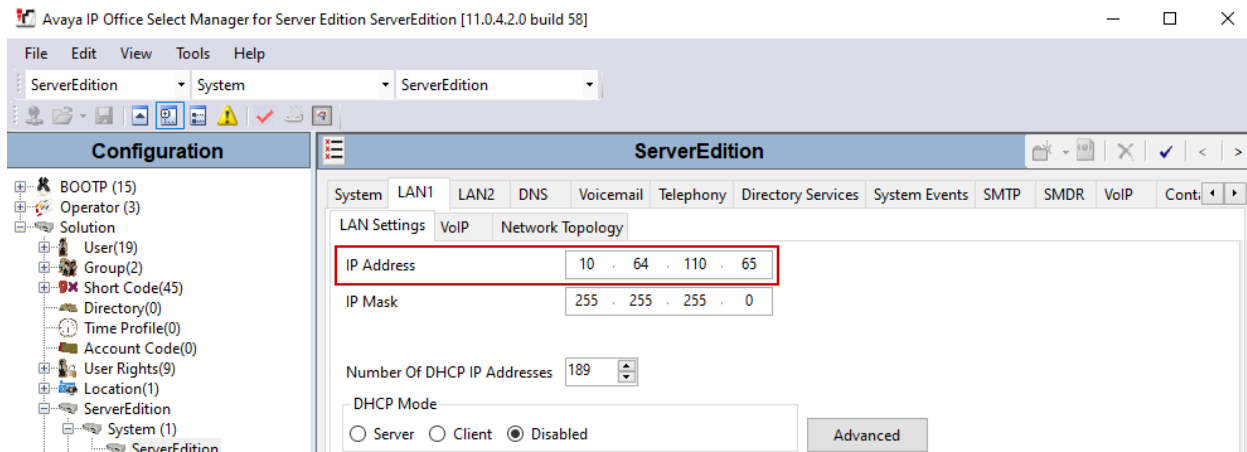
From a PC running the Avaya IP Office Manager application, select **Start → All Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system if there are more than one IP Office system, and log in with the appropriate credentials.

The Avaya IP Office Manager screen is displayed. From the configuration tree in the left pane, select **License → 3rd Party IP Endpoints** to display available licenses in the right pane. Verify that the License Status field is set to **Valid** for **3rd Party IP Endpoints** feature.



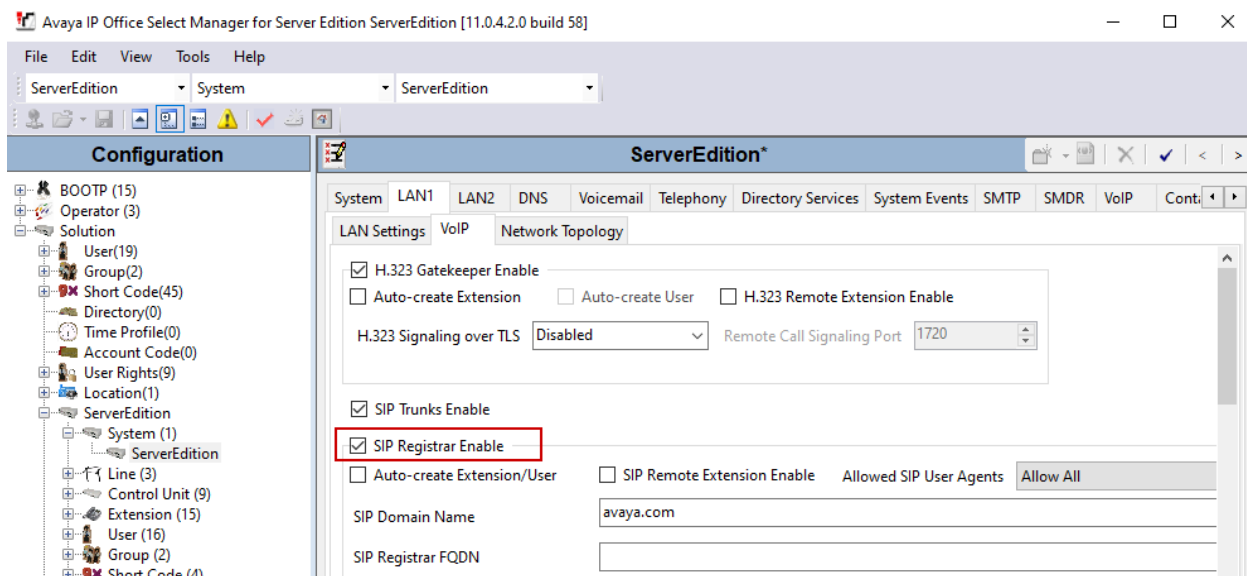
5.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the System screen in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure Aiphone IX-DA.



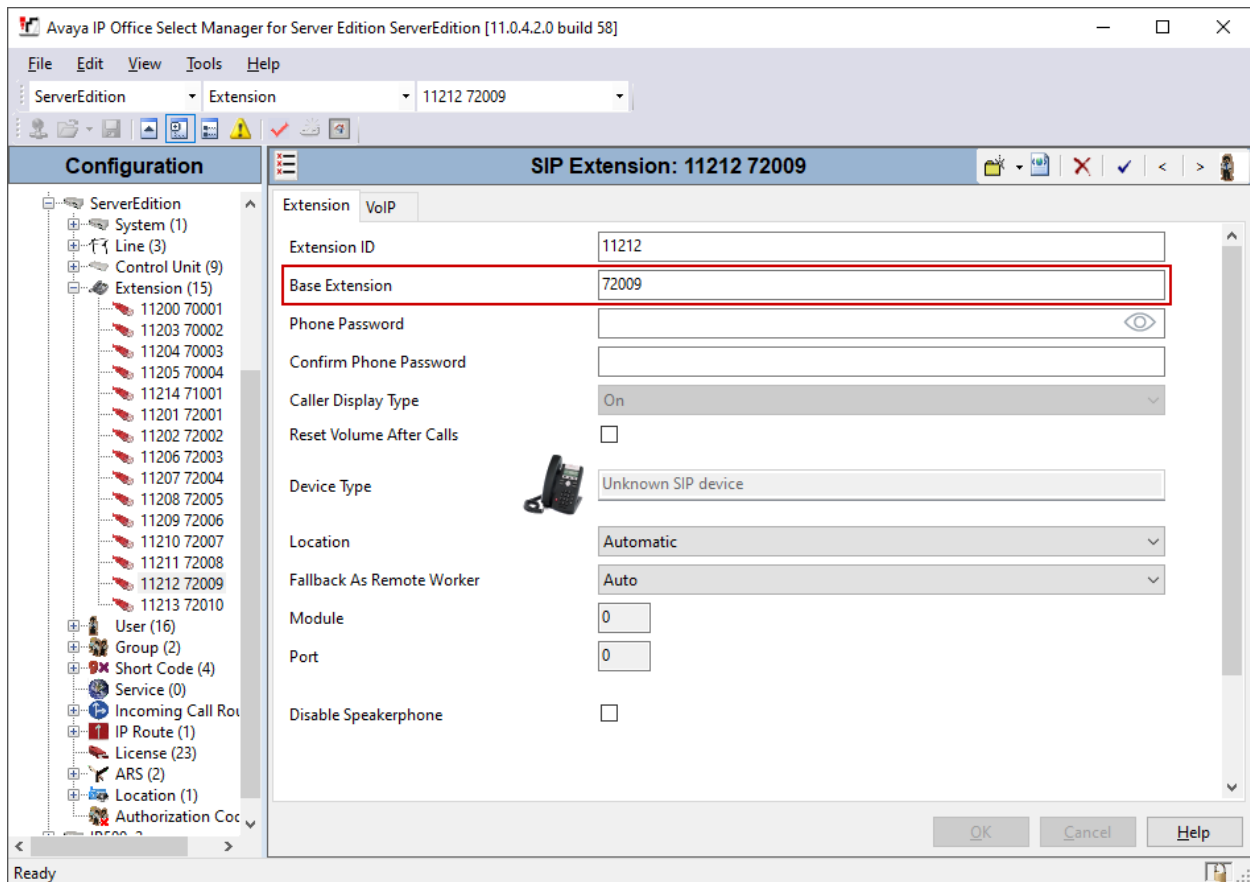
5.3. Administer SIP Registrar

Continuing from above, select the **VoIP** sub-tab. Ensure that **SIP Registrar Enable** is checked, as shown below.



5.4. Administer SIP Extensions

To create a new SIP Extension, from the configuration tree in the left pane, right-click on **Extension**, and select **New → SIP Extension** from the pop-up list (not shown). Enter desired digits for the **Base Extension** field. This is the Extension that will be used for Aiphone IX-DA to log in.

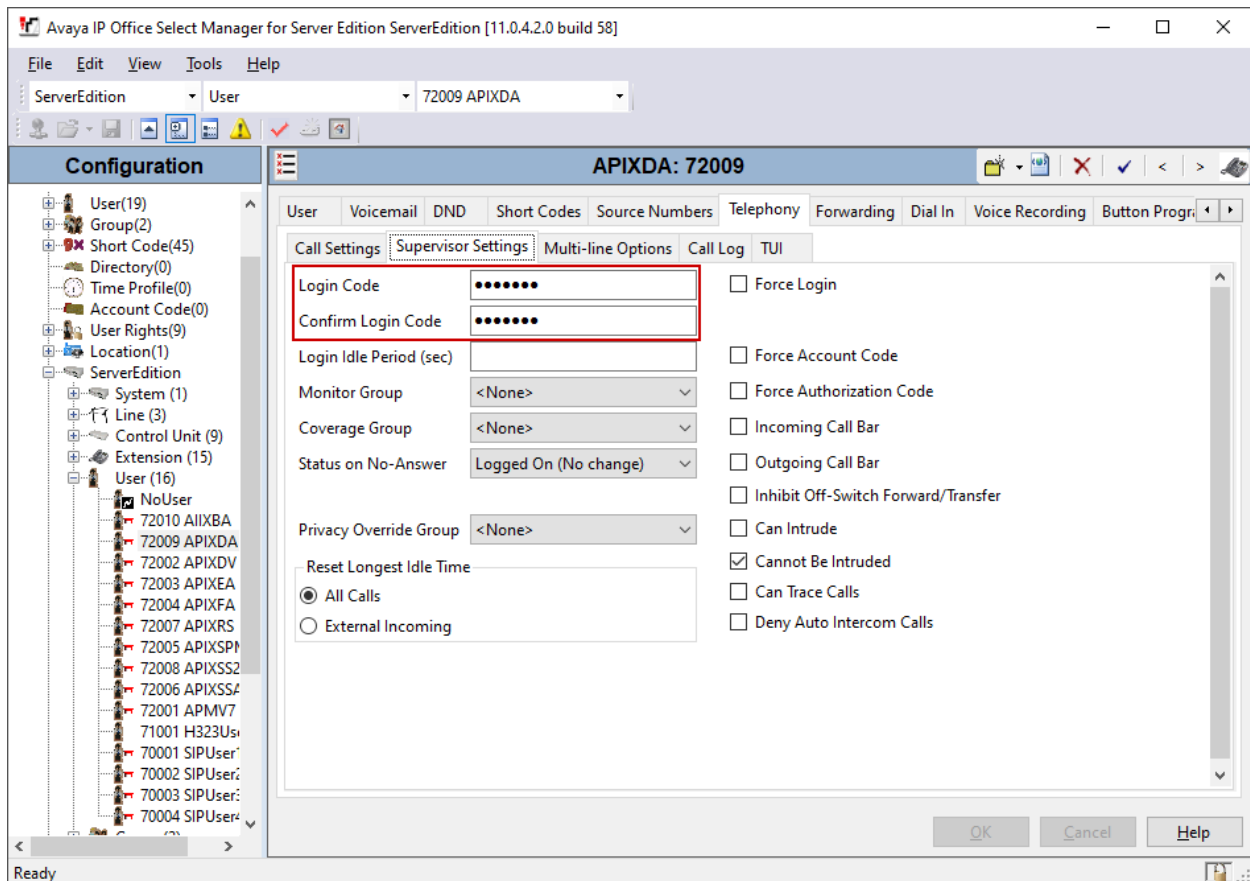


5.5. Administer SIP Users

To create a new SIP User, from the configuration tree in left pane, right-click on **User**, and select **New** from the pop-up list (not shown). Enter desired values for the **Name** field. For the **Extension** field, enter the SIP extension created in **Section 5.4**.

The screenshot displays the 'Avaya IP Office Select Manager for Server Edition' application window. The title bar indicates the version is [11.0.4.2.0 build 58]. The interface is divided into a left 'Configuration' tree and a right 'APIXDA: 72009' configuration pane. The left tree shows a hierarchy starting with 'User(19)', followed by 'Group(2)', 'Short Code(45)', 'Directory(0)', 'Time Profile(0)', 'Account Code(0)', 'User Rights(9)', 'Location(1)', 'ServerEdition', 'System (1)', 'Line (3)', 'Control Unit (9)', 'Extension (15)', and 'User (16)'. Under 'User (16)', several users are listed, including 'NoUser', '72010 AllXBA', '72009 APIXDA' (which is highlighted in blue), '72002 APIXDV', '72003 APIXEA', '72004 APIXFA', '72007 APIXRS', '72005 APIXSPM', '72008 APIXSS2', '72006 APIXSS4', '72001 APMV7', '71001 H323Us', '70001 SIPUser', '70002 SIPUser', '70003 SIPUser', and '70004 SIPUser'. The right pane, titled 'APIXDA: 72009', contains a tabbed interface with tabs for 'User', 'Voicemail', 'DND', 'Short Codes', 'Source Numbers', 'Telephony', 'Forwarding', 'Dial In', 'Voice Recording', and 'Button Programming'. The 'User' tab is active, showing a form with the following fields: 'Name' (containing 'APIXDA'), 'Password', 'Confirm Password', 'Unique Identity', 'Conference PIN', 'Confirm Audio Conference PIN', 'Account Status' (set to 'Enabled'), 'Full Name', 'Extension' (containing '72009'), 'Email Address', 'Locale', 'Priority' (set to '5'), 'System Phone Rights' (set to 'None'), and 'Profile' (set to 'Power User'). Below the 'Profile' dropdown, there are two checkboxes: 'Receptionist' (unchecked) and 'Enable Softphone' (checked). At the bottom right of the form are 'OK', 'Cancel', and 'Help' buttons. The status bar at the bottom left shows 'Ready'.

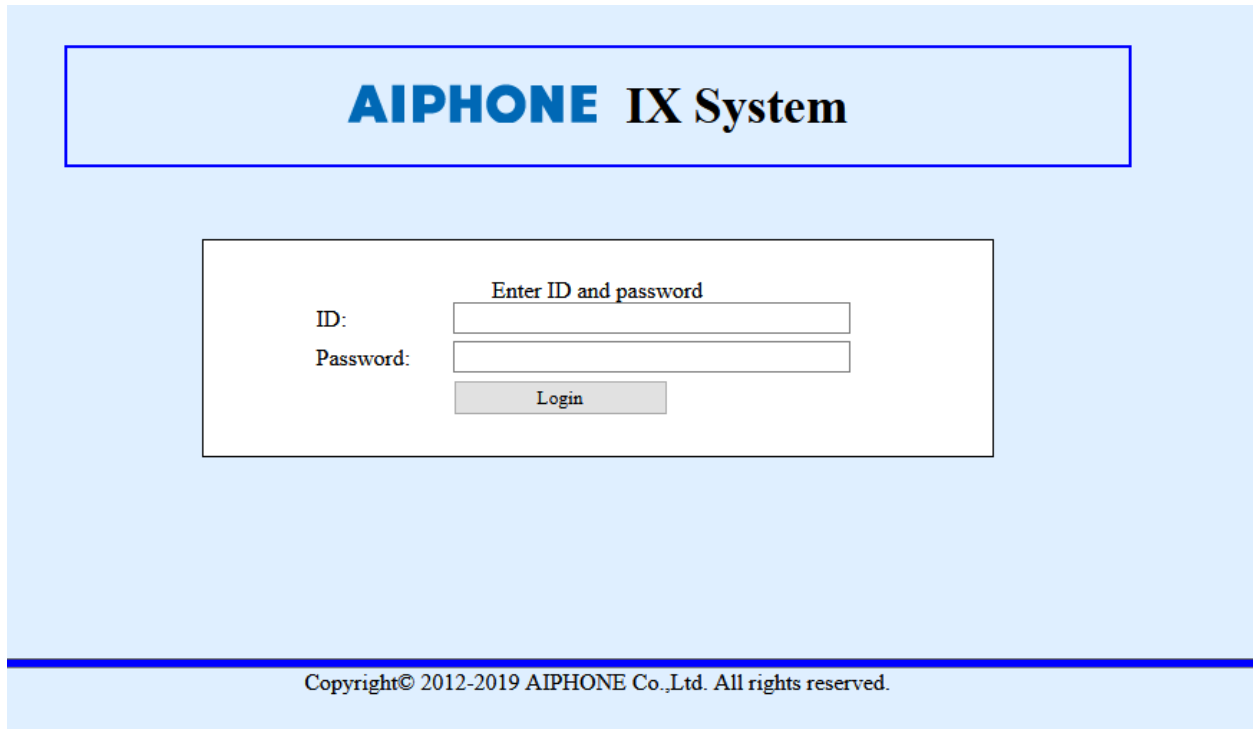
Select the **Supervisor Settings** tab, and enter a desired **Login Code** and **Confirm Login Code**. This code will be used as a password for Aiphone IX-DA.



6. Configure Aiphone IX Series Video Door Station

This section provides steps to configure Aiphone IX-DA.

To configure Aiphone IX-DA, using a web browser, navigate to <https://<IP Address of IX-DA>/webset.cgi?login> and log in using appropriate credentials.



AIPHONE IX System

Enter ID and password

ID:

Password:

Login

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Once logged in, for the **Number** field, type in the SIP extension that is being configured (from **Section 5.4**), and a desired **Name**. Select **Update** to save change.

AIPHONE IX System Setting
Station Type: Video Door Station

Station Information

Identification
ID and Password
Language
Time

Network Settings
IP Address
DNS
SIP
Multicast Address
Video
Audio
Packet Priority
NTP

• Identification

Number: 72009 3-5 digits
Name: IX-DA 1-24 alphanumeric characters
Location: 1-24 alphanumeric characters

Update

From the left, select **Network Settings** → **SIP** and configure as follows:

- **SIP Signaling Port:** Set to **5060**.
- **User Agent:** Type in a desired value.
- **ID:** SIP Extension number from **Section 5.4**.
- **Password:** SIP Extension password from **Section 5.4**.
- **IPv4 Address:** LAN IP Address of IP Office from **Section 5.2**.
- **Port:** Set to **5060**.

Once done, select **Update** to save changes.

AIPHONE IX System Setting
Station Type: Video Door Station

Network Settings

• SIP

SIP Connections

SIP Signaling Port: 5060 1-65535
User Agent: IX-DA 1-36 alphanumeric characters

SIP Server

Primary Server

ID: 72009 1-24 alphanumeric characters
Password: ***** 1-24 alphanumeric characters
IPv4 Address: 10.64.110.65 1.0.0.0-223.255.255.255
IPv6 Address: ::FF:0-FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 1-65535
Port: 5060 1-65535

Update

Continuing from above, scroll down to the **Video** sub section and verify the Video Encoder settings are as shown below.

AIPHONE IX System Setting

Station Type: Video Door Station

Update

Station Information
[Identification](#)
[ID and Password](#)
[Language](#)
[Time](#)
Network Settings
[IP Address](#)
[DNS](#)
[SIP](#)
[Multicast Address](#)
[Video](#)
[Audio](#)
[Packet Priority](#)
[NTP](#)
System Information
[Custom Sound Registry](#)
Contact / Audio Output Settings
[Contact Input](#)
[Output Specifications](#)
Call Settings
[Called Stations](#)
[Call Origination](#)
Function Settings
[Door Release Settings](#)
[Contact Input Call](#)
[Paging Settings](#)
[Paging Output Setting](#)
[E-mail Settings](#)
[CGI Integration](#)
[SIF Integration](#)
[CSR](#)
[SSL Certificate](#)
[IEEE 802.1X](#)

Network Settings

•Video

Items marked [H.264 / AVC] or [Motion-JPEG] apply only to their respective Coding System.
The 'Video Encoder 1' RTP End Port should be greater than 90 digits from the RTP Start Port.
The 'Video Encoder 2' RTP End Port should be greater than 10 digits from the RTP Start Port.

Video Encoder 1

Coding System:

H.264 / AVC

Resolution:

640x480 (VGA)

Frame Rate [fps]:

30

Select Profile [H.264 / AVC]:

Baseline

I-picture interval [H.264 / AVC]:

30

1-100

Bit rate [kbps] [H.264 / AVC]:

2048

Select Quality [Motion-JPEG]:

6

RTP Start Port: ♦

30000

1-65534

RTP End Port: ♦

31000

1-65535

Video Encoder 2

Second Video Encoder:

☒ Enable

Disable

Coding System:

H.264 / AVC

Resolution:

320x240 (QVGA)

Frame Rate [fps]:

15

Select Profile [H.264 / AVC]:

Main

I-picture interval [H.264 / AVC]: ♦

15

1-100

Bit rate [kbps] [H.264 / AVC]:

1024

Select Quality [Motion-JPEG]:

6

RTP Start Port: ♦

32000

1-65534

RTP End Port: ♦

33000

1-65535

KJA; Reviewed:
SPOPC 3/20/2020

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From the left, select **Call Settings** → **Station Settings** and configure as follows:
The numbers configured here will be dialed when the button on the IX-DA is pressed.

- **Station Number:** Type in an extension number on IP Office that will be called for a given line.
- **IPv4:** Type in the LAN IP Address from **Section 5.2**.
- **Protocol:** Set to **U**.

Select **Update** to save changes.

Station Type: Video Door Station

Call Settings

•Called Stations

Call Button Assignment
U = Unicast, M = Multicast
If designating "M", multicast IP addresses must be configured for the station(s).

	Number 3-32 digits	IPv4 Address 1.0.0.0-223.255.255.255	IPv6 Address 2000::0- 3FFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF or FD00::0- FDFE:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF	Protocol
1	70002	10.64.110.65		U
2				

From the left, select **Function Settings** → **Contact Input Call** and set the **Station Number** for **Group D01** to 000. At the bottom of page, set **Priority** to **Urgent** for **Door Station Call Group Assignment** (not shown).

Station Type: Video Door Station

Function Settings

•Contact Input Call

Call Setting

Group List
[Group D01](#) [Group D02](#) [Group D03](#) [Group D04](#) [Group D05](#)
[Group D06](#) [Group D07](#) [Group D08](#) [Group D09](#)

[Group D01] [Return to Top](#)
U = Unicast, M = Multicast
If designating "M", multicast IP addresses must be configured for the station(s).

	Station Number 3-32 digits	IPv4 Address 1.0.0.0-223.255.255.255	IPv6 Address 2000::0- 3FFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF or FD00::0- FDFE:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF	Protocol
1	000	10.64.110.65		U
2				

On the left, select **Contact / Audio Output Settings** → **Contact Input** and set **Usage** to **Call**.

Input Number	Type	Input Specifications		Usage
		Detection time [msec]		
1	Make	200 msec		Call

7. Verification Steps

The following steps may be used to verify the configuration:

- From a PC running the Avaya IP Office Monitor application. The **Avaya IP Office SysMonitor** screen is displayed (not shown). Select **Status** → **SIP Phone Status** from the top menu. Verify the SIP extension added from **Section 5.4** is displayed and the Status is **SIP: Registered**.

Extn Num	User Num	Phone Type	Security	IP Address	Trans...	User Agent	Licensed	Status
70001	70001	J129 SIP	disable	10.64.10.210	TCP	Avaya J129 IP Phone 4.0.3.1.4 a478...	Avaya IP	SIP: Registered
70002	70002	VANTAG...	disable	10.64.10.223	TCP	Avaya Vantage Basic/2.0.1.0 (0402:...	Avaya IP	SIP: Registered
72009	72009	SIP	disable	10.64.10.53	UDP	IX-DA	3rd Party IP	SIP: Registered
72010	72010	SIP	disable	10.64.10.52	UDP	IX-BA	3rd Party IP	SIP: Registered

- Place a call from Aiphone IX-DA to an Avaya endpoint. The state of the call be viewed on a PC running the **Avaya IP Office System Status** application. Select **Extensions** → Aiphone IX-DA extension.

The screenshot shows the Avaya IP Office System Status application window. The title bar indicates the server edition (10.64.110.65) and the client version (11.0.4.2.0 build 58). The main menu includes Help, Snapshot, LogOff, Exit, and About. The left sidebar shows a tree view with categories like System, Alarms (39), Extensions (4), Trunks (3), Active Calls, Resources, Voicemail, and IP Networking. The 'Extensions' category is expanded, showing a list of extensions: 70001, 70002, 72009 (selected), and 72010. The main pane displays the 'Extension Status' for extension 72009. Below this, a table shows the current state of a call (Call Ref 895, Connected, Time in State 00:00:16, Direction Outgoing, Other Party on Call Extn 70002, SIPUser2). At the bottom, there are buttons for Trace, Trace All, Pause, Ping, Back, Call Details, Clear Dynamic Location, Print..., and Save As... The status bar at the bottom right shows the time 8:52:34 PM and the status Online.

Extension Status

Extension Number:	72009
IP address:	10.64.10.53
Standard Location:	None
Dynamic Location:	None
Registrar:	Primary
Telephone Type:	Unknown SIP Device
User-Agent SIP header:	IX-DA
Media Stream:	RTP
Layer 4 Protocol:	UDP
Current User Extension Number:	72009
Current User Name:	APIXDA
Forwarding:	Off
Twinning:	Off
Do Not Disturb:	Off
Message Waiting:	Off
Phone Manager Type:	None
SIP Device Features:	REFER,UPDATE
License Reserved:	No
Last Date and Time License Allocated:	3/6/2020 4:32:58 PM
Packet Loss Fraction:	
Jitter:	
Round Trip Delay:	
Connection Type:	Direct Media
Codec:	G711 Mu
Remote Media Address:	10.64.10.223

Call Ref	Current State	Time in State	Calling Number or Called Number	Direction	Other Party on Call
895	Connected	00:00:16		Outgoing	Extn 70002, SIPUser2

Trace Trace All Pause Ping Back Call Details Clear Dynamic Location Print... Save As...

8:52:34 PM Online

8. Conclusion

Aiphone IX-DA was compliance tested with Avaya IP Office. Aiphone IX-DA functioned properly for feature and serviceability. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

9. Additional References

Avaya IP Office product documentation can be found at: <https://ipofficekb.avaya.com/>

Documentation related to Aiphone IX-DA can be found at:
<https://www.aiphone.co.jp/products/business/ix/>

Appendix A

Following devices are based on the same firmware as IX-DA:

- IX-DA
- IX-DA-SQH
- IX-DA(1x)/(2x)/(3x)+(4x)
- IXDA
- IXDVF
- IXDVFBK
- IXDVFR
- IXDVFT
- IXDVFBM
- IXDVFTBM
- IXDVFCV
- IXDVFCVBM
- IXDVF2BM
- IXDVF4BM
- IXDVF6BM

The difference in each IX-DA devices is their mounting method:

- IX-DA
 - Surface mounting
- IX-DA-SQH
 - Flush mounting
- IX-DA(1x)/(2x)/(3x)+(4x)
 - (1x): the number of buttons(2-4). If the number is one, (1x) is empty.
 - (2x): the mounting method. S(Surface mounting) or F(Flush mounting)
 - (3x): the material of the panel. SS(Stainless Steel)
 - (4x): the type of the accessories. CPM(for UK standard card reader), CPROX(for HID card reader), or AC10U(for 10-key pad)
- IXDA
 - Surface mounting
- IXDVF
 - Flush mounting
- IXDVFBK
 - Flush mounting
 - Black color panel
- IXDVFR
 - Flush mounting
 - Red color panel
- IXDVFT
 - Flush mounting
 - Card reader

- IXDVFBM
 - Flush mounting
 - Hearing aid
- IXDVFTBM
 - Flush mounting
 - Card reader
 - Hearing aid
- IXDVFCV
 - Flush mounting
 - 10-key pad
- IXDVFCVBM
 - Flush mounting
 - Card reader
 - Hearing aid
 - 10-key pad
- IXDVF2BM
 - Flush mounting
 - Hearing aid
 - 2 call buttons
- IXDVF4BM
 - Flush mounting
 - Hearing aid
 - 4 call buttons
- IXDVF6BM
 - Flush mounting
 - Hearing aid
 - 6 call buttons

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