



Avaya Solution & Interoperability Test Lab

Application Notes for Aiphone IX Series Audio Door Stations (IX-BA) R5.4 and Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager R8.1– Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Aiphone IX Series Audio Door Stations (IX-BA) which was compliance tested with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager.

The overall objective of the interoperability compliance testing was to verify Aiphone IX Series Audio Door Stations (IX-BA) functionalities in an environment comprised of Avaya Aura[®] and various Avaya endpoints. Aiphone IX Series Audio 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 Audio Door Stations to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. During the compliance testing, Aiphone IX-BA was used.

The Aiphone IX Series Audio Door Stations (IX-BA) are part of Aiphone IX Series Door Stations. The Audio Door Stations, IX-BA, act as SIP phones when connected to Avaya Aura®. The Audio Door Stations come in both surface mount and flush mount varieties. All door stations have dry contacts that can be used to release doors when activated by another intercom or phone. The dry contacts can also be used to trigger external signaling devices, such as strobes.

During the compliance test, Aiphone IX-BA registered as a 3rd party SIP phone using UDP to Avaya Aura® Session Manager.

2. General Test Approach and Test Results

The focus of this interoperability compliance testing was to verify that the Aiphone IX-BA can register as a SIP endpoint on Session Manager, and is able to originate and receive audio calls to and from the Avaya Aura® 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-BA, and exercise basic telephone operations. The main objectives were to verify the following:

- Registration
- Calls to Avaya SIP 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-BA, please contact Aiphone via the following:

Japan

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

USA, Canada

- Web: <https://www.aiphone.com/home>
- Email: tech@aiphone.com
- Phone: 800-692-0200

France

- Web: <https://www.aiphone.fr/>
- Phone: 01 69 11 46 00

Australia, New Zealand

- Web: <https://www.aiphone.com.au/>
- Phone: (02)80364507

Singapore

- Web: <http://www.aiphone.com.sg/>
- Email: admin@aiphone.com.sg
- Phone: 6534-1135

United Kingdom

- Web: <https://www.aiphone.co.uk/>
- Phone: 020-7507-6250

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of Avaya Aura® components and Aiphone IX-BA.

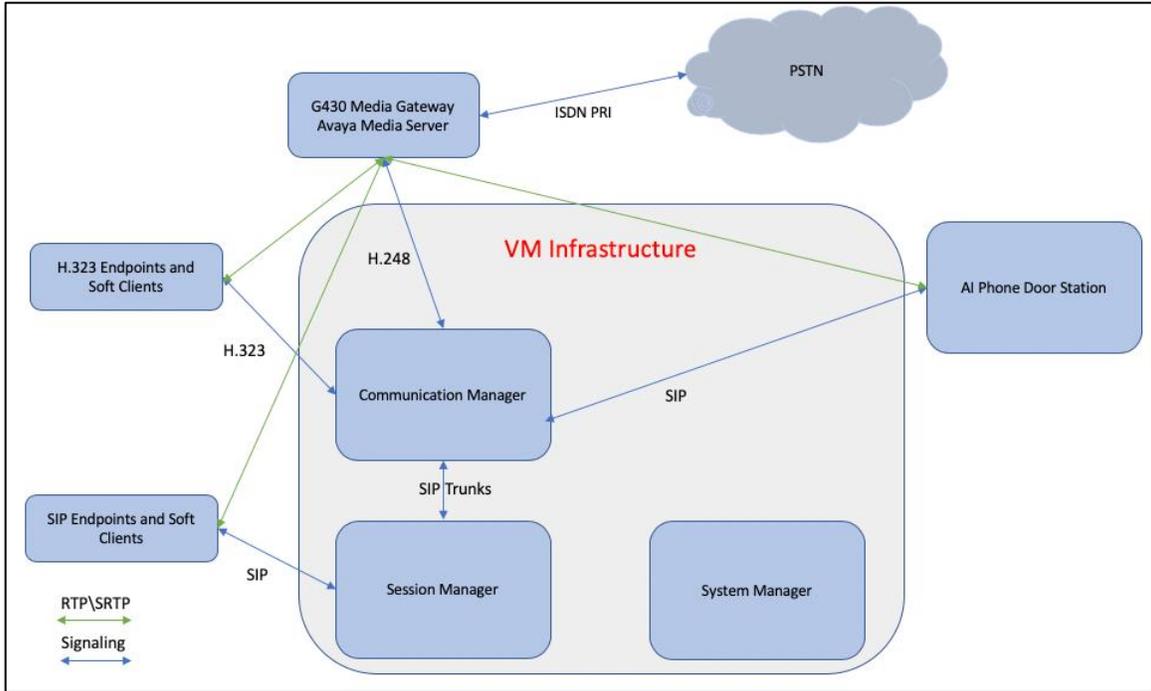


Figure 1: Test Configuration of Aiphone IX-BA with Avaya Aura®

4. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya Aura® Communication Manager	8.1.1.0.0.890.25763 (FP1)
Avaya Aura® Session Manager	8.1.1.0.811021
Avaya Aura® System Manager	8.1.1.0.0310782 (FP1)
Avaya 9600 Series H.323 IP Deskphones	6.8304
Avaya J129 SIP Phone	4.0.4.0.10
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 Audio Door Station IX-BA	5.40

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify System Capacity (License)
- Define Dial Plan

These steps were performed using an SSH Terminal session.

5.1. Verify System Capacity (License)

The license file installed on the system controls these attributes. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative. Use the **display system-parameters customer-options** command to determine these values. On **Page 1**, verify that the **Maximum Off-PBX Telephones** allowed in the system is sufficient. One OPS station is required per SIP device.

```
display system-parameters customer-options                               Page 1 of 12
                                OPTIONAL FEATURES

G3 Version: V18                                                         Software Package: Enterprise
Location: 2                                                                System ID (SID): 1
Platform: 28                                                                Module ID (MID): 1

                                USED
Platform Maximum Ports: 48000      73
Maximum Stations: 36000            48
Maximum XMOBILE Stations: 36000    0
Maximum Off-PBX Telephones - EC500: 41000  0
Maximum Off-PBX Telephones - OPS: 41000  27
Maximum Off-PBX Telephones - PBFMC: 41000  0
Maximum Off-PBX Telephones - PVFMC: 41000  0
Maximum Off-PBX Telephones - SCCAN: 0      0
Maximum Survivable Processors: 313     0

(NOTE: You must logoff & login to effect the permission changes.)
```

On **Page 2** of the **system-parameters customer-options form**, verify that the number of **Maximum Administered SIP Trunks** supported by the system is sufficient.

```

display system-parameters customer-options
                                OPTIONAL FEATURES
                                Page 2 of 12

IP PORT CAPACITIES
                                USED
    Maximum Administered H.323 Trunks: 12000    0
    Maximum Concurrently Registered IP Stations: 2400    3
    Maximum Administered Remote Office Trunks: 12000    0
Max Concurrently Registered Remote Office Stations: 2400    0
    Maximum Concurrently Registered IP eCons: 128    0
    Max Concur Reg Unauthenticated H.323 Stations: 100    0
    Maximum Video Capable Stations: 36000    0
    Maximum Video Capable IP Softphones: 2400    16
    Maximum Administered SIP Trunks: 12000    10
    Max Administered Ad-hoc Video Conferencing Ports: 12000    0
    Max Number of DS1 Boards with Echo Cancellation: 688    0
  
```

5.2. Define the Dial Plan

Use the **change dialplan analysis** command to define the dial plan used in the system. This includes all telephone extensions. In the sample configuration, telephone extensions are 5 digits long and begin with **7**.

```

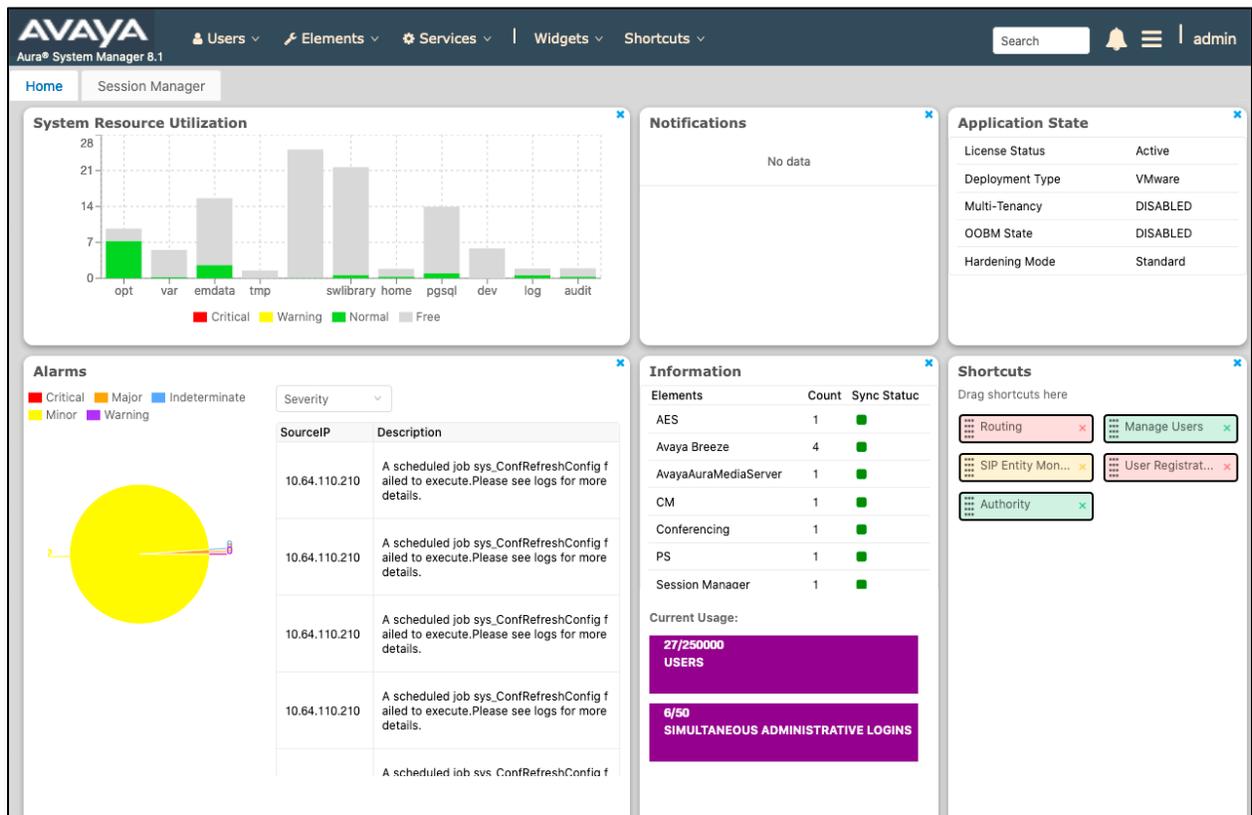
change dialplan analysis
                                DIAL PLAN ANALYSIS TABLE
                                Location: all
                                Percent Full: 1

    Dialed   Total   Call   Dialed   Total   Call   Dialed   Total   Call
    String   Length Type   String   Length Type   String   Length Type
    1       3   dac
    2       5   ext
    3       5   ext
    4       5   aar
    7     5 ext
    8       1   fac
    9       1   fac
    *       3   fac
    #       3   fac
  
```

6. Configure Avaya Aura® Session Manager

This section describes aspects of the Session Manager configuration required for interoperating with Aiphone IX-BA. It is assumed that the Domains, Locations, SIP entities, Entity Links, Routing Policies, Dial Patterns and Application Sequences have been configured where appropriate for Communication Manager and Session Manager.

Session Manager is managed via System Manager. Using a web browser, access **https://<ip-addr of System Manager>/SMGR**. In the **Log On** screen, enter appropriate **User ID** and **Password** and click the **Log On** button.



6.1. Verify Session Manager Listen Port for SIP Endpoint Registration

Each Session Manager Entity must be configured so that SIP endpoints can register to it using UDP, TCP, or TLS. From the web interface click **Routing** → **SIP Entities** (not shown) and select the Session Manager entity used for registration. In the compliance test, **TCP** and **UDP** listen ports were used.

<input type="checkbox"/>	Listen Ports	Protocol	Default Domain	Endpoint	Notes
<input type="checkbox"/>	5060	TCP	avaya.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5060	UDP	avaya.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5061	TLS	avaya.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5062	TLS	avaya.com	<input type="checkbox"/>	

Select : All, None

6.2. Add a SIP User

A SIP user must be added for Aiphone IX-BA. Click **User Management** → **Manage Users** → **New** (not shown) and configure the following in the **Identity** tab.

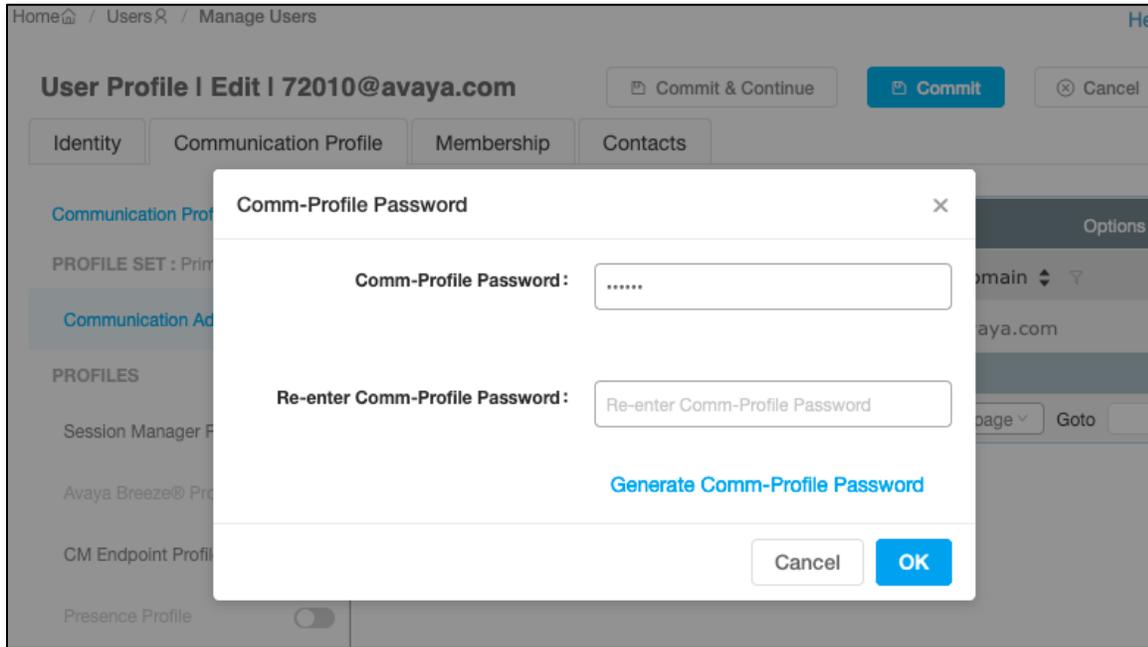
- **First Name** and **Last Name** - Enter an identifying name
- **Login Name** Enter the extension number followed by the domain, in this case **72010@avaya.com**

The screenshot shows the 'User Profile | Edit | 72010@avaya.com' interface. At the top right, there are buttons for 'Commit & Continue', 'Commit', and 'Cancel'. Below the title bar, there are tabs for 'Identity', 'Communication Profile', 'Membership', and 'Contacts'. The 'Identity' tab is active, and a sidebar on the left shows 'Basic Info', 'Address', and 'LocalizedName'. The main content area contains the following fields:

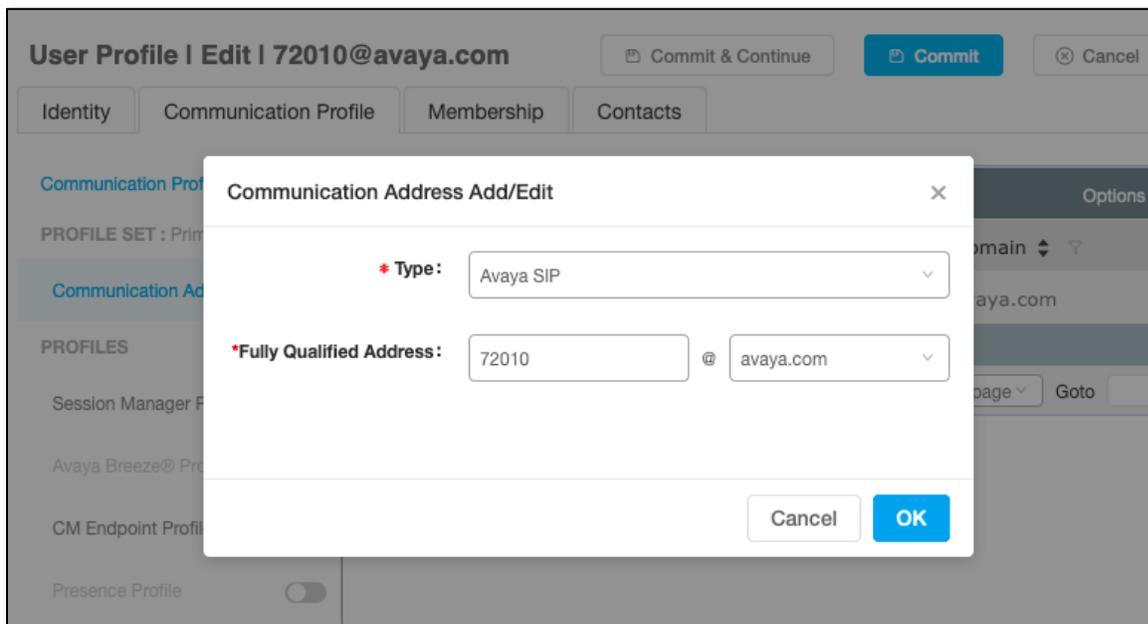
- User Provisioning Rule: [Dropdown]
- * Last Name: [Text: BA]
- * First Name: [Text: IX]
- * Login Name: [Text: 72010@avaya.com]
- Description: [Text: Description Of User]
- Password: [Text:]
- Confirm Password: [Text:]
- Endpoint Display Name: [Text: IX-BA]
- Language Preference: [Dropdown: English (United States)]
- Employee ID: [Text: Employee Id Of User]
- Company: [Text: Company Of User]
- Last Name (in Latin alphabet characters): [Text: BA]
- First Name (in Latin alphabet characters): [Text: IX]
- Middle Name: [Text: Middle Name Of User]
- Email Address: [Text: Email Address Of User]
- User Type: [Dropdown: Basic]
- Localized Display Name: [Text: IX-BA]
- Title Of User: [Text: Title Of User]
- Time Zone: [Dropdown]
- Department: [Text: Department Of User]

Note in this and subsequent steps, press **Commit & Continue** after making entries or selections.

Click the **Communication Profile** tab and in the **Communication Profile Password** and **Confirm Password** fields, enter a numeric password. This will be used to register the device during login.



In the **Communication Address** section, for **Type** select **Avaya SIP** from the drop-down list. In the **Fully Qualified Address** field enter the extension number as required and select the appropriate **Domain** from the drop-down list. Click **OK** when done.



Click on the **Session Manager Profile** link and configure the **Primary Session Manager, Max Simultaneous Devices, Origination Application Sequence, Termination Application Sequence** and **Home Location**, from the respective drop-down lists.

Communication Profile Password

PROFILE SET : Primary

Communication Address

PROFILES

- Session Manager Profile
- Avaya Breeze® Profile
- CM Endpoint Profile
- Presence Profile

SIP Registration

• Primary Session Manager: sm81

Secondary Session Manager: Start typing...

Survivability Server: Start typing...

Max. Simultaneous Devices: 2

Block New Registration When Maximum Registrations

Application Sequences

Origination Sequence: cm81

Termination Sequence: cm81

Emergency Calling Application Sequences

Emergency Calling Origination Sequence: Select

Emergency Calling Termination Sequence: Select

Call Routing Settings

• Home Location: DevConnect

Click the **CM Endpoint Profile** link and configure as follows:

- **System** - Select the relevant Communication Manager SIP Entity from the drop-down list
- **Profile Type** - Select **Endpoint** from the drop-down list
- **Extension** - Enter the required extension number, in this case **72010**
- **Template** - Select **J129_DEFAULT_CM_8_1** from the drop-down list
- **Port** - The “IP” is auto filled out by the system

Click on **Endpoint Editor** in the Extension field to edit Communication Manager settings if desired.

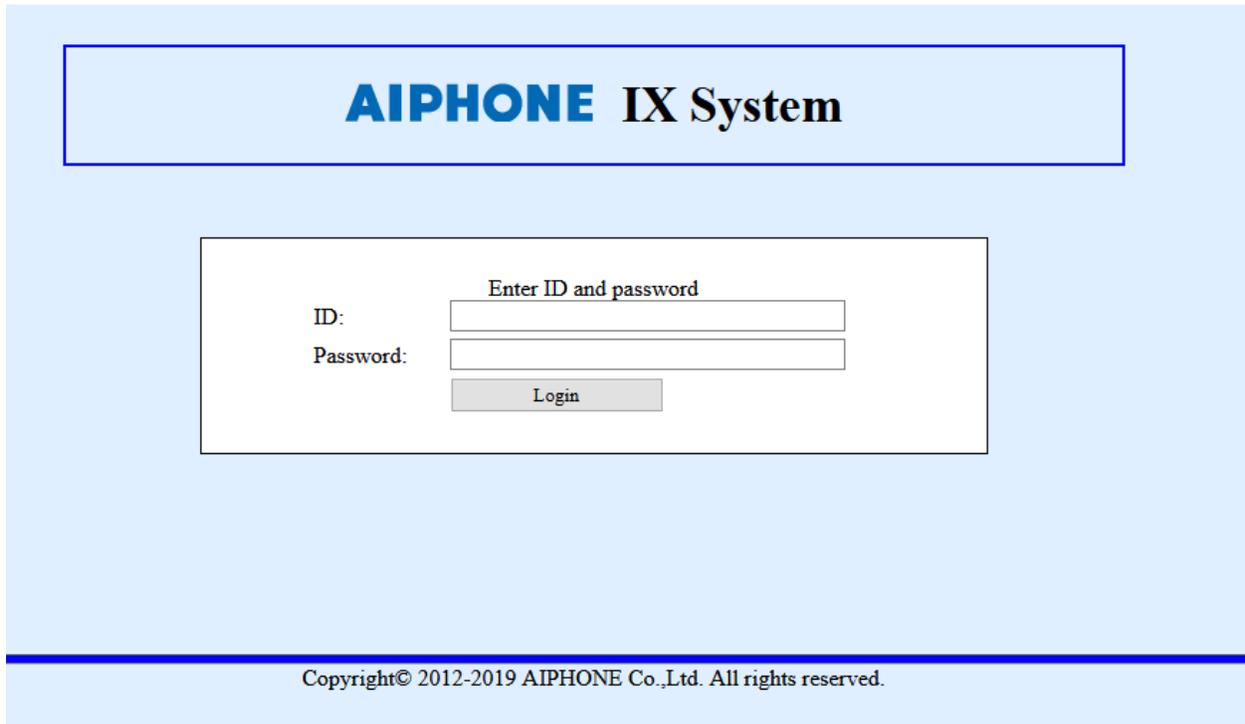
The screenshot displays the 'User Profile | Edit | 72010@avaya.com' interface. The 'Communication Profile' tab is active, showing a left-hand navigation pane with 'CM Endpoint Profile' selected. The main area contains the following fields and options:

- System:** cm81
- Profile Type:** Endpoint
- Extension:** 72010 (with an 'Endpoint Editor' icon)
- Set Type:** J129
- Port:** S000087
- Preferred Handle:** Select
- Sip Trunk:** aar
- System:** cm81
- Profile Type:** Endpoint
- Extension:** 72010
- Set Type:** J129
- Port:** S000087
- Preferred Handle:** Select
- Sip Trunk:** aar
- Enhanced Call-Info Display for 1-line phones:**
- Override Endpoint Name and Localized Name:**
- Use Existing Endpoints:**
- Template:** Start typing...
- Security Code:** Enter Security Code
- Calculate Route Pattern:**
- SIP URI:** Select
- Delete on Unassign from User or on Delete User:**
- Allow H.323 and SIP Endpoint Dual Registration:**

7. Configure Aiphone IX Series Audio Door Station

This section provides steps to configure Aiphone IX-BA.

To configure Aiphone IX-BA, using a web browser, navigate to **Error! Hyperlink reference not valid.** [Address of IX-BA>/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 6.2**), and a desired **Name**. Select **Update** to save changes.

AIPHONE IX System Setting
Station Type: Audio Only Door Station

Station Information

• **Identification**

Number: 3-5 digits
 Name: 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 6.2**.
- **Password:** SIP Extension password from **Section 6.2**.
- **IPv4 Address:** LAN IP Address of Session Manager.
- **Port:** Set to **5060**.

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

AIPHONE IX System Setting
Station Type: Audio Only Door Station

Network Settings

• **SIP**

SIP Connections

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

SIP Server

Primary Server

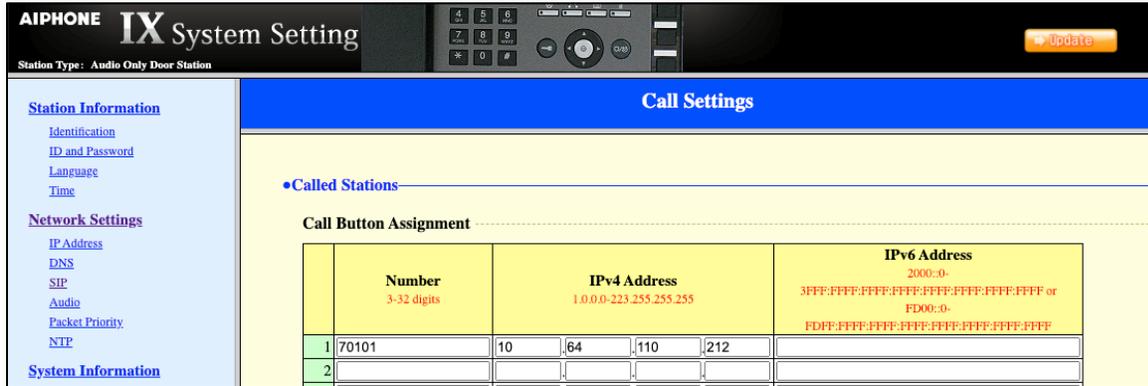
ID: 1-24 alphanumeric characters
 Password: 1-24 alphanumeric characters
 IPv4 Address: 1.0.0.0-223.255.255.255
 IPv6 Address: ::FF:0-FE:FF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF
 Port: 1-65535

[Update](#)

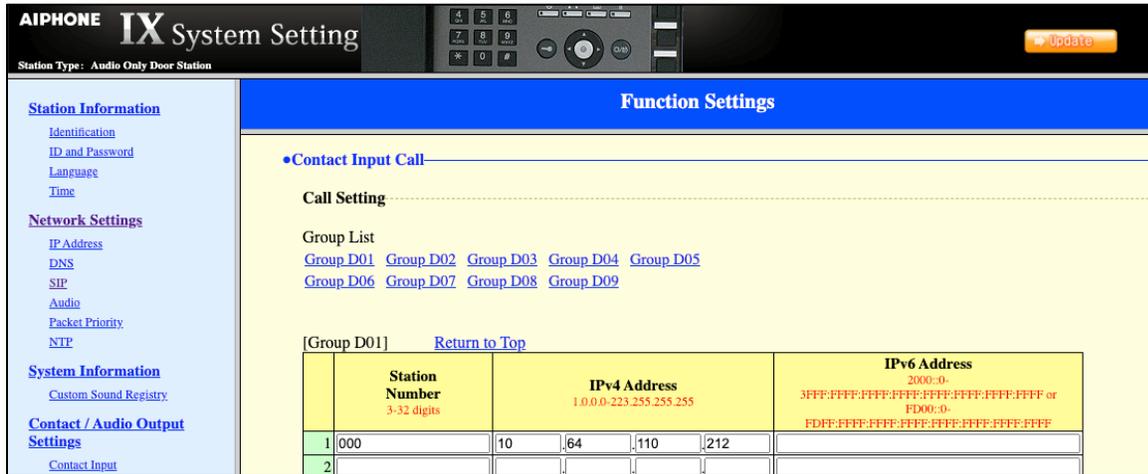
From the left, select **Call Settings** → **Called Stations** and configure as follows:
 The numbers configured here will be dialed when the button on the IX-BA is pressed.

- **Station Number:** Type in an extension number that will be called for a given line.
- **IPv4:** Type in the LAN IP Address for Session Manager.

Select **Update** to save changes.



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



8. Verification Steps

The following steps may be used to verify the configuration:

- In the System Manager web interface, navigate to Elements → Session Manager → System Status → User Registrations to confirm successful registration.

The screenshot shows the Avaya Aura System Manager 8.1 web interface. The main content area is titled "User Registrations" and contains a table with the following data:

View	Default	Export	AST Device Notifications:				Reboot	Reload	Fallback	As of 5:19 PM	Registered		
			Force Unregister	AST Device	Prim	Sec					Surv		
<input type="checkbox"/>	Show	---	User 2	AudioCodes	---	---	<input type="checkbox"/>	<input type="checkbox"/>	0/1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	70101@avaya.com	SIP	Station 1	---	192.168.4.130	<input type="checkbox"/>	<input type="checkbox"/>	1/2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	70104@avaya.com	SIP	Station 4	---	192.168.4.142	<input type="checkbox"/>	<input type="checkbox"/>	1/3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	70105@avaya.com	SIP	Station 5	---	192.168.5.4	<input type="checkbox"/>	<input type="checkbox"/>	1/3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	70106@avaya.com	SIP	Station 6	---	192.168.5.6	<input type="checkbox"/>	<input type="checkbox"/>	1/3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	72000@avaya.com	IX	MV7	---	192.168.4.131	<input type="checkbox"/>	<input type="checkbox"/>	1/2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Show	72010@avaya.com	IX	BA	---	192.168.4.135	<input type="checkbox"/>	<input type="checkbox"/>	1/2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Place a call from Aiphone IX-BA to an Avaya endpoint. The state of the call be viewed on Communication Manager using the **status trunk** command in a SAT Terminal session:

```
status trunk 1

                                TRUNK GROUP STATUS

Member      Port      Service State      Mtce Connected Ports
                               Busy

0001/0001 T000001 in-service/active no    T000002
0001/0002 T000002 in-service/active no    T000001
0001/0003 T000003 in-service/idle   no
0001/0004 T000004 in-service/idle   no
```

To view the status of the endpoints connected to the SIP Trunk, and codecs in use, use **status trunk 1/0001** where /0001 is a trunk port connected to the call.

```
status trunk 1/0001                                     Page 4 of 4

                                SRC PORT TO DEST PORT TALKPATH

src port: T000001
T000007:TX:192.168.4.130:40750/g711u/20ms
001V062:RX:10.64.50.54:2054/g711u/20ms:TX:ctxID:542
001V061:RX:ctxID:542:TX:10.64.50.54:2056/g711u/20ms
T000001:RX:192.168.4.135:20000/g711u/20ms
```

9. Conclusion

Aiphone IX-BA was compliance tested with Avaya Aura[®]. Aiphone IX-BA functioned properly for feature and serviceability.

10. Additional References

Avaya product documentation can be found at: <http://support.avaya.com>

Documentation related to Aiphone IX-BA can be found at:

Japan: <https://www.aiphone.co.jp/products/business/ix/>

USA, Canada: <https://www.aiphone.com/home/products/ix-series>

France: <https://www.aiphone.fr/catalogue/interphonie-ip-protocole-sip-ix/>

Australia, New Zealand: <https://www.aiphone.com.au/product/ix/>

Singapore: <http://www.aiphone.com.sg/>

United Kingdom: https://www.aiphone.co.uk/featured_item/ix2/

Appendix A

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

- IX-BA
- IXBA
- IXBAF
- IXBAFBK
- IXBAFR
- IXBAFT
- IXBAFBM
- IXBAFTBM
- IXBAFCV
- IXBAFCVBM
- IXBAF2BM
- IXBAF4BM
- IXBAF6BM

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

- IX-BA
 - Surface mounting
- IXBA
 - Surface mounting
- IXBAF
 - Flush mounting
- IXBAFBK
 - Flush mounting
 - Black color panel
- IXBAFR
 - Flush mounting
 - Red color panel
- IXBAFT
 - Flush mounting
 - Card reader
- IXBAFBM
 - Flush mounting
 - Hearing aid
- IXBAFTBM
 - Flush mounting
 - Card reader
 - Hearing aid
- IXBAFCV
 - Flush mounting
 - 10-key pad
- IXBAFCVBM
 - Flush mounting

- Card reader
 - Hearing aid
 - 10-key pad
- IXBAF2BM
 - Flush mounting
 - Hearing aid
 - 2 call buttons
- IXBAF4BM
 - Flush mounting
 - Hearing aid
 - 4 call buttons
- IXBAF6BM
 - Flush mounting
 - Hearing aid
 - 6 call buttons

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