Avaya Solution & Interoperability Test Lab

Application Notes for Aiphone IX Series Video Door Stations (IX-DV) 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 Video Door Stations (IX-DV) 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 Video Door Stations (IX-DV) functionalities in an environment comprised of Avaya Aura® 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 to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. During the compliance testing, Aiphone IX-DV was used.

The Aiphone IX Series Video Door Stations (IX-DV) are part of Aiphone IX Series Door Stations. The Video Door Stations, IX-DV, act as SIP phones when connected to Avaya Aura®. The Video 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-DV 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-DV can register as a SIP endpoint on Session Manager, and is able to originate and receive audio and video 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-DV, and exercise basic telephone operations. The main objectives were to verify the following:

- Registration
- Calls to Avaya SIP Audio & Video 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-DV, 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-DV.

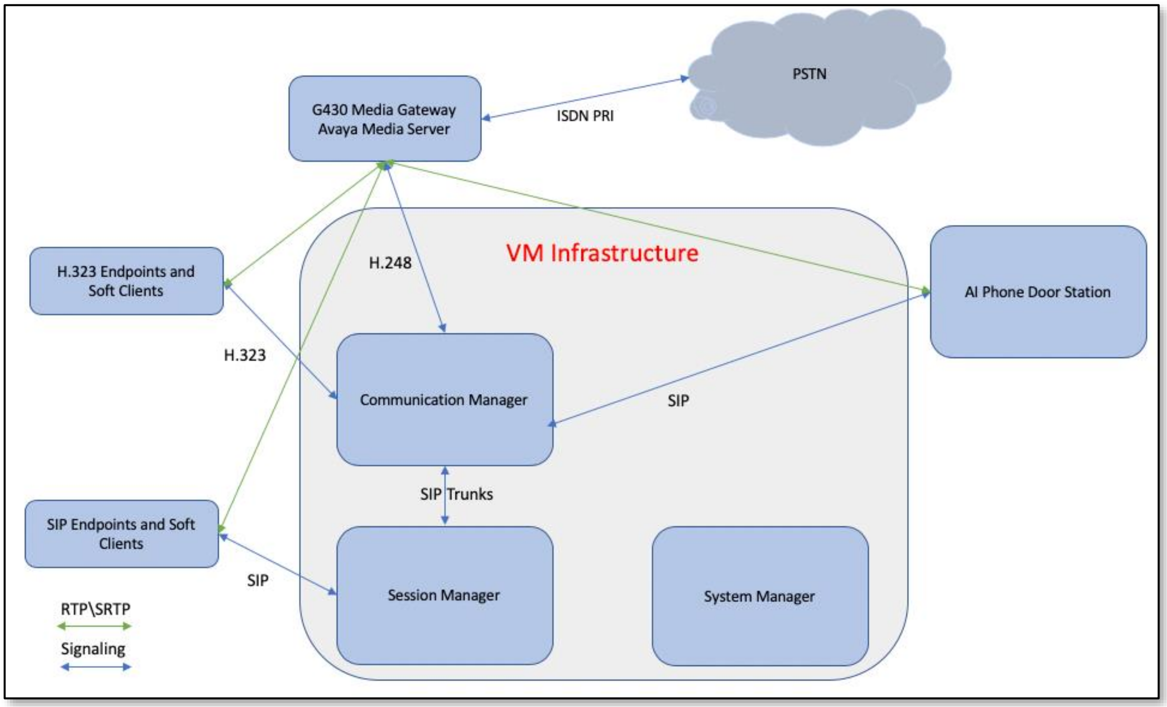


Figure 1: Test Configuration of Aiphone IX-DV with Avaya Aura®

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 Video Door Station IX-DV	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
- Enable IP Video

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                      Page   2 of 12
                                OPTIONAL FEATURES

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                                        Page   1 of  12
                             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
```

5.3. Enable IP Video

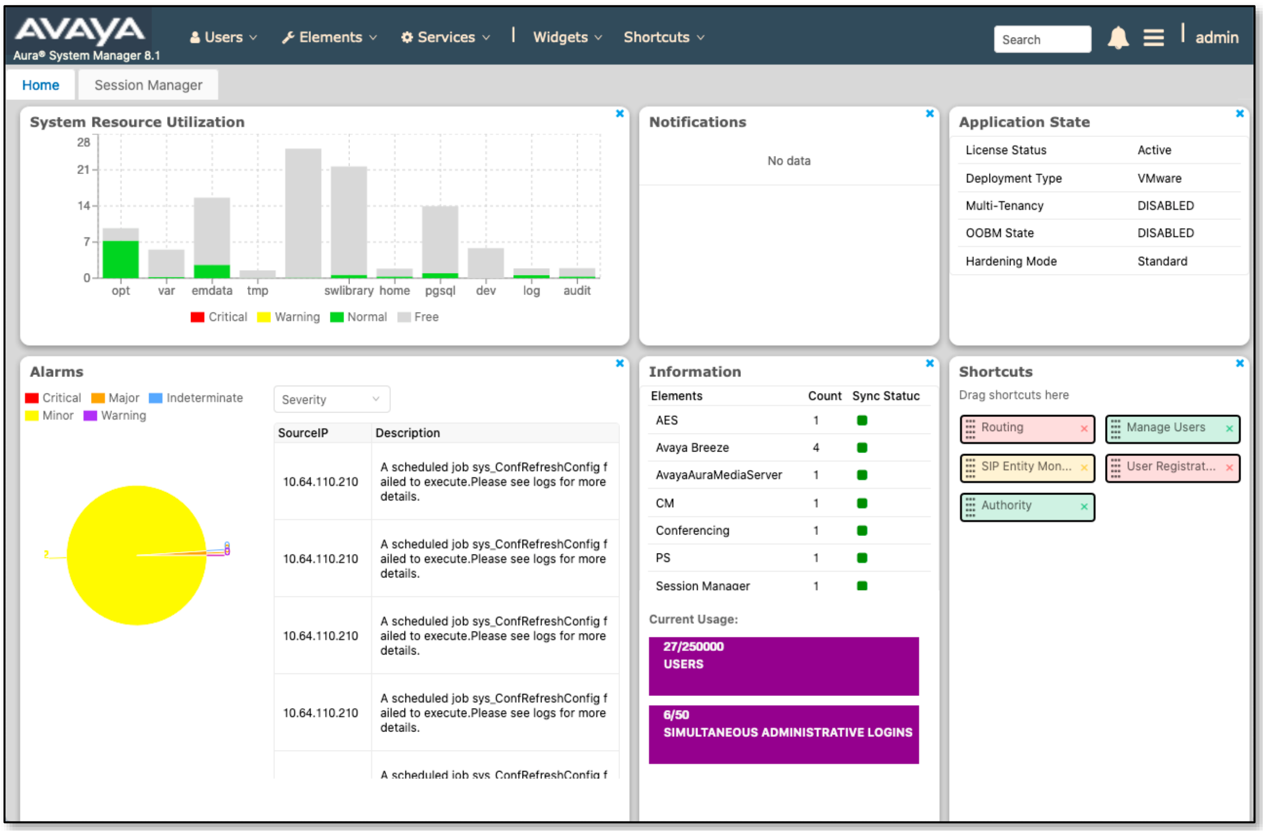
Use the **change signaling-group** command to enable IP video in the system.

```
change signaling-group 1                                        Page   1 of   3
                                SIGNALING GROUP

 Group Number: 1              Group Type: sip
  IMS Enabled? n        Transport Method: tls
        Q-SIP? n
     IP Video? y          Priority Video? n        Enforce SIPS URI for SRTP? n
  Peer Detection Enabled? y  Peer Server: SM                       Clustered? n
 Prepend '+' to Outgoing Calling/Alerting/Diverting/Connected Public Numbers? y
Remove '+' from Incoming Called/Calling/Alerting/Diverting/Connected Numbers? n
Alert Incoming SIP Crisis Calls? n
   Near-end Node Name: procr                 Far-end Node Name: sm81
 Near-end Listen Port: 5061                Far-end Listen Port: 5061
                                        Far-end Network Region: 1

Far-end Domain: avaya.com
                                             Bypass If IP Threshold Exceeded? n
Incoming Dialog Loopbacks: eliminate                  RFC 3389 Comfort Noise? n
         DTMF over IP: rtp-payload             Direct IP-IP Audio Connections? n
Session Establishment Timer(min): 65                    IP Audio Hairpinning? y
         Enable Layer 3 Test? y
                                                  Alternate Route Timer(sec): 6
```

6. Configure Avaya Aura® Session Manager

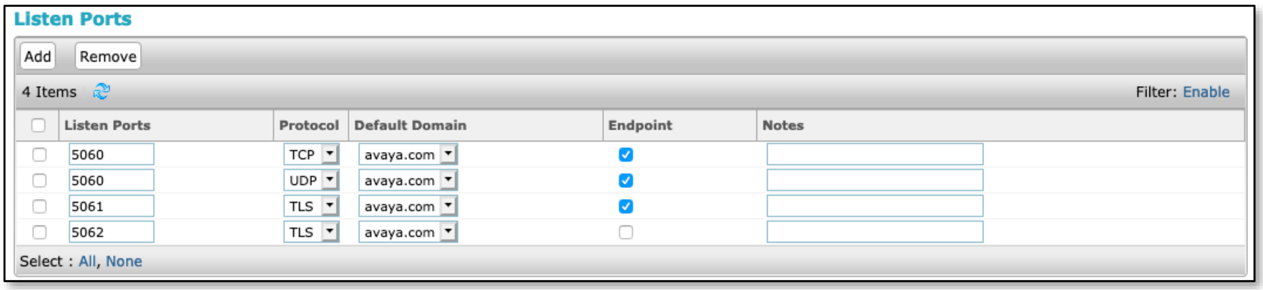
This section describes aspects of the Session Manager configuration required for interoperating with Aiphone IX-DV. It is assumed that the Domains, Locations, SIP entities, Entity Links, Routing Policies, Dial Patterns and Application Sequences have been configured where appropriate for Communication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

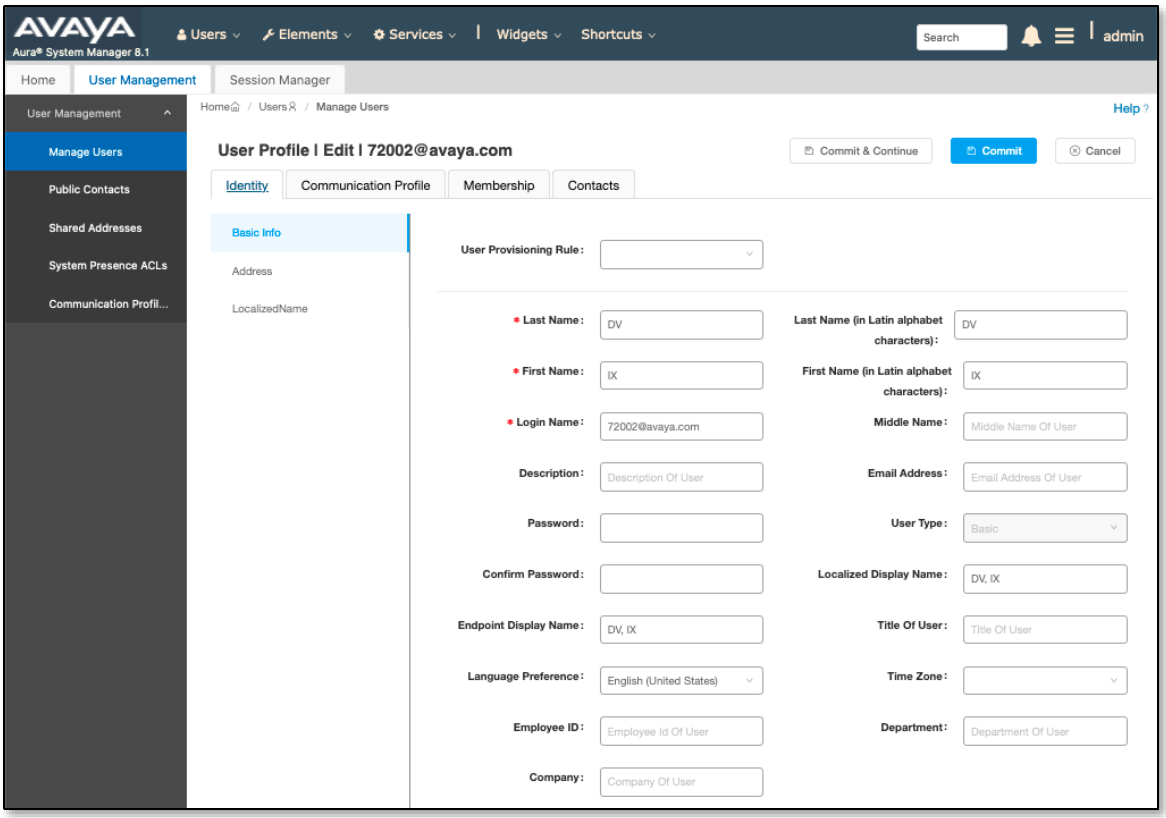
Each Session Manager Entity must be configured so that SIP endpoint can register to it using UDP, TCP, or TLS. From the web interface click **Routing → SIP Entities** (not shown) and select the Session Manager entity used for registration. In the compliance test, **TCP** and **UDP** listen ports were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



6.2. Add a SIP User

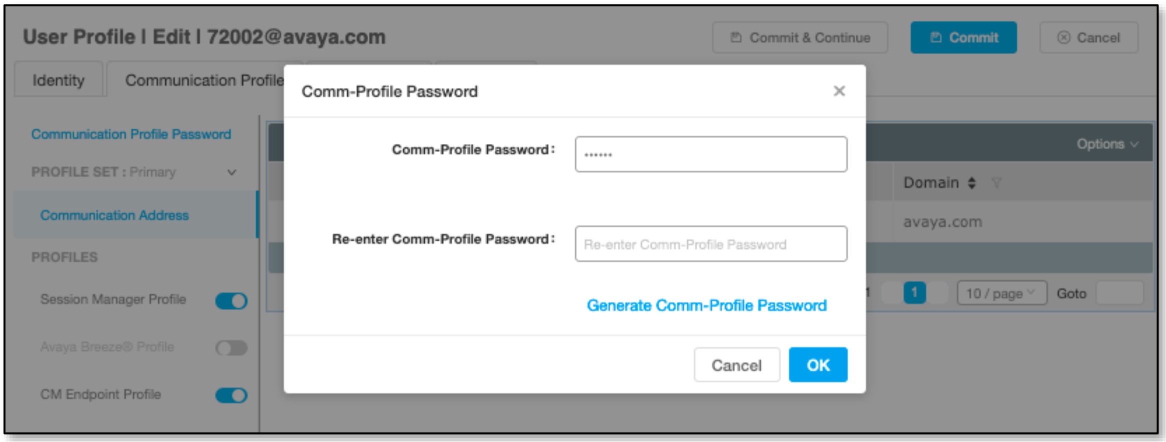
A SIP user must be added for Aiphone IX-DV. Click **User Management** → **Manage Users** → **New** (not shown) and configure the following in the **Identity** tab.

- **First Name** and **Last Name -** Enter an identifying name
- **Login Name** Enter the extension number followed by the domain, in this case **72002@avaya.com**

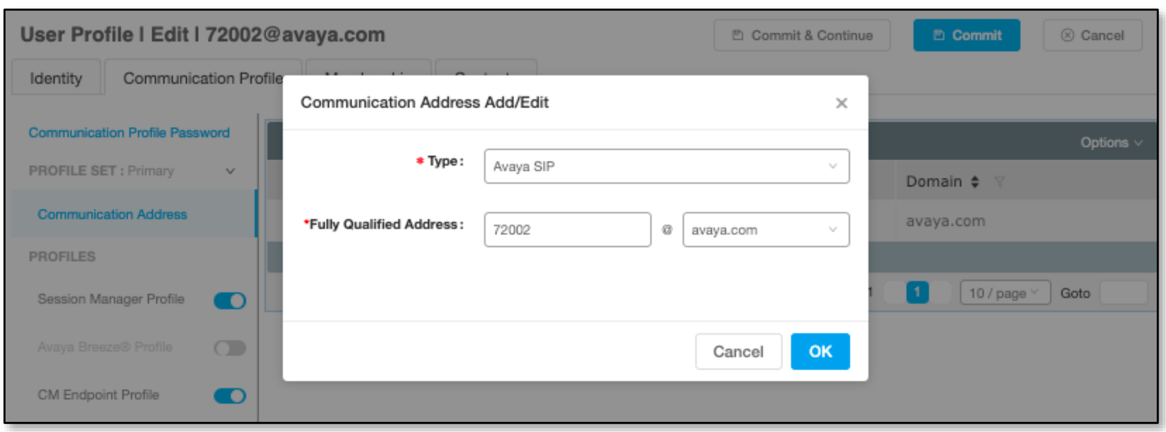


Note in this and subsequent steps, press **Commit & Continue** after making entries or selections.

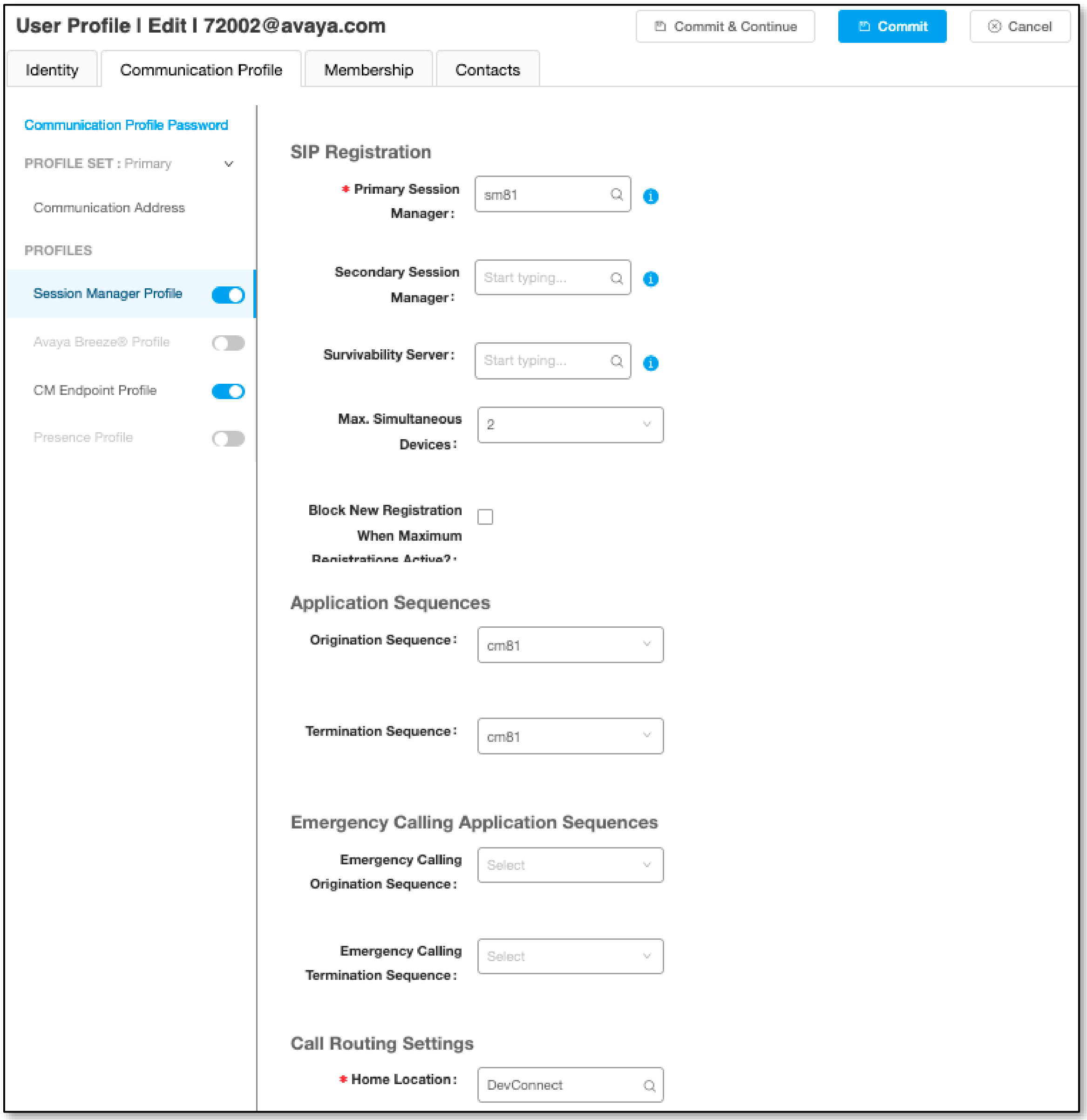
Click the **Communication Profile** tab and in the **Communication Profile Password** and **Confirm Password** fields, enter a numeric password. This will be used to register the device during login.



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.



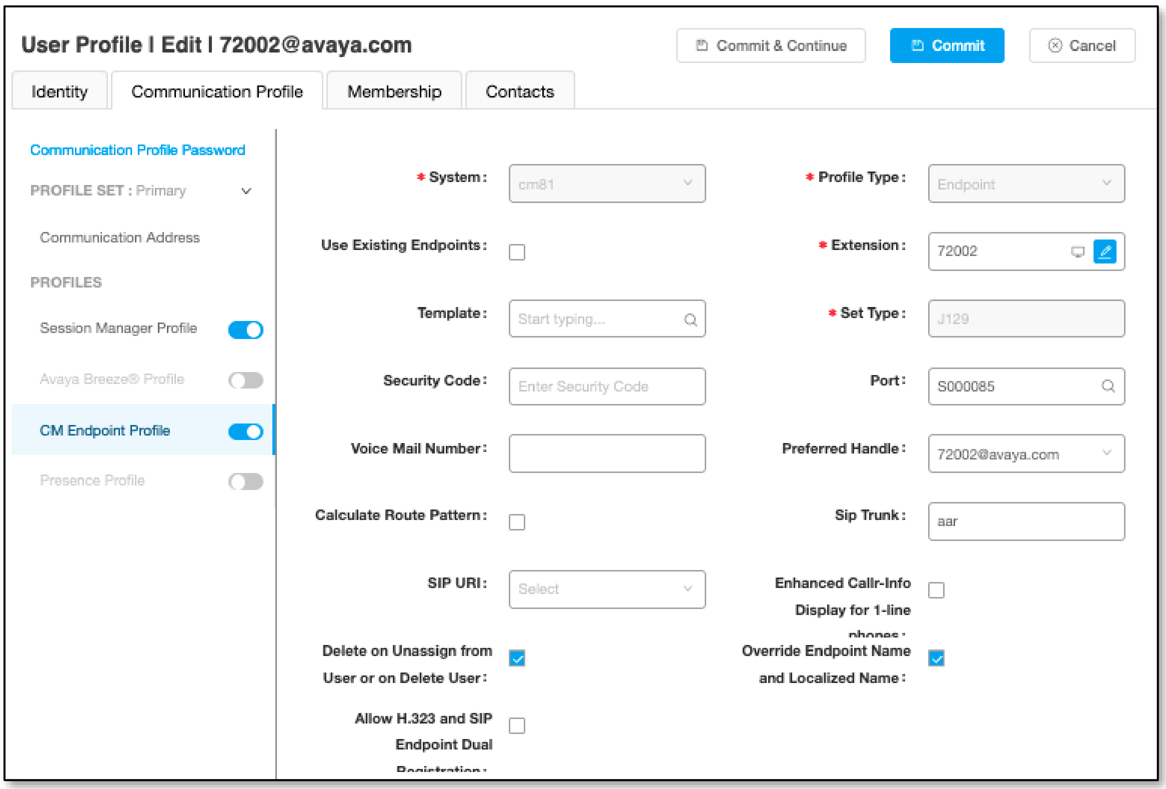
Click on the **Session Manager Profile link** and configure the **Primary Session Manager, Max Simultaneous Devices, Origination Application Sequence, Termination Application Sequence** and **Home Location,** from the respective drop-down lists.



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 **72002**
- **Template -** Select **J129_DEFAULT_CM_8_1** from the drop-down list
- **Port -** The “IP” is auto filled out by the system

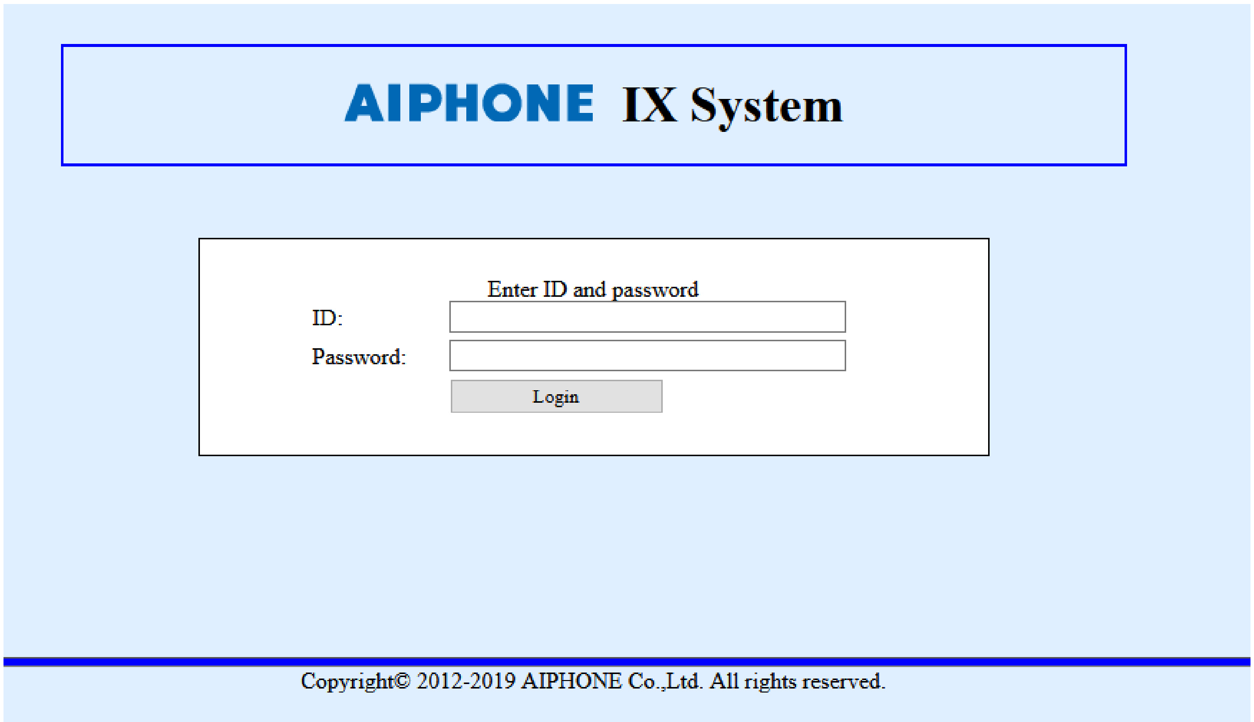
  Click on **Endpoint Editor** in the Extension field to edit Communication Manager settings if desired.



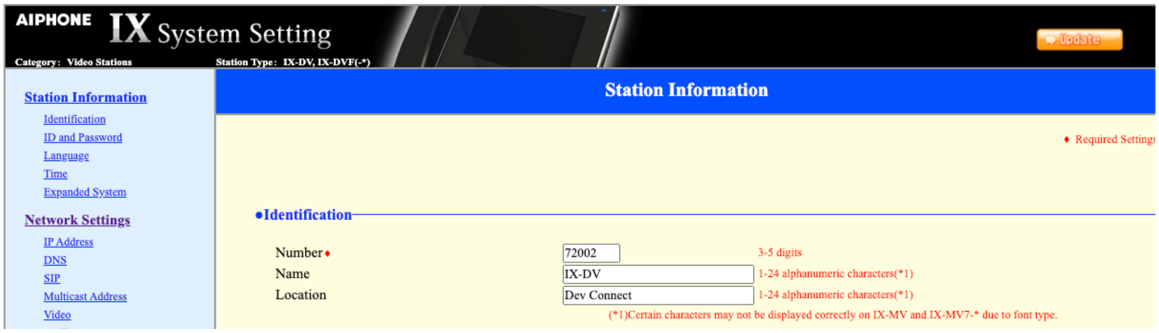
7. Configure Aiphone IX Series Video Door Station

This section provides steps to configure Aiphone IX-DV.

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



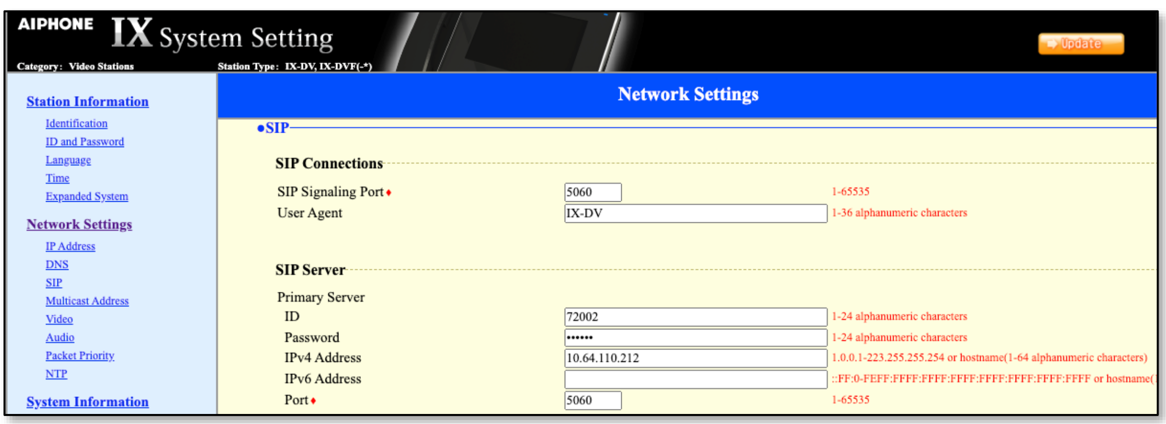
Once logged in, for the **Number** field, type in the SIP extension that is being configured (from **Section 6.2**), and a desired **Name.** Select **Update** to save changes.



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**.

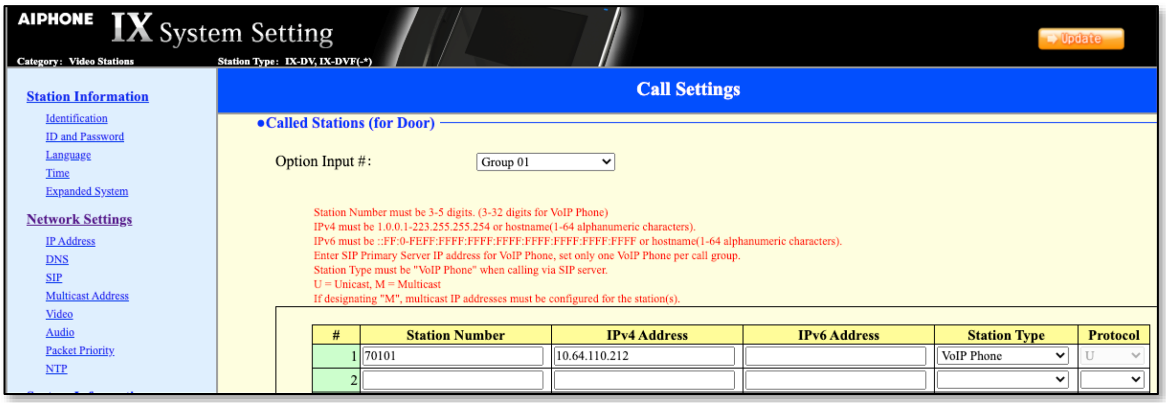
Once done, select **Update** to save changes.



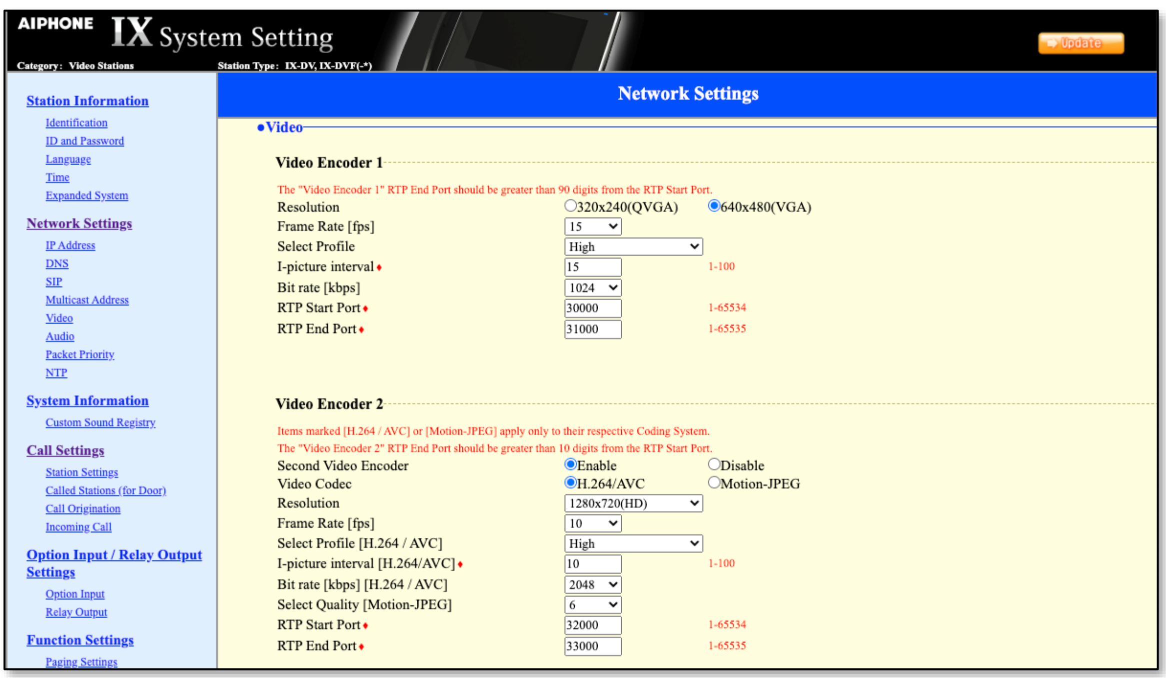
From the left, select **Call Settings → Called Stations** and configure as follows:
The numbers configured here will be dialed when the button on the IX-DV is pressed.

- **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.



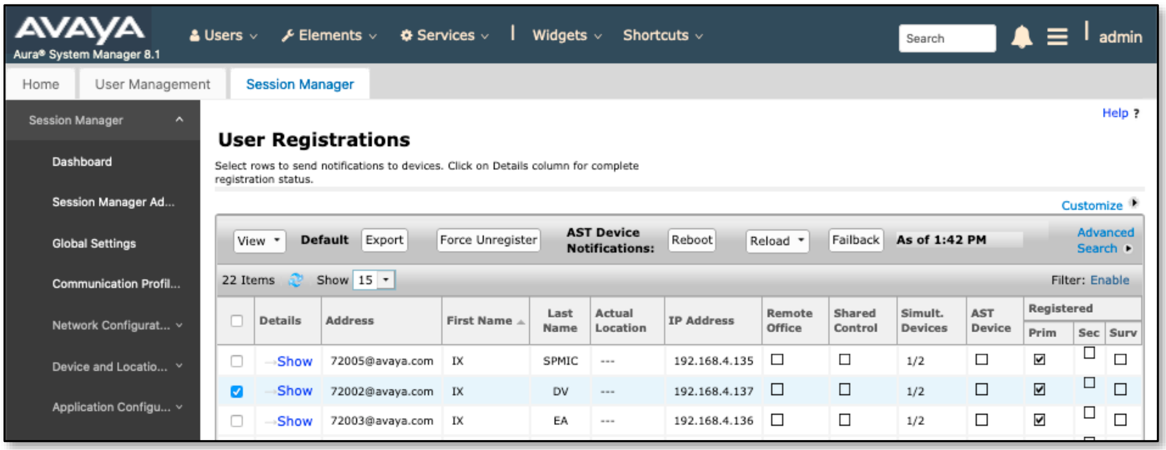
Continuing from above, scroll down to the **Video** sub section and verify the Video Encoder settings are as shown below.



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.



Place a call from Aiphone IX-DV 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    T000007
0001/0002 T000002 in-service/idle      no
0001/0003 T000003 in-service/idle      no
0001/0004 T000004 in-service/idle      no
0001/0005 T000005 in-service/idle      no
0001/0006 T000006 in-service/idle      no
0001/0007 T000007 in-service/active    no    T000001
```

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:192.168.4.137:20000/g711u/20ms
```

To verify video codecs used, scroll to page 2 and note the Video Near-end Codec and Video Far-end Codec and highlighted below.

```
status trunk 1/0007                                       Page   2 of   4
                                CALL CONTROL SIGNALING

Near-end Signaling Loc: PROCR
  Signaling    IP Address                                  Port
   Near-end:   10.64.110.213                             : 5061
    Far-end:   10.64.110.212                             : 5061
 H.245 Near:
  H.245 Far:
   H.245 Signaling Loc:          H.245 Tunneled in Q.931? no

 Audio Connection Type: ip-tdm        Authentication Type: None
    Near-end Audio Loc: MG1                    Codec Type: G.711MU
   Audio       IP Address                                  Port
   Near-end:   10.64.50.54                               : 2054
    Far-end:   192.168.4.130                             : 40750

 Video Near:   192.168.4.137                             : 30000
  Video Far:   192.168.4.130                             : 45752
 Video Port:   T000007
  Video Near-end Codec:     H.264     Video Far-end Codec: H.264
```

9. Conclusion

Aiphone IX-DV was compliance tested with Avaya Aura®. Aiphone IX-DV 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-DV 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-DV:

- IX-DV
- IX-DVF
- IX-DVF-P
- IX-DVF-RA
- IX-DVF-2RA
- IX-DVF-RA-FR
- IX-DVF-2RA-FR
- IX-DVF-4
- IXDVFL
- IXDVFLAC
- IXDVF2L
- IXDVF2LAC
- IXDVF4L
- IXDVF4LAC
- IXDVF6L
- IXDVF6LAC
- IXDVFA
- IX-4DVF
- IX-2DVF
- IX-DVF Slim
- IX-DVF-AC

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

- IX-DV
    - Surface mounting
- IX-DVF
    - Flush mounting
- IX-DVF-P
    - Flush mounting
    - Card reader
- IX-DVF-RA
    - Flush mounting
    - Emergency call button
- IX-DVF-2RA
    - Flush mounting
    - Normal call button and emergency call button
- IX-DVF-RA-FR
    - Flush mounting
    - Emergency call button
    - French notation
- IX-DVF-2RA-FR

    - Flush mounting
    - Normal call button and emergency call button
    - French notation
- IX-DVF-4
    - Flush mounting
    - 4 call buttons
- IXDVFL
    - Flush mounting
    - Hearing aid
- IXDVFLAC
    - Flush mounting
    - Hearing aid
    - 10-key pad
- IXDVF2L
    - Flush mounting
    - Hearing aid
    - 2 call buttons
- IXDVF2LAC
    - Flush mounting
    - Hearing aid
    - 2 call buttons
    - 0-key pad
- IXDVF4L
    - Flush mounting
    - 4 call buttons
- IXDVF4LAC
    - Flush mounting
    - 4 call buttons
    - 10-key pad
- IXDVF6L
    - Flush mounting
    - 6 call buttons
- IXDVF6LAC
    - Flush mounting
    - 6 call buttons
    - 10-key pad
- IXDVFA
    - Flush mounting
- IX-4DVF
    - Flush mounting
    - 4 piezo buttons
- IX-2DVF
    - Flush mounting
    - 2 piezo buttons
- IX-DVF Slim

    - Flush mounting
    - Miniaturized panel
- IX-DVF-AC
    - Flush mounting
    - 10-key pad

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.