Avaya Solution & Interoperability Test Lab

Application Notes for Phybridge UniPhyer with Avaya Aura™ Communication Manager and Avaya Aura™ SIP Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Phybridge UniPhyer LAN appliance to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ SIP Enablement Services. In the compliance testing, Phybridge UniPhyer leveraged the existing single-pair telephony wiring to provide dedicated Ethernet voice path and Power over Ethernet to Avaya IP Telephones connected to Avaya Aura™ Communication Manager and Avaya Aura™ SIP Enablement Services.

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 the Phybridge UniPhyer LAN appliance to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ SIP Enablement Services.

In the compliance testing, three analog telephones on Avaya Aura™ Communication Manager were replaced with Avaya IP Telephones. The existing RJ11 cabling for the analog connections were reused by Phybridge UniPhyer to connect to the new Avaya IP Telephones, and to provide dedicated Ethernet voice path and Power over Ethernet.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included firmware download, registration, audio codec, media shuffling, basic call, hold/reconnect, conference, transfer, display, call forwarding, DTMF, button activation/deactivation, feature access code activation/deactivation, and message waiting lamp scenarios.

The serviceability testing focused on verifying the ability of Phybridge UniPhyer to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cables to Phybridge UniPhyer and to Avaya IP Telephones.

1.2. Support

Technical support on Phybridge UniPhyer can be obtained through the following:

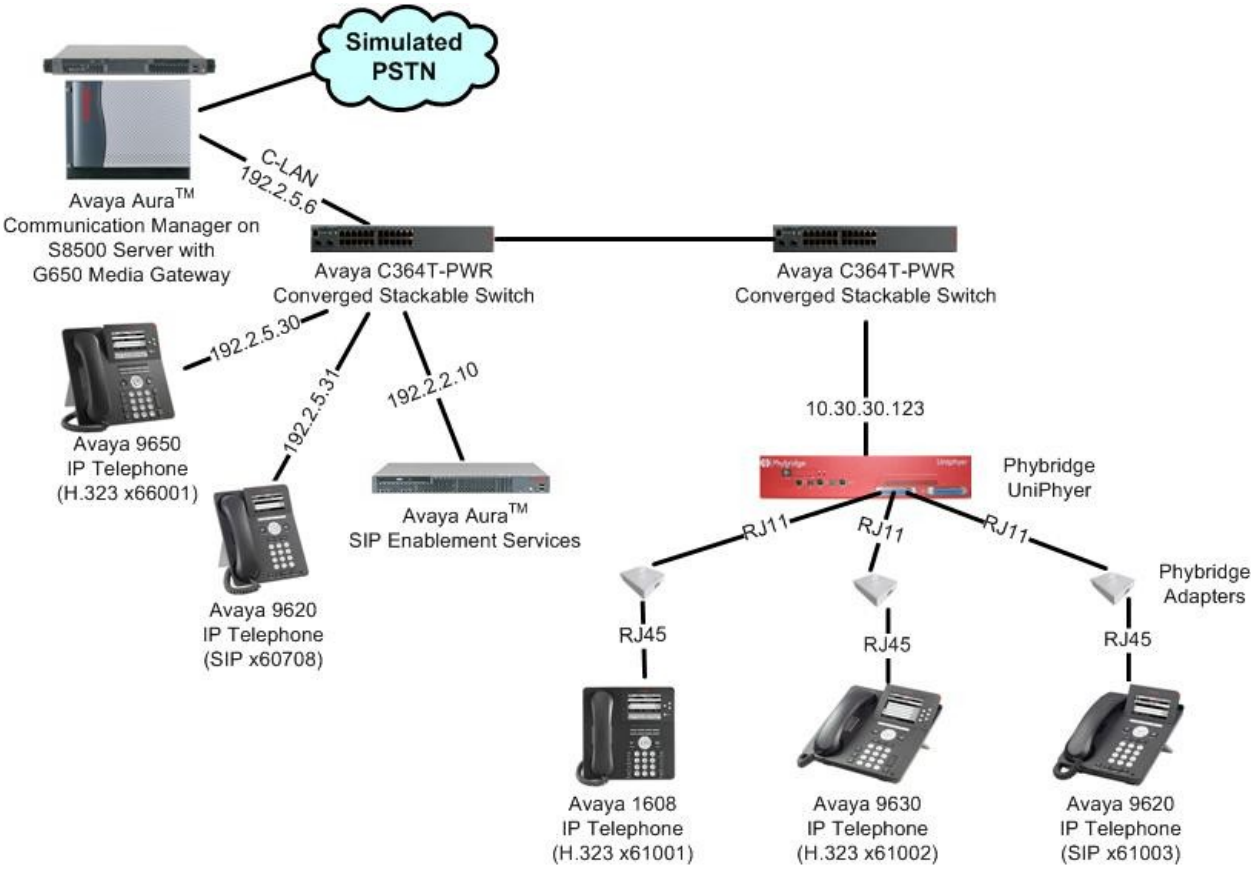
- **Phone:** (888) 901-3633
- **Email:** techsupport@phybridge.com

2. Reference Configuration

In the test configuration shown below, three analog telephones on Communication Manager were replaced with Avaya IP Telephones by leveraging the existing RJ11 cabling. For each station user, one end of the RJ11 cable was changed to connect to Phybridge UniPhyer instead of Communication Manager, and the other end of the RJ11 cable was connected to a Phybridge Adapter. For each Phybridge Adapter, there was a RJ45 cable connection to an Avaya IP Telephone.

In the compliance testing, two of the Avaya IP Telephones were provisioned with H.323 and registered to Communication Manager, and the other Avaya IP Telephone was provisioned with SIP and registered to Avaya Aura™ SIP Enablement Services.

The Phybridge UniPhyer provided power to the connected Avaya IP Telephones, and acted as a straight pass through and transparent to these Avaya IP Telephones in terms of the telephones' network settings.



3. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya Aura™ Communication Manager on Avaya S8500 Server	R015x.02.0.947.3
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack	 HW01 FW017
Avaya Aura™ SIP Enablement Services	SES-5.2.0.0-947.3a
Avaya 1608 IP Telephone (H.323)	1.2
Avaya 9600 Series IP Telephones (H.323)	3.0
Avaya 9620 IP Telephones (SIP)	2.4.1
Phybridge UniPhyer	0.78B03
Phybridge Adapters	007-001 Rev 2

4. Configure Avaya Aura™ Communication Manager

This section provides the procedures for configuring Avaya Aura™ Communication Manager. The procedures fall into the following areas:

- Pre-configuration
- Verify Communication Manager license
- Modify stations
- Administer off-PBX

The detailed administration of basic connectivity between Communication Manager and SIP Enablement Services is not the focus of these Application Notes and will not be described.

4.1. Pre-Configuration

Log in to the System Access Terminal (SAT). Prior to start of test, three analog stations were connected to Communication Manager, as shown below.

```
list station 61002 count 3

                                STATIONS

Ext/          Port/   Name/                       Room/         Cv1/ COR/ Cable/
 Hunt-to       Type       Surv GK NN        Move    Data Ext      Cv2  COS  Jack

61001         01A0901 Phybridge User #1                            1
               2500                         no                     1
61002         01A0902 Phybridge User #2                            1
               2500                         no                     1
61003         01A0903 Phybridge User #3                            1
               2500                         no                     1
```

4.2. Verify Communication Manager License

Use the "display system-parameters customer-options" command to verify that there is sufficient capacity for SIP stations by comparing the **Maximum Off-PBX Telephones - OPS** field value with the corresponding value in the **USED** column. In the compliance testing, one analog station was changed over to a SIP station.

```
display system-parameters customer-options                    Page   1 of  11
                              OPTIONAL FEATURES

     G3 Version: V15                            Software Package: Standard
       Location: 1                           RFA System ID (SID): 1
       Platform: 12                          RFA Module ID (MID): 1

                                                          USED
                                 Platform Maximum Ports: 3200  234
                                       Maximum Stations: 2400  173
                                Maximum XMOBILE Stations: 0     0
                      Maximum Off-PBX Telephones - EC500: 0     0
                      Maximum Off-PBX Telephones -   OPS: 100   6
                      Maximum Off-PBX Telephones - PBFMC: 0     0
```

Navigate to **Page 2**, and verify that there is sufficient capacity for IP stations by comparing the **Maximum Concurrently Registered IP Stations** field values. In the compliance testing, two analog stations were changed over to H.323 stations.

```
display system-parameters customer-options                    Page   2 of  11
                              OPTIONAL FEATURES

IP PORT CAPACITIES                                        USED
                     Maximum Administered H.323 Trunks: 100   6
           Maximum Concurrently Registered IP Stations: 18000 2
             Maximum Administered Remote Office Trunks: 8000  0
Maximum Concurrently Registered Remote Office Stations: 18000 0
              Maximum Concurrently Registered IP eCons: 10    0
  Max Concur Registered Unauthenticated H.323 Stations: 10    0
                   Maximum Video Capable H.323 Stations: 100   0
                    Maximum Video Capable IP Softphones: 100   0
                        Maximum Administered SIP Trunks: 10    10
  Maximum Administered Ad-hoc Video Conferencing Ports: 0     0
   Maximum Number of DS1 Boards with Echo Cancellation: 0     0
                             Maximum TN2501 VAL Boards: 10    0
                     Maximum Media Gateway VAL Sources: 10    0
```

4.3. Modify Stations

After installation of Phybridge UniPhyer, each analog telephone was replaced with an Avaya IP Telephone, and the RJ11 cable was reconnected as described in **Section 2**. This section modifies the station type for each user to match the new Avaya IP Telephone, and allows the user to retain the same extension number.

Change the station type of an existing analog station by using the command "change station n", where "n" is the existing extension number. For **Type**, enter the applicable IP station type, in this case "1608", and the **Port** field will be populated automatically. Enter a desired **Security Code**.

```
change station 61001                                        Page   1 of   4
                                    STATION

Extension: 61001                        Lock Messages? n               BCC: 0
     Type: 1608                         Security Code: 61001            TN: 1
     Port: IP                         Coverage Path 1:                 COR: 1
     Name: Phybridge User #1          Coverage Path 2:                 COS: 1
                                      Hunt-to Station:
STATION OPTIONS
                                           Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                                 Message Lamp Ext: 61001
           Speakerphone: 2-way                Mute Button Enabled? y
        Display Language: english
 Survivable GK Node Name:
          Survivable COR: internal               Media Complex Ext:
   Survivable Trunk Dest? y                           IP SoftPhone? n
```

Repeat this section to modify the station type for all applicable analog and/or digital stations. In the compliance testing, three analog stations were changed over to IP.

```
list station 61001 count 3

                                  STATIONS

Ext/          Port/   Name/                        Room/         Cv1/ COR/ Cable/
 Hunt-to       Type       Surv GK NN        Move     Data Ext      Cv2  COS  Jack

61001         S00001  Phybridge User #1                                1
               1608                         no                        1
61002         S00002  Phybridge User #2                          1     1
               9630                         no                        1
61003         S00003  Phybridge User #3                                1
               9620                         no                        1
```

4.4. Administer Off-PBX

For each SIP station, specify that calls to the station be routed to SIP Enablement Services by using the "change off-pbx-telephone station-mapping n" command, where "n" is the station extension. Enter the following values for the specified fields, and retain the default values for the remaining fields. In the compliance testing, station "61003" was configured as a SIP station.

- **Application:** Enter "OPS" to indicate off-PBX station.
- **Phone Number:** Same digits from the **Station Extension** field.
- **Trunk Selection:** The trunk group to reach SIP Enablement Services, in this case "5".
- **Config Set:** An existing configuration set to be used for the off-PBX call treatment.

```
change off-pbx-telephone station-mapping 61003                  Page   1 of   3
                  STATIONS WITH OFF-PBX TELEPHONE INTEGRATION

 Station       Application Dial   CC  Phone Number    Trunk       Config  Dual
 Extension                 Prefix                    Selection   Set     Mode
 61003           OPS           -     61003            5          1
                               -
                               -
```

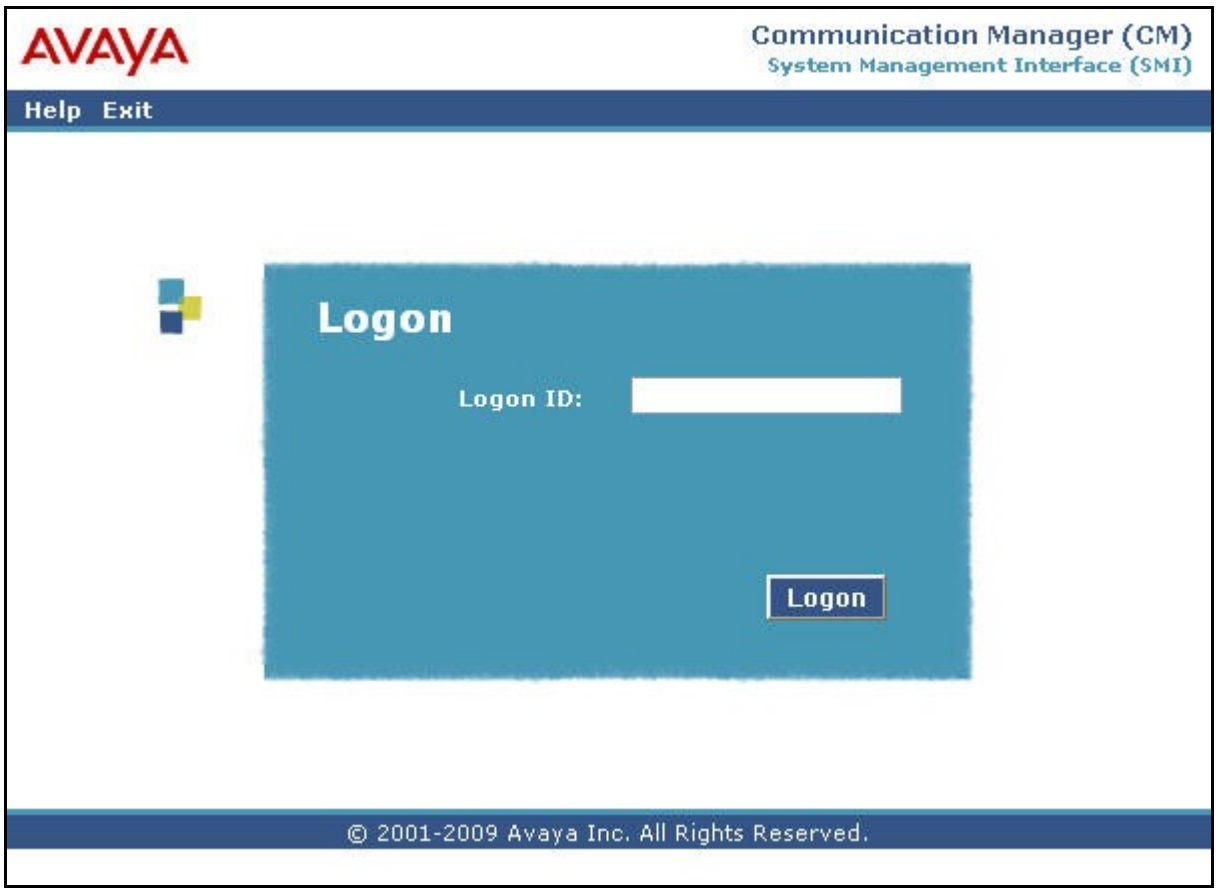
5. Configure Avaya Aura™ SIP Enablement Services

This section provides the procedures for configuring Avaya Aura™ SIP Enablement Services. The procedures include the following areas:

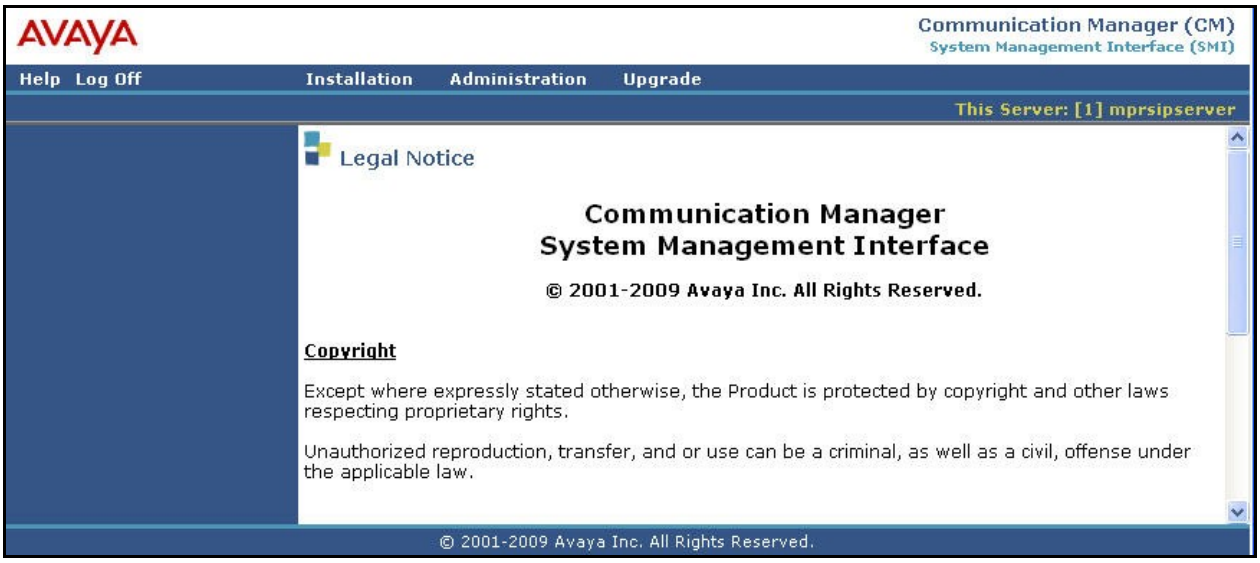
- Launch administration interface
- Administer users

5.1. Launch Administration Interface

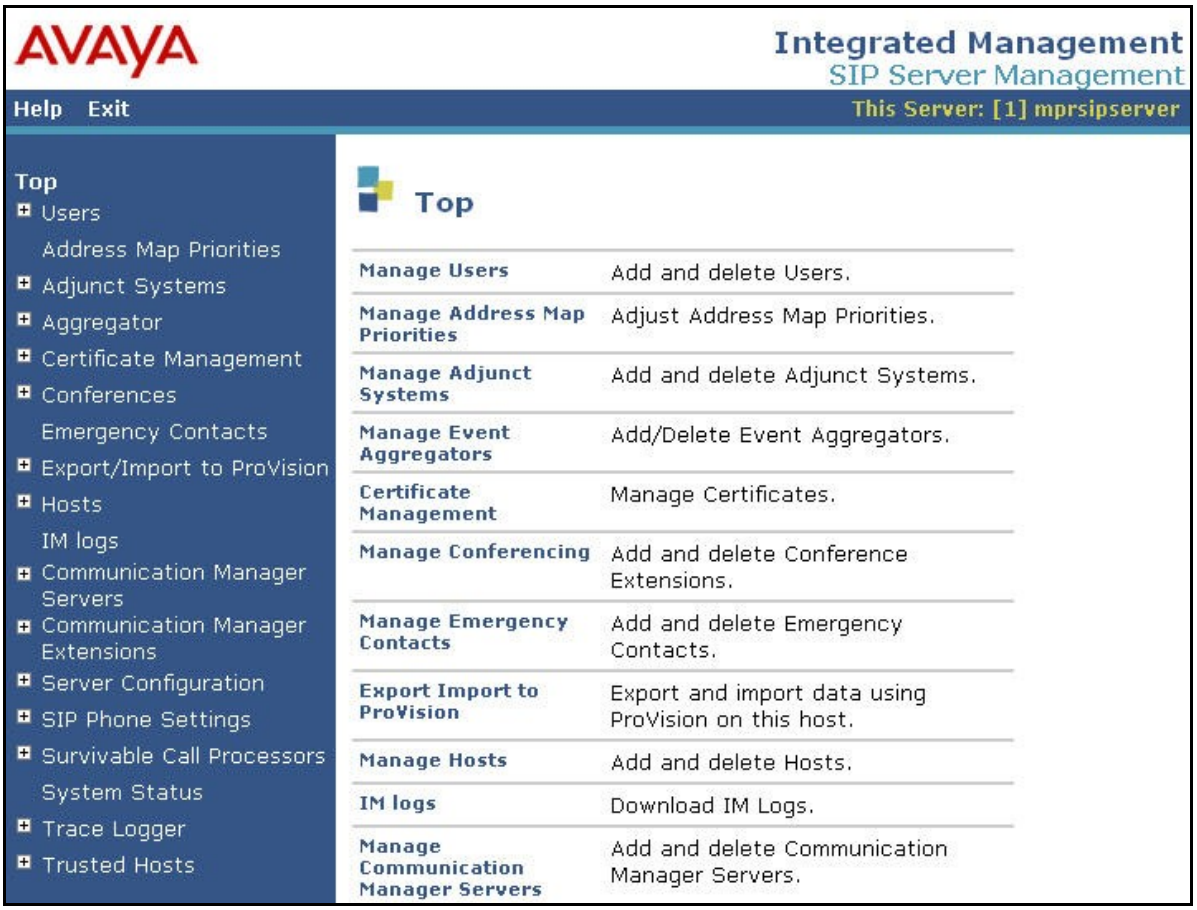
Access the SIP Enablement Services web interface by using the URL "http://ip-address/admin" in an Internet browser window, where "ip-address" is the IP address of the SIP Enablement Services server. Log in with the appropriate credentials.



In the subsequent screen, select **Administration > SIP Enablement Services** from the top menu.



The **Top** screen is displayed next.

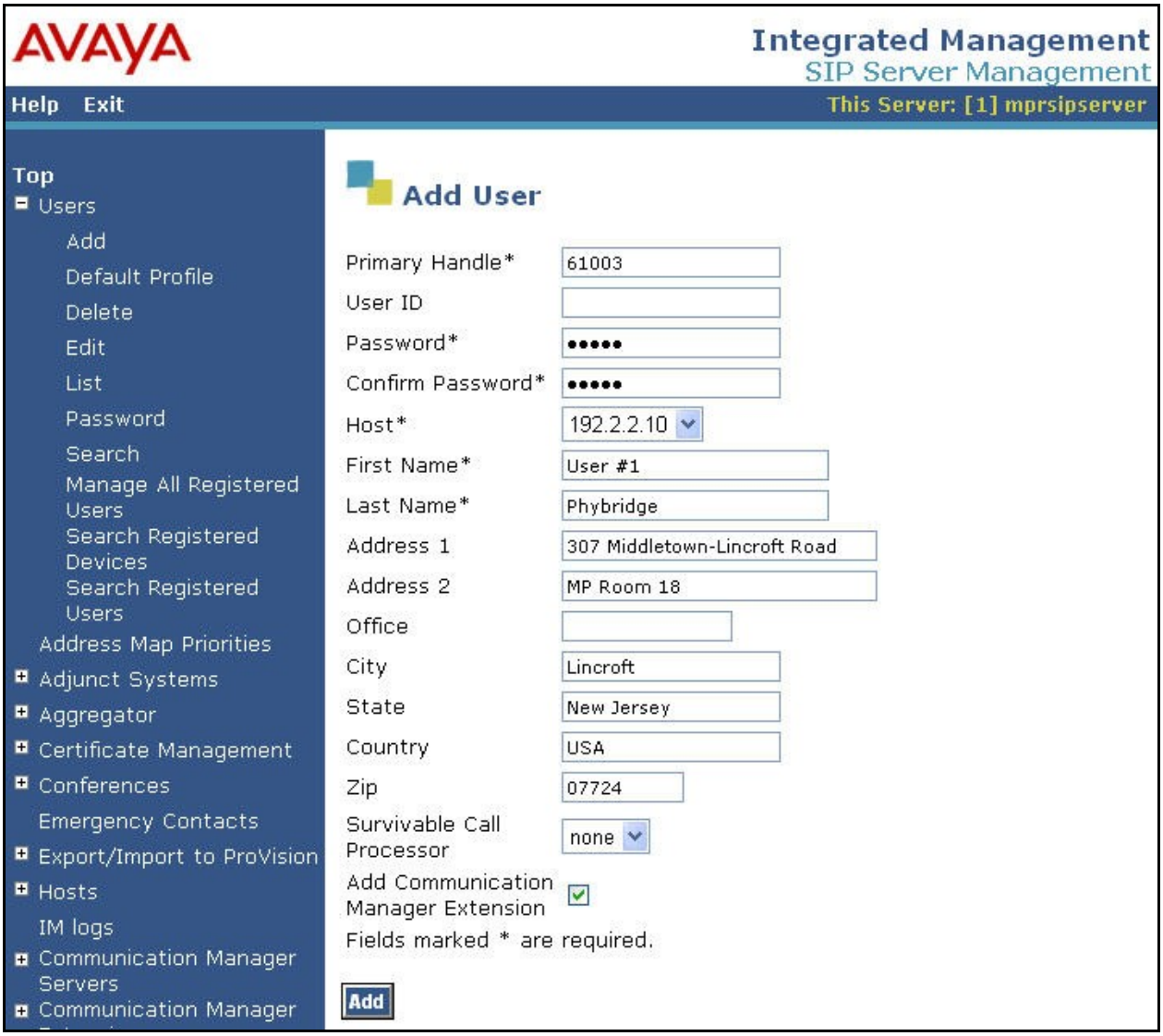


5.2. Administer Users

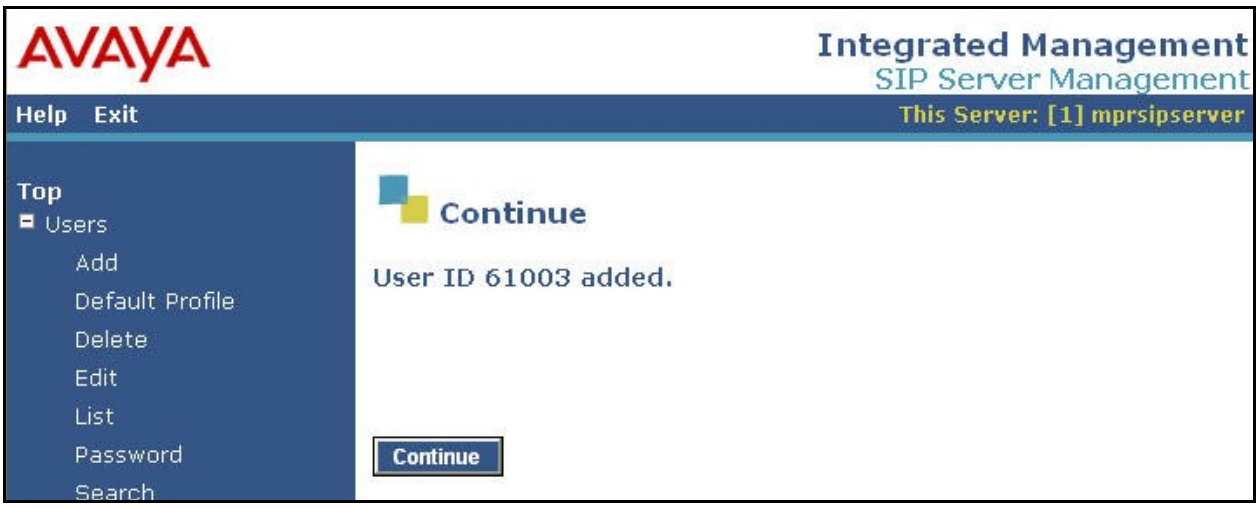
Select **Users > Add** from the left pane to display the **Add User** screen. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Primary Handle:** The extension of the SIP station from **Section 4.4**.
- **Password:** Enter a desired password.
- **Confirm Password:** Re-enter the same password.
- **Host:** Select the applicable host.
- **First Name**: A descriptive first name.
- **Last Name:** A descriptive last name.

Check the **Add Communication Manager Extension** field, and click **Add**.



The **Continue** screen is displayed next. Click **Continue**.



The **Add Communication Manager Extension** screen is displayed. This screen is used to associate a user with an extension on Communication Manager. For **Extension**, enter the SIP station extension from **Section 4.4**. Select the appropriate **Communication Manager Server**, and click **Add**.

6. Configure Phybridge UniPhyer

This section provides the procedures for configuring Phybridge UniPhyer. The procedures fall into the following areas:

- Launch web interface
- Administer board IP
- Save configuration

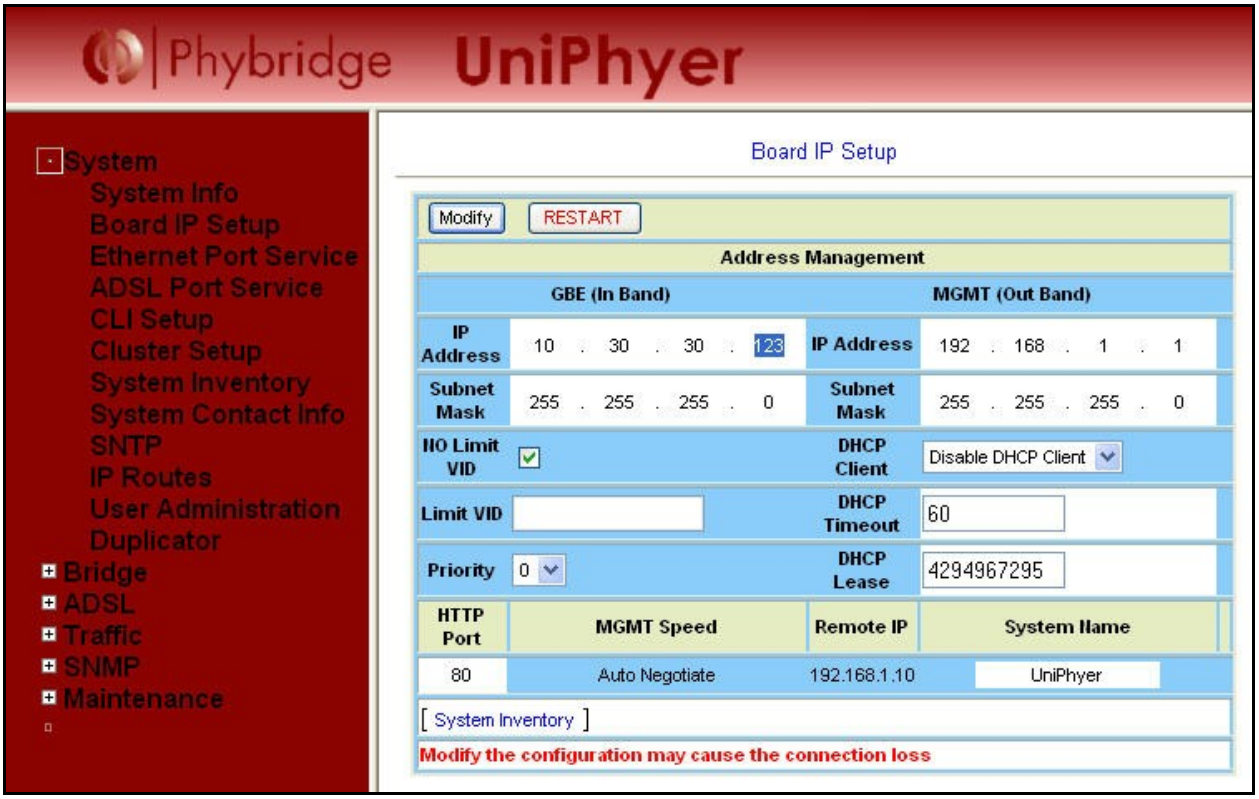
6.1. Launch Web Interface

Access the Phybridge UniPhyer web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of Phybridge UniPhyer. Note that the default IP address of the Phybridge UniPhyer management port is "192.168.1.1". The **Web Interface Login** screen is displayed as shown below. Log in using the appropriate credentials.

6.2. Administer Board IP

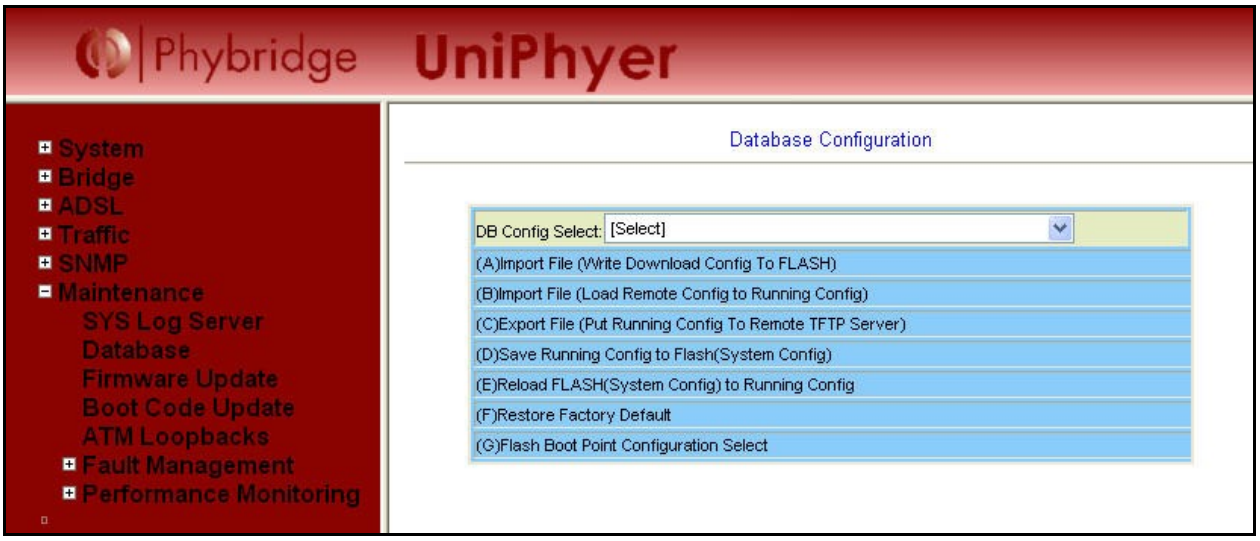
In the subsequent screen, select **System > Board IP Setup** to display the **Board IP Setup** screen. Modify the **IP Address** and **Subnet Mask** fields in the **GBE (In Band)** and **MGMT (Out Band)** sections to match the network configuration. Click **Modify**, followed by **RESTART**.

Note that the **MGMT (Out Band)** configuration is optional, and needs to be on a different subnet from the **GBE (In Band)** if used.

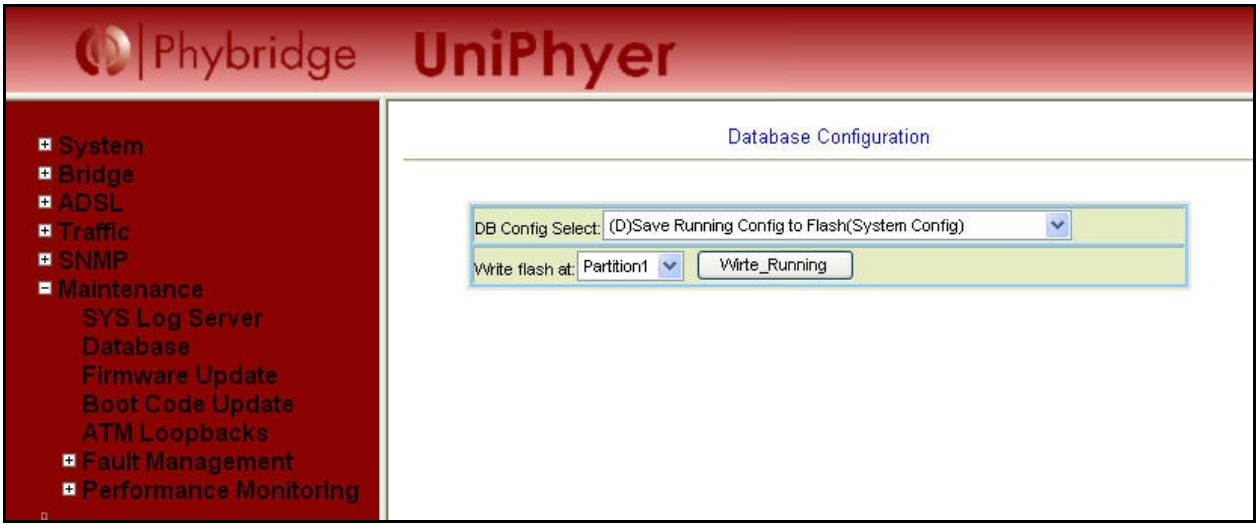


6.3. Save Configuration

Select **Maintenance > Database** to display the **Database Configuration** screen. For the **DB Config Select** field, select "(D)Save Running Config to Flash(System Config)".



The screen is updated as shown below. Click **Write_Running** to save the modified configuration to flash.



7. General Test Approach and Test Results

All tests were performed manually. The focus was on verifying that the Avaya H.323 and SIP Telephones can function seamlessly, when connected via Phybridge UniPhyer.

All tests were executed and passed.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura™ Communication Manager, Avaya Aura™ SIP Enablement Services, and Phybridge UniPhyer.

8.1. Verify Avaya Aura™ Communication Manager

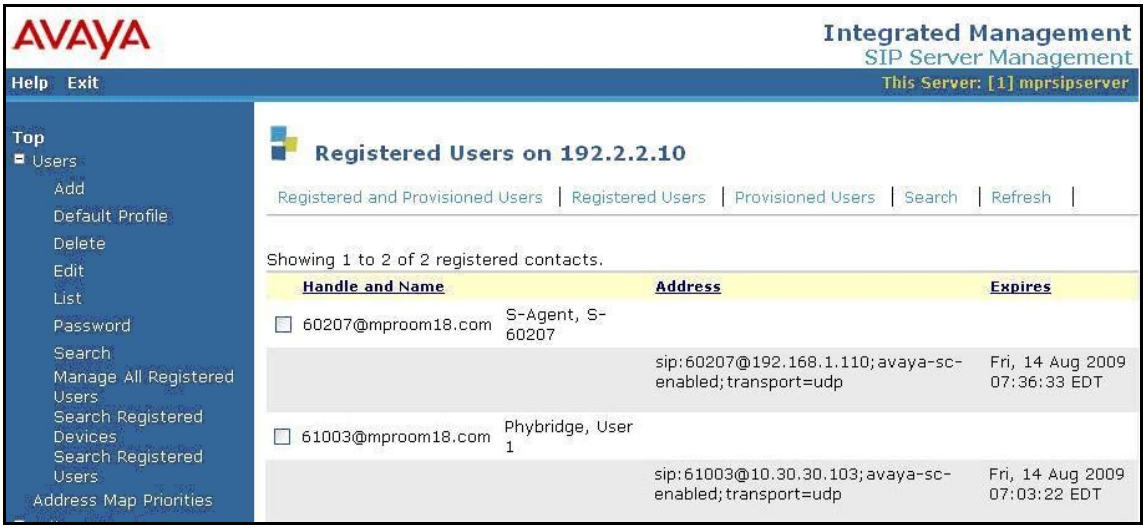
Use the "list registered-ip-stations" command to verify that all H.323 stations connected via Phybridge UniPhyer from **Section 4.3** registered successfully with Communication Manager, as shown below.

```
REGISTERED IP STATIONS

Station Ext   Set Type/ Prod ID/   TCP Station IP Address/
or Orig Port  Net Rgn   Release    Skt Gatekeeper IP Address
------------- --------- ---------- --- ---------------------------------------
61001         1608      IP_Phone    y  10.30.30.101
              1         1.2000         192.2.5.6
61002         9630      IP_Phone    y  10.30.30.102
              1         3.0020         192.2.5.6
66001         9650      IP_Phone    y  192.2.5.101
              1         3.0020         192.2.5.6
```

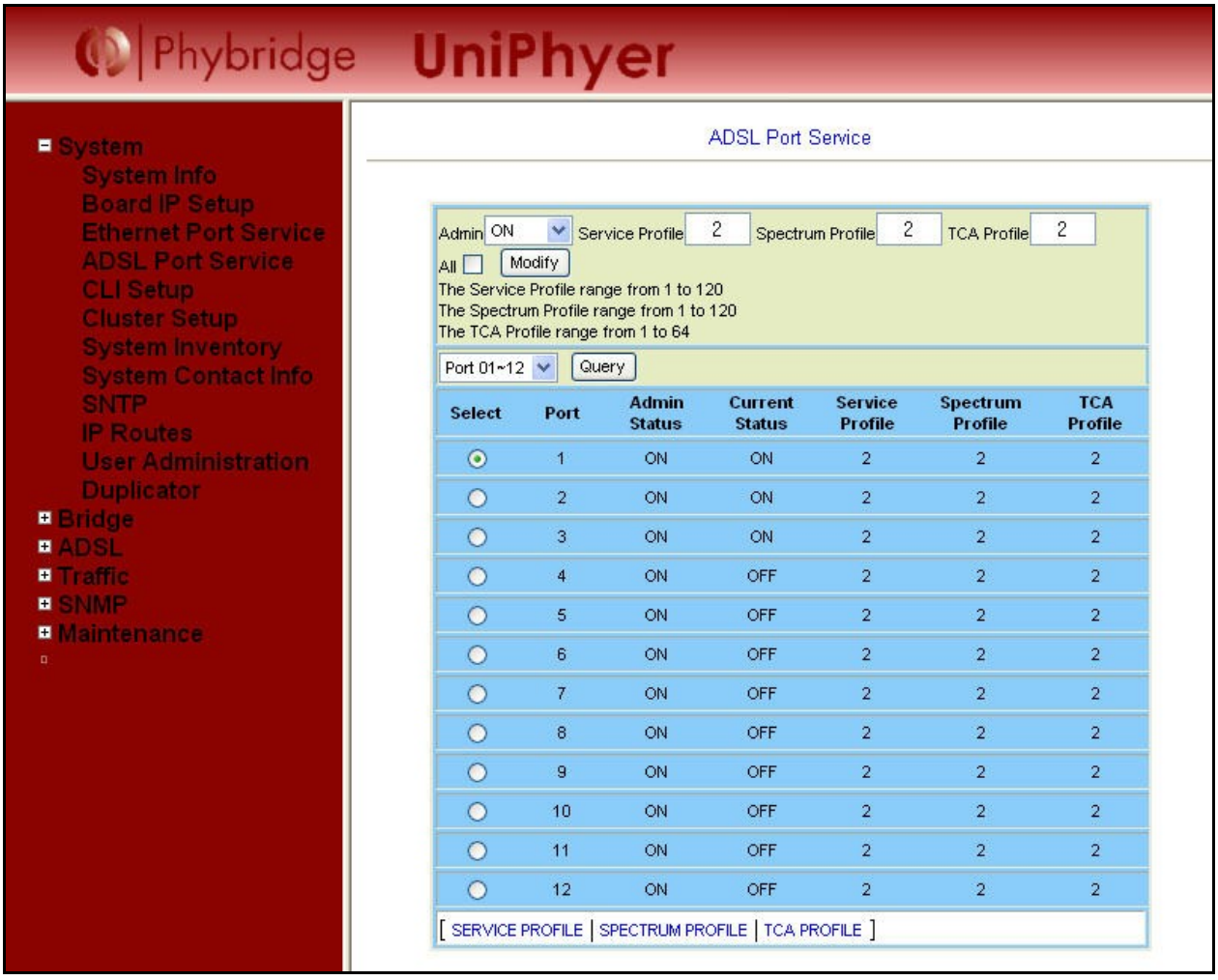
8.2. Verify Avaya Aura™ SIP Enablement Services

From the SIP Enablement Services web interface, verify the registration status of the SIP stations by selecting **Users > Search Registered Users** from the left pane. Verify that all SIP stations from **Section 4.4** are listed as registered users.



8.3. Verify Phybridge UniPhyer

From the Phybridge UniPhyer web interface, select **System > ADSL Port Service**. The **ADSL Port Service** screen is displayed. Verify that the **Current Status** for all physically connected voice ports is in the **ON** state, as shown below.



9. Conclusion

These Application Notes describe the configuration steps required for Phybridge UniPhyer to successfully interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ SIP Enablement Services via Avaya IP Telephones.

10. Additional References

This section references the product documentation relevant to these Application Notes.

1. *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Issue 5.0, Release 5.2, May 2009, available at http://support.avaya.com.

2. *SIP Support in Avaya Aura™ Communication Manager*, Document 555-245-206, Issue 9, May 2009, available at http://support.avaya.com.

3. *Installing, Administering, Maintaining, & Troubleshooting Avaya Aura™ SIP Enablement Services*, Document 03-600768, 7.0, May 2009, available at http://support.avaya.com.

4. Avaya-Phybridge DevConnect Partner Solutions Guide, Release 1.0, available at http://www.phybridge.com.

5. *Phybridge UniPhyer Installation Manual*, Release 1.0, available at http://www.phybridge.com.

6. *Phybridge UniPhyer Web Configuration Tool Guide*, Release 1.0, available at http://www.phybridge.com.

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.