Avaya Solution & Interoperability Test Lab

Application Notes for IPC Unigy with Avaya Modular Messaging 5.2 and Avaya Aura® SIP Enablement Services 5.2.1 in a Centralized Messaging Environment using QSIG Trunks – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for IPC Unigy to interoperate with Avaya Modular Messaging 5.2 and Avaya Aura® SIP Enablement Services 5.2.1 in a centralized messaging environment using QSIG trunks to Avaya Aura® Communication Manager 5.2.1.

IPC Unigy is a trading communication solution. In the compliance testing, IPC Unigy used E1 QSIG trunks to Avaya Aura® Communication Manager, for IPC turret users to obtain voice messaging services from Avaya Modular Messaging. E1 QSIG trunks were used from IPC Unigy to Avaya Aura® Communication Manager, and SIP trunks were used from Avaya Aura® Communication Manager to Avaya Aura® SIP Enablement Services to reach Avaya Modular Messaging. The Avaya Modular Messaging system in the Central site supported local subscribers from Avaya Aura® Communication Manager at the Central site, and from IPC turret users at the Remote site.

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 IPC Unigy to interoperate with Avaya Modular Messaging 5.2 and Avaya Aura® SIP Enablement Services (SES) 5.2.1 in a centralized messaging environment using QSIG trunks to Avaya Aura® Communication Manager 5.2.1.

IPC Unigy is a trading communication solution. In the compliance testing, IPC Unigy used E1 QSIG trunks to Avaya Aura® Communication Manager, for IPC turret users to obtain voice messaging services from Avaya Modular Messaging. E1 QSIG trunks were used from IPC Alliance MX to Avaya Aura® Communication Manager, and SIP trunks were used from Avaya Aura® Communication Manager to Avaya Aura® SES to reach Avaya Modular Messaging. The Avaya Modular Messaging system in the Central site supported local subscribers from Avaya Aura® Communication Manager at the Central site, and from IPC turret users at the Remote site.

2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established among IPC turret users with Avaya SIP, Avaya H.323, Avaya Digital, PSTN users, and/or the Avaya Modular Messaging voicemail pilot to verify various call scenarios. The Avaya Modular Messaging Web Subscriber Options web-based interface was used to configure subscriber features such as Call Me.

The serviceability test cases were performed manually by disconnecting and reconnecting the E1 connection to IPC Unigy.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included subscriber login, greeting, voice message, message waiting indicator, call forward, multiple call forward, personal operator, auto attendant, find me, call me, call sender, and transfer.

The serviceability testing focused on verifying the ability of IPC Unigy to recover from adverse conditions, such as disconnecting/reconnecting the E1 connection to IPC Unigy.

2.2. Test Results

All test cases were executed. The following were the observations on IPC Unigy from the compliance testing.

- IPC does not offer the Coverage feature, therefore coverage to voicemail for the turret users was accomplished by setting the Modular Messaging pilot number as the Call Forwarding destination for the users.

- For all multiple call forward scenarios involving calls forwarded to the called party's forward-to extension and then covered subsequently to Modular Messaging based on the coverage setting at the forward-to extension, the greeting for the forward-to party will be played instead of the original called party due to the called number not being passed by IPC for diverted calls.

- Upon logging into a turret, DTMF digits cannot be sent for initial calls with Modular Messaging when using the speakerphone, and the digits will be outpulsed in subsequent calls with Avaya endpoints. The workaround is to use the handset.

2.3. Support

Technical support on IPC Unigy can be obtained through the following:

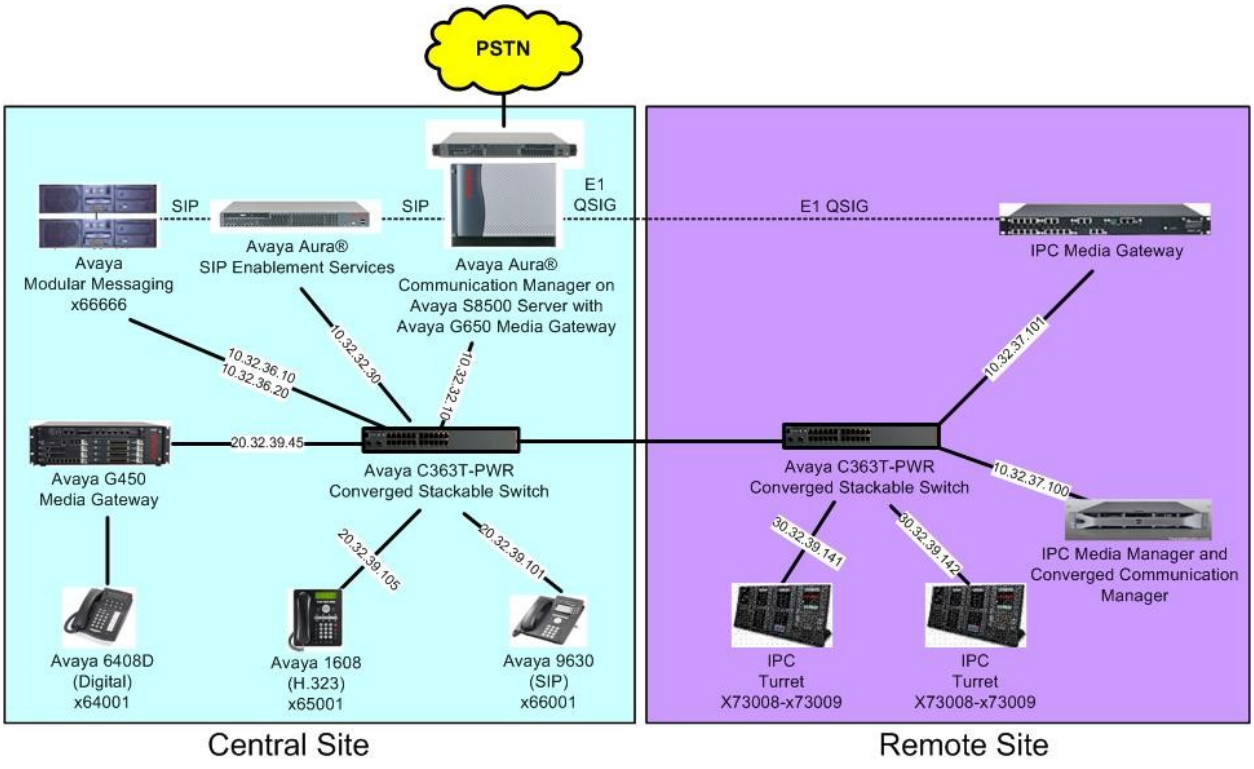
- **Phone:** (800) NEEDIPC, (203) 339-7800
- **Email:** systems.support@ipc.com

3. Reference Configuration

As shown in the test configuration below, IPC Unigy at the Remote Site consists of the Media Manager, Converged Communication Manager, and Turrets. E1 QSIG trunks were used from IPC Unigy to Avaya Aura® Communication Manager, and SIP trunks were used from Avaya Aura® Communication Manager to Avaya Aura® SES to reach Avaya Modular Messaging. In the test configuration, QSIG allowed IPC turret users at the Remote Site to "cover" to Avaya Modular Messaging at the Central site for voice messaging services.

The detailed administration of basic connectivity among Avaya Aura® Communication Manager, Avaya Aura® SES, and Avaya Modular Messaging is not the focus of these Application Notes and will not be described. These Application Notes will focus on the additional configuration required to support IPC turret users as local subscribers on Avaya Modular Messaging.

The detailed administration of E1 QSIG trunks between Avaya Aura® Communication Manager and IPC Unigy, to enable IPC turret users to reach users on Avaya Aura® Communication Manager and on the PSTN, is assumed to be in place with details described in [4]. A five digit Uniform Dial Plan (UDP) was used to facilitate dialing between the Central and Remote sites. Unique extension ranges were associated with Avaya Aura® Communication Manager users at the Central site (64xxx-66xxx), and IPC turret users at the Remote site (73xxx). The Avaya Modular Messaging pilot number was 66666.



4. Equipment and Software Validated

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

Equipment	Software
Avaya Modular Messaging • Messaging Storage Server • Messaging Application Server	 5.2 SP8 P4 5.2 SP8 P4
Avaya Aura® Communication Manager on Avaya S8500 Server	5.2.1 SP7.01 with special patch 19141 (R015x.02.1.016.4-19141)
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack • TN2302AP IP Media Processor • TN464HP DS1 Interface	 HW01 FW038 HW20 FW122 HW02 FW024
Avaya G450 Media Gateway • MM712AP DCP	28.17 HW07 FW011
Avaya Aura® SIP Enablement Services	5.2.1 SP4 (SES-5.2.1.0-016.4-SP4C)
Avaya 1608 IP Telephone (H.323)	1.3
Avaya 9630 IP Telephone (SIP)	2.6.4
Avaya 6408D Digital Telephone	NA
IPC Unigy • Media Manager • Converged Communication Manage • Media Gateway • Turrets	 01.00.00.01.0003 01.00.00.01.0003 6.00AL.025.0002 01.00.00.01.0003

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Avaya Aura® Communication Manager.

Use the "change system-parameters coverage-forwarding" command. Enable **QSIG/SIP Diverted Calls Follow Diverted to Party's Coverage Path**, as shown below.

```
change system-parameters coverage-forwarding                    Page   1 of   2
               SYSTEM PARAMETERS CALL COVERAGE / CALL FORWARDING

CALL COVERAGE/FORWARDING PARAMETERS
         Local Cvg Subsequent Redirection/CFWD No Ans Interval (rings): 2
        Off-Net Cvg Subsequent Redirection/CFWD No Ans Interval (rings): 2
                          Coverage - Caller Response Interval (seconds): 4
     Threshold for Blocking Off-Net Redirection of Incoming Trunk Calls: n
                          Location for Covered and Forwarded Calls: called
                       PGN/TN/COR for Covered and Forwarded Calls: caller
                    COR/FRL check for Covered and Forwarded Calls? n
       QSIG/SIP Diverted Calls Follow Diverted to Party's Coverage Path? y
COVERAGE
```

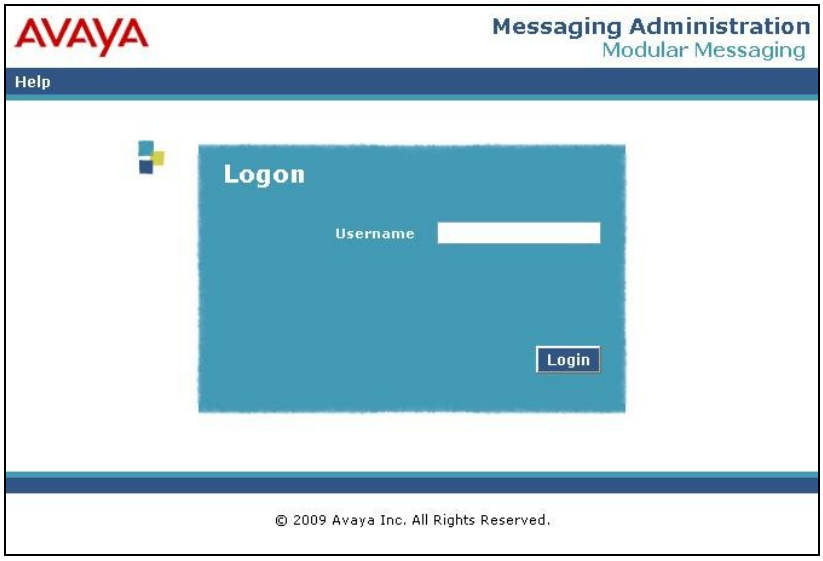
6. Configure Avaya Modular Messaging MSS

This section provides the procedures for configuring IPC turret users as local subscribers on Avaya Modular Messaging. The subscribers are configured on the Messaging Storage Server (MSS) component. The configuration procedures include the following areas:

- Launch messaging administration
- Administer subscriber extension ranges
- Administer subscribers

6.1. Launch Messaging Administration

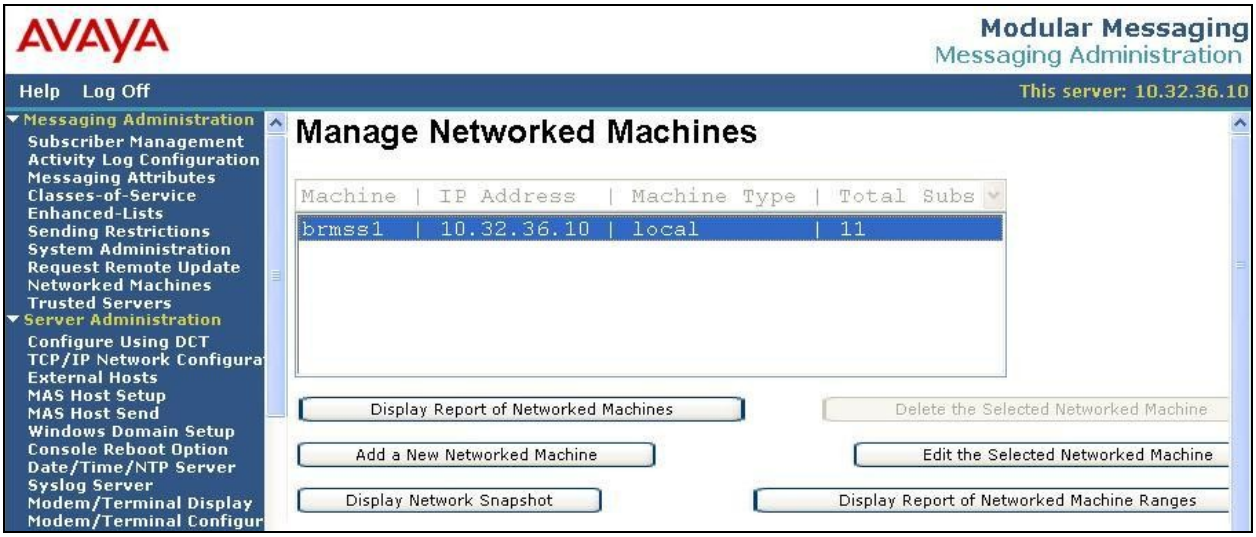
Access the MSS web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the MSS server. The **Logon** screen is displayed. Log in using a valid user name and password. The **Password** field will appear after a value is entered into the **Username** field.



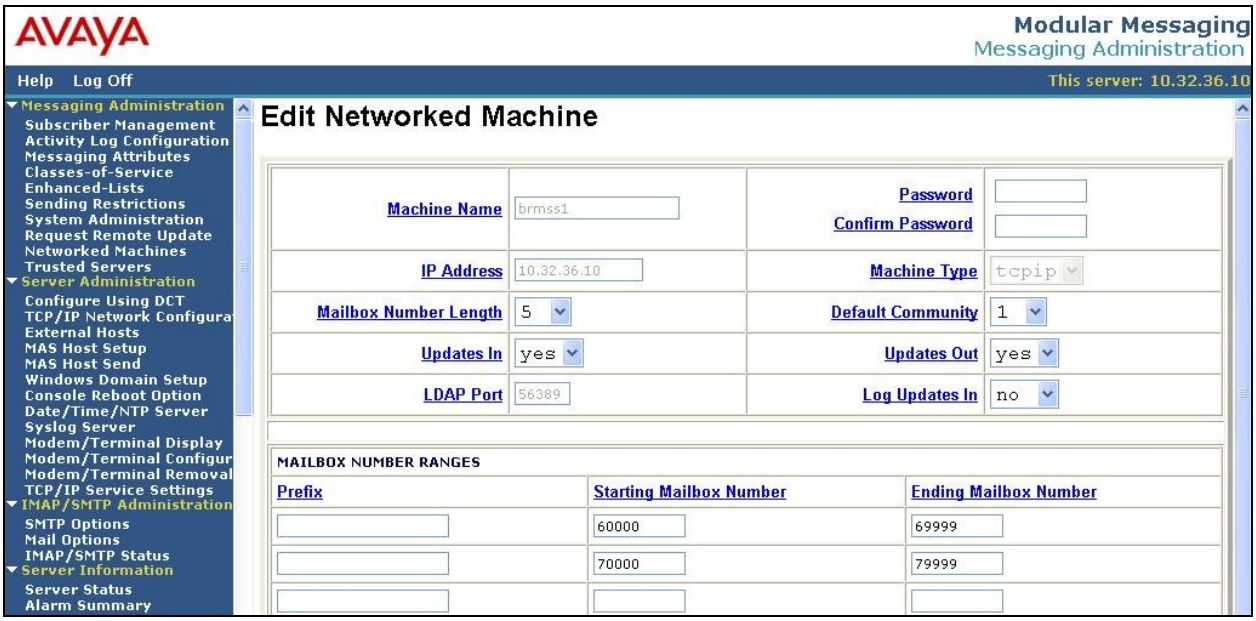
The **Messaging Administration** screen appears, as shown below.

6.2. Administer Subscriber Extension Ranges

Select **Messaging Administration > Networked Machines** from the left pane, to display the **Manage Networked Machines** screen. Select the MSS server from the table listing, and click **Edit the Selected Networked Machine** toward the bottom right of the screen.



The **Edit Networked Machine** screen is displayed. Under the **MAILBOX NUMBER RANGES** section, locate an available entry line and enter the desired starting and ending mailbox numbers to be used for the IPC subscribers as necessary. In the compliance testing, the entry 70000-79999 was added for the IPC turret users.

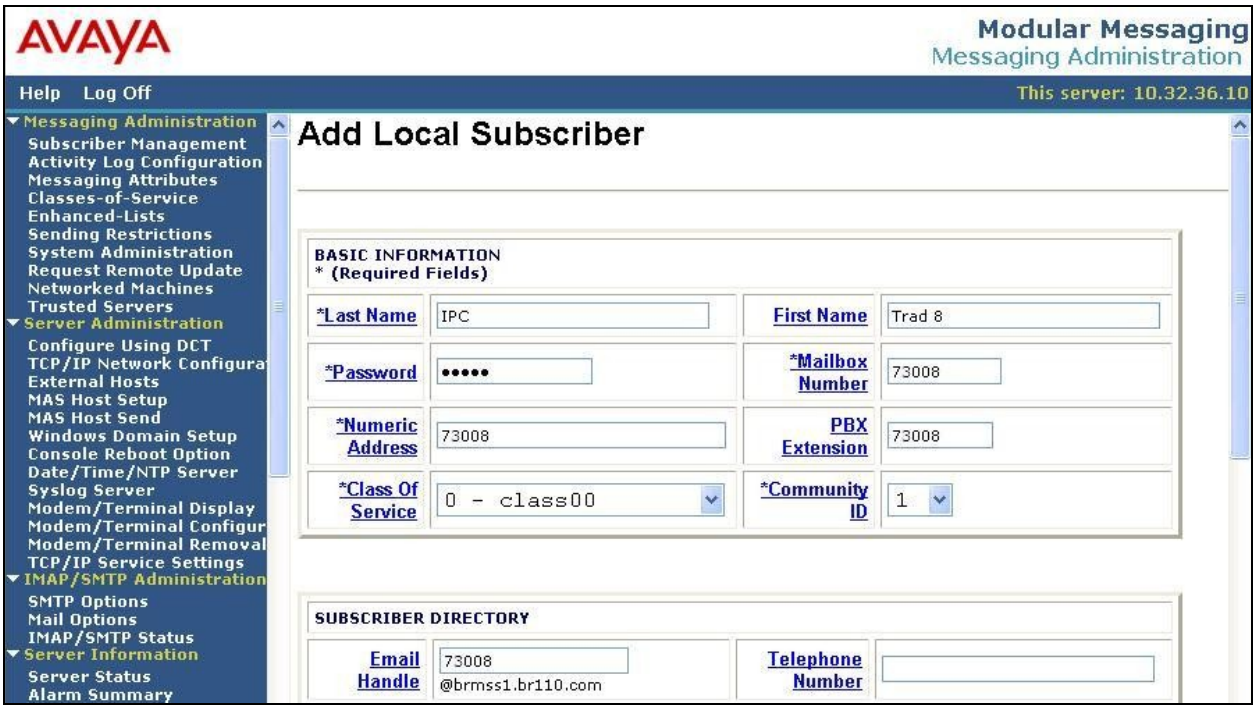


6.3. Administer Subscribers

Select **Messaging Administration > Subscriber Management** from the left pane, to display the **Manage Subscribers** screen. For the **Local Subscriber Mailbox Number** field toward the top of the screen, enter the first IPC turret user extension to add as a local subscriber, in this case "73008". Click **Add or Edit**.

The **Add Local Subscriber** screen is displayed next. Enter the desired string into the **Last Name**, **First Name**, and **Password** fields.

In the compliance testing, the same telephone extensions for the IPC subscribers were used for the **Mailbox Number**, **Numeric Address**, **PBX Extension**, and **Email Handle** fields. Select the appropriate **Class Of Service**, and retain the default values in the remaining fields. Repeat this section to add all IPC subscribers.



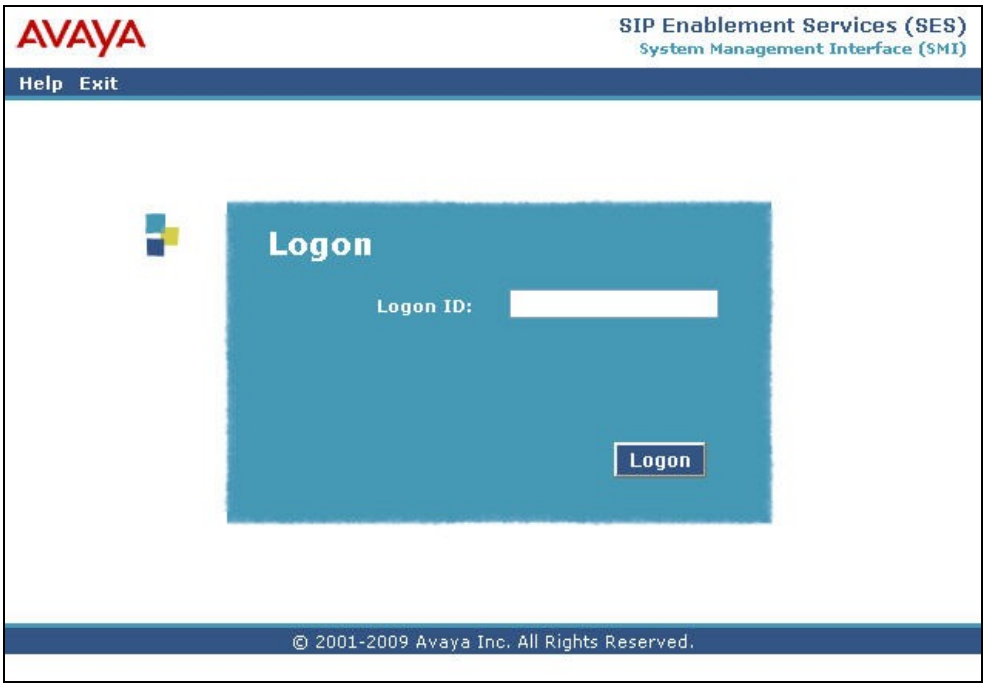
7. Configure Avaya Aura® SIP Enablement Services

The detailed configuration for adding Avaya Modular Messaging as an adjunct system on Avaya SES is assumed to be in place and will not be described. This section provides the procedures for adding a new address map for Modular Messaging to reach IPC turret users via Communication Manager, and for enabling unsolicited Notify messages, which is required for proper IPC integration. The configuration procedures include the following:

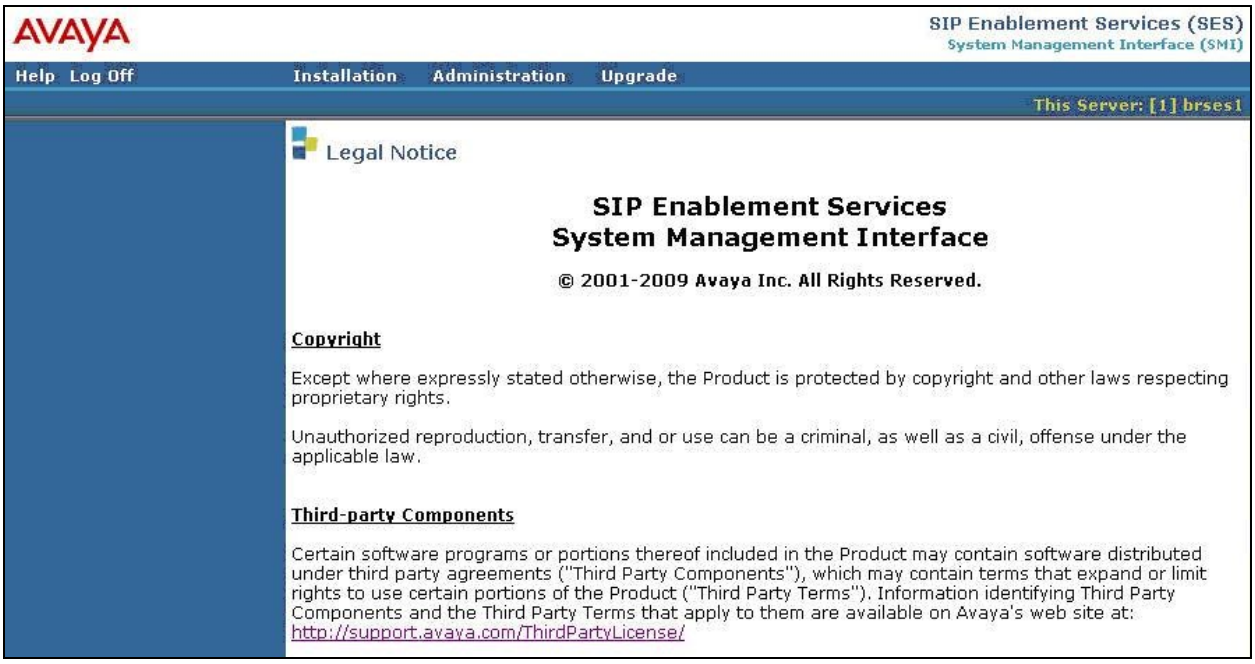
- Launch SES administration
- Administer Communication Manager servers address map
- Administer unsolicited Notify

7.1. Launch SES Administration

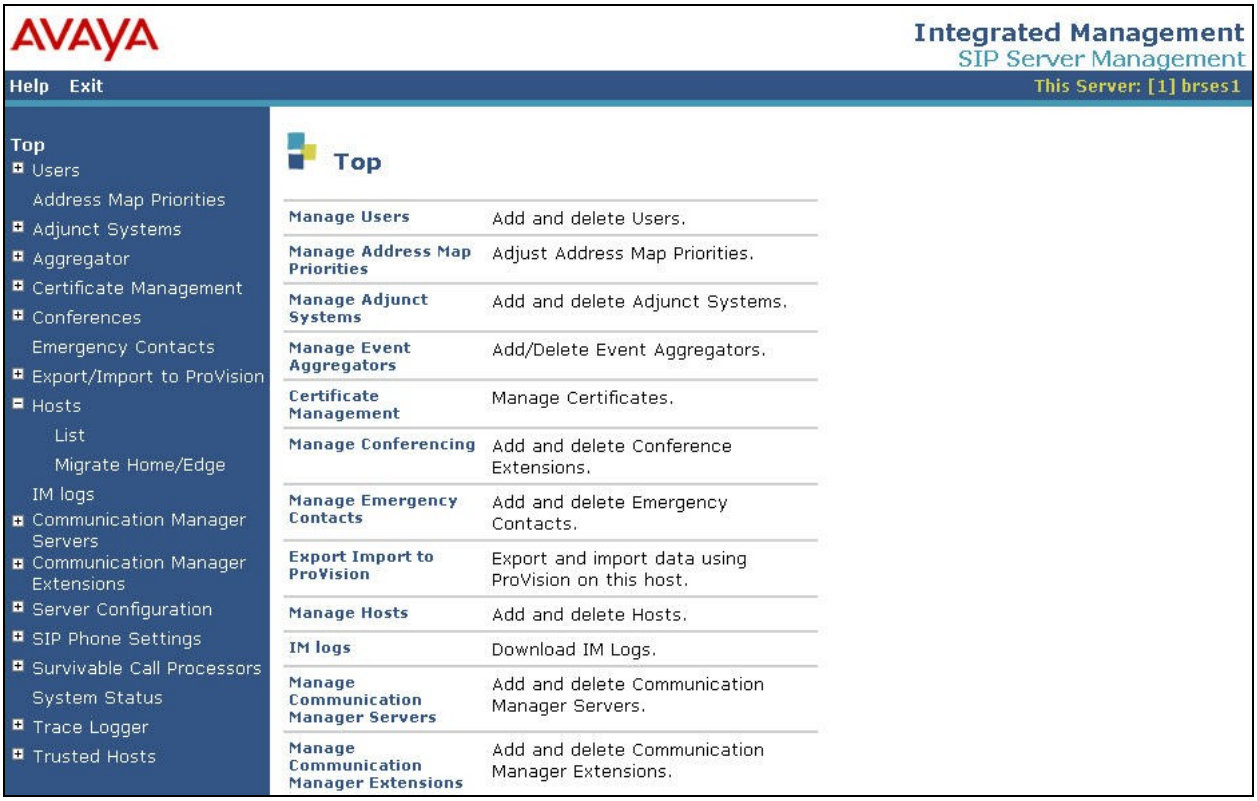
Access the SES web interface by using the URL "http://ip-address/admin" in an Internet browser window, where "ip-address" is the IP address of the SES server. Log in using the appropriate credentials.



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



The **Top** screen is displayed next.

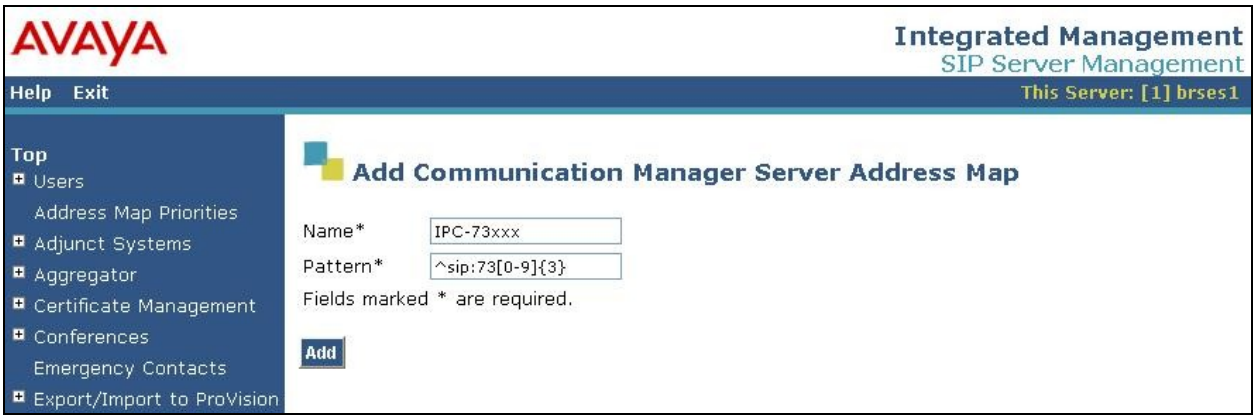


7.2. Administer Communication Manager Servers Address Map

Select **Communication Manager Servers > List** from the left pane. The **List Communication Manager Servers** screen is displayed. Click on the **Map** link.

In the **List Communication Manager Server Address Map** screen below, click **Add Another Map** in the right pane.

The **Add Communication Manager Server Address Map** screen is displayed next. This screen is used to specify which calls are to be routed to Communication Manager. For **Name**, enter a descriptive name to denote the routing. For **Pattern**, enter an appropriate syntax for address mapping to IPC turret extensions. For the compliance testing, a pattern of "^sip:73[0-9]{3}" was used to match to IPC turret user extensions of 73xxx.



7.3. Administer Unsolicited Notify

Log in to the Linux shell of the SES server with the appropriate credentials. Navigate to the **/usr/impress/sip-server/etc** directory, and open the **ccs.conf** file.

Navigate to the **Proxy** section, and set the **RouteUnsolicitedNotifyToPermanentContacts** parameters to "true", as shown below. This will enable SES to support unsolicited Notify messages from Avaya Modular Messaging for IPC subscribers.

```
;=============================================================================
[Proxy]
;
; EnableTlsClientAuthentication values are no longer true or false. Valid
; values are:
; none      - never use client certificates
; optional  - client certificates may or may not be present
; mandatory - client certificates must be present
;=============================================================================
EnableAuthentication=true
;EnableSpoofingCheck=false
EnableTlsClientAuthentication=optional
EnableSubscribeRouting=false
EnableWCallFlow=true
PerContactWaitTime=180
MM_PerContactWaitTime=0
TimerB=2000
TimerC=180000
LocationSetTimer=180
EnableUnregisteredOptimContacts=true
InsertRecordRoute=false
CorrectReferToHeader=true
;EnableThirdPartyOriginatingProcessing=true
;SourcePaiHeaderFromFromHeader=true
ProxyType=TransactionStateful
EnableRecursion=true
EnableRecordRoute=true
;EnableOODReferRouting=false;
RouteUnsolicitedNotifyToPermanentContacts=true
```

From the Linux command line, restart the SipServer component using the commands shown below.

```
xxxxx@brses1> stop -s SipServer
Do you really want to continue? (y or n) y

xxxxx@brses1> start -s SipServer
xxxxx@brses1>
```

8. Configure IPC Media Manager

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

- Launch Unigy Management System
- Administer dial patterns
- Administer route plans
- Administer voicemail buttons

The configuration of Media Manager is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

8.1. Launch Unigy Management System

Access the Unigy Management System web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the Media Manager. Log in using the appropriate credentials.

The screen below is displayed. Enter the appropriate credentials. Check **I agree with the Terms of Use**, and click **Login**.

In the subsequent screen (not shown), click **Continue**.

8.2. Administer Dial Patterns

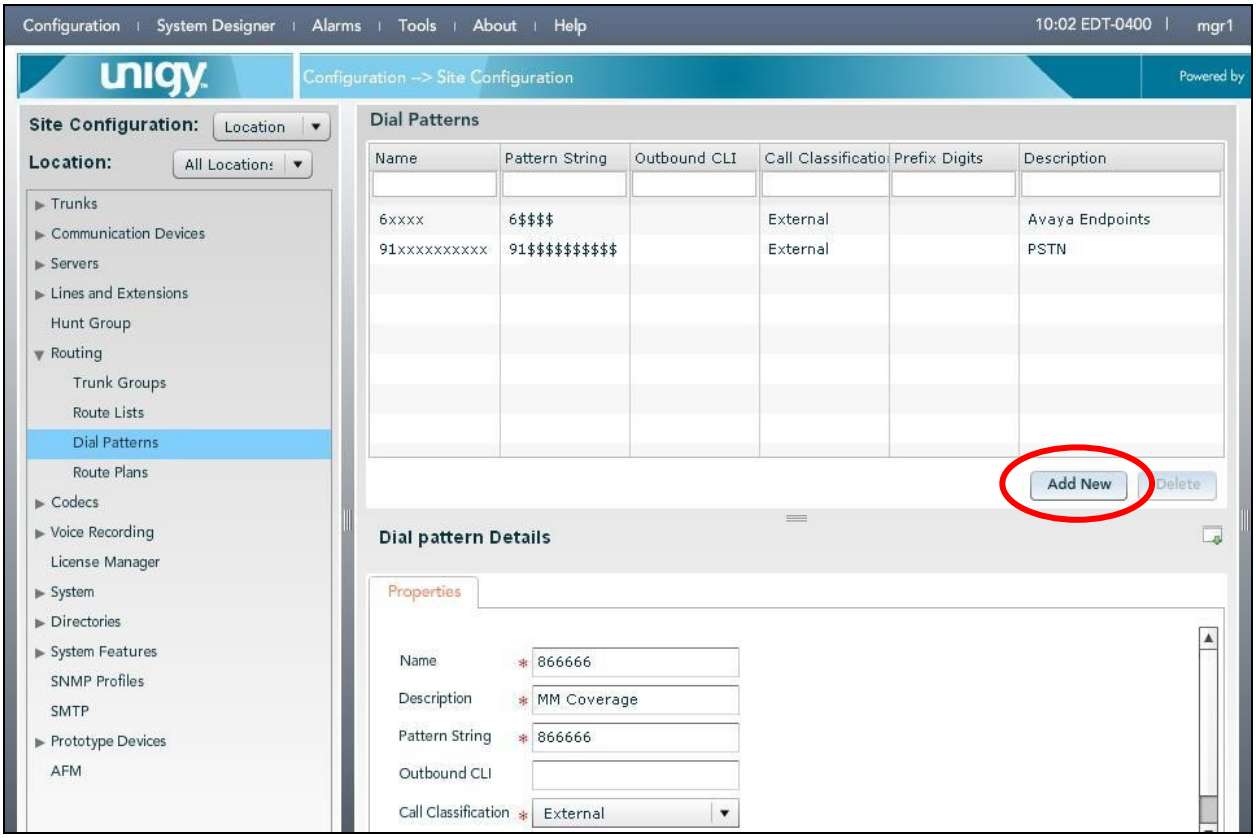
In the subsequent screen, select **Configuration > Site Configuration** from the top menu. The **Site Configuration** information is displayed in the left pane.

Select **Routing > Dial Patterns** in the left pane, to display the **Dial Patterns** screen in the right pane. Click **Add New** in the upper right pane.

Add a new dial pattern for the Modular Messaging pilot number from **Section 3**, and another dial pattern for Modular Messaging that includes the routing prefix from Communication Manager. Note that when a call to an Avaya endpoint covers to Modular Messaging, the divert destination received from Communication Manager will include the routing prefix, which must be configured on Media Manager.

In the compliance testing, the existing dial pattern "6xxxx" included the Modular Messaging pilot number "66666", and a new dial pattern was added below to include the existing AAR routing prefix "8" from Communication Manager.

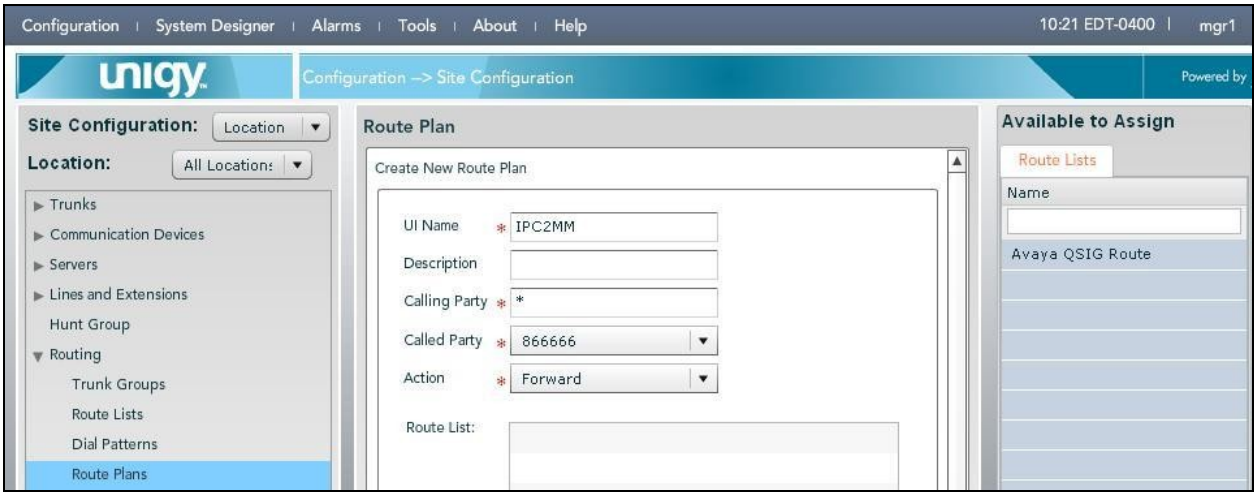
In the **Dial pattern Details** sub-section in the lower right pane, enter the dial pattern to match in the **Pattern String** field, in this case "866666". Enter desired **Name** and **Description**, and select "External" for **Call Classification**. Click **Save** (not shown).



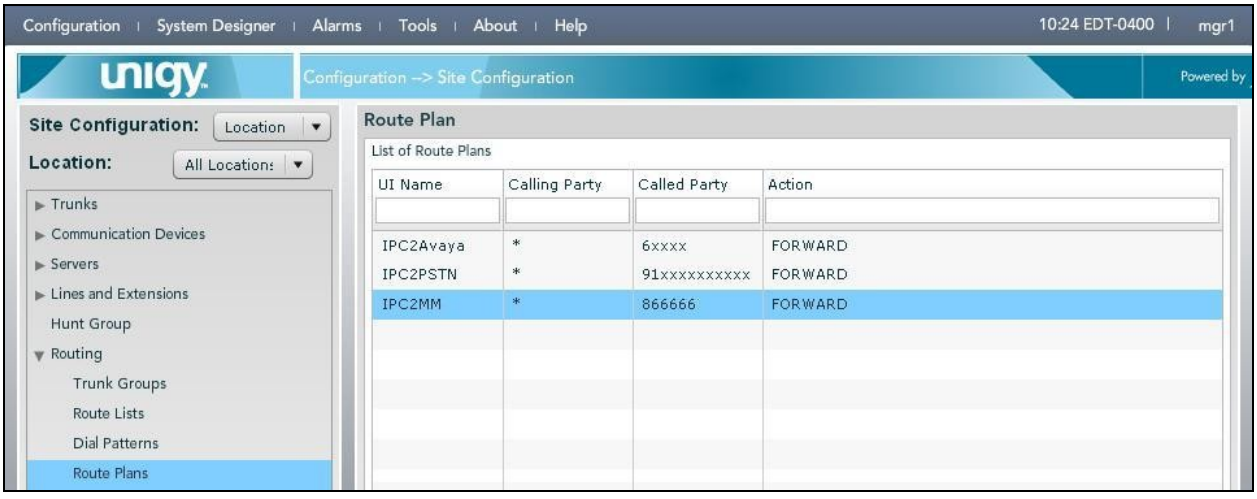
8.3. Administer Route Plans

Select **Routing > Route Plans** in the left pane, and click **Add New** (not shown) in the right pane to create a new route plan for each new dial pattern from **Section 8.2**.

The screen is updated with three panes, as shown below. In the **Route Plan** middle pane, enter a descriptive **UI Name** and optional **Description**. For **Calling Party**, enter "*" to denote any calling party from Unigy. For **Called Party**, select the dial pattern from **Section 8.2**. Select "Forward" for **Action**, and click **Save** (not shown).

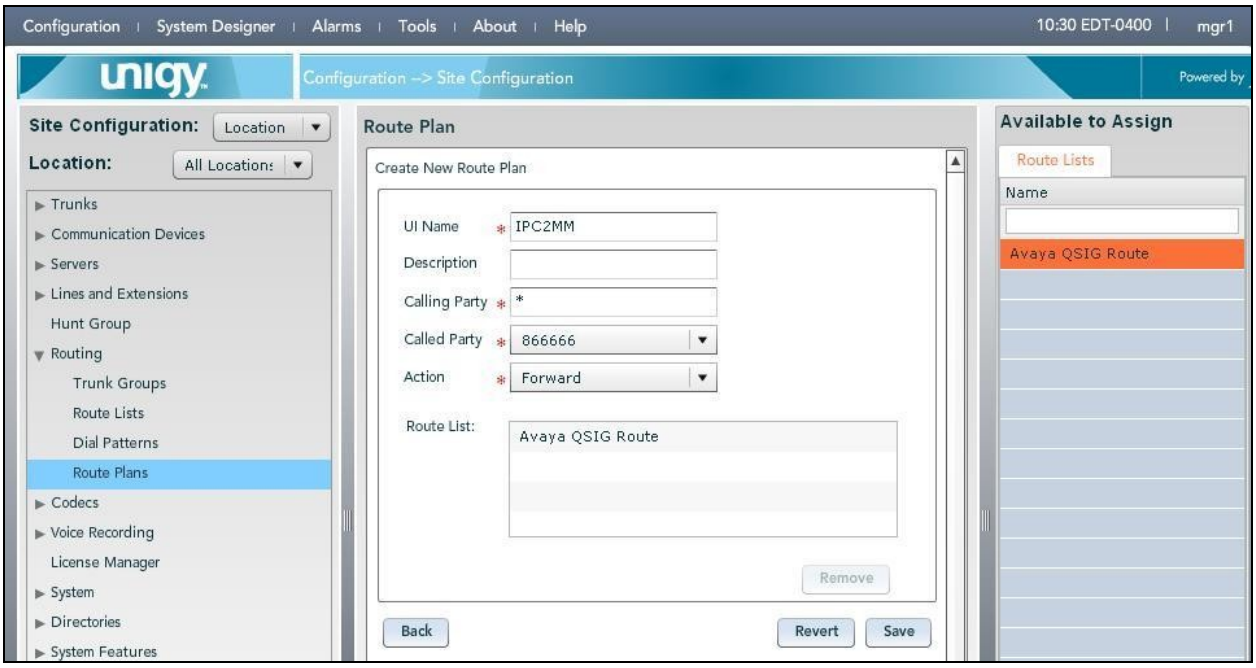


The screen is updated with the newly created route plan. Select the route plan, and click **Edit** toward the bottom of the screen (not shown).



The screen is updated with three panes again. In the right pane, select the applicable route list and drag into the **Route List** sub-section in the middle pane, as shown below. Click **Save**.

Repeat this section as necessary to add a new route plan for each new dial pattern from **Section 8.2**.



8.4. Administer Voicemail Buttons

Select **System Designer > End User Configuration** from the top menu, to display the end user information in the left pane. Select the desired user from the left pane, in this case "user9001".

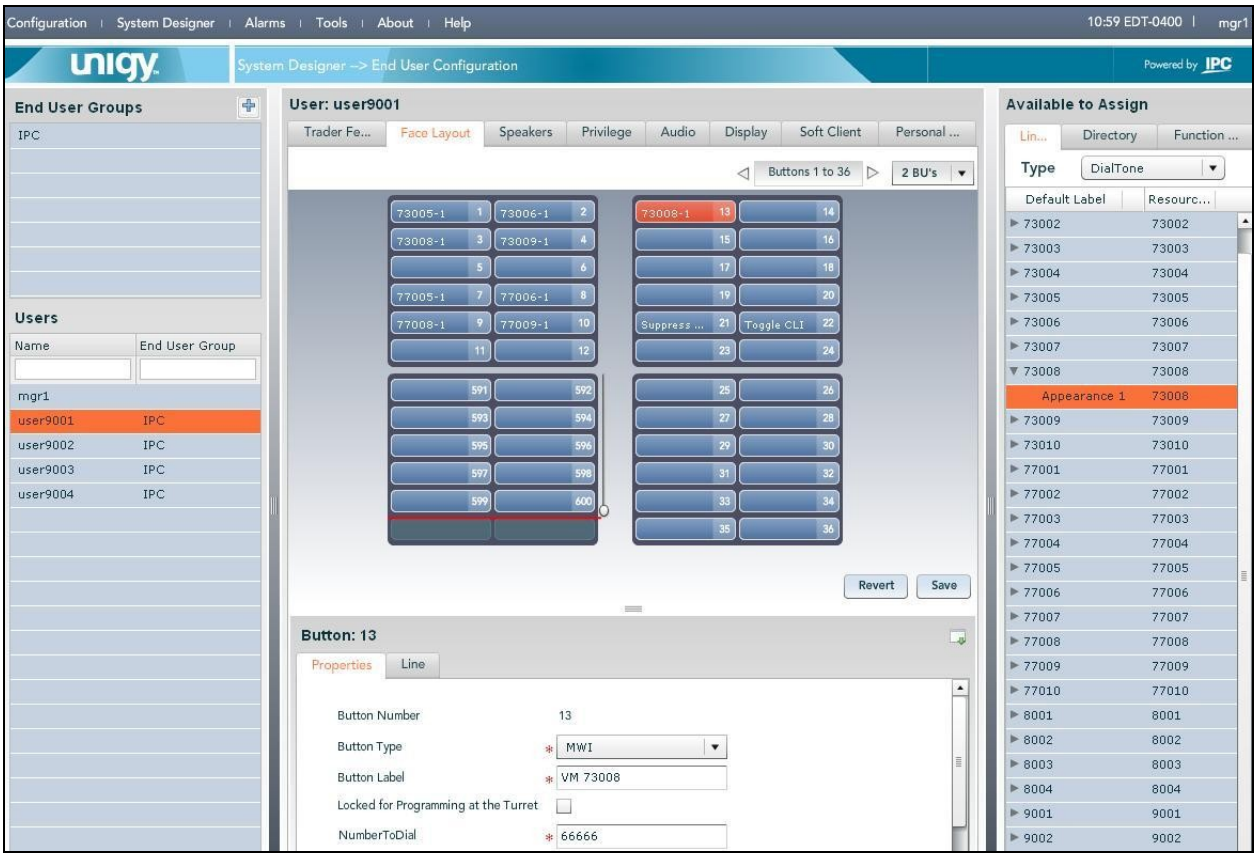
In the middle pane, select the **Face Layout** tab.

In the right pane, select the **Lines** tab. For **Type**, select "DialTone" from the drop-down list to display a list of available lines. Scroll the pane as necessary to locate and expand the desired turret extension, in this case "73008". Select the corresponding appearance for the turret extension from the right pane, and drag into an available button in the middle pane, in this case button "13" as shown below.

Select the new button in the upper middle pane, in this case button "13", to enable the button to be configured in the lower middle pane.

In the lower middle pane, enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Button Type:** "MWI"
- **Button Label:** A descriptive name.
- **NumberToDial:** The Modular Messaging pilot number from **Section 3**.



Repeat this section for all desired users. In the compliance testing two voicemail buttons corresponding to turret subscriber extensions of "73008" and "73009" were created for the two turrets users.

9. Configure IPC Media Gateway

This section provides the procedures for configuring IPC Media Gateway. The procedures include the following areas:

- Launch gateway web interface
- Obtain network interface name
- Administer media realm
- Administer proxy sets
- Administer IP group
- Administer trunk group settings
- Administer MWI notification

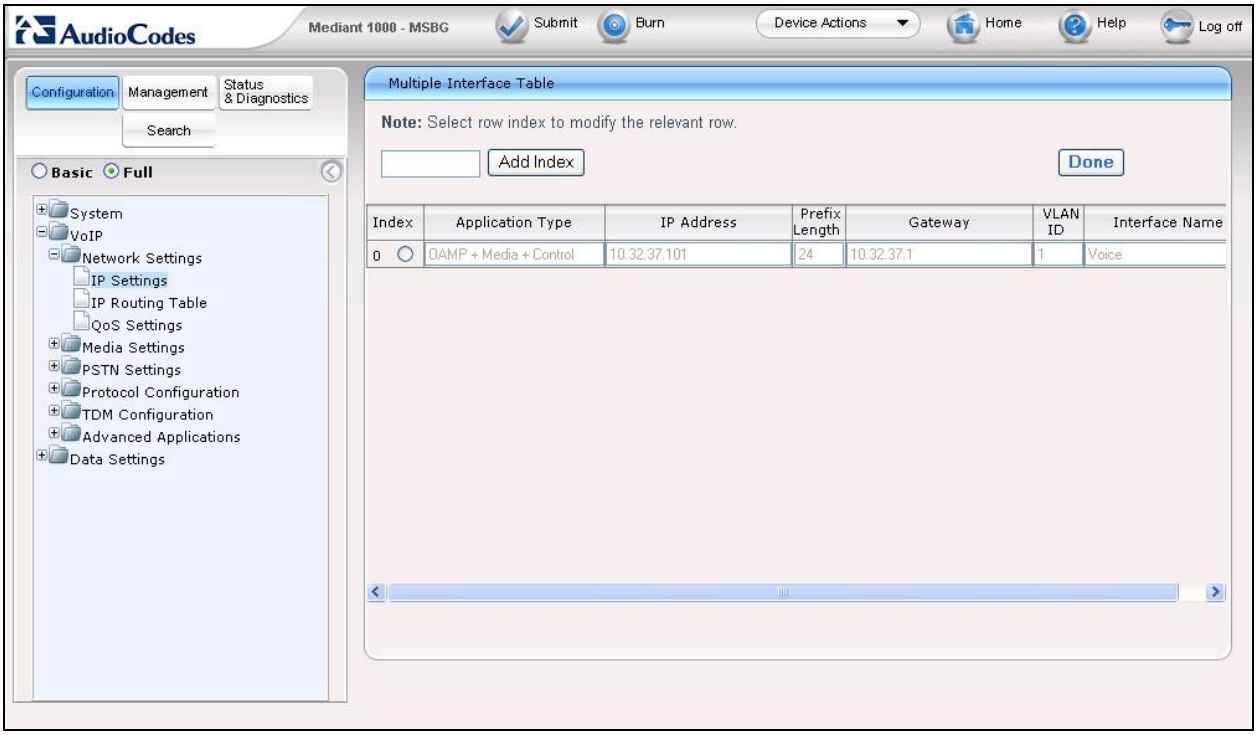
The configuration of the Media Gateway is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

9.1. Launch Gateway Web Interface

Access the Media Gateway web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the Media Gateway. Log in using the appropriate credentials.

9.2. Obtain Network Interface Name

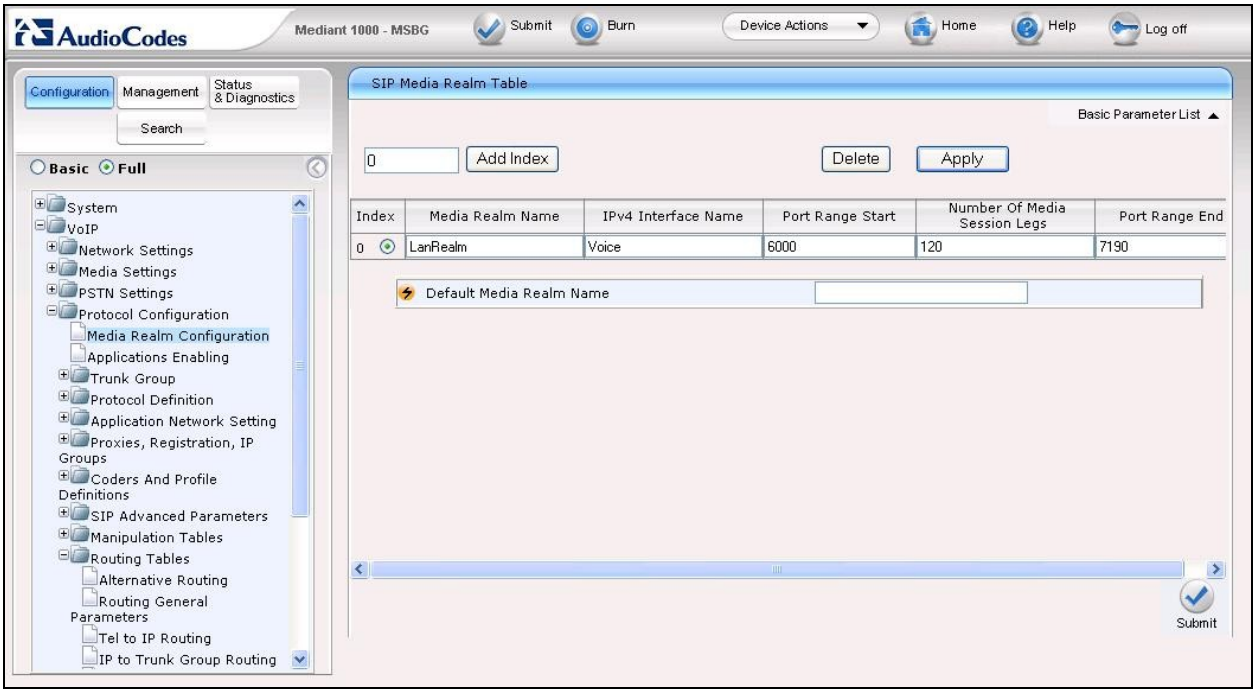
The screen below is displayed. Click the radio button for **Full** in the left pane, and select **VoIP > Network Settings > IP Settings** to display the **Multiple Interface Table** screen. Note the value of **Interface Name**, in this case "Voice".



9.3. Administer Media Realm

Select **VoIP > Protocol Configuration > Media Realm Configuration** from the left pane to display the **SIP Media Realm Table** screen. Enter "0" and click **Add Index**.

In the new index entry line, enter the values shown in the screenshot below. Note that the **Media Real Name** can be any descriptive name, and the **IPv4 Interface Name** is the interface name from **Section 9.2**.

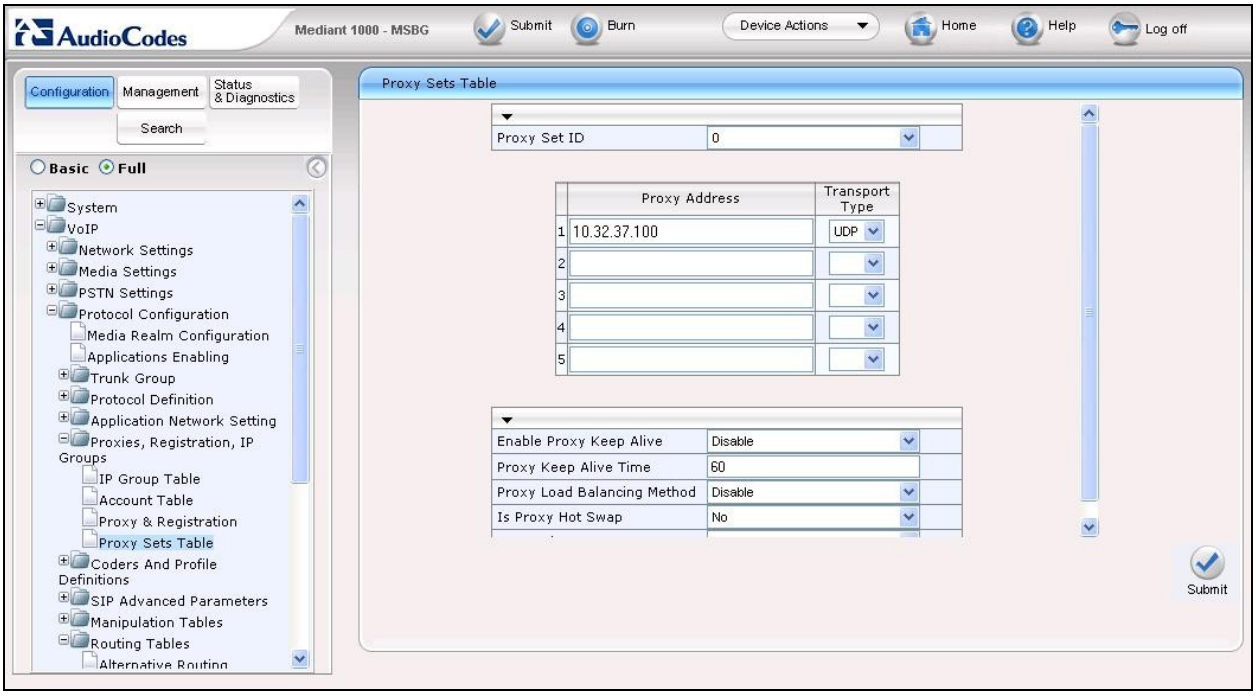


9.4. Administer Proxy Sets

Select **VoIP > Protocol Configuration > Proxies, Registration, IP Groups > Proxy Sets Table** from the left pane to display the **Proxy Sets Table** screen.

For **Proxy Set ID**, select "0". Set the first **Proxy Address** to the IP address of IPC Media Manager, and set the corresponding **Transport Type** to "UDP". Retain the default values in the remaining fields.

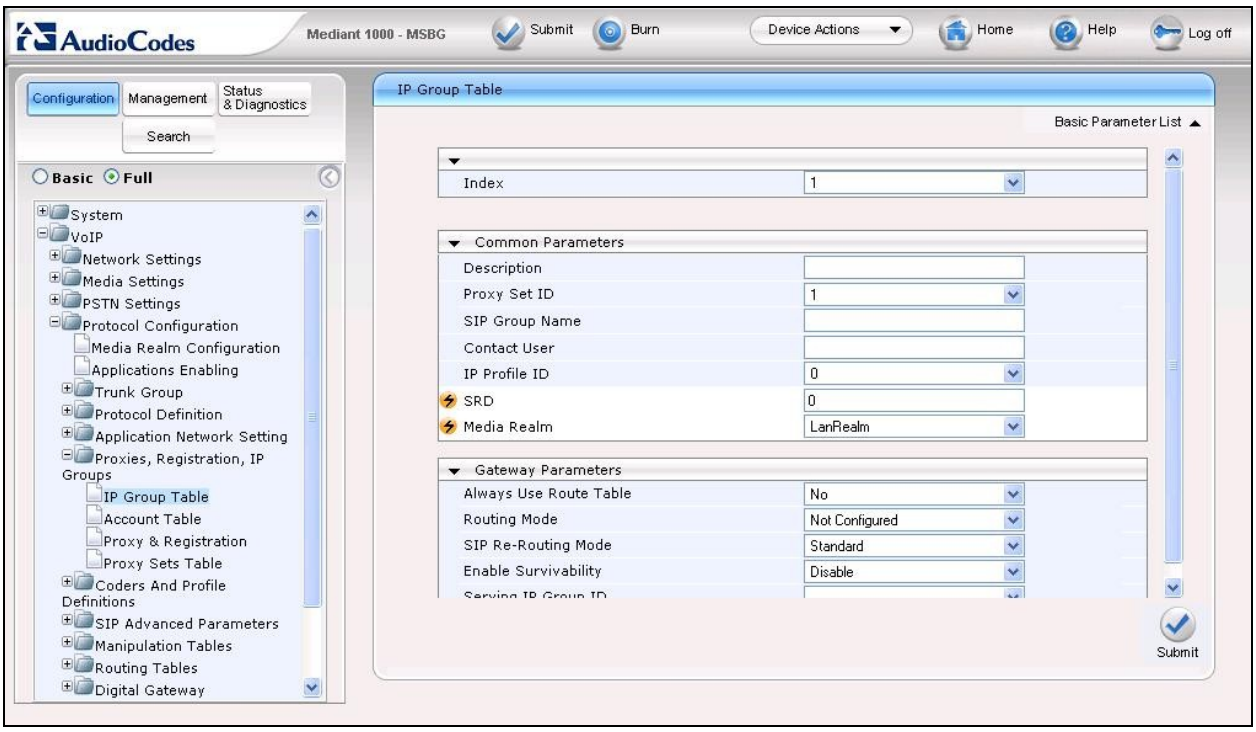
Repeat the above with **Proxy Set ID** of "1". Note that the current release requires both proxy set IDs to be configured.



9.5. Administer IP Group

Select **VoIP > Protocol Configuration > Proxies, Registration, IP Groups > IP Group Table** from the left pane to display the **IP Group Table** screen.

For **Proxy Set ID**, select "1". For **Media Realm**, select the media realm name from **Section 9.3**. Retain the default values in the remaining fields.

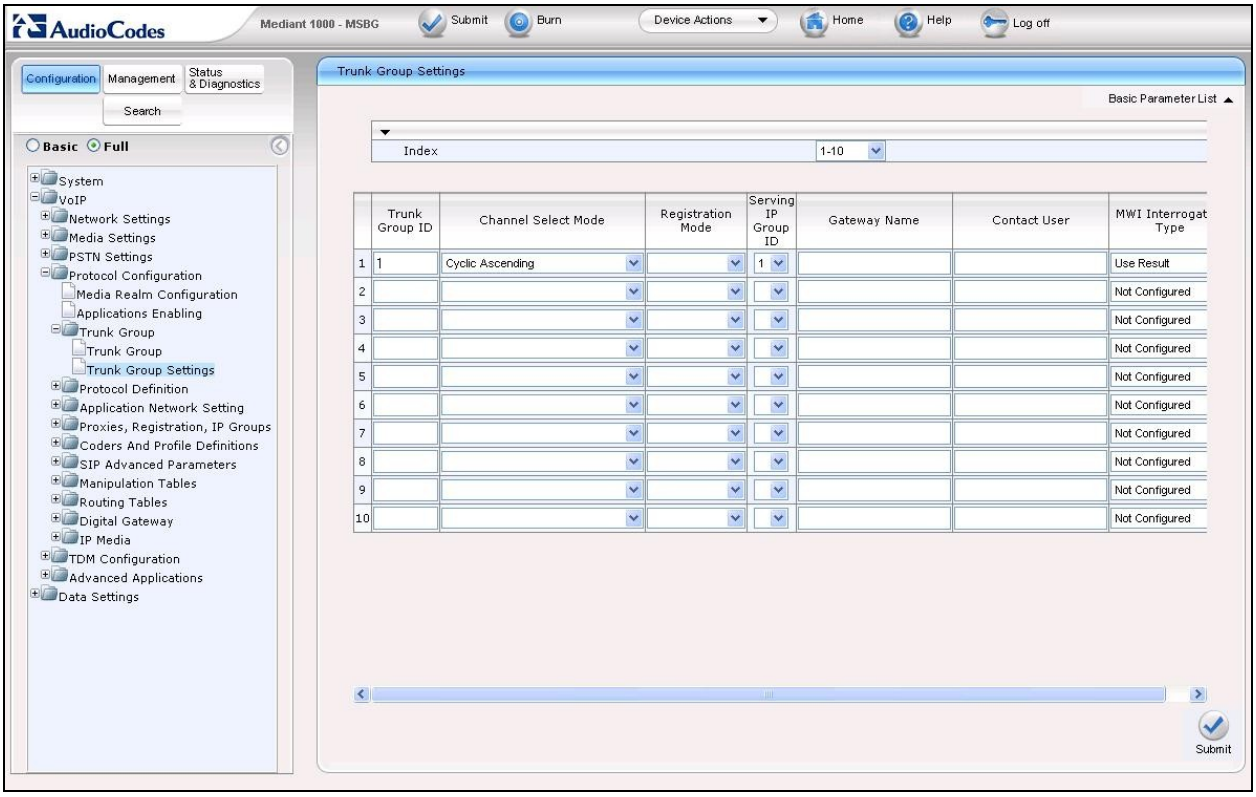


9.6. Administer Trunk Group Settings

Select **VoIP > Protocol Configuration > Trunk Group > Trunk Group Settings** from the left pane to display the **Trunk Group Settings** screen.

Create a new trunk group entry with the following values for the specified fields.

- **Trunk Group ID:** "1"
- **Channel Select Mode:** "Cyclic Ascending"
- **Serving IP Group ID:** The IP group table index from **Section 9.5**.
- **MWI Interrogation Type:** "Use Result" to enable sending of SIP NOTIFY messages.



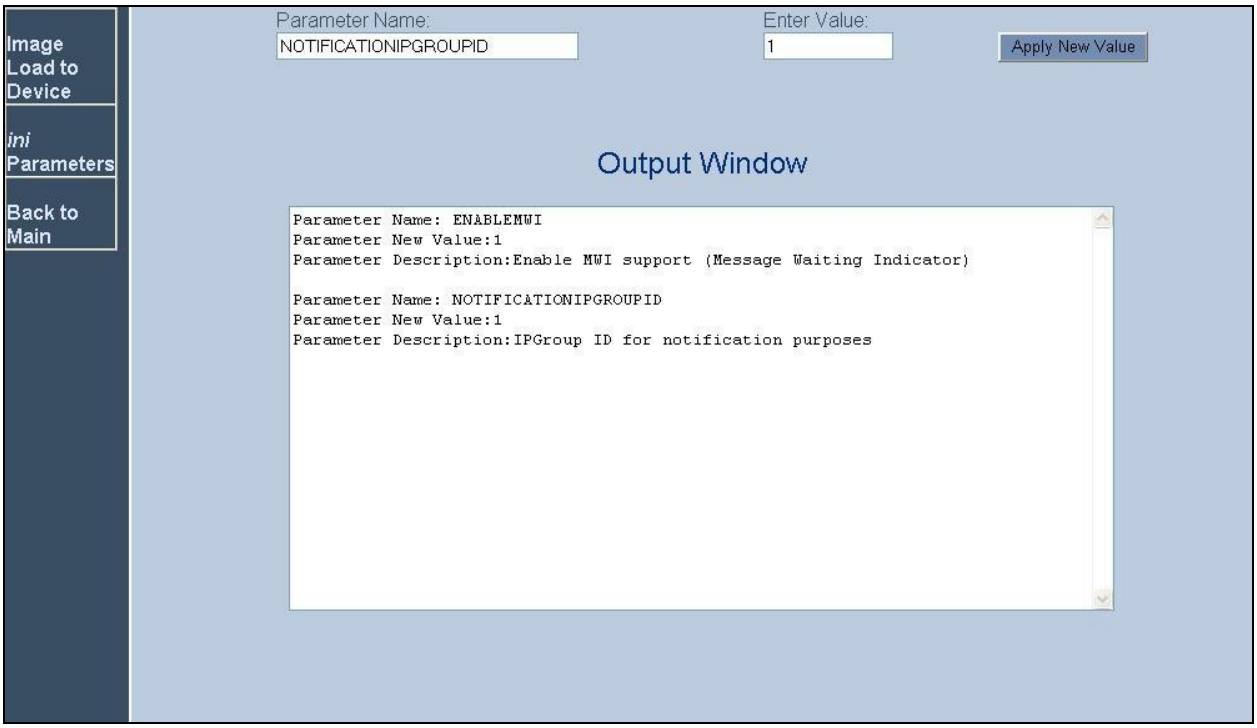
9.7. Administer MWI Notification

Access the Media Gateway administration page web interface by using the URL "http://ip-address/AdminPage" in an Internet browser window, where "ip-address" is the IP address of the Media Gateway.

The screen below is displayed. Select ***ini* Parameters**, and enter the appropriate credentials in the pop-up box (not shown).

The screen below is displayed next. Enter "ENABLEMWI"and "1", and click **Apply New Value** to set the parameter.

Repeat with "NOTIFICATIONGROUPID" and "1" as shown below.



10. Verification Steps

This section provides tests that can be performed to verify proper configuration of Avaya Modular Messaging and IPC Unigy.

Place a call from an IPC turret user to the Modular Messaging pilot number. Verify that Modular Messaging recognizes the calling party as a local subscriber.

11. Conclusion

These Application Notes describe the configuration steps required for IPC Unigy to successfully interoperate with Avaya Modular Messaging 5.2 and Avaya Aura® SIP Enablement Services 5.2.1 in a centralized messaging environment using QSIG trunks to Avaya Aura® Communication Manager 5.2.1. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

12. Additional References

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

1. *Administrator Guide for Avaya Aura™ Communication Manager*, Document 03-300509, Issue 8.0, Release 5.2, May 2009, available at http://support.avaya.com.

2. *Installing, Administering, Maintaining, and Troubleshooting Avaya Aura™ SIP Enablement Services*, Document ID 03-600768, Issue 8.0, November 2009, available at http://support.avaya.com.

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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.