



Avaya Solution & Interoperability Test Lab

Application Notes for DiVitas Mobile Unified Communications with Avaya Modular Messaging – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to provide voicemail coverage to DiVitas Clients registered to DiVitas Mobile Unified Communications using Avaya Modular Messaging. The DiVitas solution provides the seamless convergence of WiFi and cellular networks enabling roaming (back and forth) between the two networks. The DiVitas Server accesses voicemail from Avaya Modular Messaging using the IMAP interface. The DiVitas Clients running on Nokia E- and N-Series mobile handsets can then retrieve, play back, and delete voicemail messages using their visual voicemail application. DiVitas Clients are mapped to desktop phones on Avaya Aura™ Communication Manager.

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 to provide voicemail coverage to DiVitas Clients registered to DiVitas Mobile Unified Communications (Mobile UC) using Avaya Modular Messaging. The DiVitas solution provides the seamless convergence of WiFi and cellular networks enabling roaming (back and forth) between the two networks. The DiVitas Server accesses voicemail from Avaya Modular Messaging using the IMAP interface. The DiVitas Clients running on Nokia E- and N-Series mobile handsets can then retrieve and playback voicemail messages using their visual voicemail application. DiVitas Clients are mapped to desktop phones on Avaya Aura™ Communication Manager.

The focus of these Application Notes is on how to enable voicemail coverage for the DiVitas Clients. This solution requires that the configuration described in [5], *Application Notes for DiVitas Mobile Unified Communications and Avaya Aura™ Communication Manager and Avaya Aura™ Session Manager*, is also implemented.

1.1. Interoperability Compliance Testing

The focus of the interoperability compliance test was to verify that the DiVitas Server can access voicemail messages stored in the Message Storage Server (MSS) of Avaya Module Messaging using the IMAP interface, and that the DiVitas Client running on Nokia E51 and N95 mobile handsets can retrieve, play back, and delete the voicemail message on their visual voicemail application. The general test approach was to verify the following functionality:

- Voicemail coverage for the DiVitas Clients in WiFi mode¹.
- Leaving voicemail for DiVitas Clients and verifying through the visual voicemail application that there are new messages.
- Retrieving and playing back the voicemail message on the DiVitas Client.
- Verifying that deleting the voicemail message through the DiVitas Client visual voicemail application also deletes the message from the MSS.
- Verifying that logging into Modular Messaging and deleting voicemail messages also deletes it from the DiVitas Client visual voicemail application.
- Reply/forward messages when logged into Modular Messaging.
- Testing of the Find Me and Call Me features on Modular Messaging with the DiVitas Clients.

1.2. Support

For technical support on the DiVitas Mobile Unified Communications Solution and how to configure dual mode handsets connected to it, consult the support pages at <http://www.divitas.com/support.html> or contact technical support at:

- Telephone: (866) 857-6087
- E-Mail: support@divitas.com

¹ A DiVitas Client in cellular mode can only retrieve voicemail messages when it uses a Cellular Data Channel (CDC) to communicate with the DiVitas Server. In this configuration, a Cellular Voice Channel (CVC) was used. See the note in Section 2 for more information on CVC.

2. Reference Configuration

Figure 1 illustrates a sample configuration consisting of a pair of Avaya S8730 Servers running Avaya Aura™ Communication Manager, an Avaya G650 Media Gateway, Avaya Modular Messaging, Avaya Aura™ Session Manager, and dual-mode wireless telephones registered with DiVitas Mobile Unified Communications. Avaya Modular Messaging consisted of a Message Application Server (MAS) and a Message Storage Server (MSS). Each DiVitas Client was paired with an H.323 IP telephone on Avaya Aura™ Communication Manager. A SIP trunk was established between the DiVitas Mobile UC Server and Aura™ Session Manager. The Avaya G650 Media Gateway connected to the PSTN via an ISDN-PRI trunk. Avaya Aura™ System Manager was used to configure Aura™ Session Manager.

Note: While a DiVitas Client is in Cellular mode, it communicates with the DiVitas Mobile UC Server through a Cellular Voice Channel (CVC). The DiVitas Client places a call using a PSTN number assigned to the DiVitas Mobile UC Server. CVC enables the client to make and receive voice calls and use voice features such as hold and resume. CVC supports multiple simultaneous calls and is used when the Cellular Data Channel (CDC) is not available, which requires a public IP address assigned to the DiVitas Mobile UC Server. In this configuration, a CVC was used which doesn't allow retrieving voicemail messages when a DiVitas Client in Cellular mode. This requires a CDC.

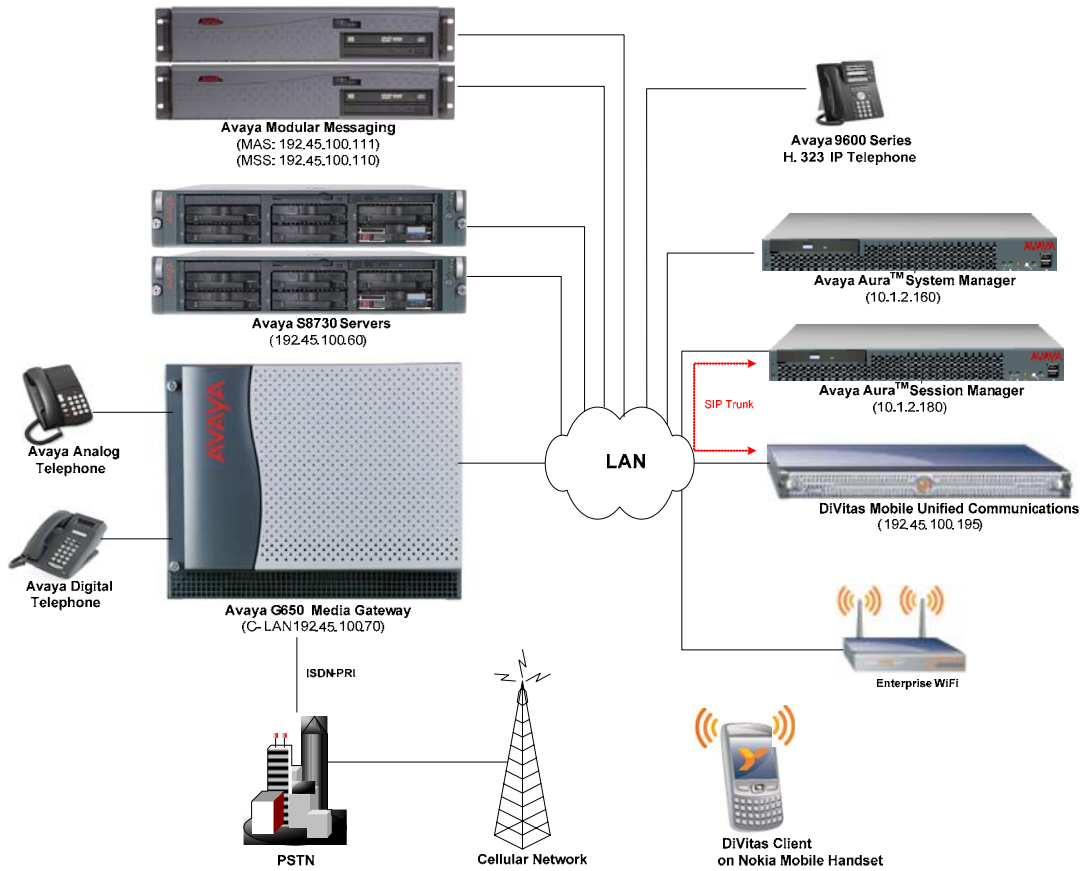


Figure 1: DiVitas Mobile Unified Communications with Avaya SIP-based Network

3. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya Modular Messaging (MAS & MSS)	5.0
Avaya S8730 Server with G650 Media Gateway	Avaya Aura™ Communication Manager 5.2 (R015x.02.0.947.3) with Service Pack 1 (Patch 17294)
Avaya Aura™ Session Manager	1.1.3.1.18022
Avaya Aura™ System Manager	1.0
Avaya 9600 Series IP Telephones	3.0 (H.323)
Avaya 6400 Series Digital Telephones	--
Avaya Analog Telephones	--
DiVitas Mobile Unified Communications	2.7.2.0 Build 39
DiVitas Client on Nokia E51 and N95	2.7.2.0 Build 39

Table 1: Equipment and Software Validated

4. Configure Avaya Aura™ Communication Manager

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

- Verify Customer Options for ISDN-PRI and QSIG Trunking
- Configure ISDN-PRI/QSIG Trunk to Avaya Modular Messaging
- Administer QSIG TSC and Extension Length
- Create Hunt Group (Pilot Number) and Coverage Path
- Configure Call Routing to Avaya Modular Messaging
- Create Voicemail Subscribers

Avaya Aura™ Communication Manager was configured using the System Access Terminal (SAT). Refer to [1] for additional details.

4.1. Verify Customer Options for H.323/QSIG Trunking

Avaya Modular Messaging supports various PBX integrations, such as SIP, ISDN/QSIG, and H.323/QSIG. In this configuration, an H.323/QSIG integration was implemented. For this solution, the following software features must be enabled in the **System Parameters Customer Options** form on Communication Manager.

- IP Station Ports
- ISDN-PRI
- Private Networking
- QSIG Features:
 - Basic Call Setup
 - Basic Supplementary Services
 - Supplementary Services with Rerouting
 - Transfer into QSIG Voice Mail
 - Value-Added (VALU)

4.2. Configure ISDN-PRI/QSIG Trunk to Avaya Modular Messaging

This section covers the configuration of the ISDN-PRI/QSIG trunk between Avaya Aura™ Communication Manager and Avaya Modular Messaging, including the DS1, signaling group, trunk group, and public numbering format.

Install the T1 circuit pack and configure the DS1 interface as shown below.

```
change ds1 2a09                                     Page 1 of 2
                                                    DS1 CIRCUIT PACK
Location: 02A09                                     Name: lzmas1-01
Bit Rate: 1.544                                     Line Coding: b8zs
Line Compensation: 1                               Framing Mode: esf
Signaling Mode: isdn-pri                          Interface: peer-master
Connect: pbx                                       Peer Protocol: Q-SIG
TN-C7 Long Timers? n                               Side: a
Interworking Message: PROGRESS                     CRC? n
Interface Companding: mulaw                        Idle Code: 11111111
                                                    DCP/Analog Bearer Capability: 3.1kHz
                                                    T303 Timer(sec): 4
                                                    Disable Restarts? n
Slip Detection? n                                  Near-end CSU Type: other
```

Figure 2: DS1

Configure a signaling group that will be assigned to the DS1 channels. The signaling group should be configured as shown below.

```
change signaling-group 90                           Page 1 of 1
                                                    SIGNALING GROUP
Group Number: 90                                   Group Type: isdn-pri
Associated Signaling? y                            Max number of NCA TSC: 10
Primary D-Channel: 02A0924                        Max number of CA TSC: 10
                                                    Trunk Group for NCA TSC: 90
Trunk Group for Channel Selection: 90
TSC Supplementary Service Protocol: b              Network Call Transfer? n
```

Figure 3: Signaling Group

Create a trunk group and assign the newly created DS1 channels to it. Configure the **Trunk Group** form as shown in **Figure 4**. Set the **Group Type** field to *isdn*, set the **Carrier Medium** to *PRI/BRI*, and configure the **Service Type** field to *tie*. Configure the other fields in bold and accept the default values for the remaining fields.

```

change trunk-group 90                                     Page 1 of 21
                                     TRUNK GROUP
Group Number: 90          Group Type: isdn          CDR Reports: y
  Group Name: LZMAS          COR: 1          TN: 1          TAC: 190
  Direction: two-way      Outgoing Display? y          Carrier Medium: PRI/BRI
  Dial Access? y          Busy Threshold: 255  Night Service:
  Queue Length: 0
Service Type: tie          Auth Code? n          TestCall ITC: rest
                                     Far End Test Line No:
TestCall BCC: 4
  
```

Figure 4: Trunk Group – Page 1

On Page 2, set the **Supplementary Service Protocol** field to 'b' to enable QSIG signaling.

```

change trunk-group 90                                     Page 2 of 21
  Group Type: isdn
TRUNK PARAMETERS
  Codeset to Send Display: 6          Codeset to Send National IEs: 6
  Max Message Size to Send: 260      Charge Advice: none
  Supplementary Service Protocol: b  Digit Handling (in/out): enbloc/enbloc
  Trunk Hunt: cyclical
                                     Digital Loss Group: 13
Incoming Calling Number - Delete:      Insert:          Format: unk-unk
  Bit Rate: 1200          Synchronization: async  Duplex: full
Disconnect Supervision - In? y  Out? n
Answer Supervision Timeout: 0
  Administer Timers? n          CONNECT Reliable When Call Leaves ISDN? n
  
```

Figure 5: Trunk Group – Page 2

On Page 3 of the trunk group form, set the **Format** field to *public*. This field specifies the format of the calling party number sent to the far-end. The **NCA-TSC Trunk Member** field should be set to the highest numbered channel in the trunk group. Configure the other fields in bold as shown below.

```

change trunk-group 90                                     Page 3 of 21
TRUNK FEATURES
  ACA Assignment? n                                     Measured: none                                     Wideband Support? n
                                                    Internal Alert? n                                     Maintenance Tests? y
  Data Restriction? n                                   NCA-TSC Trunk Member: 10
                                                    Send Name: y                                       Send Calling Number: y
  Used for DCS? n                                       Hop Dgt? n                                         Send EMU Visitor CPN? n
  Suppress # Outpulsing? n                               Format: public
  Outgoing Channel ID Encoding: preferred                UUI IE Treatment: service-provider
                                                    Replace Restricted Numbers? n
                                                    Replace Unavailable Numbers? n
                                                    Send Connected Number: y
                                                    Hold/Unhold Notifications? y
  Send UUI IE? y                                         Modify Tandem Calling Number? n
  Send UCID? n
  Send Codeset 6/7 LAI IE? y                             Dsl Echo Cancellation? n

  Apply Local Ringback? n
  Show ANSWERED BY on Display? y
                                                    Network (Japan) Needs Connect Before Disconnect? n

```

Figure 6: Trunk Group – Page 3

In the trunk member pages, configure the number of channels required. In this example, 10 channels were added to the trunk group.

```

change trunk-group 90                                     Page 5 of 21
                                                    TRUNK GROUP
                                                    Administered Members (min/max): 1/10
GROUP MEMBER ASSIGNMENTS                               Total Administered Members: 10

  Port   Code Sfx Name      Night      Sig Grp
  1: 02A0901 TN464 F                Night      90
  2: 02A0902 TN464 F                Night      90
  3: 02A0903 TN464 F                Night      90
  4: 02A0904 TN464 F                Night      90
  5: 02A0905 TN464 F                Night      90
  6: 02A0906 TN464 F                Night      90
  7: 02A0907 TN464 F                Night      90
  8: 02A0908 TN464 F                Night      90
  9: 02A0909 TN464 F                Night      90
  10: 02A0910 TN464 F                Night      90

```

Figure 7: Trunk Group Members – Page 5

Configure the **Public/Unknown Numbering Format** form to send the calling party number to Avaya Module Messaging. Add an entry so that the 5-digit extension of voicemail subscribers is sent to the voicemail system.

change public-unknown-numbering 2				Page	1 of	2
NUMBERING - PUBLIC/UNKNOWN FORMAT						
Ext	Ext	Trk	CPN	Total		
Len	Code	Grp(s)	Prefix	CPN		
				Len		
5	2	90		5	Total Administered: 22	
					Maximum Entries: 9999	

Figure 8: Public Unknown Numbering Format

4.3. Administer QSIG TSC and Extension Length

In the **Feature-Related System Parameters** form, configure an available extension in the **QSIG/ETSI TSC Extension** field. Specify the length of mailbox extensions in the **MWI – Number of Digits Per Voice Mail Subscriber**. In this example, 5-digit extensions are used.

```
change system-parameters features                               Page 8 of 18
                        FEATURE-RELATED SYSTEM PARAMETERS

ISDN PARAMETERS

Send Non-ISDN Trunk Group Name as Connected Name? n
Display Connected Name/Number for ISDN DCS Calls? n
Send ISDN Trunk Group Name on Tandem Calls? n

PARAMETERS FOR CREATING
QSIG SELECTION NUMBERS
Network Level: 0
Level 2 Code:
Level 1 Code:

                QSIG/ETSI TSC Extension: 24155
MWI - Number of Digits Per Voice Mail Subscriber: 5
                Feature Plus Ext:
                National CPN Prefix:
                International CPN Prefix:
                Pass Prefixed CPN: ASAI? n   VDN/Vector? n
Unknown Numbers Considered Internal for AUDIX? n
USNI Calling Name for Outgoing Calls? n
Path Replacement with Measurements? y
                QSIG Path Replacement Extension: 24151
Send QSIG Path Replacement Conf. Event to ASAI? y
Path Replace While in Queue/Vectoring? n
```

4.4. Create Hunt Group and Coverage Path

Configure a hunt group to be used as the call coverage point for voicemail subscribers. On Page 1 of the hunt group, specify a descriptive name and assign an available extension to the hunt group.

```
change hunt-group 55                                           Page 1 of 60
                        HUNT GROUP

Group Number: 55                                             ACD? n
Group Name: LZMAS                                           Queue? n
Group Extension: 25108                                       Vector? n
Group Type: ucd-mia                                         Coverage Path:
TN: 1                                                         Night Service Destination:
COR: 1                                                         MM Early Answer? n
Security Code:                                               Local Agent Preference? n
ISDN/SIP Caller Display: mbr-name
```

Figure 9: Hunt Group – Page 1

Configure Page 2 of the hunt group, as shown below. Set the **Message Center** field to *qsig-mwi* and specify the **Voice Mail Number**. In this example, the Modular Messaging pilot number is 25108. Calls to Modular Messaging are routed using AAR as specified by the routing digit of '8' (i.e., AAR feature access code).

```

change hunt-group 55                                     Page 2 of 60
                                     HUNT GROUP
                                     LWC Reception: none      AUDIX Name:
                                     Message Center: qsig-mwi
                                     Send Reroute Request: n
                                     Voice Mail Number: 25108
Routing Digits (e.g. AAR/ARS Access Code): 8          Provide Ringback? n
                                     TSC per MWI Interrogation? n

```

Figure 10: Hunt Group – Page 2

Set up a coverage path for the subscribers' extensions. Increase the number of rings so that calls to DiVitas Clients in Cellular mode will ring before covering to voicemail. In this example, setting the **Number of Rings** field to '5' provided enough time for a DiVitas Client in Cellular mode to answer the call, if available. Set the **Point1** field to the voicemail hunt group configured above.

```

change coverage path 55                                 Page 1 of 1
                                     COVERAGE PATH
                                     Coverage Path Number: 55
Cvg Enabled for VDN Route-To Party? n                Hunt after Coverage? n
                                     Next Path Number:         Linkage
COVERAGE CRITERIA
Station/Group Status   Inside Call   Outside Call
Active?                 n             n
Busy?                   y             y
Don't Answer?          y             y      Number of Rings: 5
All?                    n             n
DND/SAC/Goto Cover?   y             y
Holiday Coverage?     n             n
COVERAGE POINTS
Terminate to Coverage Pts. with Bridged Appearances? n
Point1: h55            Rng: 2      Point2:
Point3:                Point4:
Point5:                Point6:

```

Figure 11: Voicemail Coverage Path

4.5. Call Routing to Avaya Modular Messaging

This section describes how to route calls to Avaya Modular Messaging. When calls cover to voicemail or a subscriber calls the voicemail system using the pilot number (25108), the call is routed using AAR as specified on the second page of the voicemail hunt group configured in Section 4.4 In the **AAR Digit Analysis Table**, add an entry for the voicemail pilot number. In this example, the call is routed over Route Pattern 250.

```
change aar analysis 25
```

AAR DIGIT ANALYSIS TABLE							Page	1 of	2
Location: all							Percent Full:	1	
Dialed	Total	Route	Call	Node	ANI				
String	Min	Max	Pattern	Type	Num	Reqd			
25108	5	5	250	aar		n			

Figure 12: AAR Digit Analysis Table

Route Pattern 250 routes calls over the H.323 IP trunk to the MAS. As-needed CA-TSCs are enabled for the route preference in the second half of the form.

```
change route-pattern 250
```

Pattern Number: 250 Pattern Name: LZMAS											Page	1 of	3
SCCAN? n Secure SIP? n													
Grp	FRL	NPA	Pfx	Hop	Toll	No.	Inserted				DCS/	IXC	
No			Mrk	Lmt	List	Del	Digits				QSIG		
											Intw		
1:	90	0										n	user
2:											n	user	
3:											n	user	
4:											n	user	
5:											n	user	
6:											n	user	
BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	PARM	No.	Numbering	LAR			
0	1 2 M 4 W		Request					Dgts	Format				
											Subaddress		
1:	y	y	y	y	y	n	y	as-needed	rest			none	
2:	y	y	y	y	y	n	n		rest			none	
3:	y	y	y	y	y	n	n		rest			none	
4:	y	y	y	y	y	n	n		rest			none	
5:	y	y	y	y	y	n	n		rest			none	
6:	y	y	y	y	y	n	n		rest			none	

Figure 13: Route Pattern for Calls to Modular Messaging

4.6. Create Voicemail Subscribers

This section describes how to map a desktop IP phone on Avaya Aura™ Communication Manager to a DiVitas Client running on a Nokia E51 or N95 handset. This would allow a desktop phone and the DiVitas Client to ring simultaneously when a call is received. The call can then be answered by either the desktop phone or the DiVitas Client.

Configure a station as shown in **Figure 14**. In this example, the station maps to an H.323 IP phone with an extension of 24511. The DiVitas Client has the same extension and is configured in **Figure 34**.

```
add station 24511                                     Page 1 of 5
                                                    STATION
Extension: 24511                                     Lock Messages? n          BCC: 0
  Type: 9630                                         Security Code: XXXXX      TN: 1
  Port: IP                                           Coverage Path 1: 55       COR: 1
  Name: DiVitas 24511                               Coverage Path 2:          COS: 1
                                                    Hunt-to Station:
STATION OPTIONS
Loss Group: 19                                     Time of Day Lock Table:
Speakerphone: 2-way                               Personalized Ringing Pattern: 1
Display Language: english                         Message Lamp Ext: 24511
Survivable GK Node Name:                          Mute Button Enabled? y
Survivable COR: internal                           Button Modules: 0
Survivable Trunk Dest? y                           Media Complex Ext:
                                                    IP SoftPhone? n
                                                    Customizable Labels? y
```

Figure 14: Station – Page 1

On Page 2 of the station form, set the **MWI Served User Type** field to *qsig-mwi* to enable MWI.

```
add station 24511                                     Page 2 of 5
                                                    STATION
FEATURE OPTIONS
LWC Reception: spe                                Auto Select Any Idle Appearance? n
LWC Activation? y                                 Coverage Msg Retrieval? y
LWC Log External Calls? n                         Auto Answer: none
  CDR Privacy? n                                  Data Restriction? n
Redirect Notification? y                           Idle Appearance Preference? n
Per Button Ring Control? n                         Bridged Idle Line Preference? n
Bridged Call Alerting? n                           Restrict Last Appearance? n
Active Station Ringing: single
                                                    EMU Login Allowed? n
H.320 Conversion? n                               Per Station CPN - Send Calling Number?
Service Link Mode: as-needed                       EC500 State: disabled
Multimedia Mode: enhanced
  MWI Served User Type: qsig-mwi                  Display Client Redirection? n
                                                    Select Last Used Appearance? n
                                                    Coverage After Forwarding? s
                                                    Direct IP-IP Audio Connections? y
Emergency Location Ext: 24511                       Always Use? n IP Audio Hairpinning? y
```

Figure 15: Station – Page 2

5. Configure Avaya Modular Messaging

This section provides the procedures for configuring Avaya Modular Messaging, including the Message Application Server (MAS) and the Message Storage Server (MSS). The procedures include the following areas:

- Configure the Message Waiting Indicator on the MAS.
- Configure an ISDN-PRI trunk between the MAS and Communication Manager.
- Enable the IMAP interface on the MSS.
- Configure subscribers on the MSS.

For complete coverage of Modular Messaging installation and configuration, refer to [4]. This section only focuses on the items listed above.

5.1. Configure Message Application Server (MAS)

Configuration of the Messaging Application Server (MAS) was performed using the **Voice Mail System Configuration** application. To launch the application, navigate to **Programs → Avaya Modular Messaging → Voice Mail System Configuration** from the MAS. Expand all the fields so that all the applicable options are visible as shown below.



Figure 16: Voice Mail System Configuration

From the **Voice Mail System Configuration** tree-view, select **Telephone User Interface**. In the window displayed below, access the **General** tab and set the **Number of Digits in a Mailbox** field to the appropriate mailbox extension length. In this example, mailbox extensions were 5 digits in length.

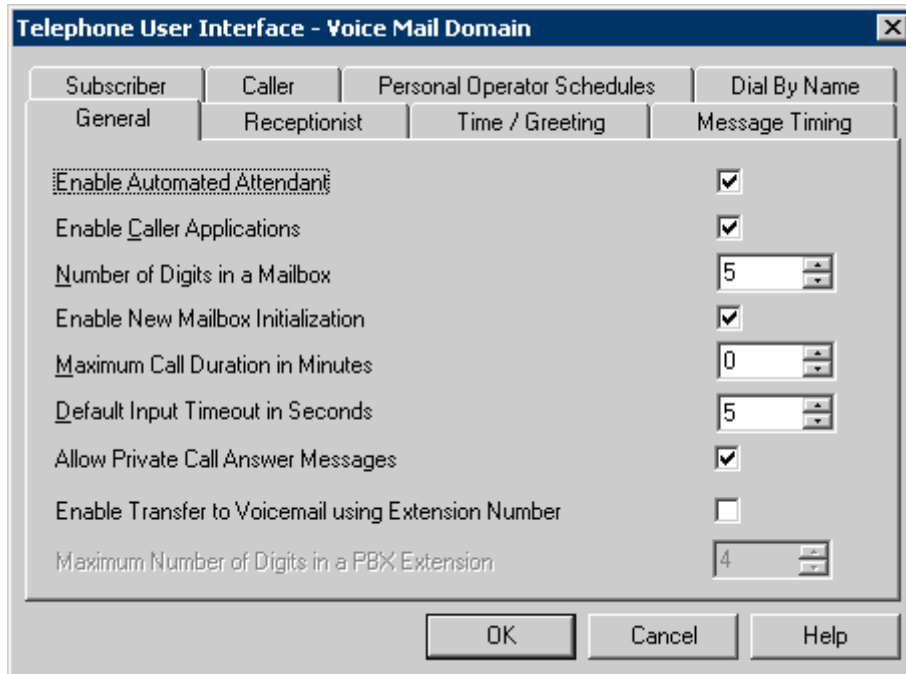


Figure 17: Telephone User Interface – General Tab

From the **Voice Mail System Configuration** tree-view, expand **PBXs** and select **Avaya G3 (QSIG)**. In the window displayed below, access the **Transfer/Outcall** tab and set the **Transfer Mode** field to “full”. Click **OK**.

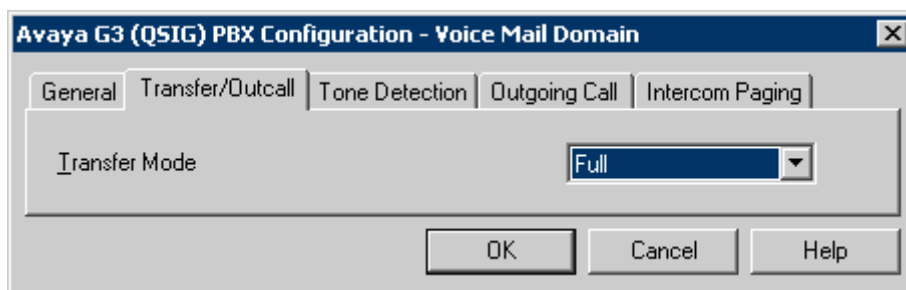


Figure 18: PBX Configuration – Transfer/Outcall Tab

In the **Outgoing Call** tab, set the **Origin Number** to the voice mail pilot number (i.e., 25108). That is, set the field to the number entered in the **Voice Mail Number** field on the Page 2 of the **Hunt Group** form shown in **Figure 10**. Click **OK** to save the changes.

Note: The MAS will prompt to restart the services. This step will be performed later.

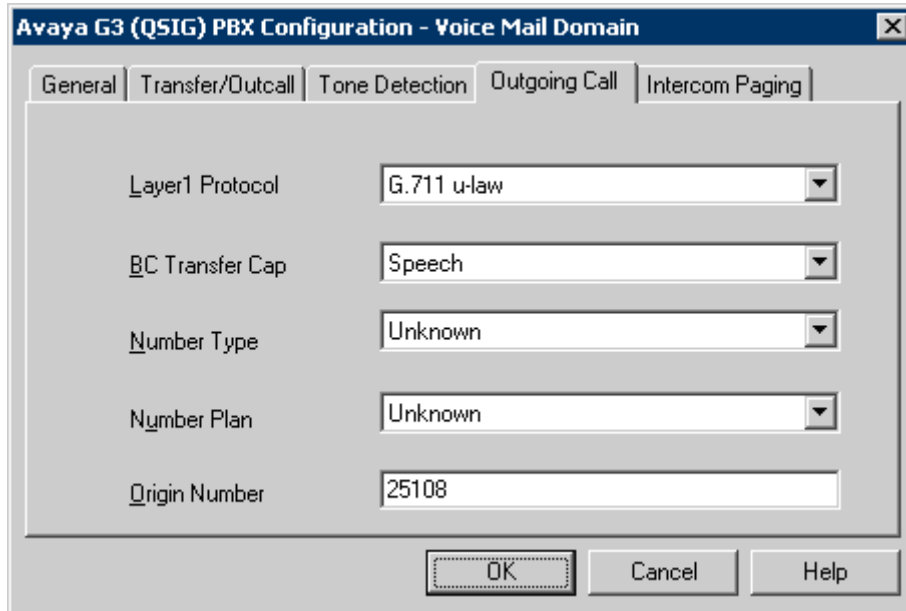


Figure 19: PBX Configuration – Outgoing Call Tab

Access the **Message Waiting Indicator** option and configure the parameters as follows:

- **Enable Message Waiting Indicator (MWI)** by checking the box.
- Enter the name of the MWI server created during the installation procedure in the **MAS MWI server** field. In this example, the MAS server, “LZMAS1”, was also the MWI server.
- The box entitled **Message Application Servers that support MWI** should contain the MAS server capable of placing MWI requests. Again, the MWI server is “LZMAS1”.
- Click **OK** to save the changes.

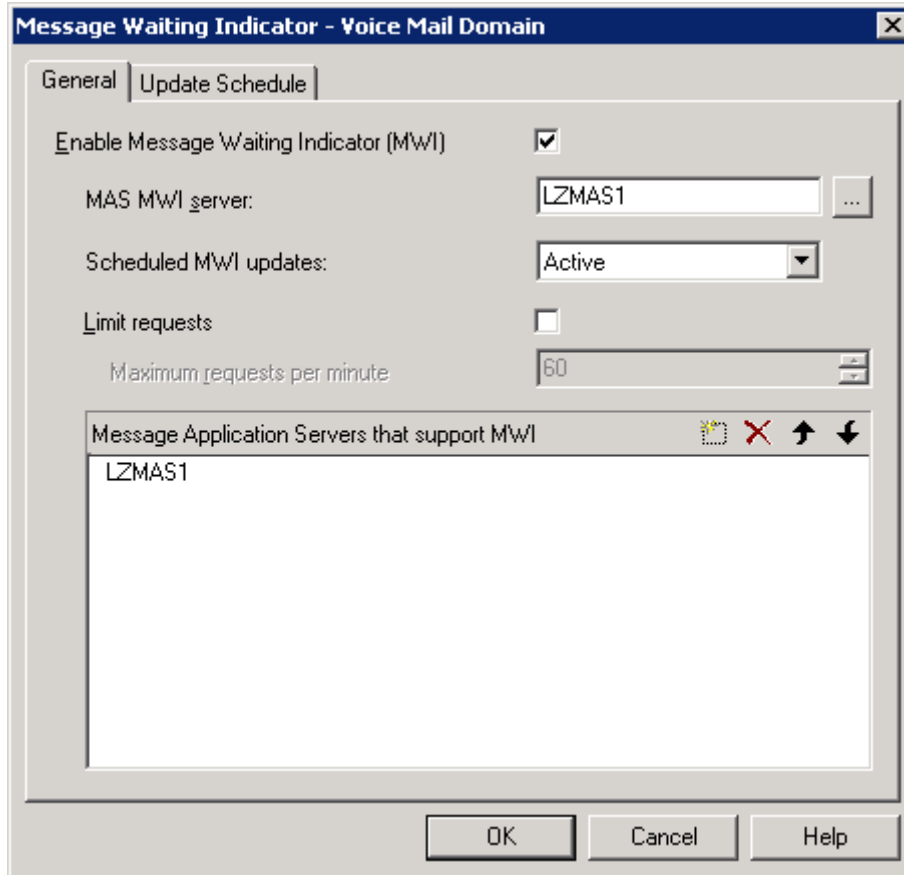


Figure 20: Message Waiting Indicator

Access the **Telephony Interface (Dialogic-QSIG)** option and set the **Maximum Concurrent Calls** field to the number of ports supported for the ISDN-PRI trunk. In this example, 10 ports were used. By default the ports are enabled. Click **OK** to save the changes. Restart the MAS Service when prompted and then continue with the step below.

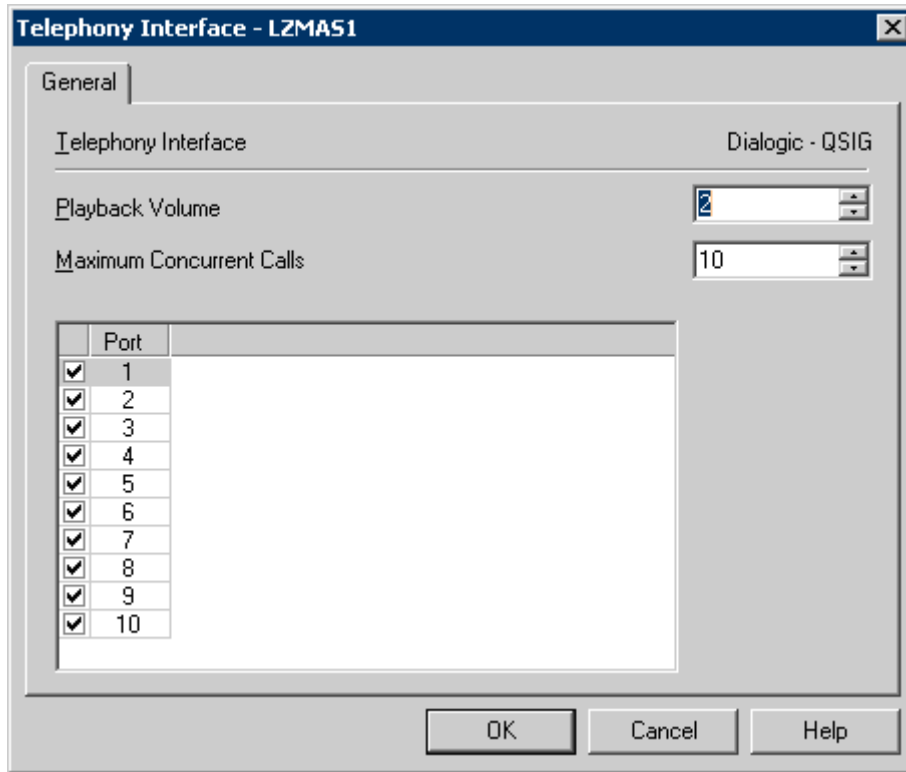


Figure 21: Telephony Interface

Access the **Port Groups** options under the MAS name in **Figure 16** and click the **Add Group** button. Provide a name for the **Port Group** and only enable “Outgoing” for the **Port Group Usage** field. Uncheck all of the ports, except the ports that will be used for MWI. In this example, port 10 is being used for MWI. Click **OK**.

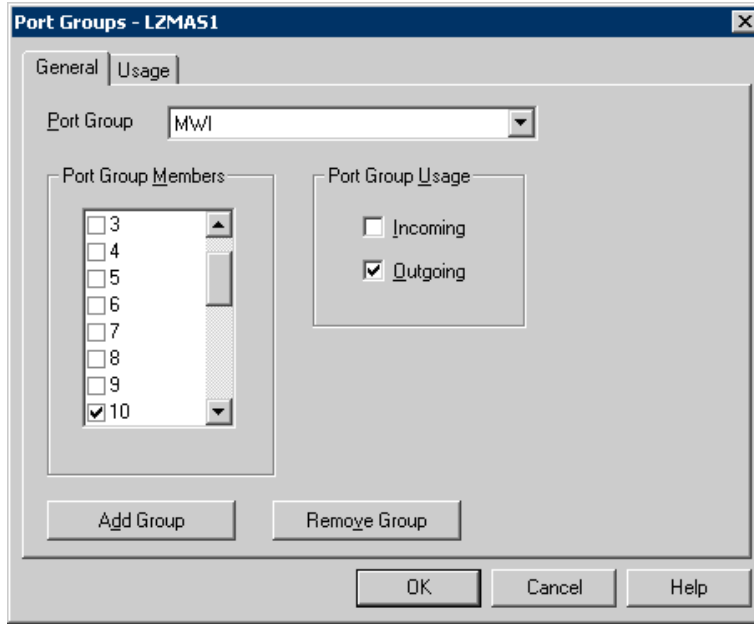


Figure 22: Port Groups - MWI

Next, select the “Default Group” in the **Port Group** field and ensure that it is configured to meet the customer’s need for “Incoming” and “Outgoing” under **Port Group Usage** by checking all ports, except for the port used for MWI. Click **OK** to save the changes.

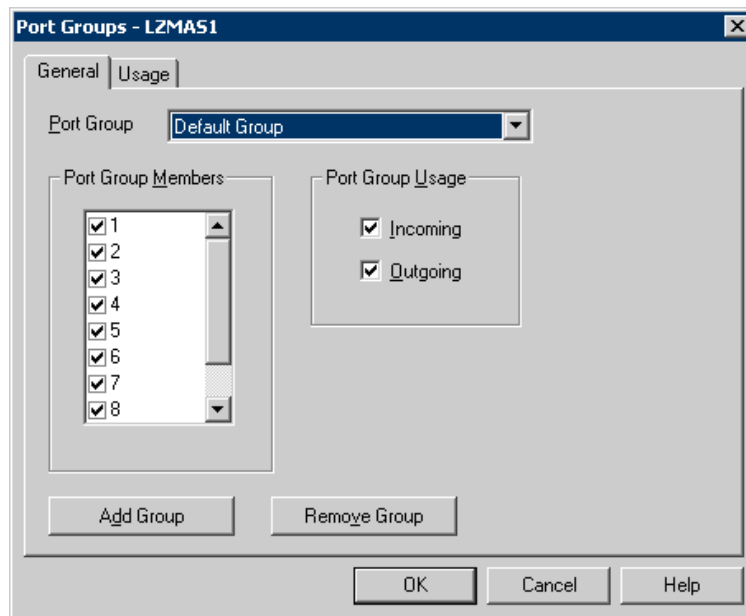


Figure 23: Port Groups – Default Group

Next, access **PBX Integration** and within the **General** tab select “**QSIG**” for the **Integration Type**.

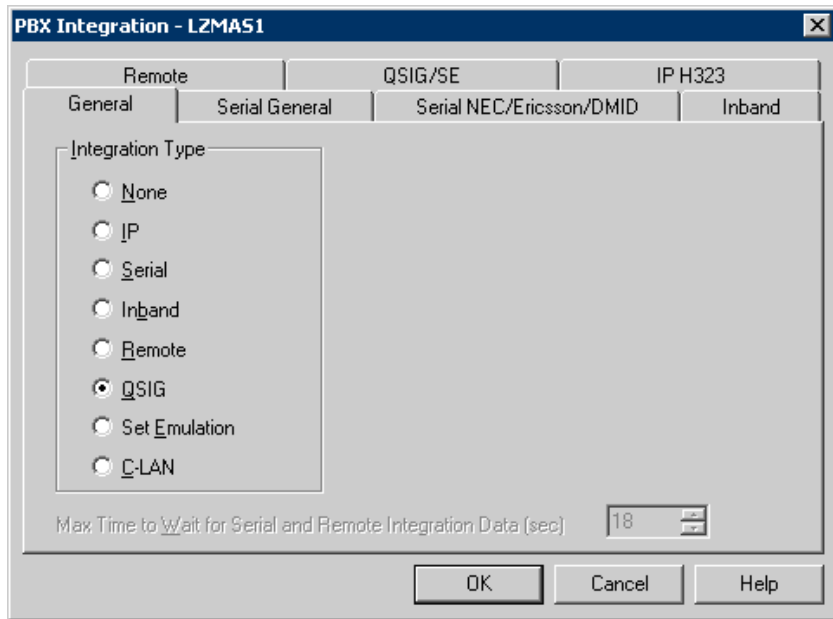


Figure 24: PBX Integration – General Tab

Next, configure the **QSIG/SE** tab with the following settings:

- Specify the **MWI Port Group**.
- Set the **Max MWI Sessions** the appropriate value. In this example, one session was used.

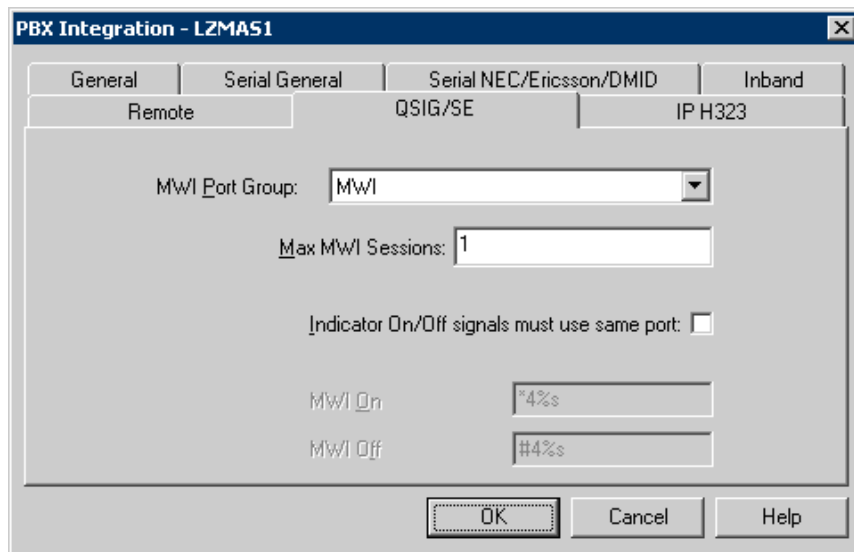


Figure 25: PBX Integration – IP H323 Tab

Finally, access **PBX Type** and verify that the **Telephony Type** field is set to “Dialogic QSIG” and that “Avaya G3 (QSIG)” is selected under **PBXs**. Click **OK** to save the changes.

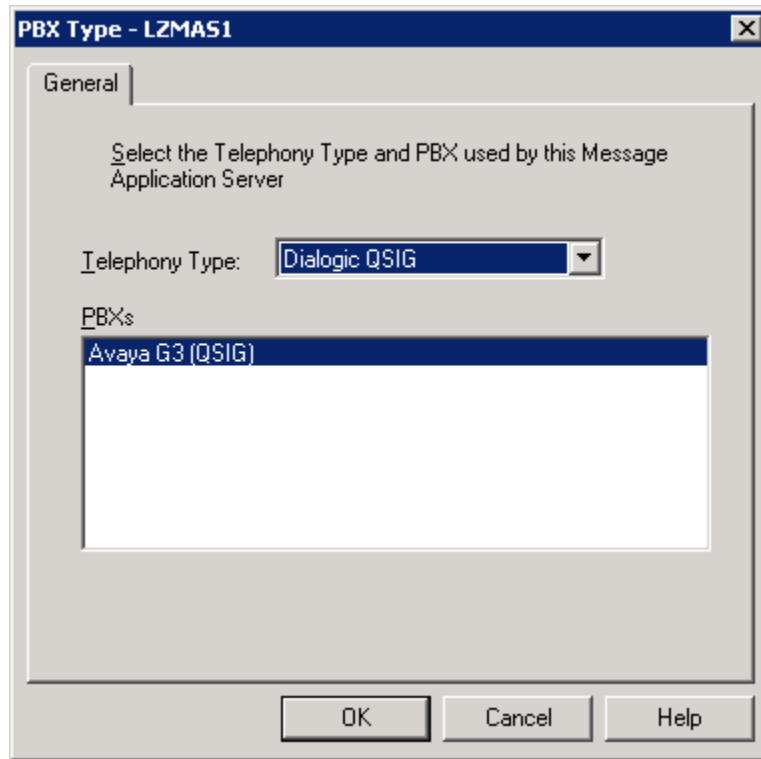


Figure 26: PBX Type

After configuring the voicemail system, restart the Message Application Server (MAS) services to apply these changes.

5.2. Configure the Message Storage Server (MSS)

This section describes the procedure for enabling the IMAP interface and configuring a voicemail subscriber. The Message Storage Server (MSS) is configured from a web interface. Launch a web browser and enter the MSS IP address in the URL field. The **Messaging Administration** webpage is displayed as shown below.

For complete coverage of MSS configuration, refer to [4]. This section only covers enabling the IMAP interface and adding a subscriber.

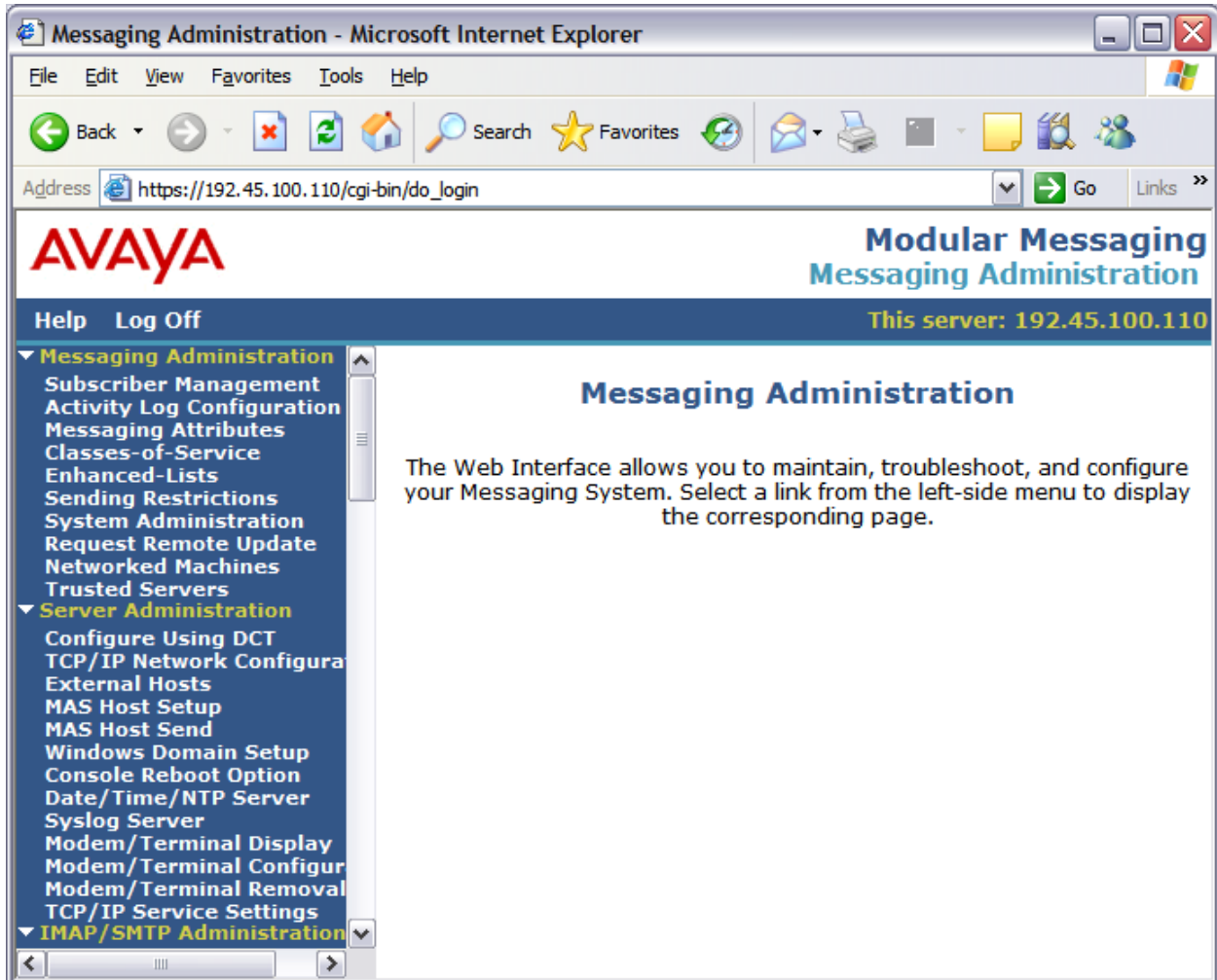


Figure 27: Messaging Administration

From the left pane of the **Messaging Administration** web page, select **System Administration** to enable the IMAP interface. **Figure 28** shows the bottom half of the webpage with the **System TCP/IP Ports** section. Enable the **IMAP4 Port** associated with port 143. Click **Save**.

The screenshot shows the Avaya Modular Messaging Messaging Administration interface. The left navigation pane is expanded to 'System Administration'. The main content area is titled 'SYSTEM TCP/IP PORTS' and contains a table of port configurations. The 'IMAP4 Port' row is highlighted in blue. Below the table are 'Save' and 'Help' buttons.

SYSTEM TCP/IP PORTS					
LDAP Port	389	Authenticated or Anonymous	LDAP SSL Port	636	Enabled
LDAP Internal Server Port	55389	Enabled	LDAP Directory Update Port	56389	Enabled
LDAP Front End Alternate Port		Disabled	IMAP4 TUI Port	55143	Enabled
IMAP4 Port	143	Enabled	IMAP4 SSL Port	993	Disabled
POP3 Port	110	Disabled	POP3 SSL Port	995	Disabled
SMTP Port	25	Enabled	SMTP Alternate Port		Disabled
SMTP SSL Port	465	Enabled	Allow TLS for Outgoing SMTP	25	Enabled
MCAPI Port	55000	Enabled			

Figure 28: System Administration – System TCP/IP Ports Section

To add a subscriber, select **Subscriber Management** in the left pane and then enter the subscriber extension in the **Local Subscriber Mailbox Number** field on the webpage that appears (not shown). The **Add Local Subscriber** webpage is displayed as shown in **Figure 29**. Configure the **Last Name** and **First Name** fields corresponding to the subscriber. Next, enter the extension assigned to the desktop phone configured on Avaya Aura™ Communication Manager in the **Mailbox Number** and **Numeric Address** fields. Assign an appropriate **Class of Service** to the subscriber. In this example, extension 24511 is added as a subscriber and the **Class of Service** specified uses the AUDIX TUI. At the bottom of the webpage, click the **Save** button (not shown).

The screenshot shows the Avaya Modular Messaging Administration interface. The main title is "Modular Messaging Administration" with the server IP "192.45.100.110". The left sidebar lists navigation options under "Messaging Administration" and "Server Administration". The main content area is titled "Add Local Subscriber" and contains two sections: "BASIC INFORMATION" and "SUBSCRIBER DIRECTORY".

BASIC INFORMATION
 * (Required Fields)

*Last Name	24511	First Name	DiVitas
*Password	*Mailbox Number	24511
*Numeric Address	24511	PBX Extension	
*Class Of Service	0 - AUDIX TUI	*Community ID	1

SUBSCRIBER DIRECTORY

Email Handle	@lzmss1.mm.com	Telephone Number	
Common Name		ASCII Version of Name	

Figure 29: Add Local Subscriber

6. Configure DiVitas Mobile Unified Communications

This section describes the steps for enabling the IMAP interface on the DiVitas Server and enabling voicemail on the DiVitas Clients. Refer to [6] for additional configuration information.

All DiVitas Mobile UC Server configuration and management features are accessed from a Web-based interface. From an Internet browser, enter the IP address of the DiVitas Mobile UC Server in the URL field and log in using the appropriate credentials. The screen shown in **Figure 30** is displayed.

The screenshot displays the DiVitas Networks web interface. At the top, there is a navigation menu with tabs for 'Server', 'Clients', 'Voice', 'Monitoring', 'Reporting', and 'Tools'. The 'Server' tab is active, showing sub-menus for 'Status', 'Network Status', 'IP Config', 'Admin Users', 'Images', 'Licensing', 'Time', 'Voice Config', 'Backup/Restore', and 'Email'. A 'Logout' link is also present. Below the navigation, a status bar indicates the user is logged in as 'admin' from IP '192.45.60.62' at '9:20 am EDT'. A link for documentation is provided. The main content area is divided into three sections: 'Server Information', 'Active Server Image', and 'License Information'. Each section contains a table of system details.

Server Information	
Serial Number	D27LCC1
Kernel Version	2.6.25.10-47.DV3.fc8
Kernel Build Date	#1 SMP Tue Jul 22 13:59:41 EDT 2008
System Memory	1034596 kB
System Uptime	0 days, 23:38
DVOS Uptime	0 days, 0:09
DVOS Status	System Normal
CPU Usage	1%

Active Server Image	
Platform	U1000
Version	2.7.2.0
Build	39
Build Timestamp	May 27 2009, 12:25:28

License Information	
Customer Name	Avaya Test lab
Customer ID	AVA001
Expiration	Tue Mar 16 19:59:59 2010

DVOS Version: 2.7.2.0.39 © 2009 DiVitas Networks. All Rights Reserved.

Figure 30: DiVitas Mobile UC Server Web Interface

In the **Server→IP Config** webpage, configure the IP network parameters of the DiVitas Server corresponding to the customer's network as shown in **Figure 31**. The remaining fields on this webpage (not shown) may be left at the default values. Click **Submit**.

The screenshot displays the DiVitas Networks web interface. At the top left is the DiVitas Networks logo. A navigation bar contains tabs for 'Server', 'Clients', 'Voice', 'Monitoring', 'Reporting', and 'Tools'. Under the 'Server' tab, there are sub-tabs: 'Status', 'Network Status', 'IP Config' (which is highlighted), 'Admin Users', 'Images', 'Licensing', 'Time', 'Voice Config', 'Backup/Restore', and 'Email'. A 'Logout' link is visible in the top right corner. Below the navigation bar, a message indicates the user is logged in as 'admin' from IP '192.45.60.62' at '9:20 am EDT'. A 'Click link for documentation.' link is also present. The main heading is 'Server Network Configuration'. Underneath, there is a section titled 'Host Configuration' with the following fields and values:

IP Address	192.45.100.195
Subnet Mask	255.255.255.0
IP Gateway	192.45.100.1
Internal Hostname	localhost
Primary DNS Server Address	0.0.0.0
Secondary DNS Server Address	0.0.0.0

At the bottom of the form are two buttons: 'Submit' and 'Clear'.

Figure 31: Server IP Configuration

In the **Voice**→**Voicemail** webpage, configure the **IMAP Global Configuration** parameters as follows:

- Enable **IMAP Voicemail Support**.
- Set the **IMAP Server Address** to the IP Address of the MSS (e.g., 192.45.100.110).
- Set the **IMAP Server Port** to “143”.
- Set the **IMAP Voicemail Host** to the “Avaya MM”.
- Set the **IMAP User Polling Interval** to an appropriate value. In this example, the DiVitas Server was configured to check for new messages every 15 seconds.
- Configure the other parameters as shown in **Figure 32**.
- Click **Submit**.

The screenshot shows the DiVitas Networks web interface. The top navigation bar includes 'Server', 'Clients', 'Voice', 'Monitoring', 'Reporting', and 'Tools'. Under 'Voice', there are sub-tabs for 'Configuration', 'Conferencing', 'Voicemail', and 'Ring Groups'. The 'Voicemail' tab is active. The user is logged in as 'admin' from IP '192.45.60.62' at '9:20 am EDT'. The page title is 'Server Voicemail Configuration'. There are three main sections: 1. 'General Voicemail Config' with fields for 'Minimum Length' (3), 'Maximum Length' (180), 'Maximum Silence' (5), and 'Maximum Messages' (25). 2. 'Voicemail Redirect Trunk Configuration' with a 'Trunk Name' dropdown set to 'Disabled'. 3. 'IMAP Global Configuration' with fields for 'IMAP Voicemail Support' (Enabled), 'IMAP Server Address' (192.45.100.110), 'IMAP Server Port' (143), 'IMAP Mail Folder' (INBOX), 'IMAP Voicemail Host' (Avaya MM), 'Expunge Messages On Delete' (Enabled), and 'IMAP User Polling Interval' (15). A 'Show IMAP Status' button is at the bottom.

Figure 32: IMAP Global Configuration

To view and add users to the DiVitas Server, navigate to **Clients**→**Users**. To add a **User**, click on the **Add** button under **Add User Account**. To view the details of a configured user account, select **Modify** in the **Action** field under the **User Accounts** section and click **Submit**.

Server **Clients** Voice Monitoring Reporting Tools [Logout](#)

Users User Groups User Config Devices Device Groups Device Config Bulk Load

Logged in as: admin from 192.45.60.62 at 9:20 am EDT [Click link for documentation.](#)

➔ Add User Account

Add User Account

➔ Delete User Accounts

Delete User Accounts

➔ User Accounts

Name	Action	Full Name	Group	Extension	Devices	Active Calls	Status
24511	None <input type="button" value="Submit"/>	David Wells	default	24511	357663010613226	0	Active
24513	None <input type="button" value="Submit"/>	John Smith	default	24513	357676011245400	0	Active

Figure 33: User Accounts

When adding a **User**, specify the user's **Full Name** and **Extension** as shown in **Figure 34**. The figure below shows the user account after it has been configured. The **Add User Account** webpage will appear slightly different, but contain similar fields. To enable voicemail with Avaya Modular Messaging, configure the **IMAP Configuration** section. Enable IMAP and specify the appropriate username and password configured for this subscriber in the MSS (see **Figure 29**). Click **Submit**.

The screenshot shows the 'Users' section of the Divitas Networks management interface. The user account is configured for 'David Wells' with extension '24511'. The account is enabled, and voicemail is disabled. IMAP is enabled with the same extension and password. The interface includes navigation tabs for Server, Clients, Voice, Monitoring, Reporting, and Tools, with sub-tabs for Users, User Groups, User Config, Devices, Device Groups, Device Config, and Bulk Load. A 'Logout' link is also present. The user is logged in as 'admin' from IP '192.45.60.62' at '9:20 am EDT'. The 'Modify User Account' section includes fields for Account (Enabled), Extension (24511), Divitas Client User Password (*****), SIP Device User Password (*****), Full Name (David Wells), Outbound CID (David Wells <17328524511>), Email, SMS Email Address, Paired Deskphone (Internal/External), and Group Name (default). The 'Voicemail' section includes Mailbox (Disabled), Mailbox Password (*****), Play Caller ID (Yes/No), Play Envelope(Date/Time) (Yes/No), Access Number, and Redirect Number. The 'IMAP Configuration' section includes Enable IMAP (Yes/No), IMAP Username (24511), and IMAP User Password (*****). Buttons for 'Submit', 'Clear', and 'Cancel' are at the bottom.

Figure 34: User

In the **Clients**→**Device Config** webpage, increase the **Cell No Answer Timeout** field to allow a DiVitas Client in Cellular mode to ring before the call covers to voicemail. Click **Submit**.

The screenshot shows the DiVitas Networks management interface. The top navigation bar includes 'Server', 'Clients', 'Voice', 'Monitoring', 'Reporting', and 'Tools'. The 'Clients' section is expanded to show 'Users', 'User Groups', 'User Config', 'Devices', 'Device Groups', 'Device Config', and 'Bulk Load'. The 'Device Config' page is titled 'Client Device Timers' and contains a 'Client Device Timer Configuration' section with the following fields:

Cellular Handoff Backoff Timer <small>Valid Range: 10 - 60 seconds</small>	<input type="text" value="15"/>
Wifi Handoff Backoff Timer <small>Valid Range: 10 - 60 seconds</small>	<input type="text" value="10"/>
Reversion Timer <small>Valid Range: 10 - 300 seconds</small>	<input type="text" value="30"/>
Cell No Answer Timeout <small>Valid Range: 10 - 60 seconds</small>	<input type="text" value="35"/>
WiFi No Answer Timeout <small>Valid Range: 10 - 60 seconds</small>	<input type="text" value="35"/>

At the bottom of the configuration section are 'Submit' and 'Clear' buttons.

Figure 35: Client Device Timer Configuration

7. General Test Approach and Test Results

The focus of the interoperability compliance test was to verify that the DiVitas Server can access voicemail messages stored in the Message Storage Server (MSS) of Avaya Module Messaging using the IMAP interface, and that the DiVitas Client running on Nokia E51 and N95 mobile handsets can retrieve, play back, and delete the voicemail message on their visual voicemail application.

All tests passed; however, a few observations were noted.

- While the DiVitas Client was in Cellular mode and logged into Modular Messaging, the DiVitas Client could not delete a message (*D) or transfer out of voicemail (*T). Note that these are options available when using the AUDIX TUI. Activating other options that didn't begin with an asterisk successful. This behavior was not observed when the DiVitas Client was in WiFi mode.
- When a subscriber replies/forwards a voicemail message with a comment from the Modular Messaging menu to a DiVitas Client, the DiVitas Client can retrieve the message from the visual voicemail application, but only the original message is heard. The comment added by the subscriber is not heard.
- Replying and forwarding voicemail messages from the DiVitas Client's visual voicemail application is not yet supported.
- To retrieve a voicemail message from a DiVitas Client in Cellular mode requires a Cellular Data Channel (CDC) – a Cellular Voice Channel (CVC) is not sufficient for this purpose. This is expected behavior.

8. Verification Steps

This section provides the verification steps that may be performed to verify voicemail coverage for the DiVitas Clients and that the DiVitas Client could retrieve voicemail messages from their visual voicemail application.

1. From the Avaya Aura™ Communication Manager SAT, verify that the ISDN-PRI signaling group and trunk group to Avaya Modular Message are in-service using the **status signaling-group** and **status trunk** commands, respectively.
2. From the MAS, open the **Port Monitor** application by navigating to **Programs→Avaya Modular Messaging→Port Monitor**. Select the appropriate MAS from the list when prompted and ensure that the ISDN-PRI trunk ports are in the “idle” state as shown below.

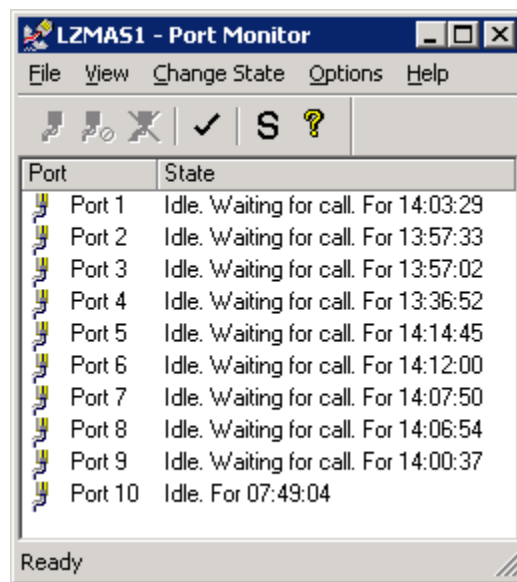


Figure 36: Port Monitor

- From the DiVitas web interface, navigate to the **Voice**→**Voicemail** webpage and verify that the **IMAP Server Status** is “Active” and that the DiVitas Clients can log into Modular Messaging as indicated by the **User State** being set to “Authenticated”.

The screenshot shows the DiVitas web interface with the 'Voicemail' tab selected. The page displays the following information:

Logged in as: admin from 192.45.60.62 at 9:20 am EDT [Click link for documentation.](#)
[Refresh](#)
[Return to Voicemail](#)

→ **IVVMD Status Summary**

IMAP Server Status	Number of IMAP Users	IMAP Server Address	IMAP Server Port	IMAP Server Host Type
Active	2	192.45.100.110	143	Avaya MM

→ **IMAP User Accounts**

Name	IMAP Username	Total Messages	New Messages	Old Messages	User State
24511	24511	0	0	0	AUTHENTICATED
24513	24513	0	0	0	AUTHENTICATED

At the bottom, it shows 'DVOS Version: 2.7.2.0.39' and '© 2009 DiVitas Networks. All Rights Reserved.'

Figure 37: User’s Voicemail Status

- Place a call to a DiVitas Client and allow the call to cover to voicemail. Leave a message.
- After leaving a new voicemail, verify that the visual voicemail application running on the DiVitas Client shows a new message as seen in **Figure 38**.



Figure 38: Visual Voicemail Application with New Message

In the list of voicemail messages as shown below, listen to the message on the DiVitas Client.

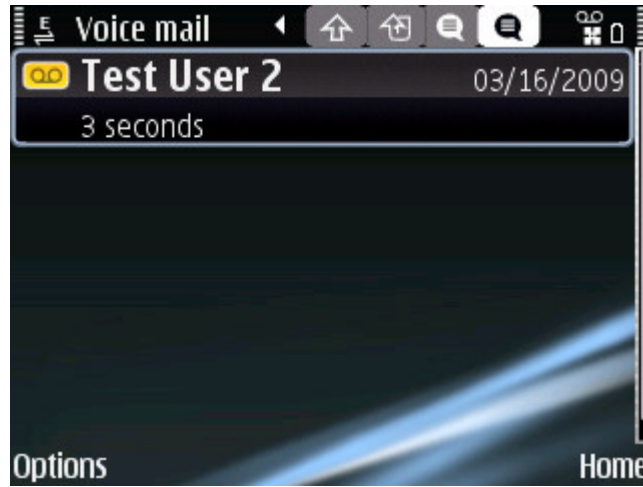


Figure 39: Voicemail Messages

9. Conclusion

These Application Notes describe the configuration steps required to provide voicemail coverage to DiVitas Clients registered to DiVitas Mobile Unified Communications using Avaya Modular Messaging. The DiVitas Server was able to access voicemail from Avaya Modular Messaging using the IMAP interface and the DiVitas Clients running on Nokia E- and N-Series mobile handsets were able to retrieve, play back, and delete messages using their visual voicemail application.

10. Additional References

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

- [1] *Administrator Guide for Avaya Aura™ Communication Manager*, Document 03-300509, Issue 5, May 2009, available at <http://support.avaya.com>.
- [2] *Avaya Aura™ Communication Manager Feature Description and Implementation*, Document 555-245-205, Issue 7, May 2009, available at <http://support.avaya.com>.
- [3] *SIP Support in Avaya Aura™ Communication Manager Running on Avaya S8xxx Servers*, Issue 9, May 2009, Document Number 555-245-206, available at <http://support.avaya.com>.
- [4] *Modular Messaging for the Avaya Message Storage Server (MSS) Configuration Release 5.0 Installation and Upgrades*, February 2009, available at <http://support.avaya.com>.
- [5] *Application Notes for DiVitas Mobile Unified Communications with Avaya Communication Manager and Avaya SIP Enablement Services*, Issue 1.0, available at <http://support.avaya.com>.
- [6] *DiVitas Server Administration Guide*, Version 2.7, Part Number: DOC-DVOS-AG-206.

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