



Cisco Unified CallManager Release 4.1 Voice Mail Interoperability: Avaya Modular Messaging 2.0 using a Cisco WS-X6608-T1 (Q.SIG)

Introduction

This is a lab report performed to validate interoperability of Cisco Unified CallManager Release 4.1(2) using Cisco WS-X6608-T1 gateway ports configured for T1 QSIG connecting to Avaya Modular Messaging voicemail platform

The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected via Cisco WS-X6608 T1/E1 blade ports used as MGCP gateways configured as ISO QSIG trunks to an Avaya Modular Messaging (MM) platform, using QSIG integration over T1 trunk.

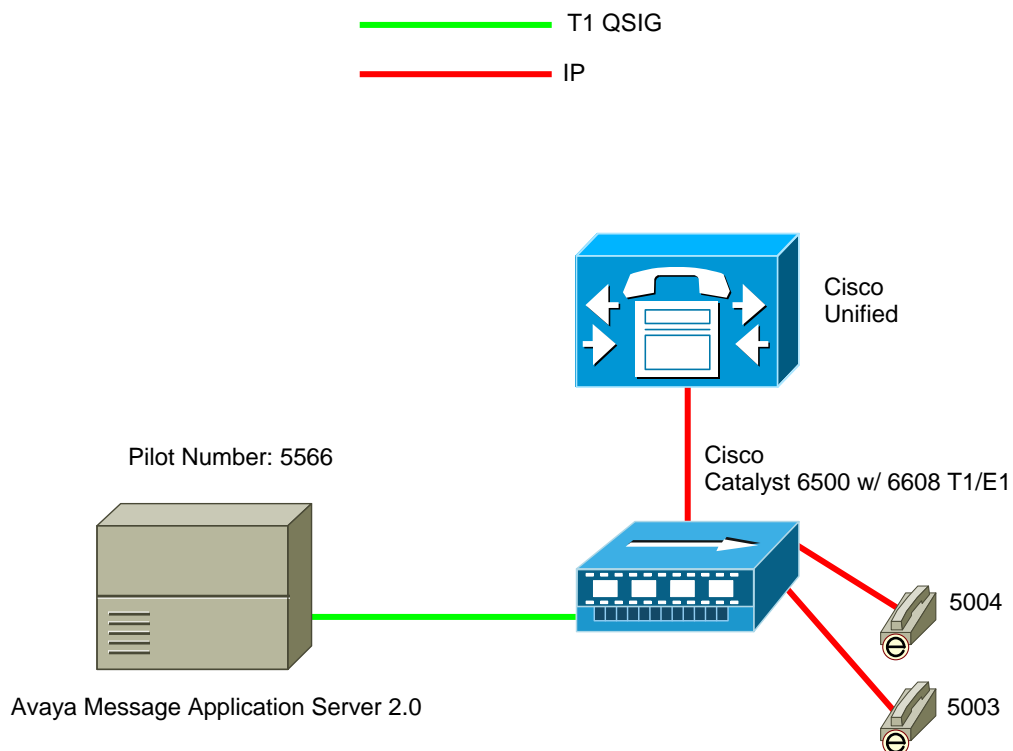
This Application Note uses the Cisco WS-X6608 T1/E1 voice gateway; however other Cisco voice gateways are also an option to use since Unified CallManager QSIG implementation does not depend on the physical interface.



Network Topology

Figure 1. Network Topology or Test Setup Network

Topology



System Components

Hardware Requirements

Cisco Hardware:

- Cisco Catalyst 6500 switch with WS-X6608-T1 blades
- Cisco Unified CallManager 4.1(2)

Avaya Modular Messaging hardware:

- Dialogic D/480JCT-1T1 or D/240JCT-T1



- CT Bus Cable (required only for multiple card installation)

Software Requirements

Cisco Unified CallManager Release 4.1(2)

Avaya Modular Messaging release 2.0

Dialogic Driver version 5.1.1 FP1 SU15

Features

Features Supported

System forward to personal greeting (busy/ring no answer/all calls)

Multiple Call Forward

Reply to messages left in telephone answering mode

Multiple Greetings

Find Me

Return to Operator

Direct call

Message Waiting Indication

Considerations

Calls originating from MM, such as transferred calls from the Automated Attendant, do not provide Calling Name display.

Avaya MM does not initiate Path Replacement Proposal. Testing has shown that MM does not initiate Path Replacement proposal, although it responds properly to Path Replacement proposals initiated by Unified CallManager.

Configuration

Configuring the Avaya Message Application Server (MAS)

1. Access the **Voice Mail System Configuration** application from the MAS program group. Expand all fields so that all options are displayed.
2. Select the **Voice Mail Domain**.
3. Expand **PBXs**.
4. Select **Avaya G3 (Dialogic QSIG)**.
5. Access the **General (QSIG) PBX Configuration** tab.
6. Set **DTMF Inter-Digit Delay during Dialing (ms) = 80**.
7. Set **DTMF Length during Dialing (ms) = 80**.



8. Set **DTMF Length during Detection (ms) = 50**.
9. Access the **Transfer/Outcall** tab.
10. Set **Transfer Mode = Blind**.
11. Access the **Tone Detection** tab.
12. Set **Maximum Silence before Hanging Up (ms) = 6000**.
13. Access the **Outgoing Call** tab.
14. Set **Layer Protocol = G.711 mu-Law** (must match setting on Unified CallManager Gateway Configuration parameter “PCM Type”).
15. Set **BC Transfer Cap = Speech**.
16. Set **Number Type = Unknown**.
17. Set **Number Plan = Unknown**.
18. In the **Origin Number** = Enter the Voicemail Pilot Number as configured in Unified CallManager.
19. Select **OK** to save changes.
20. Access the Message **Waiting Indicator (MWI)** tab.
21. Click on **Enable Message Waiting Indicator (MWI)** checkbox to enable MWI.
22. In parameter **MAS MWI Server** = Enter the name of the MWI server created during initial installation of MAS server.
23. Set **Maximum Requests per Minute = 200**.
24. In parameter Message **Application Servers that Support MWI** = Enter a list of MAS servers capable of placing MWI requests, if multiple servers are installed.
25. Select **OK** to save changes.
26. Access the **Port Groups** General tab contained within the MAS name.
27. Click **Add Group** button.
28. Name the Port Group **MWI** (or another easy to remember name).
29. Within the **Port Groups** General tab, uncheck the Port(s) used for MWI.
30. Select the **Default Group** under the **Port Groups** and make sure it is configured to meet customer’s requirements for **Incoming** and **Outgoing** under **Port Group Usage**.



31. Check all **Ports**, except the port used for MWI.
32. Select **OK** to save changes.
33. Access the **QSIG General** tab contained within the **PBX Type** tab.
34. Set **Telephony Type = Dialogic QSIG**.
35. Make sure **Avaya G3 (QSIG)** is selected in the PBXs field.
36. Select **OK** to save changes.
37. Access the **General** tab contained within the Telephony **Interface (Dialogic- QSIG)** tab.
38. Set Playback Volume = 2.
39. In parameter **Maximum Concurrent Calls** = Enter the number of trunk channels connected to the Unified CallManager (e.g. 23 when using a single T1).
40. Make sure ports are enabled within parameter **Port =**.
41. Select **OK** to save changes.
42. Access the **General** tab contained within the **PBX Integration** tab.
43. Enable QSIG integration by clicking the **QSIG =** checkbox.
44. Access the **QSIG/DSE** tab.
45. Set **Port Group Name** = MWI (or name assigned to Port Group in **Port Groups**).
46. Set **Max MWI Sessions = 1**.
47. Leave parameter **Indicator On/Off signals must use same port** = blank.
48. Leave parameter **MWI On Field** = at default setting.
49. Leave parameter **MWI Off Field** = at default setting.
50. Select **OK** to save changes.

Note: After making these changes, restart the Message Application Server.

Configuring Cisco Unified CallManager

Configure Voice Mail Pilot

Configure Voice Mail Profile

Configure Message Waiting Numbers (On/Off)



Add the newly-created Voice Mail Profile to extensions that will be using Avaya MM as the messaging platform, and configure Call Forward settings as per customer's requirements.

Cisco WS-X6608-T1 Voice Gateway Configuration

Gateway Configuration

[Back to Find/List Gateway](#)
[Dependency Record](#)

Product : Cisco Catalyst 6000 T1 VoIP Gateway
Gateway : S0/DS1-0@SDA0001C9D93A9C
Device Protocol: Digital Access PRI
Registration: Registered with Cisco CallManager 172.20.236.2
IP Address: [172.20.236.15](#)

Status: Ready

Update

Delete

Reset Gateway

Device Information

MAC Address*	<input type="text" value="0001C9D93A9C"/>
Description	<input type="text" value="Cat 6500 port 5/5"/>
Device Pool*	<input type="text" value="Default"/>
Call Classification*	<input type="text" value="Use System Default"/>
Network Locale	<input type="text" value="United States"/>
Media Resource Group List	<input type="text" value="< None >"/>
Location	<input type="text" value="< None >"/>
AAR Group	<input type="text" value="< None >"/>
Load Information	<input type="text"/>

Multilevel Precedence and Preemption (MLPP) Information



Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain (e.g., "0000FF")	<input type="text"/>
MLPP Indication	<input type="text" value="Off"/>
MLPP Preemption	<input type="text" value="Disabled"/>

Interface Information

PRI Protocol Type*	<input type="text" value="PRI QSIG T1"/>
Protocol Side*	<input type="text" value="Network"/>
Channel Selection Order*	<input type="text" value="Bottom Up"/>
Channel IE Type*	<input type="text" value="Use Number when 1B"/>
PCM Type*	<input type="text" value="μ-law"/>
Delay for first restart (1/8 sec ticks)	<input type="text" value="32"/>
Delay between restarts (1/8 sec ticks)	<input type="text" value="4"/>
<input checked="" type="checkbox"/> Inhibit restarts at PRI initialization	
<input type="checkbox"/> Enable status poll	



Call Routing Information

Inbound Calls

Significant Digits*	<input type="text" value="All"/>
Calling Search Space	<input type="text" value=" < None >"/>
AAR Calling Search Space	<input type="text" value=" < None >"/>
Prefix DN	<input type="text"/>

Outbound Calls

Calling Line ID Presentation*	<input type="text" value="Allowed"/>
Calling Party Selection*	<input type="text" value="Originator"/>
Called party IE number type unknown*	<input type="text" value="Cisco CallManager"/>
Calling party IE number type unknown*	<input type="text" value="Cisco CallManager"/>
Called Numbering Plan*	<input type="text" value="Cisco CallManager"/>
Calling Numbering Plan*	<input type="text" value="Cisco CallManager"/>
Number of digits to strip*	<input type="text" value="0"/>
Caller ID DN	<input type="text"/>
SMDI Base Port*	<input type="text" value="0"/>



PRI Protocol Type Specific Information

- Display IE Delivery
- Redirecting Number IE Delivery - Outbound
- Redirecting Number IE Delivery - Inbound
- Send Extra Leading Character In DisplayIE***
- Setup non-ISDN Progress Indicator IE Enable****
- MCDN Channel Number Extension Bit Set to Zero**
- Send Calling Name In Facility IE
- Interface Identifier Present**

Interface Identifier Value**

Connected Line ID Presentation (QSIG Inbound Call)*

UUIE Configuration

- Passing Precedence Level Through UUIE

Security Access Level



Product Specific Configuration

Clock Reference*	<input type="text" value="Network"/>
TX-Level CSU*	<input type="text" value="0dB"/>
FDL Channel*	<input type="text" value="ATT 54016"/>
Framing*	<input type="text" value="ESF"/>
Audio Signal Adjustment into IP Network*	<input type="text" value="NoDbPadding"/>
Audio Signal Adjustment from IP Network*	<input type="text" value="NoDbPadding"/>
Yellow Alarm*	<input type="text" value="Bit2"/>
Zero Suppression*	<input type="text" value="B8ZS"/>
Digit On Duration(50-500ms)*	<input type="text" value="100"/>
Interdigit Duration(50-500msec)*	<input type="text" value="100"/>
SNMP Community String	<input type="text" value="public"/>
Disable SNMP Set operations*	<input type="checkbox"/>
Debug Port Enable*	<input checked="" type="checkbox"/>
Hold Tone Silence Duration*	<input type="text" value="0"/>
Port Used for Voice Calls*	<input checked="" type="checkbox"/>
Port Used for Modem Calls*	<input checked="" type="checkbox"/>
Port Used for Fax Calls*	<input checked="" type="checkbox"/>



Fax and Modem Parameters

Fax Relay Enable*	<input checked="" type="checkbox"/>
Fax Error Correction Mode Override*	<input checked="" type="checkbox"/>
Maximum Fax Rate*	14400bps
Fax Payload Size*	20
Non Standard Facilities Country Code*	65535
Non Standard Facilities Vendor Code*	65535
Fax/Modem Packet Redundancy*	<input type="checkbox"/>
NSE Type*	Non-IOS Gateways

Playout Delay Parameters

Initial Playout Delay*	40
Minimum Playout Delay*	20
Maximum Playout Delay*	150

Echo Canceller Configuration

Echo TailLength (ms)*	32 ms
Minimum ERL (db)*	6 db

* indicates required item

** applicable to DMS-100 protocol only

*** applicable to DMS-100 protocol and DMS-250 protocol only



Cisco Unified CallManager QSIG-related Service Parameters Configuration

Clusterwide Parameters (Feature - Forward)

Parameter Name	Parameter Value	Suggested Value
Forward Maximum Hop Count*	<input type="text" value="12"/>	12
Forward No Answer Timer (sec)*	<input type="text" value="12"/>	12
Max Forward Hops to DN*	<input type="text" value="12"/>	12
Retain Forward Information*	<input type="text" value="False"/>	False
Forward By Reroute Enabled*	<input type="text" value="True"/>	False
Forward By Reroute T1 Timer (sec)*	<input type="text" value="10"/>	10
Include Original Called Info for Q.SIG Call Diversions*	<input type="text" value="Always"/>	Only after the first diversion



Clusterwide Parameters (Feature - Path Replacement)

Parameter Name	Parameter Value	Suggested Value
Path Replacement Enabled*	<input type="text" value="True"/>	False
Path Replacement on Tromboned Calls*	<input type="text" value="True"/>	True
Start Path Replacement Minimum Delay Time (sec)*	<input type="text" value="0"/>	0
Start Path Replacement Maximum Delay Time (sec)*	<input type="text" value="0"/>	0
Path Replacement T1 Timer (sec)*	<input type="text" value="30"/>	30
Path Replacement T2 Timer (sec)*	<input type="text" value="15"/>	15
Path Replacement PINX ID	<input type="text" value="5555"/>	



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