

Avaya Solution & Interoperability Test Lab

Application Notes for Configuring QuesCom 300 IP/GSM Gateway with Avaya IP Office using H.323 trunks – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the QuesCom 300 IP/GSM to successfully interoperate with Avaya IP Office using H.323 trunks. The QuesCom 300 IP/GSM is an IP- Global System for Mobile communications GSM-gateway, supporting outgoing and incoming GSM calls. All GSM calls passed from Avaya IP Office will be routed to the QuesCom 300 IP/GSM gateway. The QuesCom 300 IP/GSM can also receive calls from the GSM network and pass them through to Avaya IP Office.

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 compliance tested configuration using a QuesCom 300 IP/GSM gateway and an Avaya IP Office 3.1 using H.323 trunks.

The QuesCom 300 IP/GSM is an IP-GSM-gateway, supporting outgoing and incoming GSM calls. All GSM outbound calls made from Avaya IP Office will be routed to the QuesCom 300 IP/GSM gateway to the GSM network. The QuesCom 300 IP/GSM can also receive calls from the GSM network and route the calls to Avaya IP Office. The QuesCom 300 IP/GSM can provide a backup route or be backed up by the PSTN, although this was not tested during compliance testing. These Application Notes focus on the configuration of Avaya IP Office and the QuesCom 300 IP/GSM via a H.323 IP trunk.

The Avaya IP Office is connected to the QuesCom 300 IP/GSM via a H.323 IP trunk. The QuesCom 300 IP/GSM in turn connects to the GSM network via Subscriber Identity Module (SIM) cards that reside on GSM boards inserted in the QuesCom 300 IP/GSM. Outbound calls made to mobile numbers from an Avaya station is routed from Avaya IP Office to the QuesCom 300 IP/GSM via the H.323 IP trunk. Inbound calls made to one of the QuesCom 300 IP/GSM SIM card numbers is normally routed from the QuesCom 300 IP/GSM to an attendant console on Avaya IP Office or an Interactive Voice Response (IVR) system where it is possible to enter the digits of the Avaya extension. During the compliance testing all SIM cards were routed to the same Avaya station. The management PC is used to administer the QuesCom 300 IP/GSM.

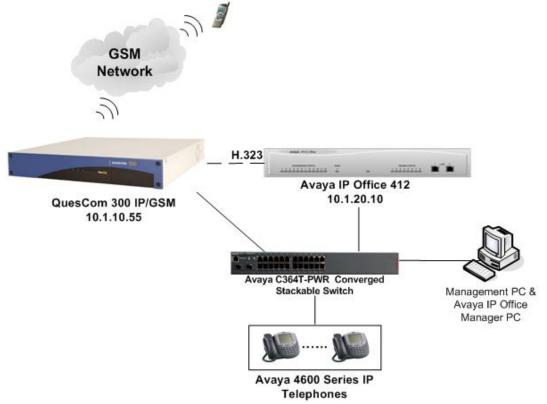


Figure 1: Avaya IP Office with QuesCom IP/GSM 300

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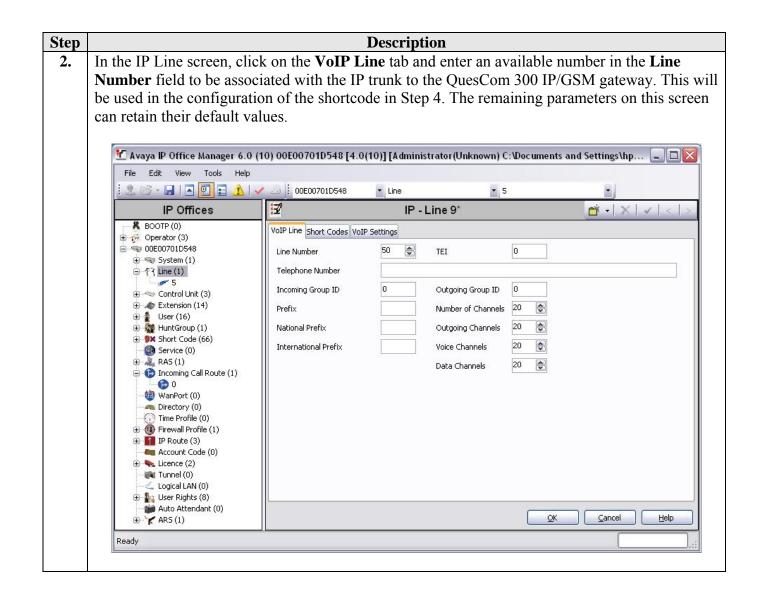
2. Equipment and Software Validated

Equipment	Software
Avaya IP Office 412	4.0(10)
Avaya IP Office Manager software	6.0(10)
Avaya C364T-PWR Converged Stackable Switch	4.3.12
Avaya 4600 Series IP Telephones (H.323)	2.8 (4620SW)
QuesCom 300 IP/GSM	IAD05.00B030P000

3. Configure Avaya IP Office

Basic configuration of Avaya IP Office is beyond the scope of these Application Notes. See Section 9 for Avaya documentation references. This section describes the steps for configuring H.323 IP trunk to the QuesCom 300 IP/GSM gateway and short codes for routing of outbound calls.

Step		D	escripti	on			
1.	From the management PC she Start → Programs →IP Off search for the IP Office system appropriate login credentials.	ice → Managen in the netwo	er. In the rk. Log	e Manager win to the IP (rindov Office	w, select File \rightarrow Open to e system using the	
	name. Right click on Line an	10) 00E00701D548 [4.0(10)] [Administi	ator (Unknown) C: Woo			
	IP Offices	ODE00701D548	Line PRI 30 -	▼ 5		 ➡ - X ✓ < >	
	BOOTP (0) GOTP (0)	PRI Line Short Codes Chan		IP Line IP DECT Line SIP Line		Line SubType ETST TEI 0 Outgoing Group ID 0 Number of Channels 30 (5 Outgoing Channels 30 (5 Voice Channels 30 (5 Data Channels 30 (5 Line Signalling CPE	
	Logical LAN (0) Cogical LAN (0) User Rights (8) ARS (1) Ready	Supports Partial Rerouting			OK	Cancel Help	



The more way to	(40) 00500704054054 04		
Lavaya IP Office Manager 6.0 (File Edit View Tools Help	(10) 00£00701D548 [4.0(10)] [Administrator(Unknown) C	:\Documents and Settings\hp
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IP Offices	3	IP - Line 9*	📸 • X 🗸 <
BOOTP (0) 	VoIP Line Short Codes VoIP	Settings	
O0E00701D548 System (1) √ System (1) √ S Control Unit (3) € Extension (14) € User (16) € User (16) € HuntGroup (1) € Short Code (66) € Service (0) € AS (1) € I Conning Call Route (1) € 0 Ø I Directory (0) ⑦ Time Profile (0) € @ Firewall Profile (1)	Gateway IP Address Voice Payload Size (ms) Compression Mode H450 Support	10 1 10 55 0 Automatic Select H450	 VoIP Silence Suppression Enable Faststart Local Tones Enable RSVP Out Of Band DTMF Allow Direct Media Path Voice Networking Fax Transport Support
 IP Route (3) Account Code (0) Licence (2) Tunnel (0) Logical LAN (0) Iser Rights (8) Auto Attendant (0) ARS (1) 	[《]	m	QK <u>C</u> ancel <u>H</u> el

E		epresents the digits used to perf the prefix digit to dial for ex	5
	-	menu select "Dial".	
-		7N". This is the number to dial	0 0
• Line Group ID	– enter the Lin	e Number "50" configured in st	tep 3.
Click OK .			
🐮 Avaya IP Office Manage	er 6.0 (10) 00E00701D54	18 [4.0(10)] [Administrator(Unknown) C:\Docume	ents and Settings\hp 💶 🗖 🔀
File Edit View Tools	Help		
	▲ ✓ 🥧 🕴 00E00701D		
IP Offices		<short code:0="">: Dial*</short>	☆ • × • < >
□(Short Code	folon:	
🕀 🖘 Control Unit (3)	Code	[9]07N;	
⊕ _ 🎻 Extension (14) ⊕ 📲 User (16)	Feature	Dial	*
🕀 🎆 HuntGroup (1)	Telephone Number		
	Line Group Id	50	×
9x *01 9x *02	Locale		~
9 × *03	Force Account Co	ode 🗌	
9× *04 9× *05			
9× *06			
9× *07*N# 9× *08			
9x *09			
9 × *10*N# 9 × *11*N#			
9x *12*N# 9x *13*N#			
9 × *13*N#			
9 × *15 9 × *16			
9 × *18	v		<u>QK</u> <u>Cancel</u> <u>H</u> elp

4. Configure the QuesCom 300 IP/GSM

This section describes the steps for configuring the QuesCom 300 IP/GSM gateway.

4.1. QuesCom 300 IP/GSM Configuration

This section includes the necessary configuration steps to allow the QuesCom 300 IP/GSM gateway to make outbound calls to the GSM network once connected to the Avaya IP Office.

Step	Description
1.	After the initial installation of the QuesCom server, telnet into the QuesCom server from the
	management PC shown in Figure 1, using the default IP address "192.168.1.1.". Log in using the
	appropriate username and password.
	C:\> telnet 192.168.1.1
	login: administrator Password: ******
	Enterprise Series, Serial# Q300-A1-00010016, Version IAD05.00B030P000
	BIOS Version 6.00 PG from 06/29/2004
	Security Patch SP002 Copyright (c) 1998-2007 QuesCom S.A.
	copyright (c) 1998 2007 Quescoll S.A.
	At the prompt, type the following command gwconfig /setup.
	X:\>gwconfig /setup
	Application has been registered to the QCFGSvc
	QCFGSvc Version 5.00.000.006
	Copyright (c) 1998-2007 QuesCom S.A.
	Enter "1" for English.
	Enter the Gateway Administration language [1]:
	1 English 2 French
	3 German
	> 1
	GWconfig language: English
	Enter a name for the QuesCom 300 gateway.
	Setting up Gateway components
	Enter the Gateway network name [Q300-00010016]: Q300 Gateway Network Name: Q300
	Enter IP address, subnet mask and default gateway for the QuesCom gateway.
	Enter the Gateway IP address [192.168.1.1]: 10.1.10.55
	The Gateway IP address: 10.1.10.55
	Enter the Gateway subnet mask [255.0.0.0]: 255.255.255.0
	The Gateway subnet mask: 255.255.255.0
L	

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p	Description
Τ	
	Enter the default Gateway [0.0.0.0]: 10.1.20.1
	The default Gateway: 10.1.20.1
	Enter "N" for the following option
	Do you want to activate conferencing? [Y/N]: N
	Enter "0" for the server to operate in Stand-Alone mode.
	Enter the 'Call Server' mode [0]: 0 Stand-Alone mode
	1 Relay mode
	> 0
	Call Server mode: Stand-Alone
	Enter Company Name. This can be any alphanumeric name.
	Enter Company Name []: Avaya
	Company Name: Avaya
	Company Name. Avaya
	Enter "1" to select the H.323 protocol.
	Do you want to activate SIP or H.323 connectivity now? [Y/N]: Y
	Declare VOIP Gateway/Softswitch which will be allowed to send calls to the QuesCor
	gateway
	0 Skip to next step/Do it later
	1 1
	1 H.323 (no registration)
	2 SIP (no registration)
	>1
	Enter the IP address and name for the Avaya IP Office.
	Enter the IP Address of the H.323 Gatekeeper: 10.1.20.10
	H.323 Gatekeeper IP Address: 10.1.20.10
	Enter the name of the H.323 GateKeeper: IPO
	H.323 Gatekeeper name: IPO
	Enter "0" to configure the incoming calls to the Quescom gateway later.
	Declare VOIP Gateway/Softswitch which will be allowed to send calls to the QuesCor
	•
	gateway
	0 Skip to next step/Do it later
	1 H.323 (no registration)
	(1) (1) (no registration)
	2 SIP (no registration) > 0

Step	Description
	Do you want to use the 'Voice Box' service [0]?
	0 No
	1 Yes > 0
	Configure the time zone and daylight saving settings.
	Enter Time Zone number (0 to skip / L to view the list): 27
	Do you want to enable saving the TimeZone DayLight Information? [Y/N]: Y
	Verify the selected parameters press any key to continue and enter "1" to confirm the setup.
	Selected parameters for Quick setup mode are:
	Gateway Network Name: Q300
	The Gateway IP address: 10.1.10.55
	The Gateway subnet mask: 255.255.255.0
	The default Gateway: 10.1.10.1
	Press any key to continue
	Gateway's serial number: Q300-A1-00010016
	IVR language country: ENG - English
	Email language country: ENG - English
	Country Tones: United Kingdom
	Country Numbering: United Kingdom
	Call Server mode: Stand-Alone
	Company Name: Avaya
	Do you confirm this setup [1]:
	0 No (to exit, and GWconfig /setup command can be re-entered)
	1 Yes(to continue the setup and restart the QuesCom Gateway)
	>1
	Setting up QPortal Application
	Please wait
	Rebooting system
	Warning: Do not restart the Gateway, update process in progress
	Please, wait up to 3 minutes.

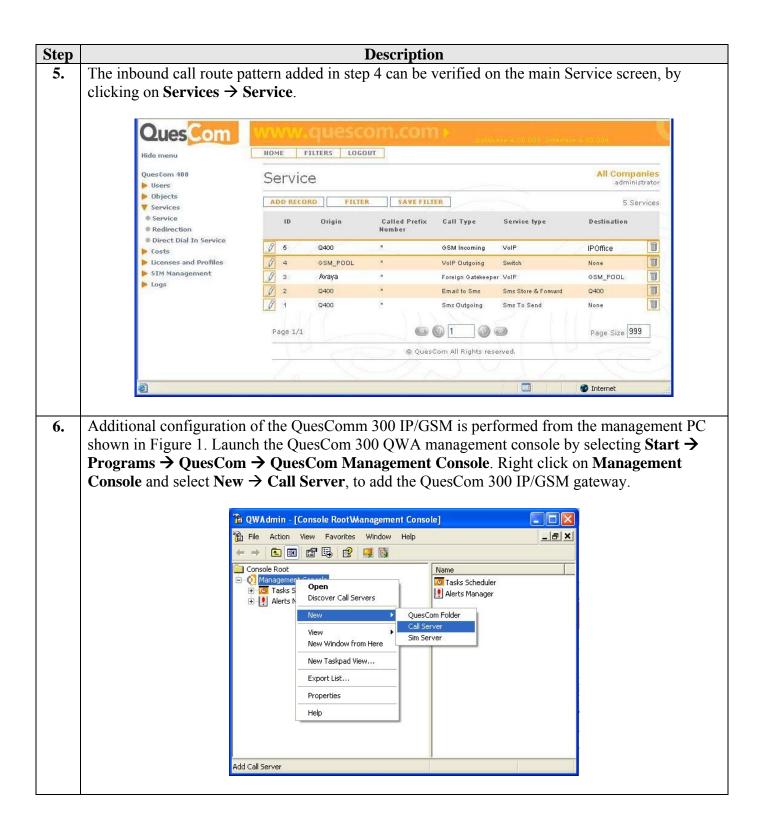
4.2. QuesCom Routing Configuration

Step		Description
1.	Open a web browser and enter the f	following URL http:// <quescom 300="" gateway<="" gsm="" ip="" th=""></quescom>
	IPaddress:8000>. For this configura	ation "http://10.1.10.55:8000" was entered. Log in using the
	appropriate user name and passwor	
	🗿 Quescom QPortal - Microsoft In	Notes and American Amer
	Ele Edit View Favorites Iools	Brie 🙀 Favorites 🚱 🕞 - 🍹 🚍 🛄
	Address @ http://10.1.10.55:8000/	🖌 🖉 sector 👷 Perotes 🐨 💭 - 🦕 🔄 🔜
	Coogle -	🗠 Rechercher 🔹 🕎 Options 🤌
	www.quesco	m.com)
	A State	
	and the second sec	QuesCom
		Login
	1.1	Password
		Enter
		A A A A A A A A A A A A A A A A A A A
		© Question 1998-2004
	Done	Differret

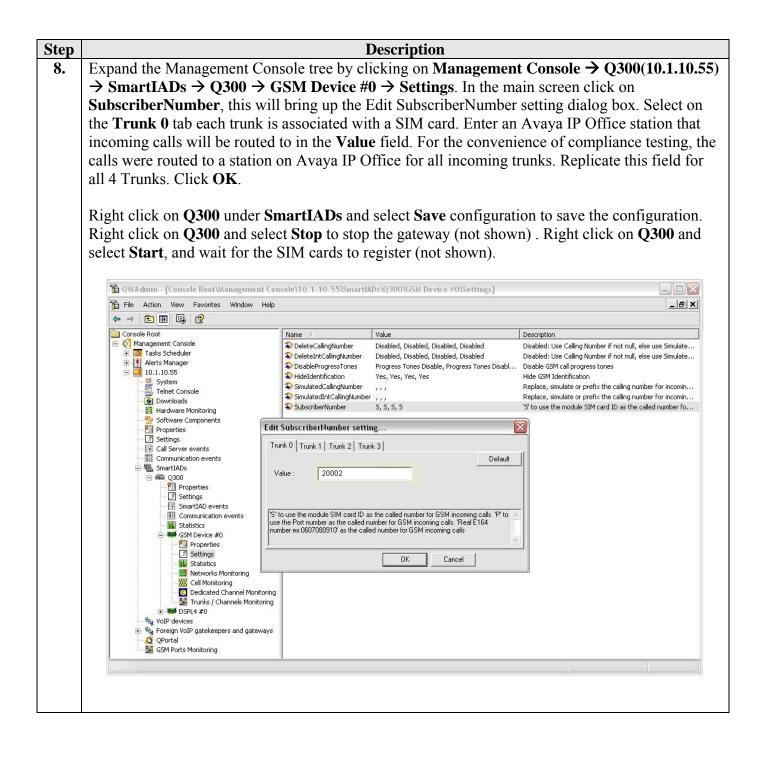
			Descriptio	011			
On the !	left hand side of th	he screen under th	e QuesCon	n 300 menu	, click on	Objects ->	> Fo
	eper. Verify an er						
	by default due to	2					
created	by default due to	the configuration	in Section	otop 1.			
	0	NOTION OF	accom c				
	Ques	n www.eeeque	escom.co	01110 _{• •}	abase 4.00.000 int	kefface 4, 20, 004	
	Hide menu	HOME FILTERS	LOGOUT				
	QuesCom 400				111.0	all share and	
	 Users Objects 	Foreign G	atekeeper			ompanies administrator	
	VoIP Device Foreign Gatekeeper	ADD RECORD			1 Foreign	n Gatekeeper	
	SmartIAD®	ID	Name	Туре	IP Address	Listen	
	Device Group Orti Application					Port	
	Services Costs	IP Office	IPOffice	H323	10.1.20.10		
	Licenses and Profiles	s Page 1/1	6	© 1 🖉 🥯	Pag	ge Size 999	
	SIM Management Logs		© Ques	Com All Rights reserve	to the second	667	
				112	1		1
	Done			(iii)	🌍 Int	h	
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entries a to the Q QuesCo	are present by defa	ault. Service ID " SSM gateway. Ser ateway to the GS	3" is for rou vice ID "4" M network.	uting outbo is for rout Service ID	und calls f ing of outl s "1" and	from Avay bound call "2" are als	a IP s from so cre
entries a to the Q QuesCo default,	are present by defa QuesCom 300 IP/G om 300 IP/GSM ga and are related to	ault. Service ID " SSM gateway. Ser ateway to the GS	3" is for rot rvice ID "4" M network. sage Servic	uting outbo is for rout Service ID ce) that wer	und calls f ing of outl s "1" and	from Avay bound call "2" are als	a IP s from so cre
entries a to the Q QuesCo default,	are present by defa QuesCom 300 IP/G om 300 IP/GSM ga	ault. Service ID " GSM gateway. Ser ateway to the GS SMS (Short Mes	3" is for rot rvice ID "4" M network. sage Servic	uting outbo is for rout Service ID ce) that wer	und calls f ing of outl s "1" and	from Avay bound call "2" are als	a IP s from so cre
entries a to the Q QuesCo default,	are present by defa QuesCom 300 IP/G om 300 IP/GSM ga and are related to	ault. Service ID " GSM gateway. Ser ateway to the GS SMS (Short Mes	3" is for rot rvice ID "4" M network. sage Servic	uting outbo is for rout Service ID ce) that wer	und calls f ing of outl s "1" and	from Avay bound call "2" are als	a IP s from so cre
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Step			Description			
4.	Routing of inbound	Routing of inbound calls to the QuesCom 300 IP/GSM gateway is created by clicking on the ADD				
	RECORD button o	n the main Service	screen, shown on st	ep 6. On the Servi	ce screen, configure	
	the following as sho		,	1		
	-	e – select radio butt	on "Device"			
		ect "Q300(SmartAl				
	0	~ ``	/	tah any nymhar		
			"*". Wildcard to ma	atch any number.		
		select "GSM Incor	ning".			
	• -	e – select "VoIP".				
	Destination	Type - select radio	button "Foreign G	K".		
	• Device – sel	ect "IPOffice". Cor	figured in the initia	l configuration in	Step 4.1.	
	The other parameter	rs can be left with d	efault values Click	on SAVE		
			clault values. Click	UII SA VE.		
		Land of the second second second				
	QuesCom				VUG	
	Hide menu	HOME FILTERS LOGOUT	SAVE	TCANCEL		
	QuesCom 400	Service			<u>^</u>	
	 Users Objects 	Origin		Destination		
	V Services	NAC-10	● Device ○ Foreign GK ○ CTI	Destination	O IP Address (H323) O Device	
	Service	Origin Type	O Device Group	Destination Type	● Foreign GK ○ CTI ○ Device	
	 Redirection Direct Dial In Service 	Origin	Q400 (SmartIAD)	IP Address	Group	
	🕨 Costs	Called Prefix Number	*	Device	IPOffice	
	Licenses and Profiles	Call Type	GSM Incoming		E State of the second sec	
	 SIM Management Logs 	Enabled for Service associated	H323 QGP SIP	Balancing mode	• None O Bal. O Cycling O Sin	
		Service associated Service type	VolP		6-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5	
		Authentication Type	None	Backup Mode Enabled for	🗹 DSP 🗹 Relay	
		Called Number Type	ISDN		RSVP Cother	
			Switch O VoIP	For Males Consider	C RSVP C Odler	
		Voice Fax Mode	O CTI Application	Fax /Voice Service	Store & Forward	
		Call Server Operations		Store & Forward Type	FAXTO EMAIL	
		LCR Support	No	Called Number		
		CDR Support	Yes	Called Number		
		Cost Support	No	Notify Receipt Type	None	
		VoIP Service		Notify receipt to	racine)	
		Law Transcoding			10	
		Quality of service(HEX)				
		<			×	
	Done				🔮 Internet	
	E DONO				Anomoc	



Step			Description	
7.	In the Connection dialog box	x, configure t	he following:	
				uesCom 300 IP/GSM gateway.
		-	ame for the QuesCom	300 IP/GSM gateway.
	• User Name and Pass	sword is pop	ulated by default.	
	Click OK.			
	Conne	ection		
	Hostr	name or IP address :	10.1.10.55	ОК
	Host	Alias :	Q300	Cancel
	User	Name :	administrator	
	Pass	word :	******	
	- Us	se NAT		
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	Devic	ce Port :	1168	
	Dowr	nloads Port :	21	
	Telne	et Port :	23	
	QPort	tal Port :	8000	
	Task	Scheduler FTP Port :	1170 Passive Mode	
	Alerte	r Port :	1174	



5. Interoperability Compliance Testing

The interoperability compliance testing focused on verifying the routing of inbound/outbound calls to/from Avaya IP Office to the GSM network via the QuesCom 300 IP/GSM gateway.

5.1. General Test Approach

The general approach was to place outbound calls from Avaya IP Office to the GSM network via the QuesCom 300 IP/GSM gateway and inbound calls from the GSM network via the QuesCom 300 IP/GSM gateway to Avaya IP Office, and verify successful call completion. The main objectives were to verify that:

- When internal extensions place outbound calls to GSM numbers, the calls are routed to the QuesCom 300 IP/GSM, QuesCom 300 IP/GSM decides on the least cost routing, and routes the call to the GSM network.
- Inbound calls from the GSM network to the QuesCom 300 IP/GSM are successfully forwarded to Avaya IP Office using both direct routing (mapping of a SIM card phone number to an Avaya IP Office extension) and post-dialing (SIM card answers an inbound call and upon a prompt, the external caller enters an Avaya IP Office).
- Transfers and conferences from Avaya IP Office stations on outbound and inbound calls were successfully routed through QuesCom 300 IP/GSM.
- Serviceability tests such as network failure were also carried out on the QuesCom 300 IP/GSM.
- Inbound and outbound calls were tested using G.711 and G.729 codec's.

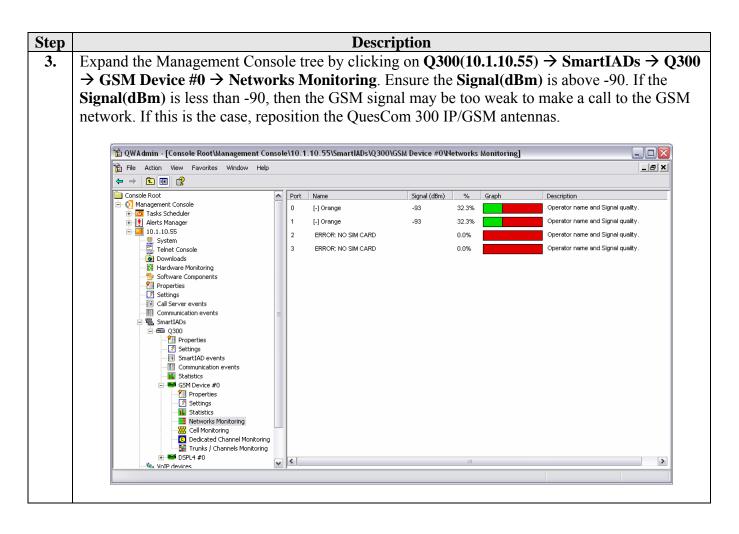
5.2. Test Results

The test objectives of Section 5.1 were verified. For serviceability testing, outbound and inbound calls routed through the QuesCom 300 IP/GSM completed successfully after recovering from failures such as Ethernet cable disconnects, and resets of Avaya IP Office and the QuesCom 300 IP/GSM. Both G.711 and G.729 audio codec's were tested successfully.

6. Verification Steps

This section provides the tests that can be performed to verify proper configuration of QuesCom 300 IP/GSM.

 Make calls to and from Avaya IP Office telephones to GSM p. IP/GSM gateway to verify the Avaya IP Office trunk is up. Expand the Management Console tree by clicking on Q300(10 → GSM Device #0 → Trunks/Channels Monitoring. Ensure colour green with IDLE. 	0.1.10.55) \rightarrow SmartIADs \rightarrow Q300 e the Trunks configured are the
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7. Support

Technical support from QuesCom can be requested in the following three ways.

- The corporate QuesCom Reporting Tool (QRT) account on the QuesCom web site at http://support.quescom.com.
- The Support Line number. +33 820203846 (France) Voice Message is available during off days and non working hours.
- Sending an email to <u>support@quescom.com</u>.

8. Conclusion

These Application Notes describe the configuration steps required for QuesCom IP/GSM 300 version IAD05.00B030P000 to successfully interoperate with Avaya IP Office 4.0 using H.323 IP trunks. All feature functionality and serviceability test cases were completed successfully.

9. Additional References

This section references the Avaya and QuesCom IP/GSM 300 product documentation that are relevant to these Application Notes.

Avaya product documentation can be found at <u>http://support.avaya.com</u>.

• IP Office 4.0 Installation Manual, Document ID 15-601042, Issue 15e, January 2007.

The following documents can be requested from QuesCom by sending an e-mail to <u>support@quescom.com</u>.

- Getting Started with QuesCom 300 IP/GSM: GS-Q300IPGSM300-V01.pdf
- QuesCom 300 IP/GSM Administrator Guide: AG-Q300IPGSM300-V01.pdf
- How to configure an IP-GSM linked with an external H.323 gateway: Configuration of a H323 IP-GSM.pdf
- How to configure GSM Incoming calls to a remote Gatekeeper: Configuring GSM incoming calls.pdf

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