Avaya Solution & Interoperability Test Lab

Application Notes for Configuring QuesCom 300 IP/GSM Gateway with Avaya SIP Enablement Services and Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe a compliance-tested configuration using a QuesCom 300 IP/GSM gateway, Avaya Communication Manager, and Avaya SIP Enablement Services. The QuesCom 300 IP/GSM is an IP-GSM gateway, supporting outgoing and incoming Global System for Mobile communications GSM calls. All GSM calls made from Avaya Communications Manager will be routed via the Avaya SIP Enablement Services (SES) server to the QuesCom 300 IP/GSM gateway out to the GSM network. The QuesCom 300 IP/GSM can also receive calls from the GSM network and route the calls back to Avaya Communication Manager via Avaya SIP Enablement services.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe a compliance-tested configuration using a QuesCom 300 IP/GSM gateway, Avaya SIP Enablement Services (SES) 4.0 and Avaya Communication Manager 4.0.1.

The QuesCom 300 IP/GSM is an IP-GSM gateway, supporting outgoing and incoming GSM calls. All GSM calls made from Avaya Communications Manager will be routed via the Avaya SES 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 back to Avaya Communication Manager via the Avaya SES. The QuesCom 300 IP/GSM can provide a backup route for the PSTN and also be backed up by the PSTN. This can be configured in Avaya Communication Manager using Automatic Route Selection (ARS). These Application Notes focus on a configuration where a SIP trunk connects Avaya SES and the QuesCom 300 IP/GSM.

Avaya Communication Manager runs on the Avaya S8500 Server; the solution described herein is also extensible to other Avaya Servers and Media Gateways. The Avaya G650 Media Gateway is connected to the PSTN via an E1 ISDN-PRI line. The Avaya SES server is networked with Avaya Communication Manager and the QuesCom 300 via SIP trunking. 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.

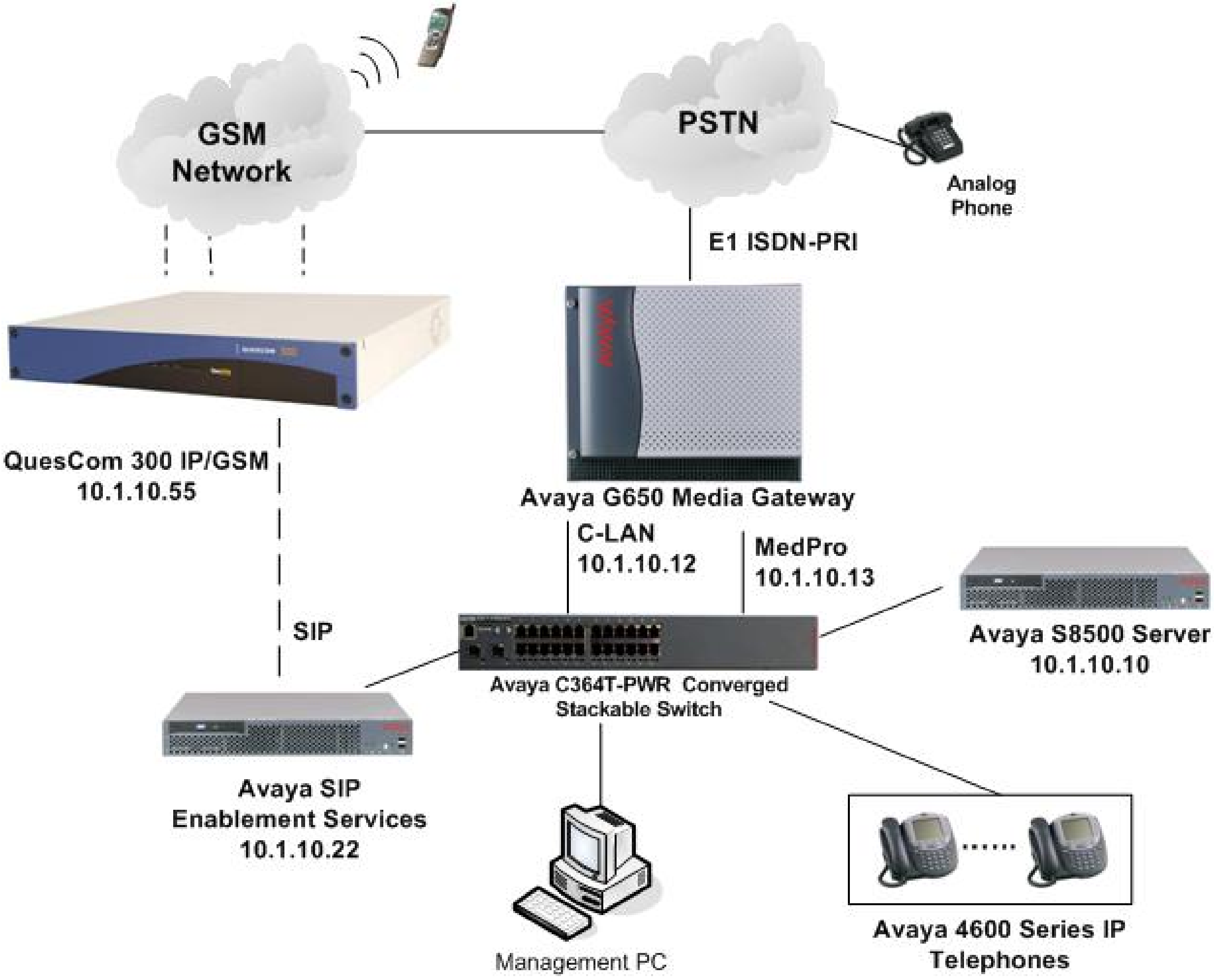


Figure 1: Avaya Communication Manager and Avaya SIP Enablement Services with QuesCom 300 IP/GSM

2. Equipment and Software Validated

Equipment	Software
Avaya SIP Enablement Services configured as a home/edge server.	4.0 (33.6)
Avaya S8500 Server running Avaya Communication Manager	4.0.1 (R014x.00.0.731.2)
Avaya G650 Media Gateway C-LAN TN799DP Medpro TN2302AP	 HW 1, FW24 HW 20, FW116
Avaya C364T-PWR Converged Stackable Switch	4.3.12
Avaya 46XX Series IP Telephones (H.323)	2.8
QuesCom 300 IP/GSM	IAD05.00B030P000

3. Configure Avaya Communication Manager

Basic configuration of Avaya Communication Manager and Avaya SES are beyond the scope of these Application Notes. See Section 10 for Avaya documentation references. The steps are performed from the System Access Terminal (SAT) interface.

3.1. SIP Trunks

The steps in this section verify that there are sufficient number of SIP trunks between Avaya Communication Manager and Avaya SES.

Step	Description
1.	Use the **display system-parameters customer-options** command to verify that sufficient SIP trunk capacity exists. On Page 2, verify that the number of SIP trunks supported by the system is sufficient for the number of SIP trunks needed. Each SIP call between two SIP endpoints (whether internal or external) requires two SIP trunks for the duration of the call. The license file installed on the system controls the maximum permitted. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative to make the appropriate changes.

```
display system-parameters customer-options        Page   2 of  10
                                OPTIONAL FEATURES
IP PORT CAPACITIES                                          USED
                     Maximum Administered H.323 Trunks: 800   90
           Maximum Concurrently Registered IP Stations: 2400  5
             Maximum Administered Remote Office Trunks: 0     0
Maximum Concurrently Registered Remote Office Stations: 0     0
              Maximum Concurrently Registered IP eCons: 20    0
  Max Concur Registered Unauthenticated H.323 Stations: 2400  0
                  Maximum Video Capable H.323 Stations: 2400  0
                   Maximum Video Capable IP Softphones: 2400  0
                       Maximum Administered SIP Trunks: 800   35

   Maximum Number of DS1 Boards with Echo Cancellation: 0     0
                             Maximum TN2501 VAL Boards: 10    0
                     Maximum Media Gateway VAL Sources: 250   0
           Maximum TN2602 Boards with 80 VoIP Channels: 128   0
          Maximum TN2602 Boards with 320 VoIP Channels: 128   1
   Maximum Number of Expanded Meet-me Conference Ports: 300   0
```

Step	Description
2.	Enter the **display trunk-group n** command, where “n” is the pre-configured SIP trunk group number between Avaya Communication Manager and Avaya SES. The number of ports configured should be coordinated with the number of SIM cards available in the QuesCom 300 gateway.

```
display trunk-group 30                                         Page   1 of  21
                                TRUNK GROUP

Group Number: 30                   Group Type: sip            CDR Reports: y
  Group Name: SIP TRUNK                   COR: 1        TN: 1        TAC: 730
   Direction: two-way       Outgoing Display? n
 Dial Access? n                                          Night Service:
Queue Length: 0
Service Type: tie                   Auth Code? n
                                                       Signaling Group: 30
                                                     Number of Members: 5
```

3.	On the **GROUP MEMBER ASSIGNMENTS** screen (Page 5 of the trunk-group form). Verify the following group member assignments.

```
display trunk-group 30                                         Page   5 of  21
                                TRUNK GROUP
                                     Administered Members (min/max):   1/5
GROUP MEMBER ASSIGNMENTS                 Total Administered Members:   5

       Port             Name
  1: T00001             SIP TRUNK
  2: T00002             SIP TRUNK
  3: T00003             SIP TRUNK
  4: T00004             SIP TRUNK
  5: T00005             SIP TRUNK
  6:
```

3.2. PSTN E1 ISDN-PRI

This section displays the PSTN E1 ISDN-PRI configuration on Avaya Communication Manager in the sample configuration of **Figure 1**. See Section 10 for Avaya documentation references.

Step	Description
1.	Enter **display ds1** <board location> to display the PSTN DS1 Circuit Pack configuration.

```
display ds1 01A12
                                DS1 CIRCUIT PACK

            Location: 01A12                           Name: PRI to BT
            Bit Rate: 2.048                    Line Coding: hdb3

      Signaling Mode: isdn-pri
             Connect: network
   TN-C7 Long Timers? n                   Country Protocol: etsi
Interworking Message: PROGress            Protocol Version: b
Interface Companding: alaw                            CRC? y
           Idle Code: 01010100
                              DCP/Analog Bearer Capability: 3.1kHz

                                           T303 Timer(sec): 4
      Slip Detection? n                 Near-end CSU Type: other
```

Step	Description
2.	Enter **display trunk-group** <number> to display the PSTN trunk-group configuration.

```
display trunk-group 19                                       Page   1 of  22
                                TRUNK GROUP

Group Number: 19                 Group Type: isdn          CDR Reports: y
  Group Name: PRI to BT                 COR: 1        TN: 1        TAC: 719
   Direction: two-way      Outgoing Display? n       Carrier Medium: PRI/BRI
 Dial Access? y               Busy Threshold: 255       Night Service:
Queue Length: 0
Service Type: public-ntwrk        Auth Code? n            TestCall ITC: rest
                         Far End Test Line No:
TestCall BCC: 4
```

```
display trunk-group 19                                           Page   2 of  22
      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: a     Digit Handling (in/out): enbloc/overlap

            Trunk Hunt: cyclical                     QSIG Value-Added? n
                                                   Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:                 Format:
              Bit Rate: 1200         Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? n
 Answer Supervision Timeout: 0
```

Step	Description

```
display trunk-group 19                                           Page   3 of  22
TRUNK FEATURES
          ACA Assignment? n            Measured: both      Wideband Support? n
                                                          Maintenance Tests? y
                               Data Restriction? n     NCA-TSC Trunk Member:
                                      Send Name: n      Send Calling Number: y
            Used for DCS? n                            Send EMU Visitor CPN? n
   Suppress # Outpulsing? y    Format: public
 Outgoing Channel ID Encoding: preferred     UUI IE Treatment: shared
                                           Maximum Size of UUI IE Contents: 128
                                                 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                BSR Reply-best DISC Cause Value: 31
 Send Codeset 6/7 LAI IE? y                         Ds1 Echo Cancellation? n

    Apply Local Ringback? n               US NI Delayed Calling Name Update? n

                             Network (Japan) Needs Connect Before Disconnect? n
```

```
display trunk-group 19                                      Page   6 of  22
                                 TRUNK GROUP
                                      Administered Members (min/max):   1/5
GROUP MEMBER ASSIGNMENTS                  Total Administered Members:   5

       Port    Code Sfx Name        Night           Sig Grp
  1: 01A1201  TN2464 C                                19
  2: 01A1202  TN2464 C                                19
  3: 01A1203  TN2464 C                                19
  4: 01A1204  TN2464 C                                19
  5: 01A1205  TN2464 C                                19
```

3. Enter **display signaling-group** <number> to display the PSTN signaling-group configuration.

```
display signaling-group 19                                   Page   1 of   5
                                SIGNALING GROUP

 Group Number: 19             Group Type: isdn-pri
                  Associated Signaling? y          Max number of NCA TSC: 5
                     Primary D-Channel: 01A1216     Max number of CA TSC: 5
                                                 Trunk Group for NCA TSC: 19
   Trunk Group for Channel Selection: 19      X-Mobility/Wireless Type: NONE
      Supplementary Service Protocol: a
```

3.3. ARS Tables and Route Patterns

When placing outbound calls to the public network, stations on Avaya Communication Manager must first dial the ARS Feature Access Code (FAC) before dialing an external number. The single digit “9” was used as the ARS FAC in the compliance-tested configuration (not shown).

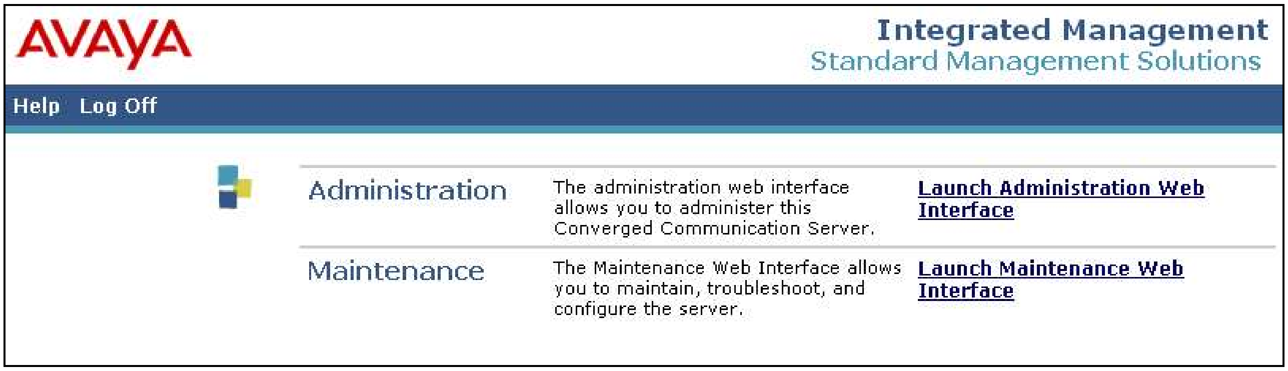
Step	Description
1.	Enter the **change ars analysis 0** command. Configure **Dialed String** entries according to customer requirements. In the example below, the entries match dialed numbers as follows: • The “079” **Dialed String** matches 11-digit dialed numbers that begin with 079, and routes calls to **Route Pattern** 79.

```
change ars analysis 0                                          Page   1 of   2
                             ARS DIGIT ANALYSIS TABLE
                                   Location:  all          Percent Full:    0

          Dialed           Total     Route    Call   Node  ANI
          String          Min  Max  Pattern   Type   Num   Reqd
    01                    11   11    9        pubu         n
    078                   11   11    78       pubu         n
    079                   11   11    79       pubu         n
    123                   3    3     9        pubu         n
```

Step	Description
2.	Enter the **change route-pattern n** command, where “n” is the route pattern that processes dialed numbers configured in Step 1. Add two routing preference entries as follows: 1) First Routing Preference – SIP IP trunk to QuesCom 300 • **Grp No** – enter the trunk group number routed to the QuesCom 300 gateway (Section 3.1, Step 3) • **FRL** - assign a Facility Restriction Level to this routing preference. • **LAR** - set Look Ahead Routing to “**next**” to rehunt within the next routing preference if calls are rejected. LAR allows Avaya Communication Manager to re-attempt the call on another channel if the call is rejected with certain SIP response codes. 2) Second Routing Preference – PSTN E1 ISDN-PRI • **Grp No** – enter the trunk group that contains trunk members from the PSTN E1 ISDN-PRI (Section 3.2, Step 2). • **FRL** - assign a Facility Restriction Level to this routing preference.

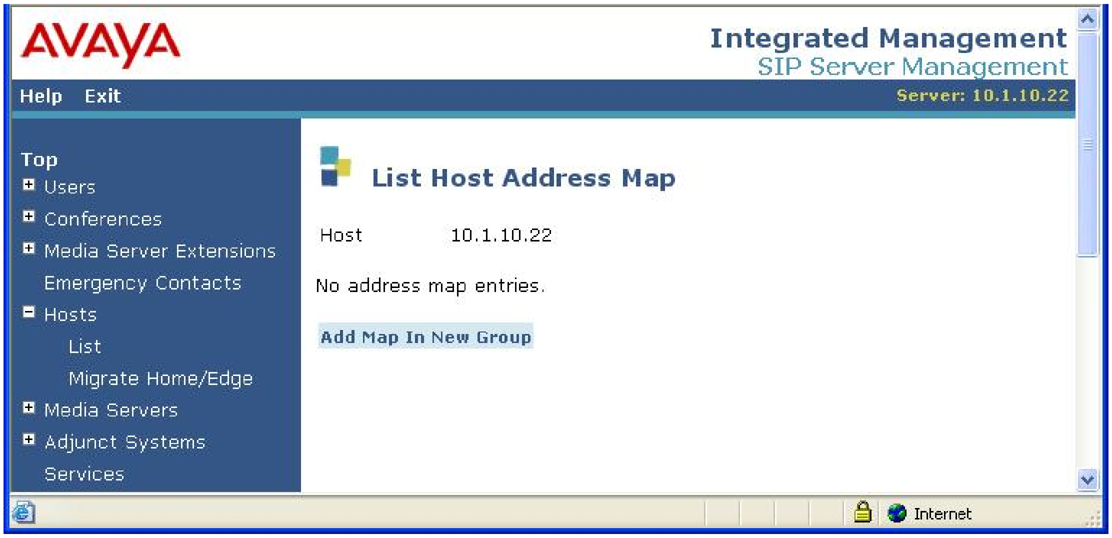
```
change route-pattern 79                                         Page   1 of   3
                    Pattern Number: 79  Pattern Name: Quescom SIP
                             SCCAN? n     Secure SIP? n
    Grp FRL NPA Pfx Hop Toll No.  Inserted                            DCS/ IXC
    No          Mrk Lmt List Del  Digits                              QSIG
                             Dgts                                     Intw
 1: 30   0                                                             n   user
 2: 19   0                                                             n   user
 3:                                                                    n   user
     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM  No. Numbering LAR
    0 1 2 3 4 W     Request                                 Dgts Format
                                                         Subaddress
 1: y y y y y n  n           rest                                          next
 2: y y y y y n  n           rest                                          none
 3: y y y y y n  n           rest                                          none
```

4. Configure Avaya SIP Enablement Services

Step	Description
1.	Launch a web browser, enter **https://<IP address of SES server>/admin** in the URL, and log in with the appropriate credentials. Click on the **Launch Administration Web Interface** link upon successful login.  The administration web interface allows you to administer this Converged Communication Server. The Maintenance Web Interface allows you to maintain, troubleshoot, and configure the server.
2.	Outbound calls are first directed by Avaya Communication Manager routing decisions to the SIP trunk group (Section 3.2). These calls are then subject to further routing decisions determined by the Host Address Maps in Avaya SES. Click **Hosts → List** and then **Edit**.  Server: 10.1.10.22 Status | Commands | Host | Type up to date | Edit Map Go-To Test-Link Delete | SEserver.devconuk.avaya.com | home/edge

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>3.</td><td>

Click the **Add Map In New Group** link.



List Host Address Map

Host 10.1.10.22

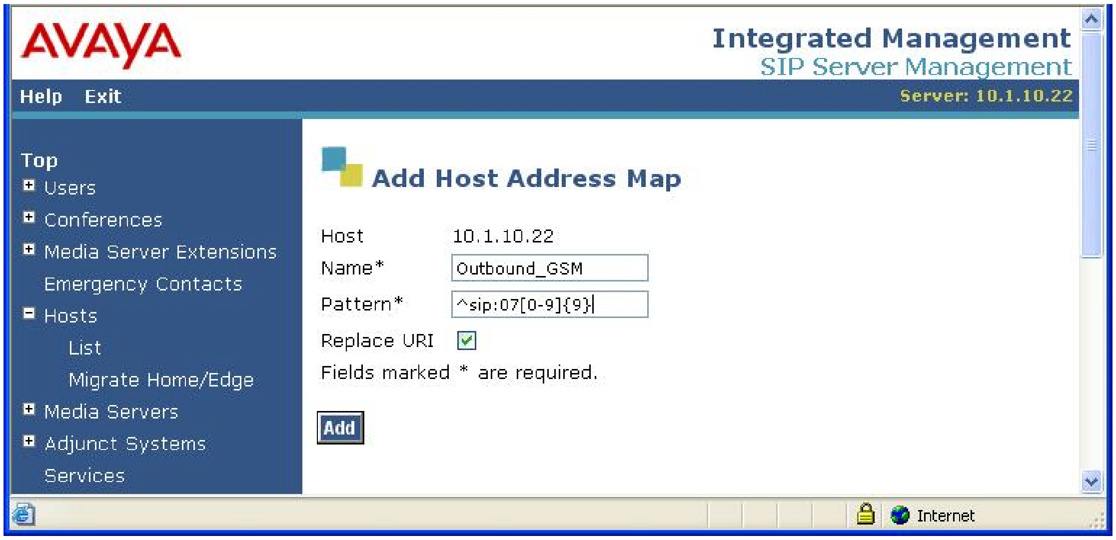
No address map entries.

</td></tr>
<tr><td>4.</td><td>

In the Add Host Address Map screen, configure the following.

- **Name** – Enter a descriptive name for the map.
- **Pattern** – Specify an appropriate pattern for the call type. In this example, the pattern used is “^sip:07[0-9]{9}”. Any number 11 digits long beginning with 07 will use this host address map.
- Replace URI – Leave the **Replace URI** checkbox selected.

Click the **Add** button.



Add Host Address Map

Host 10.1.10.22

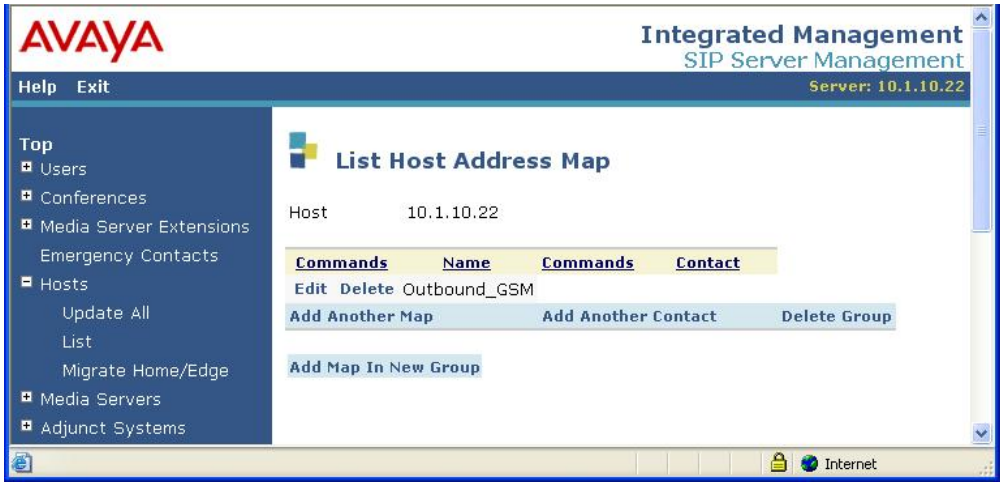
Name* Outbound_GSM

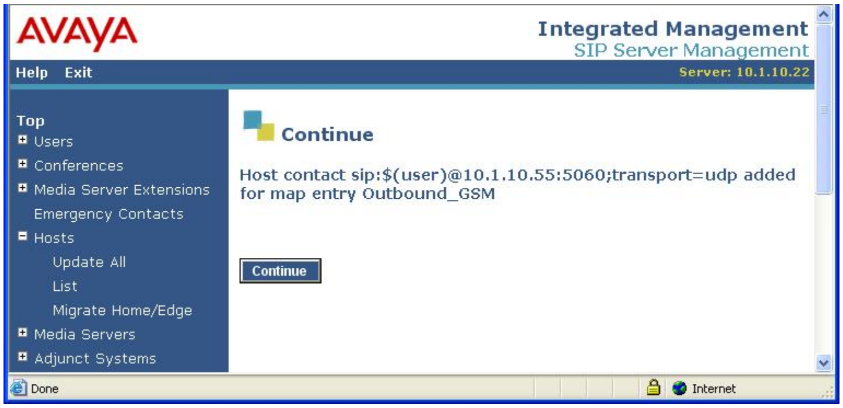
Pattern* ^sip:07[0-9]{9}

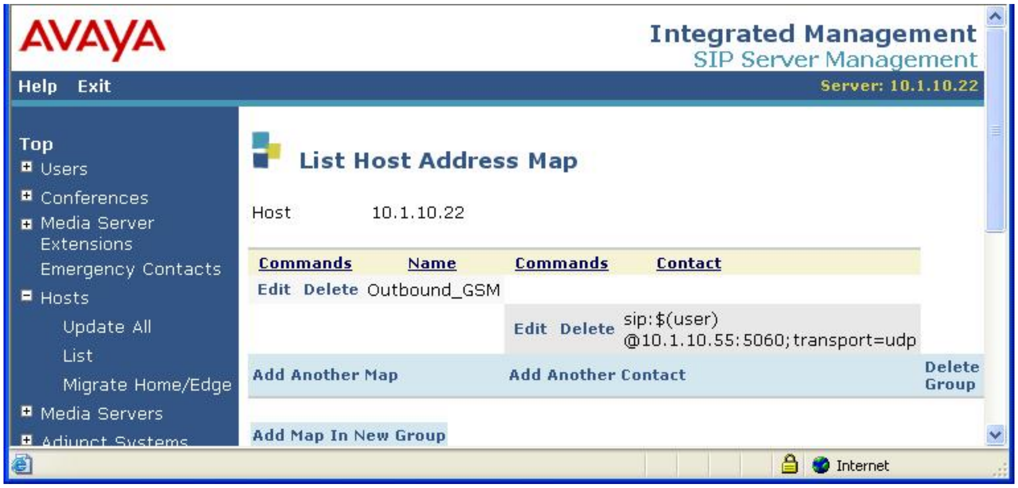
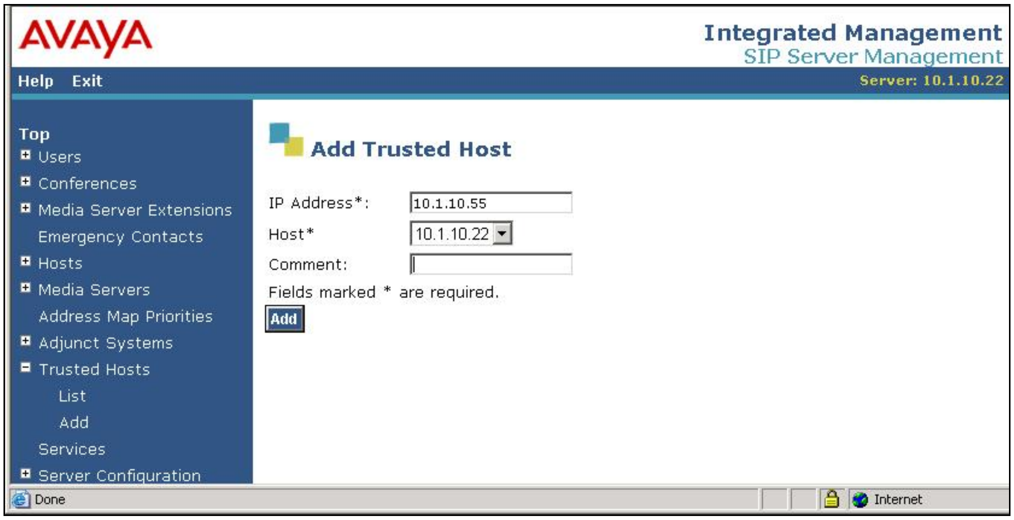
Replace URI ☑

Fields marked * are required.

</td></tr>
</table>

Step	Description
5.	Click the **Continue** button.  **Continue** Host address map Outbound_GSM added.
6.	The next step is to enter the contact address for the QuesCom 300. Click on the **Add Another Contact** link associated with the address map added in Step 7.  **List Host Address Map** Host 10.1.10.22 Commands Name Commands Contact Edit Delete Outbound_GSM Add Another Map Add Another Contact Delete Group Add Map In New Group

Step	Description
7.	In the Add Host Contact screen, the **Contact** field specifies the destination for the call and it is entered as: “sip:$(user)@10.1.10.55:5060;transport=udp”, where 10.1.10.55 is the IP address of the QuesCom 300 in this configuration. The user part in the original request URI is inserted in place of the “$(user)” string before the message is sent to the QuesCom 300. Click the **Add** button when completed.  Add Host Contact Host 10.1.10.22 Handle Outbound_GSM Contact* sip:$(user)@10.1.10.55:5060;transport=ud Fields marked * are required.
8.	Click the **Continue** button.  Continue Host contact sip:$(user)@10.1.10.55:5060;transport=udp added for map entry Outbound_GSM

Step	Description
9.	After making changes within Avaya SES, it is necessary to commit the database changes using the **Update** link that appears when changes are pending. Perform this step by clicking on the **Update** link or **Hosts→ Update All**.  List Host Address Map Host 10.1.10.22 Commands | Name | Commands | Contact Edit Delete Outbound_GSM Edit Delete sip:$(user)@10.1.10.55:5060;transport=udp
10.	Administer the QuesCom 300 gateway as a trusted host. To configure a trusted host, click on **Trusted Hosts → Add**. Enter the IP address of the QuesCom gateway in the **IP Address** field and click on **Add**.  Add Trusted Host IP Address*: 10.1.10.55 Host* 10.1.10.22 Comment: Fields marked * are required. After configuring the trusted host, the administrator must go back to the SES administration web interface, and click on the **Update** link in the bottom left pane as shown in Step 9 for the changes to take effect.

5. Configure the QuesCom 300 IP/GSM

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

5.1. QuesCom Server 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 SES.

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.
```

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
```

Step	Description

```
Enter the default Gateway [10.1.10.1]: 10.1.10.1
The default Gateway: 10.1.10.1
```

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
```

Enter “2” to select the SIP 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 QuesCom
gateway
      0 Skip to next step/Do it later
      1 H.323 (no registration)
      2 SIP (no registration)
> 2
```

Enter the IP address and name for Avaya SES.

```
Enter the IP Address of the SIP Proxy: 10.1.10.22
SIP Proxy IP Address: 10.1.10.22

Enter the name of the SIP Proxy: SES
SIP Proxy name: SES
```

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 QuesCom
gateway
      0 Skip to next step/Do it later
      1 H.323 (no registration)
      2 SIP (no registration)
> 0
```

Step	Description

Enter “0” for the following Voice Box option.

```
            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
```

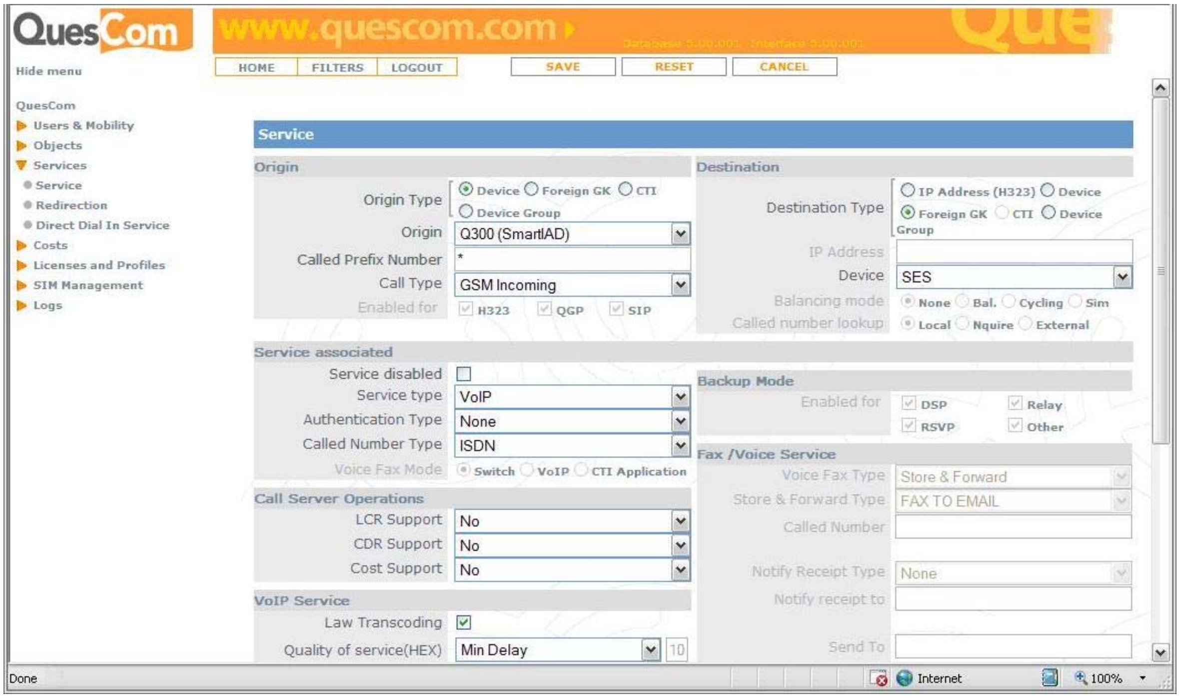
```
Setting up QPortal Application...
Please wait...

Rebooting system...
Warning: Do not restart the Gateway, update process in progress...
Please, wait up to 3 minutes.
```

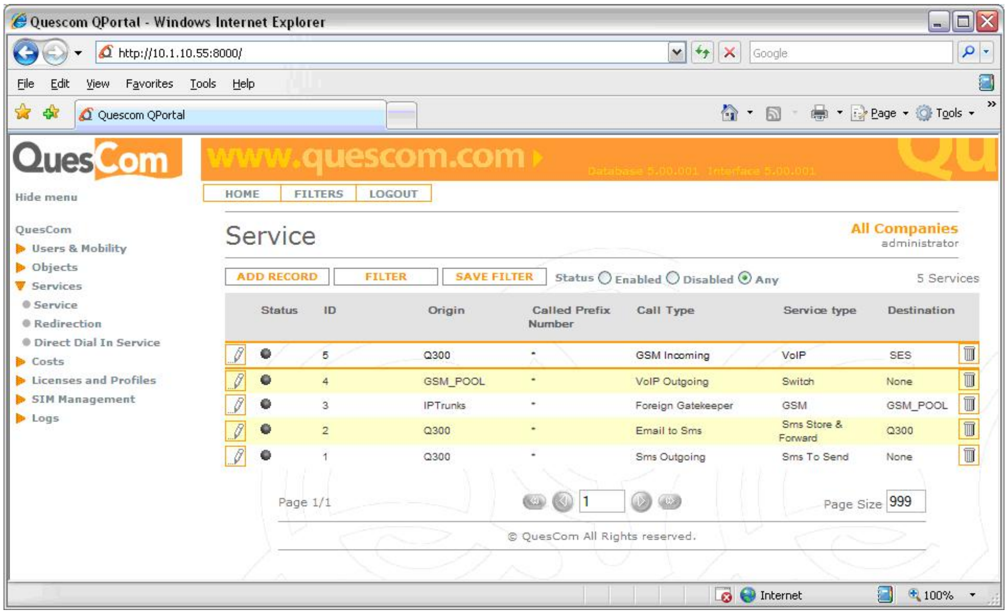
5.2. QuesCom Routing Configuration

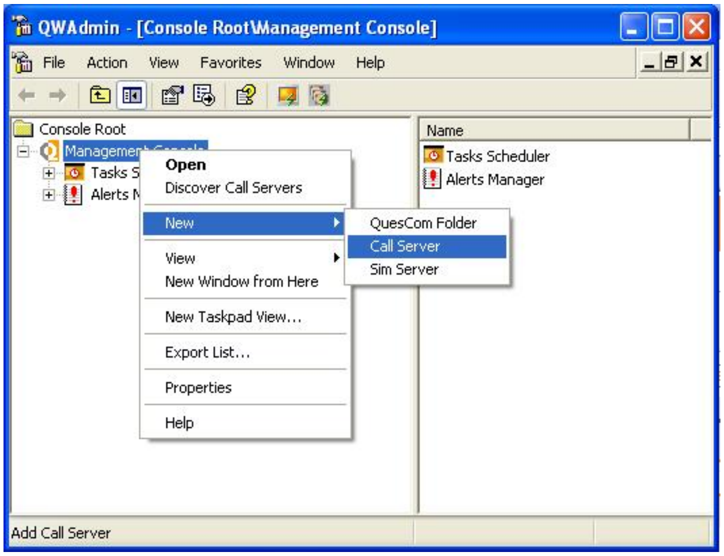
<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>1.</td><td>Open a web browser from the management PC and enter the following URL http://<QuesCom 300 IPaddress:8000>. For this configuration “http://10.1.10.55:8000” was entered. Log in using the appropriate user name and password.

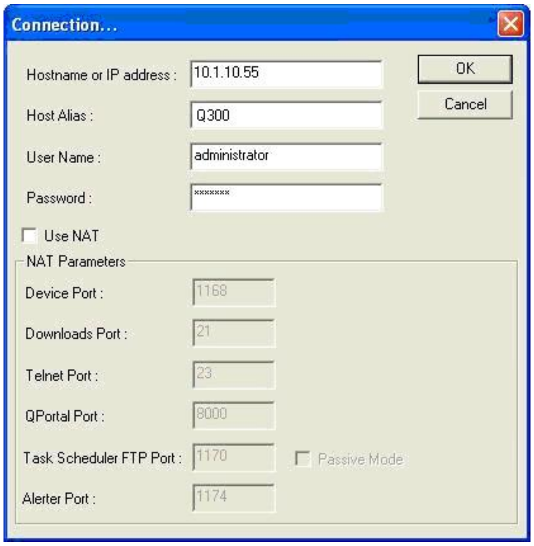

Address: http://10.1.10.55:8000/
Login: administrator
Password: ••••••••</td></tr>
<tr><td>2.</td><td>Click on Services → Service. Four entries are present by default. ID “3” is created by default and is routing for outbound calls from Avaya Communication Manager via the Avaya SES to the QuesCom 300 gateway. ID “4” is routing of outbound calls from the QuesCom 300 gateway to the GSM network. Service IDs “1” and “2” are also created by default, and are related to SMS (Short Message Service) that were not tested during compliance testing.

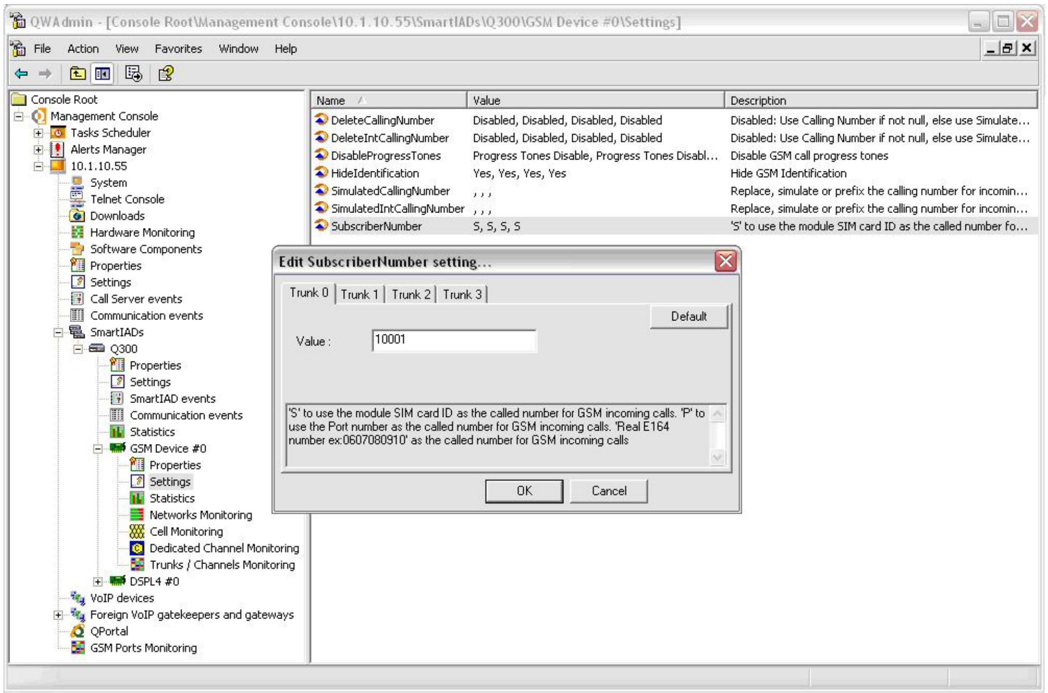

<table>
<tr><th>ID</th><th>Origin</th><th>Called Prefix Number</th><th>Call Type</th><th>Service type</th><th>Destination</th></tr>
<tr><td>4</td><td>GSM_POOL</td><td>*</td><td>VoIP Outgoing</td><td>Switch</td><td>None</td></tr>
<tr><td>3</td><td>Avaya</td><td>*</td><td>Foreign Gatekeeper</td><td>VoIP</td><td>GSM_POOL</td></tr>
<tr><td>2</td><td>Q400</td><td>*</td><td>Email to Sms</td><td>Sms Store & Forward</td><td>Q400</td></tr>
<tr><td>1</td><td>Q400</td><td>*</td><td>Sms Outgoing</td><td>Sms To Send</td><td>None</td></tr>
</table></td></tr>
</table>

Step	Description
3.	Routing of inbound calls to the QuesCom 300 gateway from the GSM network is created by clicking on **ADD RECORD** button on the main Service screen shown in Step 6. On the Service screen, configure the following as shown below. - **Origin Type** – select radio button "Device" - **Origin** – select "Q300(SmartAD)" - **Called Prefix Number –** enter "*" - **Call Type –** select "GSM Incoming" - **Service type –** select "VoIP" - **Destination Type –** select radio button "Foreign GK" - **Device –** select "SES", which was configured during the initial configuration in Section 5.1, Step 1. The other parameters can be left with default values. Click on **Save**.  Service Origin Origin Type ● Device ○ Foreign GK ○ CTI ○ Device Group Origin Q300 (SmartlAD) Called Prefix Number * Call Type GSM Incoming Enabled for ☑ H323 ☑ QGP ☑ SIP Service associated Service disabled ☐ Service type VoIP Authentication Type None Called Number Type ISDN Voice Fax Mode ● Switch ○ VoIP ○ CTI Application Call Server Operations LCR Support No CDR Support No Cost Support No VoIP Service Law Transcoding ☑ Quality of service(HEX) Min Delay 10 Destination Destination Type ○ IP Address (H323) ○ Device ● Foreign GK ○ CTI ○ Device Group IP Address Device SES Balancing mode ● None ○ Bal. ○ Cycling ○ Sim Called number lookup ● Local ○ Nquire ○ External Backup Mode Enabled for ☑ DSP ☑ Relay ☑ RSVP ☑ Other Fax /Voice Service Voice Fax Type Store & Forward Store & Forward Type FAX TO EMAIL Called Number Notify Receipt Type None Notify receipt to Send To Done Internet 100%

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>4.</td><td>The inbound call route pattern added in Step 3 is displayed on the main Service screen by clicking on Services → Service.


Service
Status ○ Enabled ○ Disabled ● Any
5 Services
<table>
<tr><th>Status</th><th>ID</th><th>Origin</th><th>Called Prefix Number</th><th>Call Type</th><th>Service type</th><th>Destination</th></tr>
<tr><td>●</td><td>5</td><td>Q300</td><td>*</td><td>GSM Incoming</td><td>VoIP</td><td>SES</td></tr>
<tr><td>●</td><td>4</td><td>GSM_POOL</td><td>*</td><td>VoIP Outgoing</td><td>Switch</td><td>None</td></tr>
<tr><td>●</td><td>3</td><td>IPTrunks</td><td>*</td><td>Foreign Gatekeeper</td><td>GSM</td><td>GSM_POOL</td></tr>
<tr><td>●</td><td>2</td><td>Q300</td><td>*</td><td>Email to Sms</td><td>Sms Store & Forward</td><td>Q300</td></tr>
<tr><td>●</td><td>1</td><td>Q300</td><td>*</td><td>Sms Outgoing</td><td>Sms To Send</td><td>None</td></tr>
</table>
Page 1/1 1 Page Size 999
© QuesCom All Rights reserved.</td></tr>
<tr><td>5.</td><td>From the management PC shown in Figure 1, launch the QuesCom 300 QWA management console by clicking Start → Programs → QuesCom → QuesCom Management Console. Right click on Management Console and click New → Call Server.

</td></tr>
</table>

Step	Description
6.	In the Connection dialog, configure the following and click **OK**: • **Hostname or IP address** – enter the IP address of the QuesCom 300 gateway • **Host Alias** – enter a descriptive name for the QuesCom 300 gateway • **User Name** and **Password**  Hostname or IP address : 10.1.10.55 Host Alias : Q300 User Name : administrator Password : ******* ☐ Use NAT NAT Parameters Device Port : 1168 Downloads Port : 21 Telnet Port : 23 QPortal Port : 8000 Task Scheduler FTP Port : 1170 ☐ Passive Mode Alerter Port : 1174

Step	Description
7.	Expand the Management Console tree by clicking on **Q300 (10.1.10.55) → SmartIADs → Q300 → GSM Device #0 → Settings → SubscriberNumber**. In the **Edit SubscriberNumber setting** dialog box, click on the Trunk 0 tab each trunk is associated with a SIM card. Enter an Avaya Communication station that incoming calls will be routed to in the **Value** field. For the convenience of compliance testing, the calls were routed to a station on Avaya Communication Manager for all incoming trunks. Replicate this field for all 4 Trunks. Click **OK** Right click on **Q300** under **SmartIADs** and click on **Save** configuration, then right click back on **Q300** and click on **Stop**(not shown). Right click Q300 and click on **Start** and wait for the SIM cards to register(not shown). 

QWAdmin - [Console Root\Management Console\10.1.10.55\SmartIADs\Q300\GSM Device #0\Settings]

Name	Value	Description
DeleteCallingNumber	Disabled, Disabled, Disabled, Disabled	Disabled: Use Calling Number if not null, else use Simulate...
DeleteIntCallingNumber	Disabled, Disabled, Disabled, Disabled	Disabled: Use Calling Number if not null, else use Simulate...
DisableProgressTones	Progress Tones Disable, Progress Tones Disabl...	Disable GSM call progress tones
HideIdentification	Yes, Yes, Yes, Yes	Hide GSM Identification
SimulatedCallingNumber	, , ,	Replace, simulate or prefix the calling number for incomin...
SimulatedIntCallingNumber	, , ,	Replace, simulate or prefix the calling number for incomin...
SubscriberNumber	S, S, S, S	'S' to use the module SIM card ID as the called number fo...

Edit SubscriberNumber setting...

Trunk 0

Value : 10001

'S' to use the module SIM card ID as the called number for GSM incoming calls. 'P' to use the Port number as the called number for GSM incoming calls. 'Real E164 number ex:0607080910' as the called number for GSM incoming calls

6. Interoperability Compliance Testing

The interoperability compliance testing focused on verifying the routing of inbound/outbound calls to/from the QuesCom 300.

6.1. General Test Approach

The general approach was to place inbound and outbound calls through the QuesCom 300 and verify successful call completion. The main objectives were to verify that:

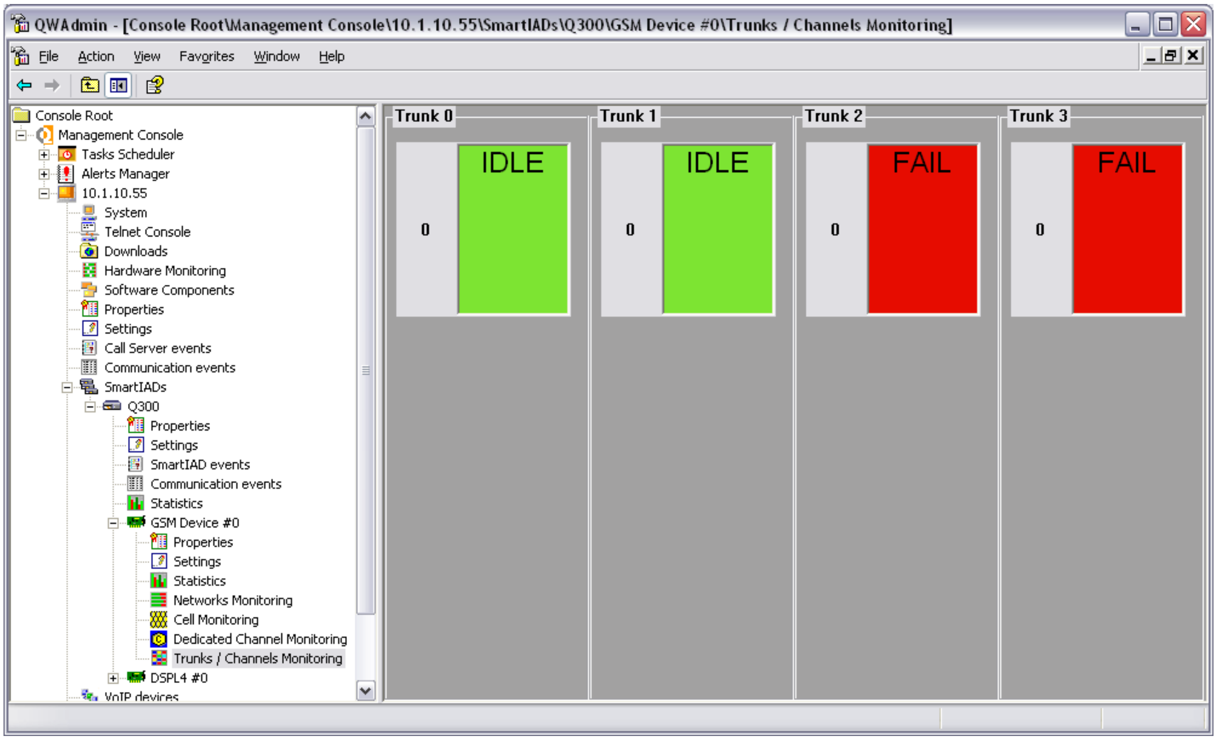
- When internal extensions place outbound calls to GSM numbers, the calls are routed to the QuesCom 300, and the QuesCom 300 decides on the least cost routing and routes the call to the GSM network.
- Inbound calls from the GSM network to the QuesCom 300 are successfully forwarded to Avaya SES using both direct routing (mapping of a SIM card phone number to an Avaya Communication Manager extension) and post-dialing (SIM card answers an inbound call and upon a prompt, the external caller enters an Avaya Communication Manager extension).
- Transfers and conferences between Avaya Communication Manager stations complete properly on outbound and inbound calls routed through the QuesCom 300.

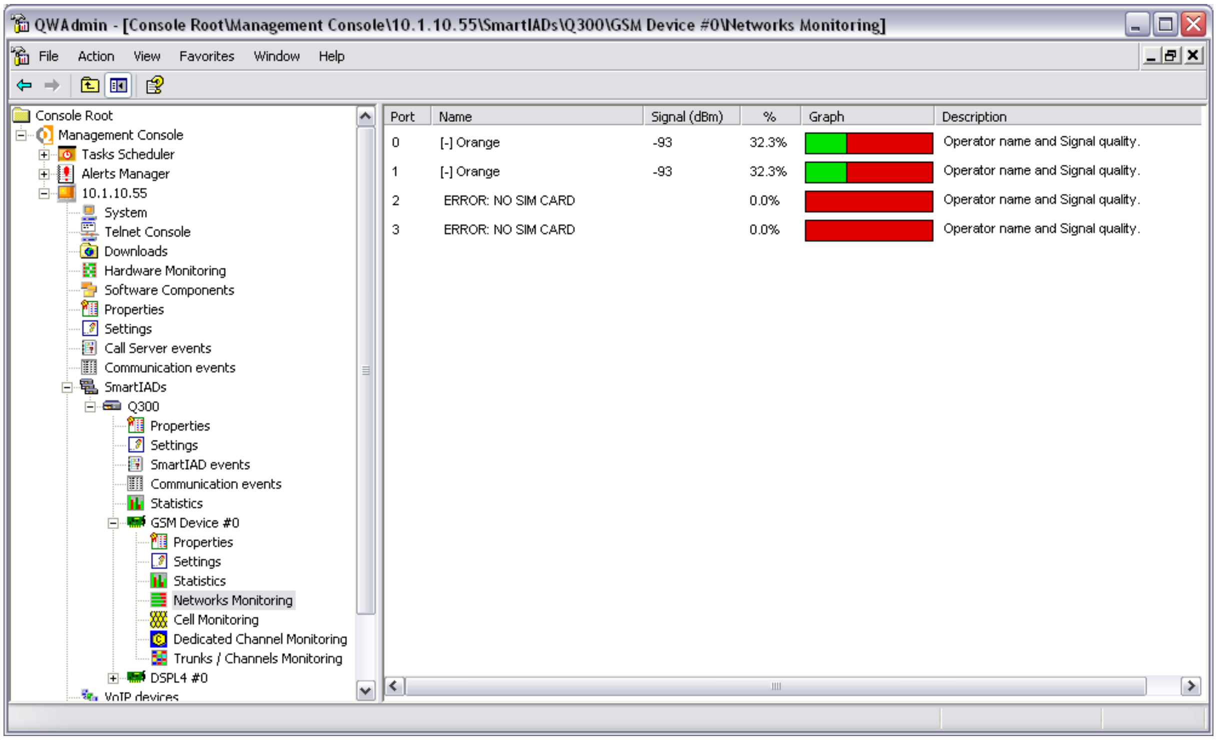
6.2. Test Results

The test objectives of Section 6.1 were verified. For serviceability testing, outbound and inbound calls routed through the QuesCom 300 complete successfully after recovering from failures such as Ethernet cable disconnects, and resets of Avaya Communication Manager, Avaya SES and the QuesCom 300.

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager and QuesCom 300.

Step	Description
1.	From the SAT, enter the command **status signaling-group s**, where s is the number of a signaling group configured in Section 3.2 and verify that the Group State is "in service". From the SAT, enter the command **status trunk-group t**, where t is the number of a trunk group configured in Section 3.2, and verify that the Service States of all trunks are "in-service/idle" or "in-service/active".
2.	Expand the Management Console tree by clicking on **Q300 (10.1.10.55) → SmartIADs → Q300 → GSM Device #0 → Trunks/Channels Monitoring**. Ensure the Trunks configured are the colour green with **IDLE**. 

Step	Description
3.	Expand the Management Console tree by clicking on **Q300(10.1.10.55)** → **SmartIADs** → **Q300** → **GSM Device #0** → **Networks Monitoring**. Ensure the **Signal(dBm)** is above -90. 

Port	Name	Signal (dBm)	%	Graph	Description
0	[-] Orange	-93	32.3%	🟩🟥	Operator name and Signal quality.
1	[-] Orange	-93	32.3%	🟩🟥	Operator name and Signal quality.
2	ERROR: NO SIM CARD		0.0%	🟥	Operator name and Signal quality.
3	ERROR: NO SIM CARD		0.0%	🟥	Operator name and Signal quality.

8. Support

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

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

9. Conclusion

These Application Notes describe the configuration steps required for QuesCom IP/GSM 300 version IAD05.00B030P000 to successfully interoperate with Avaya Communication Manager 4.0.1 and Avaya SES 4.0. All feature functionality and serviceability test cases were completed successfully.

10. Additional References

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

The following Avaya Documents are available at http://support.avaya.com

- *Documentation for Avaya Communication Manager (4.0), Media Gateways and Servers*, Document ID 03-300151, Issue 6, February 2007, available at: http://support.avaya.com.
- *SIP Support in Avaya Communication Manager Running on the Avaya S8300, S8400, S8500 series, and S8700 series Media Server*, Document ID 555-245-206, Issue 7, May 2007.

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

- Getting Started with QuesCom 300 IP/GSM: GS-Q300IPGSM300-V01.pdf
- QuesCom 300 IP/GSM Administrator Guide: AG-Q300IPGSM300-V01.pdf
- How to configure GSM Incoming calls to a remote Gatekeeper: Configuring GSM incoming calls.pdf

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.