



Avaya Solution & Interoperability Test Lab

Application Notes for configuring the Usnetserve aGATE by Teles GSM Cellular Gateway with an Avaya telephony infrastructure using Avaya Aura™ Communication Manager to provide a GSM Wireless Backup for Landlines through an E1 ISDN-PRI Line – Issue 1.0

Abstract

These Application Notes describe a compliance-tested configuration comprised of Avaya Aura™ Communication Manager and the Usnetserve aGATE by Teles GSM Cellular Gateway. The aGATE GSM Cellular Gateway is a GSM gateway that can augment landline connectivity with wireless connectivity to the GSM network. In case of landline connectivity failure, the aGATE provides a backup solution to maintain voice communications. During compliance testing, outbound calls from Avaya Aura™ Communication Manager were successfully routed over an E1 ISDN-PRI line to the aGATE and in turn to the GSM network. Similarly, inbound calls from the GSM network to the aGATE were successfully forwarded to Aura™ Communication Manager over the E1 ISDN-PRI line.

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 comprised of Avaya Aura™ Communication Manager and the Usnetserve aGATE by Teles GSM Cellular Gateway. The aGATE GSM Cellular Gateway is a GSM gateway that can augment landline connectivity with wireless connectivity to the GSM network. In case of landline connectivity failure, the aGATE provides a backup solution to maintain voice communications. These Application Notes focus on a configuration where an E1/ ISDN-PRI line connects Communication Manager and the aGATE GSM Cellular Gateway.

1.1. Interoperability Compliance Testing

The interoperability compliance testing focused on verifying the routing of outbound/inbound calls to/from the Usnetserve aGATE by Teles GSM Cellular Gateway.

The high-level objectives of the solution described in these Application Notes are as follows:

1. When the landline is out of service, Communication Manager will route all outbound calls to the aGATE.
2. When the landline is out of service, inbound calls from the GSM CELL network route through aGATE Gateway and are routed to the Communication Manager.
3. If the landline is operational, Communication Manager will re-route calls rejected by the aGATE to the landline.

The Enterprise callers can enter an “aGATE Gateway Dial Prefix” to use the aGATE Gateway to make calls. For example, Enterprise callers place outbound calls via the aGATE and GSM network to reach GSM endpoints and save on GSM Cellular minutes and costs.

1.2. Support

For technical support on the Usnetserve aGATE by Teles GSM Cellular Gateway, consult the support pages at <http://gateways.usnetserve.com> or contact Usnetserve customer support at:

- Phone: 1-646-225-6580
- E-mail: gateways@usnetserve.com

2. Reference Configuration

In case of landline connectivity failure, the aGATE provides a backup solution to maintain voice communications. When the landline is operational, outbound calls to the public network may be routed to either the landline or the aGATE, but when the landline is out of service, outbound calls to the public network are routed to the aGATE only. The aGATE routes the outbound calls to the GSM network, but may also reject outbound calls under certain configurable conditions. The caller, however, may bypass such restrictions by dialing a pre-configured “aGATE Dial Prefix” before dialing the external phone number.

2.1. Test Environment

Figure 1 illustrates a sample configuration consisting of an Avaya S8300 Server, G450 Media Gateway, Avaya 9600 Series IP Telephones, and an Usnetserve aGATE by Teles GSM Cellular Gateway. Avaya AuraTM Communication Manager runs on the Avaya S8300 Server, and the solution described herein is also extensible to other Avaya Servers and Media Gateways. The Avaya G450 Media Gateway is connected to the aGATE via an E1 trunk. The aGATE in turn connects to the GSM network via Subscriber Identity Module (SIM) cards that reside on GSM boards inserted in the aGATE.

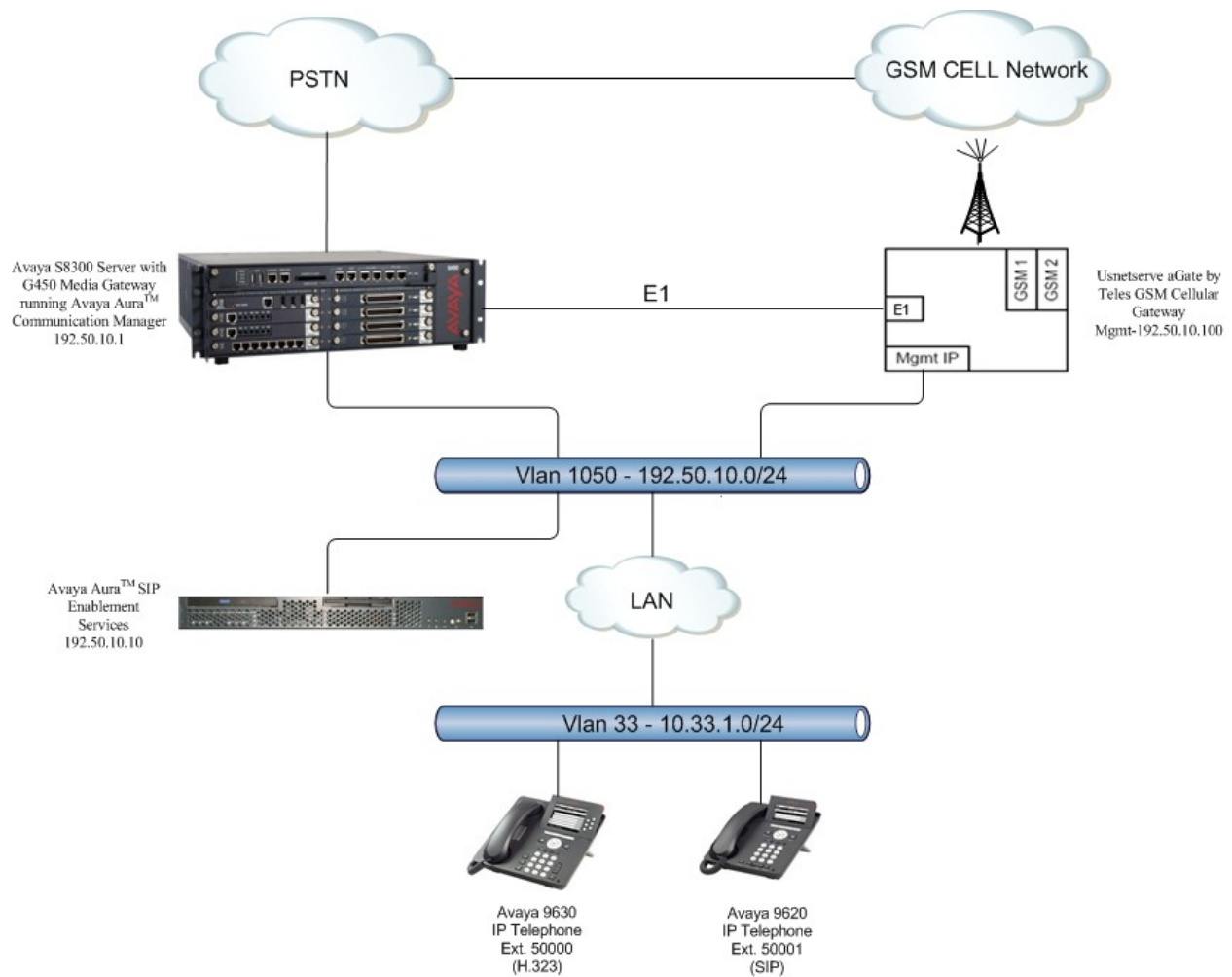


Figure 1: Network Configuration.

3. Equipment and Software Validated

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

Equipment	Software/Firmware
<i>Avaya PBX Products</i>	
Avaya S8300 Server running Avaya Aura™ Communication Manager	Avaya Aura™ Communication Manager 5.2.1
Avaya G450 Media Gateway (Corporate Site) MGP MM712 DCP Media Module	28.22.0 HW9
<i>Avaya Aura™ SIP Enablement Services (SES)</i>	
Avaya Aura™ SIP Enablement Services (SES) Server	5.2.1
<i>Avaya Telephony Sets</i>	
Avaya 9600 Series IP Telephones	Avaya one-X Deskphone Edition 3.0.1
Avaya 9600 Series IP Telephones	Avaya one-X Deskphone SIP 2.4
<i>Usnetserve Products</i>	
Usnetserve aGATE by Teles GSM Cellular Gateway	Software version 14.6b/Radio Firmware version 6.57f

4. Configure Avaya Aura™ Communication Manager

This section describes the steps required for Communication Manager to support the configuration in **Figure 1**. The following pages provide step-by-step instructions on how to administer parameters specific to the Usnetserve Gateway Solution only. The assumption is that the appropriate license and authentication files have been installed on the servers and that login and password credentials are available and that the reader has a basic understanding of the administration of Communication Manager. It is assumed that all other connections, e.g., to PSTN, to LAN, are configured and will not be covered in this document. The reader will need access to the System Administration Terminal screen (SAT). For detailed information on the installation, maintenance, and configuration of Communication Manager, please consult **Section 9 ([1])**.

4.1. DS1 Circuit Configuration

This section describes the steps for configuring an E1 ISDN-PRI line on Communication Manager to the Usnetserve aGATE GSM Cellular Gateway in the sample configuration of **Figure 1**.

1.	Issue the command display media-gateway 1 to display the Media Gateway information. Verify there is a DS1 card available, if not, install the card and refer to Section 9 for documentation links.				
	<pre>display media-gateway 1 MEDIA GATEWAY Number: 1 Registered? y Type: g450 FW Version/HW Vintage: 28 .22 .0 /1 Name: g450 MGP IP Address: 192.50 .10 .4 Serial No: 08IS38199691 Controller IP Address: 192.50 .10 .1 Encrypt Link? y MAC Address: 00:1b:4f:03:51:08 Network Region: 1 Location: 1 Enable CF? n Site Data: Recovery Rule: none Slot Module Type Name DSP Type FW/HW version V1: S8300 ICC MM MP80 15 2 V2: MM711 ANA MM V3: MM712 DCP MM V4: MM710 DS1 MM V5: MM710 DS1 MM V6: MM710 DS1 MM V7: V8: V9: gateway-announcements ANN VMM Max Survivable IP Ext: 8</pre>				

4.2. DS1 Circuit Pack Configuration

This section describes the steps for configuring the DS1 circuit, trunk groups and signaling groups, the dial plan, ARS analysis, and route patterns. The steps are performed from the System Access Terminal (SAT) interface.

1.	<p>Enter the add ds1 xxxxx command, where xxxxx is the board number of the DS1 connected to the aGATE, for this configuration 001v6 was used. On Page 1 of the ds1 form, configure the following:</p> <ul style="list-style-type: none">• Name – enter a meaningful description.• Bit Rate – set to 2.048• Line Coding – set to hdb3• Signaling Mode – set to isdn-pri• Connect – set to pbx• Protocol Version – set to a <div><div>change ds1 001v6</div><div>DS1 CIRCUIT PACK</div><div>Page</div><div>Location: 001V6 Bit Rate: 2.048</div><div>Name: E1 to Teles Line Coding: hdb3</div><div>Signaling Mode: isdn-pri Connect: pbx</div><div>Interface: network</div><div>TN-C7 Long Timers? n Country Protocol: 1</div><div>Interworking Message: PROgress Protocol Version: a</div><div>Interface Companding: mulaw CRC? n</div><div>Idle Code: 11111111 DCP/Analog Bearer Capability: 3.1kHz</div><div>T303 Timer(sec): 4</div><div>Slip Detection? n Near-end CSU Type: other</div><div>Echo Cancellation? n</div></div>
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4.3. E1 ISDN-PRI Trunks and Signaling Groups

1.	<p>Enter the add trunk-group i command, where i is an available trunk group number. On Page 1 of the trunk-group form, configure the following:</p> <ul style="list-style-type: none">• Group Type – set to isdn• Group Name – enter a meaningful name/description• TAC – enter a Trunk Access Code that is valid under the provisioned dial plan• Carrier Medium – set to PRI/BRI• Service Type – set to tie
	<pre>add trunk-group 70 Page 1 of 21 TRUNK GROUP Group Number: 70 Group Type: isdn CDR Reports: y Group Name: to teles e1 COR: 1 TN: 1 TAC: *070 Direction: two-way Outgoing Display? n Carrier Medium: PRI/BRI Dial Access? n 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</pre>
2.	<p>Enter add signaling group j command, where j is an available signaling group number on Page 1 of the signaling-group form. Configure the following:</p> <ul style="list-style-type: none">• Group Type – set to isdn-pri• Associated Signaling – set to y• Primary D-Channel – enter xxxxx16, where xxxxx is the board number of the DS1 circuit pack connected to the aGATE (16 is the D-Channel in an E1 ISDN-PRI)• Trunk Group for Channel Selection – enter the number of the trunk group configured in Step 1
	<pre>add signaling-group 70 Page 1 of 5 SIGNALING GROUP Group Number: 70 Group Type: isdn-pri Associated Signaling? y Max number of NCA TSC: 0 Primary D-Channel: 001V616 Max number of CA TSC: 0 Trunk Group for NCA TSC: Trunk Group for Channel Selection: 70 X-Mobility/Wireless Type: NONE TSC Supplementary Service Protocol: a</pre>

3.

Enter the **change trunk-group i** command, where **i** is the number of the trunk group configured in **Step 1**. On **Page 5** of the trunk-group form, add one or more trunk members by entering:

- **xxxxxxzz** for Port, where **xxxxxx** is the board number of the DS1 circuit pack connected to the aGATE, **zz** is a channel in the E1 ISDN-PRI, and the number of the signaling group configured in **Step 2** for **Sig Grp**.

change trunk-group 70

Page 5 of 21

TRUNK GROUP

Administered Members (min/max): 1/15

GROUP MEMBER ASSIGNMENTS

Total Administered Members: 15

	Port	Code Sfx	Name	Night	Sig Grp
1:	001V601	MM	710		70
2:	001V602	MM	710		70
3:	001V603	MM	710		70
4:	001V604	MM	710		70
5:	001V605	MM	710		70
6:	001V608	MM	710		70
7:	001V606	MM	710		70
8:	001V607	MM	710		70
9:	001V609	MM	710		70
10:	001V610	MM	710		70
11:	001V611	MM	710		70
12:	001V612	MM	710		70
13:	001V613	MM	710		70
14:	001V614	MM	710		70
15:	001V615	MM	710		70

4.4. ARS Table, Route Patterns & Failover Configuration

Note: For compliance testing, the Communication Manager's connection to the PSTN used the ARS Feature Access Code digit "9" and route pattern 56. The configuration of ARS Feature Access Code digit "9" and route pattern 56 are not shown in this document.

4.4.1. ARS Table configuration

1. Enter the **change ars analysis p** command, where “p” is any digit. Configure **Dialed String** entries according to customer requirements. In the example below, the entries match dialed numbers as follows:

- The “**908**” **Dialed String** matches 10-digit dialed numbers that begin with **908**, and routes calls to **Route Pattern 56**. For example, a dialed number of **908-555-1212** would be matched by this entry.
- The “**190**” **Dialed String** matches 11-digit dialed numbers that begin with **190**, and routes calls to **Route Pattern 56**. For example, a dialed number of **1-908-555-1212** would be matched by this entry.
- The first “**23**” **Dialed String** matches 12-digit dialed numbers that begin with **23**, and routes calls to **Route Pattern 70**. This entry is intended to match dialed numbers that begin with the aGATE Dial Prefix (23 was used in the compliance-tested configuration). For example, a dialed number of **23-908-555-1212** would be matched by this entry.
- The second “**23**” **Dialed String** matches 13-digit dialed numbers that begin with **23**, and routes calls to **Route Pattern 70**. This entry is also intended to match dialed numbers that begin with the aGATE Dial Prefix (23 was used in the compliance-tested configuration). For example, a dialed number of **23-1-908-555-1212** would be matched by this entry.

change ars analysis XX

ARS DIGIT ANALYSIS TABLE

Location: allPercent Full: 3

Dialed String	Total Min	Total Max	Route Pattern	Call Type	Node Num	ANI Req'd
23	12	12	70	hnpa		n
23	13	13	70	hnpa		n
908	10	10	56	hnpa		n
190	12	12	56	hnpa		n

4.4.2. Route Pattern Configuration

1.	<p>Enter the change route-pattern r command, where “r” is the route pattern that for the aGATE Gateway, 70 was used for compliance testing.</p> <p>Add a routing preference entry as follows:</p> <ul style="list-style-type: none"> • Grp No – enter the trunk group configured in Section 4.3, Step 1. • Pfx Mrk – set to 1 • FRL - assign a Facility Restriction Level to this routing preference. <pre> change route-pattern 70 Pattern Number: 70 Pattern Name: 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: 70 0 1 2 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 n 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 </pre>
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4.4.3. Failover Configuration

1.	<p>For compliance testing, the Primary route pattern out to the PSTN was 56. Enter the change route-pattern r command, where “r” is the route pattern out to the PSTN. Add the routing information for the route pattern used to the aGATE gateway. Configure the following:</p> <ul style="list-style-type: none"> • Grp No – enter the trunk group that contains trunk members from only the E1 ISDN-PRI line connected to the aGATE (Section 4.3. Step 1). • FRL - assign a Facility Restriction Level to this routing preference.
	<pre> change route-pattern 56 Pattern Number: 56 Pattern Name: SCCAN? n Secure SIP? n Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC No Mrk Lmt List Del Digits QSIG Intw 1: 56 0 1 8 n user 2: 70 0 1 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 n rest next 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 </pre>

4.5. Called Party Number Adjustments for Incoming Calls through the aGATE Gateway

Outside callers may use the aGATE to reach Communication Manager Extensions by first calling a SIM card number on the aGATE. The aGATE may be configured to directly route incoming calls from the SIM card to a specific extension on Communication Manager. If the extension is a Vector Directory Number (VDN), the vector associated with the VDN may then prompt and collect digits from the caller.

Section 4.5 describes the configuration required for directly routing the call to a specific extension. During compliance testing, the aGATE was configured to require a 5-digit input from the caller, and to forward the call to Communication Manager with the 5-digit input as the Called Party Number. The 5-digit requirement was imposed only because of the test environment. Actual environments may vary.

The 5-digit Called Party Numbers received from the aGATE must be adjusted to conform to a valid extension (string and length) in the provisioned dial plan in Communication Manager. Enter the **change inc-call-handling-trmt trunk-group u** command, where “u” is a trunk group that contains channels from the E1 ISDN-PRI line connected to the aGATE. Add an entry with a **Number Len** of “4” and configure **Called Number**, **Del “4”**, and **Insert** as necessary, 50000 was used for compliances testing. In the example below, the entry matches incoming 4-digit Called Party Numbers beginning with “5683”, deletes the four digits, and inserts the extension to be called.

change inc-call-handling-trmt trunk-group 68					Page	1 of	3
INCOMING CALL HANDLING TREATMENT							
Service/ Feature tie	Number Len	Number Digits	Del	Insert	Per Call CPN/BN	Night Serv	
	4	5683	4	50000			

5. Configure aGATE

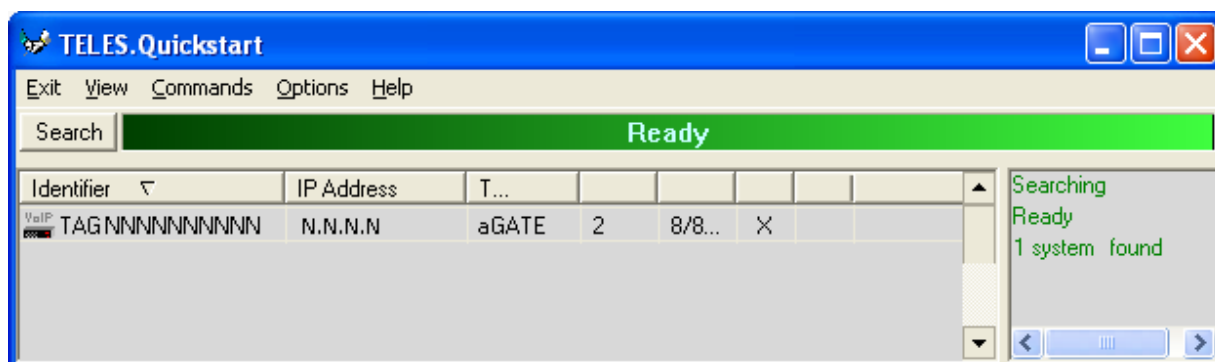
This section describes the steps for configuring the GSM boards, SIM cards, E1 ports and outbound and inbound routing policies on the aGATE. The steps are provided for illustration only; users should consult with aGATE documentation for specific instructions.

5.1. System Configuration

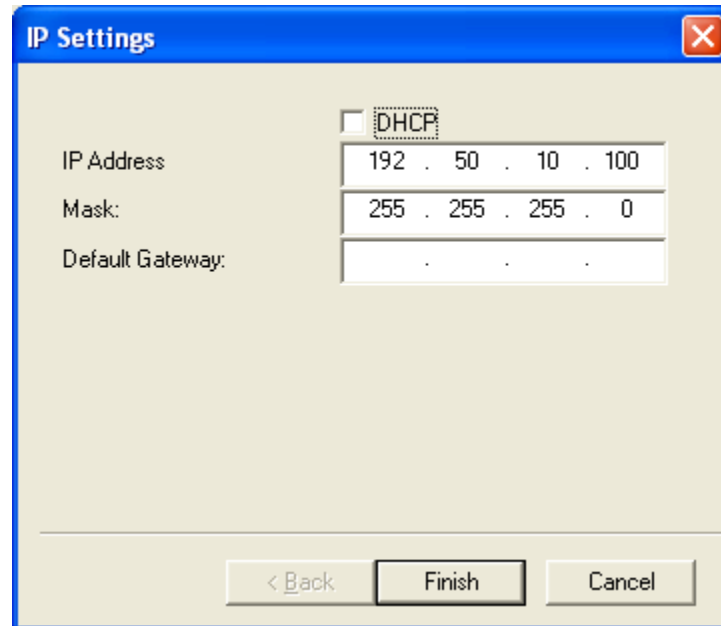
The configuration of the aGATE is a two step process. Each step requires the use of its own tool, both of which are included on the CD that shipped with the gateway. Install both the “Teles Quickstart” application and the “Teles GATE Manager”.

5.1.1 Configure the IP of the aGATE

1. Launch the “Teles Quickstart” application. Two prompts appear regarding the network setup of the PC, depending on the network setup, follow the prompts and proceed to allow the tool to scan the network. On the **TELES.Quickstart screen**, double click on the gateway **identifier** to continue.



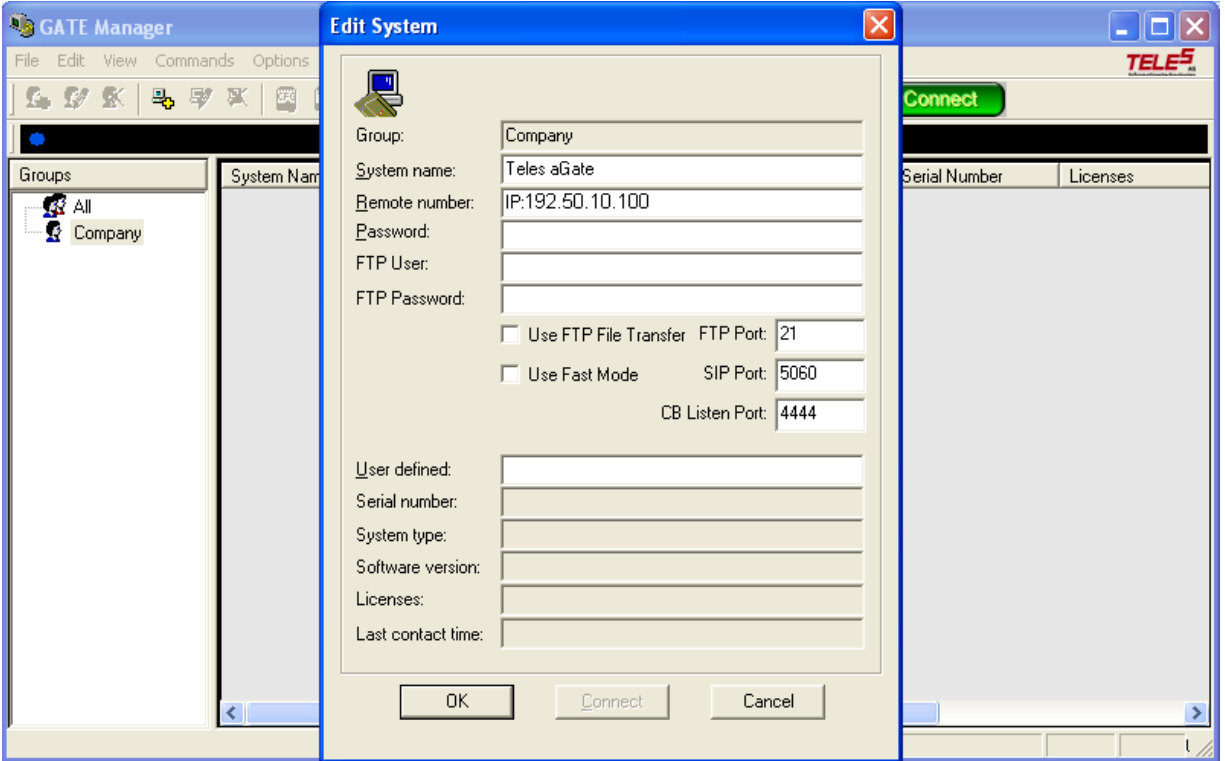
2. The IP-Setting box appears; assign the appropriate network settings, as shown in Figure 1 and click **Finish** continue.



The image shows a Windows-style dialog box titled "IP Settings" with a blue title bar and a red close button in the top right corner. The dialog has a light beige background. At the top, there is a checkbox labeled "DHCP" which is currently unchecked. Below this, there are three input fields: "IP Address" containing "192 . 50 . 10 . 100", "Mask:" containing "255 . 255 . 255 . 0", and "Default Gateway:" containing three dots. At the bottom of the dialog, there are three buttons: "< Back", "Finish", and "Cancel".

3. Close the Teles Quickstart application, the aGATE will reboot.
- Note: The gateway can take up to 5 minutes to reboot and apply your settings.

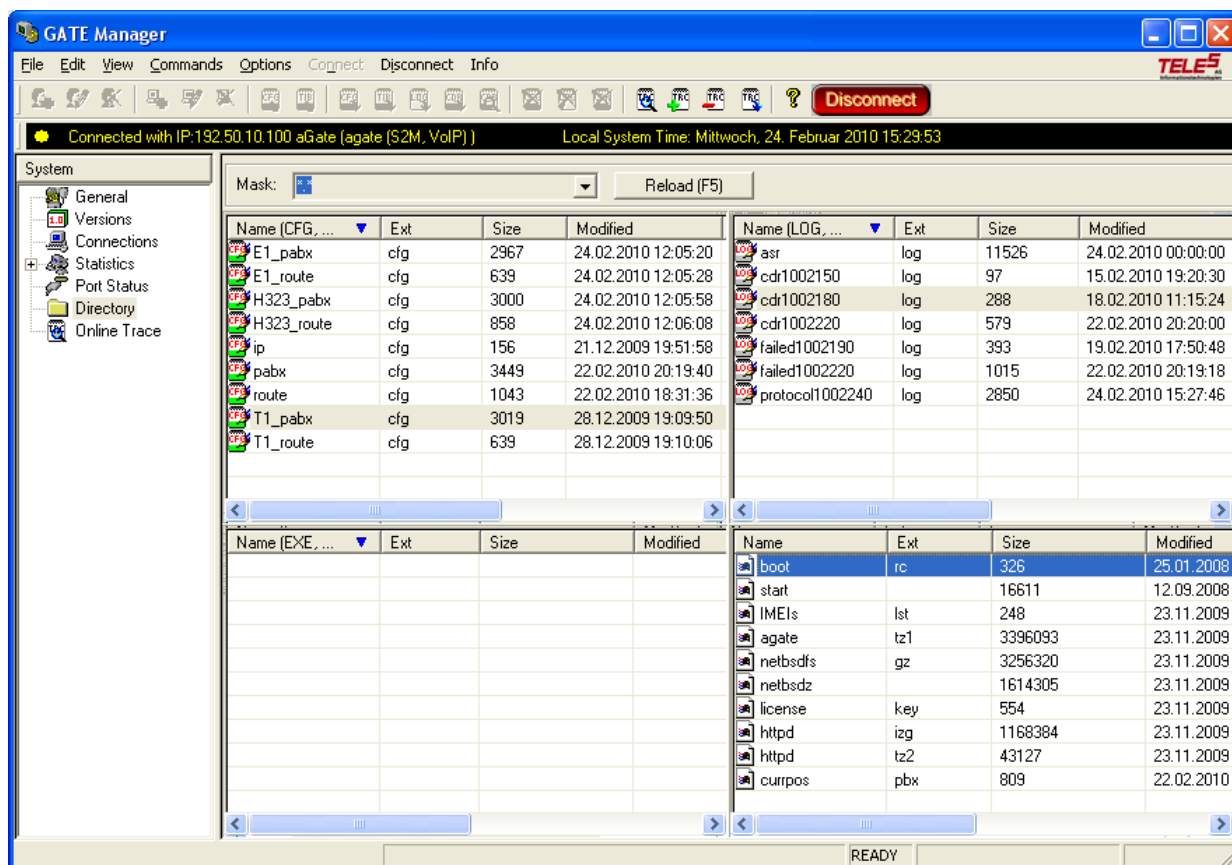
5.1.2 Connecting to the aGATE the first time

1.	Launch the Teles GATE Manager application.
2.	The first time the GATE Manager is used, a Group must be added. Under Groups , right click on the left pane of the GATE Manager and choose New Group . Assign a name and click OK (not shown) to continue.
3.	<p>In the right pane, right-click on the Group created in Step 2, choose New System, the Edit System box appears. Assign the following values:</p> <p>Note: the values used are based on this sample configuration.</p> <ul style="list-style-type: none">• System Name – Teles aGate• Remote Number – IP:192.50.10.100 (You must specify “IP:” in front of the address)
	
4.	Once Step 3 is completed, click on the aGATE and click the green Connect button (note shown) to initiate a connection. The default password should be blank.

5.1.3 Configuring the aGATE

1. Launch the Teles GATE Manager application.
2. Select the name of the aGATE to be configured and click the “Connect” button at the top of the screen. When prompted for a password, enter the current password, and click “OK”. The default password is blank.

Once connected, select **Directory** from **System** tree on the left side. The Following screen will appear if done correctly.



3.	From the GATE Manager window (not shown), Right click on route cfg and choose Copy . In the Rename/Copy dialog that is presented, rename route.cfg to route_orig.cfg and click OK . Confirm any prompts received to overwrite the current route_orig.cfg file.
4.	From the GATE Manager window(not shown), Right click on E1_route cfg and choose Copy . In the Rename/Copy dialog that is presented, rename E1_route.cfg to route.cfg and click OK . Confirm any prompts received to overwrite the current route.cfg file.

5.	<p>Right click on route cfg and choose Receive. This will download the file to the PC to be edited. These files are standard Windows text files, normally ending in .txt. Open the file in a text editor like Wordpad. Do NOT use Word.</p> <p>Below is a copy of the configuration present when the aGATE ships from the factory. The contents of this configuration file determine how the aGATE processes calls between the cellular network and the Communication Manager via an E1 PRI circuit. In this context, "inbound" means calls coming into the network from the GSM network and routed by the aGATE to Communication Manager via the E1. "Outbound" refers to calls going out of Communication Manager via the E1 to the aGATE and progressing out to the GSM network.</p> <p>The "Restrict" commands associate the relevant class of aGATE call handling hardware with an identifier, in this case "<i>out</i>" for outbound calls and "<i>in</i>" for inbound calls (as defined above). These identifiers are inserted in the B party number as a prefix to the actual dialed digits received. Full syntax and semantics for the Restrict command can be found on the documentation CD in the "<i>aGATE User Manual</i>", version 15.0; see Section 5.3.1.2 "The Restrict Command".</p> <p>The "MapAll" commands evaluate the B party number, and "MapAllin" and "MapAllout" refer respectively to the "in" or "out" labels that have been inserted with the "Restrict" command. For outbound calls, depending on the format of the B party number that is sent by the PBX (i.e., the type of number, with or without a leading "1"), one of the following lines for outbound calls will match:</p> <pre>MapAllout01= 201<<13 MapAllout0= 201<<13 MapAllouE1= 201<<13</pre> <p>This sequence indicates that the aGATE should wait until the number is complete (13 digits, 11 dialed digits plus 2 more for the "20" prefix identifier specifying the aGATE GSM ports) and then send the calls to the GSM network.</p> <p>Inbound calls (calls coming from the GSM network) will be forwarded by the aGATE to an extension on the Avaya PBX as specified by the following line</p> <pre>MapAllin=91234</pre> <p>Here "9" indicates the address on the aGATE of the E1 interface connected to the PBX, while "1234" is an example of an extension on the PBX that should be changed as appropriate for the implementation. Change the "1234" extension to match where the calls FROM the GSM will be sent on the PBX system, e.g., an operator, voicemail, or auto-attendant. For example, if the inbound calls are forwarded to an operator that has the extension „00“, then change the line to</p> <pre>MapAllin=900</pre> <p>Full syntax and semantics for the MapAll command can be found on the documentation CD in the "<i>aGATE User Manual</i>", version 15.0; see Section 5.3.1.1, "The MapAll Command".</p>
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	<pre> ; ##### ; Default configuration for E1 connection ; ##### [System] ;----- ; write incoming USSD and SMS in msglog file restrict20=@FILE 06 restrict20=@FILE 05 ; outbound calls Restrict9=out ; Labels all calls from PRI as "out" MapAllout911=20911 ; Forward "out" calls to 911 immediately, no waiting MapAllout01= 201<<13 ; "out" calls matching 01+13 digits, send to GSM MapAllout0= 201<<13 ; "out" calls matching 0+13 digits, send to GSM MapAllouE1= 201<<13 ; "out" calls matching 1+13 digits, send to GSM DTMFWaitDial=3 ; timeout for digit collection ; inbound calls Restrict20=in 01 MapAllin=91234 ; 1234 represents an Avaya registered Extension - ; forward inbound calls to extension 1234 via PRI ; *END CONFIG* </pre>
6.	<p>Right click on the GATE Manager window and choose Send from the context menu. Select the new (edited) version of route.cfg and send it. This will upload the new changes to the aGATE.</p>

7.	Right click on pabx.cfg and choose Copy . In the Rename/Copy dialog that is presented (not shown), rename pabx.cfg to pabx_orig.cfg and click OK . Confirm any prompts received to overwrite the current pabx_orig.cfg file.
8.	Right click on E1_pabx.cfg and choose Copy . In the Rename/Copy dialog that is presented, rename E1_pabx.cfg to pabx.cfg and click OK . Confirm any prompts received to overwrite the current pabx.cfg file.
9.	<p>The default E1_pabx.cfg file will work unmodified for nearly every application, so it is not covered in this document.</p> <p>Please view the detailed manual for the aGATE or contact support if you have problems. It is advised that you contact support before changing the preconfigured pabx.cfg files included with the gateway.</p>
10.	Go to the Commands menu and select Restart System

6. General Test Approach and Test Results

The interoperability compliance testing focused on verifying the routing of outbound/inbound calls to/from the aGATE under the objectives of Section 1.

6.1. General Test Approach

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

- When the landline is operational, outbound calls originated are successfully routed to the landline and the aGATE depending on the access Code used.
- When the landline is out of service, outbound calls dialed without the aGATE Dial Prefix are successfully routed to the aGATE.
- Outbound calls dialed with the aGATE Dial Prefix are successfully routed to the aGATE regardless of the landline operational state.
- Inbound calls from the GSM network to the aGATE are successfully forwarded to Communication Manager using both direct routing (mapping of a SIM card phone number to an Communication Manager extension) and post-dialing (SIM card answers an inbound call and upon a prompt, the external caller enters an Communication Manager extension).
- Call transfers and conferences between Communication Manager Stations complete properly on outbound and inbound calls routed through the aGATE.

6.2. Test Results

The test objectives of **Section 6.1** were verified. For serviceability testing, outbound and inbound calls routed through the aGATE complete successfully after recovering from failures such as E1 cable disconnects, and resets of Communication Manager, the aGATE, the DS1 circuit on the G450 Media Gateway, and the ISDN port on the aGATE. Calls routed through the aGATE gateway via the E1 trunk between the Avaya G450 Media Gateway and aGATE gateway during failover testing completed successfully.

7. Verification Steps

The following steps may be used to verify the configuration:

- From the SAT, enter the command **status signaling-group s**, where s is the number of a signaling group configured in Section 4.4, 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 4.3, and verify that the Service States of all trunks are “in-service/idle” or “in-service/active”.
- While the landline is operational, place several outbound calls, and verify successful routing to the landline and aGATE and successful call completion.
- While the landline is out of service, place several outbound calls, and verify successful routing to the aGATE and successful call completion.
- Place inbound calls to the aGATE and verify successful forwarding to an extension registered to Communication Manager.
- Place outbound calls using the aGATE Dial Prefix, and verify successfully routing to the aGATE and successful call completion.

8. Conclusion

These Application Notes describe a compliance-tested configuration comprised of Avaya Aura™ Communication Manager and the Usnetserve aGATE by Teles GSM Cellular Gateway. The aGATE is a GSM gateway that can augment landline connectivity with wireless connectivity to the GSM network. In case of landline connectivity failure, aGATE provides a backup solution to maintain voice communications. During compliance testing, outbound calls from Communication Manager were successfully routed over an E1 ISDN-PRI line to the aGATE and in turn to the GSM network. Similarly, inbound calls from the GSM network to the aGATE were successfully forwarded to Communication Manager over the E1 ISDN-PRI line.

9. Additional References

The documents referenced below were used for additional support and configuration information.

The following Avaya product documentation can be found at <http://support.avaya.com>. aGATE documentation can be found at <http://gateways.usnetserve.com>

- [1] *Administering Avaya Aura™ Communication Manager*, May 2009, Issue 5.0, Release 5.2, Document Number 03-300509..
- [2] *Administering Avaya Aura™ SIP Enablement Services on the Avaya S8300 Server*, May 2009, Issue 2.1, Document 03-602508.
- [3] *Avaya Aura™ SIP Enablement Services Implementation Guide*, May 2009, Issue 6, Document 16-300140.
- [4] *Avaya one-X Deskphone Edition for 9600 Series IP Telephones Administrator Guide Release 3.0*, Document Number 16-300698.
- [5] *Avaya one-X Deskphone SIP for 9600 Series IP Telephones Administrator Guide, Release 2.0*, Document Number 16-601944.

Product information for the aGATE may be found at <http://gateways.usnetserve.com>.

- [6] *Teles aGATE User Manual, Revision 15.0, January 2010.*

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