



## **Application Notes for Configuring NovaLink NovaAlert with Avaya Communication Manager H.323 – Issue 1.0**

### **Abstract**

These Application Notes describe the compliance testing of the NovaLink NovaAlert alarm system connected to Avaya Communication Manager via an H.323 link. These Application Notes contain an extensive description of the configurations for both NovaAlert and Avaya Communication Manager.

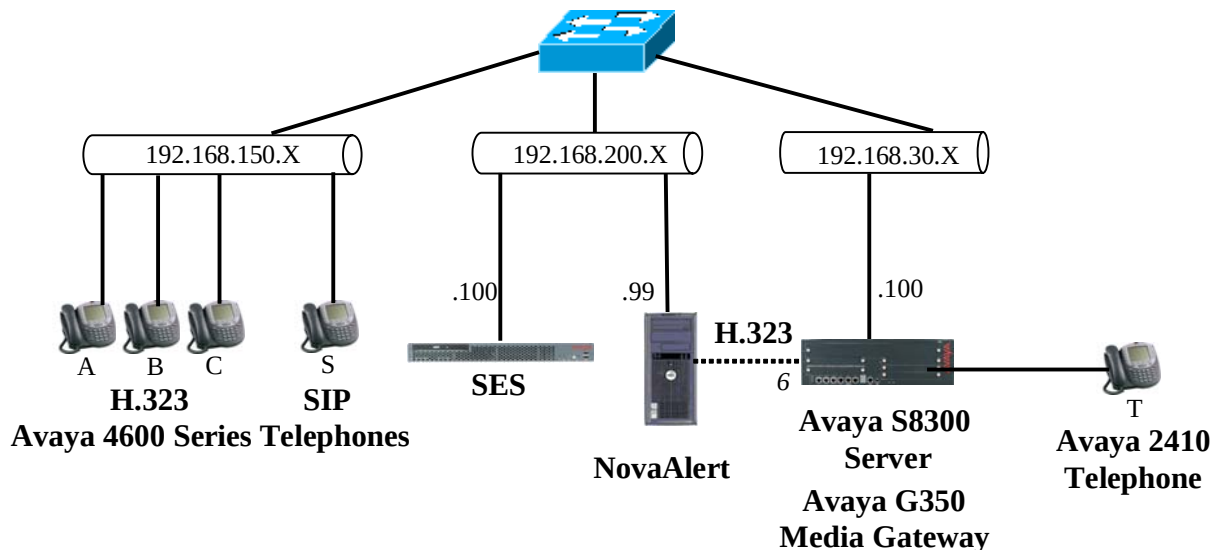
Information in these Application Notes has been obtained through *DeveloperConnection* compliance testing and additional technical discussions. Testing was conducted via the *DeveloperConnection* Program at the Avaya Solution and Interoperability Test Lab.

# 1. Introduction

The purpose of this document is to describe the compliance testing done with NovaAlert and Avaya Communication Manager, including a description of the configuration of each, a description of the tests that were performed, and a summary of the results of those tests.

The NovaAlert is a PC-resident application which is used in a health care, hotel or industrial environment for alerting, messaging or information services. NovaAlert can react to external alarm stimuli which indicate the existence of an emergency situation by informing affected persons of the situation.

NovaAlert supports multiple interfaces, including the H.323 trunk described in these Application Notes.



**Figure 1: NovaAlert Test Configuration**

The H.323 trunk connecting Avaya Communication Manager to the NovaAlert server was configured as trunk group 6, as shown in the diagram. The function of each of the components in **Figure 1** is as follows:

- The NovaAlert server signals alarm events to Avaya IP Telephones attached to Avaya Communication Manager via the H.323 trunk.
- Avaya Communication Manager runs on the Avaya S8300 Server and communicates with the NovaAlert server and Avaya Telephones via the Avaya G350 Media Gateway.
- The Avaya SIP Enablement Services (SES) server is the interface between Avaya Communication Manager and Avaya SIP Telephones.

## 2. Equipment and Software Validated

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

| Equipment                               | Software Version                                                                        |
|-----------------------------------------|-----------------------------------------------------------------------------------------|
| Avaya S8300 Server                      | Avaya Communications Manager 4.0<br>(R014x.00.0.730.5)<br>Service Pack 00.0.730.5-13566 |
| Avaya SIP Enablement Services<br>Server | SES-3.1.2.0-309.0                                                                       |
| Avaya G350 Media Gateway                | 26.31.0                                                                                 |
| MM712AP DCP                             | HW05 FW008                                                                              |
| Avaya 4600 series H.323 stations        | 2.8                                                                                     |
| Avaya 4600 series SIP stations          | 2.2.2                                                                                   |
| NovaLink NovaAlert                      | 7.5 SP 1A                                                                               |
| Microsoft Windows Server 2003 SE        | SP2                                                                                     |

**Table 1: Version Numbers of Equipment and Software**

## 3. Configuration

The following table contains the extensions that are used for testing. The capital letter designations correspond to the telephones shown in **Figure 1**.

| Extension | Designation                                     |
|-----------|-------------------------------------------------|
| 3000136   | A                                               |
| 3000134   | B                                               |
| 3000133   | C                                               |
| 3000115   | S                                               |
| 3000001   | T                                               |
| 6000000   | NovaAlert via H.323                             |
| 6000001   | NovaAlert number for<br>direct alarm initiation |

**Table 2: Extensions Used for Testing**

### 3.1. Configure Avaya Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Avaya Communication Manager SAT terminal via SSH port 5022.

The information provided in this section describes the configuration of Avaya Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in reference [1].

The configuration operations described in this section can be summarized as follows:

- Verify that the licenses allocated to the system are sufficient to support the required configuration.
- Configure the dial plan and call routing required for the NovaAlert configuration.
- Configure the H.323 interface that is used to connect to the NovaAlert server.
- Configure the telephone stations that are to be used for testing.
- Configure Avaya Communication Manager as required to interface to the Avaya SIP Enablement Services server.

#### 3.1.1. Verify system-parameters customer-options

Use the **display system-parameters customer-options** command to verify that Avaya Communication Manager is licensed to meet the minimum requirements to interoperate with the NovaAlert server. Those items shown in bold indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

On page 1 of this form, verify that the “Maximum Off-PBX Telephones – OPS” is sufficient for the number of Avaya SIP Telephones to be used.

|                                            |                        |              |
|--------------------------------------------|------------------------|--------------|
| display system-parameters customer-options |                        | Page 1 of 10 |
| OPTIONAL FEATURES                          |                        |              |
| G3 Version: V14                            |                        |              |
| Location: 2                                | RFA System ID (SID): 1 |              |
| Platform: 13                               | RFA Module ID (MID): 1 |              |
|                                            |                        | USED         |
| Platform Maximum Ports: 900                |                        | 76           |
| Maximum Stations: 450                      |                        | 7            |
| Maximum XMOBILE Stations: 0                |                        | 0            |
| Maximum Off-PBX Telephones - EC500: 0      |                        | 0            |
| <b>Maximum Off-PBX Telephones - OPS: 5</b> |                        | 2            |
| Maximum Off-PBX Telephones - PBFMC: 0      |                        | 0            |
| Maximum Off-PBX Telephones - PVFMC: 0      |                        | 0            |
| Maximum Off-PBX Telephones - SCCAN: 0      |                        | 0            |

Figure 2: System-Parameters Customers-Options Form, Page 1

On page 2, the value configured for “Maximum Concurrently Registered IP Stations” must be sufficient to support the total number of IP stations used.

The number “Maximum Administered SIP Trunks” must be sufficient to support the maximum number of members assigned to all SIP trunks.

| display system-parameters customer-options                |  | Page 2 of 10 |
|-----------------------------------------------------------|--|--------------|
| OPTIONAL FEATURES                                         |  |              |
| IP PORT CAPACITIES                                        |  | USED         |
| Maximum Administered H.323 Trunks: 30                     |  | 5            |
| <b>Maximum Concurrently Registered IP Stations: 10</b>    |  | <b>3</b>     |
| Maximum Administered Remote Office Trunks: 0              |  | 0            |
| Maximum Concurrently Registered Remote Office Stations: 0 |  | 0            |
| Maximum Concurrently Registered IP eCons: 0               |  | 0            |
| Max Concur Registered Unauthenticated H.323 Stations: 0   |  | 0            |
| Maximum Video Capable H.323 Stations: 0                   |  | 0            |
| Maximum Video Capable IP Softphones: 0                    |  | 0            |
| <b>Maximum Administered SIP Trunks: 10</b>                |  | <b>3</b>     |
| Maximum Number of DS1 Boards with Echo Cancellation: 0    |  | 0            |
| Maximum TN2501 VAL Boards: 0                              |  | 0            |
| Maximum Media Gateway VAL Sources: 0                      |  | 0            |
| Maximum TN2602 Boards with 80 VoIP Channels: 0            |  | 0            |
| Maximum TN2602 Boards with 320 VoIP Channels: 0           |  | 0            |
| Maximum Number of Expanded Meet-me Conference Ports: 0    |  | 0            |

**Figure 3: System-Parameters Customers-Options Form, Page 2**

On page 3 of this form, the “Cvg Of Calls Redirected Off-net” parameter must be set to “y” to allow redirection of calls to NovaAlert.

| display system-parameters customer-options |                                           | Page 3 of 10 |
|--------------------------------------------|-------------------------------------------|--------------|
| OPTIONAL FEATURES                          |                                           |              |
| Abbreviated Dialing Enhanced List? n       | Audible Message Waiting? n                |              |
| Access Security Gateway (ASG)? n           | Authorization Codes? n                    |              |
| Analog Trunk Incoming Call ID? n           | CAS Branch? n                             |              |
| A/D Grp/Sys List Dialing Start at 01? n    | CAS Main? n                               |              |
| Answer Supervision by Call Classifier? n   | Change COR by FAC? n                      |              |
| ARS? y                                     | Computer Telephony Adjunct Links? n       |              |
| ARS/AAR Partitioning? y                    | <b>Cvg Of Calls Redirected Off-net? y</b> |              |
| ARS/AAR Dialing without FAC? y             | DCS (Basic)? n                            |              |
| ASAI Link Core Capabilities? n             | DCS Call Coverage? n                      |              |
| ASAI Link Plus Capabilities? n             | DCS with Rerouting? n                     |              |
| Async. Transfer Mode (ATM) PNC? n          | Digital Loss Plan Modification? n         |              |
| Async. Transfer Mode (ATM) Trunking? n     | DS1 MSP? n                                |              |
| ATM WAN Spare Processor? n                 | DS1 Echo Cancellation? n                  |              |
| ATMS? n                                    |                                           |              |
| Attendant Vectoring? n                     |                                           |              |

**Figure 4: System-Parameters Customers-Options Form, Page 3**

On page 4, the parameters must be set as shown in **Table 3**.

| Parameter      | Required Setting | Comment                                                                                   |
|----------------|------------------|-------------------------------------------------------------------------------------------|
| IP Stations    | y                | This is required so that IP stations can be configured.                                   |
| Enhanced EC500 | y                | This is required to enable the allocation of off-PBX SIP telephones.                      |
| IP Trunks      | y                | This is required to allow the allocation of the H.323 trunks to be attached to NovaAlert. |

**Table 3: System-Parameters Customers-Options Form, Page 4**

|                                            |                                         |              |
|--------------------------------------------|-----------------------------------------|--------------|
| display system-parameters customer-options |                                         | Page 4 of 10 |
| OPTIONAL FEATURES                          |                                         |              |
| Emergency Access to Attendant? y           | <b>IP Stations? y</b>                   |              |
| Enable 'dadmin' Login? y                   | ISDN Feature Plus? n                    |              |
| Enhanced Conferencing? n                   | ISDN Network Call Redirection? n        |              |
| <b>Enhanced EC500? y</b>                   | ISDN-BRI Trunks? y                      |              |
| Enterprise Survivable Server? n            | ISDN-PRI? y                             |              |
| Enterprise Wide Licensing? n               | Local Survivable Processor? n           |              |
| ESS Administration? n                      | Malicious Call Trace? n                 |              |
| Extended Cvg/Fwd Admin? n                  | Media Encryption Over IP? n             |              |
| External Device Alarm Admin? n             | Mode Code for Centralized Voice Mail? n |              |
| Five Port Networks Max Per MCC? n          | Multifrequency Signaling? y             |              |
| Flexible Billing? n                        | Multimedia Call Handling (Basic)? n     |              |
| Forced Entry of Account Codes? n           | Multimedia Call Handling (Enhanced)? n  |              |
| Global Call Classification? n              |                                         |              |
| Hospitality (Basic)? y                     |                                         |              |
| Hospitality (G3V3 Enhancements)? n         |                                         |              |
| <b>IP Trunks? y</b>                        |                                         |              |
| IP Attendant Consoles? n                   |                                         |              |

**Figure 5: System-Parameters Customers-Options Form, Page 4**

On page 8, the “Value-Added (VALU)?” parameter must be set to “y” to enable QSIG features required by NovaAlert.

|                                            |  |              |
|--------------------------------------------|--|--------------|
| display system-parameters customer-options |  | Page 8 of 10 |
| QSIG OPTIONAL FEATURES                     |  |              |
| Basic Call Setup? y                        |  |              |
| Basic Supplementary Services? y            |  |              |
| Centralized Attendant? n                   |  |              |
| Interworking with DCS? n                   |  |              |
| Supplementary Services with Rerouting? y   |  |              |
| Transfer into QSIG Voice Mail? n           |  |              |
| <b>Value-Added (VALU)? y</b>               |  |              |

**Figure 6: System-Parameters Customers-Options Form, Page 8**

### 3.1.2. Configure Node Names

Use the **change node-names ip** command to configure the IP addresses of the NovaAlert and the Avaya SES servers.

|                      |                        |               |
|----------------------|------------------------|---------------|
| change node-names ip |                        | Page 1 of 2   |
|                      |                        | IP NODE NAMES |
| Name                 | IP Address             |               |
| default              | 0.0.0.0                |               |
| <b>NovaAlert</b>     | <b>192.168.200.99</b>  |               |
| procr                | 192.168.30.100         |               |
| <b>ses</b>           | <b>192.168.200.100</b> |               |

**Figure 7: Node-Names IP Form**

### 3.1.3. Configure H.323 Interface to the NovaAlert Server

Use the **add trunk-group** command to configure the Trunk Group to the NovaAlert Server. Assign values for this command as shown in **Table 4**.

| Parameter                         | Usage                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| Group Type                        | Specify the Group Type as “isdn”                                                                                 |
| Group Name                        | Select an appropriate name to identify the device.                                                               |
| TAC                               | Specify a trunk access code that can be used to provide dial access to the trunk group.                          |
| Carrier Medium                    | Specify a Carrier Medium of “H.323” will be used for this trunk group.                                           |
| Dial Access                       | Allow dial access to the trunk by dialing the trunk access code.                                                 |
| Service Type                      | Designate the trunk as a “tie” line to a peer system.                                                            |
| Member Assignment Method *        | Specify “auto” assignment.                                                                                       |
| Signaling Group *                 | Specify signaling group 6.                                                                                       |
| Number of Members *               | Specify a sufficient number of members to accommodate expected traffic. A value of “5” was used for these tests. |
| Supplementary Service Protocol    | Specify a Supplementary Service Protocol of “b” for QSIG.                                                        |
| Format (page 2)                   | Specify “unk-unk” to use unknown dialing plan for calls in both directions.                                      |
| Disconnect Supervision Out        | Specify “y” to allow trunk-to-trunk transfers.                                                                   |
| Send Name                         | Specify “y” so that the name of the caller is sent for outgoing calls.                                           |
| Send Calling Number               | Specify “y” so that the number of the caller is sent for outgoing calls.                                         |
| Format (page 3)                   | Specify “unknown” to use unknown dialing plan for calls in both directions.                                      |
| Send Called/Busy/Connected Number | Specify “y” so that the number of the connected party is sent to the caller.                                     |
| QSIG Value-Added                  | Specify “y” so that NovaAlert can use the QSIG Value-Added extensions.                                           |

**Table 4: Trunk-Group Parameters for H.323 Interface**

**\* Perform a “change trunk-group 6” command after adding Signaling group 6 to define Member Assignment Method, Signaling Group, and Number of Members field.**



|                             |                                  |                              |
|-----------------------------|----------------------------------|------------------------------|
| add trunk-group 6           |                                  | Page 1 of 21                 |
| TRUNK GROUP                 |                                  |                              |
| Group Number: 6             | <b>Group Type: isdn</b>          | CDR Reports: y               |
| <b>Group Name: NovaLink</b> | COR: 1                           | TN: 1 <b>TAC: *06</b>        |
| Direction: two-way          | Outgoing Display? n              | <b>Carrier Medium: H.323</b> |
| <b>Dial Access? y</b>       | Busy Threshold: 255              | Night Service:               |
| Queue Length: 0             | Auth Code? n                     |                              |
| <b>Service Type: tie</b>    | Member Assignment Method: manual |                              |
|                             | Signaling Group:                 |                              |
|                             | Number of Members:               |                              |

**Figure 8: Trunk-Group Form for H.323 Interface, Page 1**

|                                              |                                          |                        |
|----------------------------------------------|------------------------------------------|------------------------|
| add trunk-group 6                            |                                          | Page 2 of 21           |
| Group Type: isdn                             |                                          |                        |
| TRUNK PARAMETERS                             |                                          |                        |
| Codeset to Send Display: 6                   | Codeset to Send National IEs: 6          |                        |
|                                              | Charge Advice: none                      |                        |
| <b>Supplementary Service Protocol: b</b>     | Digit Handling (in/out): overlap/overlap |                        |
| Digit Treatment:                             | Digits:                                  |                        |
|                                              | Digital Loss Group: 18                   |                        |
| Incoming Calling Number - Delete:            | Insert:                                  | <b>Format: unk-unk</b> |
| <b>Disconnect Supervision - In? y Out? y</b> |                                          |                        |
| Answer Supervision Timeout: 0                |                                          |                        |

**Figure 9: Trunk-Group Form for H.323 Interface, Page 2**

|                            |                                             |                               |
|----------------------------|---------------------------------------------|-------------------------------|
| add trunk-group 6          |                                             | Page 3 of 21                  |
| TRUNK FEATURES             |                                             |                               |
| ACA Assignment? n          | Measured: none                              |                               |
|                            | Internal Alert? n                           | Maintenance Tests? y          |
|                            | Data Restriction? n                         | NCA-TSC Trunk Member:         |
|                            | <b>Send Name: y</b>                         | <b>Send Calling Number: y</b> |
| Used for DCS? n            | Hop Dgt? n                                  | Send EMU Visitor CPN? n       |
| Suppress # Outpulsing? n   | <b>Format: unknown</b>                      |                               |
|                            | UUI IE Treatment: service-provider          |                               |
|                            | Replace Restricted Numbers? n               |                               |
|                            | Replace Unavailable Numbers? n              |                               |
|                            | <b>Send Called/Busy/Connected Number: y</b> |                               |
|                            | Hold/Unhold Notifications? y                |                               |
| Send UUI IE? n             | Modify Tandem Calling Number? n             |                               |
| Send UCID? n               |                                             |                               |
| Send Codeset 6/7 LAI IE? y |                                             |                               |

**Figure 10: Trunk-Group Form for H.323 Interface, Page 3**

|                                                                                                                                                                                                                                                                                                                                      |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| add trunk-group 6                                                                                                                                                                                                                                                                                                                    | Page 4 of 21 |
| QSIG TRUNK GROUP OPTIONS                                                                                                                                                                                                                                                                                                             |              |
| TSC Method for Auto Callback: drop-if-possible<br>Diversion by Reroute? y<br>Path Replacement? y<br>Path Replacement with Retention? n<br>Path Replacement Method: better-route<br>SBS? n<br>Display Forwarding Party Name? y<br>Character Set for QSIG Name: eurofont<br><b>QSIG Value-Added? y</b><br>Encoding Method: proprietary |              |

**Figure 11: Trunk-Group Form for H.323 Interface, Page 4**

Use the **add signaling-group** command to allocate a signaling group for this trunk group.

| Parameter                          | Usage                                                                                                                                                                                                                                                                                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Group Type                         | Specify "h.323".                                                                                                                                                                                                                                                                             |
| Max number of NCA TSC              | Assign a sufficient number of Non-Call Associated Temporary Signaling Connections to accommodate the anticipated maximum number of concurrent MWI messages which can be sent by NovaAlert to control the message waiting lamps of Avaya Telephones. A value of "4" was used for these tests. |
| Trunk Group for NCA TSC            | Specify "6" as the Trunk Group to be used Non-Call Associated Temporary Signaling Connection.                                                                                                                                                                                                |
| Trunk Group for Channel Selection  | Specify "6" as the Trunk Group to be used for channel selection.                                                                                                                                                                                                                             |
| TSC Supplementary Service Protocol | Specify "b" to designate use of the QSIG protocol.                                                                                                                                                                                                                                           |
| Far-end Node Name                  | Specify "NovaAlert" as the far end node name.                                                                                                                                                                                                                                                |

**Table 5: Signaling-Group Parameters for H.323 Interface**

|                                              |                                        |                                     |
|----------------------------------------------|----------------------------------------|-------------------------------------|
| add signaling-group 6                        |                                        | Page 1 of 5                         |
| SIGNALING GROUP                              |                                        |                                     |
| Group Number: 6                              | <b>Group Type: h.323</b>               |                                     |
|                                              | Remote Office? n                       | <b>Max number of NCA TSC: 4</b>     |
|                                              | SBS? n                                 | Max number of CA TSC: 0             |
| IP Video? n                                  |                                        | <b>Trunk Group for NCA TSC: 6</b>   |
| <b>Trunk Group for Channel Selection: 6</b>  |                                        |                                     |
| <b>TSC Supplementary Service Protocol: b</b> |                                        |                                     |
|                                              | T303 Timer(sec): 10                    |                                     |
| Near-end Node Name: procr                    |                                        | <b>Far-end Node Name: NovaAlert</b> |
| Near-end Listen Port: 1720                   |                                        | Far-end Listen Port: 1720           |
|                                              | Far-end Network Region: 1              |                                     |
| LRQ Required? n                              | Calls Share IP Signaling Connection? n |                                     |
| RRQ Required? n                              |                                        |                                     |
|                                              | Bypass If IP Threshold Exceeded? n     |                                     |
|                                              | H.235 Annex H Required? n              |                                     |
| DTMF over IP: out-of-band                    | Direct IP-IP Audio Connections? n      |                                     |
| Link Loss Delay Timer(sec): 90               | IP Audio Hairpinning? n                |                                     |
| Enable Layer 3 Test? n                       | Interworking Message: PROGress         |                                     |
|                                              | DCP/Analog Bearer Capability: 3.1kHz   |                                     |

**Figure 12: Signaling-Group Form for H.323 Interface**

### 3.1.4. Configure Dial Plan and Call Routing

Use the **change dialplan analysis** command to specify that dialed strings which begin with “3” or “6” are extensions. The extensions local to this PBX are all seven digit numbers which begin with a “3”. The extensions assigned to the NovaAlert are all seven digit numbers which begin with “6”. The dial string “\*06” is used as a trunk access code to access the NovaAlert trunk.

|                          |              |           |               |              |           |                 |              |           |
|--------------------------|--------------|-----------|---------------|--------------|-----------|-----------------|--------------|-----------|
| change dialplan analysis |              |           |               |              |           | Page 1 of 12    |              |           |
| DIAL PLAN ANALYSIS TABLE |              |           |               |              |           |                 |              |           |
|                          |              |           |               |              |           | Percent Full: 3 |              |           |
| Dialed String            | Total Length | Call Type | Dialed String | Total Length | Call Type | Dialed String   | Total Length | Call Type |
| 3                        | 7            | ext       |               |              |           |                 |              |           |
| 6                        | 7            | ext       |               |              |           |                 |              |           |
| *83                      | 3            | dac       |               |              |           |                 |              |           |
| *06                      | 3            | dac       |               |              |           |                 |              |           |

**Figure 13: Dialplan Analysis Form**

Use the **change uniform-dialplan** command to designate extensions which begin with “6” and are seven digits in length to use the Automatic Alternate Routing (AAR) table.

|                           |     |     |  |        |     |      |     |      |  |             |  |  |
|---------------------------|-----|-----|--|--------|-----|------|-----|------|--|-------------|--|--|
| change uniform-dialplan 0 |     |     |  |        |     |      |     |      |  | Page 1 of 2 |  |  |
| UNIFORM DIAL PLAN TABLE   |     |     |  |        |     |      |     |      |  |             |  |  |
| Percent Full: 0           |     |     |  |        |     |      |     |      |  |             |  |  |
| Matching                  |     |     |  | Insert |     |      |     | Node |  |             |  |  |
| Pattern                   | Len | Del |  | Digits | Net | Conv | Num |      |  |             |  |  |
| 6                         | 7   | 0   |  |        | aar | n    |     |      |  |             |  |  |

**Figure 14: Uniform-Dialplan Form**

Use the **change aar analysis** command to select routing pattern “6” for numbers which have the leading dialed string “6”, as specified in the uniform dial plan shown in **Figure 14**.

|                          |        |       |     |         |      |      |      |  |  |                 |  |  |
|--------------------------|--------|-------|-----|---------|------|------|------|--|--|-----------------|--|--|
| change aar analysis 0    |        |       |     |         |      |      |      |  |  | Page 1 of 2     |  |  |
| AAR DIGIT ANALYSIS TABLE |        |       |     |         |      |      |      |  |  |                 |  |  |
|                          |        |       |     |         |      |      |      |  |  | Percent Full: 3 |  |  |
|                          | Dialed | Total |     | Route   | Call | Node | ANI  |  |  |                 |  |  |
|                          | String | Min   | Max | Pattern | Type | Num  | Reqd |  |  |                 |  |  |
| 6                        |        | 7     | 7   | 6       | aar  |      | n    |  |  |                 |  |  |

**Figure 15: AAR Analysis Form**

Use the **change route-pattern** command to route numbers using Routing Pattern 6 via Trunk Group 6.

|                        |     |     |        |     |      |      |                 |          |      |                               |     |      |   |
|------------------------|-----|-----|--------|-----|------|------|-----------------|----------|------|-------------------------------|-----|------|---|
| change route-pattern 6 |     |     |        |     |      |      |                 |          |      | Page                          | 1   | of   | 3 |
| Pattern Number: 2      |     |     |        |     |      |      |                 |          |      | Pattern Name: NovaAlert H.323 |     |      |   |
| SCCAN? n               |     |     |        |     |      |      |                 |          |      | Secure SIP? n                 |     |      |   |
| Grp                    | FRL | NPA | Pfx    | Hop | Toll | No.  | Inserted        | DCS/ IXC |      |                               |     |      |   |
| No                     |     |     | Mrk    | Lmt | List | Del  | Digits          | QSIG     |      |                               |     |      |   |
|                        |     |     |        |     |      |      |                 | Intw     |      |                               |     |      |   |
| 1:                     | 6   | 0   |        |     |      |      |                 |          | n    | user                          |     |      |   |
| 2:                     |     |     |        |     |      |      |                 |          | n    | user                          |     |      |   |
| 3:                     |     |     |        |     |      |      |                 |          | n    | user                          |     |      |   |
| 4:                     |     |     |        |     |      |      |                 |          | n    | user                          |     |      |   |
| 5:                     |     |     |        |     |      |      |                 |          | n    | user                          |     |      |   |
| 6:                     |     |     |        |     |      |      |                 |          | n    | user                          |     |      |   |
| BCC VALUE              |     | TSC | CA-TSC | ITC |      | BCIE | Service/Feature | PARM     | No.  | Numbering                     | LAR |      |   |
| 0                      | 1   | 2   | M      | 4   | W    |      | Request         |          | Dgts | Format                        |     |      |   |
|                        |     |     |        |     |      |      |                 |          |      | Subaddress                    |     |      |   |
| 1:                     | y   | y   | y      | y   | y    | n    | 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 |   |

**Figure 16: Route-Pattern 6 Form**

### 3.1.5. Configure Public-Unknown-Numbering Format

Use the **change public-unknown-numbering** command to designate how telephone numbers are to be displayed on stations that have displays. Specify that seven digit numbers starting with “6” from trunk group “6” and “3” from trunk group “83” should not be modified.

|                                   |          |            |            |               |                       |
|-----------------------------------|----------|------------|------------|---------------|-----------------------|
| change public-unknown-numbering 7 |          |            |            |               | Page 1 of 2           |
| NUMBERING - PUBLIC/UNKNOWN FORMAT |          |            |            |               |                       |
| Ext Len                           | Ext Code | Trk Grp(s) | CPN Prefix | Total CPN Len |                       |
| 7                                 | 6        | 6          |            | 7             | Total Administered: 2 |
| 7                                 | 3        | 83         |            | 7             | Maximum Entries: 240  |

**Figure 17: Public-Unknown-Numbering Form**

### 3.1.6. Configure Telephone Stations

Use the **add station** command to configure all of the telephones shown in **Table 2**. The settings for Avaya 2400 Telephones are the same as those required for the Avaya 4621 Telephone, except that the “Type” designation must be set to match the telephone type.

| Parameter          | Usage                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type               | Enter the type of station that is to be configured.                                                                                                                     |
| Security Code      | Enter a numeric security code.                                                                                                                                          |
| Name               | Enter a descriptive name for the user of the station.                                                                                                                   |
| BUTTON ASSIGNMENTS | Assign “send-calls” and “call-fwd” buttons to the stations, as required to test call coverage and call forwarding with NovaAlert. This not required for SIP telephones. |

**Table 6: Station Parameters**

|                           |                                 |             |
|---------------------------|---------------------------------|-------------|
| add station 3000136       |                                 | Page 1 of 5 |
| STATION                   |                                 |             |
| Extension: 300-0136       | Lock Messages? n                | BCC: 0      |
| <b>Type: 4621</b>         | <b>Security Code: 6310003</b>   | TN: 1       |
| Port: S00006              | Coverage Path 1:                | COR: 1      |
| <b>Name: extn 3000136</b> | Coverage Path 2:                | COS: 1      |
|                           | Hunt-to Station:                |             |
| STATION OPTIONS           |                                 |             |
| Loss Group: 19            | Time of Day Lock Table:         |             |
| Speakerphone: 2-way       | Personalized Ringing Pattern: 1 |             |
| Display Language: english | Message Lamp Ext: 300-0136      |             |
| Survivable GK Node Name:  | Mute Button Enabled? y          |             |
| Survivable COR: internal  | Expansion Module? n             |             |
| Survivable Trunk Dest? y  | Media Complex Ext:              |             |
|                           | IP SoftPhone? n                 |             |
| Customizable Labels? y    |                                 |             |

**Figure 18: Add Station Form, Page 1**

|                     |             |                |
|---------------------|-------------|----------------|
| add station 3000136 |             | Page 4 of 5    |
| STATION             |             |                |
| SITE DATA           |             |                |
| Room:               |             | Headset? n     |
| Jack:               |             | Speaker? n     |
| Cable:              |             | Mounting: d    |
| Floor:              |             | Cord Length: 0 |
| Building:           |             | Set Color:     |
| ABBREVIATED DIALING |             |                |
| List1:              | List2:      | List3:         |
| BUTTON ASSIGNMENTS  |             |                |
| 1: call-appr        | 5: call-fwd | Ext:           |
| 2: call-appr        | 6:          |                |
| 3: call-appr        | 7:          |                |
| 4: send-calls Ext:  | 8:          |                |

**Figure 19: Add Station Form, Page 4**

### 3.1.7. Configure Interface to Avaya SES and Integration for SIP Telephones

Use the **change off-pbx-telephone station-mapping** command to configure SIP telephones. Assign values for this command as shown in the following table.

| Parameter         | Usage                                                                           |
|-------------------|---------------------------------------------------------------------------------|
| Station Extension | Enter the extension of the SIP telephone.                                       |
| Application       | Enter “OPS”.                                                                    |
| Phone Number      | Enter the phone number assigned to the SIP telephone.                           |
| Trunk Selection   | Enter the number assigned to the SIP trunk group later in <b>this section</b> . |
| Call Limit        | Enter “3” to allow the SIP telephone to do call transfers.                      |

**Table 7: Parameters for Off-PBX-Telephone Station-Mapping**

|                                                  |             |             |    |              |                 |            |      |   |
|--------------------------------------------------|-------------|-------------|----|--------------|-----------------|------------|------|---|
| change off-pbx-telephone station-mapping 3000115 |             |             |    |              |                 | Page       | 1 of | 2 |
| STATIONS WITH OFF-PBX TELEPHONE INTEGRATION      |             |             |    |              |                 |            |      |   |
| Station Extension                                | Application | Dial Prefix | CC | Phone Number | Trunk Selection | Config Set |      |   |
| 300-0115                                         | OPS         | -           |    | 3000115      | 83              | 1          |      |   |

**Figure 20: Off-PBX-Telephone Form, Page 1**

|                                                  |            |              |               |               |      |      |   |
|--------------------------------------------------|------------|--------------|---------------|---------------|------|------|---|
| change off-pbx-telephone station-mapping 3000115 |            |              |               |               | Page | 2 of | 2 |
| STATIONS WITH OFF-PBX TELEPHONE INTEGRATION      |            |              |               |               |      |      |   |
| Station Extension                                | Call Limit | Mapping Mode | Calls Allowed | Bridged Calls |      |      |   |
| 300-0115                                         | 3          | both         | all           | both          |      |      |   |

**Figure 21: Off-PBX-Telephone Form, Page 2**

Use the **change feature-access-codes** command to assign feature codes required by SIP telephones, as shown in the following table:

| Parameter                                       | Usage                                                                                                                             |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Call Forwarding Activation All and Deactivation | Assign unused feature access codes that are within the local dial plan to activate/deactivate call forwarding.                    |
| Send All Calls Activation and Deactivation      | Assign unused feature access codes that are within the local dial plan to activate/deactivate call sending all calls to coverage. |

**Table 8: Parameters for the Feature Access Codes**

| change feature-access-codes                     |                       | Page 1 of 5              |
|-------------------------------------------------|-----------------------|--------------------------|
| FEATURE ACCESS CODE (FAC)                       |                       |                          |
| Abbreviated Dialing List1 Access Code:          |                       |                          |
| Abbreviated Dialing List2 Access Code:          |                       |                          |
| Abbreviated Dialing List3 Access Code:          |                       |                          |
| Abbreviated Dial - Prgm Group List Access Code: |                       |                          |
| Announcement Access Code:                       |                       |                          |
| Answer Back Access Code:                        |                       |                          |
| Attendant Access Code:                          |                       |                          |
| Auto Alternate Routing (AAR) Access Code:       |                       |                          |
| Auto Route Selection (ARS) - Access Code 1:     |                       | Access Code 2:           |
| Automatic Callback Activation:                  |                       | Deactivation:            |
| <b>Call Forwarding Activation</b>               | Busy/DA: *75 All: *73 | <b>Deactivation: *74</b> |
| Call Forwarding Enhanced Status: Act:           |                       | Deactivation:            |
| Call Park Access Code:                          |                       |                          |
| Call Pickup Access Code:                        |                       |                          |
| CAS Remote Hold/Answer Hold-Unhold Access Code: |                       |                          |
| CDR Account Code Access Code:                   |                       |                          |
| Change COR Access Code:                         |                       |                          |
| Change Coverage Access Code:                    |                       |                          |
| Contact Closure                                 | Open Code:            | Close Code:              |

**Figure 22: Feature Access Codes Form, Page 1**

| change feature-access-codes                    |  | Page 3 of 5              |
|------------------------------------------------|--|--------------------------|
| FEATURE ACCESS CODE (FAC)                      |  |                          |
| Leave Word Calling Send A Message:             |  |                          |
| Leave Word Calling Cancel A Message:           |  |                          |
| Limit Number of Concurrent Calls Activation:   |  | Deactivation:            |
| Malicious Call Trace Activation:               |  | Deactivation:            |
| Meet-me Conference Access Code Change:         |  |                          |
| PASTE (Display PBX data on Phone) Access Code: |  |                          |
| Personal Station Access (PSA) Associate Code:  |  | Dissociate Code:         |
| Per Call CPN Blocking Code Access Code:        |  |                          |
| Per Call CPN Unblocking Code Access Code:      |  |                          |
| Priority Calling Access Code:                  |  |                          |
| Program Access Code:                           |  |                          |
| Refresh Terminal Parameters Access Code:       |  |                          |
| Remote Send All Calls Activation:              |  | Deactivation:            |
| Self Station Display Activation:               |  |                          |
| <b>Send All Calls Activation: *71</b>          |  | <b>Deactivation: *72</b> |
| Station Firmware Download Access Code:         |  |                          |

**Figure 23: Feature Access Code Form, Page 3**



Use the **change off-pbx-telephone feature-name-extension** command to assign extensions to features required by SIP telephones, as shown in the following table below. Note that the extensions used here are assigned to speed dial entries for SIP telephones, as shown in **Table 14**.

| Parameter             | Usage                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Call Forward All      | Assign an unused extension within the local dial plan to the “Call Forward All” feature.      |
| Call Forward Cancel   | Assign an unused extension within the local dial plan to the “Call Forward Cancel” feature.   |
| Send All Calls        | Assign an unused extension within the local dial plan to the “Send All Calls” feature.        |
| Send All Calls Cancel | Assign an unused extension within the local dial plan to the “Send All Calls Cancel” feature. |

**Table 9: Parameters for Off-PBX-Telephone Feature-Name-Extension**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| change off-pbx-telephone feature-name-extensions<br>EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME<br><br>Active Appearance Select:<br>Automatic Call Back:<br>Automatic Call-Back Cancel:<br><b>Call Forward All: 300-1804</b><br>Call Forward Busy/No Answer:<br><b>Call Forward Cancel: 300-1806</b><br>Call Park:<br>Call Park Answer Back:<br>Call Pick-Up:<br>Calling Number Block:<br>Calling Number Unblock:<br>Conference on Answer:<br>Directed Call Pick-Up:<br>Drop Last Added Party:<br>Exclusion (Toggle On/Off):<br>Extended Group Call Pickup:<br>Held Appearance Select: | Page 1 of 2 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|

**Figure 24: Off-PBX-Telephone Feature Name Extensions Form, Page 1**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| change off-pbx-telephone feature-name-extensions<br>EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME<br><br>Idle Appearance Select:<br>Last Number Dialed:<br>Malicious Call Trace:<br>Malicious Call Trace Cancel:<br>Off-Pbx Call Enable:<br>Off-Pbx Call Disable:<br>Priority Call:<br><b>Send All Calls: 300-1825</b><br><b>Send All Calls Cancel: 300-1826</b><br>Transfer On Hang-Up:<br>Transfer to Voice Mail:<br>Whisper Page Activation: | Page 2 of 2 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|

**Figure 25: Off-PBX-Telephone Feature Name Extensions Form, Page 2**

Use the **change ip-network-region** command to configure the network region used by Avaya SES. Assign values for this command as shown in the following table.

| Parameter            | Usage                                                      |
|----------------------|------------------------------------------------------------|
| Authoritative Domain | Enter the name assigned to Avaya SES in <b>Figure 38</b> . |
| Name                 | Enter a descriptive name.                                  |

**Table 10: Parameters for IP-Network-Region 1**

```

change ip-network-region 1                                     Page 1 of 19
                                IP NETWORK REGION
  Region: 1
  Location: 1          Authoritative Domain: ffm.com
    Name: FFM
  MEDIA PARAMETERS                      Intra-region IP-IP Direct Audio: yes
    Codec Set: 1                      Inter-region IP-IP Direct Audio: yes
    UDP Port Min: 2048                  IP Audio Hairpinning? y
    UDP Port Max: 3329
  DIFFSERV/TOS PARAMETERS                RTCP Reporting Enabled? y
    Call Control PHB Value: 46          RTCP MONITOR SERVER PARAMETERS
    Audio PHB Value: 46                  Use Default Server Parameters? y
    Video PHB Value: 26
  802.1P/Q PARAMETERS
    Call Control 802.1p Priority: 6
    Audio 802.1p Priority: 6
    Video 802.1p Priority: 5          AUDIO RESOURCE RESERVATION PARAMETERS
  H.323 IP ENDPOINTS                      RSVP Enabled? n
    H.323 Link Bounce Recovery? y
    Idle Traffic Interval (sec): 20
    Keep-Alive Interval (sec): 5
    Keep-Alive Count: 5

```

**Figure 26: IP-Network-Region Form**

Use the **change ip-codec-set** command to specify the codec to be used for the Network Region assigned to Avaya SES. Specify that the G.711A codec is to be used.

```

change ip-codec-set 1                                         Page 1 of 2
                                IP Codec Set

  Codec Set: 1

  Audio      Silence   Frames   Packet
  Codec      Suppression Per Pkt Size(ms)
1:  G.711A      n         2       20
2:
3:
4:
5:
6:
7:

```

**Figure 27: IP-Codec-Set Form**

Use the **add signaling-group** command to configure the Signaling Group parameters for the SIP trunk group. Assign values for this command as shown in the following table.

| Parameter         | Usage                                                          |
|-------------------|----------------------------------------------------------------|
| Group Type        | Enter the Group Type as “sip”.                                 |
| Far-end Node Name | Enter node name assigned to the Avaya SES in <b>Figure 7</b> . |
| Far-end Domain    | Enter the domain name configured for SES in <b>Figure 38</b> . |

**Table 11: Signaling-Group Parameters for SIP Interface**

add signaling-group 83

Page 1 of 1

SIGNALING GROUP

Group Number: 83

Group Type: sip

Transport Method: tls

Near-end Node Name: procr

Near-end Listen Port: 5061

Far-end Node Name: ses

Far-end Listen Port: 5061

Far-end Network Region:

Far-end Domain: ffm.com

Bypass If IP Threshold Exceeded? n

DTMF over IP: rtp-payload

Direct IP-IP Audio Connections? y

IP Audio Hairpinning? y

Enable Layer 3 Test? n

Session Establishment Timer(min): 3

**Figure 28: Avaya SES Signaling-Group Form**

Use the **add trunk-group** command to configure the SIP interface to Avaya SES. Assign values for this command as shown in the following table.

| Parameter         | Usage                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------|
| Group Type        | Specify the Group Type as “sip”                                                                |
| Group Name        | Select an appropriate name to identify the device.                                             |
| TAC               | Specify a trunk access code which can be used to provide dial access to the trunk group.       |
| Service Type      | Designate the trunk as a “tie” line to a peer system.                                          |
| Signaling Group   | Enter the number assigned to the SIP signaling group show in <b>Figure 28</b> .                |
| Number of Members | Specify sufficient number of members to support the maximum simultaneous connections required. |

**Table 12: Trunk-Group Parameters for the SIP Interface**

|                    |                     |                      |          |
|--------------------|---------------------|----------------------|----------|
| add trunk-group 83 |                     | Page 1 of 21         |          |
| TRUNK GROUP        |                     |                      |          |
| Group Number: 83   | Group Type: sip     | CDR Reports: y       |          |
| Group Name: SIP    | COR: 1              | TN: 1                | TAC: *83 |
| Direction: two-way | Outgoing Display? n | Night Service:       |          |
| Dial Access? n     |                     |                      |          |
| Queue Length: 0    |                     |                      |          |
| Service Type: tie  | Auth Code? n        |                      |          |
|                    |                     | Signaling Group: 83  |          |
|                    |                     | Number of Members: 5 |          |

**Figure 29: Trunk-Group Screen Form**

## 3.2. Configure Avaya IP Telephones

Configure the **46xxsettings.txt** text file to be used by Avaya IP Telephones. The parameters that are required to be configured in this file are shown in the following table. This is a “flat” ASCII file that must reside in the directory of the TFTP server accessible by the Avaya IP Telephones. Avaya IP Telephones must be configured so that the “FileSv” parameter is set to the address of the TFTP server that contains this configuration file, which is re-read each time the phone is restarted.

| Parameter   | Usage                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| MWISVR      | The value “SES_IP_address” indicates that Avaya SIP telephones should register with the Avaya SES server to receive message waiting events. |
| SIPDOMAIN   | Enter the name of the SIP domain.                                                                                                           |
| ENHDIALSTAT | Set this parameter to “0” to indicate that enhanced dialing is not required.                                                                |

**Table 13: Parameters for Telephone Setting File**

|                 |                  |
|-----------------|------------------|
| SET MWISVR      | "SES_IP_address" |
| SET SIPDOMAIN   | "ffm.com"        |
| SET ENHDIALSTAT | 0                |

**Figure 30: Telephone Settings File Content**

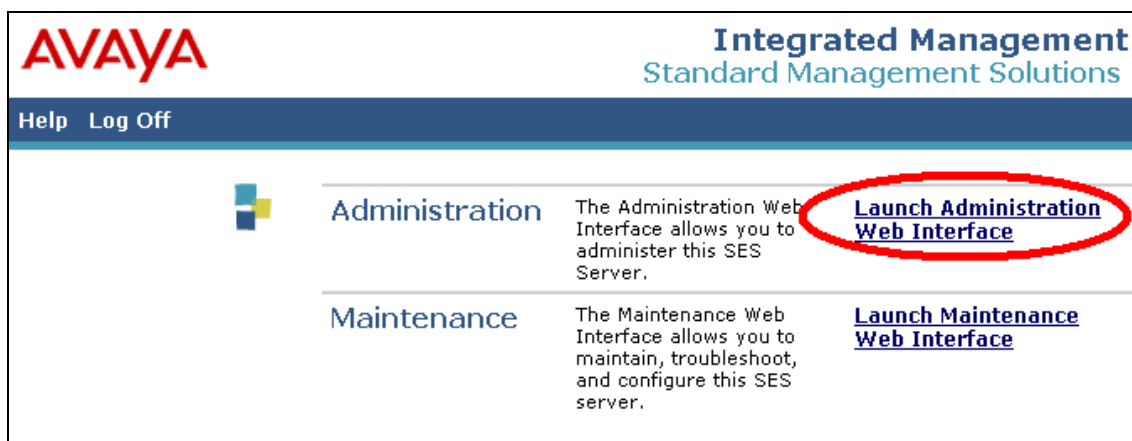
In addition to these settings, Avaya SIP Telephones must be configured manually to add speed dial entries to activate/deactivate Call Forwarding and Send All Calls features, by assigning the extensions that were assigned to the features shown in the following table to speed dial entries. These extensions are those that were assigned to using the **Off-Pbx-Telephone Feature-Name-Extensions** command described in **Table 9**.

| Parameter   | Extension | Usage                      |
|-------------|-----------|----------------------------|
| CallFwd On  | 3001804   | Activate Call Forwarding   |
| CallFwd Off | 3001806   | Deactivate Call Forwarding |
| SendAll On  | 3001825   | Activate Send All Calls    |
| SendAll Off | 3001826   | Deactivate Send All Calls  |

**Table 14: Speed Dial Entry Assignments for Avaya SIP Telephones**

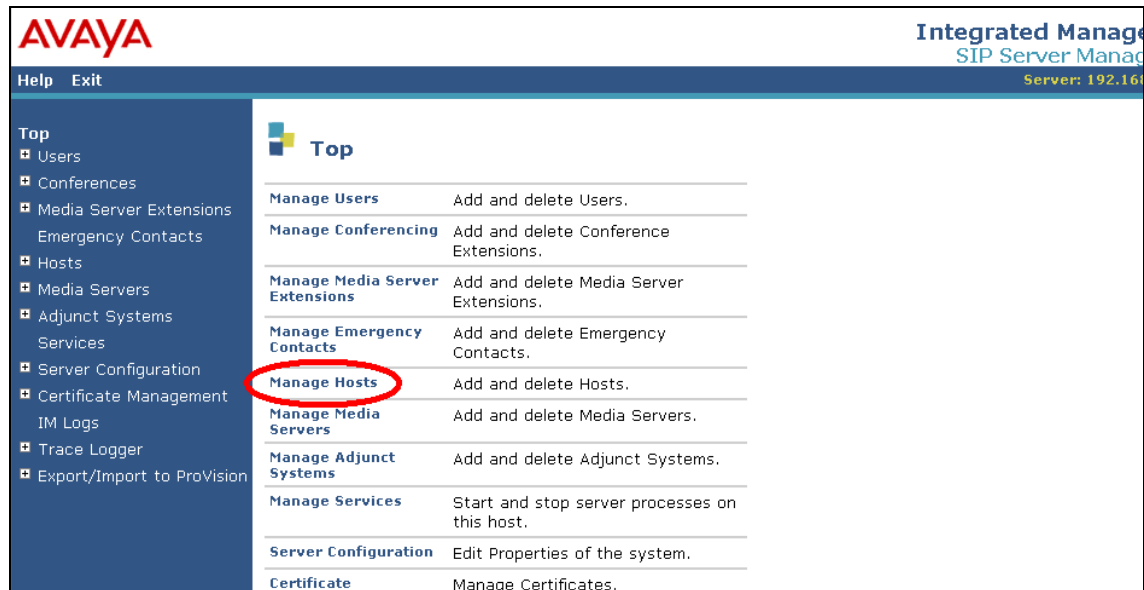
### 3.3. Configure Avaya SIP Enablement Services

Avaya SES is needed in this configuration only if Avaya SIP IP Telephones are used. Log in to the Avaya SES Web-based Integrated Management tool by selecting the IP address of the Avaya SES server followed by “/admin” from the Web browser. After entering the login ID and password, select “Launch Administration Web Interface”.



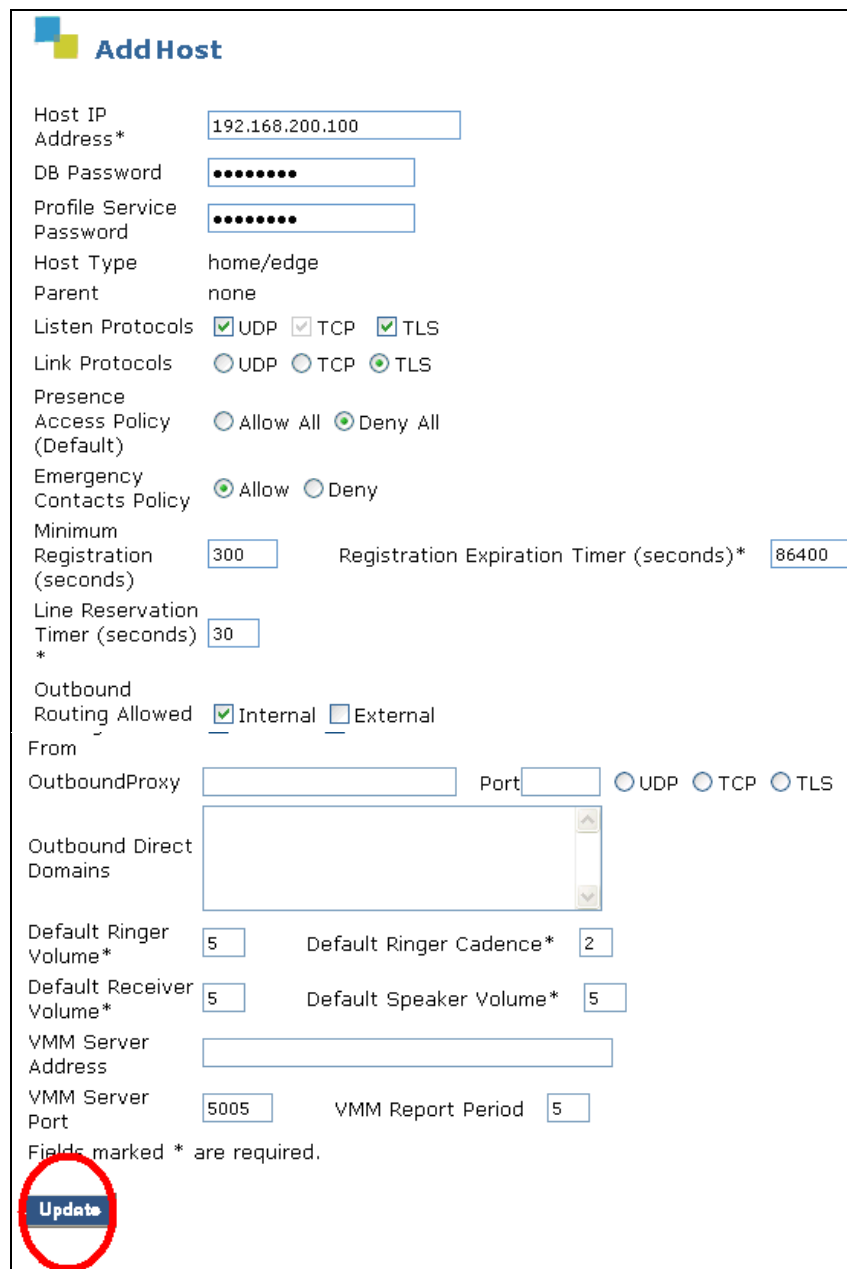
**Figure 31: SES Initial Greeting Screen**

From the top-level management screen, click “Manage Hosts” followed by “Add Host”.



**Figure 32: Host Management Selection from Top-Level Administration Screen**

Enter the IP address of the Avaya SES Server, a database password, and a Profile Service Password that were allocated to the Avaya SES server when it was installed. Leave the other field assigned to their respective default values. Select the “Update” button.



The image shows the 'Add Host' configuration screen in the Avaya SES interface. It contains various input fields and checkboxes for configuring a new host. The 'Update' button at the bottom left is circled in red.

**Add Host**

Host IP Address\*

DB Password

Profile Service Password

Host Type

Parent

Listen Protocols ☒ UDP ☒ TCP ☒ TLS

Link Protocols ☐ UDP ☐ TCP ☒ TLS

Presence Access Policy (Default) ☐ Allow All ☒ Deny All

Emergency Contacts Policy ☒ Allow ☐ Deny

Minimum Registration (seconds)  Registration Expiration Timer (seconds)\*

Line Reservation Timer (seconds)\*

Outbound Routing Allowed ☒ Internal ☐ External

From OutboundProxy  Port  ☐ UDP ☐ TCP ☐ TLS

Outbound Direct Domains

Default Ringer Volume\*  Default Ringer Cadence\*

Default Receiver Volume\*  Default Speaker Volume\*

VMM Server Address

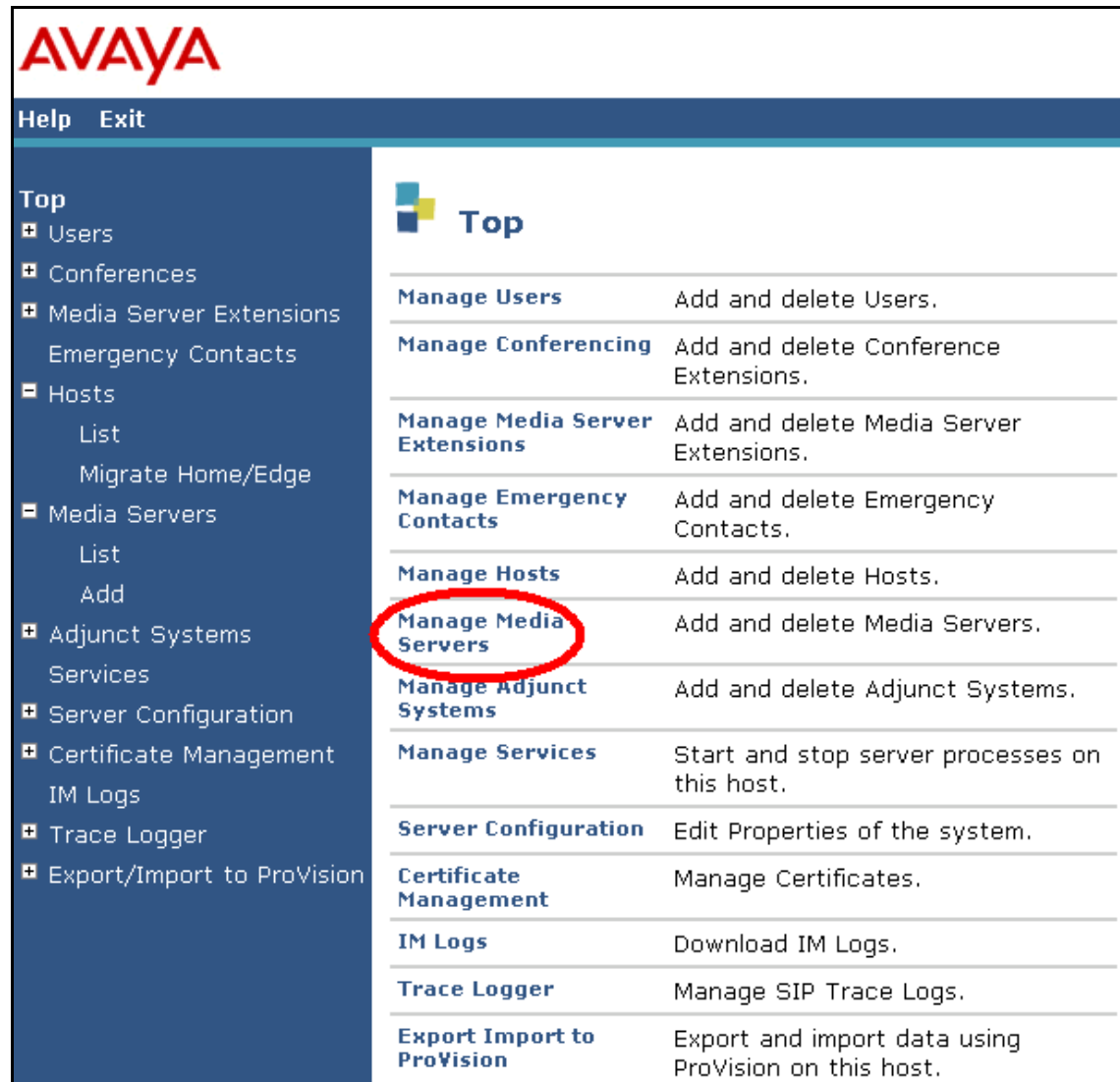
VMM Server Port  VMM Report Period

Fields marked \* are required.

**Update**

**Figure 33: Avaya SES “Add Host” Screen**

From the top-level management screen, select “Manage Media Servers”.



The screenshot displays the Avaya Top-Level Administration interface. On the left is a dark blue sidebar with a 'Top' menu. The main content area on the right is titled 'Top' and contains a list of management options, each with a description. The option 'Manage Media Servers' is circled in red.

| Top                                   |                                                      |
|---------------------------------------|------------------------------------------------------|
| <b>Manage Users</b>                   | Add and delete Users.                                |
| <b>Manage Conferencing</b>            | Add and delete Conference Extensions.                |
| <b>Manage Media Server Extensions</b> | Add and delete Media Server Extensions.              |
| <b>Manage Emergency Contacts</b>      | Add and delete Emergency Contacts.                   |
| <b>Manage Hosts</b>                   | Add and delete Hosts.                                |
| <b>Manage Media Servers</b>           | Add and delete Media Servers.                        |
| <b>Manage Adjunct Systems</b>         | Add and delete Adjunct Systems.                      |
| <b>Manage Services</b>                | Start and stop server processes on this host.        |
| <b>Server Configuration</b>           | Edit Properties of the system.                       |
| <b>Certificate Management</b>         | Manage Certificates.                                 |
| <b>IM Logs</b>                        | Download IM Logs.                                    |
| <b>Trace Logger</b>                   | Manage SIP Trace Logs.                               |
| <b>Export Import to ProVision</b>     | Export and import data using ProVision on this host. |

**Figure 34: Media Server Management Selection from Top-Level Administration Screen**



Assign a meaningful name to the “Media Server Interface Name”. Select the IP address of the Avaya SES server as the “Host”. Enter the address of the Avaya S8300 Server as the SIP Trunk IP Address. Select the “Add” button when these parameters have been entered.

**Add Media Server Interface**

Media Server Interface Name\*

Host

**SIP Trunk**

SIP Trunk Link Type ☐ TCP ☒ TLS

SIP Trunk IP Address\*

**Media Server**

Media Server Admin Address (see Help)

Media Server Admin Login

Media Server Admin Password

Media Server Admin Password Confirm

Fields marked \* are required.

**Add**

**Figure 35: Avaya SES Add Media Server Interface Screen**

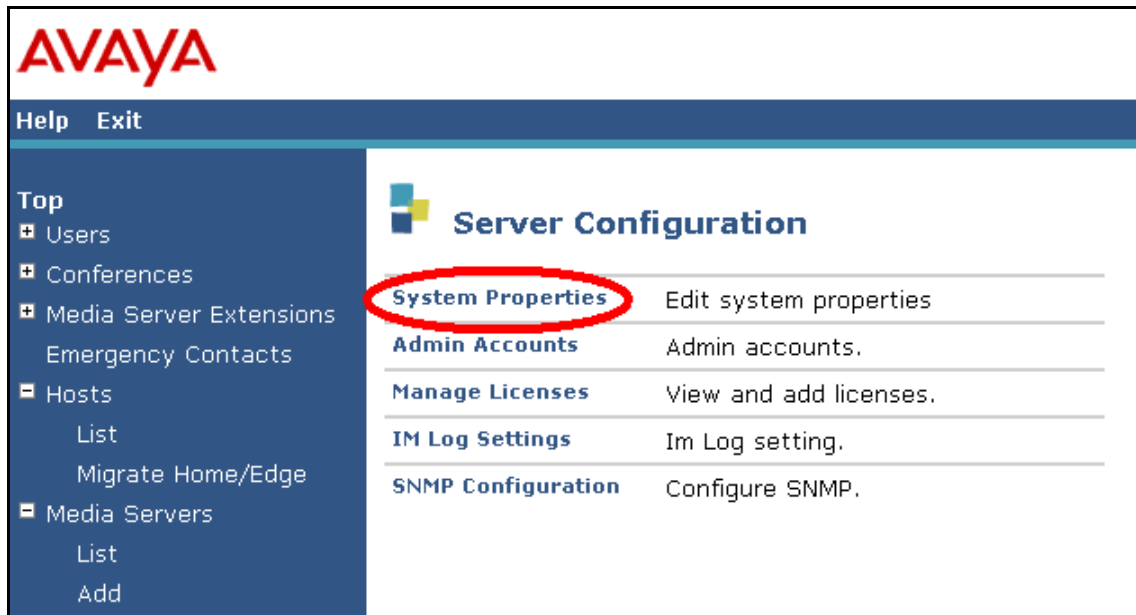
From the top-level management screen, select “Server Configuration”.

The screenshot displays the Avaya management interface. On the left is a dark blue sidebar with a 'Top' section containing a list of menu items: Users, Conferences, Media Server Extensions (with sub-items Emergency Contacts and Hosts), Media Servers (with sub-items List and Add), Adjunct Systems (with sub-item Services), Server Configuration, Certificate Management (with sub-item IM Logs), Trace Logger, and Export/Import to ProVision. The 'Server Configuration' item is highlighted. On the right is a white panel titled 'Top' with a list of management actions. The 'Server Configuration' item in this list is circled in red. It describes the action as 'Edit Properties of the system.'

| Top                            |                                                      |
|--------------------------------|------------------------------------------------------|
| Manage Users                   | Add and delete Users.                                |
| Manage Conferencing            | Add and delete Conference Extensions.                |
| Manage Media Server Extensions | Add and delete Media Server Extensions.              |
| Manage Emergency Contacts      | Add and delete Emergency Contacts.                   |
| Manage Hosts                   | Add and delete Hosts.                                |
| Manage Media Servers           | Add and delete Media Servers.                        |
| Manage Adjunct Systems         | Add and delete Adjunct Systems.                      |
| Manage Services                | Start and stop server processes on this host.        |
| <b>Server Configuration</b>    | Edit Properties of the system.                       |
| Certificate Management         | Manage Certificates.                                 |
| IM Logs                        | Download IM Logs.                                    |
| Trace Logger                   | Manage SIP Trace Logs.                               |
| Export Import to ProVision     | Export and import data using ProVision on this host. |

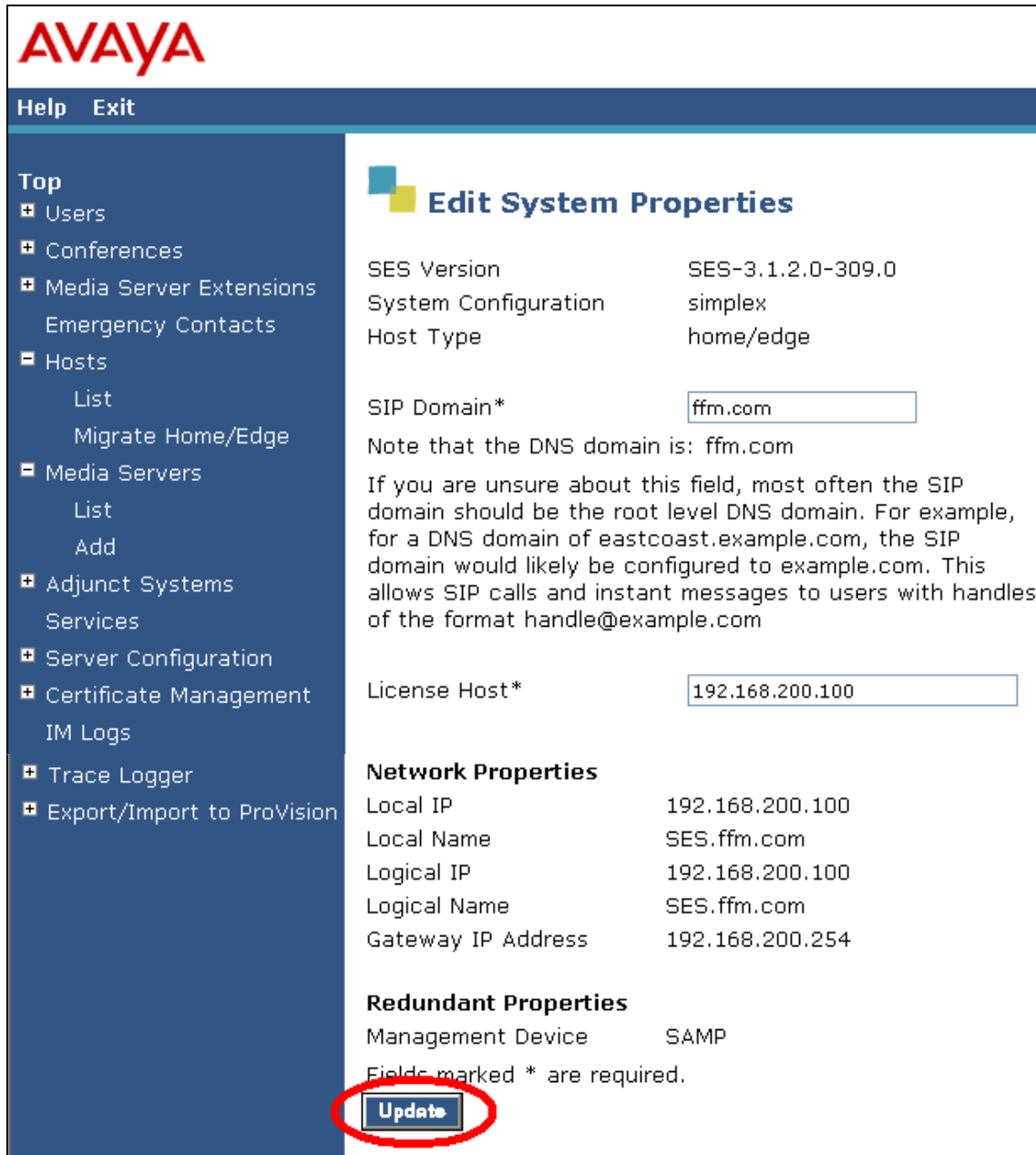
**Figure 36: Server Configuration Selection from Top-Level Administration Screen**

From the Server Configuration screen, select “System Properties”.



**Figure 37: System Properties Selection from Server Configuration Screen**

Enter the name to be assigned to the “SIP Domain”. This must be the same name as is assigned in **Figure 26** and **Figure 28**. Select the “Update” button.



The screenshot shows the Avaya SES Edit System Properties screen. On the left is a dark blue sidebar with the Avaya logo at the top and a navigation menu. The main content area is white and titled 'Edit System Properties'. It contains several sections: a top status bar with 'Help' and 'Exit' links; a 'SIP Domain\*' field with the value 'ffm.com'; a 'License Host\*' field with the value '192.168.200.100'; a 'Network Properties' section with fields for Local IP, Local Name, Logical IP, Logical Name, and Gateway IP Address; and a 'Redundant Properties' section with a 'Management Device' field. At the bottom, there is a red circle around an 'Update' button. A note explains that fields marked with an asterisk are required.

**AVAYA**

Help Exit

**Top**

- Users
- Conferences
- Media Server Extensions
  - Emergency Contacts
- Hosts
  - List
  - Migrate Home/Edge
- Media Servers
  - List
  - Add
- Adjunct Systems
  - Services
- Server Configuration
- Certificate Management
  - IM Logs
- Trace Logger
- Export/Import to ProVision

**Edit System Properties**

SES Version SES-3.1.2.0-309.0

System Configuration simplex

Host Type home/edge

SIP Domain\*

Note that the DNS domain is: ffm.com

If you are unsure about this field, most often the SIP domain should be the root level DNS domain. For example, for a DNS domain of eastcoast.example.com, the SIP domain would likely be configured to example.com. This allows SIP calls and instant messages to users with handles of the format handle@example.com

License Host\*

**Network Properties**

Local IP 192.168.200.100

Local Name SES.ffm.com

Logical IP 192.168.200.100

Logical Name SES.ffm.com

Gateway IP Address 192.168.200.254

**Redundant Properties**

Management Device SAMP

Fields marked \* are required.

**Update**

**Figure 38: Avaya SES Edit System Properties Screen**

From the top-level management screen, select “Manage Users”.

The screenshot shows the Avaya Integrated Management SIP Server Management interface. The top header includes the Avaya logo, the title "Integrated Management SIP Server Management", and the server IP address "192.168.200.100". A navigation sidebar on the left lists various management options. The main content area displays a table of management functions, with "Manage Users" circled in red.

| Top                            |                                                      |
|--------------------------------|------------------------------------------------------|
| Manage Users                   | Add and delete Users.                                |
| Manage Conferencing            | Add and delete Conference Extensions.                |
| Manage Media Server Extensions | Add and delete Media Server Extensions.              |
| Manage Emergency Contacts      | Add and delete Emergency Contacts.                   |
| Manage Hosts                   | Add and delete Hosts.                                |
| Manage Media Servers           | Add and delete Media Servers.                        |
| Manage Adjunct Systems         | Add and delete Adjunct Systems.                      |
| Manage Services                | Start and stop server processes on this host.        |
| Server Configuration           | Edit Properties of the system.                       |
| Certificate Management         | Manage Certificates.                                 |
| IM Logs                        | Download IM Logs.                                    |
| Trace Logger                   | Manage SIP Trace Logs.                               |
| Export Import to ProVision     | Export and import data using ProVision on this host. |

**Figure 39: User Management Selection from Top-Level Administration Screen**

Select “Add User”.

The screenshot shows the Avaya Integrated Management SIP Server Management interface. The top header includes the Avaya logo, the title 'Integrated Management SIP Server Management', and the server IP '192.168.200.100'. A left sidebar contains a 'Top' menu with links to Users, Conferences, Media Server Extensions, Emergency Contacts, Hosts, Media Servers, Adjunct Systems, Services, Server Configuration, Certificate Management, IM Logs, Trace Logger, and Export/Import to ProVision. The main content area is titled 'User Administration' and contains a table of actions:

| User Administration       |                                              |
|---------------------------|----------------------------------------------|
| List Users                | List all users.                              |
| <b>Add User</b>           | Add a new user.                              |
| Search Users              | Search for users.                            |
| Edit User Profile         | Edit a user by user id.                      |
| Delete User               | Delete a user by user id.                    |
| Update Password           | Change a password by user id.                |
| Edit Default User Profile | Edit the default user profile.               |
| Registered Users          | Search for registered and provisioned users. |

**Figure 40: Avaya SES User Administration Screen**

Enter the extension of the user to be added as the “Primary Handle”. This is the same extension that was configured in **Section 3.1.7**. Enter a password and first/last name of the user, check the “Add Media Server Extension” box, and click “Add”.

**AVAYA** Integrated Management  
SIP Server Management  
Server: 192.168.200.100

Help Exit

**Top**

- Users
- Conferences
- Media Server Extensions
- Emergency Contacts
- Hosts
- Media Servers
- Adjunct Systems
- Services
- Server Configuration
- Certificate Management
- IM Logs
- Trace Logger
- Export/Import to ProVision

**Add User**

Primary Handle\* 3000115

User ID 3000115

Password\* .....

Confirm Password\* .....

Host\* 192.168.200.100

First Name\* Extn

Last Name\* 3000115

Address 1 Kleyerstr 94

Address 2

Office

City Frankfurt

State

Country Germany

Zip 60326

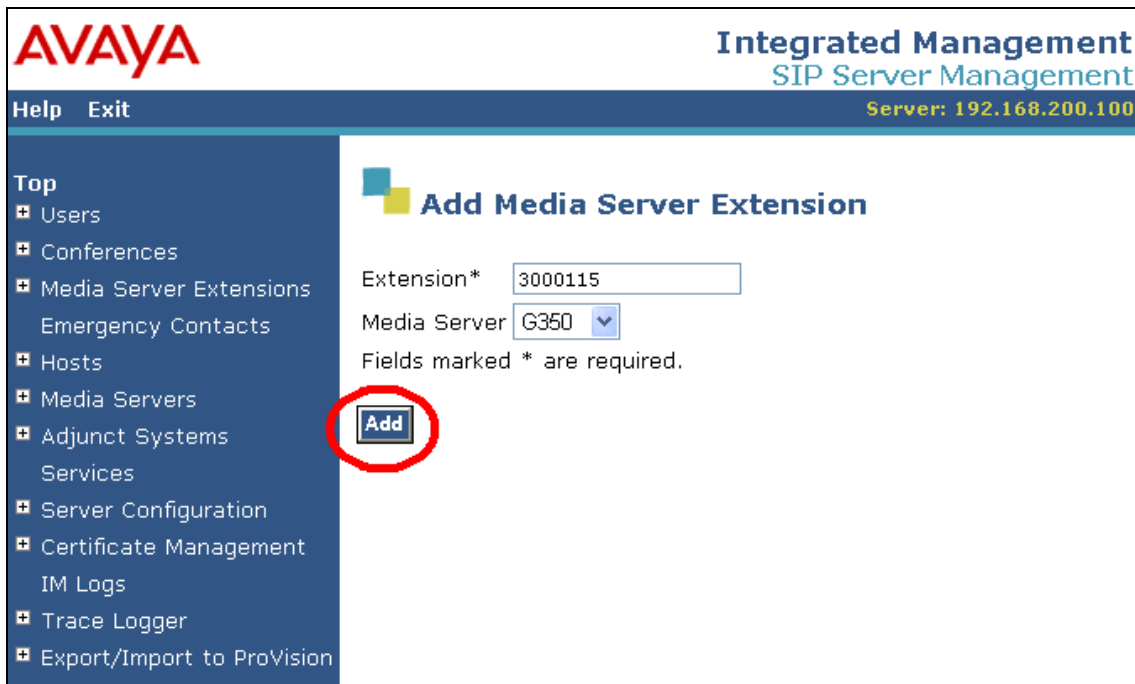
Add Media Server Extension ☒

Fields marked \* are required.

**Add**

**Figure 41: Avaya SES “Add User” Screen**

Enter the Media Server Extension for the User ID 3000115 (the extension of the Avaya SIP telephone). Select the Media Server (refer to **Figure 42**) and drop down box and click “Add” to continue.



The screenshot displays the Avaya Integrated Management SIP Server Management web interface. The top header features the Avaya logo on the left and the title 'Integrated Management SIP Server Management' on the right, with the server IP '192.168.200.100' shown below. A navigation menu on the left lists various system components, including 'Media Server Extensions'. The main content area is titled 'Add Media Server Extension' and contains a form with two fields: 'Extension\*' with the value '3000115' and 'Media Server' with a dropdown menu set to 'G350'. A red circle highlights the 'Add' button at the bottom of the form. A note below the fields states 'Fields marked \* are required.'

**Figure 42: Avaya SES Add Media Server Extension Screen**



## 3.4. Configure NovaAlert

### 3.4.1. Configuration file NovaAlert.ini

The NovaAlert.ini configuration file is a “flat” ASCII file that can be edited with a text editor. This file is contained in the main installation directory on the NovaAlert server (e.g. C:\Program Files\NovaAlert). The values within this file must be set as shown in **Figure 43**. The values for those items shown in bold may vary, depending on the configuration of external components. The values to be used for these entries are described in the following table.

| Parameter           | Usage                                                                                                                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DefaultCallingParty | This is the default extension to be used for calls made by NovaAlert. A value of “6000000” was used for these tests.                                                                                                         |
| LocalUserName       | This is the user name to be used for calls made by NovaAlert. A value of “6000000” was used for these tests.                                                                                                                 |
| H323_Gateway        | This is the IP address that was the Avaya Communication Manager “procr” entry in the Node-Names form shown in <b>Figure 7</b> .                                                                                              |
| H323_ListenerConfig | This is the IP port at which NovaAlert listens for connections. This must be the same value that is used as the “Far-end Listen Port” in <b>Figure 12</b> . The default H.323 signaling port “1720” is used for these tests. |

**Table 15: Parameters for Telephone Setting File**

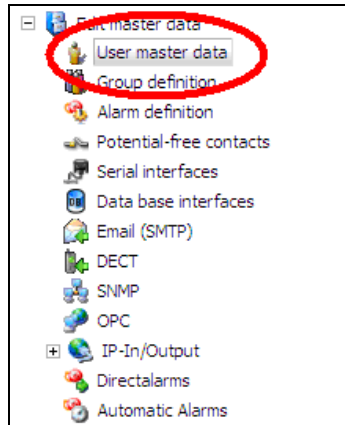
```
[CallInfo]
CardDriver=3
Interface=9
GewählteNummer=1
AufschaltenAktiv=0
CallingPartyAktiv=1
DefaultCallingParty=6000000
CNIPAktiv=1
DefaultLocalName=NovaAlert
WatchdogDTMF=

[VoIP]
DriverPref=2
LocalUserName=6000000
SilenceDetection=0
MinJitterBuffer=50
MaxJitterBuffer=250
H323_Gateway=192.168.30.100
H323_UseGateKeeper=0
H323_GateKeeperAddress=
H323_GateKeeperZone=
H323_GateKeeperPwd=
H323_UseFastStart=0
H323_UseH245Tunneling=0
H323_ListenerConfig=*:1720
H323_Alias=
```

**Figure 43: NovaAlert.ini Configuration File Content**

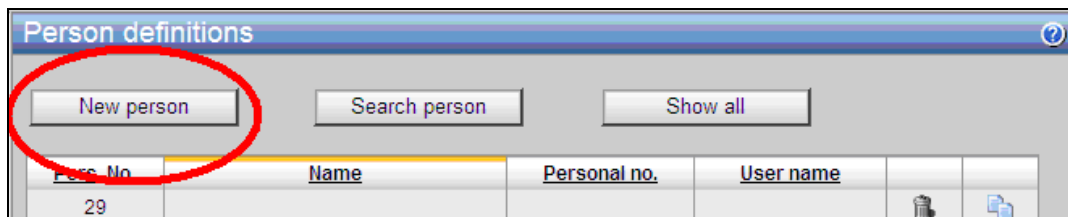
### 3.4.2. Configure Users

Use the Windows “Start” button to select the program NovaAlert, and select the “User master data” icon from the left frame.



**Figure 44: User Master Data Configuration Selection from NovaAlert Top-Level Screen**

When the “Person definitions” screen appears, click the “New person” button.



**Figure 45: New Person Selection from NovaAlert User Screen**

In the “Personal details” tab, enter the name and a PIN code to be assigned to the user. This PIN code will be used by the user when an authorization sequence is required.

**Edit person** [Back](#)

**No.:**  **Name:**

[Personal details](#) [Telephone numbers](#) [Authorization](#) [Notes](#)

**Name:**  ☐ Deactivated

**Add. information:**  **PIN code:**

**Name of street:**  **Personal ID:**

**ZIP/Town/City:**

**Lingua:**

**Figure 46: NovaAlert Edit Personal Details Screen**

Select the “Telephone numbers” tab, enter the telephone number to be assigned to the user, and click the “Save changes” button.

**Edit person** Back ?

No.:  Name:

**Personal details** **Telephone numbers** **Authorization** **Notes**

**On-call duty** **On-call duty**

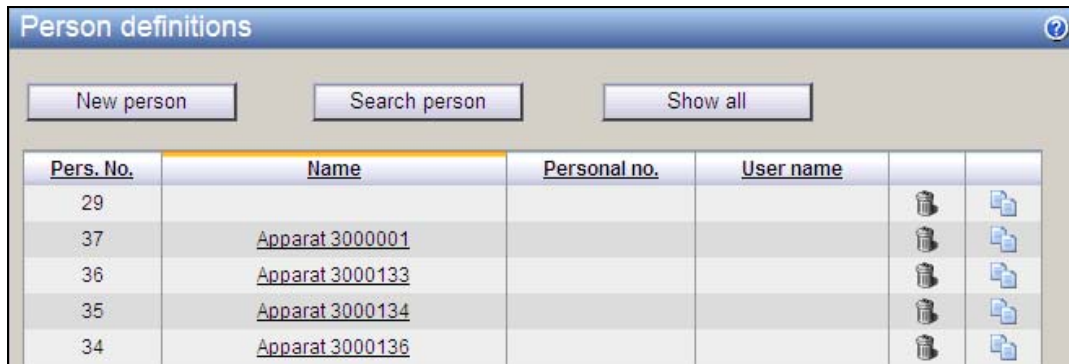
|             |                                      |                                     |                                        |                                     |                                     |
|-------------|--------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------|-------------------------------------|
| Office 1:   | <input type="text" value="3000001"/> | <input checked="" type="checkbox"/> | Office 2:                              | <input type="text"/>                | <input checked="" type="checkbox"/> |
| Home 1:     | <input type="text"/>                 | <input checked="" type="checkbox"/> | Home 2:                                | <input type="text"/>                | <input checked="" type="checkbox"/> |
| Mobile 1:   | <input type="text"/>                 | <input checked="" type="checkbox"/> | Mobile 2:                              | <input type="text"/>                | <input checked="" type="checkbox"/> |
| SMS GSM 1:  | <input type="text"/>                 | <input checked="" type="checkbox"/> | SMS GSM 2:                             | <input type="text"/>                | <input checked="" type="checkbox"/> |
| DECT 1:     | <input type="text"/>                 | <input checked="" type="checkbox"/> | DECT 2:                                | <input type="text"/>                | <input checked="" type="checkbox"/> |
| Fax 1:      | <input type="text"/>                 | <input checked="" type="checkbox"/> | Fax 2:                                 | <input type="text"/>                | <input checked="" type="checkbox"/> |
| Serial 1:   | <input type="text"/>                 | <input checked="" type="checkbox"/> | Serial 2:                              | <input type="text"/>                | <input checked="" type="checkbox"/> |
| Pager 1:    | <input type="text"/>                 | <input checked="" type="checkbox"/> | <input type="text" value="Tone call"/> | <input checked="" type="checkbox"/> |                                     |
| Pager 2:    | <input type="text"/>                 | <input checked="" type="checkbox"/> | <input type="text" value="Tone call"/> | <input checked="" type="checkbox"/> |                                     |
| E-Mail:     | <input type="text"/>                 | <input checked="" type="checkbox"/> |                                        |                                     |                                     |
| PC-Name/IP: | <input type="text"/>                 | <input checked="" type="checkbox"/> |                                        |                                     |                                     |

**Save changes** **Discard**

**Figure 47: NovaAlert Edit Personal Telephone Numbers Screen**

Repeat this for the other extensions which are used for testing.

The newly configured users are now listed in the “Person definitions” screen.

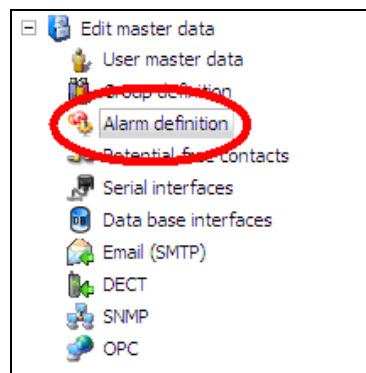


| <u>Pers. No.</u> | <u>Name</u>                     | <u>Personal no.</u> | <u>User name</u> |  |  |
|------------------|---------------------------------|---------------------|------------------|--|--|
| 29               |                                 |                     |                  |  |  |
| 37               | <a href="#">Apparat 3000001</a> |                     |                  |  |  |
| 36               | <a href="#">Apparat 3000133</a> |                     |                  |  |  |
| 35               | <a href="#">Apparat 3000134</a> |                     |                  |  |  |
| 34               | <a href="#">Apparat 3000136</a> |                     |                  |  |  |

**Figure 48: NovaAlert Personal User Display Screen**

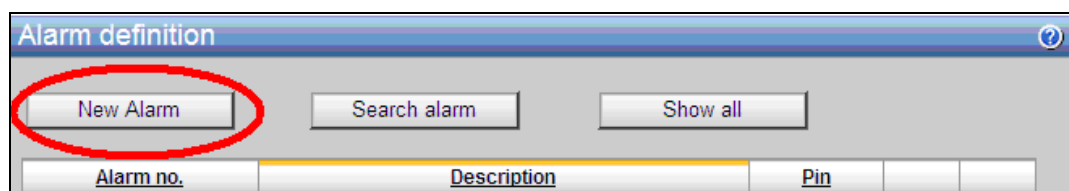
### 3.4.3. Configure Alarms

Use the Windows “Start” button to select the “Alarm definition” icon from the left frame.



**Figure 49: Alarm Definition Configuration Selection from NovaAlert Top-Level Screen**

When the “Alarm definition” screen appears, click the “New Alarm” button.



**Figure 50: NovaAlert New Alarm Selection Screen**

Configure the “General” alarm definition tab with the information shown in the following table.

| Parameter                  | Usage                                                                 |
|----------------------------|-----------------------------------------------------------------------|
| Description                | Enter a name to be assigned to the alarm.                             |
| Pin code for trigger       | Enter the PIN code to be used for alarm recipient verification        |
| Priority                   | Select “Höchste Priorität” (highest priority) from the drop-down box. |
| Group call                 | Select “Group Call” from the drop-down box.                           |
| Nbr. Of pers. To be contac | Select “Alle” (all) from the drop-down box.                           |
| Based on person            | Check this box.                                                       |
| Display on reports         | Check this box.                                                       |
| Select contact group       | Select the “Compile individual alert list” radio button.              |

**Table 16: NovaAlert General Alarm Configuration Parameters**

**Figure 51: NovaAlert New Alarm Definition Screen**

Configure the “Messages” alarm definition tab with the information shown in the following table and click the “Save changes” button.

| Parameter     | Column         | Usage                                                                                                                                                                                                                                                                       |
|---------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phone display | Alarm messages | Enter the text message which is to be shown on the Avaya telephone display. The length of this message should not exceed the maximum calling party name text length which can be displayed by Avaya telephones, which is 15 characters for telephones used for these tests. |
|               | Event text     | Select “Yes” from the drop-down box.                                                                                                                                                                                                                                        |
|               | Call type      | Select “Dauer” from the drop-down box.                                                                                                                                                                                                                                      |
|               | copy           | Select this check box.                                                                                                                                                                                                                                                      |
| Phone TTS     |                | Select the check box which is positioned to the left of the “Alarm messages” text box.                                                                                                                                                                                      |
|               | Alarm messages | Enter the text message which is converted to speech and announced to the party receiving the alarm.                                                                                                                                                                         |
|               | Event text     | Select “Yes” from the drop-down box.                                                                                                                                                                                                                                        |

**Table 17: NovaAlert Alarm Messages Configuration Parameters**

The screenshot shows the 'NovaAlert Alarm Message Definition Screen' with the 'Messages' tab active. The configuration parameters are as follows:

- Alarm messages:** Testalarm
- Event text:** Yes
- Call type:** Dauer
- copy:** ☒
- Phone display:** (empty field)
- Phone TTS:** ☒
- Calling Party:** (empty field)
- Alarm mess. before pin:** ☐
- Alarm mess. before conference:** ☐
- Fix before indiv. voice mess.:** ☐

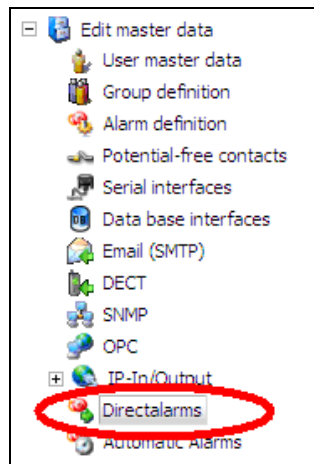
The 'Save changes' button is circled in red at the bottom of the screen.

**Figure 52: NovaAlert Alarm Message Definition Screen**

### 3.4.3.1 Configure Direct Alarms

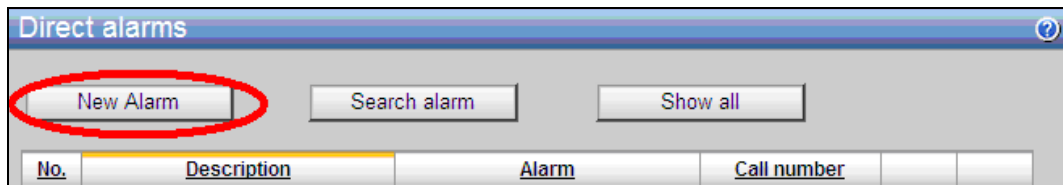
The Direct Alarm function maps a specific Called Party Number to an alarm, so that when this number is dialed, the caller records a message (optional) and the alarm is triggered. The recorded message is played on the alarmed stations.

Use the Windows “Start” button to select the “Directalarms” icon from the left frame.



**Figure 53: Direct Alarm Configuration Selection from NovaAlert Top-Level Screen**

When the “Direct alarm” screen appears, click the “New Alarm” button.



**Figure 54: NovaAlert New Direct Alarm Selection Screen**



Configure the “General” alarm definition tab with the information shown in the following table, and click the “Save changes” button.

| Parameter              | Usage                                                                                                                   |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Description            | Enter a name to be assigned to the alarm.                                                                               |
| Initiating call number | Enter the telephone number which is to be used by NovaAlert to make the alarm call.                                     |
| PIN Code               | Enter a PIN code that needs to get input to trigger the alarm. Leave empty if none is required.                         |
| Alarm no.              | Select one of the previously configured alarms from the drop-down box.                                                  |
| Alarm text             | Input an alarm text to display on the alarmed stations (as Calling Party Name). Leave empty for the default alarm text. |
| Recording              | Check this box to allow the recording of an alarm message per call.                                                     |
| Min. recording time    | Enter the minimum recording time, in seconds.                                                                           |

**Table 18: NovaAlert General Direct Alarm Configuration Parameters**

**Figure 55: NovaAlert Direct Alarm Configuration Screen**

## 4. Interoperability Compliance Testing

The interoperability compliance tests included feature and serviceability testing.

The feature testing focused on testing scenarios that involve interaction between the NovaLink server and Avaya products, including various sequences involving the following:

- Verification of the correct delivery of alarm voice messages
- Verification of the correct display of alarm text messages
- Verification of the ability of NovaAlert to recognize DTMF tones.
- Verification of the ability of Avaya Telephones to correctly log unanswered alarms.

The serviceability testing focused on verifying that the NovaLink product components can recover from interruption to interface connections which can occur during routine maintenance activities. Each of these units was also tested for recovery from unexpected power interruption.

### 4.1. General Test Approach

The test method employed can be described as follows:

- The individual features of the NovaAlert were tested by manually generating alarms from the NovaAlert console and manually making calls from Avaya Telephones.
- NovaAlert server robustness was tested by verifying its ability to recover from interruptions to its external connections via the LAN between the NovaAlert and the network.
- Verifying the ability to recover from power interruptions to the NovaAlert server further tested its robustness.

All testing was performed manually. The tests were all functional in nature, and no performance testing was done.

### 4.2. Test Results

The following was observed during testing:

- It is not possible for NovaAlert to detect that an Avaya 4600 Series H.323 phone is disconnected, as Avaya Communication Manager does not report this status to the caller.

## 5. Verification Steps

The following steps can be performed to verify the basic operation of the various system components:

- Verify that Avaya Communication Manager and the NovaAlert server can ping each other. The “ping” command can be executed from the NovaAlert server by executing the “cmd” component via the run facility from the Windows “Start” control and entering “ping” followed by the IP address to which the ping message is to be sent. The “ping” command can be executed from Avaya Communication Manager via an SSH login session.

- Verify that the Avaya IP Telephones can call each other.
- From the Avaya Communication Manager SAT terminal, use the “status trunk” command to verify that the ports for the trunk connected to NovaAlert are in the “in-service/idle” state.
- Verify that each of the Avaya Telephones can call the extension allocated to NovaAlert to participate in an incoming conference.
- Verify that it is possible for NovaAlert to call each of the Avaya IP Telephones to participate in an outgoing conference.
- Verify that it is possible to navigate the NovaAlert voice menu from each of the Avaya Telephones by calling the NovaAlert extension, and entering key sequences in response to prompting requests from NovaAlert.
- Verify the ability of Avaya Telephones to correctly log unanswered calls by initiating an unanswered alarm call from NovaAlert to each of the Avaya Telephones, verifying the name and number in the log of the telephone, and subsequently dialing the caller from the telephone log.
- From the Avaya SES Maintenance Web Interface, select the “Status Summary” screen and verify that the server is in “Active” mode, no alarms are being generated, the “Server Hardware” is “okay”, and that server “Processes” are “okay”.
- Verify that it is possible to place calls between SIP and H.323 Telephones.

## 6. Support

Technical support from NovaLink can be obtained through the following:

NovaLink GmbH  
 Businessstower  
 Zuercherstrasse 310  
 8500 Frauenfeld  
 Switzerland  
[helpdesk@novalink.ch](mailto:helpdesk@novalink.ch)  
 Phone: +41 52 762 66 77  
 Fax: +41 52 762 66 99

## 7. Conclusion

These Application Notes describe the conformance testing of the NovaAlert with Avaya Communication Manager. The various features of the NovaAlert that involve its telephone interface were tested. A detailed description of the configuration required for both the Avaya and the NovaLink equipment is documented within these Application Notes. NovaAlert passed all of the tests performed, which included both functional and robustness tests.

## 8. Additional References

- [1] *Administrator Guide for Avaya Communication Manager*, February 2007, Issue 3, Document Number 03-300509
- [2] *Feature Description and Implementation for Avaya Communication Manager*, February 2007, Issue 5, Document Number 555-245-205
- [3] *Installing and Administering SIP Enablement Services*, March 2007, Issue 2.1, Document Number 03-600768
- [4] *NovaAlert 7.5 manual*, May 2007

---

**©2007 Avaya Inc. All Rights Reserved.**

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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 DeveloperConnection Program at [devconnect@avaya.com](mailto:devconnect@avaya.com).