



Configuring the IP Trade Solution with Avaya SIP Enablement Services, Avaya Communication Manager and Avaya Modular Messaging - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring IP Trade's IP-based trading floor solution to communicate with Avaya SIP Enablement Services, Avaya Communication Manager and Avaya Modular Messaging.

The IP Trade solution consists of a set of IP Trade turrets, a Turret Support Server (TSS), and a Turret Proxy to Open Line Dealing (TPO) server. The trading turrets, as well as the Open Line Dealing (OLD) extensions defined in the TPO server, register as SIP endpoints with Avaya SIP Enablement Services. This enables these devices to integrate with Avaya Communication Manager, Avaya SIP Enablement Services and, in the case of the turrets, Avaya Modular Messaging.

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

1. Introduction

These Application Notes describe the procedures for configuring IP Trade's IP-based trading floor solution to communicate with Avaya SIP Enablement Services (SES), Avaya Communication Manager and Avaya Modular Messaging (MM). The IP Trade solution consists of the following components:

- **Turret Support Server (TSS):** The TSS provides security extensions, end user profile management, hunt group capabilities, and bridges to middle-office applications.
- **IP Trade turret:** The IP Trade turret is SIP-based VoIP trading phone. Its call handling panel uses Avaya Communication Manager feature name extensions (FNE) and/or IP Trade Profile internal features to provide a variety of call features (e.g., Hold, Transfer, Conference, Call Park, Call Forward, Call Pickup, Call Dispatch, Barge-In, etc.).
- **Turret Proxy to Open Line Dealing (TPO) Server:** The TPO server serves as a proxy phone between a remote place extension and the local IP Trade end-users (turrets). When local IP Trade end-users dial the Open Line Dealing (OLD) extension of a remote place, all of the users are connected to that remote location via a single PSTN call from the OLD extension to the remote location, and are each able to speak publicly or privately to that remote location. In these Application Notes, the TPO server registers one SIP endpoint as an OLD extension with Avaya SIP Enablement Services. One Avaya IP extension was used for a simulated remote place.

2. Test Configuration

Figure 1 illustrates the configuration used to verify these Application Notes. It consists of a pair of redundant Avaya SES Home and Edge servers, Avaya Communication Manager (on a pair of Avaya S8710 Servers in a High Reliability configuration), a two-cabinet Avaya SCC1 Media Gateway¹ (with DS1 facilities to a simulated PSTN where OLD extension calls are routed), Avaya MM servers, Avaya H.323 and SIP telephones, Avaya 6400 Series Digital Telephones, IP Trade Profile IK and Profile EK turrets, an IP Trade TSS server (on which also resides a TFTP server used for downloading configuration parameters to the turrets), and an IP Trade TPO server.

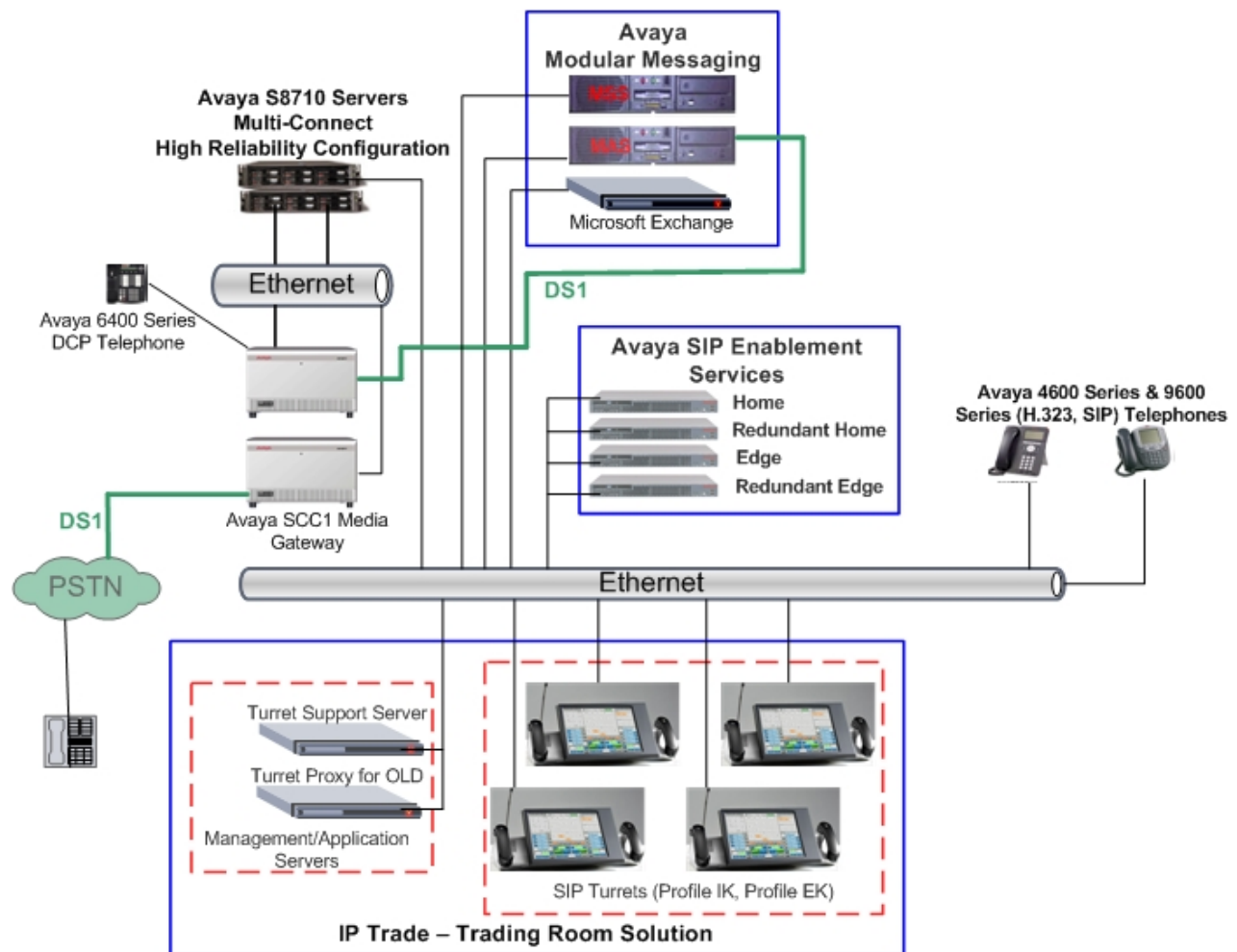


Figure 1: Reference Configuration

¹ The solution described in these Application Notes is also extensible to other Avaya Servers and Media Gateways.

3. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya S8710 Servers (2)	Avaya Communication Manager 5.0 (R015x.00.0.825.4)
Avaya SCC1 Media Gateway: <ul style="list-style-type: none">• IPSI (TN2312BP)• C-LAN (TN799DP)• MedPro (TN2302AP)• Digital Line (TN2224B)• DS1 (TN464F)	HW12 FW065 HW01 FW024 HW20 FW116 000003 000020
Avaya S8500C Servers (4)	Avaya SIP Enablement Services 5.0 (SES-5.0.0.0-825.31)
Avaya Modular Messaging Servers: <ul style="list-style-type: none">• Messaging Application Server (MAS)• Message Storage Server (MSS)	3.1 (3.1-12.1)
Avaya 9620 IP Telephones	2.0 (SIP)
Avaya 4610SW IP Telephones	2.8 (H.323)
Avaya 4620SW IP Telephones	2.8 (H.323)
Avaya 6400 Series Digital Telephones	-
IP Trade components: <ul style="list-style-type: none">• Turret Support Server (TSS)• Turret Proxy for Open Line Dealing (TPO)• Profile IK Turret• Profile EK Turret	V 1.7 Release 4996 V 1.7 Release 4996 V 1.7 Release 4996 V 1.7 Release 4996
Microsoft Exchange (with Active Directory)	5.2

4. Configure Avaya Communication Manager

This section details the administration on Avaya Communication Manager to enable the IP Trade turrets to register as SIP endpoints and utilize certain Avaya Communication Manager features. The commands listed in the following sections were issued at the Avaya System Access Terminal (SAT).

This section assumes that a SIP network interface has been configured between Avaya Communication Manager and Avaya SES, although some of the steps shown are intended to verify that certain aspects of this configuration were completed adequately for this solution. This interface is a trunk group that handles all SIP signaling between Avaya SES (which interfaces with the IP Trade turrets and OLD extensions as a SIP proxy) and Avaya Communication Manager. For details concerning the establishment of this interface, please refer to [1]. For further information about Avaya Communication Manager features and their administration, please refer to [4] and [5].

Step	Description
1.	<p>Enter display system-parameters customer-options to verify that sufficient SIP trunk capacity exists. On Page 2, under the IP PORT CAPACITIES section, verify that the Maximum Administered SIP Trunks is enough to support the expected total traffic to and from all IP Trade turrets and OLD extensions. Any call involving a SIP endpoint will use one SIP trunk per SIP endpoint. If the capacity indicated is deemed insufficient, an authorized Avaya support technician will need to install an appropriately enabled license file.</p> <div><pre>display system-parameters customer-options Page 2 of 11 OPTIONAL FEATURES IP PORT CAPACITIES USED Maximum Administered H.323 Trunks: 200 112 Maximum Concurrently Registered IP Stations: 2000 16 Maximum Administered Remote Office Trunks: 8000 0 Maximum Concurrently Registered Remote Office Stations: 12000 0 Maximum Concurrently Registered IP eCons: 20 0 Max Concur Registered Unauthenticated H.323 Stations: 200 0 Maximum Video Capable Stations: 100 22 Maximum Video Capable IP Softphones: 100 11 Maximum Administered SIP Trunks: 400 262 Maximum Administered Ad-hoc Video Conferencing Ports: 0 0 Maximum Number of DS1 Boards with Echo Cancellation: 12 0 Maximum TN2501 VAL Boards: 10 1 Maximum Media Gateway VAL Sources: 10 2 Maximum TN2602 Boards with 80 VoIP Channels: 128 0 Maximum TN2602 Boards with 320 VoIP Channels: 128 1 Maximum Number of Expanded Meet-me Conference Ports: 300 0 (NOTE: You must logoff & login to effect the permission changes.)</pre></div>

Step	Description
2.	<p>Enter change ip-network-region <i>n</i>, where <i>n</i> is the IP network region where the Avaya SES server resides. In this example, region 1, the default region for the Avaya S8710 Server running Avaya Communication Manager, was used. Verify and/or take note of the following fields:</p> <ul style="list-style-type: none"> • Intra-region IP-IP Direct Audio, Inter-region IP-IP Direct Audio: These fields should be set to yes to allow audio traffic to be sent directly between IP endpoints without using media resources in the Avaya Media Gateway (a feature known as “shuffling”). • Codec Set: The administration of the IP codec set specified here (see Step 3) determines the set of audio codecs to be used for calls within this IP network region. Since the Avaya S8710 Server and the Avaya SES server are in the same region in this example, all calls to and from any IP phone (H.323 or SIP) within the enterprise will use this IP codec set. If the Avaya S8710 Server and the Avaya SES server are placed in separate regions, then calls between IP Trade turrets and other IP telephones would be subject to the IP codec set specifications on Page 3 of the corresponding IP Network Region forms. • Authoritative Domain: This value will be used when administering IP Trade turrets in Section 7. <div data-bbox="300 1020 1442 1600" style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <pre> change ip-network-region 1 Page 1 of 19 IP NETWORK REGION Region: 1 Location: 1 Authoritative Domain: trade.com Name: Lincroft 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: 65535 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): 3483 Keep-Alive Interval (sec): 5 Keep-Alive Count: 5 </pre> </div>

Step	Description																																
3.	<p>Enter change ip-codec-set <i>n</i> (where <i>n</i> is the number of the IP codec set referenced in Step 2) to specify the audio codecs to be used for calls routed to and from the IP Trade turrets and OLD extensions via Avaya SES. (The default values can be retained for the additional parameters associated with each audio codec, e.g., Silence Suppression.) The order of the codecs listed will determine the negotiating preference for each call established. A prime consideration is whether voice quality is more important than bandwidth utilization (e.g., the higher bandwidth used by the G.711 codecs corresponds to better quality). The codecs supported by the IP Trade SIP devices are listed below.</p> <p>In addition, the Media Encryption preference must be set to none, since the IP Trade solution does not support media encryption.</p> <div><div>change ip-codec-set 1</div><div>Page 1 of 2</div><div>IP Codec Set</div><div>Codec Set: 1</div><table><tr><th>Audio Codec</th><th>Silence Suppression</th><th>Frames Per Pkt</th><th>Packet Size(ms)</th></tr><tr><td>1: G.711MU</td><td>n</td><td>2</td><td>20</td></tr><tr><td>2: G.711A</td><td>n</td><td>2</td><td>20</td></tr><tr><td>3: G.729B</td><td>n</td><td>2</td><td>20</td></tr><tr><td>4:</td><td></td><td></td><td></td></tr><tr><td>5:</td><td></td><td></td><td></td></tr><tr><td>6:</td><td></td><td></td><td></td></tr><tr><td>7:</td><td></td><td></td><td></td></tr></table><div>Media Encryption</div><div>1: none</div><div>2:</div></div>	Audio Codec	Silence Suppression	Frames Per Pkt	Packet Size(ms)	1: G.711MU	n	2	20	2: G.711A	n	2	20	3: G.729B	n	2	20	4:				5:				6:				7:			
Audio Codec	Silence Suppression	Frames Per Pkt	Packet Size(ms)																														
1: G.711MU	n	2	20																														
2: G.711A	n	2	20																														
3: G.729B	n	2	20																														
4:																																	
5:																																	
6:																																	
7:																																	

Step	Description
4.	<p>Enter change signaling-group <i>n</i>, where <i>n</i> is the number of the signaling group used by the SIP trunk group between Avaya Communication Manager and Avaya SES (see Step 5). In this example, signaling group 10 was created. Verify that the Direct IP-IP Audio Connections field is set to y to enable shuffling between the near-end and far-end IP endpoints.</p> <pre> change signaling-group 10 Page 1 of 1 SIGNALING GROUP Group Number: 10 Group Type: sip Transport Method: tls IP Video? y Priority Video? n Near-end Node Name: C-LAN-B Far-end Node Name: TF-SES-HOME Near-end Listen Port: 5061 Far-end Listen Port: 5061 Far-end Network Region: 1 Far-end Domain: trade.com Bypass If IP Threshold Exceeded? n DTMF over IP: rtp-payload Direct IP-IP Audio Connections? y IP Audio Hairpinning? n Enable Layer 3 Test? n Session Establishment Timer(min): 120 </pre>
5.	<p>Enter change trunk-group <i>n</i>, where <i>n</i> is the number of the SIP trunk group between Avaya Communication Manager and Avaya SES. In this example, trunk group 11 was used. On Page 1, verify that the Number of Members field is appropriate to support the anticipated traffic involving the turrets, but not exceeding the maximum number of available SIP trunks as indicated in Step 1.</p> <pre> change trunk-group 11 Page 1 of 21 TRUNK GROUP Group Number: 11 Group Type: sip CDR Reports: y Group Name: TF-SES-HOME COR: 1 TN: 1 TAC: 111 Direction: two-way Outgoing Display? n Dial Access? n Night Service: Queue Length: 0 Service Type: tie Auth Code? n Signaling Group: 10 Number of Members: 50 </pre>

Step	Description
6.	<p>All SIP stations (including the IP Trade turrets and SIP extensions used by the TPO server) are configured as OPS stations in Avaya Communication Manager.</p> <p>Enter display system-parameters customer-options and examine Page 1 to confirm that the license file has allocated enough OPS extensions (Maximum Off-PBX Telephones – OPS) to support all SIP endpoints. If not, an authorized Avaya support technician will need to install an appropriately enabled license file.</p> <div data-bbox="300 556 1442 1144" style="border: 1px solid black; padding: 10px;"> <pre> display system-parameters customer-options Page 1 of 11 OPTIONAL FEATURES G3 Version: V15 Software Package: Standard Location: 1 RFA System ID (SID): 1 Platform: 6 RFA Module ID (MID): 1 USED Platform Maximum Ports: 44000 1808 Maximum Stations: 36000 1171 Maximum XMOBILE Stations: 400 0 Maximum Off-PBX Telephones - EC500: 400 13 Maximum Off-PBX Telephones - OPS: 400 101 Maximum Off-PBX Telephones - PBFMC: 0 0 Maximum Off-PBX Telephones - PVFMC: 0 0 Maximum Off-PBX Telephones - SCCAN: 400 0 (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>

Step	Description
7.	<p>Enter add station x (where x is an available valid extension in the dial plan) to create a station extension for a SIP endpoint. Enter the following values on Page 1:</p> <ul style="list-style-type: none"> • Type: Set to a type that will accommodate the number of call appearances desired for this endpoint (in this example, 6416D+). • Port: Enter X. This indicates that the station is Administered Without Hardware (AWOH) and is not assigned to a specific port on Avaya Communication Manager. • Name: Enter a descriptive name. • Coverage Path 1: Enter the number of the coverage path used by Avaya MM subscribers (see Section 6 for Avaya MM configuration details). <div> <pre> add station 30063 Page 1 of 6 STATION Extension: 30063 Lock Messages? n BCC: 0 Type: 6416D+ Security Code: TN: 1 Port: X Coverage Path 1: 10 COR: 1 Name: IP Trade Bob Funds Coverage Path 2: COS: 1 Hunt-to Station: STATION OPTIONS Loss Group: 2 Time of Day Lock Table: Data Option: none Personalized Ringing Pattern: 1 Speakerphone: 2-way Message Lamp Ext: 30063 Display Language: english Mute Button Enabled? y Expansion Module? n Survivable COR: internal Media Complex Ext: Survivable Trunk Dest? y IP SoftPhone? n Remote Office Phone? n IP Video? N </pre> </div>

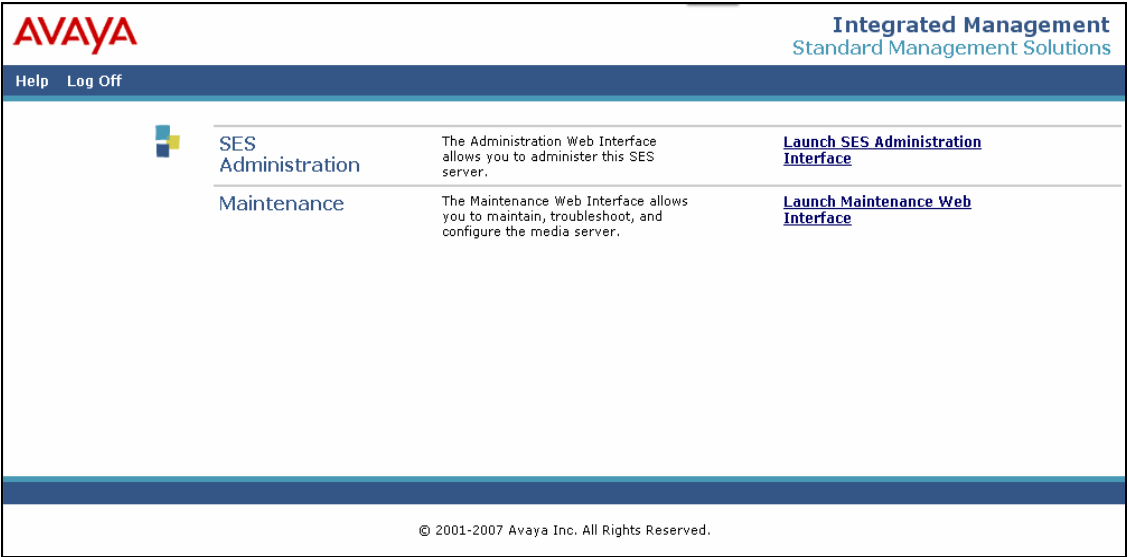
Step	Description
8.	<p>On Page 2, enter the following values:</p> <ul style="list-style-type: none"> • Restrict Last Appearance: Enter n to allow the last call appearance to be used for either an incoming or outgoing call. • Direct IP-IP Audio Connections: Enter y to enable shuffling for calls involving this station. <div> <pre> change station 30063 Page 2 of 6 STATION FEATURE OPTIONS LWC Reception: spe Auto Select Any Idle Appearance? n LWC Activation? y Coverage Msg Retrieval? y LWC Log External Calls? n Auto Answer: none CDR Privacy? n Data Restriction? n Redirect Notification? y Idle Appearance Preference? n Per Button Ring Control? n Bridged Idle Line Preference? n Bridged Call Alerting? n Restrict Last Appearance? n Active Station Ringing: single H.320 Conversion? n Per Station CPN - Send Calling Number? Service Link Mode: as-needed Multimedia Mode: basic MWI Served User Type: AUDIX Name: Audible Message Waiting? n Display Client Redirection? n Select Last Used Appearance? n Coverage After Forwarding? s Multimedia Early Answer? n Direct IP-IP Audio Connections? y IP Audio Hairpinning? n Emergency Location Ext: 30063 </pre> </div>
9.	<p>On Page 4, add a call-appr button for each call appearance to be used by this endpoint. Use Page 5 (see Step 10) to add more than eight call appearances. In this sample configuration, ten call appearances (the maximum allowed by Avaya Communication Manager) were added for each SIP station used by the IP Trade turrets.</p> <div> <pre> add station 30063 Page 4 of 6 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-appr 2: call-appr 6: call-appr 3: call-appr 7: call-appr 4: call-appr 8: call-appr </pre> </div>

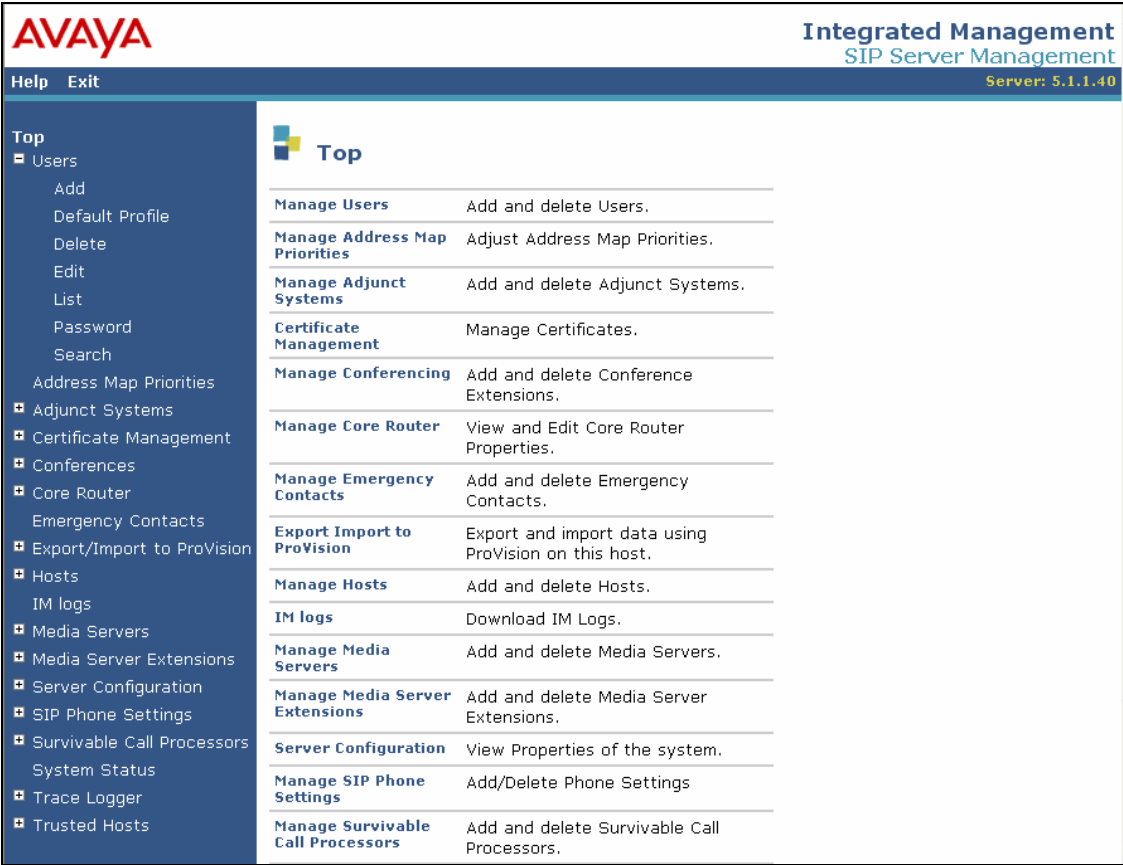
Step	Description
10.	<p>Assign to available feature buttons (in this example, on Page 5) the No-Hold Conference (no-hld-conf) and Automatic Call Back (auto-cback) features. These must be present in order for any SIP endpoints to use the Conference on Answer and Automatic Call Back FNEs, respectively.</p> <div> <pre> add station 30063 STATION Page 5 of 6 FEATURE BUTTON ASSIGNMENTS 9: call-appr 10: call-appr 11: no-hld-cnfr 12: auto-cback 13: 14: 15: 16: </pre> </div>
11.	<p>Enter add off-pbx-telephone station-mapping to map the new station extension to an OPS station. Enter the following values in the first available row:</p> <ul style="list-style-type: none"> • Station Extension: Enter the extension of the station created in Step 7. • Application: Enter OPS. • Phone Number: Enter the phone number of the associated Off-PBX Telephone. • Trunk Selection: Enter the number of the SIP trunk group referenced in Step 5 (in this example, 11). • Configuration Set: Retain the default value. <div> <pre> add off-pbx-telephone station-mapping STATIONS WITH OFF-PBX TELEPHONE INTEGRATION Page 1 of 2 Station Application Dial CC Phone Number Trunk Config Extension Prefix 30063 OPS - 30063 11 1 - - </pre> </div>
12.	<p>On Page 2, set the Call Limit to the number of call appearances set on the station form in Step 9. Verify that the Mapping Mode is set to both.</p> <div> <pre> add off-pbx-telephone station-mapping STATIONS WITH OFF-PBX TELEPHONE INTEGRATION Page 2 of 2 Station Call Mapping Calls Bridged Location Extension Limit Mode Allowed Calls 30063 10 both all both </pre> </div>

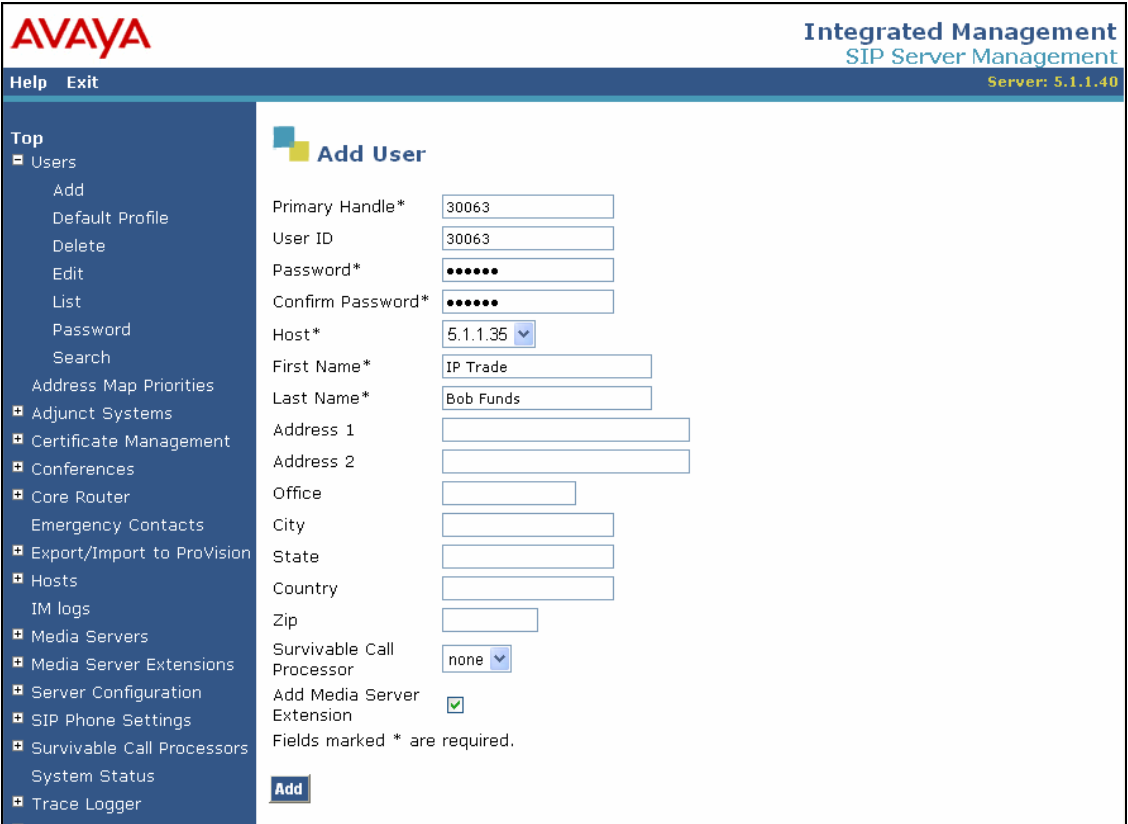
Step	Description
13.	Repeat Steps 7 - 12 as necessary to add additional SIP extensions.
14.	<p>Enter change off-pbx-telephone feature-name-extensions to administer the FNEs that will be used by the IP Trade turrets and the Avaya SIP endpoints to activate certain Avaya Communication Manager features. The FNEs shown in bold were the subset that were used in the reference configuration. (NOTE: For each of the FNEs highlighted, the associated Feature Access Code (FAC) must also be administered.)</p> <div data-bbox="302 594 1438 1146"> <p>change off-pbx-telephone feature-name-extensions set 1 Page 1 of 2 EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME Set Name:</p> <p>Active Appearance Select: Automatic Call Back: 29001 Automatic Call-Back Cancel: 29002 Call Forward All: 29003 Call Forward Busy/No Answer: 29004 Call Forward Cancel: 29005 Call Park: 29006 Call Park Answer Back: 29007 Call Pick-Up: 29008 Calling Number Block: Calling Number Unblock: Conference on Answer: 29011 Directed Call Pick-Up: 29012 Drop Last Added Party: 29013 Exclusion (Toggle On/Off): Extended Group Call Pickup: Held Appearance Select:</p> </div> <div data-bbox="302 1188 1438 1591"> <p>change off-pbx-telephone feature-name-extensions set 1 Page 2 of 2 EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME</p> <p>Idle Appearance Select: Last Number Dialed: 29021 Malicious Call Trace: Malicious Call Trace Cancel: Off-Pbx Call Enable: Off-Pbx Call Disable: Priority Call: Send All Calls: 29022 Send All Calls Cancel: 29023 Transfer On Hang-Up: 29024 Transfer to Voice Mail: 29025 Whisper Page Activation:</p> </div>

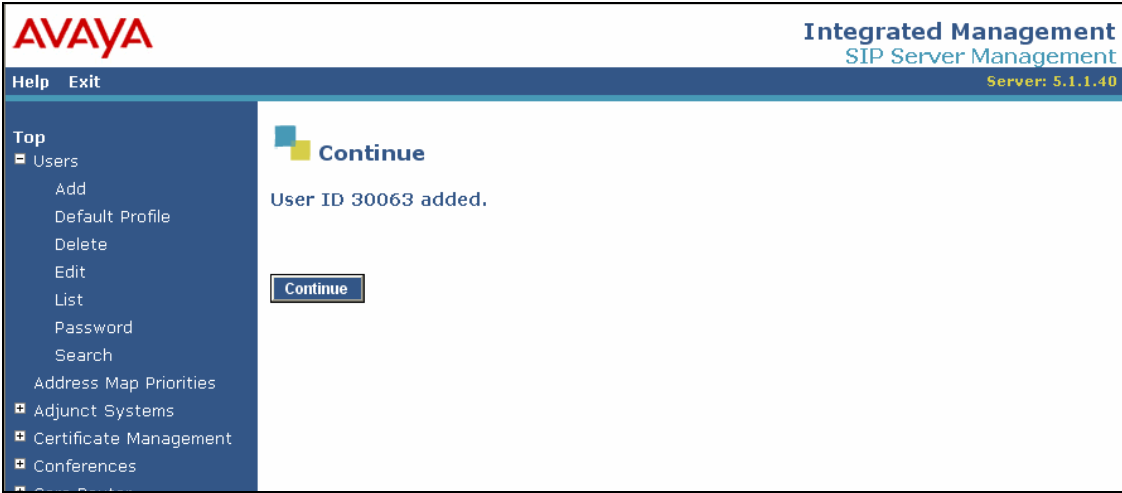
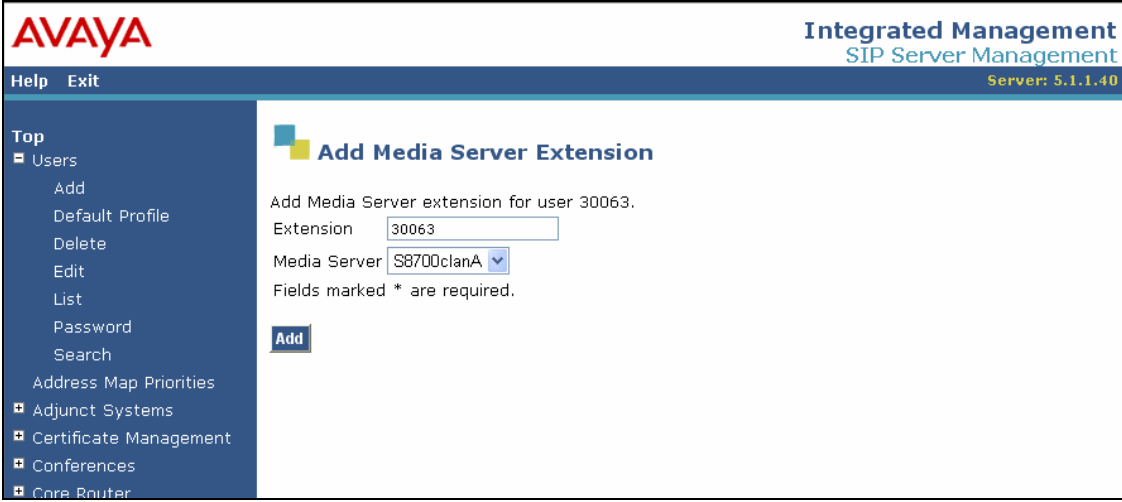
5. Configure Avaya SIP Enablement Services

This section addresses the administrative steps to be performed on Avaya SIP Enablement Services to enable the IP Trade turrets and OLD extensions to register as SIP endpoints. The installation of the Avaya SES software and license file, as well as the initial configuration of the server and its basic integration with Avaya Communication Manager, is beyond the scope of this document. Please see [6] for the details of these procedures.

Step	Description
1.	<p>From a Web browser, navigate to <a href="http://<ip-addr>/admin">http://<ip-addr>/admin (where <ip-addr> is the IP address of the Avaya SES Edge server). After logging in with an appropriate login and password, the main page appears. Click on the Launch SES Administration Interface link.</p> 

Step	Description																																
2.	<p>The administration home page appears.</p>  <table border="1"> <thead> <tr> <th colspan="2">Top</th> </tr> </thead> <tbody> <tr> <td>Manage Users</td> <td>Add and delete Users.</td> </tr> <tr> <td>Manage Address Map Priorities</td> <td>Adjust Address Map Priorities.</td> </tr> <tr> <td>Manage Adjunct Systems</td> <td>Add and delete Adjunct Systems.</td> </tr> <tr> <td>Certificate Management</td> <td>Manage Certificates.</td> </tr> <tr> <td>Manage Conferencing</td> <td>Add and delete Conference Extensions.</td> </tr> <tr> <td>Manage Core Router</td> <td>View and Edit Core Router Properties.</td> </tr> <tr> <td>Manage Emergency Contacts</td> <td>Add and delete Emergency Contacts.</td> </tr> <tr> <td>Export Import to ProVision</td> <td>Export and import data using ProVision on this host.</td> </tr> <tr> <td>Manage Hosts</td> <td>Add and delete Hosts.</td> </tr> <tr> <td>IM logs</td> <td>Download IM Logs.</td> </tr> <tr> <td>Manage Media Servers</td> <td>Add and delete Media Servers.</td> </tr> <tr> <td>Manage Media Server Extensions</td> <td>Add and delete Media Server Extensions.</td> </tr> <tr> <td>Server Configuration</td> <td>View Properties of the system.</td> </tr> <tr> <td>Manage SIP Phone Settings</td> <td>Add/Delete Phone Settings</td> </tr> <tr> <td>Manage Survivable Call Processors</td> <td>Add and delete Survivable Call Processors.</td> </tr> </tbody> </table>	Top		Manage Users	Add and delete Users.	Manage Address Map Priorities	Adjust Address Map Priorities.	Manage Adjunct Systems	Add and delete Adjunct Systems.	Certificate Management	Manage Certificates.	Manage Conferencing	Add and delete Conference Extensions.	Manage Core Router	View and Edit Core Router Properties.	Manage Emergency Contacts	Add and delete Emergency Contacts.	Export Import to ProVision	Export and import data using ProVision on this host.	Manage Hosts	Add and delete Hosts.	IM logs	Download IM Logs.	Manage Media Servers	Add and delete Media Servers.	Manage Media Server Extensions	Add and delete Media Server Extensions.	Server Configuration	View Properties of the system.	Manage SIP Phone Settings	Add/Delete Phone Settings	Manage Survivable Call Processors	Add and delete Survivable Call Processors.
Top																																	
Manage Users	Add and delete Users.																																
Manage Address Map Priorities	Adjust Address Map Priorities.																																
Manage Adjunct Systems	Add and delete Adjunct Systems.																																
Certificate Management	Manage Certificates.																																
Manage Conferencing	Add and delete Conference Extensions.																																
Manage Core Router	View and Edit Core Router Properties.																																
Manage Emergency Contacts	Add and delete Emergency Contacts.																																
Export Import to ProVision	Export and import data using ProVision on this host.																																
Manage Hosts	Add and delete Hosts.																																
IM logs	Download IM Logs.																																
Manage Media Servers	Add and delete Media Servers.																																
Manage Media Server Extensions	Add and delete Media Server Extensions.																																
Server Configuration	View Properties of the system.																																
Manage SIP Phone Settings	Add/Delete Phone Settings																																
Manage Survivable Call Processors	Add and delete Survivable Call Processors.																																

Step	Description
3.	<p>To add SIP users (identified by the corresponding telephone extensions), select Users → Add from the left pane. Enter the following values:</p> <ul style="list-style-type: none"> ▪ Primary Handle: This specifies a user in Avaya SES (in this example, 30063). While not required, it is recommended that the Primary handle be the same as the User ID. ▪ User ID: Set the same value as Primary Handle. ▪ Password: This must match the password associated with the corresponding SIP Extension configured on the IP Trade solution for a turret in Section 7.1, Steps 1 and 2. ▪ Confirm Password: Re-enter the above Password. ▪ Host: Select from the drop-down menu the host name or IP address of the Avaya SES Home server (in this example, 5.1.1.35). ▪ First Name, Last Name: Enter descriptive values. ▪ Add Media Server Extension: Check this box to add a media server extension for the user (see Step 5). <p>The completed form appears as follows. Click Add to submit the form.</p> 

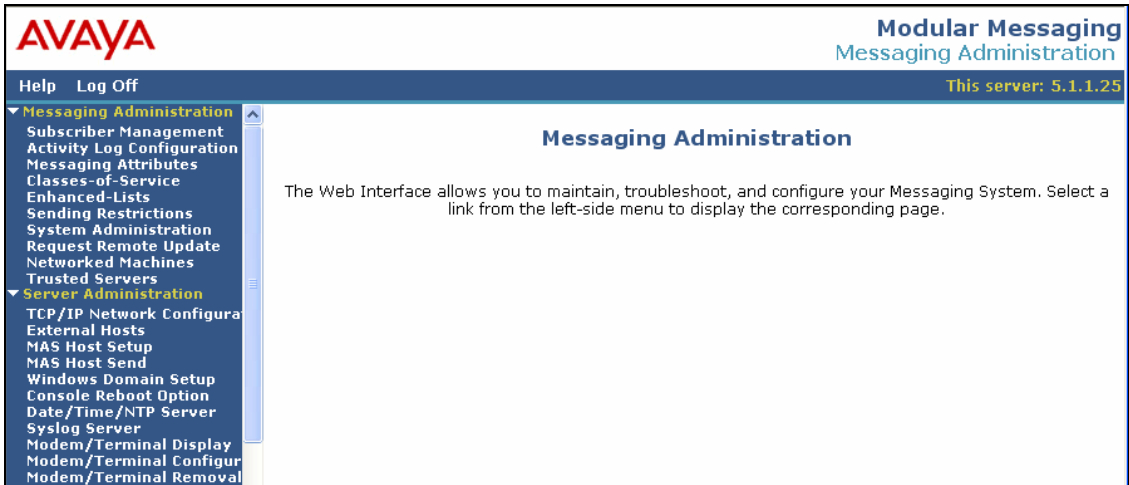
Step	Description
4.	<p>On the page that follows (see below), click Continue.</p>  <p>The screenshot shows the Avaya Integrated Management SIP Server Management interface. The top header includes the Avaya logo, 'Integrated Management SIP Server Management', and 'Server: 5.1.1.40'. A navigation menu on the left lists options like Users, Adjunct Systems, Certificate Management, and Conferences. The main content area displays 'Continue' with a message 'User ID 30063 added.' and a 'Continue' button.</p>
5.	<p>The Add Media Server Extension page will appear as shown below. Enter the following values:</p> <ul style="list-style-type: none"> ▪ Extension: Enter the OPS extension corresponding to the station configured in Avaya Communication Manager. See Section 4, Steps 11 and 12. ▪ Media Server: Select the Media Server where the associated station resides (in this example, S8700clanA). <p>The completed form appears as follows. Click Add to submit the form.</p>  <p>The screenshot shows the 'Add Media Server Extension' page. It includes the same header and navigation menu. The main content area has the title 'Add Media Server Extension' and a message 'Add Media Server extension for user 30063.' Below this are two input fields: 'Extension' with the value '30063' and 'Media Server' with a dropdown menu showing 'S8700clanA'. A note states 'Fields marked * are required.' and there is an 'Add' button.</p>
6.	<p>Repeat Steps 3-5 to add additional users to support the remaining IP Trade turrets and OLD extensions.</p>

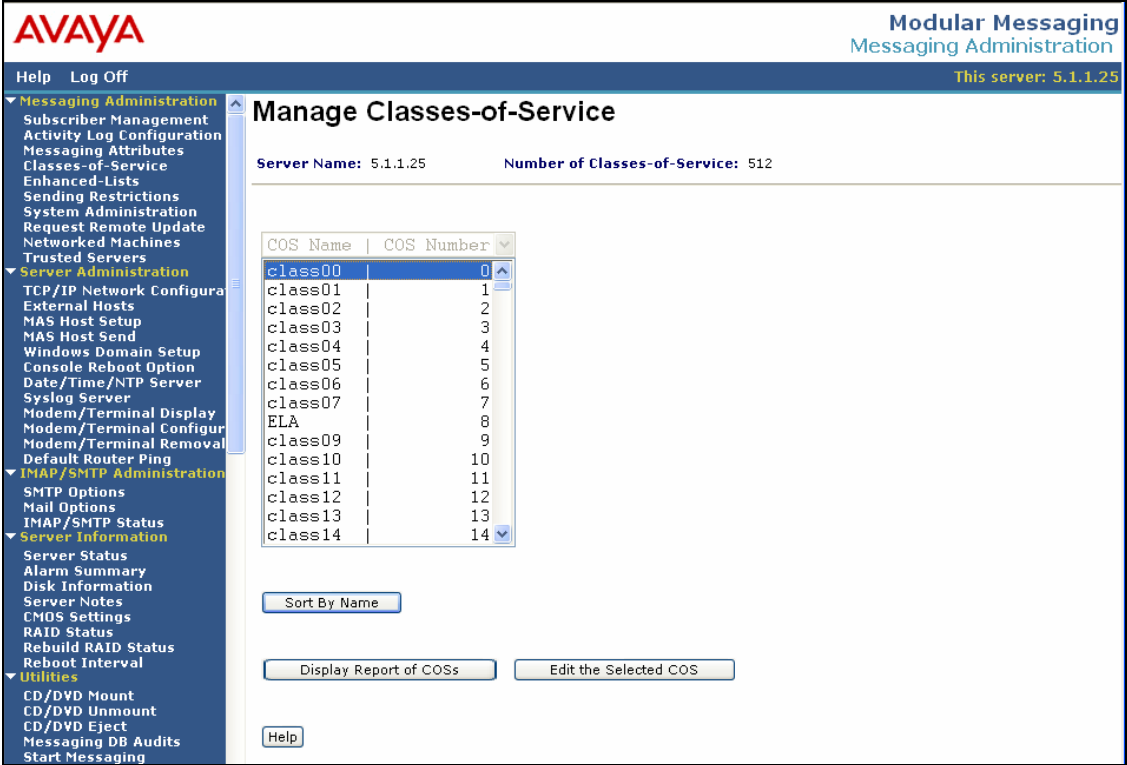
6. Configure Avaya Modular Messaging

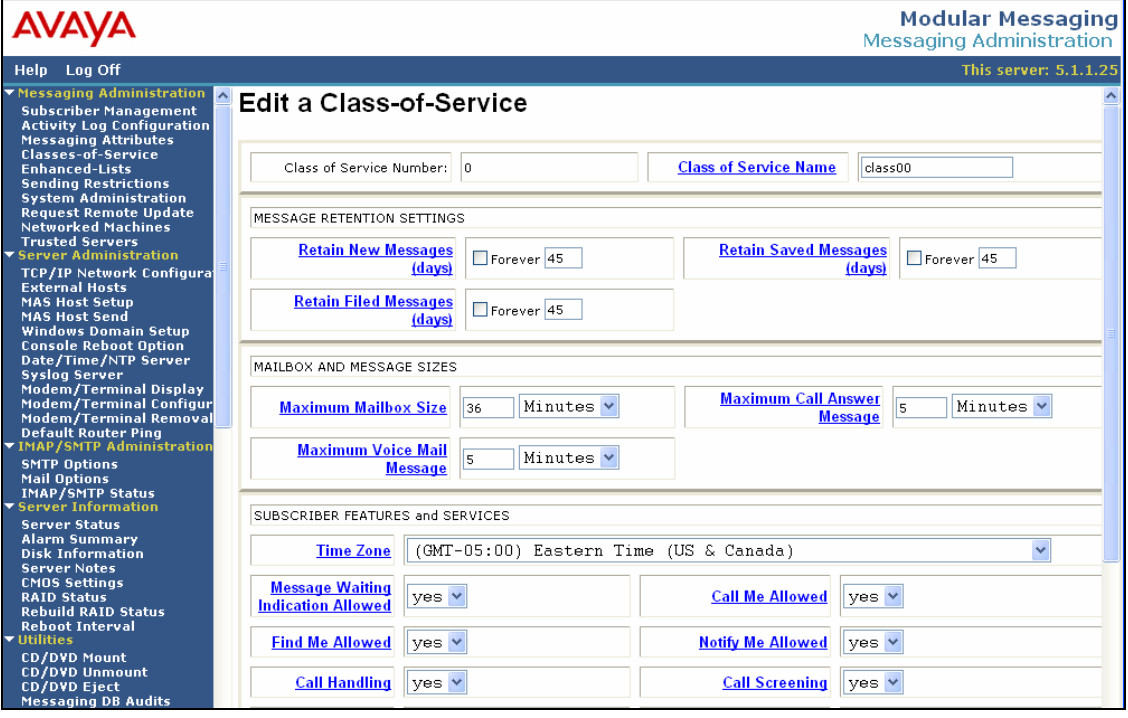
This section specifies the configuration of new subscribers in Avaya Modular Messaging that will allow IP Trade turret users to interact successfully with Avaya MM. Procedures are presented for both available storage options: Avaya's Message Storage Server and Microsoft Exchange.

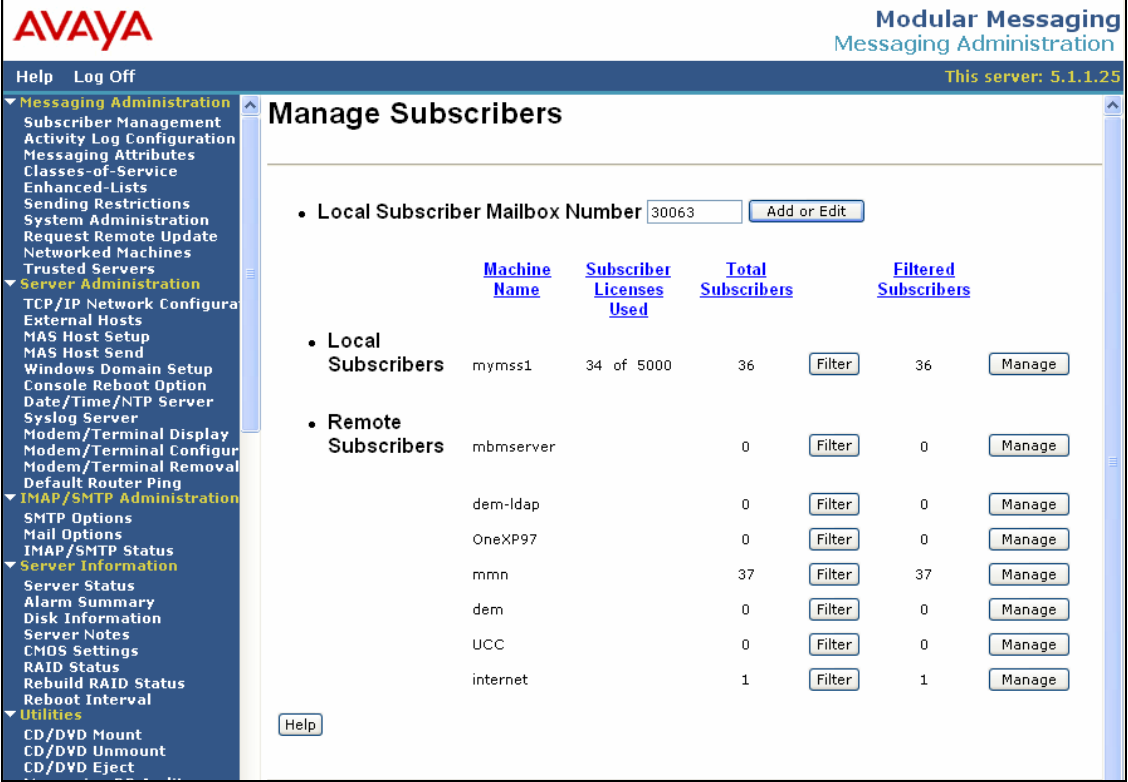
It is assumed that basic integration of Avaya MM with Avaya Communication Manager has already been established. For the details of these integration procedures, please refer to [2] and [3].

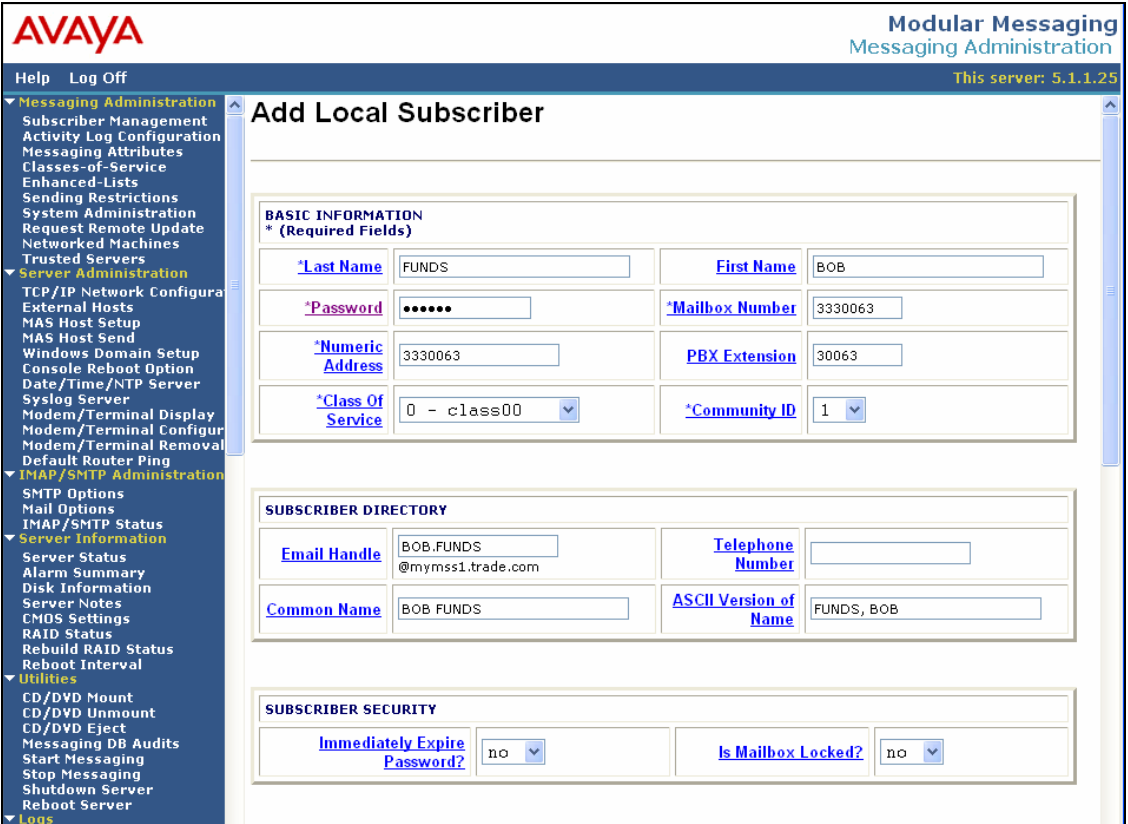
6.1. Messaging Application Server with Message Storage Server

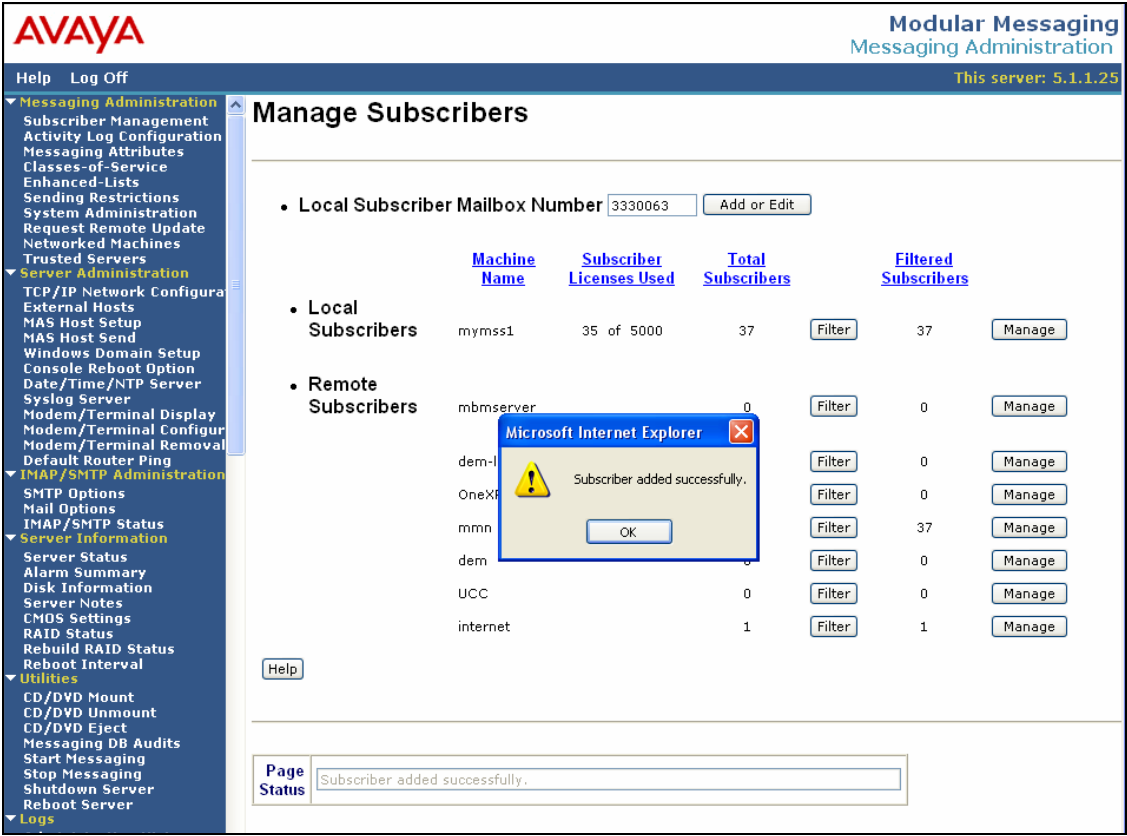
Step	Description
1.	<p>From a Web browser, navigate to <a href="http://<ip-addr>">http://<ip-addr> (where <ip-addr> is the IP address of the Avaya MSS). After logging in with an appropriate login and password, the main page appears.</p> 

Step	Description
2.	<p>Select Messaging Administration → Classes-of-Service from the left pane. From the Manage Classes-of-Service screen that is presented, select a Class of Service (COS) that will be used by subscribers using IP Trade turrets (in this example class00 was selected). Click the Edit the Selected COS button.</p>  <p>The screenshot shows the Avaya Modular Messaging Administration interface. The left pane is expanded to 'Messaging Administration', and 'Classes-of-Service' is selected. The main area displays the 'Manage Classes-of-Service' screen. At the top, it shows 'Server Name: 5.1.1.25' and 'Number of Classes-of-Service: 512'. Below this is a table with two columns: 'COS Name' and 'COS Number'. The table lists classes from 'class00' to 'class14'. 'class00' is selected, and its number '0' is highlighted in the 'COS Number' column. Below the table, there is a 'Sort By Name' button, a 'Display Report of COSs' button, an 'Edit the Selected COS' button, and a 'Help' button.</p>

Step	Description
3.	<p>In the Edit a Class-of-Service screen that follows, select yes from the drop-down menu for the Message Waiting Indication Allowed field. Scroll down to the bottom of the screen and click the Save button (not shown).</p> 

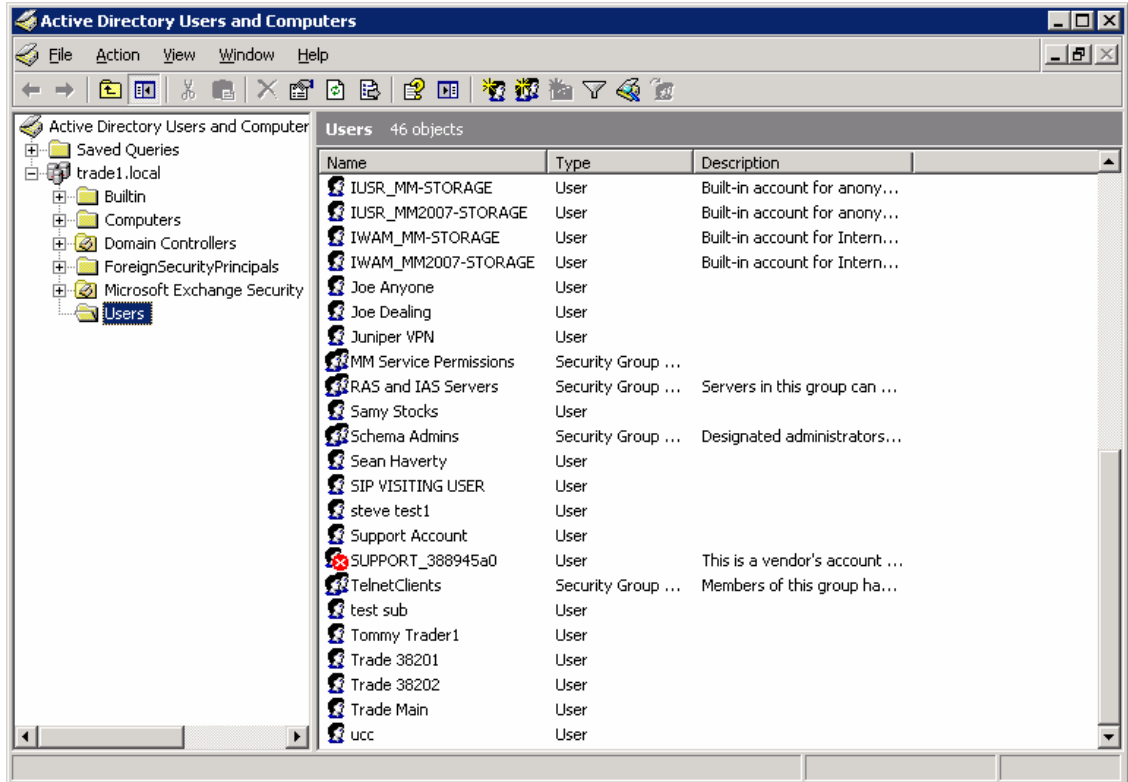
Step	Description
4.	<p>Select Messaging Administration → Subscriber Management in the left pane. The Manage Subscribers page appears, as shown below. In the Local Subscriber Mailbox Number field, enter the extension of the desired IP Trade turret and click the Add or Edit button.</p>  <p>The screenshot shows the Avaya Modular Messaging Administration interface. The left pane contains a navigation tree with the following items: Messaging Administration (expanded), Subscriber Management (selected), Activity Log Configuration, Messaging Attributes, Classes-of-Service, Enhanced-Lists, Sending Restrictions, System Administration, Request Remote Update, Networked Machines, Trusted Servers, Server Administration (expanded), TCP/IP Network Configuration, External Hosts, MAS Host Setup, MAS Host Send, Windows Domain Setup, Console Reboot Option, Date/Time/NTP Server, Syslog Server, Modem/Terminal Display, Modem/Terminal Configuration, Modem/Terminal Removal, Default Router Ping, IMAP/SMTP Administration (expanded), SMTP Options, Mail Options, IMAP/SMTP Status, Server Information (expanded), Server Status, Alarm Summary, Disk Information, Server Notes, CMOS Settings, RAID Status, Rebuild RAID Status, Reboot Interval, Utilities (expanded), CD/DVD Mount, CD/DVD Unmount, and CD/DVD Eject. The main area is titled Manage Subscribers and shows a table of subscribers. At the top, there is a field for Local Subscriber Mailbox Number with the value 30063 and an Add or Edit button. The table has the following columns: Machine Name, Subscriber Licenses Used, Total Subscribers, and Filtered Subscribers. There are two sections: Local Subscribers and Remote Subscribers. The Local Subscribers section shows one entry: mymss1 with 34 of 5000 licenses used, 36 total subscribers, and 36 filtered subscribers. The Remote Subscribers section shows seven entries: mbmserver, dem-ldap, OneXP97, mmn, dem, UCC, and internet. Each entry has a Filter button and a Manage button. A Help button is located at the bottom left of the main area.</p>

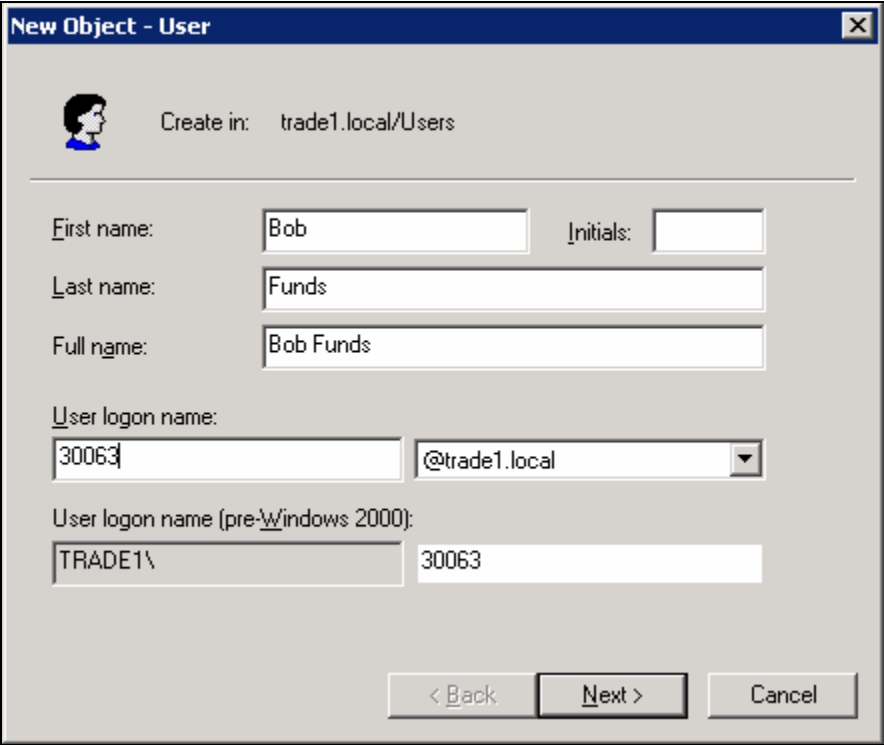
Step	Description
5.	<p>In the Add Local Subscriber screen (see below), enter the following values:</p> <ul style="list-style-type: none"> ▪ Last Name, First Name: Enter values appropriate for this user. ▪ Password: Enter a default password for accessing the subscriber's mailbox, from one to 15 digits. ▪ Mailbox Number: Enter a number, from two to 10 digits in length, which uniquely identifies the mailbox for the purpose of logging in or addressing messages. It must be within the range of Mailbox Numbers assigned to this system and be a valid length on the local machine. In this example, 3330063 was used. ▪ Numeric Address: Enter a unique address in the voice mail network, from one to 32 digits in length. It can contain the Mailbox Number, but this is not required. In this example, 3330063 was used. ▪ Class Of Service: Select the Class of Service modified in Step 3. <p>Retain the default values for all other fields as appropriate. Some fields were populated in this example (Email Handle, etc.), but are not mandatory. Scroll to the bottom of the screen and click Save (not shown) to submit the form.</p> 

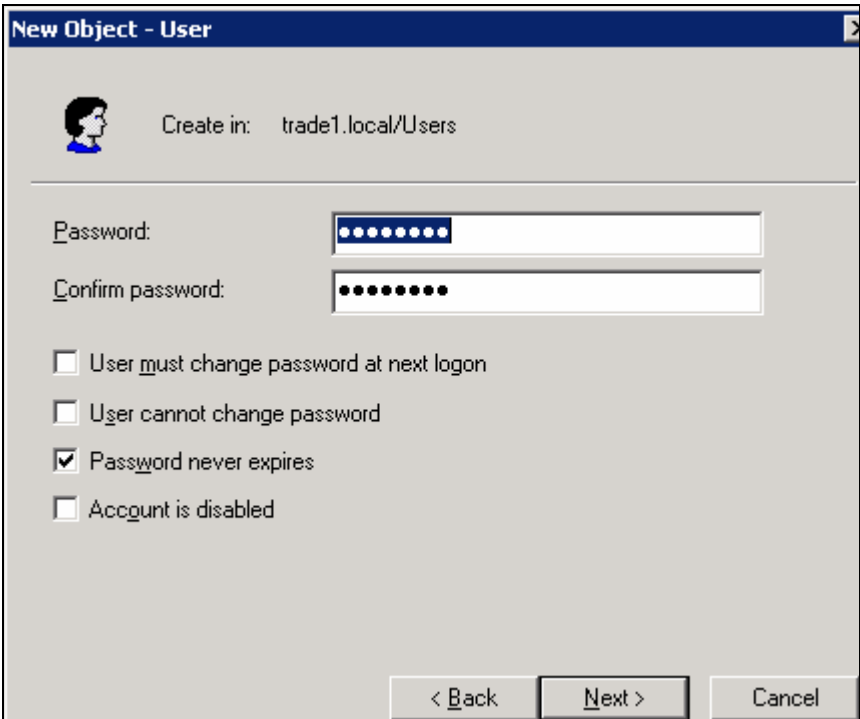
Step	Description
6.	<p>When the Subscriber added successfully dialog box is presented, click OK.</p> 
7.	<p>Repeat Steps 4-6 to add additional mailboxes to support the remaining IP Trade turret users.</p>

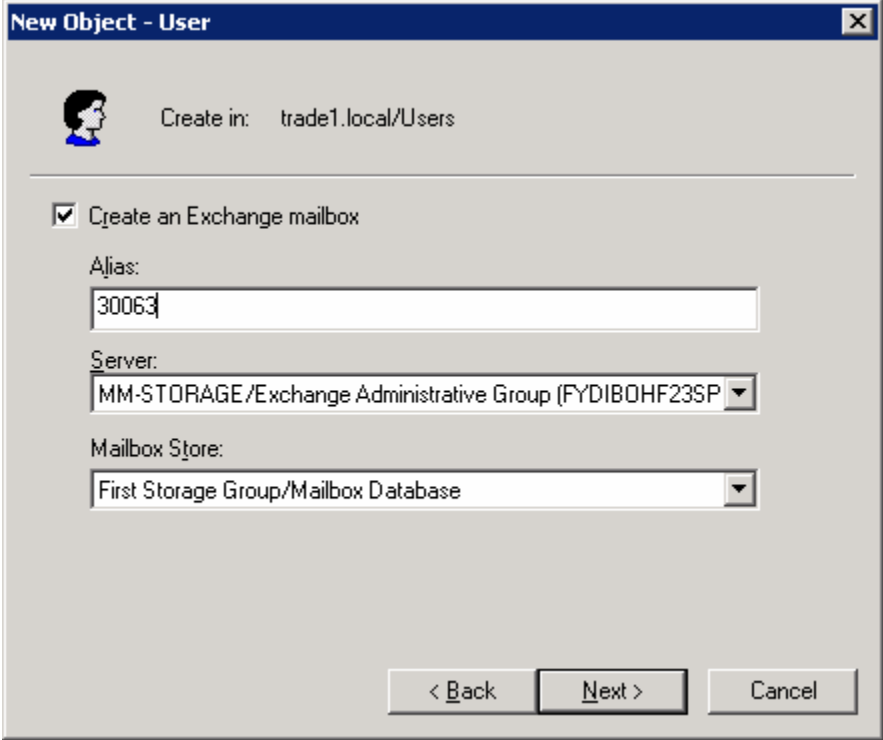
Step	Description																																																																																
8.	<p>To verify that the mailboxes have been created, select the Manage button to the right of the Local Subscribers entry in the table of the Manage Subscribers screen. In the Manage Local Subscribers screen that is presented (see below), verify that the mailboxes created appear in the list of subscribers.</p> <div><div><div><div>AVAYA</div><div>Modular Messaging Messaging Administration</div><div>This server: 5.1.1.25</div></div><div><div>Help Log Off</div><div>Messaging Administration<ul style="list-style-type: none">Subscriber ManagementActivity Log ConfigurationMessaging AttributesClasses-of-ServiceEnhanced-ListsSending RestrictionsSystem AdministrationRequest Remote UpdateNetworked MachinesTrusted Servers</div><div>Server Administration<ul style="list-style-type: none">TCP/IP Network ConfigurationExternal HostsMAS Host SetupMAS Host SendWindows Domain SetupConsole Reboot OptionDate/Time/NTP ServerSyslog ServerModem/Terminal DisplayModem/Terminal ConfigurationModem/Terminal RemovalDefault Router Ping</div><div>IMAP/SMTP Administration<ul style="list-style-type: none">SMTP OptionsMail OptionsIMAP/SMTP Status</div><div>Server Information<ul style="list-style-type: none">Server StatusAlarm SummaryDisk InformationServer NotesCMOS SettingsRAID StatusRebuild RAID StatusReboot Interval</div><div>Utilities<ul style="list-style-type: none">CD/DVD MountCD/DVD UnmountCD/DVD Eject</div></div></div><div><div>Manage Local Subscribers</div><div><div>Subscriber Licenses Used: 35 of 5000</div><div>Total Subscribers: 37</div><div>System Mailboxes: 2</div><div>Filtered Subscribers: 37</div></div><div><table><tr><th>Subscriber Name</th><th>Mailbox Number</th><th>Numeric Address</th><th>COS</th><th>CID</th></tr><tr><td>1608, Station</td><td>3334500</td><td>3334500</td><td>0</td><td>1</td></tr><tr><td>1616, Station</td><td>4322050</td><td>4322050</td><td>0</td><td>1</td></tr><tr><td>32000, Station</td><td>3332000</td><td>3332000</td><td>0</td><td>1</td></tr><tr><td>38101, Station</td><td>3338101</td><td>3338101</td><td>0</td><td>1</td></tr><tr><td>38201, Trade</td><td>3338201</td><td>3338201</td><td>0</td><td>1</td></tr><tr><td>4003, 432</td><td>4324003</td><td>4324003</td><td>0</td><td>1</td></tr><tr><td>APAC, 25150</td><td>3325150</td><td>3325150</td><td>0</td><td>1</td></tr><tr><td>APAC, 32151</td><td>3332151</td><td>3332151</td><td>0</td><td>1</td></tr><tr><td>Bellas, Dino</td><td>4320001</td><td>4320001</td><td>0</td><td>1</td></tr><tr><td>DCP, MAIN</td><td>3330020</td><td>3330020</td><td>0</td><td>1</td></tr><tr><td>EMEA, 31011</td><td>3331011</td><td>3331011</td><td>0</td><td>1</td></tr><tr><td>EMEA, 56015</td><td>3356015</td><td>3356015</td><td>0</td><td>1</td></tr><tr><td>EMU, CC&B</td><td>4323500</td><td>4323500</td><td>0</td><td>1</td></tr><tr><td>EMU, TRADE</td><td>3335555</td><td>3335555</td><td>0</td><td>1</td></tr><tr><td>FUNDS, BOB</td><td>3330063</td><td>3330063</td><td>0</td><td>1</td></tr></table><div><div>Sort and Filter Subscribers</div><div>Launch Subscriber Options</div><div>Display Report of Subscribers</div><div>Delete the Selected Subscriber</div><div>Add a New Subscriber</div><div>Edit the Selected Subscriber</div><div>Back</div><div>Help</div></div></div></div></div>	Subscriber Name	Mailbox Number	Numeric Address	COS	CID	1608, Station	3334500	3334500	0	1	1616, Station	4322050	4322050	0	1	32000, Station	3332000	3332000	0	1	38101, Station	3338101	3338101	0	1	38201, Trade	3338201	3338201	0	1	4003, 432	4324003	4324003	0	1	APAC, 25150	3325150	3325150	0	1	APAC, 32151	3332151	3332151	0	1	Bellas, Dino	4320001	4320001	0	1	DCP, MAIN	3330020	3330020	0	1	EMEA, 31011	3331011	3331011	0	1	EMEA, 56015	3356015	3356015	0	1	EMU, CC&B	4323500	4323500	0	1	EMU, TRADE	3335555	3335555	0	1	FUNDS, BOB	3330063	3330063	0	1
Subscriber Name	Mailbox Number	Numeric Address	COS	CID																																																																													
1608, Station	3334500	3334500	0	1																																																																													
1616, Station	4322050	4322050	0	1																																																																													
32000, Station	3332000	3332000	0	1																																																																													
38101, Station	3338101	3338101	0	1																																																																													
38201, Trade	3338201	3338201	0	1																																																																													
4003, 432	4324003	4324003	0	1																																																																													
APAC, 25150	3325150	3325150	0	1																																																																													
APAC, 32151	3332151	3332151	0	1																																																																													
Bellas, Dino	4320001	4320001	0	1																																																																													
DCP, MAIN	3330020	3330020	0	1																																																																													
EMEA, 31011	3331011	3331011	0	1																																																																													
EMEA, 56015	3356015	3356015	0	1																																																																													
EMU, CC&B	4323500	4323500	0	1																																																																													
EMU, TRADE	3335555	3335555	0	1																																																																													
FUNDS, BOB	3330063	3330063	0	1																																																																													

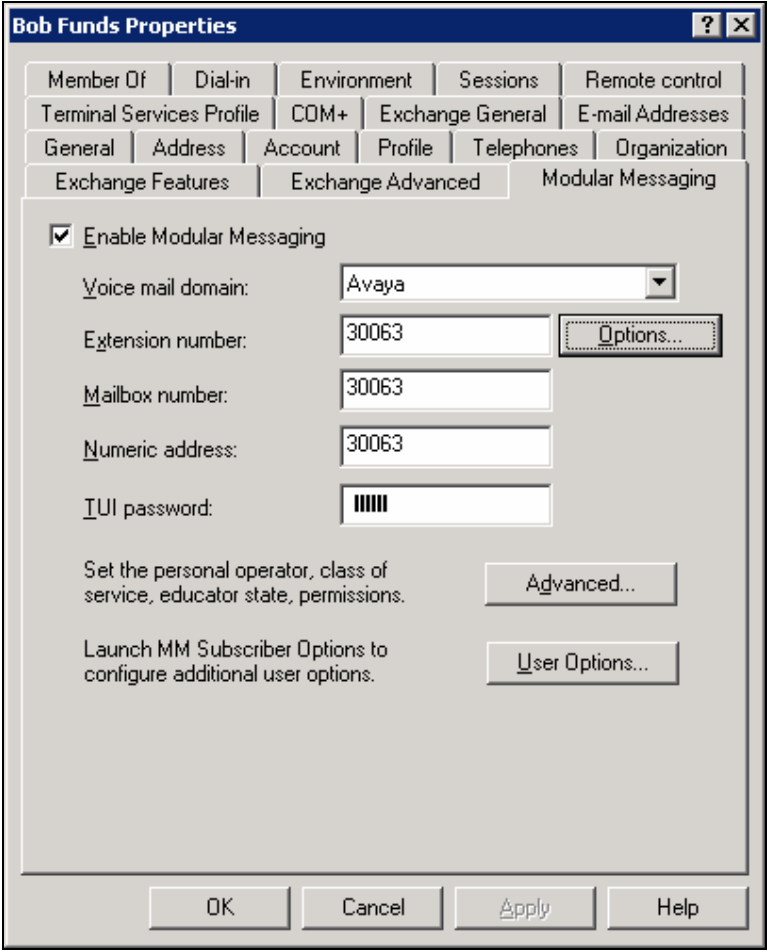
6.2. Messaging Application Server with Microsoft Exchange

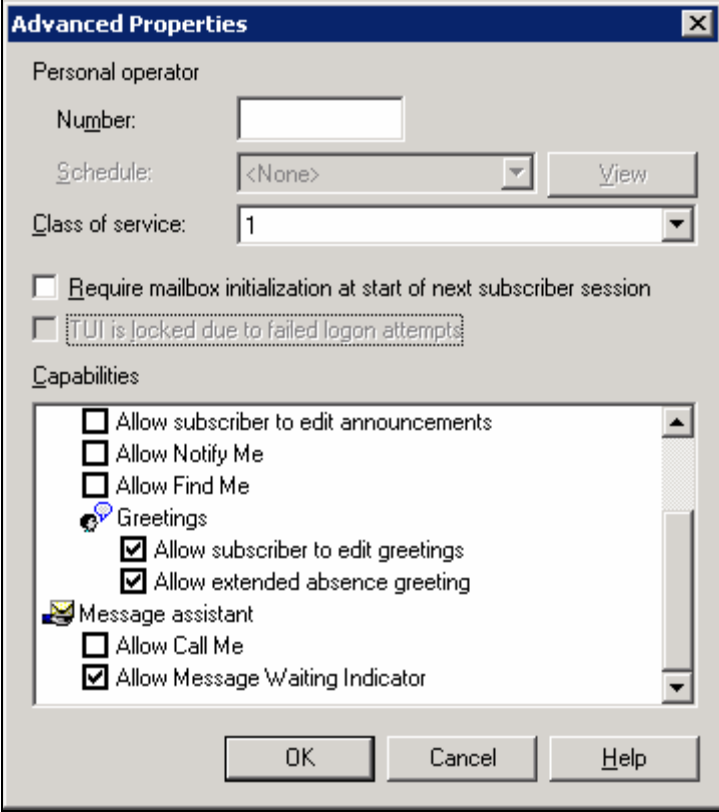
Step	Description																																																																								
1.	<p>Using the appropriate credentials, log into the server running Microsoft Exchange. Select Start → Programs → Microsoft Exchange → Active Directory Users and Computers. In the right pane of the window that is presented, right-click and select New → User.</p>  <p>The screenshot shows the 'Active Directory Users and Computers' window. The left pane shows the tree structure with 'trade1.local' expanded, and 'Users' selected under 'Microsoft Exchange Security'. The right pane shows a list of 46 objects in the 'Users' container. The list has columns for Name, Type, and Description. The objects include built-in accounts like IUSR_MM-STORAGE, IWAM_MM-STORAGE, and various user accounts like Joe Anyone, Joe Dealing, Juniper VPN, and support accounts like SUPPORT_388945a0.</p> <table><tr><th>Name</th><th>Type</th><th>Description</th></tr><tr><td>IUSR_MM-STORAGE</td><td>User</td><td>Built-in account for anony...</td></tr><tr><td>IUSR_MM2007-STORAGE</td><td>User</td><td>Built-in account for anony...</td></tr><tr><td>IWAM_MM-STORAGE</td><td>User</td><td>Built-in account for Intern...</td></tr><tr><td>IWAM_MM2007-STORAGE</td><td>User</td><td>Built-in account for Intern...</td></tr><tr><td>Joe Anyone</td><td>User</td><td></td></tr><tr><td>Joe Dealing</td><td>User</td><td></td></tr><tr><td>Juniper VPN</td><td>User</td><td></td></tr><tr><td>MM Service Permissions</td><td>Security Group ...</td><td></td></tr><tr><td>RAS and IAS Servers</td><td>Security Group ...</td><td>Servers in this group can ...</td></tr><tr><td>Samy Stocks</td><td>User</td><td></td></tr><tr><td>Schema Admins</td><td>Security Group ...</td><td>Designated administrators...</td></tr><tr><td>Sean Haverly</td><td>User</td><td></td></tr><tr><td>SIP VISITING USER</td><td>User</td><td></td></tr><tr><td>steve test1</td><td>User</td><td></td></tr><tr><td>Support Account</td><td>User</td><td></td></tr><tr><td>SUPPORT_388945a0</td><td>User</td><td>This is a vendor's account ...</td></tr><tr><td>TelnetClients</td><td>Security Group ...</td><td>Members of this group ha...</td></tr><tr><td>test sub</td><td>User</td><td></td></tr><tr><td>Tommy Trader1</td><td>User</td><td></td></tr><tr><td>Trade 38201</td><td>User</td><td></td></tr><tr><td>Trade 38202</td><td>User</td><td></td></tr><tr><td>Trade Main</td><td>User</td><td></td></tr><tr><td>ucc</td><td>User</td><td></td></tr></table>	Name	Type	Description	IUSR_MM-STORAGE	User	Built-in account for anony...	IUSR_MM2007-STORAGE	User	Built-in account for anony...	IWAM_MM-STORAGE	User	Built-in account for Intern...	IWAM_MM2007-STORAGE	User	Built-in account for Intern...	Joe Anyone	User		Joe Dealing	User		Juniper VPN	User		MM Service Permissions	Security Group ...		RAS and IAS Servers	Security Group ...	Servers in this group can ...	Samy Stocks	User		Schema Admins	Security Group ...	Designated administrators...	Sean Haverly	User		SIP VISITING USER	User		steve test1	User		Support Account	User		SUPPORT_388945a0	User	This is a vendor's account ...	TelnetClients	Security Group ...	Members of this group ha...	test sub	User		Tommy Trader1	User		Trade 38201	User		Trade 38202	User		Trade Main	User		ucc	User	
Name	Type	Description																																																																							
IUSR_MM-STORAGE	User	Built-in account for anony...																																																																							
IUSR_MM2007-STORAGE	User	Built-in account for anony...																																																																							
IWAM_MM-STORAGE	User	Built-in account for Intern...																																																																							
IWAM_MM2007-STORAGE	User	Built-in account for Intern...																																																																							
Joe Anyone	User																																																																								
Joe Dealing	User																																																																								
Juniper VPN	User																																																																								
MM Service Permissions	Security Group ...																																																																								
RAS and IAS Servers	Security Group ...	Servers in this group can ...																																																																							
Samy Stocks	User																																																																								
Schema Admins	Security Group ...	Designated administrators...																																																																							
Sean Haverly	User																																																																								
SIP VISITING USER	User																																																																								
steve test1	User																																																																								
Support Account	User																																																																								
SUPPORT_388945a0	User	This is a vendor's account ...																																																																							
TelnetClients	Security Group ...	Members of this group ha...																																																																							
test sub	User																																																																								
Tommy Trader1	User																																																																								
Trade 38201	User																																																																								
Trade 38202	User																																																																								
Trade Main	User																																																																								
ucc	User																																																																								

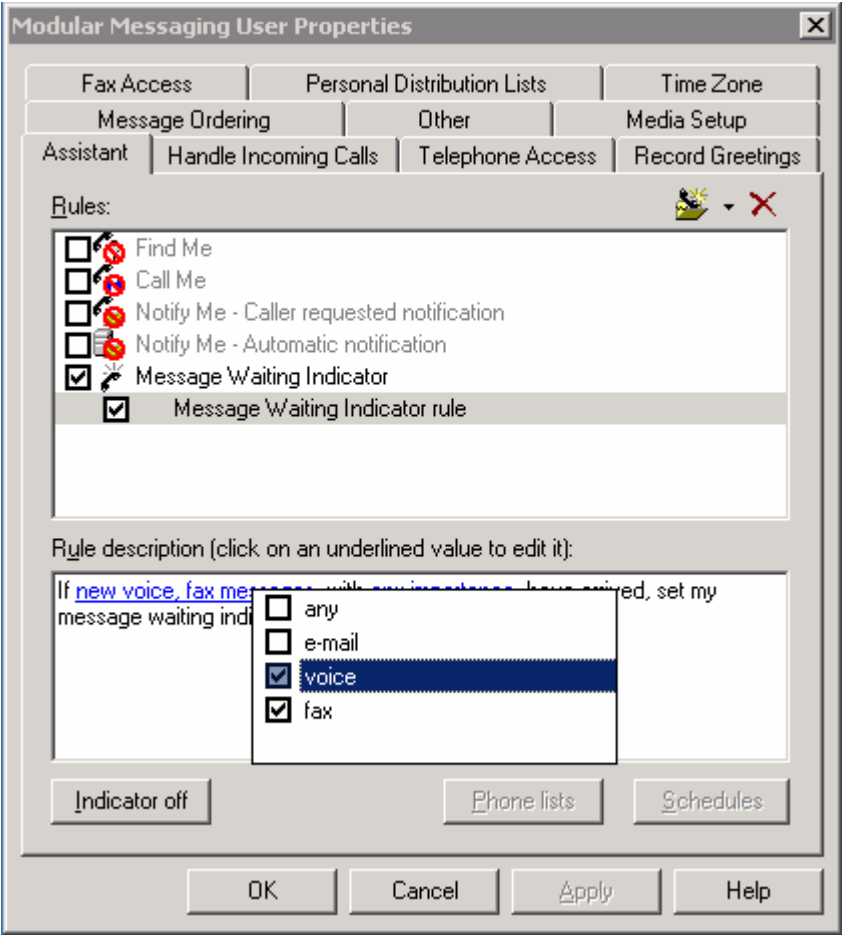
Step	Description
2.	<p>In the New Object – User dialog box that is presented (see below), enter appropriate strings for First name and Last name (the Full name field will be populated automatically) as well as a User logon name (this is required by Active Directory, although it is not used by Avaya MM). Click Next.</p> 

Step	Description
3.	<p>In the subsequent dialog box (see below), enter a valid password in the Password and Confirm password fields, make sure the Password never expires check box is the only check box selected (this will minimize the need to maintain the Windows-level credentials for this user, since it is assumed to be used only as an Avaya MM subscriber), and select Next.</p> 

Step	Description
4.	<p>In the subsequent dialog box (see below), retain all of the default values and click Next. At the confirmation dialog box that follows (not shown), click Finish.</p> 

Step	Description
5.	<p>Double-click on the newly created user in the Active Directory Users and Computers window. In the Properties dialog box that is presented, select the Modular Messaging tab (see below) and enter values as follows:</p> <ul style="list-style-type: none"> ▪ Enable Modular Messaging: Check this box. ▪ Voice mail domain: Select Avaya from the drop-down menu. ▪ Extension number: Enter the extension of the IP Trade turret that will use this mailbox. In this example, 30063 was used. ▪ Mailbox number: Enter a unique mailbox number to be use for logging in and addressing messages to this subscriber. In this example, 30063 was used. ▪ Numeric address: Enter a unique address in the voice mail network. It can contain the Mailbox Number, but this is not required. In this example, 30063 was used. ▪ TUI password: Enter a valid password for accessing this mailbox. <p>The completed form appears as follows. Click Advanced to access additional parameters.</p> 

Step	Description
6.	<p>In the Advanced Properties dialog box (see below), scroll to the Message assistant section and check the Allow Message Waiting Indicator box. Click OK.</p>  <p>The screenshot shows the 'Advanced Properties' dialog box. It has a title bar with a close button. The 'Personal operator' section contains three fields: 'Number' (text box), 'Schedule' (dropdown menu showing '<None>' with a 'View' button), and 'Class of service' (dropdown menu showing '1'). Below these are two checkboxes: 'Require mailbox initialization at start of next subscriber session' (unchecked) and 'TUI is locked due to failed logon attempts' (disabled). The 'Capabilities' section is a scrollable list containing several items: 'Allow subscriber to edit announcements' (unchecked), 'Allow Notify Me' (unchecked), 'Allow Find Me' (unchecked), 'Greetings' (grouped with a speech bubble icon), 'Allow subscriber to edit greetings' (checked), 'Allow extended absence greeting' (checked), 'Message assistant' (grouped with an envelope icon), 'Allow Call Me' (unchecked), and 'Allow Message Waiting Indicator' (checked). At the bottom are 'OK', 'Cancel', and 'Help' buttons.</p>

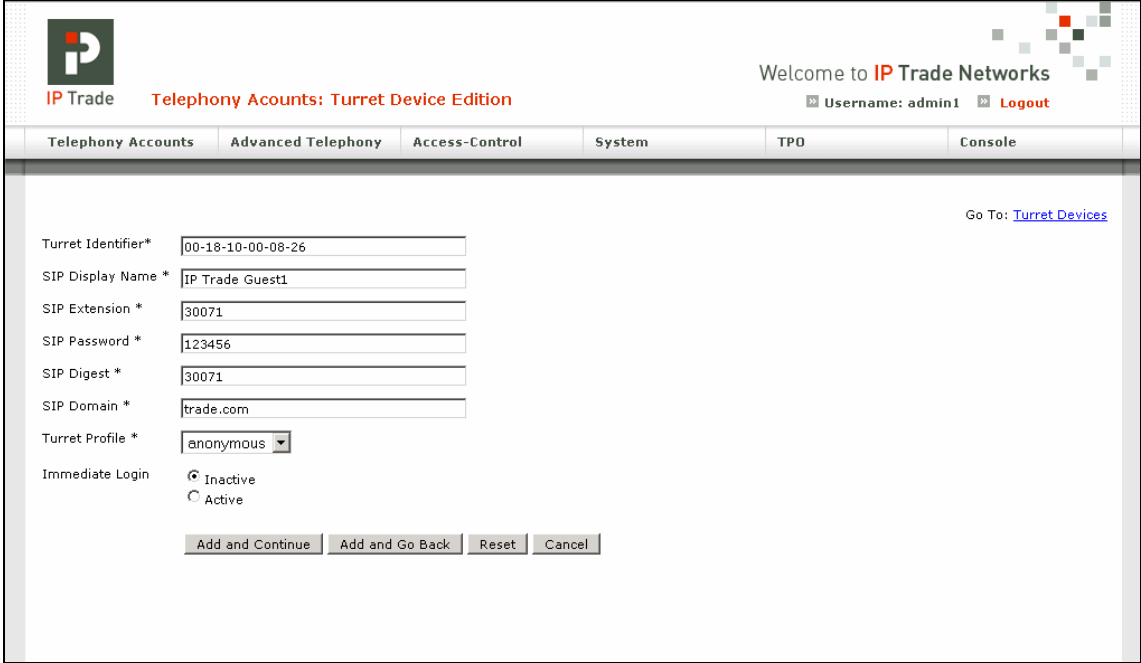
Step	Description
7.	<p>The Properties dialog box is active once again (not shown). Click User Options; the Modular Messaging User Properties dialog box appears (see below). Select the Assistant tab and, in the Rules pane, check the Message Waiting Indicator rule box. In the Rule description pane, click on the hyperlinks displayed and select from the available criteria (in this example, the subscriber's Message Waiting Indicator will be activated for all new voice and fax messages received). Click OK.</p> <p>Control will return to the Properties dialog box (not shown). Click OK to complete the administration of the subscriber's mailbox.</p> 
8.	Repeat Steps 1-7 to add additional mailboxes to support the remaining IP Trade turret users.

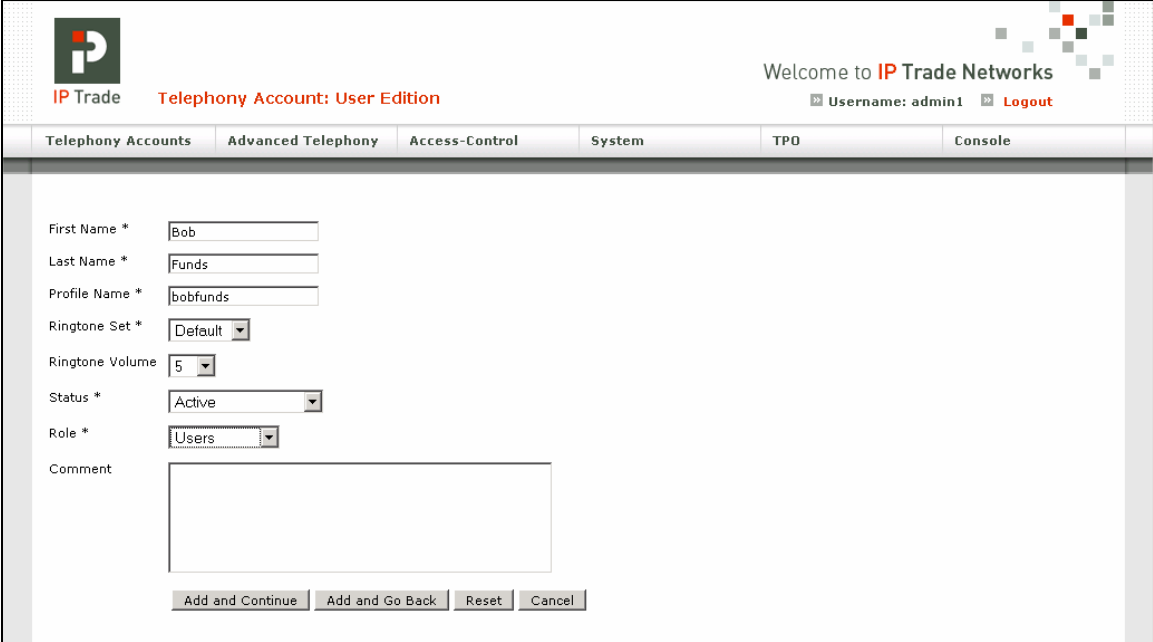
7. Configure IP Trade System

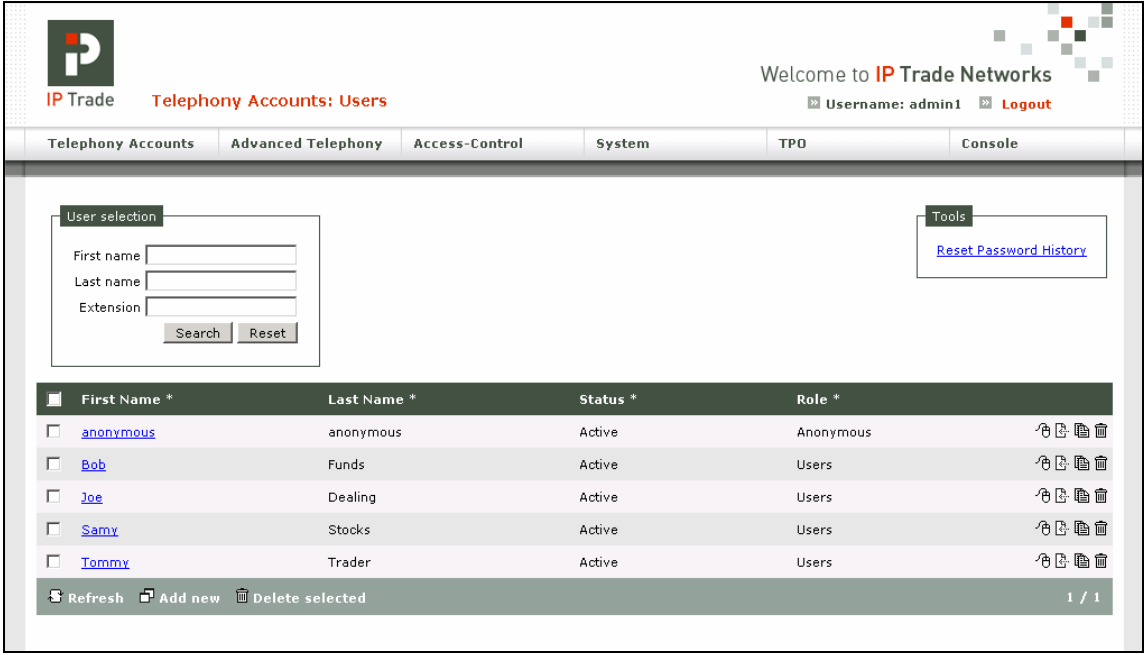
This section addresses the administrative steps to be performed on the IP Trade solution. The installation of the IP Trade solution software, as well as the initial configuration of the turrets and servers, is beyond the scope of this document. Please see [7], [8] and [9] for the details of these procedures.

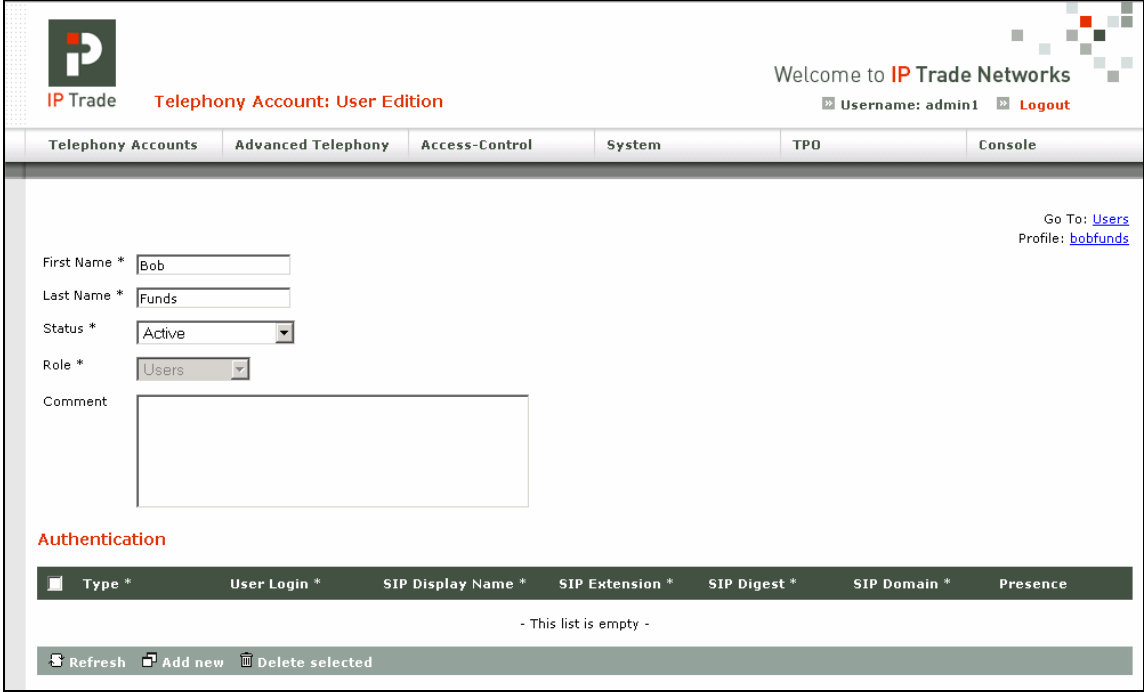
7.1. Configure IP Trade Turret Support Server

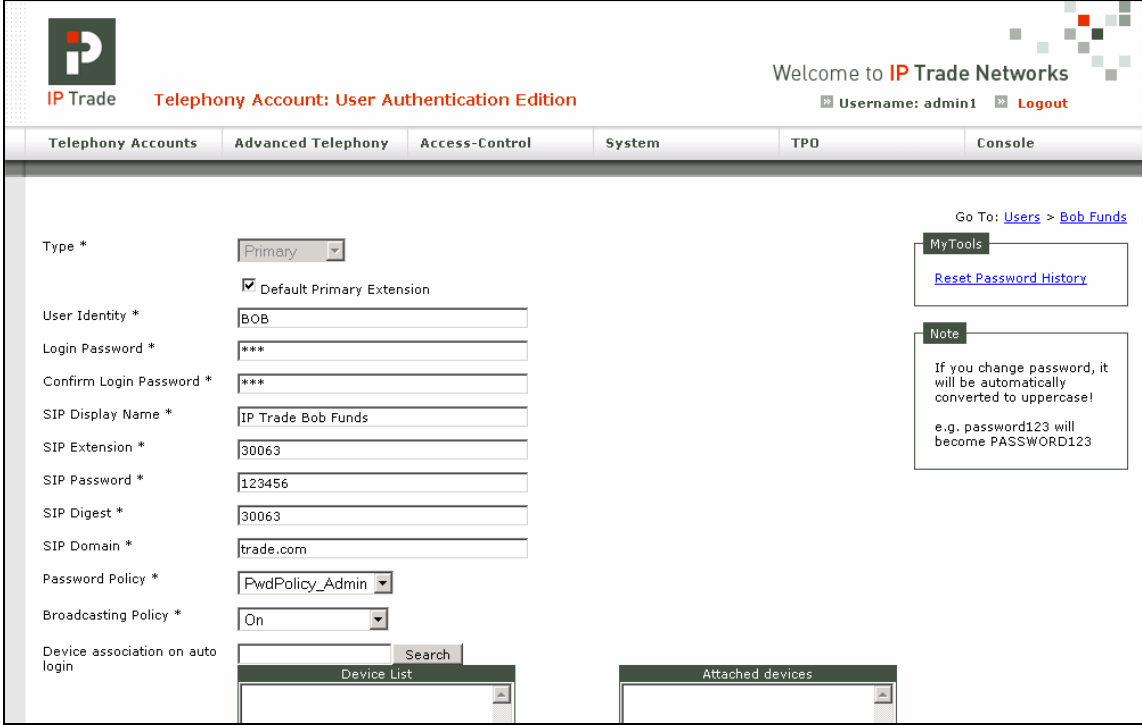
This section describes the procedure for configuring the IP Trade TSS. This procedure assumes that the TSS has already been configured with an anonymous profile and that a TFTP server (typically co-resident with the TSS) is being used for downloading certain configuration parameters to the turrets.

Step	Description
1.	<p data-bbox="298 285 1429 394">From a Web browser, navigate to <a href="http://<ip-addr>/iptradenet.console">http://<ip-addr>/iptradenet.console (where <ip-addr> is the IP address of the TSS). After logging in with an appropriate set of credentials, the main page appears (not shown).</p> <p data-bbox="298 432 1422 579">Turret devices can be added to provide default user settings in the event that a user logs into the turret as a guest. To add a turret device, select Telephony Accounts → Turret Devices and click Add new. In the Telephony Accounts: Turret Device Edition screen that is presented (see below), enter values as follows:</p> <ul data-bbox="347 617 1406 1033" style="list-style-type: none"> • Turret Identifier: Enter the MAC address of the turret device. • SIP Display Name: Enter a descriptive name. • SIP Extension: Enter the extension of a SIP endpoint that will be used for a guest login (in this example, 30071). • SIP Password: Enter the password to be used in order for the above SIP Extension to register with Avaya SES. • SIP Digest: Enter the same value entered in the SIP Extension field. • SIP Domain: This must match the Authoritative Domain field configured on the IP Network Region form in Avaya Communication Manager shown in Section 4, Step 2 (in this example, trade.com). • Turret Profile: Select anonymous from the drop-down menu. <p data-bbox="298 1071 1315 1142">Retain all other default values. To add additional turret devices, click Add and Continue. When finished adding turret devices, click Add and Go Back.</p> <div data-bbox="298 1180 1432 1839">  <p>The screenshot displays the 'Telephony Accounts: Turret Device Edition' page in the IP Trade Networks console. The header includes the IP Trade logo and navigation tabs: 'Telephony Accounts', 'Advanced Telephony', 'Access-Control', 'System', 'TPD', and 'Console'. The main content area contains a form with the following fields and values:</p> <ul style="list-style-type: none"> Turret Identifier*: 00-18-10-00-08-26 SIP Display Name *: IP Trade Guest1 SIP Extension *: 30071 SIP Password *: 123456 SIP Digest *: 30071 SIP Domain *: trade.com Turret Profile *: anonymous (selected from a dropdown) Immediate Login: Inactive (selected radio button) <p>At the bottom of the form are four buttons: 'Add and Continue', 'Add and Go Back', 'Reset', and 'Cancel'. A link 'Go To: Turret Devices' is visible in the top right corner of the form area.</p> </div>


Step	Description
2.	<p>To add a new user, select Telephony Accounts → Users and click Add new. In the Telephony Account: User Edition screen that is presented (see below), enter values as follows:</p> <ul style="list-style-type: none"> • First Name, Last Name: Enter the values that are consistent with those entered for the related station in Section 4, the SIP user in Section 5, and the mailbox in Section 6.1 or Section 6.2. • Profile Name: Enter a descriptive name for the profile to be created for this user (in this example, bobfunds). • Role: Select Users from the drop-down menu. <p>Retain all other default values. To add additional users, click Add and Continue. When finished adding users, click Add and Go Back.</p> 

Step	Description
3.	<p>At the Telephony Accounts: Users screen (see below), click on the First Name of a newly created user.</p> <div></div>

Step	Description
4.	<p>The Telephony Account: User Edition screen for the selected user appears. Under the Authentication section, select Add new.</p> 

Step	Description
5.	<p>The Telephony Account: User Authentication Edition screen appears. Enter values as follows:</p> <ul style="list-style-type: none"> • User Identity: Enter a unique string (in this example, BOB). • Login Password, Confirm Login Password: Enter an appropriate password. • SIP Display Name: Enter the display name of the user (in this example, IP Trade Bob Funds). • SIP Extension: Enter the extension number assigned to this user (in this example, 30063). This must match the Primary Handle field administered in Section 5, Step 3. • SIP Password: This must match the Password field administered in Section 5, Step 3. • SIP Digest: Enter the value of the SIP Extension field. • SIP Domain: This must match the Authoritative Domain field configured on the IP Network Region form in Avaya Communication Manager shown in Section 4, Step 2 (in this example, trade.com). <p>Retain all other default values. When finished, scroll down and click Add and Go Back (not shown).</p> 
6.	Repeat Steps 3-5 as necessary to add additional user profiles.

Step	Description
7.	<p>To administer Voice mail settings specific to a given user, select Telephony Accounts → Profiles (not shown) and select the profile of the user to be modified. At the Telephony Accounts: Profile Edition screen that follows (not shown), select the User Settings tab on the left. The Settings screen for the selected profile is presented, as shown below. Enter values as follows:</p> <ul style="list-style-type: none">• Voice mail URI: Enter the extension of the hunt group used by the coverage path of the station specified in Section 4, Step 7 (in this example, 31111).• Voice mail flash count: Enter the number of times that the user’s Voice mail button will flash when a new message is delivered to the user’s mailbox. <p>Retain all other default values.</p>



IP Trade

Telephony Accounts: Profile Edition

Welcome to IP Trade Networks

Username: admin1 Logout

Telephony Accounts

Advanced Telephony

Access-Control

System

TPO

Console

Personal

Advanced Telephony

Settings

Contacts

Shortcuts

Call Logs

Settings

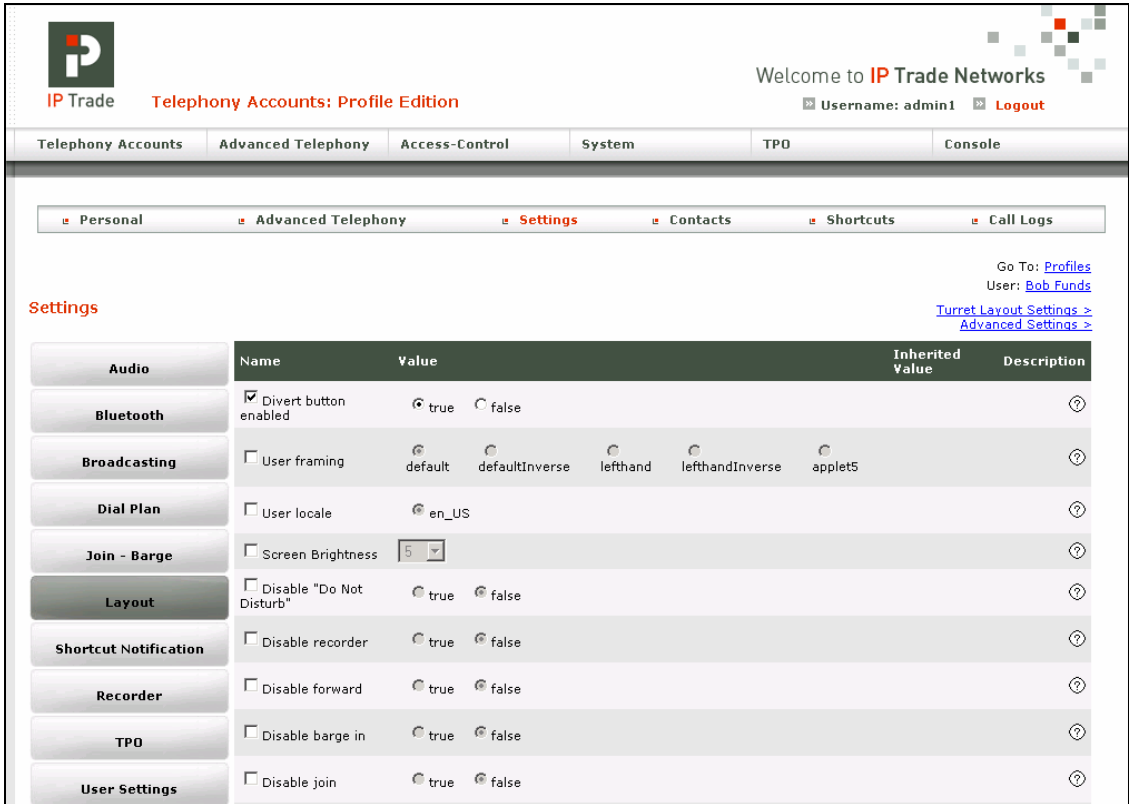
Go To: Profiles

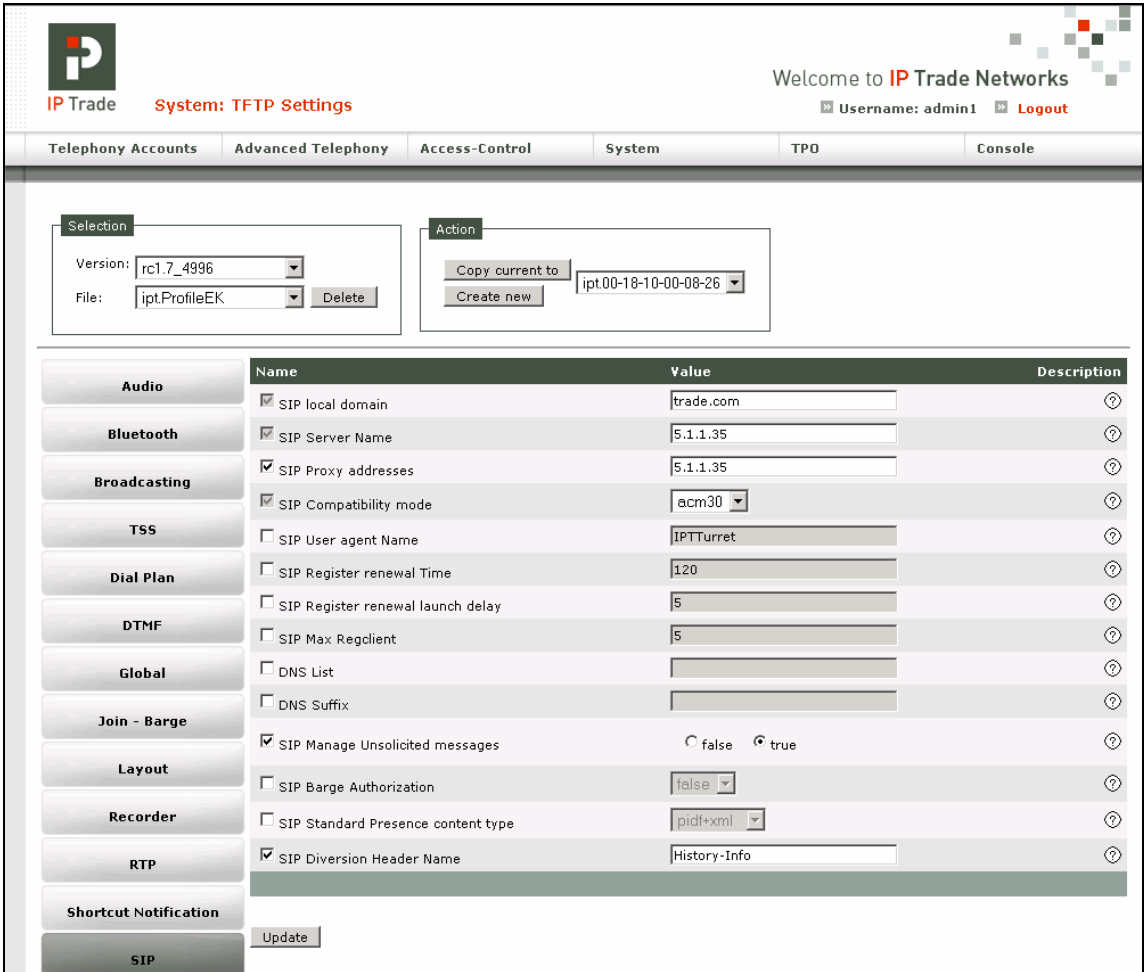
User: Bob Funds

Turret Layout Settings >

Advanced Settings >

	Name	Value	Inherited Value	Description
Audio	<input checked="" type="checkbox"/> Voice mail URI	31111		
Bluetooth	<input checked="" type="checkbox"/> Voice mail flash count	3		
Broadcasting	<input type="checkbox"/> VAD fading frequency	1		
	<input type="checkbox"/> VAD fading steps	1		
Dial Plan	<input type="checkbox"/> New button selects handset	<input checked="" type="radio"/> true <input type="radio"/> false		
Join - Barge	<input type="checkbox"/> New call on transfer	<input checked="" type="radio"/> true <input type="radio"/> false		
Layout	<input type="checkbox"/> Use info from shortcut-pages	<input checked="" type="radio"/> always <input type="radio"/> sharedonly <input type="radio"/> never		
Shortcut Notification	<input type="checkbox"/> Intercom: get IP from TSS	<input checked="" type="radio"/> true <input type="radio"/> false		
Recorder	<input type="checkbox"/> Hard push to talk switch handset	<input checked="" type="radio"/> true <input type="radio"/> false		
TPO	<input type="checkbox"/> Hidden number display	Anonymous		
User Settings	<input type="checkbox"/> Monitor mic push to talk behavior	<input checked="" type="radio"/> true <input type="radio"/> false		

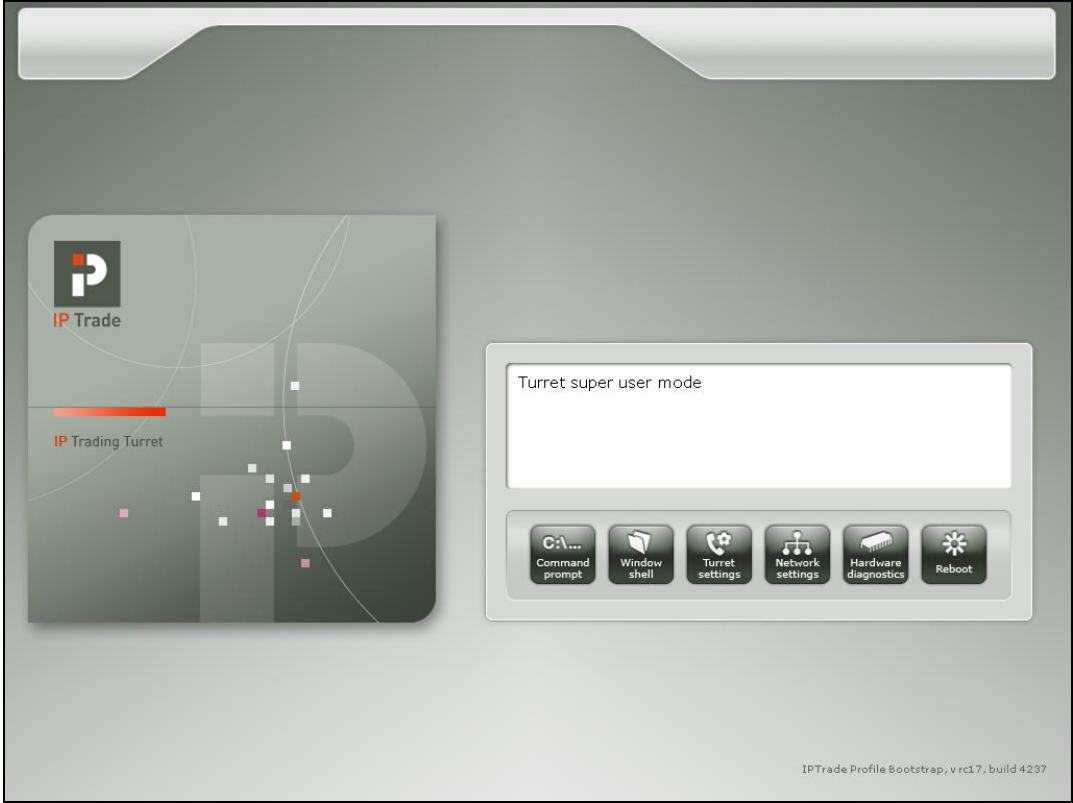
Step	Description
8.	<p>Select the Layout tab on the left. Check the Divert button enabled box and select the associated true radio button. (This will enable the user’s Voice mail button to be used to dial the Avaya MM hunt group extension automatically.)</p> <p>Retain all other default values. When finished, scroll down to the bottom of the screen and click Update (not shown).</p> <div></div>
9.	Repeat Steps 7-8 as necessary to add Voice mail settings to the remaining user profiles.

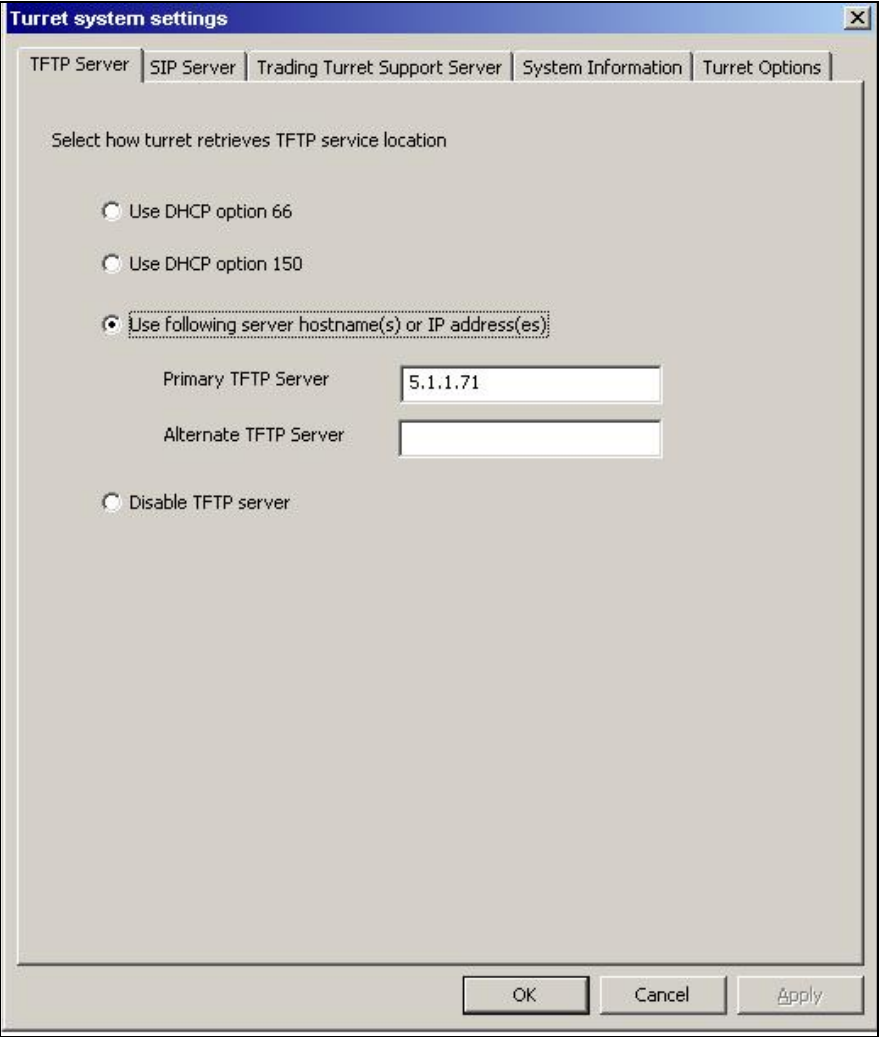
Step	Description
10.	<p>Select System → TFTP Settings. In the Selection section, select the appropriate Version of turret firmware in use and the configuration File corresponding to the given turret type. Select the SIP tab on the left.</p> <ul style="list-style-type: none"> To allow the associated turret to register with Avaya SES, check the SIP Proxy addresses field and enter the IP address of the Avaya SES Home server (in this example, 5.1.1.35). (Note in the screen below that the check boxes for SIP local domain, SIP Server Name and SIP Compatibility mode are checked and disabled, indicating that these values were set elsewhere within the IP Trade system (see Section 7.3, Step 1).) To enable Message Waiting Indication (MWI) check the box labeled SIP Manage Unsolicited messages and select the true radio button. <p>When finished, scroll down to the bottom of the screen and click Update.</p> 

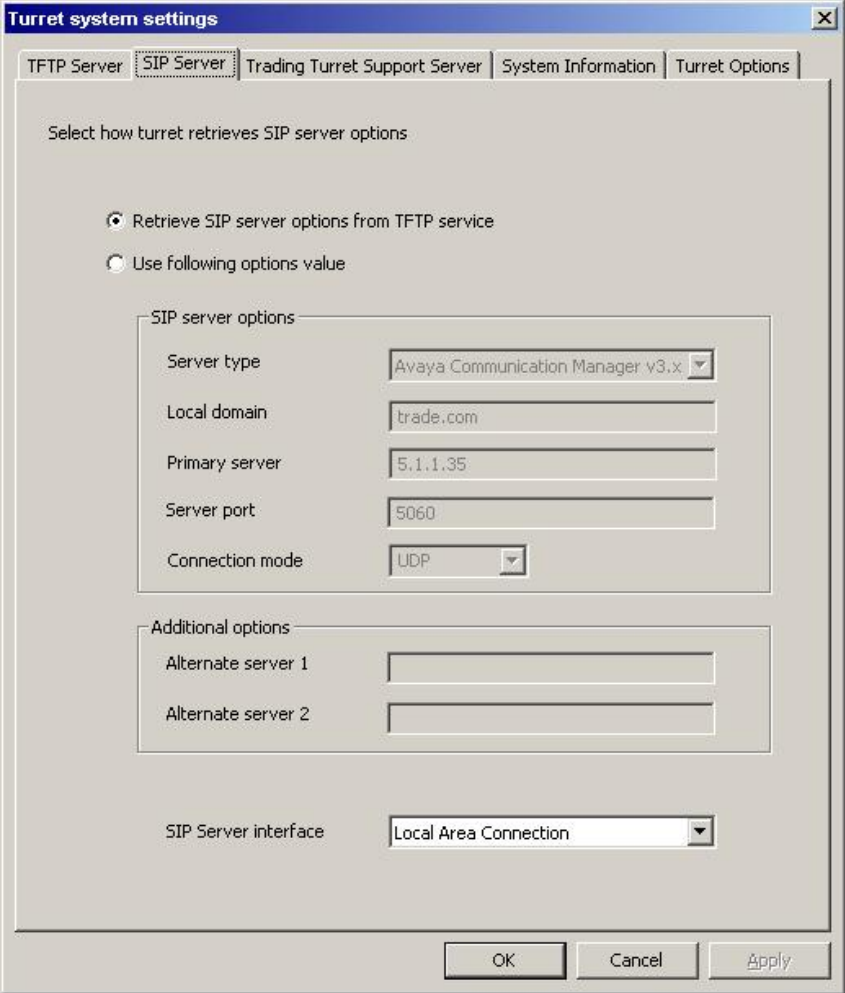
7.2. Configure the IP Trade Turret

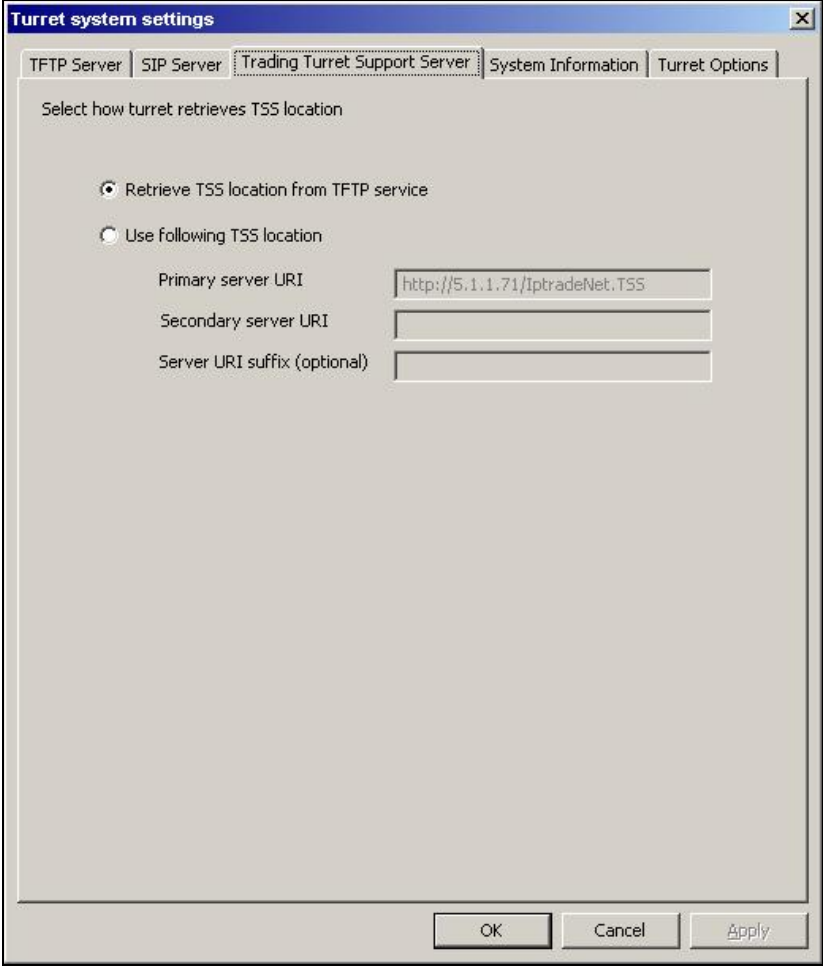
This section describes the procedure for configuring the IP Trade turret. When the turret is in Turret super user mode, it can be accessed for the purpose of administering turret system options. The commands listed in the following sections were issued at the IP Trade turret GUI interface.

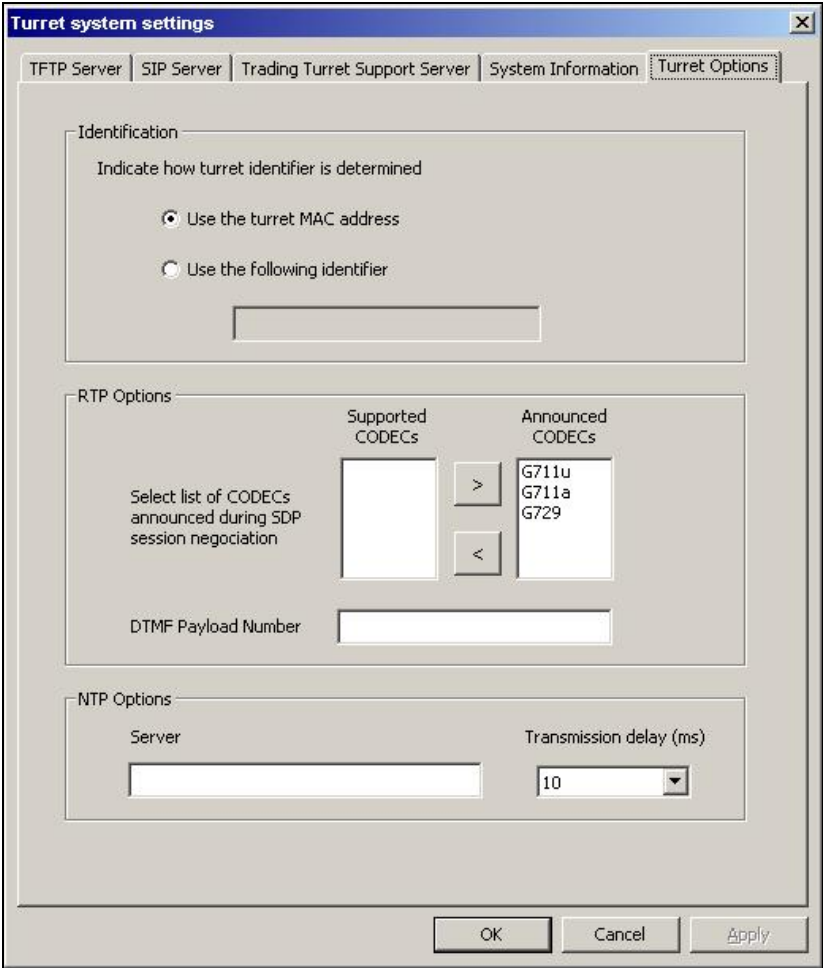
NOTE: The steps in this section assume the presence of a TFTP server (typically co-resident with the TSS) for downloading certain configuration parameters to the turrets. As can be seen in the accompanying figures, these parameters can also be set statically using the same screen navigation.

Step	Description
1.	<p>To administer IP Trade turret, make sure that the turret is logged out. Connect a keyboard to the turret. Enter ALT-F4 from the keyboard to dismiss the application windows at the turret. For the last window, hold down the F2 key while dismissing the window via the touch screen. The Turret super user mode screen appears (see below). Select Turret settings.</p> 

Step	Description
2.	<p>Select the TFTP Server tab. Select Use the following server hostname(s) or IP address(es), and enter in the Primary TFTP Server field the IP address of the TFTP server (in the reference configuration, the TFTP server resides on the TSS platform, 5.1.1.71).</p>  <p>The screenshot shows a window titled "Turret system settings" with a close button (X) in the top right corner. It has five tabs: "TFTP Server", "SIP Server", "Trading Turret Support Server", "System Information", and "Turret Options". The "TFTP Server" tab is active. Inside the tab, the text "Select how turret retrieves TFTP service location" is displayed. There are four radio button options: "Use DHCP option 66", "Use DHCP option 150", "Use following server hostname(s) or IP address(es)", and "Disable TFTP server". The third option is selected. Below this, there are two text input fields. The first is labeled "Primary TFTP Server" and contains the text "5.1.1.71". The second is labeled "Alternate TFTP Server" and is empty. At the bottom right of the dialog are three buttons: "OK", "Cancel", and "Apply".</p>

Step	Description
3.	<p>Select the SIP Server tab and click Retrieve SIP server options from TFTP service. For SIP Server interface, select Local Area Connection from the drop-down menu.</p>  <p>The screenshot shows the 'Turret system settings' dialog box with the 'SIP Server' tab selected. The 'Select how turret retrieves SIP server options' section has two radio buttons: 'Retrieve SIP server options from TFTP service' (selected) and 'Use following options value'. Below this is the 'SIP server options' section with the following fields: 'Server type' (Avaya Communication Manager v3.x), 'Local domain' (trade.com), 'Primary server' (5.1.1.35), 'Server port' (5060), and 'Connection mode' (UDP). The 'Additional options' section has two empty text boxes for 'Alternate server 1' and 'Alternate server 2'. At the bottom, the 'SIP Server interface' dropdown is set to 'Local Area Connection'. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom right.</p>

Step	Description
4.	<p>Select the Trading Turret Support Server tab and click Retrieve TSS location from TFTP service.</p> 

Step	Description
5.	<p>Click the Turret Options tab, and then click Use the turret MAC address. To specify the audio codecs to be used, select the IP codecs G711u, G711a, and G729 from the Supported CODECs column and move them to the Announced CODECs column. Click OK.</p> 
6.	When finished with Steps 1-5 , reboot the turret device.
7.	Repeat Steps 1-6 for each of the remaining turrets.

7.3. Configure Turret Proxy to Open Line Dealing

The TPO server reads the TPO configuration file to run the TPO service. This configuration file is maintained by the IP Trade solution. The fields modified for this sample configuration are shown in **Step 1**.

Step	Description
1.	<pre> # -----# # # Global configuration # # -----# # here we define places and associated extensionsplace.names = Paris #The dialed number for the remote place, in this example, 97671001. place.Paris.extension = ondemand, 97671001 place.Paris.conferencemode = all #The SIP extension number used as the proxy number, in this example, 30069. place.Paris.localextensions = 30069 place.Paris.30069.localdigest = 30069 place.Paris.30069.localpwd = 123456 . . . # Avaya SIP server Information, etc. application.sip.server.name = 5.1.1.35 application.sip.server.port = 5060 application.sip.server.expire = 30 application.sip.server.registeringbeforeexpire = 7 application.sip.connection.mode = UDP # tcp/tls persistency, 3 possible values: none, transaction,transactionuser application.sip.connection.persistency = none application.sip.connection.port = 5060 . application.sip.server.mediatgateway = 5.1.1.7 # if the proxy.hostname config is set , the ipaddress is not necessary application.sip.proxy.address = 5.1.1.35 application.sip.proxy.transporttype = UDP application.sip.localdomain = trade.com application.sip.gateway.pstn = 5.1.1.35 # The IP addresses of the TPO server application.sip.connection.ipaddress = 5.1.1.91 </pre>

8. Interoperability Compliance Testing

This section describes the interoperability compliance testing executed to verify the interoperability between the IP Trade solution and Avaya SIP Enablement Services, Avaya Communication Manager and Avaya Modular Messaging. This section covers the general test approach and the test results.

The following features and functionality were covered during the interoperability compliance testing. All tests involved various Avaya telephones/endpoints and the IP Trade turrets.

- Calls between IP Trade turrets and Avaya telephones
- Basic Avaya Communication Manager telephone features (e.g., hold, transfer, conference, etc.) as well as more advanced capabilities (e.g., Meet-Me Conference)
- Support of G.711 and G.729 codecs
- Interactions between IP Trade turrets and Avaya MM (e.g., MWI activation/deactivation, DTMF tone transmission, etc.)
- Access to Avaya Communication Manager features using feature name extensions
- Direct IP-to-IP media (also known as “shuffling”) with SIP and H.323 telephones
- IP Trade turret-specific features (Group Call, Intercom, Open Line Dealing, Call Join/Barge-in, Call Intercept Key)

8.1. Test Results

Interoperability testing of the sample configuration was completed successfully, with the exception of the following observations:

1. When requesting a G.729 audio codec for turret calls, either G.729B or G.729AB may be specified in the corresponding IP Codec Sets. In either case, however, G.729B is always used in establishing the call.
2. Since the turret keypads do not include the digit-to-letter mapping found on most standard telephone keypads, many of the key sequences described by Avaya MM’s automated response interface (e.g., *D to delete a message) will not be obvious to the turret user.
3. When IP Trade’s Intercom feature is enabled, the Call Forward-Busy criterion for any turret is met when N-1 call appearances of an N-call-appearance turret are busy (with Restrict Last Appearance set to n in Avaya Communication Manager). For example, this would apply to a turret station that has 10 call appearances and 9 of the call appearances are busy. This problem exists because the one-way RTP stream established from the turret to the TPO server to maintain Intercom connectivity reserves a call appearance.
4. Some other interactions with Avaya Communication Manager features (Conference on Answer, Bridged Call Appearances) are impacted by IP Trade’s Intercom feature. If this feature is disabled in the TPO server, the Avaya Communication Manager features are unaffected.
5. The Call Intercept Key (CIK) could not be used to answer a ringing call at another turret, due to a change in the SIP message sequence provided by Avaya SES.

IP Trade is aware of the above issues, and plans to address them in a future firmware/software release.

9. Verification Steps

The following steps can be used to verify that the configuration steps documented in these Application Notes have been done correctly.

- To verify that IP Trade turrets register with Avaya SES, select **User** → **Search Registered Users** on the Avaya SES Home server's Administration Web Interface.
- Verify that calls can be placed between two IP Trade turrets and can remain connected for at least two minutes.
- Verify IP Trade turrets can place calls to Avaya telephones and that the calls remain connected for two minutes.
- Verify IP Trade turrets can receive calls from Avaya telephones and that the calls remain connected for two minutes.
- Verify that all above calls are properly disconnected when either end disconnects first.
- Using the **list trace tac** command in Avaya Communication Manager, verify that voice calls are using the expected audio codec.
- Verify that calls to an IP Trade turret can be redirected to the appropriate subscriber mailbox in Avaya MM when coverage criteria are met, and that recorded messages result in the turret's MWI button being lit.
- Verify that IP Trade turret users can log into their associated Avaya MM mailbox and retrieve/save/delete messages.

10. Support

Technical support for the IP Trade products can be obtained from IP Trade. See the Support link at www.IPTrade-networks.com for contact information.

11. Conclusion

These Application Notes describe how to configure Avaya SIP Enablement Services, Avaya Communication Manager and Avaya Modular Messaging to support IP Trade's IP-based trading floor solution..

12. Additional References

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

- [1] *SIP Support in Avaya Communication Manager Running on the Avaya S8xxx Servers*, January 2008, Issue 8, Document Number 555-245-206.
- [2] *Modular Messaging Release 3.1 Messaging Application Server Administration Guide for Avaya Modular Messaging with the Avaya MAS and MSS*, February 2007.
- [3] *Modular Messaging Release 3.1 Messaging Application Server Administration Guide for Avaya Modular Messaging with Microsoft Exchange*, February 2007.
- [4] *Feature Description and Implementation For Avaya Communication Manager*, Issue 6, January 2008, Document Number 555-245-205.

[5] *Administrator Guide for Avaya Communication Manager*, Issue 4, January 2008, Document Number 03-300509.

[6] *Installing, Administering, Maintaining, and Troubleshooting SIP Enablement Services*, Issue 5, January 2008, Document Number 03-600768.

The following IP Trade product documentation is available from IP Trade. Visit <http://www.IPTrade-networks.com> for company and product information.

[7] *IP Phone for Trading Room Applicative Layer - Turret Installation, Release 2.0.*

[8] *IP Phone for Trading Room Applicative Layer - TSS Installation, Release 1.0.*

[9] *IP Phone for Trading Room Applicative Layer – Open Line Dealing (OLD), Release 1.0.*

©2008 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 DevConnect Program at devconnect@avaya.com.