Avaya Solution & Interoperability Test Lab

Application Notes for Spectralink 84-Series Wireless Telephones and Avaya Aura® Communication Manager and Avaya Aura® Session Manager – Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Spectralink 84-Series Wireless SIP Telephones which were compliance tested with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

The overall objective of the interoperability compliance testing is to verify Spectralink 84-Series Telephones functionalities in an environment comprised of Avaya Aura® Communication Manager, Avaya Aura® Session Manager, various Avaya H.323, SIP IP Telephones, and digital telephones.

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.

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1. Introduction

These Application Notes describe the procedures for configuring Spectralink 84-Series Wireless Telephones which were compliance tested with Avaya Aura® Communication Manager and Avaya Aura® Session Manager using the SIP protocol.

Spectralink 84-Series Wireless Telephones (herein referred to as Spectralink 84-Series) improve productivity and responsiveness for on-site mobile professionals across a wide range of industries, including healthcare, retail, manufacturing and hospitality. Built on open standards, Spectralink 84-Series transforms the delivery of mobile enterprise applications by bringing the power of thin client and browser technology to front-line professionals in an easy-to-use and easy-to-manage interface. Additionally, Spectralink 84-Series supports a broad range of enterprise-grade PBXs, and wireless LANs, to deliver maximum interoperability with low total cost of ownership.

These Application Notes assume that Communication Manager and Session Manager are already installed and basic configuration steps have been performed. Only steps relevant to this compliance test will be described in this document. For further details on configuration steps not covered in this document, consult references [1] and [2].

2. General Test Approach and Test Results

The general test approach was to place calls to and from Spectralink 84-Series and exercise basic telephone operations. The main objectives were to verify the following:

- Registration
- Codecs (G.711MU)
- Inbound calls
- Outbound calls
- Hold/Resume
- Call termination (origination/destination)
- Transfer with Shuffling enabled (origination/destination/ attended/unattended)
- Transfer with Shuffling disabled (origination/destination/ attended/unattended)
- Three party conference (origination/destination)
- Avaya Feature Name Extension (FNE)
    - Call Park
    - Call Pickup
    - Call Forward (Unconditional, Busy/no answer)
- MWI
- Voicemail
- Serviceability

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance

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Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included features and serviceability. The focus of the interoperability compliance testing was primarily on verifying call establishment on Spectralink 84-Series. Spectralink 84-Series operations such as inbound calls, outbound calls, hold/resume, transfer, conference, Feature Name Extension (FNE), and Spectralink 84-Series interactions with Session Manager, Communication Manager, and Avaya SIP, H.323, and digital telephones were verified. The serviceability testing introduced failure scenarios to see if Spectralink 84-Series can recover from failures.

2.2. Test Results

The test objectives were verified. For serviceability testing, Spectralink 84-Series operated properly after recovering from failures such as cable disconnects, and resets of Spectralink 84-Series and Session Manager. Spectralink 84-Series successfully negotiated the codec that was used. The features tested worked as expected.

2.3. Support

Technical support on Spectralink 84-Series can be obtained through the following:

- **Phone:** +1 (800) 775-5330
- **Web:** http://support.spectralink.com

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of an Avaya S8300D Server, an Avaya G450 Media Gateway, a Session Manager server, and Spectralink 84-Series. The solution described herein is also extensible to other Avaya Servers and Media Gateways. Avaya S8720 Servers with an Avaya G650 Media Gateway were included in the test to provide an inter-switch scenario. For completeness, an Avaya 4600 Series H.323 IP Telephone, Avaya 9600 Series SIP IP Telephones, Avaya 9600 Series H.323 IP Telephones, and Avaya 6400 Series Digital Telephones, are included in **Figure 1** to demonstrate calls between the SIP-based Spectralink 84-Series and Avaya SIP, H.323, and digital telephones.

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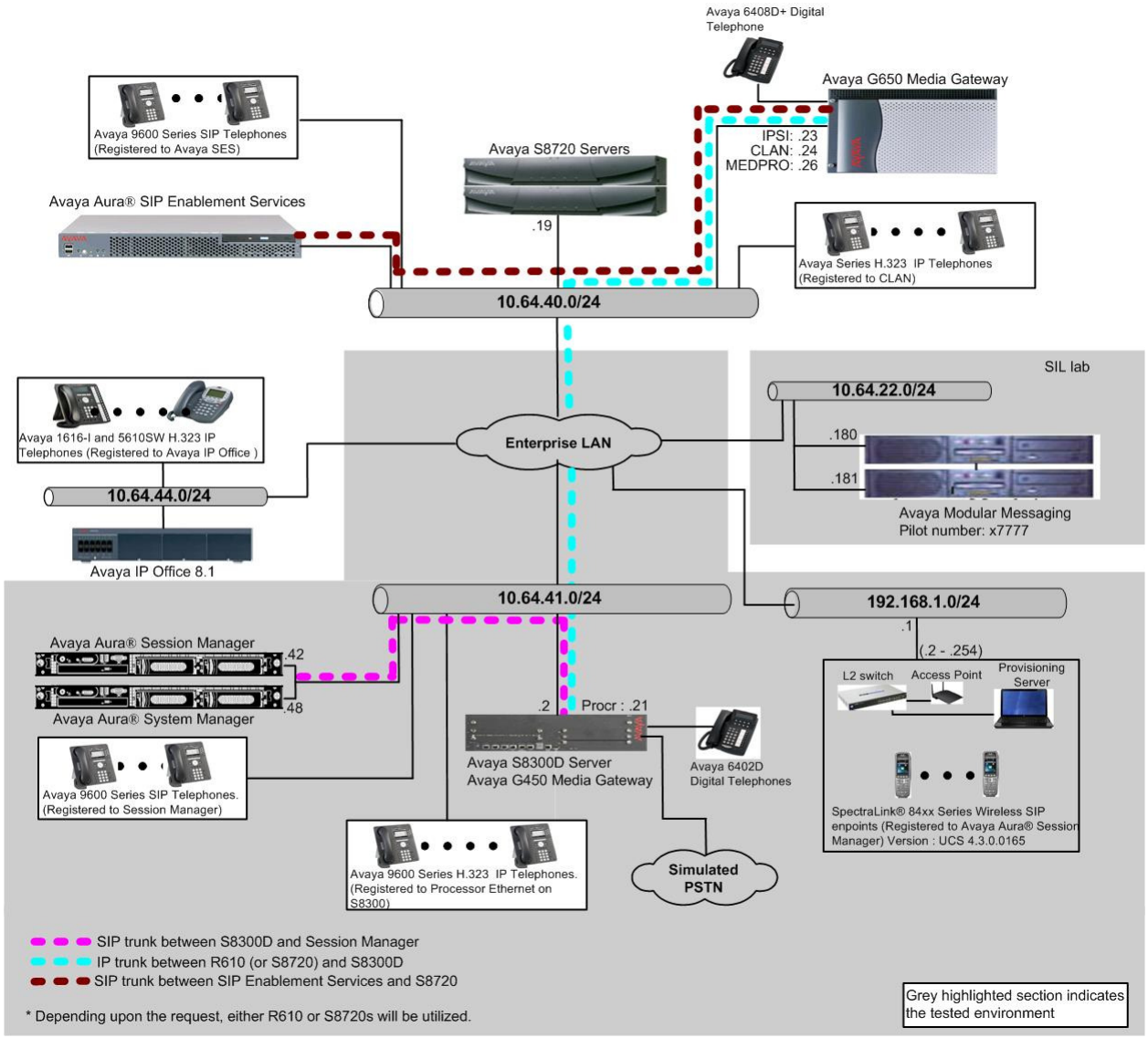

Figure 1: Test Configuration of Spectralink 84-Series Wireless Solution

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4. Equipment and Software Validated

The following equipment and software were used for the test configuration.

Equipment		Software/Firmware
Avaya S8300D Media Server with Avaya G450 Media Gateway		Avaya Aura® Communication Manager 6.3 (03.0.124.0-20553)
Avaya Aura® System Manager		6.3.2.4.1529
Avaya Aura® Session Manager		6.3.2.0.632023
Avaya S8720 Servers		Avaya Aura® Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway		-
	TN2312BP IP Server Interface TN799DP C-LAN Interface TN2302AP IP Media Processor	HW11 FW044 HW01 FW028 HW20 FW118
Avaya 9600 Series SIP Telephones		
	9620 (SIP) 9630 (SIP) 9650 (SIP)	2.6.4 2.6.4 2.6.4
Avaya 9600 Series H.323 Telephones		
	9620 (H.323) 9630 (H.323) 9650 (H.323)	3.1 3.1 3.1
Avaya 6408D+ Digital Telephone		-
Spectralink 84-Series		UCS 4.3.0.0165

5. Configure Avaya Aura® Communication Manager

No special configuration is needed for adding SIP wireless endpoints in Communication Manager. Configuring SIP trunks between Communication Manager and Session Manager is not covered in these Application Notes. Please refer [4] as referenced in **Section 10**.

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6. Configure Avaya Aura® Session Manager

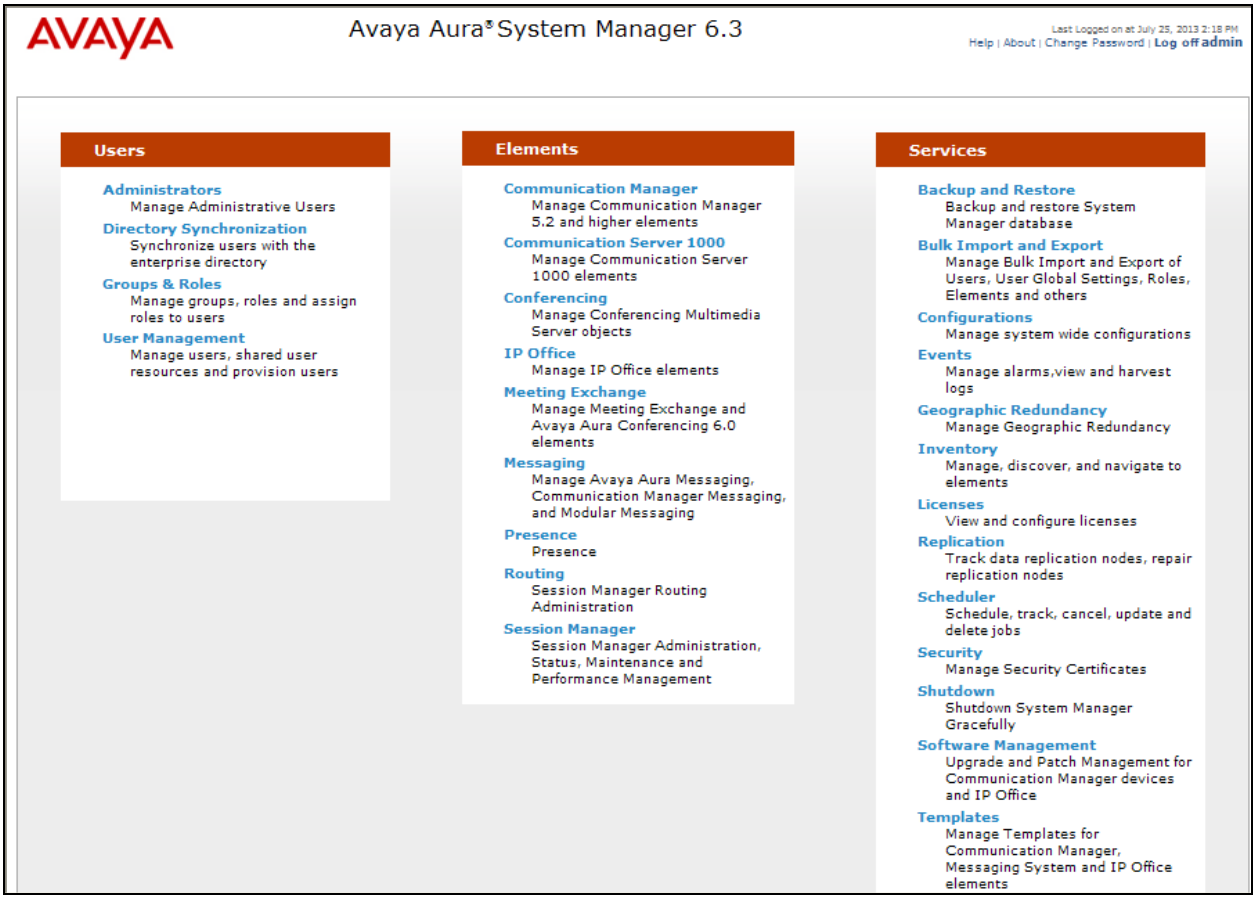
This section provides the procedures for configuring Session Manager as provisioned in the reference configuration. Session Manager is comprised of two functional components: the Session Manager server and the System Manager server. All SIP call provisioning for Session Manager is performed through the System Manager Web interface and is then downloaded into Session Manager.

The following sections assume that Session Manager and System Manager have been installed and that network connectivity exists between the two platforms.

Thus, only the User Management is discussed in this section.

6.1. Configure SIP Domain

Launch a web browser, enter **http://<IP address of System Manager>** in the URL, and log in with the appropriate credentials.



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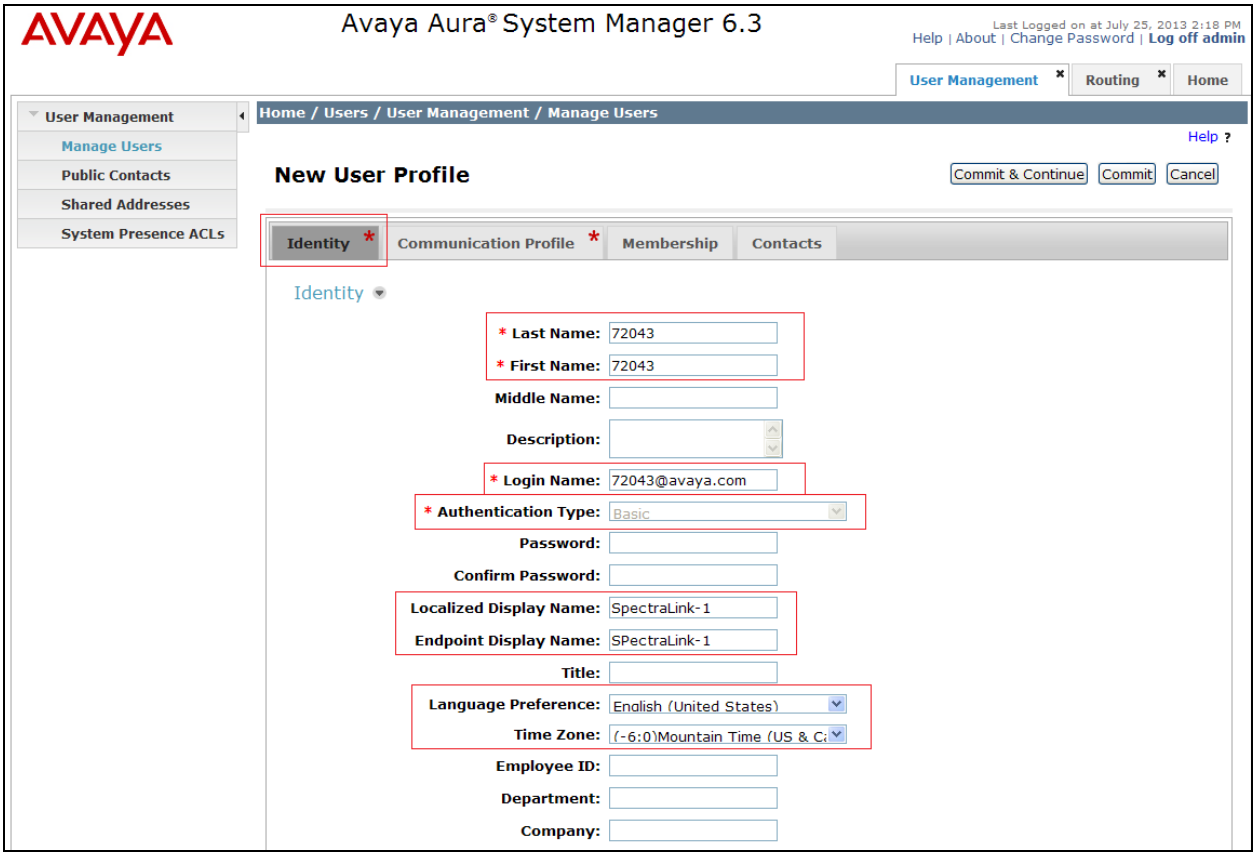
All users were created prior to the compliance test. However, the steps to configure a user are included. To add new SIP users, Navigate to **Home → Users → User Management→ Manage Users**. Click **New** (not shown) and provide the following information:

- Identity section
  - **Last Name –** Enter last name of user.
  - **First Name –** Enter first name of user.
  - **Login Name –** Enter extension number@sip domain name. The domain name is defined in Communication Manager.
  - **Authentication Type –** Verify **Basic** is selected.
  - Enter **Localized Display Name**
  - Enter **Endpoint Display Name**
  - Select **English** as **Language Preference**
  - Set the apropriate **Time Zone.**



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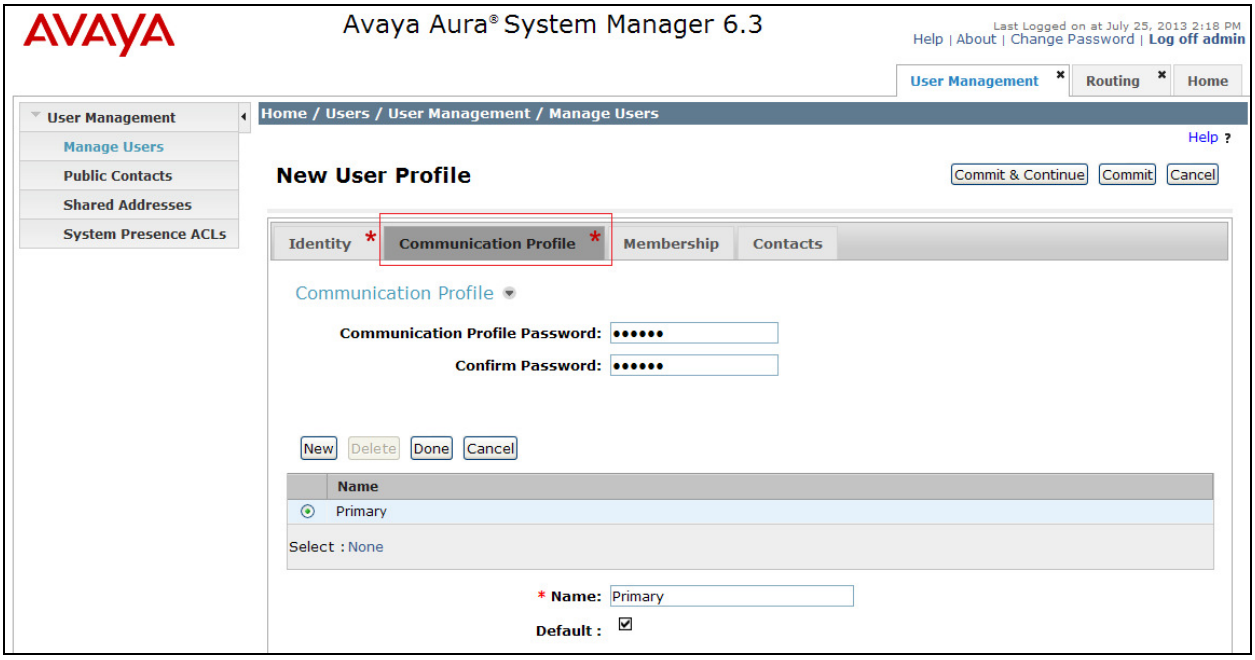
- Communication Profile section
  Provide the following information:
  - **Communication Profile Password** – Enter a numeric value used for SIP telephone to register with Session Manager.
  - **Confirm Password** – Repeat numeric password

  Verify there is a default entry identified as the **Primary** profile for the new SIP user. If an entry does not exist, select **New** and enter values for the following required attributes:
  - **Name** – Enter **Primary**.
  - **Default** – Enter ☑



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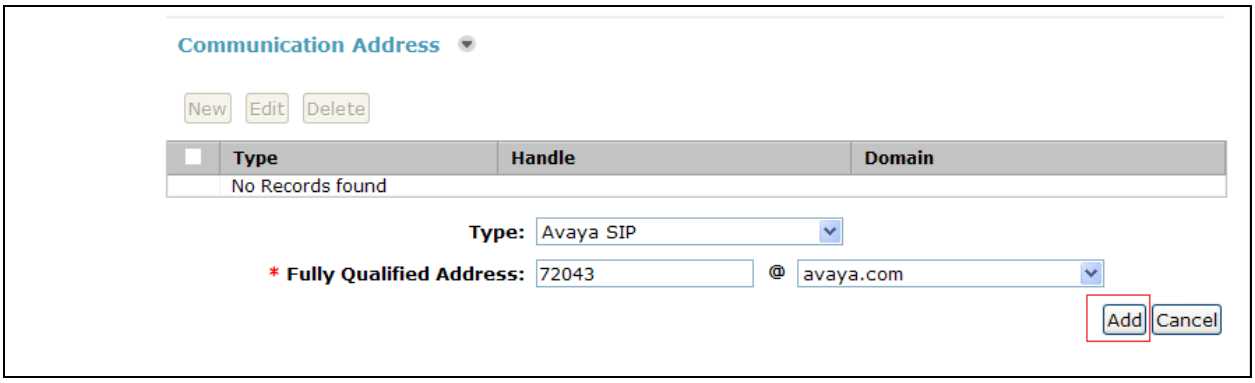
- Communication Address sub-section
  Select **New** to define a **Communication Address** for the new SIP user, and provide the following information.
  - **Type** – Select **Avaya SIP** using drop-down menu.
  - **Fully Qualified Address** – Enter same extension number and domain used for Login Name, created previously.

  Click the **Add** button to save the Communication Address for the new SIP user.



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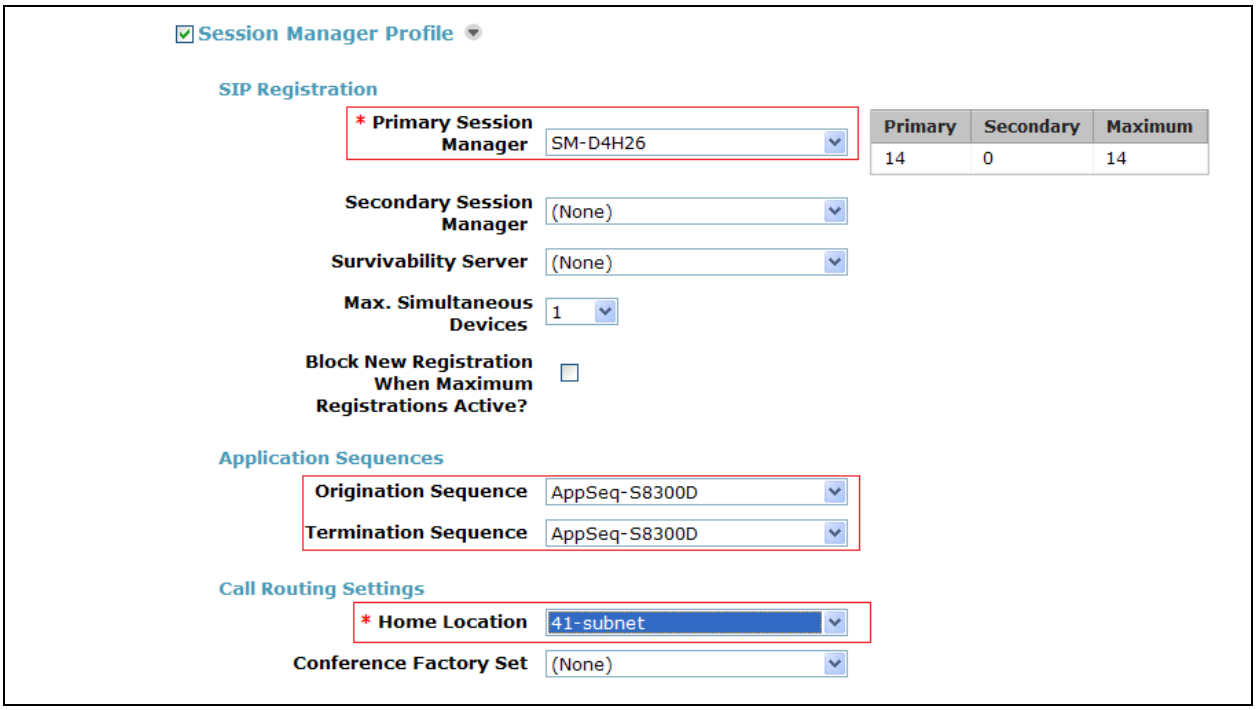
- Session Manager Profile section
  - **Primary Session Manager** – Select one of the Session Managers.
  - **Secondary Session Manager** – Select **(None)** from drop-down menu.
  - **Origination Application Sequence –** Select Application Sequence defined (not shown) for Communication Manager.
  - **Termination Application Sequence** – Select Application Sequence defined (not shown) for Communication Manager.
  - **Survivability Server** – Select **(None)** from drop-down menu.
  - **Home Location** – Select Location previously configured on Session Manager.



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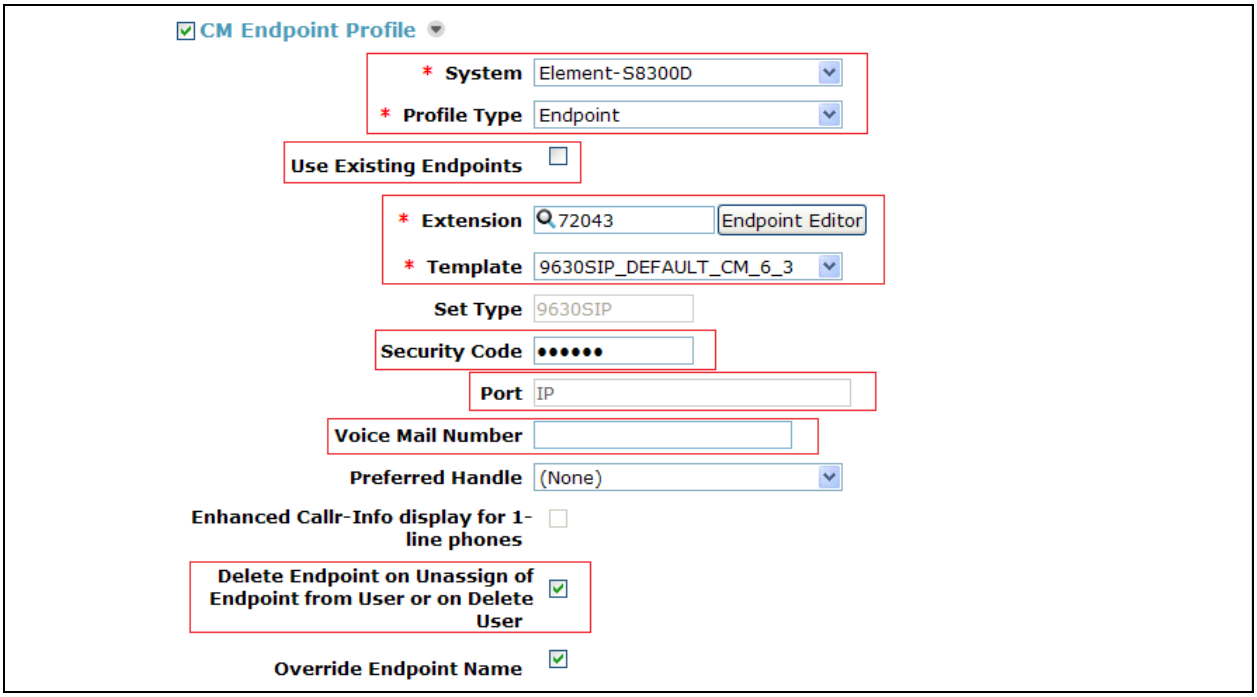
- Endpoint Profile section
  - **System** – Select Managed Element defined in **System Manager** (not shown) for Communication Manager.
  - **Profile Type** – Select **Endpoint**.
  - **Use Existing Endpoints -** Leave unchecked to automatically create a new endpoint on Communication Manager when the new user is created or check the box if endpoint is already defined in Communication Manager.
  - **Extension** - Enter same extension number used in this section.
  - **Template** – Select template for type of SIP phone. During the compliance test, **DEFAULT_9630SIP_CM_6_3** was selected.
  - **Security Code** – Enter numeric value used to logon to SIP telephone. (**Note:** this field must match the value entered for the Shared Communication Profile Password field.)
  - **Port** – Select **IP**
  - **Voice Mail Number –** Enter **Pilot Number** for Avaya Modular Messaging if installed or leave field blank. This feature was not used during the compliance test.
  - **Delete Station on Unassign of Endpoint from User or on Delete User** – Check the box to automatically delete station when Endpoint Profile is un-assigned from user.



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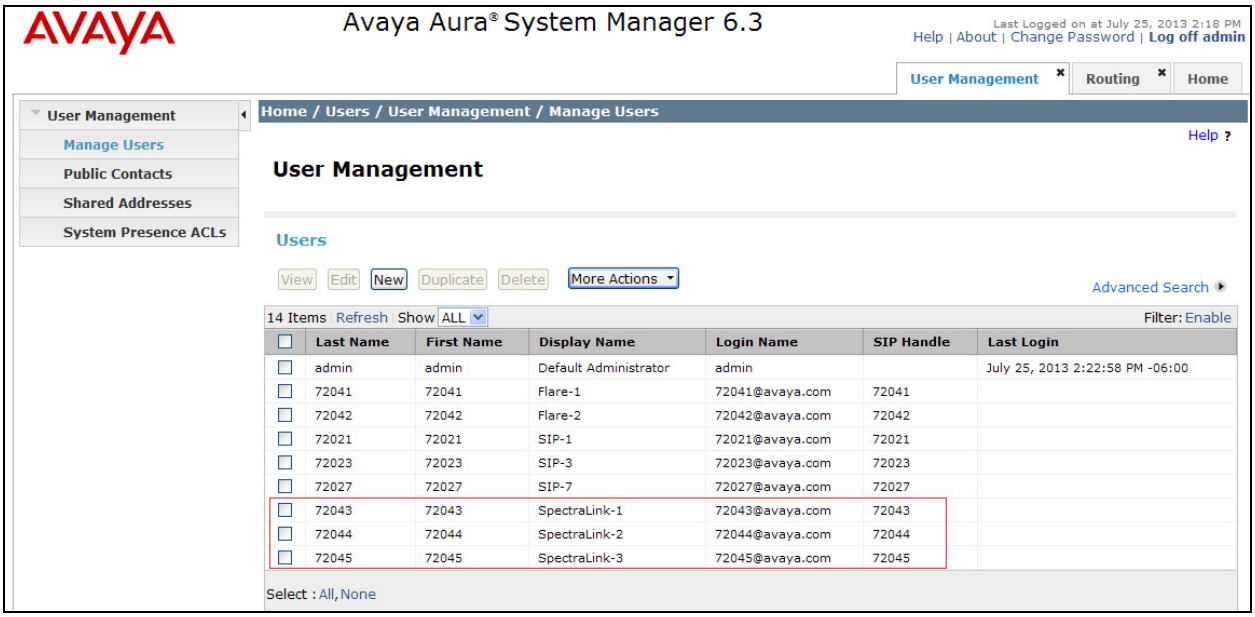
Click **Commit** (not shown) to save definition of new user. The following screen shows the created users during the compliance test.



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7. Configure Spectralink 84-Series Wireless Telephones

This section provides steps to configure Spectralink 84-Series handsets. The latest firmware was provided by Spectralink. For additional information regarding configuring the Spectralink 84-Series handsets please refer to the latest product documentation available at www.spectralink.com. There are two ways to configure Spectralink 84-Series:

- Using the configuration files [recommended]
- Using the WEB user interface [deprecated]

Using the configuration files

The following files need to be configured, as the phone boots up to register with Session Manager:

- **00907a0e804f.cfg** – The first file that the phone searches while booting up is **<MAC>.cfg** file. The header, 00907a0e804f, indicates the MAC address of Spectralink 84-Series. In this configuration file, there are sub-configuration files that are listed under CONFIG_FILES field; sip_72043.cfg.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!-- Default Master SIP Configuration File-->
<!-- Edit and rename this file to <Ethernet-address>.cfg for each phone.-->
<!-- $Revision: 1.14 $  $Date: 2005/07/27 18:43:30 $ -->
<APPLICATION APP_FILE_PATH="sip.ld" APP_NET_LOAD_FILE_PATH=""
CONFIG_FILES="sip_72043.cfg" MISC_FILES="" LOG_FILE_DIRECTORY=""
OVERRIDES_DIRECTORY="" CONTACTS_DIRECTORY="" />
```

- **sip_72043.cfg** – This is an extension configuration file. This file includes UserID, Password, Fully Qualified Domain Name (FQDN) of the phone, and the IP address of Session Manager.

```
<?xml version="1.0" encoding="utf-8"?>
<PHONE_CONFIG>
  <reg reg.1.address="72043@avaya.com" reg.1.displayName="72043" reg.1.label="72043"
reg.1.auth.userId="72043" reg.1.auth.password="123456"
reg.1.server.1.address="10.64.41.42" reg.1.server.1.port="5060" />
<msg.mwi msg.mwi.1.subscribe="72043@avaya.com" />
</PHONE_CONFIG>
```


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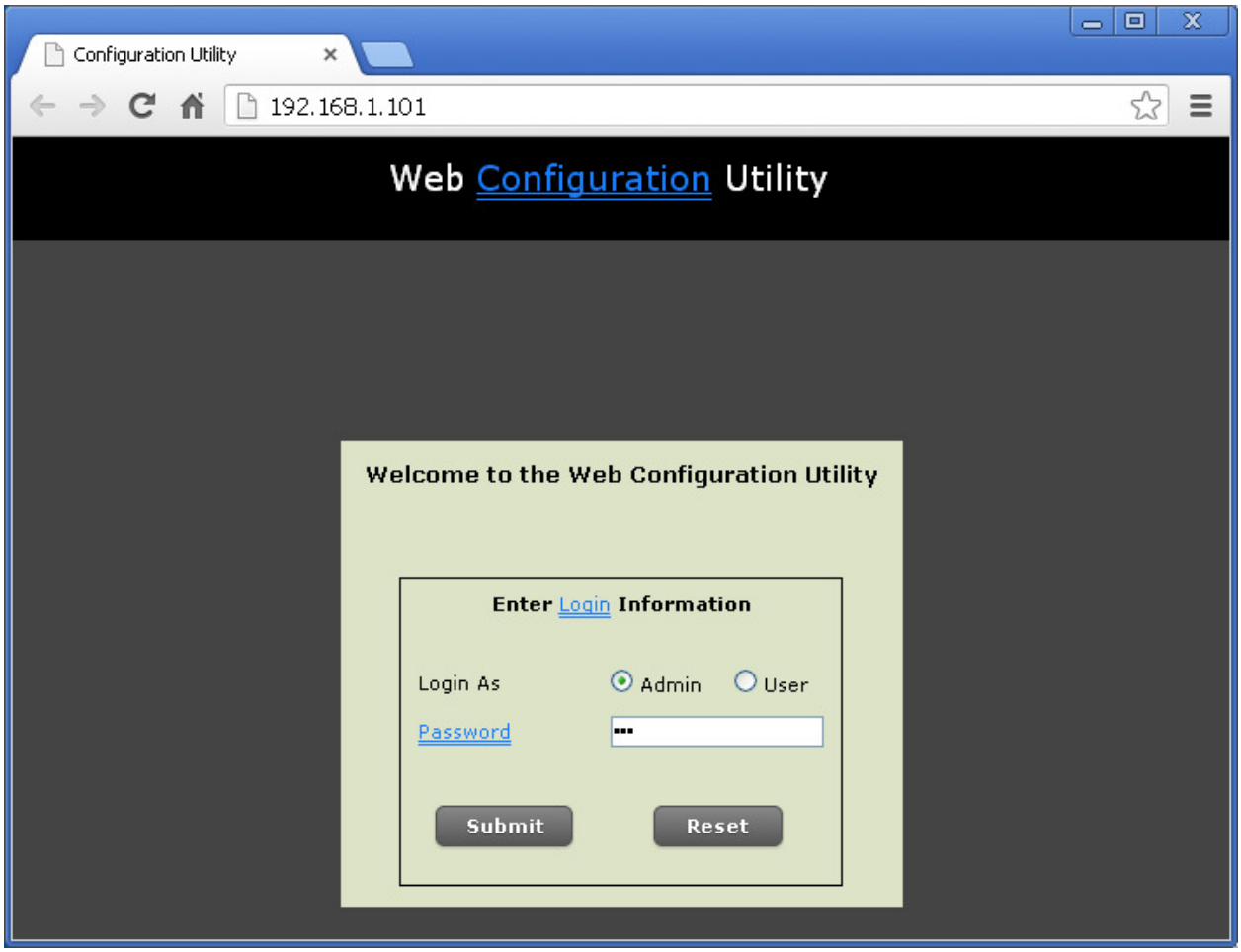
Using the WEB user interface

After the Spectralink 84-Series SIP wireless phone gets the IP address, launch a web browser, enter **http://<IP address of wireless phone>** in the URL, and log in with the appropriate credentials.



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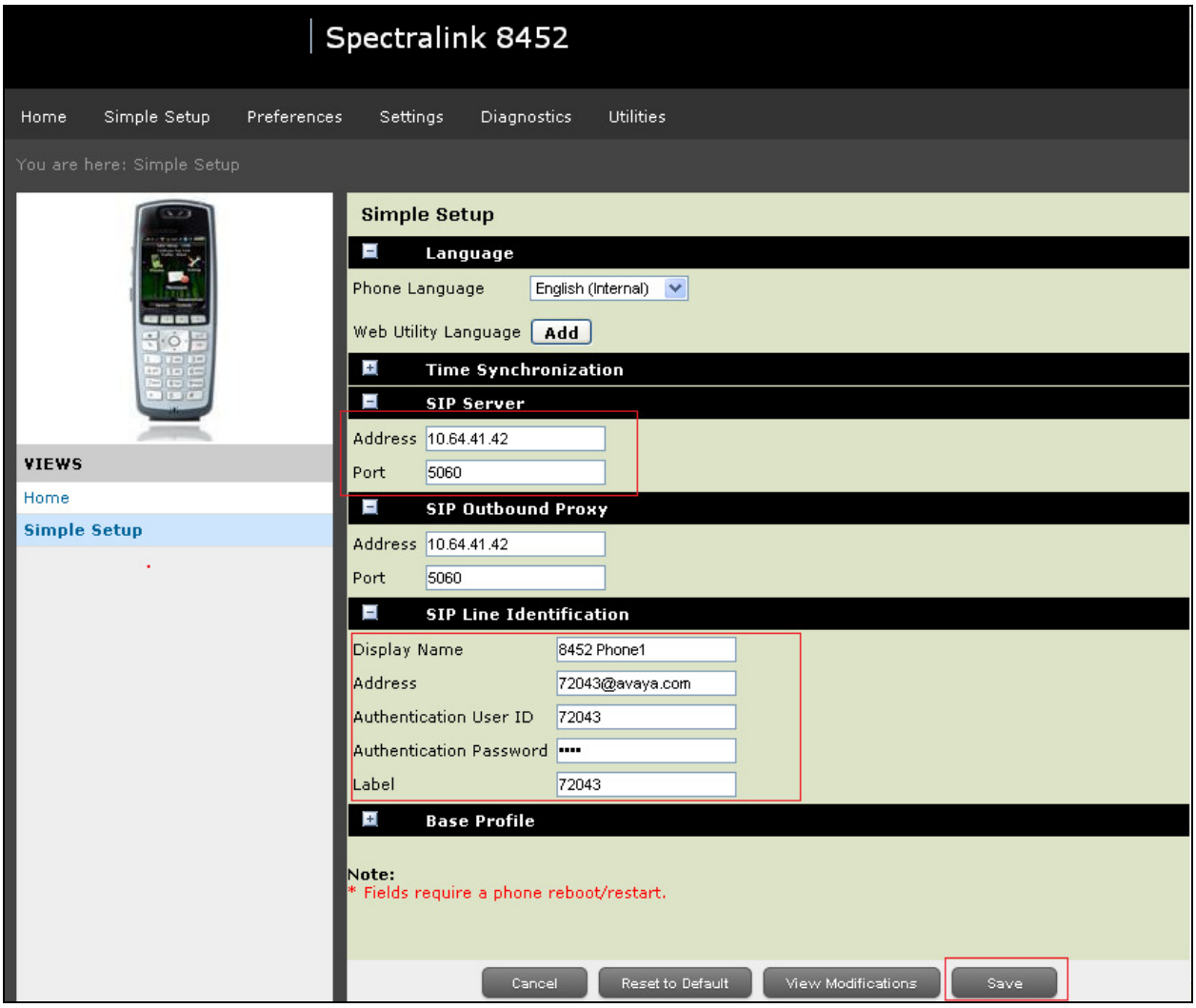
Select **Simple Setup** from the main menu. Expand SIP Server, and provide the Session Manager IP address and the port that is used to register the phone to Session Manager. Expand SIP Line Identification, and provide appropriate information.
Click on **Save**.



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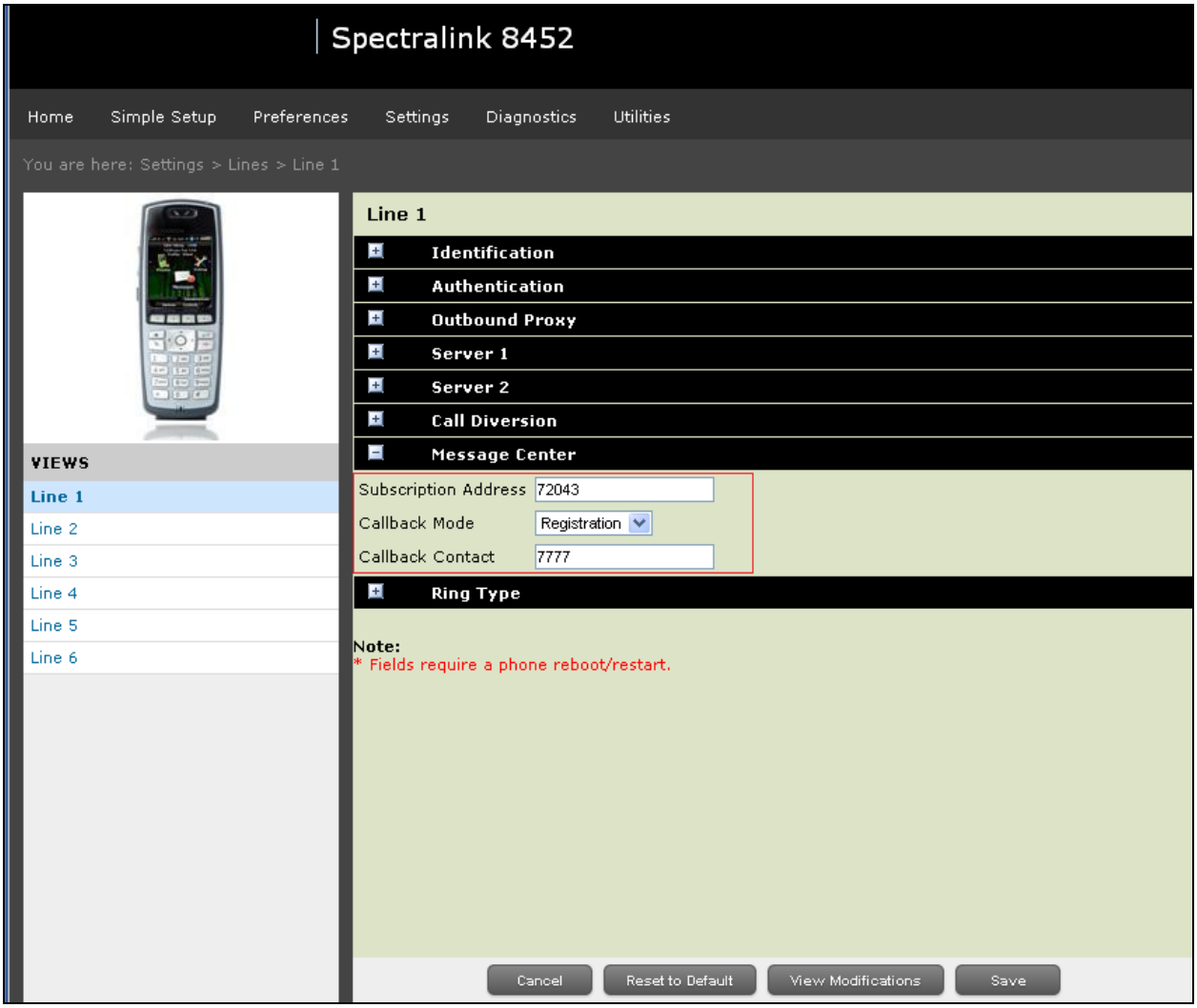
For enabling MWI, navigate to **Settings → Lines → Line 1**. Expand Message Center, and set the configuration as below.
Click on **Save**.



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8. Verification Steps

The following steps may be used to verify the configuration:

- Verify that Spectralink 84-Series successfully registers with Session Manager by following the **Session Manager →System Status → User Registrations** link on the System Manager Web Interface.
- Place calls to and from Spectralink 84-Series and verify that the calls are successfully established with two-way talk path.
- While calls are established, enter **status trunk <t/r>** command, where **t** is the SIP trunk group configured, and **r** is trunk group member. This will verify whether the call is shuffled or not. If the call is shuffled, then the **Audio Connection Type** field shows "ip-direct". Otherwise, the call is not shuffled, by showing "ip-tdm".

9. Conclusion

Spectralink 84-Series was compliance tested with Communication Manager (Version 6.3) and Session Manager (Version 6.3). Spectralink 84-Series (UCS 4.3.0.0165) functioned properly for feature and serviceability. During compliance testing, Spectralink 84-Series successfully registered with Session Manager, placed and received calls to and from SIP and non-SIP telephones, and executed other telephony features like three-way conference, transfers, hold, etc.

10. Additional References

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

[1] *Administering Avaya Aura® Communication Manager*, May 2013, Release 6.3, Document Number 03-300509.

[2] *Administering Avaya® Session Manager,* June 2013, Release 6.3.

[3] *Administering Avaya® System Manager*, May 2013, Release 6.3.

[4] *Application Notes for Polycom® Spectralink® 8400 Series Telephones and Avaya Aura® Communication Manager and Avaya Aura® Session Manager* – Issue 1.0

The following document was provided by Spectralink.

[5] *Spectralink® 84-Series Wireless Handset User Guide*, February 2011, 1725-36720-001 Rev A

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