MITEL – MSA 3PPV

Technical
Configuration Notes

Configure the MCD 4.2 SP2 for use with the Polycom Spectralink 8400 Series SIP Wireless device

SIP CoE 11-4940-00176

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Mitel Technical Configuration Notes – Configure the MCD 4.2 SP2 for use with the Polycom Spectralink 8400 Series SIP Wireless device

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Overview

This document provides a reference to Mitel Authorized Solutions Providers for configuring the Mitel 3300 ICP to host the Polycom Spectralink 8400 SeriesPhone. The different devices can be configured in various configurations depending on your VoIP solution. This document covers a basic setup with required option setup.

Interop History

Version	Date	Reason
1	July 26, 2011	Initial Interop with Mitel 3300 MCD 4.2 SP2 and the Polycom Spectralink 8400 Series
2	April, 2012	Documentation update

Interop Status

The Interop of the Polycom Spectralink 8400 Series has been given a Certification status. This device will be included in the SIP CoE Reference Guide. The status the Polycom Spectralink 8400 Series achieved is:

	Reserved for MSA Gold Preferred members only, this rare classification is reserved for key strategic components of our portfolio for which Mitel assumes the full responsibility for support, acting as the interface between the customer and the 3rd party as necessary.

NOTE: Polycom asserts that the 8400 series firmware is compatible with several endpoints. Please refer to Appendix A

Software & Hardware Setup

This was the test setup to generate a basic SIP call between the Polycom Spectralink 8400 Series SIP device and the 3300 ICP.

Manufacturer	Variant	Software Version
Mitel	3300 ICP – Mxe Platform	10.2.2.10
Mitel	MBG – Teleworker	6.1.10.0
Mitel	5320 SIP Sets	1.6.2.3
Mitel	5330 SIP Sets	4.1.0.22
Mitel	5340 IP Sets	Minet (4.01.00.22)
Polycom	8400 Series VoWLAN handsets	UCS 4.0.0 15769

Tested Features

This is an overview of the features tested during the Interop test cycle and not a detailed view of the test cases. Please see the SIP Line Side Interoperability Test Pans for detailed test cases.

Feature	Feature Description	Issues
Basic Call	Making and receiving a call	☑
DTMF Signal	Sending DTMF after call setup (i.e. mailbox password)	☑
Call Hold	Putting a call on hold	☑
Call Transfer	Transferring a call to another destination	☑
Call Forward	Forwarding a call to another destination	☑
Conference	Conferencing multiple calls together	☑
Redial	Last Number Redial	☑
Call Park	Parking a call on the system for retrieval	⚠
MWI	Message Waiting Indication	☑
T.38 Fax	Fax Messages	☑
Video	Video Capabilities	Not Supported
Teleworker	Mitel remote connectivity with Teleworker	☑
Personal Ring Group	Multiple sets ringing when one number dialed	☑
Resiliency	Device able to handle one MCD failing	⚠

☑ - No issues found X - Issues found, cannot recommend to use ⚠ - Issues found

Device Recommendations

The Polycom Spectralink 8400 Series is recommended to be deployed in Device base mode. If configuring the network for Resiliency, it is recommended to use the Polycom Spectralink 8400 Series built in Failback Redundancy settings. Refer to the Polycom Spectralink 8400 Series Resiliency programming section later on in this document.

Resiliency

The following table lists the scenarios of resilience supported by this device when connected to the MCD 4.0 on the 3300 ICP.

Device	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Polycom Spectralink 8400 Series	☑	☑	✗	Not Supported

☑ - No issues found ✗ - Issues found, cannot recommend use ⚠ - Issues found

Note: Refer to list of device limitations and known issues later in the document for recommendations.

The various scenarios are described below. The scenario names are a convenience for understanding this section of the configuration guide.

Scenario 1: Resiliency is achieved by utilizing the ability of DNS servers to provide multiple IP addresses against a single FQDN. This is generally achieved by using DNS SRV or A records. This scenario requires nothing from a SIP Endpoint except that it supports standard DNS behaviour.

Scenario 2: The device has inherent knowledge of the primary and secondary 3300 ICPs and will switch between them if a SIP request (**REGISTER**, **INVITE**, or **SUBSCRIBE**) times out. Behaviour will be characterized based on whether the device returns to primary ICP and when this occurs. This scenario has some dependency on user action in order to detect a failure, especially if configured with a long registration expiry time, so the chance of a user experiencing a long delay making a call goes up.

Scenario 3: The behaviour of the device is the same as that of scenario 2, except that the device will "ping" the currently active server with an **OPTIONS** request. If the **OPTIONS** request times out, the device will switch to the alternate server for all future requests. The intent of this scenario is to provide much faster failure detection by the device. This will allow devices to failover to their alternate ICP much more quickly, and much more unnoticeably. (If the device can detect a failure of the primary ICP, and can failover immediately, the chance that the user even notices a lack of service falls dramatically.)

Scenario 4: The device will support a new SIP header designed specifically for resiliency. The *P-Alternate-Server* header must be included in a **200 OK** or **301 Moved Permanently** response. This header will include data that designates the potential servers and which server the UA must use.

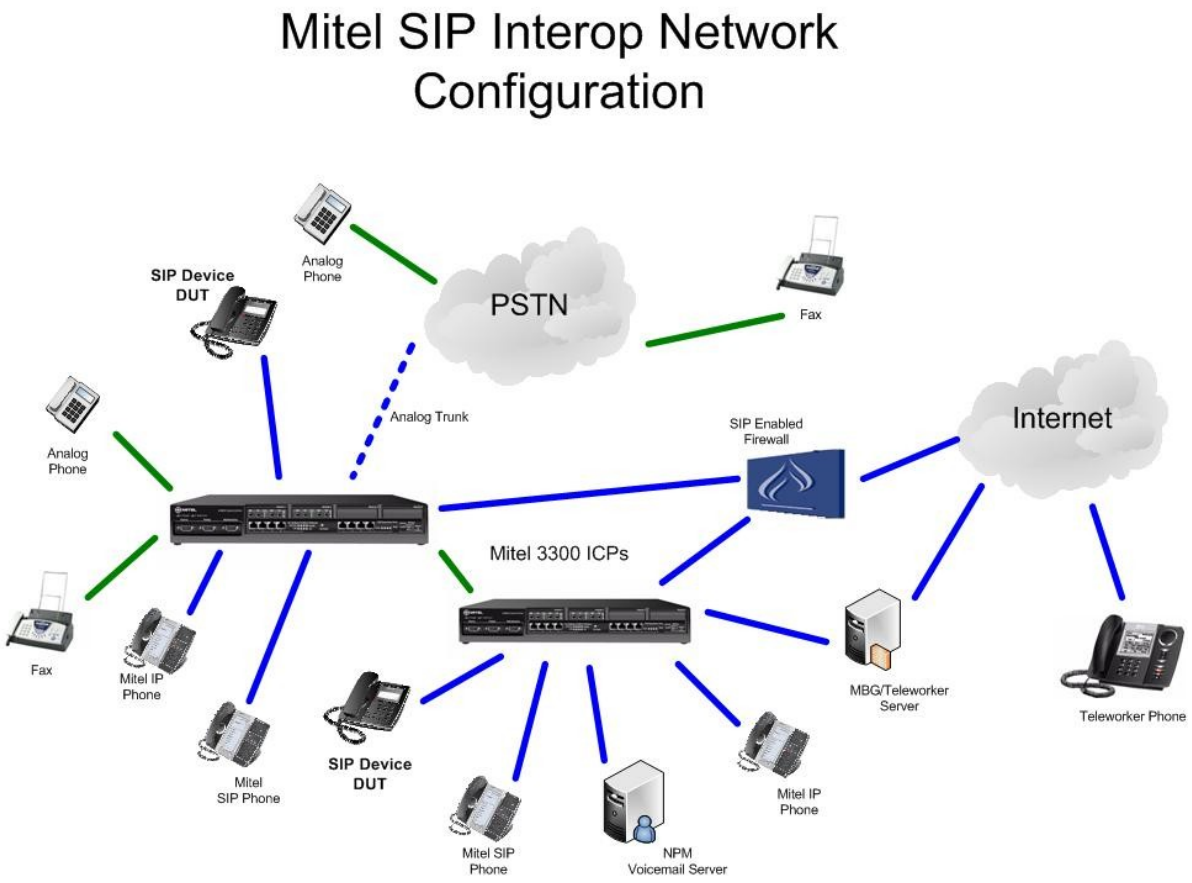
Device Limitations

This is a list of problems or not supported features when the Polycom Spectralink 8400 Series SIP device is connected to the Mitel 3300.

Feature	Problem Description
Call Park	The Polycom Spectralink 8400 Series can only retrieve the last parked call on any given number. **Recommendation:** This is a known behavior of call park. See Mitel Support for further information on this feature.
Call Park	When parking a call with Polycom Spectralink 8400 Series the phone returns “Request failed” The call is actually successfully parked and the user should press the end call button to clear message. **Recommendation:** Contact Mitel Support for further information on this feature and reference defect number MN00395831
PRG	The Polycom Spectralink 8400 Series cannot be programmed with a handoff key **Recommendation:** This is a known behavior of the Personal Ring Group. MCD Release 10.1 has a feature access code to duplicate the behavior.
Messages Menu	MWI is supported but the Mitel 3300 does not support sending the message count. Therefore if you check the messages menu it will indicated 0 new messages. **Recommendation:** Contact Mitel support and reference defect number MN00395979 for updates.

Network Topology

This diagram shows how the testing network is configured for reference.



Configuration Notes

This section is a description of how the SIP Interop was configured. These notes should give a guideline as to how a device can be configured in a customer environment and how the Polycom Spectralink 8400 Series was configured in our test environment.

We recommend that the Polycom Spectralink 8400 Series is configured in System Mode. You will configure the System mode in the SIP Device Capabilities Form as described in this section.

Disclaimer: Although Mitel has attempted to setup the interop testing facility as closely as possible to a customer premise environment, implementation setup could be different onsite. YOU MUST EXERCISE YOUR OWN DUE DILIGENCE IN REVIEWING, planning, implementing, and testing a customer configuration.

3300 ICP Configuration Notes

The following steps show how to program a 3300 ICP to connect with the Polycom Spectralink 8400 Series Phone.

Network Requirements

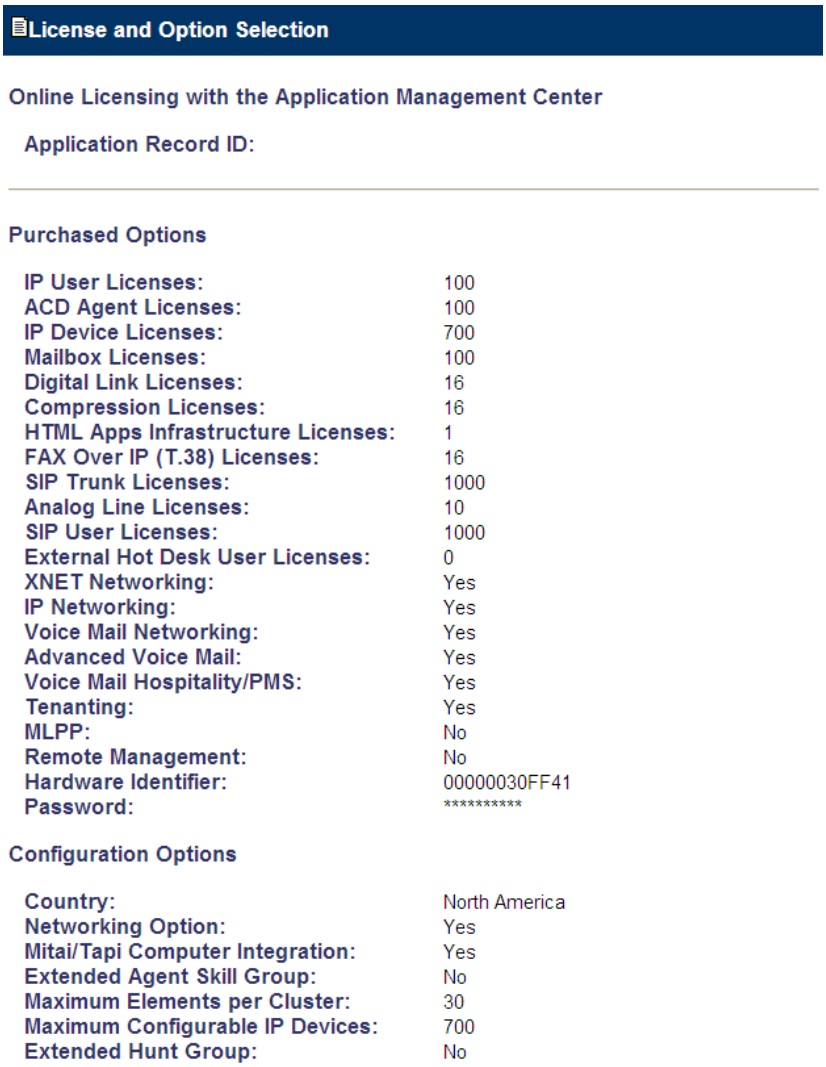
- There must be adequate bandwidth to support the voice over IP. As a guide, the Ethernet bandwidth is approx 85 Kb/s per G.711 voice session and 29 Kb/s per G.729 voice session (assumes 20ms packetization). As an example, for 20 simultaneous SIP sessions, the Ethernet bandwidth consumption will be approx 1.7 Mb/s for G.711 and 0.6Mb/s. Almost all Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the 3300 Engineering guidelines for further information.
- For high quality voice, the network connectivity must support a voice-quality grade of service (packet loss <1%, jitter < 30ms, one-way delay < 80ms).

Assumptions for the 3300 ICP Programming

- The SIP signaling connection uses UDP on Port 5060.

Licensing and Option Selection – SIP Licensing

Ensure that the 3300 ICP is equipped with enough SIP Device licenses for the connection of SIP end points. This can be verified within the License and Option Selection form.



License and Option Selection

Online Licensing with the Application Management Center

Application Record ID:

Purchased Options

IP User Licenses:	100
ACD Agent Licenses:	100
IP Device Licenses:	700
Mailbox Licenses:	100
Digital Link Licenses:	16
Compression Licenses:	16
HTML Apps Infrastructure Licenses:	1
FAX Over IP (T.38) Licenses:	16
SIP Trunk Licenses:	1000
Analog Line Licenses:	10
SIP User Licenses:	1000
External Hot Desk User Licenses:	0
XNET Networking:	Yes
IP Networking:	Yes
Voice Mail Networking:	Yes
Advanced Voice Mail:	Yes
Voice Mail Hospitality/PMS:	Yes
Tenanting:	Yes
MLPP:	No
Remote Management:	No
Hardware Identifier:	00000030FF41
Password:	**********

Configuration Options

Country:	North America
Networking Option:	Yes
Mitai/Tapi Computer Integration:	Yes
Extended Agent Skill Group:	No
Maximum Elements per Cluster:	30
Maximum Configurable IP Devices:	700
Extended Hunt Group:	No

Figure 1 – License and Option Selection

Multiline IP Set Configuration

On the Mitel 3300 ICP, a SIP device can be programmed either in the User Configuration form or the Multiline IP Set Configuration form and are programmed as a “Generic SIP Phone”. Enterprise Manager can also be used to provision where this application is installed.

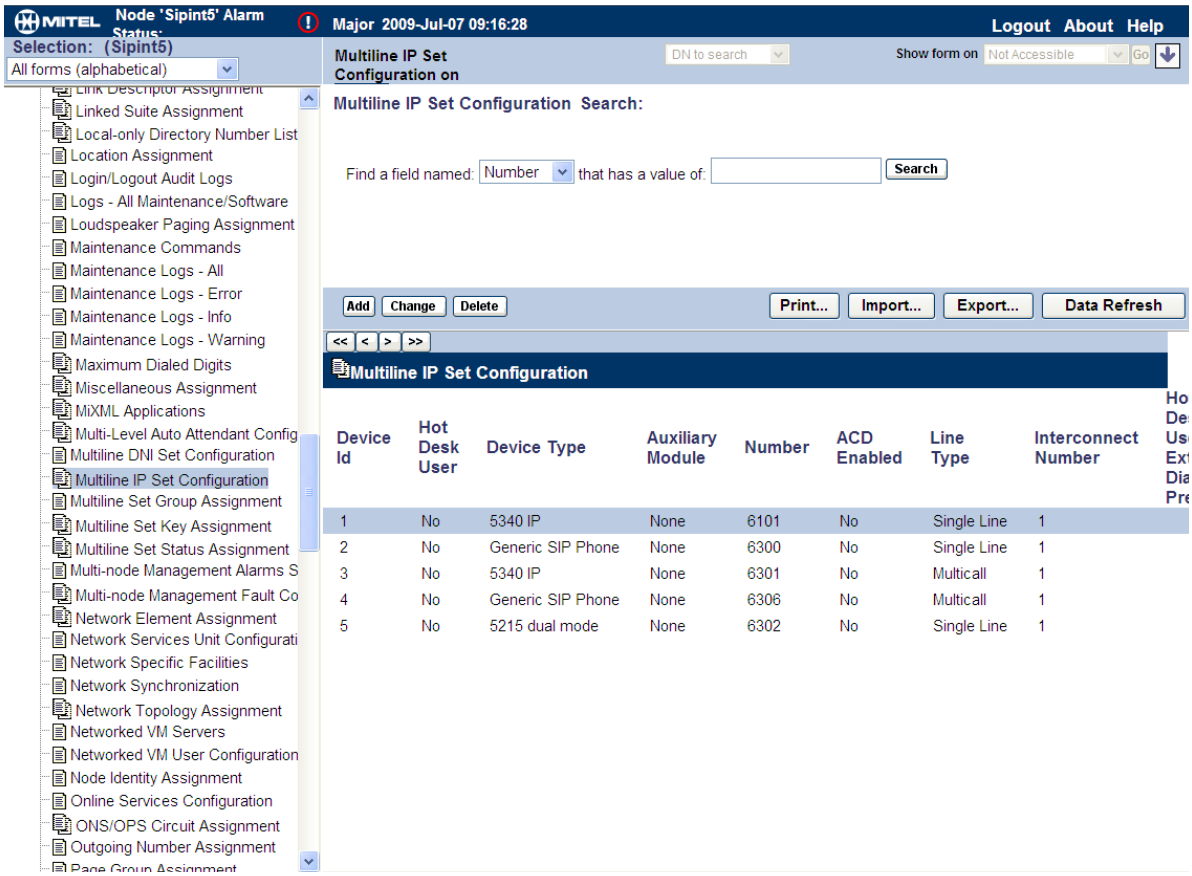


Figure 2 – Multiline IP Set Configuration

The Login PIN is the SIP authentication password and the username is the DN. The Number and Login PIN must match the information in the Polycom Spectralink 8400 Series Phone configuration. All other field names should be programmed according to the site requirements or left at default.

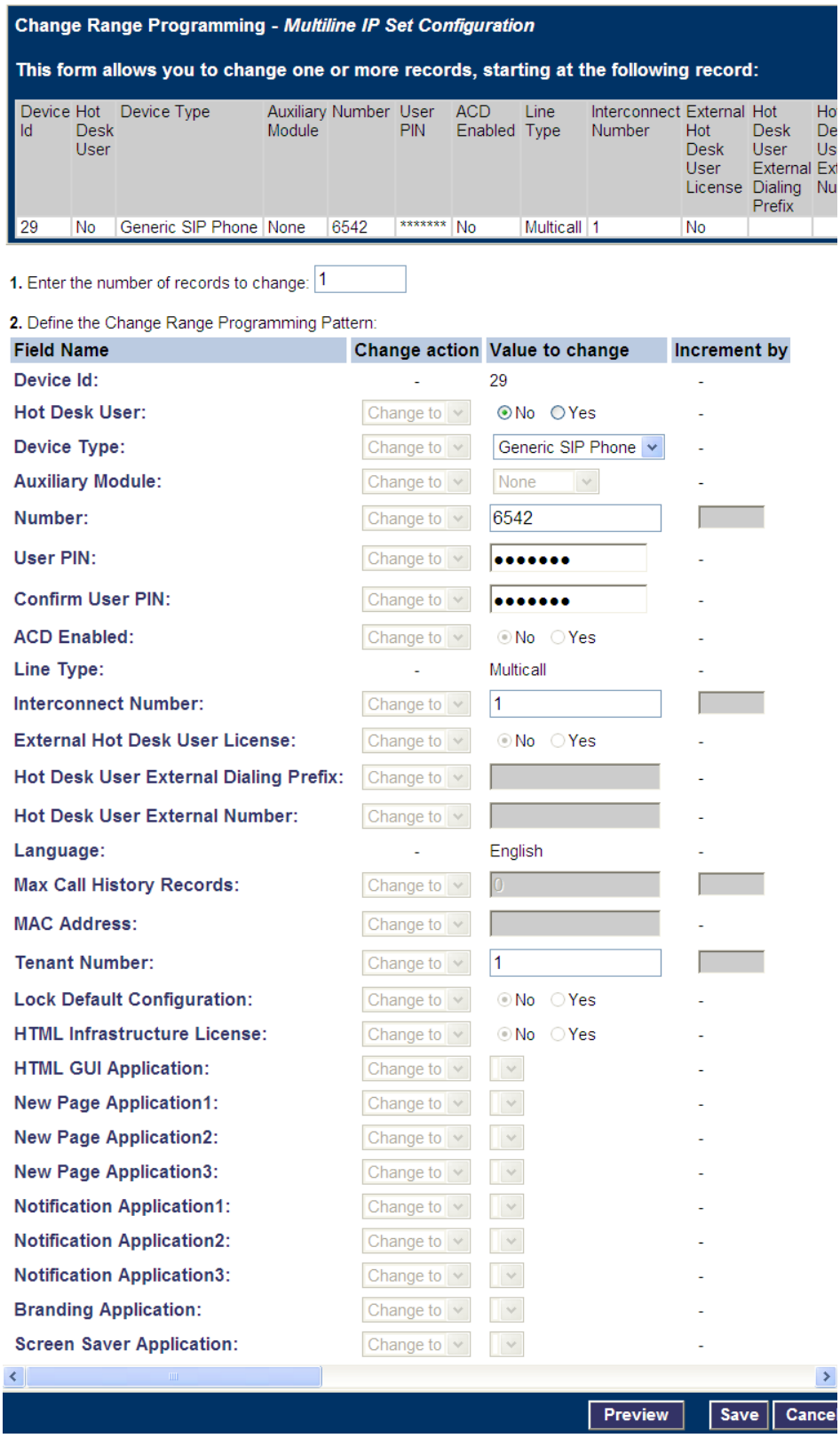


Figure 3 – Multiline IP Set Configuration

Class of Service Assignment

The Class of Service Options Assignment form is used to create or edit a Class of Service and specify its options. Classes of Service, identified by Class of Service numbers, are referenced by the Station Service Assignment form for the SIP devices.

Many different options may be required for your site deployment, but these are the options that are required to be changed from the default for a Generic SIP Device to work with the 3300 ICP.

- HCI/CTI/TAPI Call Control Allowed set to **Yes**
- HCI/CTI/TAPI Monitor Allowed set to **Yes**
- Message Waiting set to **Yes**
- Conference Call set to **Yes**
- Public Network Access via DPNSS set to **Yes**
- Auto Campon Timer is **blanked (no value)**

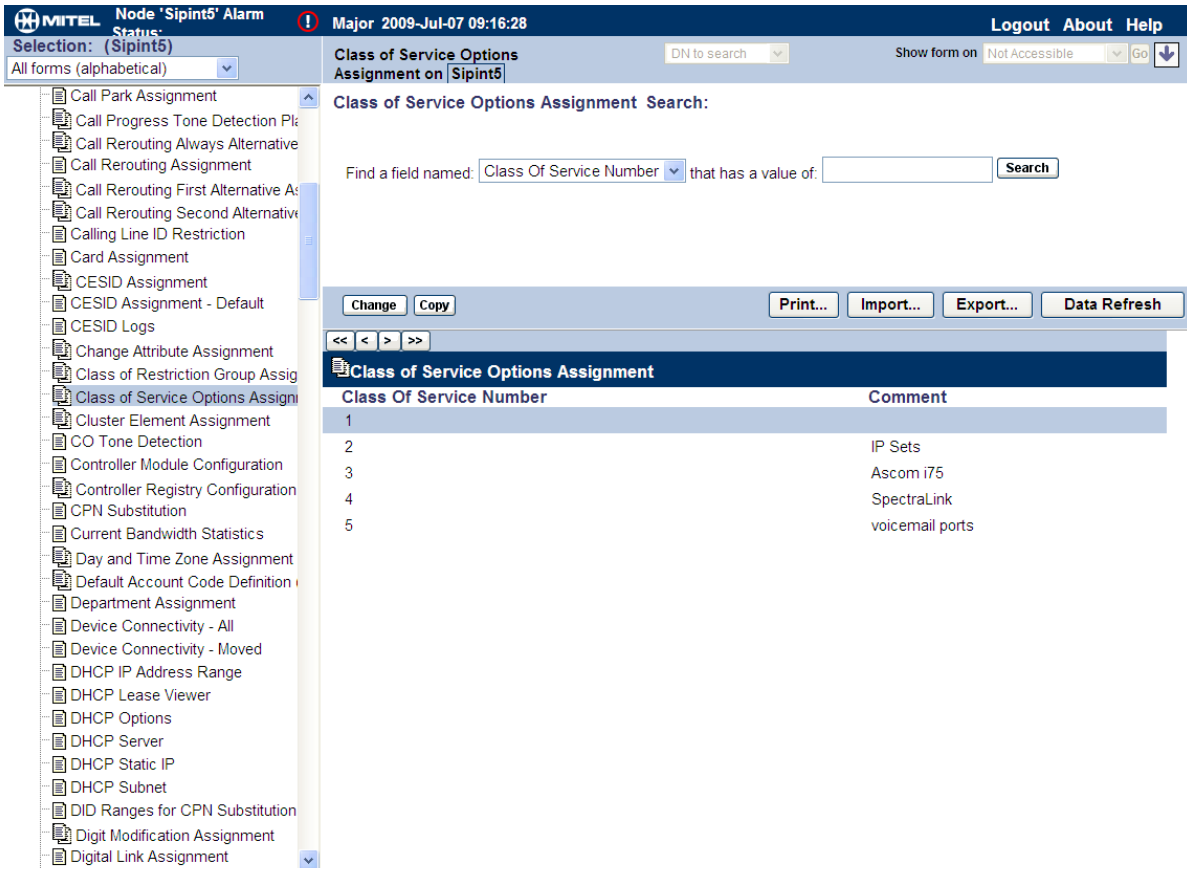


Figure 4 – Class of Service

SIP Device Capabilities Assignment

This form provides configuration options that can be applied to various types of SIP devices. The association between the SIP device and the form is similar to how the Class of Service options work. The SIP Device Capabilities number provides a SIP profile that can be applied to particular SIP devices to allow for alternate capabilities as recommended through the Mitel interop process.

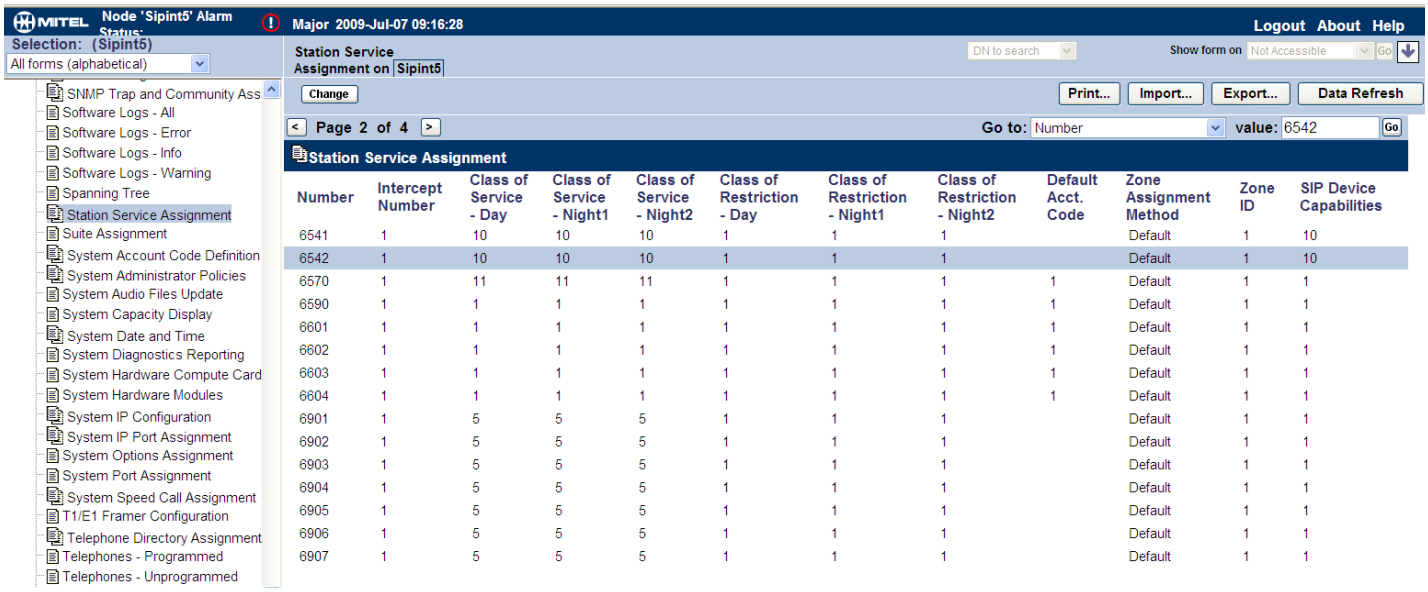
In the Device Capabilities form, program a SIP Device Capabilities Number for the Polycom Spectralink 8400 Series Phone device. Ensure that Replace System based with Device based In-Call Feature is set to 'Yes'.

Figure 5 – SIP Device Capabilities

Station Service Assignment

Use the Station Service Assignment form to assign the previously configured Class of Service and SIP Device Capability number to each of the Polycom Spectralink 8400 Series Phones in the 3300. This form utilizes Range Programming.

Select the Polycom Spectralink 8400 Series Phone device number then select Change. Enter the previously configured SIP Device Capability number and Class of Service for Day, Night 1 & Night 2.



Number	Intercept Number	Class of Service - Day	Class of Service - Night1	Class of Service - Night2	Class of Restriction - Day	Class of Restriction - Night1	Class of Restriction - Night2	Default Acct. Code	Zone Assignment Method	Zone ID	SIP Device Capabilities
6541	1	10	10	10	1	1	1		Default	1	10
6542	1	10	10	10	1	1	1		Default	1	10
6570	1	11	11	11	1	1	1	1	Default	1	1
6590	1	1	1	1	1	1	1	1	Default	1	1
6601	1	1	1	1	1	1	1	1	Default	1	1
6602	1	1	1	1	1	1	1	1	Default	1	1
6603	1	1	1	1	1	1	1	1	Default	1	1
6604	1	1	1	1	1	1	1	1	Default	1	1
6901	1	5	5	5	1	1	1		Default	1	1
6902	1	5	5	5	1	1	1		Default	1	1
6903	1	5	5	5	1	1	1		Default	1	1
6904	1	5	5	5	1	1	1		Default	1	1
6905	1	5	5	5	1	1	1		Default	1	1
6906	1	5	5	5	1	1	1		Default	1	1
6907	1	5	5	5	1	1	1		Default	1	1

Figure 6 – Station Service Assignment

Multiline Set Key Assignment

You use the Multiline Set Key Assignment form to assign the line type, ring type, and directory number to each line selected on the multiple lines but only 2 were programmed for testing.

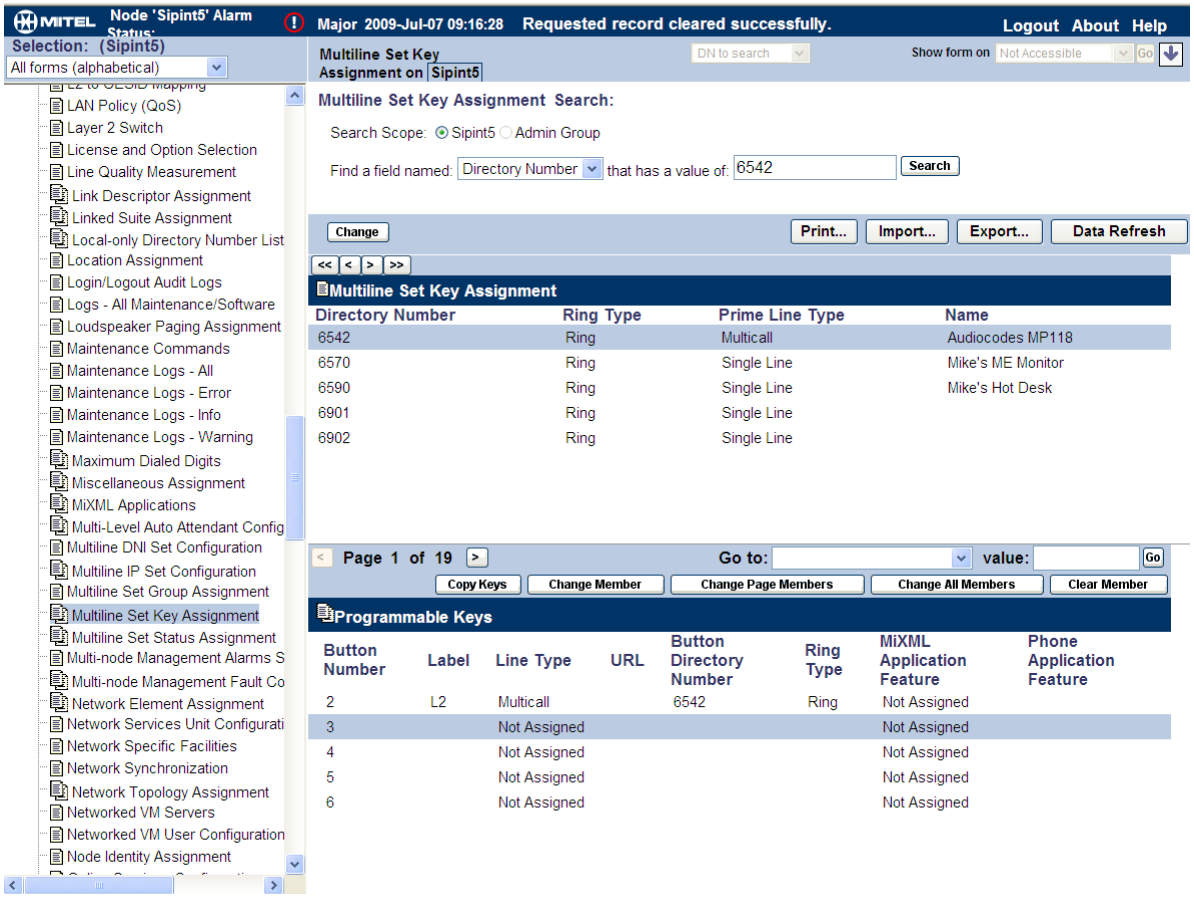


Figure 7 – Multiline Set Key Assignment

Reroute Assignment

Mitel recommends that call forwarding is programmed using the Call rerouting forms of the 3300. Call forwarding programmed from the Polycom Spectralink 8400 Series has also been tested but we suggest that administrators use Call Rerouting.

Call Rerouting is configured at the system to allow for extensions to forward on different conditions to different extensions, i.e., forward to voicemail when no answer. The following is a description how to configure call rerouting and does not nessacarily show how this Polycom Spectralink 8400 Series was programmed.

Program the Call Rerouting First Alternative Assignment form with the destination of the call forwarding and the options(Normal, This, Last). Please see the 3300 help files for more info.

There is also a Call Rerouting Second Alternative Assignment form for more complicated forwarding needs.

Call Rerouting First Alternative Assignment

First Alternative Number	Busy / DND DID	Busy / DND TIE	Busy / DND CO	Busy / DND Int	No Answer DID	No Answer TIE	No Answer CO	No Answer Int	Directory Number
1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
4	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
5	This	This	This	This	This	This	This	This	6950
6	This	This	This	This	This	This	This	This	6900
7	Normal	Normal	Normal	Normal	This	This	This	This	6900
8	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
9	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
10	This	This	This	This	This	This	This	This	6513
11	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
12	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
13	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
14	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
15	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	

Figure 8 – Call Rerouting Alternative Assignment

If any Call Forwarding Always is required then the Call Rerouting Always Alternative Assignment form would need to be programmed.

Call Rerouting Always Alternative Assignment

Always Alternative Number	Originating Device DID	Originating Device TIE	Originating Device CO	Originating Device INT	Directory Number
1	No Reroute	No Reroute	No Reroute	No Reroute	
2	No Reroute	No Reroute	No Reroute	No Reroute	
3	No Reroute	No Reroute	No Reroute	No Reroute	
4	No Reroute	No Reroute	No Reroute	No Reroute	
5	No Reroute	No Reroute	No Reroute	No Reroute	
6	No Reroute	No Reroute	No Reroute	No Reroute	
7	No Reroute	No Reroute	No Reroute	No Reroute	
8	No Reroute	No Reroute	No Reroute	No Reroute	
9	No Reroute	No Reroute	No Reroute	No Reroute	
10	Reroute	Reroute	Reroute	Reroute	6513
11	No Reroute	No Reroute	No Reroute	No Reroute	
12	No Reroute	No Reroute	No Reroute	No Reroute	
13	No Reroute	No Reroute	No Reroute	No Reroute	
14	No Reroute	No Reroute	No Reroute	No Reroute	
15	No Reroute	No Reroute	No Reroute	No Reroute	

Figure 9 – Call Rerouting Always Alternative Assignment

Use the Alternative Numbers from the previous forms and fill out the Call Rerouting Assignment form for the Polycom Spectralink 8400 Series programmed extension.

Call Rerouting Assignment

Number	Call Rerouting - Day	Call Rerouting - Night1	Call Rerouting - Night2	Call Rerouting DND Type	Call Rerouting - 1st Alt.	Call Rerouting - 2nd Alt.
6100	1	1	1	All	1	1
6101	1	1	1	All	1	1
6102	1	1	1	All	1	1
6300	1	1	1	All	7	1
6301	1	1	1	All	7	1
6302	1	1	1	All	7	1
6303	1	1	1	All	7	1
6305	1	1	1	All	7	1
6306	1	1	1	All	1	1
6511	1	1	1	All	1	1
6512	1	1	1	All	1	1
6513	1	1	1	All	1	1
6521	1	1	1	All	1	1
6522	1	1	1	All	1	1
6523	1	1	1	All	1	1
6541	1	1	1	All	1	1
6542	1	1	1	All	10	1
6570	1	1	1	All	1	1
6580	1	1	1	All	1	1
6590	1	1	1	All	1	1

Figure 10 – Call rerouting Assignment

Polycom Spectralink 8400 Series Configuration Notes

The following are screen captures of the Spectralink 8400 Series as it was configured with the Mitel 3300
For more detailed configuration please see the Polycom documentation below:

Administration Guide
http://support.polycom.com/global/documents/support/setup_maintenance/products/voice/UC_Software_4_0_0_Administrators_Guide_eng.pdf

Deployment Guide
http://support.polycom.com/global/documents/support/setup_maintenance/products/voice/SpectraLink_8400_Deployment_Guide.pdf

You can web access the Spectralink by its IP address. The default username is Polycom and default password is 456.

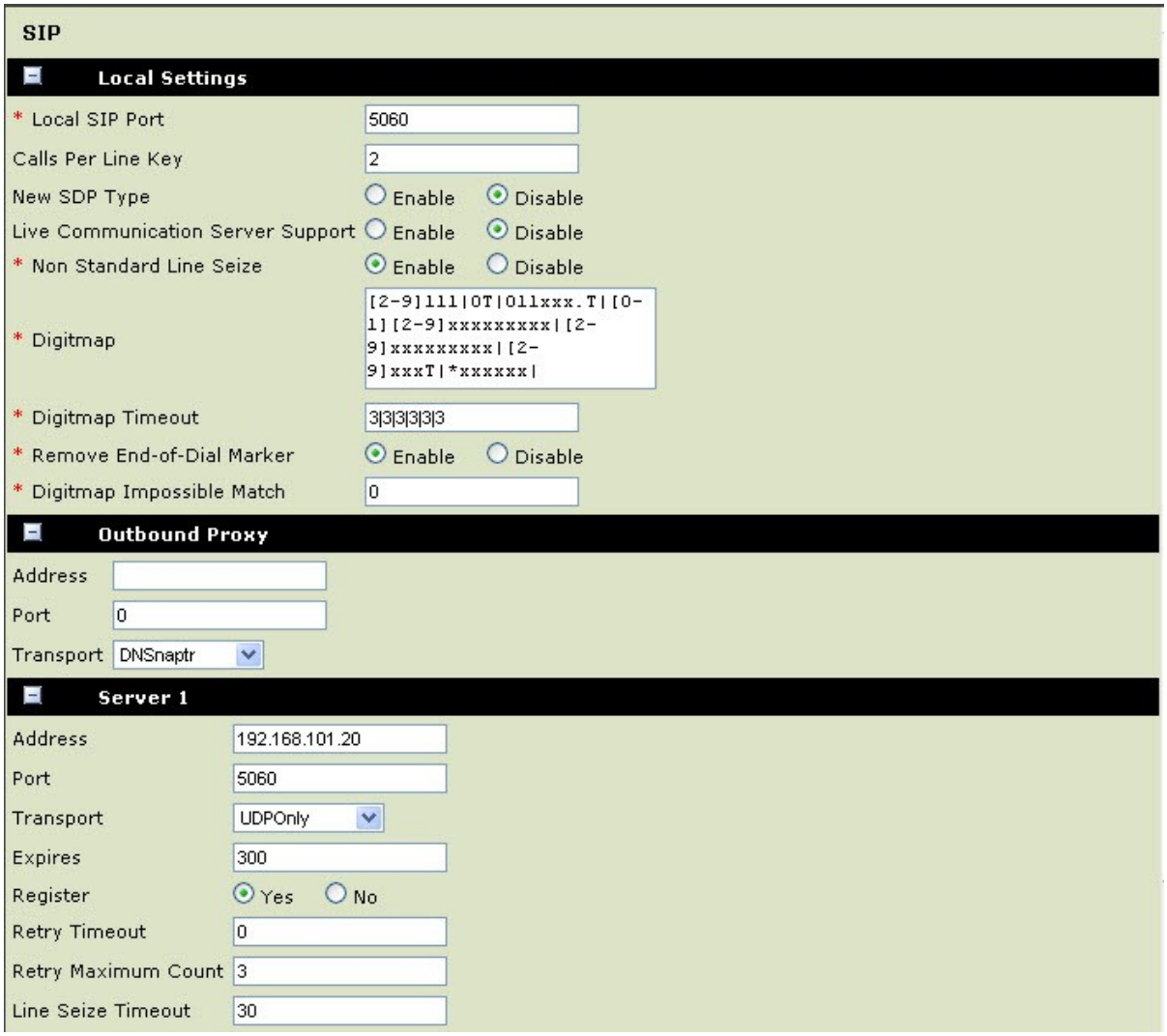


Figure 11 – SIP

Digitmap Assignment

Modifying the Digitmap for ARS Access codes:

On the Polycom web portal, under SIP, choose local settings. In the digitmap field the default value is set to:

[2-9]11|0T|011xxx.T|[0-1][2-9]xxxxxxxxx|[2-9]xxxxxxxxx|[2-9]xxxT

This translates as follows:

[2-9]11.....211, 311, 411... 911

0T.....operator (dial zero after timeout)

011xxx.T.....International Calling (dial after timeout)

[0-1][2-9]xxxxxxxxx.....0(zero) + and 1 + dialing North America

[2-9]xxxxxxxxx.....10 digit local calling

[2-9]xxxT.....4 digit internal dialing (after timeout)

The example below would include a Digit 9 for ARS Access:

9[2-9]11|90T|9011xxx.T|9[0-1][2-9]xxxxxxxxx|9[2-9]xxxxxxxxx|[1-8]xxx|0T

9[2-9]11.....9211, 9311, 9411... 9911

90T.....External operator (dial zero after timeout)

9011xxx.T.....International Calling (dial after timeout)

9[0-1][2-9]xxxxxxxxx.....0(zero) + and 1 + dialing North America

9[2-9]xxxxxxxxx.....10 digit local calling

[1-8]xxx.....4 digit internal dialing

0T.....Internal Zero - Switch Board

Optionally other dialing strings can be included for Feature access codes or Speeddials

Example below includes *8 to dial voicemail and *1xxx to dial system speeddials that start with *1

9[2-9]11|90T|9011xxx.T|9[0-1][2-9]xxxxxxxxx|9[2-9]xxxxxxxxx|[1-8]xxx|0T|*8|*1xxx

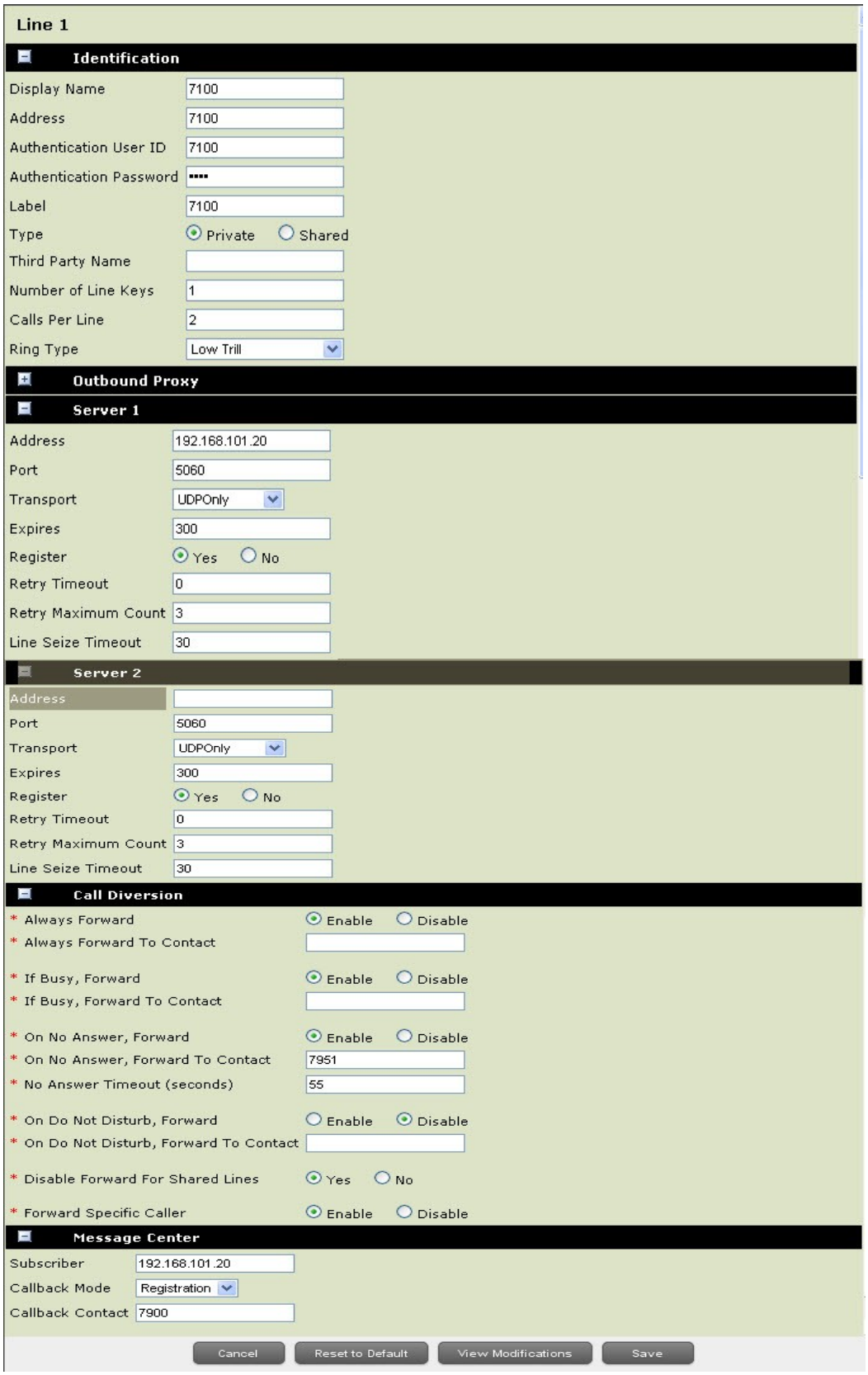


Figure 13 – Line 1

The following is the programming for resiliency scenario 1. Program this information in the SIP section as well as in the Line section.

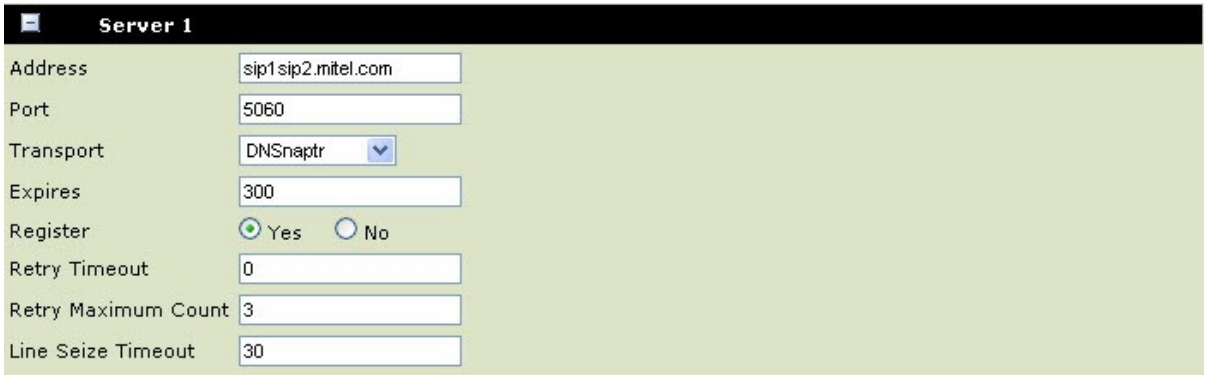


Figure 14 Resiliency Scenario 1

The following is the programming for resiliency scenario 2. Program this information in the SIP section as well as the in Line section.

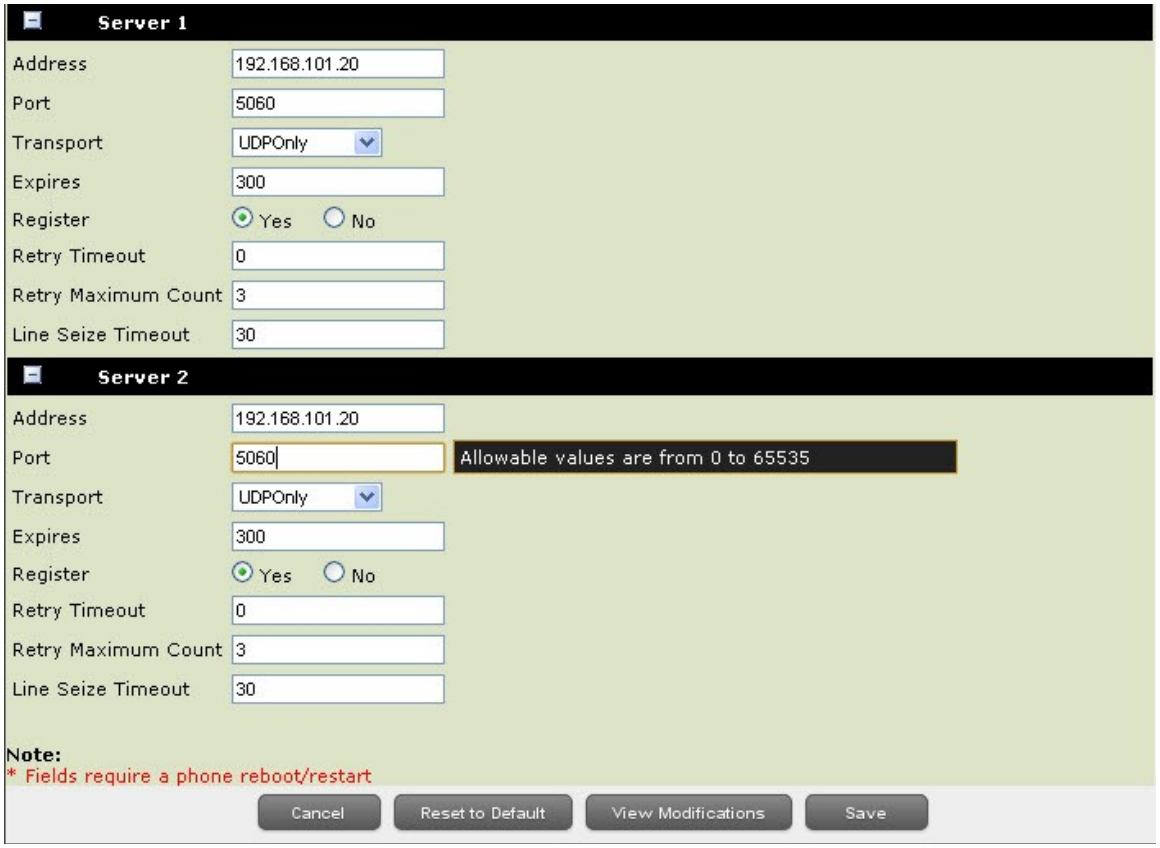


Figure 15 Resiliency Scenario 2

Appendix A

Polycom has combined their SIP stack on multiple SIP phone models and assert that these all react the same in a SIP endpoint deployed environment.

Polycom SIP Endpoints

The models that use the SIP Firmware are:

- 8440 SIP Phone
- 8450 SIP Phone (with Linear Image Scanner)
- 8452 SIP Phone (with Area Image Scanner)

Global Headquarters	U.S.	EMEA	CALA	Asia Pacific
Tel: +1(613) 592-2122 Fax: +1(613) 592-4784	Tel: +1(480) 961-9000 Fax: +1(480) 961-1370	Tel: +44(0)1291-430000 Fax: +44(0)1291-430400	Tel: +1(613) 592-2122 Fax: +1(613) 592-7825	Tel: +852 2508 9780 Fax: +852 2508 9232

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