

Product: Spectralink IP-DECT Server 400/6500

System version: ShoreTel 14.2

Abstract

This application note provides the details on adding the Spectralink IP-DECT Server 400/6500 wireless servers and Spectralink 75-Series, 76-Series and Spectralink Butterfly Series connected DECT phones to the ShoreTel® IP Phone system.

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Overview

This document provides the details on the Spectralink IP-DECT Server 400 and IP-DECT Server 6500 with connected DECT phones and describes how to integrate these DECT wireless servers with the ShoreTel IP Phone system. The document focuses on the configuration procedures needed to set up the Spectralink DECT phones for the ShoreTel system and the configuration needed on the ShoreTel system to support the Spectralink DECT phones.

Features and Benefits

Quality DECT phones provide clear, full duplex, hands-free communications for the connected parties. DECT phones on the ShoreTel IP phone system take advantage of this effective communications path while reaping the benefits of the power and cost effectiveness, through reduced costs of operation and maintenance, of ShoreTel's VoIP system.

Spectralink Overview and Contact

Information regarding the Spectralink IP-DECT Server 400/6500 and DECT Phones can be found through the following contact information:

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Spectralink Product Information

Spectralink IP-DECT Server 400

The IP-DECT Server 400 is a complete wireless enterprise solution for the SMB market. Supporting Seamless handover between base stations, extensive radio coverage, messaging to handset, value added applications and scalability from single cell solution(Server and Base station in the same unit) to a multicell configuration with up to 3 IP Base stations and support for up to 30 wireless users.



Spectralink IP-DECT Server 6500

The Spectralink IP-DECT Server 6500 is a complete wireless enterprise solution. Seamless handover between base stations, extensive radio coverage, messaging to handset, value added applications and scalability are just some of the benefits of the IP-DECT Server 6500. The IP-DECT Server 6500 consists of the IP-DECT Server 6500 itself, Media Resources, IP-DECT Base Stations, DECT Repeaters and Handsets. A flexible license option allows you to only pay for extra users when you need it. You pay, you upgrade and you have more mobile users. Up to 256 Base Stations and up to 4096 wireless users can be subscribed to the IP-DECT Server 6500, making it extremely scalable and the ideal choice for fast growing and large businesses.

Spectralink 75-Series

The Spectralink 75-Series handset is an elegant yet robust handset with a large color display and intuitive menu structure. These features make it a valuable tool and preferred choice for mobile workers in administrative working environments across the range of vertical markets.

Spectralink 76-Series

The Spectralink 76-Series is ruggedized and durable in harsh conditions. The handsets are designed to meet the needs of a mobile workforce in industrial and manufacturing environments.

Spectralink Butterfly Series

Spectralink offers a colorful, trendy, and lightweight DECT handsets designed especially for office environments that fulfills your basic wireless telephony needs.

Requirements, Validation and Limitations

The following requirements are necessary to integrate a Spectralink DECT Phone to the ShoreTel IP Phone system as described in this Application Note.

Deployment of Spectralink DECT phones require ShoreTel SIP Phone License(s) (one per Spectralink DECT phone) as well as the either the Extension & Mailbox License OR the Extension Only License.

A license is required for CODEC G.729 on the IP-DECT Servers (Part Number 14075480)

When Spectralink DECT Phones are configured as members of a Workgroup, and a call is placed into the Workgroup, the Spectralink DECT Phones will ring, but if the call is not answered and the originating party is placed into queue for the next available member, the Spectralink DECT Phones stop ringing momentarily. The Spectralink DECT Phones will ring again after the Workgroup parameter "No Answer Number of Rings" value is reached.

Please refer to the ShoreTel Administration Guide, Chapter 18, for more details on supported and unsupported features with SIP Extensions.



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Spectralink DECT Phone Requirements

• The Spectralink IP-DECT Server 6500 – the devices should be running the latest firmware (see version support table below).

Version Support

		Spectralink IP-DECT Server 400/6500	Spectralink handsets
		Firmware PCS15	75-Series & 76-Series Firmware PCS15AB
			Butterfly Series Firmware PCS14MA
ShoreTel Release	14.2	1	\checkmark
19.45.5101.0 & above	14.2	v	

Validation Testing Results Summary

Table 1: Basic Feature Test Cases

ID	Name	Description	Results
1.1	Device initialization with	Verify successful startup and initialization of the device	Pass
	static IP address	up to a READY/IDLE state using a static IP address	
1.2	Device reset – idle (for	Verify successful re-initialization of device after power	Pass
	static configurations)	loss while device is idle	
1.3	Device initialization with	Verify successful startup and initialization of the device	Pass
	DHCP	up to a READY/IDLE state using DHCP	
1.4	Device reset – idle (for	Verify successful re-initialization of device after power	Pass
	dynamic configurations)	loss while device is idle	
1.5	Verify Diffserv Code	Verify the ability to set Diffserv Code Point from SIP	Pass
	Point support	DUT	
1.6	Verify Date and Time	Verify setting of Date and Time Update on SIP DUT	Pass
	Update support		
1.7	Place call	Verify successful call placement with normal dialing to a	Pass
		variety of terminating phones	
1.8	Receive call	Verify successful reception of calls with normal dialing	Pass
		from a variety of calling phones	
1.9	Place call – re-dial	Verify successful call placement using re-dial to SIP	Pass
		Reference	
1.10	Place call – speed dial	Verify successful call placement using programmed	Pass
	_	speed dial	
1.11	CODEC support –	Verify successful call connection and audio path using all	Pass
	common (from DUT to	supported CODECs (G.711-Ulaw and G.729)	
	ShoreTel Phone, REF-x)		

ID	Name	Description	Results
1.12	CODEC support –	Verify successful call connection and audio path using all	Pass
	common (from DUT to	supported CODECs (G.711-Ulaw and G.729)	
	SIP Reference Phone,		
	SIP-Ref)		
1.13	CODEC support –	Verify successful negotiation between devices configured	Pass
	negotiated	with different default CODECs (G.711-Ulaw and G.729)	
1.14	Hold from DUT to SIP	Verify successful hold and resume of connected call	Pass
	Reference		
1.15	Hold from DUT to	Verify successful hold and resume of connected call	Pass
	ShoreTel Phone		
1.16	Forward	Verify successful forwarding of incoming calls	Pass
1.17	Forward from SIP DUT	Verify successful forwarding of incoming calls	Pass
1.18	Mute	Verify device's mute function	Pass
1.19	Out-of-band DTMF	Verify successful transmission of out-of-band digits	Pass
	Transmission	(RFC2833) for calls placed to and from the DUT with a	Note 1
		variety of other devices	
1.20	Missed call notification	Verify that device notifies the user about missed calls	Pass
1.21	Volume	Verify the device's volume adjustment function	Pass

Table 2: Extended Feature Test Cases

ID	Name	Description	Notes
3.1	Call waiting	Verify appropriate notification and successful	
		connection of incoming call while busy with another	Pass
		party	
3.2	Park	Verify successful park and retrieval of connected call	Pass
			Note 2
3.3	Extended forward	Verify extended call forwarding options – busy	Pass
		forwarding, no-answer forwarding	
3.4	Extended forward from	Verify extended call forwarding options – busy	Pass, use
	SIP DUT	forwarding, no-answer forwarding	Call
			Handling
			Modes
3.5	Transfer – blind	Verify successful blind transfer of connected call	Pass
3.6	Transfer – monitored	Verify successful monitored transfer of connected call	Pass
3.7	Conference – ad hoc	Verify successful ad hoc conference of three parties	Note 3
3.8	Place call – secondary	Verify successful call placement using secondary line	Not
	line		supported
3.9	Receive call – secondary	Verify successful connection of incoming call on	Pass
	line	secondary line	
3.10	Callback	Verify successful connection of a call using the missed-	Pass
		call callback feature of the device	



ID	Name	Description	Notes
3.11	Headset	Verify the device's support for external headsets (using	Not Tested
		headsets supplied by the 3P phone vendor)	supported
			by phones
3.12	Ring selection	Verify the device's ability to change the ring type	Pass
3.13	Caller ID Name and	Verify that Caller ID name and number is sent and	Pass
	Number	received from SIP endpoint device	
3.14	SIP Device Generates	Verify that SIP DUT generates busy tone when calling a	Pass
	Busy Tone	busy extension	
3.15	POTS Analog Gateway	Verify that the POTS Analog Gateway can support the	Not
	supports the transfer	transfer operation by "flashing"	Supported
	operation by "flashing"		~ opp once
3 16	Verify handling of "911"	Verify dialing "911" on DUT could connect with "911"	Note 4
5.10		services	11010
3 17	Verify Fax Handling	Verify that fax can be sent and received through DUT	Not
0.117			Supported
3.18	Auto Attendant Menu	Verify that DUT can initiate calls properly to a ShoreTel Auto	Pass
5.10		Attendant menu and that you can transfer to the desired	1 455
		extension.	
3.19	Auto Attendant Menu "Dial	Verify that DUT can initiate calls properly to a ShoreTel Auto	Pass
	by Name"	Attendant menu and that you can transfer to the desired	
		extension using the "Dial by Name" feature.	
3.20	Auto Attendant Menu	Verify that DUT can initiate calls properly to a ShoreTel Auto	Pass
	checking Voice Mail	Attendant menu and that you can transfer to the Voice Mail	
2.01	mailbox	Login Extension.	D
3.21	Initiate call to a Hunt Group	proper Hunt Group and are answered by an available bunt	Pass
		group member with audio in both directions using G 729 and	
		G.711 codecs.	
3.22	Initiate call to a Workgroup	Initiate a call from DUT and verify that calls route to the	Pass
		proper Workgroup and are answered successfully by an	
		available workgroup agent with audio in both directions using	
-		G.729 and G.711 codecs.	
3.23	Hunt Group Member	Verify that incoming calls to a hunt group can be answered	Pass
		properly when DUT is a member of the hunt group.	
3.24	Workgroup Agent	Verify that incoming calls to a workgroup can be answered	Pass
2.25	Call Forward "FindMa"	Verify that calls are forwarded to DUT's "FindMe"	Deec
5.25	Call Forward – Findivie	destination Verify that DUT works properly when it's a	Pass
		"FindMe" destination	
3.26	ShoreTel Converged	Verify that calls are properly forwarded to the ShoreTel	Pass
0.20	Conferencing Server	Converged Conferencing Server and it properly accepts the	
		access code and you're able to participate in the conference.	
3.27	Bridged Call Appearance	Verify that DUT can initiate calls properly to a BCA extension	Pass
	(BCA) extension	and the call is presented to all of the phones that have BCA	
		configured. Verify that the call can be answered, placed on-	
		hold and then transferred.	
3.28	Additional Phones	Verity that calls ring simultaneously on DUT and ShoreTel IP	Pass
	(Simulring)	Phone	



Note 1: DTMF tones initiated by the Spectralink DECT handsets work properly with Auto Attendant menus and other automated equipment that require tones. The test plan also tests the phones capability of sending tones and receiving DTMF tones from other devices (i.e. ShorePhones and other SIP endpoints). The Spectralink DECT handsets phones properly send DTMF tones to the other devices and are heard by the remote device, but when the Spectralink DECT handsets receive tones from these devices it does not play the tone to the user. Since we can think of no application that would be affected by this we marked it as a passed test case.

Note 2: You can successfully Park calls to and from the Spectralink DECT handsets. To Park a call from the Spectralink DECT handset you must place the first call on-hold and then dial *11 followed by the extension you wish to Park the call to, do not press the On /OFF Hook key, otherwise the Park attempt will fail. If you Park a call to a Spectralink DECT handset, the call will not appear on the handset, in order to retrieve the Parked call you must initiate a call by dialing *12 followed by the extension where the call was Parked.

Note 3: The Spectralink DECT handsets do not have the DSP resources to support a 3-way conference on the phone itself. They can be participants of a conference call, initiated by ShoreTel IP phones, but cannot initiate one.

Note 4: The Spectralink DECT handsets can generate calls to emergency numbers (911), but we did not test calling an actual emergency services center, calls were made in a controlled environment to verify call placement.



Configuration Overview

The following steps are required to configure the Spectralink DECT handsets to work with the ShoreTel system.

ShoreTel Configuration

This section describes the ShoreTel system configuration to support the Spectralink DECT handsets. The section is divided into general system settings and individual user configurations needed to support the Spectralink DECT handsets.

ShoreTel System Settings - General

The first settings to address within the ShoreTel system are the general system settings. These configurations include the call control, the switch, and the site settings. If these items have already been configured on the system, skip this section and go on to the "ShoreTel System Settings – Individual Users" section below.

Call Control Settings

The Call Control Options within ShoreTel Director may need to be reconfigured. To configure these settings for the ShoreTel system, log into ShoreTel Director and select "Administration", "Call Control", and then "Options" (Figure 2).





The "Call Control/Options" screen will then appear (Figure 3).

Call Control Options Edit	Save	eset	Help
Edit this record	Refresh this page		
General:			
Use Distributed Routing Service for call routin	g.		
Enable Monitor / Record Warning Tone.			
Enable Silent Coach Warning Tone.			
Generate an event when a trunk is in-use for	240 minutes.		
Park Timeout (1-100000) after 60 see	conds.		
Hang up Make Me Conference after 20 20	minutes of silence.		
Delay before sending DTMF to Fax Server:	2000	msec	
DTMF Payload Type (96 - 127):	101]	
SIP:			
Realm:	ShoreTel	· · · · · · · · · · · · · · · · · · ·	
Enable SIP Session Timer.			
Session Interval (90 - 3600):	3600	sec	
Refresher:	Caller (UAC) 🔻		
Voice Encoding and Quality of Service:			
Maximum Inter-Site Jitter Buffer (20 - 400):	300	msec	
DiffServ / ToS Byte (0-255):	184	(DSCP = 0x2e)	
Media Encryption:	SRTP - 128 bit AES 💌		
Admission control algorithm assumes RTP he	ader compression is be	ing used.	
Call Control Quality of Service:		_	
DiffServ / ToS Byte (0-255):	104	(DSCP = 0x1a)	
Video Quality of Service:			
DiffServ / ToS Byte (0-255):	136	(DSCP = 0x22)	
Trunk-to-Trunk Transfer and Tandem Trunks:			
Hang up after 60 minutes of silence.			
Hang up after 480 minutes.			

Figure 3 – Call Control/Options Screen

- If this is an upgrade from previous ShoreTel versions, you may see a parameter named "Always Use Port 5004 for RTP." If so, you will need to disable this parameter by unchecking the box and saving the setting. When enabled, SIP extension configuration will fail. It is also important to note that this "one time" setting requires a system restart (all servers first, then ShoreGear switches followed by IP Phones) to take effect. Once the server has been restarted, this configuration parameter will no longer be visible, or may be grayed out. The default for new installations is disabled, thus the parameter is not visible (as shown in Figure 3).
- Realm: The realm is used in authenticating all SIP devices. It is typically a description of the computer or system being accessed. Changing this value will require reboot of switches serving as SIP extensions. It is not necessary to modify this parameter to get the Spectralink solution functional.
- SIP session interval: Session interval value indicates the session (call) "keep alive" period. There is no need to modify the default value of 3600 seconds.



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• SIP session refresher: The refresher setting decides if user agent client or user agent server refreshes the session. Again, there is no need to modify the default value of "Caller (UAC)." This allows Spectralink to be in control of the session timer refresh.

Switch Settings - Allocating SIP Proxy Ports

When allocating Ports for SIP extensions, the changes are modified by selecting "Administration", "Platform Hardware...", then "Voice Switches/Service Appliances...", followed by "Primary" in ShoreTel Director (Figure 4).



Figure 4 – Administration Switches

This action brings up the "Primary Switches" screen. From the "Switches" screen, simply select the name of the switch to configure. The "Edit ShoreGear ...Switch" screen will be displayed (**Figure 5**). Within the "Edit ShoreGear ...Switch" screen, define one of the "**Port Type**" settings from the available ports to "**100 SIP Proxy**", as well as sufficient "IP Phone" ports to support the total number of Spectralink DECT phones, then **Save** the change.

Note: If your installation requires more than 100 SIP extensions, configure the "Port Type" as "100 SIP Proxy" as necessary (i.e. two ports configured for "100 SIP Proxy" will provide 200 SIP extensions). Remember, SIP endpoints also utilize IP Phone Ports.

	ATUS O 7 CAN 1 CAN 2 CAN 2 MAINT SG90	ShoreTel :	4 5 6 7 8 9 10 11 12
Port	Port Type	Trunk Group	Description
1	SIP Trunk with Media Proxy 🔻	-	P01
2	5 IP Phones 🛛 🛨 🔻		P02
3	100 SIP Proxy 🔶 🗸	-	P03

Figure 5 – Edit Switches

If the ShoreGear switch that you have selected has "built-in" capacity (i.e., ShoreGear 50/90/220T1/E1, etc.) for IP phones and SIP trunks, you can also remove 5 ports from the total number available to provide the "100 SIP Proxy" configuration necessary (**Figure 6**).



Note: Every 5 ports you remove from the total available will result in "100 SIP Proxy" ports being made available.

One dedicated ShoreGear 120 switch can act as a proxy for the entire site and support up to 2400 SIP phones.

Built-in Capacity:	IP Phone + SIP Trunk = Total			
	15 + 10 = 25 of 30 (100 SIP proxy ports) ←			
Enable Jack Based Music On Hold				
Jack Based Music On Hold Gain (-49 to 13):	0dB			
Use Analog Extension Ports as DID Trunks				
	ShoreTel Bhare Great 90			
SG90				

Figure 6 – ShoreGear Switch Built-in Capacity

Site Settings

The next settings to address are the administration of sites. These settings are modified under the ShoreTel Director by selecting "Administration" then "Sites" (Figure 7).

Shore Tel [®]	Sites					Help
Director	Add new site in:	United States of America 🔻 Go				
Administration	Site	Country	Area Code	Bandwidth	Switches	Servers
 Users Trunks IP Phones Platform Hardware Call Control Voice Mail Auto-Attendant Menus Workgroups Schedules Communicator System Directory Application Servers SIP Servers Sites 	© 1998-2014 ShoreTel	United States of America	408	2000	5	Headquarters UCB
System ParametersPreferences						

Figure 7 – Administration/Sites

This selection brings up the "Sites" screen. Within the "Sites" screen, select the name of the site to configure. The "Edit Site" screen will then appear. Scroll down to the "**SIP Proxy**" parameters (**Figure 8**).



SIP Proxy:		
Virtual IP Address:		
Proxy Switch 1:	SG90 🔻	-
Proxy Switch 2:	None 🔻	

Figure 8 – Site Screen SIP Proxies

The "Virtual IP Address" parameter is a new configuration parameter beginning with ShoreTel 8. This "Virtual IP Address" is an IP address that can be moved to a different switch during a failure. For each site that supports SIP extensions, one "Virtual IP Address" is defined that will act as the SIP Proxy for the site. This IP address must be unique and static.

The ShoreTel server will assign this "Virtual IP Address" to the ShoreGear that is configured as SIP proxy for the site. Two ShoreGear switches can be configured as SIP proxy servers for redundancy and reliability purposes. If the primary proxy server goes down, the other proxy switch will take over the "Virtual IP Address." Due to this "Virtual IP Address" mechanism, SIP phones will not know if the proxy switch goes off-line.

Note: If you choose not to define a "Virtual IP Address," you can only define one proxy switch, and there will be no redundancy or failover capabilities. The switches available in the "Proxy Switch 1 / 2" will only be shown if proxy resources have been enabled on the switch.

The "Admission Control Bandwidth" defines the bandwidth available to and from the site. This is important as SIP endpoints may be counted against the site bandwidth. See the ShoreTel Planning and Installation Guide for more information about this.

ShoreTel 14.2 has 11 built-in CODECs by default. These CODECs can be grouped as "Codec Lists" and defined in the Sites page for "Inter-site" and "Intra-site" calls. See ShoreTel's Administration Guide for more information. The default settings will work properly with the Spectralink IP-DECT Wireless Servers.

SIP Profiles

ShoreTel Director's, "IP Phones..." section contains the "SIP Profiles" option. Beginning with ShoreTel 8, the ShoreTel system comes standard with a "_System" and "_ShorePhoneIP8000" SIP profiles (they cannot be deleted - only disabled). By default, the IP-DECT Server 400/6500 utilizes the "_System" profile. In order to optimize the functionality, you will need to add a custom profile. This is accomplished from ShoreTel Director by selecting "Administration" followed by "IP Phones...", then select "SIP Profiles" This action brings up the "SIP Profiles" screen. At the top of the page, below the "SIP Profiles List", select the "New..." radio button, as shown in Figure 9.



ShoreTel	SIP F	Profiles			Help
Director	SIP Ext	ension Profiles	0 records checked.		
Administration		Name	User Agent	Enabled	Priority
• Trunks		RoamAnywhere Client	*ShoreTelMR.* /* AgitoRAMR.*	Yes	50
IP Phones Individual ID Phones		ShorePhone IP8000	^ShoreTel/ST_PH1_[2-6].[0-9].[0-9] ([0-9])\$	Yes	50
• IP Phone Address	(m)	System	*	Yes	10
Map • SIP Profiles • Phone Applications • Options	© 1998-20	14 ShoreTel, Inc. All rights reserve	<u>d</u>		

Figure 9 – SIP Profiles

This action brings up the "Edit SIP Profile" screen, Figure 10.

Edit SIP Extension P	rofile Save	Delete	Keset	
Edit this record	Refresh this page			
Name:	Spectralink DECT 6500			
User Agent:	KW\$6500.*			
Priority:	100			
🗹 Enable				
System Parameters:	OptionsPing=0 SendEarlyMedia=0 MWI=none 1CodecAnswer=1 StripVideoCodec=0			
Custom Parameters:	MWI=subscribe FakeDeclineAsRedirect=486 XferFailureNotSupported=1	*	-	
		-		

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Figure 10 – Edit SIP Profile

Define a "**Name:**" for the entry as you deem appropriate, we recommend that you use a name that describes the SIP endpoint. For the "**User Agent:**" option, enter "KWS6500.*" (without quotes, make sure to include the period followed by the asterisk) for the Spectralink IP-DECT Server 6500; the "**Priority:**" defaults to 100, no change is required. Enable the profile by checking (enabling) the "**Enable**" option. In the "Custom Parameters:" options, add the following entries:

MWI=subscribe FakeDeclineAsRedirect=486 XferFailureNotSupported=1

Save the changes.



Note: Please do not disable any of the default SIP profiles. In case there are issues with the custom profile defined, disabling the system profiles may cause the Spectralink DECT handsets to not be added to the ShoreTel system. Refer to ShoreTel's Planning and Installation Guide for more information.

Creating SIP Extension

You need to create a user extension for a Spectralink DECT handset on IP-DECT Server 400/6500. This is accomplished from ShoreTel Director by selecting "**Administration**" followed by "**Users...**," then "**Individual Users**" This action will bring up the "Individual Users" screen at the top of the page. To the right of "**Add new user at site**:" select the site you wish to create the user in (from the drop down menu), and select "**Go**" (**Figure 11**).

Shore Tel [®]	Individua	lUsers								Help
Director	Add new	user at site:	Headquarters	▼ <u>Go</u> ◀						
Administration • Users	Show pa	ge: 1:Headq	uarters - Head	quarters	- 14		Records	25 🔻	per page Export to I	Excel
 Individual Users User Groups 	First Name	Last Name	Site	User Group	Access License	Extension	Mailbox	Switch	Port	Status
 Class of Service 	User1		Headquarters	Executives	Personal	109	109	SG90	00-10-49-1B-7F-5D	Home
 Anonymous Telephones 	User2		Headquarters	Executives	Personal	110	110	SG90	00-10-49-1A-A1-1A	Home
• Extension Lists	User3		Headquarters	Executives	Personal	111	111	SoftSwitch		Home
 Batch Update Utility Call Handling Mode Defaults 	© 1998-2014	ShoreTel, Inc. Al	I rights reserved.							

Figure 11 – Individual Users Settings

This action brings up the "Users" "Edit Users" screen (Figure 12).



Users Edit User	New Copy Save Delete Reset
✓ General ► Persor	nal Options Distribution Lists Workgroups Connect Services
First Name:	Spectralink
Last Name:	DECT 7620
Number:	399
License Type:	Extension and Mailbox
Access License:	Personal Enable Contact Center Integration
Caller ID:	(e.g. +1 (408) 331-3300)
DID Range:	▼ <u>View System</u>
DID Number:	(Range: +12015100006 - 12015100008)
PSTN Failover:	None 👻
User Group:	Executives Go to this User Group
Site:	Sunnyvale TPP Lab 🔻
Language:	English(US) •
Primary Phone Port:	IP Phones Any IP Phone
	Ports SG120-2 - 3
	SoftSwitch SoftSwitch -
Current Port:	Any IP Phone Go Primary Phone
Jack #:	
Mailbox Server:	Headquarters Escalation Profiles and Other Mailbox Options
Figure 12 – Adding/	Editing Users

Define the "**First Name**" and "**Last Name**" as you deem appropriate. Shore Tel Director will auto-assign the next available "**Number**" (i.e., extension), but you can modify it to any available extension. Define the "**License Type**" and "**Access Type**" as needed; in this example we chose "Extension and Mailbox" although it's not necessary to have a mailbox, and "Professional" for "Access License". Define the proper "**User Group**" and set the "**Primary Phone Port**" to "Any IP Phone", the Primary Phone Port will automatically update once the Spectralink DECT phone registers to the Shore Tel system.

Note: If you configured the "License Type" for "Extension-Only," you cannot select "Any IP Phone" but instead must set the "Primary Phone Port" for the "SoftSwitch" selection. Save your changes, then scroll down to the "SIP Password:" section (**Figure 13**).



Allow Telephony Presence			
Shared Call Appearances			
Associated BCA:			
Allow Use of Soft Phone			
C Allow Phone API			
Mobility Options:			
Allow Mobile Access			
C Allow Enhanced Mobility with Extension			
Delayed Ringdown			
Extension:		Searc	:h
External Number:		(e.g. 9+1 (408) 3	31-3300)
Ringdown Delay:		sec	
Client Username:	SDECT7620		
Client Password:	•••••	•••••	
Voice Mail Password:	••••	••••	Must Change On Next Login
SIP Password:	•••••	•••••	
Email Address:	SDECT7620@yourd	company.com	
Conferencing Settings:			
Appliance:	<none> 💌</none>		
Instant Messaging Settings:			
Server / Appliance: Edit System Directory Record	<none> 🔻</none>		

Figure 13 – Individual User SIP Settings

There is no default "SIP Password", it is masked with the appearance that there is, but don't be confused to think that there's a default password. You can modify it to any value you wish, but be certain to note what you changed it to, as you will need it when configuring the Spectralink DECT handsets and Spectralink IP-DECT Server 400/6500 parameters. Save your changes.



Spectralink Configuration

This section describes the Spectralink IP-DECT Server and phone(s) configuration parameters needed to support integration with ShoreTel.

Installing Spectralink IP-DECT Server400/6500

The Spectralink IP-DECT Server 6500 is suitable for mounting in a 19" Rack or on a wall.



Mount the two wings with the included screws as shown in above picture. If you are mounting it on a wall, twist the brackets 90° degrees. Then mount the server in a 19" Rack cabinet or upwards on a wall.

For the IP-DECT Server 400 or the IP-DECT Base stations, mount the IP-DECT Server 400 / Base station on the wall, using the anchors and screws provided (when you place the IP-DECT Server 400/ Base station on the screws, ensure that the screws do not touch the printed circuit board)



Figure 13 – IP-DECT Server 400 / Base station Wall mounting

Then connect the network PoE Eth LAN cable into the corresponding RJ45 plug on the IP-DECT Server 400 / Base station. For IP-DECT Server 6500 only(optional on IP-DECT Server 400 / Base station): Power up the unit with a local power supply using the power input on the unit.

Finally, make sure that the IP-DECT Base station and/or IP-DECT Server 400/6500 is powering up, by watching the front LED. Expect approx 15 – 20 seconds before any LED activity.



Enter Administration Page on IP-DECT Server 400/6500

The web based Administration Page is accessed through a standard web browser. To access the web page, use the information below.

	Initial System Access IP- DECT Server400/6500
Static IP Address	192.168.0.1
Network Mask	255.255.255.0
User Name	admin
Password	admin

Open a web browser. In the browsers Address bar, type http://192.168.0.1, and then press <ENTER>. Type in the Username and Password from the table above in the dialog and click on the OK button - The Spectralink IP-DECT 6500 Administration Page will appear.

NOTE: The default User Name of the system is **admin** and the default Password is **admin**. It is strongly recommended that you change the Password.

spectralink 💈 IP-DEC	T Server 6500			
Status Configura	ation Users	Administration	Firmware	Statistics
General Logs Wireless	Server Packet Capture	e Network Diagnose		
	Gene	ral Status		
	General			
	IP address	10.40.12.191		
	NTP Server	10.40.12.11		
	Time	2015-05-29 10:31:09		
	Serial	8447314		
	MAC address	00:13:d1:80:e5:52		
	Product ID	000A 000A 000A 1F13		
	Production Date	2013-04-04		
	Hardware			
	PartNo	14212520		
	PCS	02		
	Firmware			
	PartNo	14218500		
	PCS	PCS15		
	Build	49212		
	Quick status			
	SIP	~		
	Base stations	~		
	Media resources	×		
	Provisioning	8		
	NTP	~		

Figure 14 – Main page of the IP-DECT Server400/6500 Administration Page

IP-DECT Server 400/6500 IP Setup

For setting up the IP settings, click on Configuration - >General Tab" and enter the settings in the corresponding fields (you may get this information from your IT – administrator)





spectralink 🕏	IP-DECT	Server	650
---------------	---------	--------	-----

IDu4	
Mothod * **	Lies statis ID address
Method .	
IP addr **	10.40.12.191
Netmask **	255.255.255.0
Gateway **	10.40.12.1
MTU **	1500
IPv6	
Method **	Disabled •
Address/prefix **	
Default gateway **	
Ethernet	
VLAN **	
DNS	
Hostname (FQDN) **	
Search domain **	shoretel.com
Primary Server **	10.40.12.11
Secondary Server **	10.40.12.10
NTP	
Server	10.40.12.11
Time zone	Pacific Time
Posix timezone string	MST8MDT.M3.2.0/02:00:00.M11.1.0/0
UPnP	
Enabled **	
Broadcast announcements *	•
Remote syslog	-
Host	
Port *	514
Facility *	16 Local 0 V
Level *	info T
2010	
SNMP	
Enabled **	
Community **	public
Trap host **	
Trap community **	
System location **	
System contact **	

Figure 15 – General Configuration page for IP-DECT Server 400/6500

Enter administration page and IP setup of IP-DECT Base Station (IP-DECT Server400/6500 only)

Access the administration page with the same credentials as for IP-DECT Server400/6500. The IP-DECT Base Station can be further IP configured following the procedure described above – with static IP address or, by means of DHCP (recommended). Since the IP-DECT Server 400/6500 is configured using a static IP address, it is possible to assign options to the DHCP server making it easy to configure all base stations in the setup. The General configuration shown in Figure 15 displays the minimum settings required for validation with the ShoreTel system.

IP-DECT Server 400/6500 System Settings – SIP Configuration

The first settings to address within the IP-DECT systems in order to successfully communicate with ShoreTel system are the SIP settings. Therefore, open the Configuration section - "SIP" tab.





SIP	Confi	guratio	on	
General				
Local port * **	5060			
Transport * **	UDP	•		
DNS method * **	A reco	rds 🔻		
Default domain * **	10.40.1	12.239		
Register each endpoint on separate port **				
Send all messages to current registrar **				
Registration expire(sec) *	3600			
Max forwards *	70]		
Client transaction timeout(msec) *	4000			
SIP type of service (TOS/Diffserv) * **	96			
SIP 802.1p Class-of-Service *	3	1		
GRUU				
Use SIPS URI				
TLS allow insecure **				
TCP ephemeral port in contact address **				
Proxies				
	Priority	Weight	URI	
Proxy 1 **	1	100	sip: 10.40.12.239	
Proxy 2 **	2	100		
Proxy 3 **	3	100	-	
Proxy 4 **	4	100		
Authentication				
Default user	someor	ne		
Default password				
Realm				
DTMF signalling				
Send as RTP (rfc2833)	2			
Offered rfc2833 payload type	96			
Send as SIP INFO				
Tone duration(msec) *	270			
Message waiting indication	000000	STANDAR		
Enable indication				
Enable subscription **	8	-		
Subscription expirates) *	3600	-		
Madia				
Packet duration(msec) *	20 •	7		
Media type of service (TOS/Diffserv) *	184	ĥ		
Media 802 to Class of Service *	5	-		
Ded store sted ! !!	50000			
For range start	56000	20/0000		
	1: G7. 2: PCI	29/8000 MU/8000		_
Codes missiby *	3: PC	MA/8000	•	
Codec priority	4: Nor	ne	Ŧ	
	5: Nor 6: Nor	ne	-	
SDP answer with preferred codes	0. [140			
SOP answer with a single codec	0			
our answer with a single codec				
Langest COD				
Ignore SDP version	-			
Ignore SDP version Enable ICE				
Ignore SDP version Enable ICE Enable TURN	8			
Ignore SDP version Enable ICE Enable TURN TURN server	8			
Ignore SDP version Enable ICE Enable TURN TURN server TURN username				
Ignore SDP version Enable ICE Enable TURN TURN server TURN usemame TURN password				
Ignore SDP version Enable ICE Enable TURN TURN server TURN usemame TURN password Call status				
Ignore SDP version Enable ICE Enable TURN TURN server TURN usemame TURN password Call status Play on-hold tone				
Ignore SDP version Enable ICE Enable TURN TURN server TURN usemame TURN password Call status Play on-hold tone Display status messages				
Ignore SDP version Enable ICE Enable TURN TURN server TURN usemame TURN password Call status Play on-hold tone Display status messages # key ends overlap dialing				

ShoreTel 960 Stewart Drive Sunnyvale, CA 94085 USA Phone +1.408.331.3300 +1.877.80SHDRE Fax +1.408.331.3333 www.ShareTel.com

Figure 16-400/6500 SIP Configuration page

The only fields that are required to update from the default parameters are the **Default domain**, **Proxy 1**, **Enable Subscription** and **Call waiting**. In the **Default domain** field enter the IP Address of the ShoreTel SIP Proxy switch. The ShoreTel SIP Proxy IP Address is also required in the **Proxy 1** field, example: sip:10.40.12.239 . Make sure the **Enable subscription** and **Call waiting** parameters are checked.

Note: A license is required for CODEC G.729 on the IP-DECT Servers (Part Number 14075480)

In order to have the message waiting indication functionality, Enable indication must be checked.

Register each endpoint on separate port and **Send all messages to current registrar** may remain unchecked, unless signal tracing will be performed.

If **Play on-hold tone** is enabled, when the DECT handset is placed on-hold, the phone will generate its own ringback signal.

The Spectralink IP-DECT Server 400/6500 will route all outgoing SIP signaling to the ShoreTel SIP Proxy switch, e.g. SIP registrations and outgoing calls.

IP-DECT Server 400/6500 System Settings – User Configuration

To create a new user for the IP-DECT Server 400/6500, access the Users section, List Users and press the New button.

spec	tralink🕏	IP-	DECT Sei	rver 6500					
List U	Status sers Import	C /Export	onfiguration	Users		Administration		Firmware	Statistics
					Use	er List			
				Overview	1970				
				System ARI	10	000000004 [10 00 00	19 00]		
					User	s Subscribed Regis	stered		
				Total		3 3	3		
Ohara D			New Enable	Disable Delete	Re	register Un-subscr	ibe Firmwar	e update	
Show	Ali 🔹 entrie	S						Search:	
	Enabled	User	Displayname	IPEI	0	Handset 🔶	Firmware	Subscription	Registration
0	×	399	399	05000 000006	51	Spectralink 7620	15A	×	×
	×	<u>500</u>	500	05003 00000	07	Spectralink Butterfly	14M	×	¥
0	~	299	299	00007 000000	6	Spectralink 7520	15E	×	×
Showin	g 1 to 3 of 3 e	entries						First Previo	us 1 Next Last



Figure 17 – IP-DECT Server 400/6500 User List page

You can see the phone's subscription to the IP-DECT Server status and the SIP registration status.

ralink \$ P-[DECT Server 650	0		
Status (Users Import	Configuration Users /Export	Administration	Firmware	Statistic
		lser 399		
	DECT device			
	Model	Spectralink 7620		
	Software part number	14179910		
	Firmware	15A		
	HW version	1F		
	Production Id	000A 0004 0002 0004		
	IPEI	05000 0000061		
	Access code	123456		
	User			
	Standby text	399		
	Disabled			
	SIP			
	Usemame / Extensio	n * 399		
	Domain			
	Displayname	399		
	Authentication user	399		
	Authentication passw	vord		
	Features			
	Call forward unconditi	ional		
	Save	Delete Cancel		

Figure 18 – IP-DECT Server400/6500 Create user page

To create a new user for the IP-DECT Server400/6500, you have to provide at least the following information: the phone's **IPEI** number, **Username/Extension** (ShoreTel user's extension number created within ShoreTel Director), **Authentication user** (we configured the ShoreTel user's extension number) and **Authentication password** (ShoreTel user's SIP Password created within ShoreTel Director). Then, by pressing the **Save** button, the user is created.

Note: The IPEI number of each handset is found either on a label, which is placed behind the battery, or on the packaging label. To show the serial number on the handset display (75/76/77/Butterfly Handset), press Menu, select Status and then select General information to display the IPEI number. Press exit to exit the menu.

Spectralink IP-DECT Server 400/6500 DECT subscription

Key button functions :"MENU" - Goes to menu structure or exits the menu structure, "REDIAL" - Menu: left, Cursor left; "BOOK" - Menu: right, Cursor right ; "MUTE" - Confirmation ("YES") or jump to next level in the menu.

Spectralink 75-Series/76-Series/Butterfly handsets

For creating a subscription on the handset you need to press the below sequence on the DECT handset: Menu (left soft key); Settings (navigate up once) – Select (left soft key); Advanced (navigate up once) – Select (left soft key); Login (navigate up twice) – Select (left soft key); Create login (navigate down three times) – Select (left soft key)



Check that the handset display shows "Searching" in the top. If there is more than one DECT system in range, a list with all DECT ARI codes will be created. Select the correct ARI for your system (scroll up/down with the navigation button), and press Select (left soft key).

Voice mail

For accessing the Voice Mail, the DECT users must dial the default Voice Mail login extension. For easing up the Voice Mail accessing, the DECT user can define a speed dial to the Voice Mail login extension. For doing that, read the appropriate DECT handset user guide.

Spectralink Troubleshooting

For troubleshooting of the DECT Phones and Systems please visit http://support.spectralink.com

Spectralink Technical Support

For technical support please visit http://support.spectralink.com/contact-support

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