Spectralink Virtual IP-DECT Server One
IP-DECT Server 200/400/6500
DECT Server 2500/8000

Interoperability Guide

Cisco Unified Communications Manager (CUCM)

Third-party SIP Installation

722-0206-000 Rev: N
November 2020

Copyright Notice

Notice

Spectralink Corporation has prepared this document for use by Spectralink personnel and customers. The drawings and specifications contained herein are the property of Spectralink and shall be neither reproduced in whole or in part without the prior written approval of Spectralink, nor be implied to grant any license to make, use, or sell equipment manufactured in accordance herewith.

Spectralink reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult Spectralink to determine whether any such changes have been made.

NO REPRESENTATION OR OTHER AFFIRMATION OF FACT CONTAINED IN THIS DOCUMENT INCLUDING BUT NOT LIMITED TO STATEMENTS REGARDING CAPACITY, RESPONSE-TIME PERFORMANCE, SUITABILITY FOR USE, OR PERFORMANCE OF PRODUCTS DESCRIBED HEREIN SHALL BE DEEMED TO BE A WARRANTY BY SPECTRALINK FOR ANY PURPOSE, OR GIVE RISE TO ANY LIABILITY OF SPECTRALINK WHATSOEVER.

Warranty

The Product Warranty and Software License and Warranty and other support documents are available at http://support.spectralink.com/.

Contact Information

US Location
+1 800-775-5330

Spectralink Corporation
2560 55th Street
Boulder, CO 80301
USA

info@spectralink.com

Denmark Location
+45 7560 2850

Spectralink Europe ApS
Bygholm Soepark 21 E Stuen
8700 Horsens
Denmark

infoemea@spectralink.com

UK Location
+44 (0) 20 3284 1536

Spectralink Europe UK
329 Bracknell, Doncastle Road
Bracknell, Berkshire, RG12 8PE
United Kingdom

infoemea@spectralink.com

Contents

Chapter 1: About This Guide

This guide describes how to configure a Spectralink IP-DECT Server 200/400/6500, Spectralink Virtual IP-DECT Server One and Spectralink DECT Server 2500/8000 for connecting to a Cisco Unified Communications Manager.

In the following the servers will be referred to as “Spectralink IP-DECT/DECT/Virtual IP-DECT Server” or simply the “server”.

The Cisco Unified Communications Manager will be referred to as “CUCM”.

This guide is intended for qualified technicians and the reader is assumed to have a basic knowledge about the Spectralink IP-DECT/DECT/Virtual IP-DECT Server and the Cisco Unified Communications Manager. It is also assumed, that you have an installed and functioning Cisco Unified CM Server and Spectralink IP-DECT/DECT/Virtual IP-DECT Server.

You can configure the Spectralink IP-DECT/DECT/Virtual IP-DECT Server solution to be used on a Cisco Unified Communications Manager in two different ways:

- Third-Party SIP device – described in this guide

  Handsets configured as a Third-Party SIP device will have basic integration.

  To be able to register Spectralink handsets, phone licenses for third-party SIP are required. For more information on License Unit Calculation and download of phone licenses to CUCM, see the Cisco documentation.

- Spectralink IP-DECT/DECT – CUCM License and COP file (Cisco Options Package file) installation (recommended) (not relevant to Spectralink IP-DECT Server 200)

  Handsets configured with Spectralink IP-DECT profile will have a tighter integration with the Cisco Unified Communications Manager, and will have access to additional features.

  Having the Cisco Unified CM (Advanced Features) License installed it is also possible to:

  - Predefine user data including CUCM device names manually in a user XML file for provisioning.
  - Predefine user data including CUCM device names manually in a CSV file in Spectralink IP-DECT/DECT Server format to be imported to the Spectralink IP-DECT/DECT Server.
  - Export user data from the Spectralink IP-DECT/DECT Server in a CSV file in CUCM format to be imported directly to the CUCM.

The guide is divided into two parts:

- Server Configuration
- CUCM Configuration

Each part describes the general configuration and the user administration.

Infrastructure Version Information

- Interoperability testing between the Spectralink IP-DECT/DECT/Virtual IP-DECT Server and the CUCM was conducted using version 11.0 of the Cisco Unified Communications Manager and firmware PCS 16F of the Spectralink IP-DECT Server and PCS 16C of the Spectralink DECT Server.
- To support the configuration described in this guide, the Spectralink IP-DECT/DECT/Virtual IP-DECT Server must have firmware version (200 PCS 19B, 400/6500 PCS 19B, One PCS 20A_ or 2500/8000 PCS 19B) or newer.
- Spectralink DECT Handsets 7522/7532, 7622/7642 and 7722/7742 must have firmware PCS 17Ha.
- Spectralink DECT Handset 7502 must have firmware PCS 18C.

Note:

The examples in this guide are made with IP-DECT Server firmware PCS 16F and Cisco Unified CM version 11.0.

Related Documentation

All Spectralink documents are available at http://support.spectralink.com/.

Subject	*Documentation*
Cisco Unified Communications Manager	Navigate to the Cisco documentation site for the latest Cisco documentation.
Spectralink DECT Handsets	For more information about the handset, refer to the user guide available online at http://support.spectralink.com/products.
Site Survey Function in Handset	For more information about the site survey function in handset, refer to the guide available online at http://support.spectralink.com/products.
Synchronization and Deployment Guide	For more information about synchronization and deployment, refer to the guide available online at http://support.spectralink.com/products.
Spectralink IP-DECT/DECT/ Virtual IPDECT Server	For more information about the server, refer to the guide available online at http://support.spectralink.com/products.
Provisioning	For more information about provisioning, refer to the guide available online at http://support.spectralink.com/products.
Spectralink Technical Bulletins	Available online at http://support.spectralink.com/products.
Release Notes	Document that describes software changes, bug fixes, outstanding issues, and hardware compatibility considerations for new software releases. Available online at http://support.spectralink.com/products.

Subject	*Documentation*
Spectralink DECT Training material	In order to gain access to the Spectralink training material, you must attend training and become Spectralink Certified Specialist. Please visit http://-partneraccess.spectralink.com/training/classroom-training for more information and registration.

Chapter 2: Feature List

The following features are supported:

	Supported features

Telephony	• Basic Calling
	• Call Hold
	• Call Transfer
	• Call Waiting
	• Call Forward (DECT endpoints only)
	• Message Waiting
	• Directed Call Park
	• SIP Transport Methods:
	  ○ UDP
	  ○ TCP
	• Call Completed Elsewhere

User experience	• SIP URI Support Phone Book (75x2, 76x2, 77x2 only)
Management/Administration	• Logging (Server based) • Spectralink Device Profile in CUCM
Voice Quality	• Codecs: G.711 (default), G.729 (optional)
Value added Spectralink features	• Rich APIs for third-party solutions integration • Multi-language (on handsets) • Paging • Safe Worker

Chapter 3: Telephony Feature Details

Supported features	*Description/Setting*
Basic Calling	Allows user to make and answer calls.
Call Hold	Allows user to put a call on hold.
Call Transfer	Allows user to transfer the active call to some other number.
Call Waiting	Allows user to answer another incoming call when already in an active call. For more information, see **Configuration**> **SIP**> **Call status** and parameter description in the web-based Administration Page of the server.
Call Forward (DECT endpoints only, not PBX or other devices)	Allows the user to: • Call forward unconditional - enable Enable **Call forward unconditional** by dialing this code ***21***, followed by the desired extension ($ = extension) and #. E.g.: ***21*$#** • Call forward unconditional - disable Disable **Call forward unconditional** by dialing this code **#21#**. For more information, see Enabling Feature Codes.
Message Waiting	Allows users to know that they have new or unheard voice mail messages.
Directed Call Park	The Call Park feature allows user to place a call on hold so that can be retrieved from another phone in the Cisco Unified Communications Manager (e.g. a phone in another office or in a conference room).
SIP Transport Methods	SIP is designed to be independent of the underlying transport layer protocol. Following Transport Methods are supported: • UDP • TCP For more information, see SIP Settings.

Chapter 4: Server Configuration

Below is a description of how to configure the Spectralink IP-DECT/DECT/Virtual IP-DECT Server and how to add users and handsets to the system.

General Settings

1. Click **Configuration**, the **General Configuration** page displays.
2. Check that the **Hostname (FQDN)** field is left blank under **DNS** settings when connected to the Cisco Unified Server.
3. Click **Save**, and then reboot the system.

SIP Settings

The Spectralink IP-DECT/DECT/Virtual IP-DECT Server requires a few SIP settings to be adjusted in order to connect properly to the Cisco Unified Server.

Note:

SIP settings not mentioned below should be left at their default values.

Modifying the SIP settings from the Web-based Administration Page

1. Click **Configuration**, and then click **SIP**.
2. Modify the settings below.

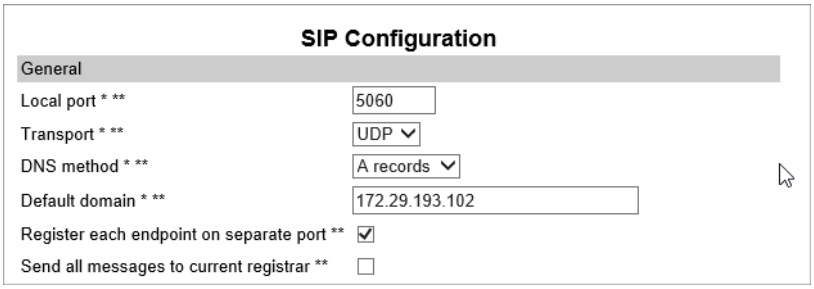
Field	*Setting*
SIP Configuration - General	
Transport	UDP or TCP
Default domain	For a standalone CUCM enter the IP address of the Cisco Unified Communications Manager. For a CUCM cluster or if a SRST router is present enter the Cluster Fully Qualified Domain Name (to be found in CUCM by navigating to **Cisco Unified CM Administration**> **System**> **Enterprise Parameters**).
Register each endpoint on separate port	Enable
Send all messages to current registrar	Enable **Note**: Only relevant if more proxies are available.
Allow internal routing fallback	Must be enabled if **Secondary username** is defined. For more information, see Adding Users and Handsets.
SIP Configuration - Proxies	

Field	*Setting*
Proxies	If the Cluster Fully Qualified Domain Name is entered in the **Default domain** field, fill in the IP addresses or hostnames of the servers in prioritized order.
SIP Configuration - DTMF signaling	
Send as RTP	Ensure that this feature is enabled to make DTMF tones work.
Offered RFC2833 payload type	Value must be set to 101.

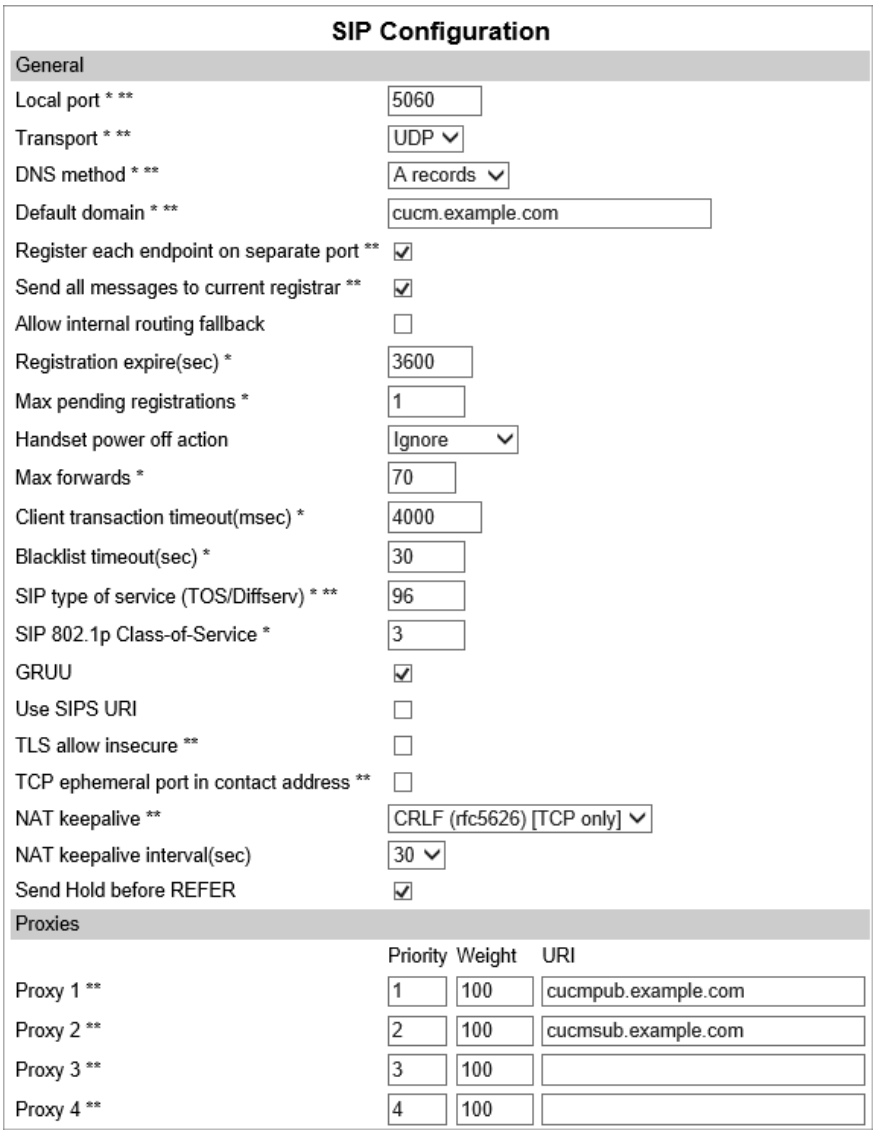
Note:

In order for the Spectralink IP-DECT/DECT/Virtual IP-DECT Server to support Cisco Unified Survivable Remote Site Telephony (SRST) within a CUCM setup with a SRST router, this feature must be configured in the CUCM. For more information, see Cisco documentation.

Example using a standalone CUCM configuration:



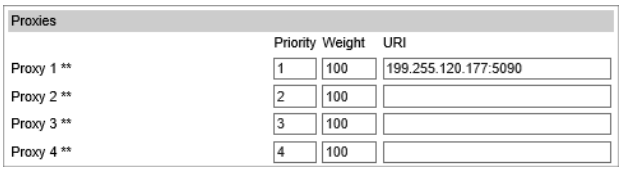
Example using a CUCM cluster solution:



SIP Configuration

General	
Local port * **	5060
Transport * **	UDP
DNS method * **	A records
Default domain * **	cucm.example.com
Register each endpoint on separate port **	☑
Send all messages to current registrar **	☑
Allow internal routing fallback	☐
Registration expire(sec) *	3600
Max pending registrations *	1
Handset power off action	Ignore
Max forwards *	70
Client transaction timeout(msec) *	4000
Blacklist timeout(sec) *	30
SIP type of service (TOS/Diffserv) * **	96
SIP 802.1p Class-of-Service *	3
GRUU	☑
Use SIPS URI	☐
TLS allow insecure **	☐
TCP ephemeral port in contact address **	☐
NAT keepalive **	CRLF (rfc5626) [TCP only]
NAT keepalive interval(sec)	30
Send Hold before REFER	☑

Proxies	Priority	Weight	URI
Proxy 1 **	1	100	cucmpub.example.com
Proxy 2 **	2	100	cucmsub.example.com
Proxy 3 **	3	100	
Proxy 4 **	4	100	



Proxies	Priority	Weight	URI
Proxy 1 **	1	100	199.255.120.177:5090
Proxy 2 **	2	100	
Proxy 3 **	3	100	
Proxy 4 **	4	100	

3 Click **Save**, and then reboot the system.

For an example of the configuration XML file from your Spectralink IP-DECT Server, see Appendix A: Example of XML Configuration File.

Enabling Feature Codes

The advanced feature, **Call forward unconditional**, is accessed by dialing special feature codes from the DECT handsets. To provide access to the **Call forward unconditional** feature, the feature codes must be enabled.

Enabling Feature Codes from the Web-based Administration Page

1 If using Spectralink IP-DECT 200/400/6500 and Spectralink Virtual IP-DECT Server One, click **Configuration**, and then click **Wireless Server**.

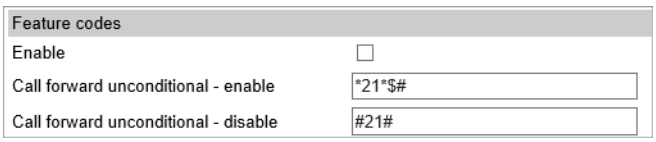
If using Spectralink DECT 2500/8000, click **Configuration**, and then click **DECT Server**.

2 Under **Feature codes/SIP Users Feature Codes**, do the following:

Field	*Setting*
Wireless Server Configuration - Feature codes/SIP Users Feature Codes	
Enable (Optional)	Enable this to make the server react to the feature codes.
Call forward unconditional (DECT endpoints only) - enable (Optional)	Enable **Call forward unconditional** by dialing this code ***21***, followed by the desired extension ($ = extension) and #. E.g.: ***21*$#** **Note**: It is possible to change the code *21* on the server to fit your standard. For more information, see the relevant documentation available at http://support.spectralink.com/products.
Call forward unconditional – disable (Optional)	Disable **Call forward unconditional** by dialing this code **#21#**.

Note:

The default feature codes can be modified to match local CUCM Feature Access Codes.



3 Click **Save**.

Note:

The Call Forward Unconditional feature can be activated permanently at subscription time by the service provider. By modifying the Rerouting Calling Search Space option, this will provide the sufficient rights for the handset to action the CFU on the CUCM.

The Directory Number Configuration page defines some fields that let one set calling search spaces associated with call forwarding: Call Forward All Calling Search Space, Call Forward Busy Calling Search Space (internal and external), Call Forward No Answer Calling Search Space (internal and external), Call Forward No Coverage Calling Search Space (internal and external). Using these fields, one can forward a user's calls to destinations the user could not normally call directly. Conversely, the user can be prevented from forwarding calls to certain destinations, even if the user could normally dial such destinations directly.

One can configure calling search space for Forward All, Forward Busy, Forward No Answer, Forward No Coverage, and Forward on CTI Failure directory numbers. The value that one chooses applies to all devices that are using this directory number. It must be configured either primary Forward All Calling Search Space or Secondary Forward All Calling Search Space or both for Call Forward All to work properly.

If the system is using partitions and calling search spaces, it is recommended to configure the other call forward calling search spaces as well. When a call is forwarded or redirected to the call forward destination, the configured call forward calling search gets used to forward the call. If the forward calling search is none, the forward operation may fail if the system is using partitions and calling search spaces.

Adding Users and Handsets

Each individual DECT user/handset must be added to the Spectralink IP-DECT/DECT/Virtual IP-DECT Server and later on to the Cisco Unified Communications Manager.

This section describes how to add the handsets to the Spectralink IP-DECT/DECT/Virtual IP-DECT Server.

To Add Users to the Server from the Web-Based Administration Page

1. If using Spectralink IP-DECT 200/400/6500 and Spectralink Virtual IP-DECT Server One, click **Users**, click **List Users**, and then click **New**.

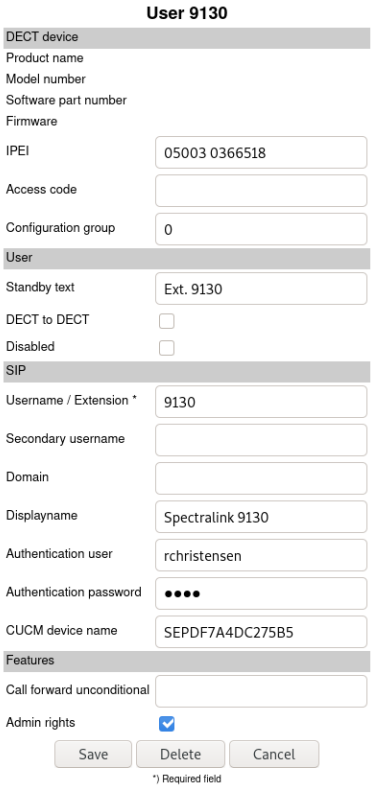
   If using Spectralink DECT 2500/8000, click **Users**, click **Overview**, and then click **New**.

2. Enter the required information:

Field	*Setting*
Interface (only Spectralink DECT Server 2500/8000)	
Line type	Select **SIP**.
DECT device	

Field	*Setting*
IPEI (Optional)	If a specific handset is being subscribed for this extension, enter the IPEI number of the actual handset. (The IPEI number is readable from the label on the product). If this is not the case this field can be left empty and it will auto-fill when the handsets subscribe. **Note**: A SIP REGISTER will not be sent before there is an IPEI number present.
Access code (Optional)	Administrators can define a system wide or individual access code as extra wireless security during the subscription process. **Note**: Some third-party phones may need an Access code to register to the Spectralink IPDECT/DECT/Virtual IP-DECT Server.
Configuration group (Optional) (Only on Spectralink IP-DECT/Virtual IP-DECT Server)	If using handset configuration, enter the Group ID of the Configuration Group.
User	
Local Number (DN) (Only Spectralink DECT Server)	The local number (DN) is required on Spectralink DECT Server 2500/8000.
Standby text (Optional)	Standby text is a fixed label shown in the top left part of the screen on the DECT handset when in idle state. **Note**: Disallowed characters: <>\" **Note**: This feature is only available if Spectralink DECT handsets are being used. If third-party DECT handsets are being subscribed, this feature is not supported.
Disabled (Optional)	If enabled, the user is disabled. **Note**: A disabled user cannot make calls from the handset.
DECT to DECT (Optional)	If enabled, the user will only be able to call, and be called from, other users that are subscribed to the same IP-DECT server; the user cannot communicate externally.
SIP	
SIP Username (Optional) (Only on Spectralink DECT Server)	If not defined, then the SIP Username is automatically set to Local Number.
Username/Extension (Only on Spectralink IP-DECT/Virtual IP-DECT Server)	The actual directory number of the handset defined in the Cisco Unified CM. **Note**: Allowed characters: a-z, A-Z, 0-9, -_.!~*' ()&=+$,;?/ **Note**: This field must be unique within the Spectralink IP-DECT Server. If simultaneous ring on two or more handsets is required, a Cisco Unified CM ring group must be set up.
Secondary username (Optional) (Only on Spectralink IP-DECT/Virtual IPDECT Server)	If defined, the Secondary username can be used to make voice calls in case the connection to the SIP PBX is lost. The Secondary username must be globally unique. **Note**: Allowed characters: a-z, A-Z, 0-9, -_.!~*' ()&=+$,;?/ In some PBXs there is a mapping between username and number (e.g. Username = hz2539jk, Number = 1234). If the connection to the SIP PBX is lost, then it is possible to make the mapping internally by defining a Secondary username.

Field	*Setting*
	Note: The feature MUST be used with SIP setting **Allow internal routing fallback** enabled. For more information, see SIP Settings.
Domain (Optional)	Enter the domain part of a SIP URI. **Note**: Allowed characters: a-z, A-Z, 0-9, .- **Note**: If not configured, the default domain entered under SIP configuration will be used.
Display name (Optional)	The name of the user can be entered here. The Cisco Unified CM will not use this, but it may ease the administration of users within the Spectralink IP-DECT Server. **Note**: Disallowed characters: <>\"
Authentication user	Enter the user ID of the CUCM end user. E.g. **rchristensen** Enter the RingCentral Authorization ID provided with the SIP Settings for the extension. **Note**: Disallowed characters: <>\"
Authentication password	Enter the digest credential of the CUCM end user. Enter the RingCentral Password provided with the SIP Settings for the extension. **Note**: Disallowed characters: <>\"
Features	
Call forward unconditional	A Call Forward Unconditional can be added/removed via the web-based Administration Page. **Note**: Allowed characters: a-z, A-Z, 0-9, -_.!~*' ()&=+$,;?/
Admin rights (Optional)	If enabled, the user becomes an admin rights user with the ability to replace a broken handset.



3 Click **Save**.

4 When the users have been added to the Spectralink IP-DECT/DECT/Virtual IP-DECT Server, the handsets must be DECT subscribed in order to be able to communicate with the Spectralink IP-DECT/DECT/Virtual IP-DECT Server. Please refer to the relevant handset documentation for this.

Note:

To be able to register Spectralink DECT Handsets, phone licenses for third-party SIP are required. For more information on License Unit Calculation and download of phone licenses to CUCM, see the Cisco documentation.

Chapter 5: CUCM Configuration

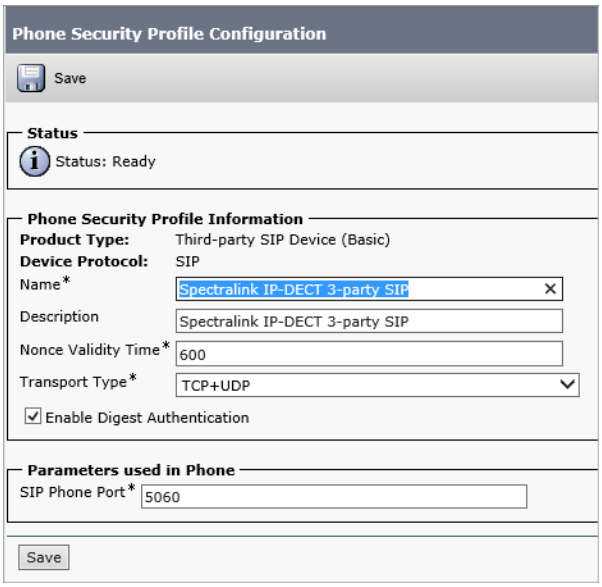
Below is a description of how to prepare the Cisco Unified Communications Manager (CUCM), how to setup phone security profile, how to add end users, how to add the DECT handsets either manually or using the Bulk Administration Tool. Each individual DECT handset must be added as a third-party SIP device in CUCM and the Spectralink IP-DECT/DECT/Virtual IP-DECT Server itself will not be added and known to the CUCM.

Setting up Phone Security Profile

This section describes how to build a unique Phone Security Profile for the Spectralink IP-DECT/DECT/Virtual IP-DECT Server or utilize an existing Phone Security Profile as long as it conforms to the recommended values below.

1. Navigate to **Cisco Unified CM Administration**> **System**> **Security**> **Phone Security Profile**.
2. Click **Add New**.
3. In the **Phone Security Profile Type** list, select **Third-party SIP Device (Basic)**, and then click **Next**.
4. On the **Phone Security Profile Configuration** page, enter relevant data in the following fields:

Field	*Setting*
Device Protocol	
Name	Enter the relevant name.
Description	Enter description.
Enable Digest Authentication	Enable.



5 Click **Save**.

Adding DECT Handsets to CUCM Database

This section describes how to add the individual Spectralink DECT Handsets to the Cisco Unified Communications Manager.

Each individual DECT handset is identified by a unique IPEI number, which is generated by the Spectralink IP-DECT/DECT/Virtual IP-DECT Server. This IPEI number can be compared to the MAC address, which identifies the Cisco IP Phones. The IPEI number of a specific DECT handset can be viewed by editing the user in the Spectralink IP-DECT/DECT/Virtual IP-DECT Server.

Two different methods for adding handsets are supported:

- Manual end user/handset creation
- Automated end user/handset provisioning using the Bulk Administration Tool

Manual End User/Handset Creation in CUCM

Manual handset creation consists of the following two tasks:

- Adding new end users manually
- Adding handsets manually

To Add End Users Manually

1 Navigate to **Cisco Unified CM Administration**> **User Management**> **End User**.

2 Click **Add new**.

3 On the **End User Configuration** page, enter relevant data in the following fields:

Field	*Setting*
User Information	
User Id	Enter the relevant user ID. E.g. **rchristensen**
Password	Enter a password. (If you are LDAP integrated, this field will be grayed out and unavailable, and you would create or modify this password through the Active Directory Server. This password is not used by the Spectralink IP-DECT/DECT/Virtual IPDECT Server, but it is good practice to assign a password for each user).
Confirm Password	Confirm the password.
Self Service User ID (Optional)	Enter the relevant self-service user ID, e.g. **9130** (We may use the extension number we intend for the device. This is not used by Spectralink IP-DECT/DECT/Virtual IP-DECT Server, but the user might wish to utilize this to enter the Self Service Web portal)
Pin (Optional)	Enter a pin if you wish the user to take advantage of pin-enabled features such as user web login. E.g. **1234**

Field	*Setting*
Confirm Pin	Repeat the value you entered in the field above.
Last name	Enter last name. E.g. **Christensen**
Digest Credentials	Enter relevant digest credentials, e.g. **9130** (Enter the Digest Authentication Password you would like the handset to use to register. This will correspond with the authentication password in the user configuration).
Confirm Digest Credentials	Repeat the value you entered in the field above.

4 Click **Save**.

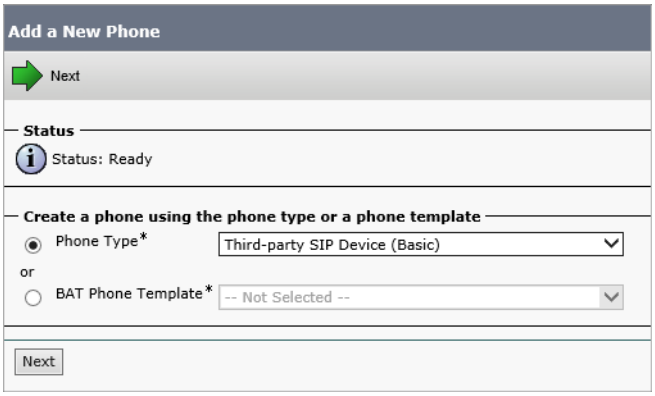
5 Click **Add New** and repeat the procedure if you want to add another new end user.

To Add Handsets Manually

1 Navigate to **Cisco Unified CM Administration**> **Device**> **Phone**.

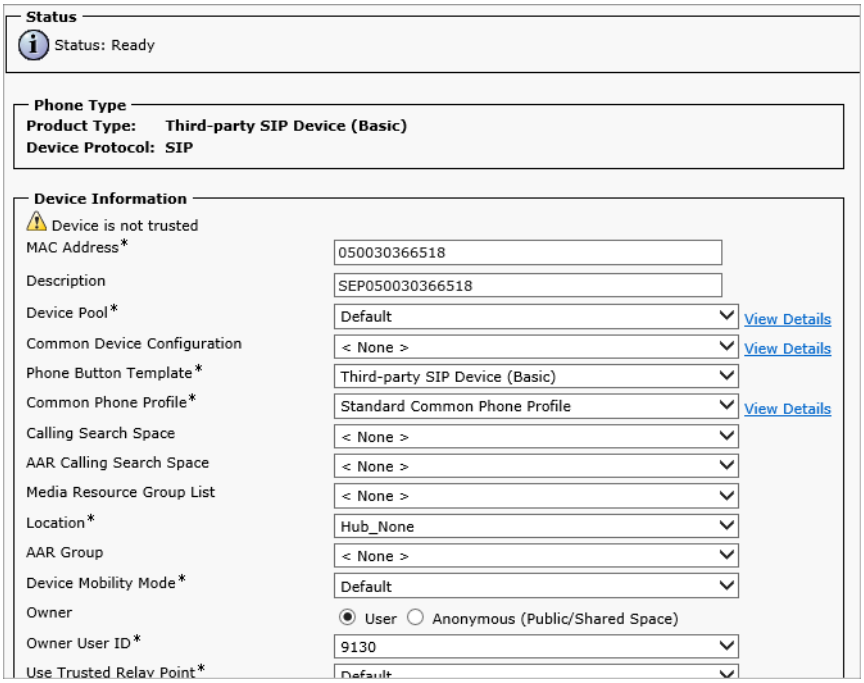
2 Click **Add new**.

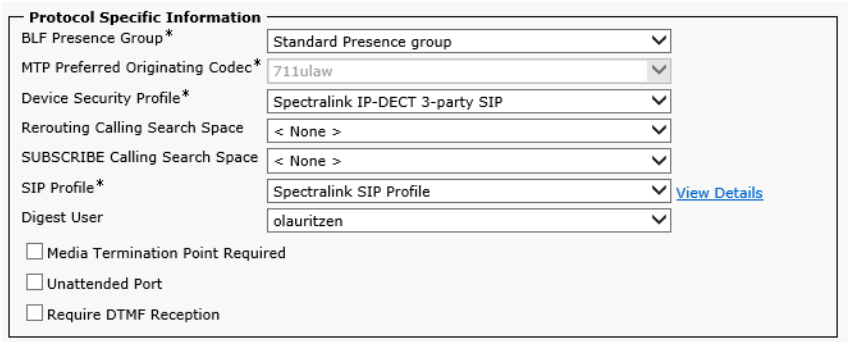
3 In the **Phone Type** list, select **Third-party SIP Device (Basic)**, and then click **Next**.



4 On the **Phone Configuration** page, enter relevant data in the following fields:

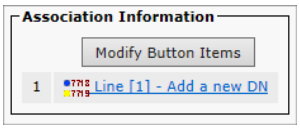
Field	*Setting*
Device Information	
Device Name	Enter (copy and paste) the IPEI number from the user on the Spectralink IP-DECT/DECT/Virtual IP-DECT Server into the Device Name field.
Device Pool	Select Default.
Phone Button Template	Select Third-party SIP Device (Basic)
Owner User ID	Select the relevant Owner User ID.
Protocol Specific Information	
Device Security Profile	Select Spectralink IP-DECT 3-party SIP Device Basic.
SIP Profile	Select the relevant SIP Profile. **Important**: If having 0 - 150 users on the system, you can use the Standard SIP Profile. If having more that 150 users on the system, then the field **Timer Keep Alive Expires** in the SIP profile must be set to 900 seconds (default 120 seconds). It is recommended to take a copy of the Standard SIP Profile, rename it (e.g. Spectralink SIP Profile) and change the **Timer Keep Alive Expires** field value to 900 seconds. For more information, see Cisco documentation.
Digest User	Select the relevant Digest User. **Note**: The Digest User must be identical to the Owner User ID.



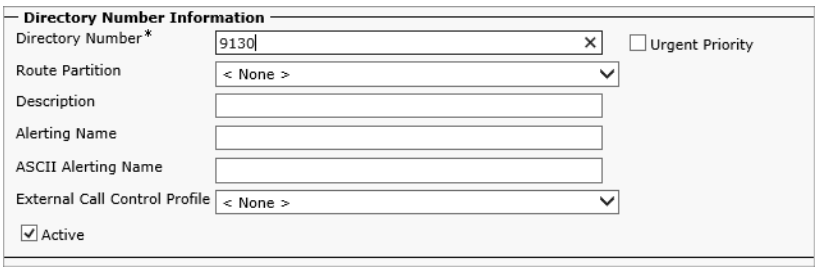


5 When the data is entered, click **Save**, and then click **OK** to apply the configuration.

6 In the appearing **Association Information**, click **Add a new DN**.



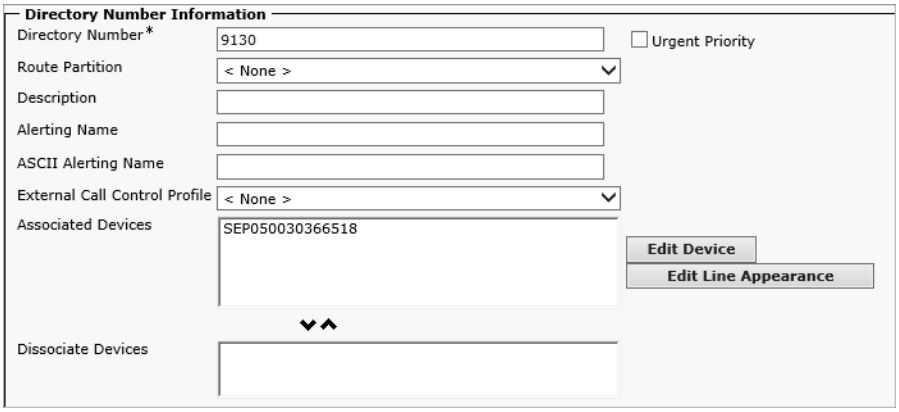
7 On the **Directory Number Configuration** page, enter the relevant Directory Number in the **Directory Number** field.



Note:

The Directory Number must be the same as the **Username/Extension** field in the User setup on the Spectralink IP-DECT/DECT/Virtual IP-DECT Server.

8 Click **Save**, and then click **OK** to apply the configuration.

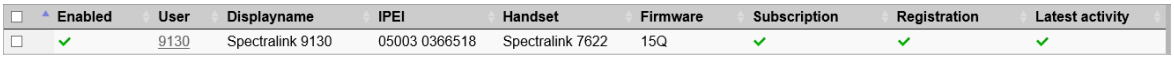


9 In the **Associated Devices** field, make sure that the SEBxxxxxxxxxxx appears as an associated device.

You can now return to the list of devices.

The CUCM will show the registration status of the device.

The registration should look like this on the IP-DECT Server **List Users** page:



Enabled	User	Displayname	IPEI	Handset	Firmware	Subscription	Registration	Latest activity
✓	9130	Spectralink 9130	05003 0366518	Spectralink 7622	15Q	✓	✓	✓

Note:

It can take a while before the Spectralink IP-DECT/DECT/Virtual IP-DECT Server sends out a registration request. To speed up the registration process, either reboot the Spectralink IP-DECT/DECT/Virtual IP-DECT Server or disable/enable the user on the Spectralink IP-DECT/DECT/Virtual IP-DECT Server.

Automated End User/Handset Provisioning using the Bulk Administration Tool

When adding many handsets to the Cisco Unified Communications Manager it is beneficial to use bulk provisioning in order to automate the handset creation process. The Bulk Administration Tool allows you to import the user list and end user configuration from a CSV file in CUCM format into the database.

The process of bulk provisioning handsets using the Bulk Administration Tool consists of the following four tasks:

- Ensure activation of the bulk provisioning service
- Creation of a bat.xlt containing all relevant user information.
- Import of bat.xlt file containing the handset data using the Bulk Administration Tool
- Creation of templates for inserting the handsets

For more information on using bulk provisioning, see the Cisco documentation.

Appendix A: Example of XML Configuration File

```
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
<config>
    <application>
        <enable_msf>true</enable_msf>
        <enable_rpc>false</enable_rpc>
        <internal_messaging>true</internal_messaging>
        <username>GW-DECT/admin</username>
    </application>
    <dect>
        <auth_call>true</auth_call>
        <encrypt_voice_data>Disabled</encrypt_voice_data>
        <global_tx_power>0</global_tx_power>
        <send_date_time>true</send_date_time>
        <subscription_allowed>true</subscription_allowed>
    </dect>
    <feature_codes>
        <call_forward>
            <unconditional>
                <disable>#21#</disable>
                <enable>*21*$#</enable>
            </unconditional>
        </call_forward>
        <conference>
            <meetme>**5$</meetme>
        </conference>
        <enable>true</enable>
        <pickup>
            <group_other>**8</group_other>
            <local>**3</local>
        </pickup>
    </feature_codes>
    <language>en</language>
    <license>[CISCO license]</license>
    <log>
        <syslog>
            <facility>16</facility>
            <level>info</level>
            <port>514</port>
        </syslog>
    </log>
    <network>
        <bootproto>dhcp</bootproto>
        <hostname></hostname>
        <ipaddr>10.8.10.150</ipaddr>
        <ipv6>
        </ipv6>
        <method>disabled</method>
        <netmask>255.255.255.0</netmask>
        <ntp>dk.pool.ntp.org</ntp>
```

```
    <timezone>CET-1CEST-2,M3.5.0/02:00:00,M10.5.0/03:00:00</timezone>
</network>
<rfp>
    <default_sync_type>radio</default_sync_type>
    <ptp>
        <transport>l2</transport>
    </ptp>
</rfp>
<security>
    <allow_new_media_resource>true</allow_new_media_resource>
    <allow_new_rfp>true</allow_new_rfp>
</security>
<sip>
    <callwaiting>true</callwaiting>
    <client_transaction_timeout>4000</client_transaction_timeout>
    <dect_detach_action>ignore</dect_detach_action>
    <defaultdomain>172.29.193.102</defaultdomain>
    <dnsmethod>arecord</dnsmethod>
    <dtmf>
        <duration>270</duration>
        <info>false</info>
        <rtp>true</rtp>
        <rtp_payload_type>101</rtp_payload_type>
    </dtmf>
    <gruu>true</gruu>
    <localport>5060</localport>
    <maxforwards>70</maxforwards>
    <media>
        <codecs>64,1,2,0,0,0</codecs>
        <ice>
            <enable>false</enable>
        </ice>
        <port>58000</port>
        <ptime>20</ptime>
        <sdp_answer_single>false</sdp_answer_single>
        <sdp_answer_with_preferred>false</sdp_answer_with_preferred>
        <sdp_ignore_version>false</sdp_ignore_version>
        <tos>184</tos>
        <turn>
            <enable>false</enable>
        </turn>
        <vlan_cos>5</vlan_cos>
    </media>
    <music_on_hold>false</music_on_hold>
    <mwi>
        <enable>true</enable>
        <expire>3600</expire>
        <subscribe>false</subscribe>
    </mwi>
    <onholdtone>true</onholdtone>
    <pound_dials_overlap>false</pound_dials_overlap>
    <proxy>
        <port>0</port>
        <port2>0</port2>
        <port3>0</port3>
```

```
            <port4>0</port4>
            <priority>1</priority>
            <priority2>2</priority2>
            <priority3>3</priority3>
            <priority4>4</priority4>
            <weight>100</weight>
            <weight2>100</weight2>
            <weight3>100</weight3>
            <weight4>100</weight4>
         </proxy>
         <registration_expire>3600</registration_expire>
         <send_to_current_registrar>true</send_to_current_registrar>
         <separate_endpoint_ports>false</separate_endpoint_ports>
         <showstatustext>true</showstatustext>
         <tcp_contact_ephemeral_port>true</tcp_contact_ephemeral_port>
         <tls_allow_insecure>false</tls_allow_insecure>
         <tos>96</tos>
         <transport>tcp</transport>
         <use_sips_uri>false</use_sips_uri>
         <vlan_cos>3</vlan_cos>
      </sip>
      <snmp>
         <community>public</community>
         <enable>false</enable>
      </snmp>
      <upnp>
         <broadcast>false</broadcast>
         <enable>true</enable>
      </upnp>
   </config>
```

****END OF DOCUMENT****