Using Spectralink IP-DECT Server 400 and 6500 with Cisco Unified Communication Manager, 3rd party SIP

Technical Bulletin

Introduction

This document provides introductory information on how to use a Spectralink IP-DECT Server 400 and 6500 system with the Cisco Unified Communication Manager PBX. It offers answers to frequently asked questions along with feature configuration examples for both Cisco Unified CM and Spectralink IP-DECT Systems. Find the Cisco Unified CM wiki at:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/

This document assumes that you have an installed and functioning Cisco Unified CM server. If you do not have a functioning Cisco Unified CM server, check the support page from Cisco website.

Terms and Definitions:
- Cisco Unified CM or CUCM server refers to a functioning Cisco Unified Communication Manager PBX installation.

The examples in this document were tested with Spectralink IP-DECT Server 400 and 6500 PCS06A_ (available from http://www.polycom.eu/support/voice/dect/index.html)

If there is an issue with a configuration that is specific to a particular software release, the issue is noted.

Please ensure that you have read and understood our Admin Guide and set up the IP-DECT System before following the advice given below:

IP-DECT Server 400

http://support.spectralink.com/sites/default/files/resource_files/Spectralink%20IP-DECT%20Server%20400_Installation%20and%20configuration%20guide.pdf

IP-DECT Server 6500

http://support.spectralink.com/sites/default/files/resource_files/Spectralink%206500%20Server_Installation%20and%20Config%20Guide_ed5.pdf

Using Spectralink IP-DECT Server 400 and 6500 with CUCM, 3rd party SIP

The topics in this document include:

- Creating a Basic Configuration
- Phone License Units
- Bulk Administration Tool (BAT)
- Additional Resources

The configuration file fragments in the figures of this document show the basic settings required to configure both CUCM server and the IP-DECT Server 400 and 6500 to successfully interoperate. Note that these settings are minimal configurations and only show changes from default factory settings on the Server.

Creating a Basic Configuration

To create a basic configuration:

For each phone to be connected, follow the steps below:
1. On the Cisco Unified CM Administration page click on User Management and select End User
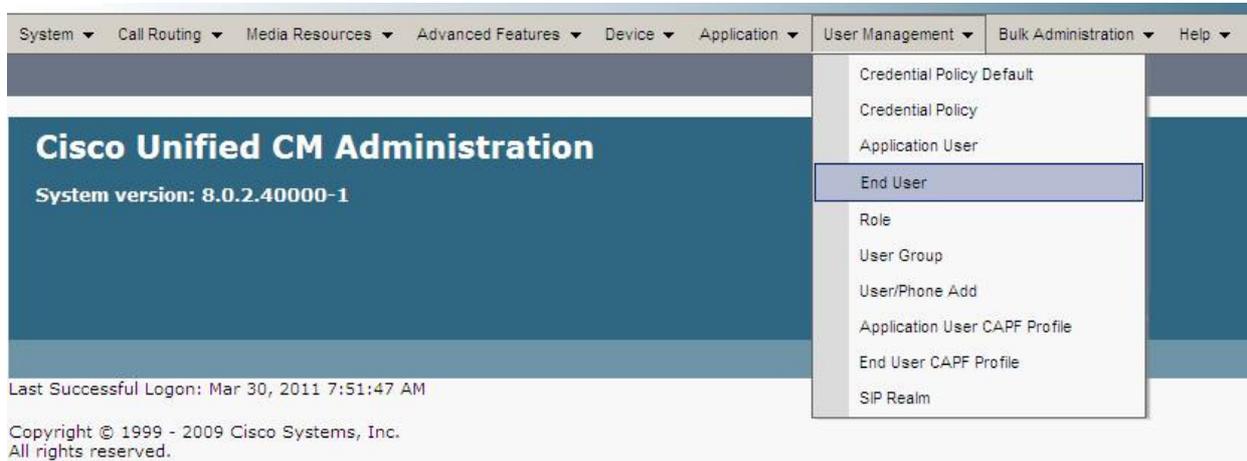
A page similar to the one below will be displayed.
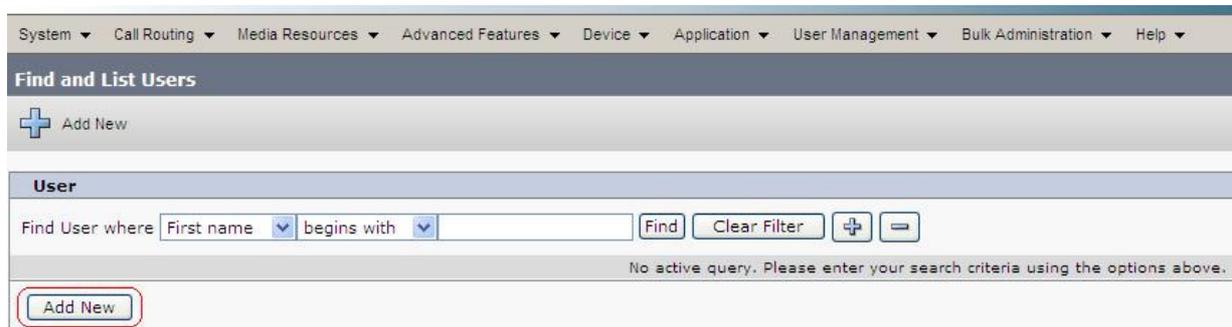
Click on **Add New** to add a new user:
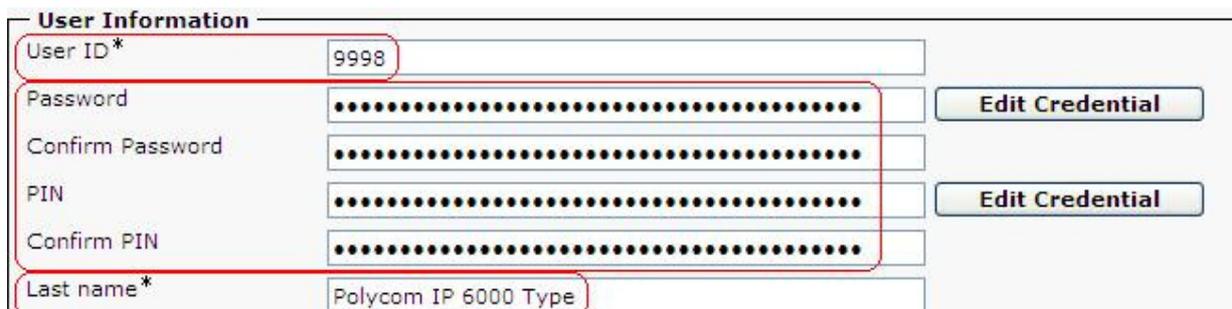
The User ID reflects the SIP DDI (direct dial-in) that will be assigned to the Spectralink Handset.

- A Password should be used for security reasons. This Password is only used CUCM internally. In above example *12345* is used.

- The same Value is used for the *PIN*.
  The Pin is the authentication Password used on the Spectralink Handset.
- The *Last Name* entry is used to identify this User and it is mandatory

After making these settings, click on the Save Icon to store the information.
The operation described above must be repeated for every SIP DDI that will be added to the Cisco Unified CM.

  2. On the Cisco Unified CM click on Device and select Phone
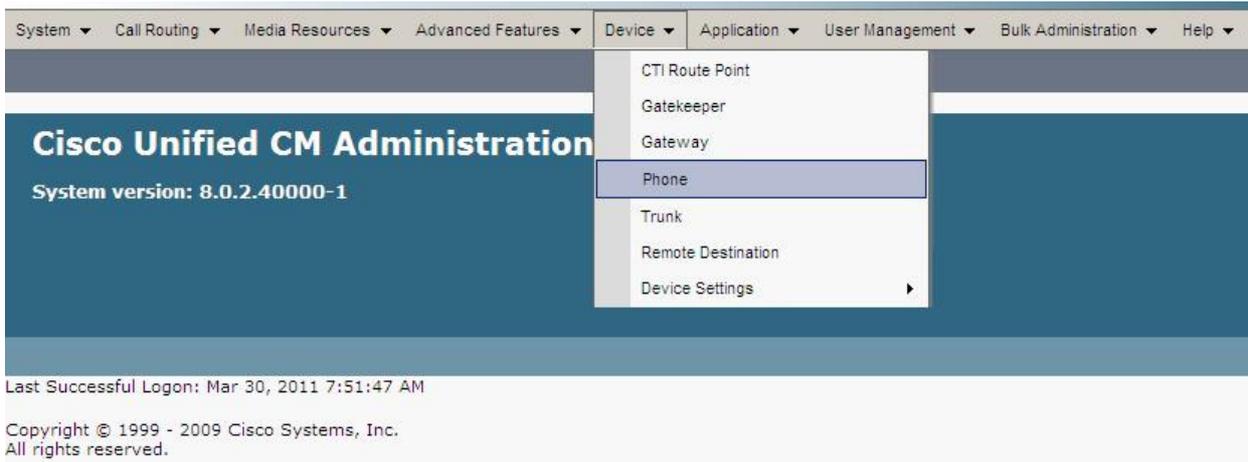
A page similar to the one below will be displayed.
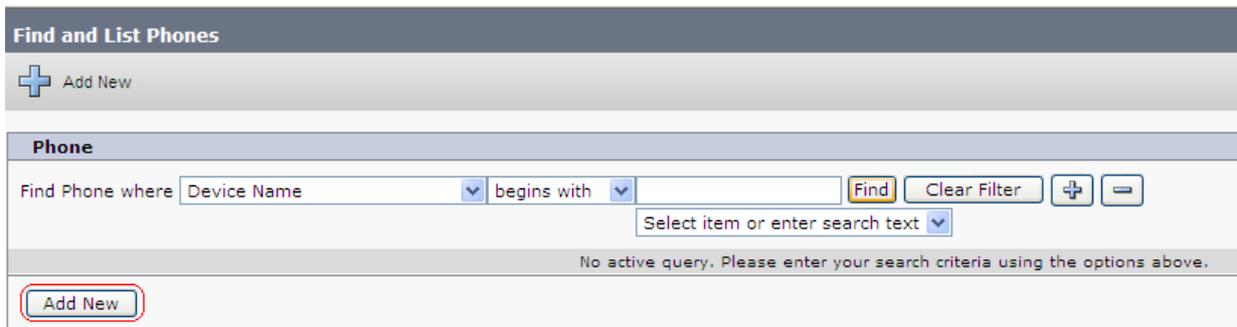
Click on Add New and select a Third-Party SIP Device(Basic) from the drop down list, then click Next to proceed.
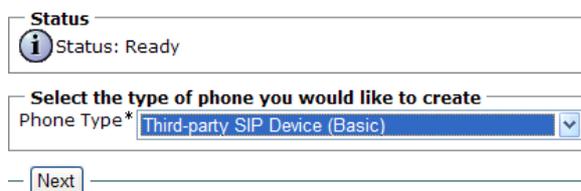
In the **Device Information** area, add the *Mac Address* of the Spectralink Handset and ensure that *Device Pool* and *Phone Button Template* are selected as highlighted. Notice the *Owner User ID* which must reflect the SIP DDI that has been assigned to the User. Also make sure that *Is Active* button is checked.

In the **Protocol Specific Information** area chose the *Device Security Profile, SIP Profile* and the *Digest User* as highlighted below and press save to store this information within the CUCM server.

In **Association Information** area click on *Add a new DN* Button in order to assign the selected SIP DDI.

In the **Directory Number Information** area write the desired SIP DDI and the *Alerting Name* (This number will be added as the Username/Extension within the User data for the Handset on the IP-DECT Server 400/6500 Web Interface)

- The description is used only internally.
- Alerting name is displayed whilst a SIP Device rings another Device. Once connected the Display (Internal Caller ID) is shown.

The Display (Internal Caller ID) and ASCII Display (Internal Caller ID) is a feature that displays the added entry on Cisco Phones when they receive a call from a Spectralink Handset.

- The Display (Internal Caller ID) is displayed on outgoing Calls on the ringing End
- External Phone Number Mask is for Cisco Phones only.

The process is finalized by clicking on Save Button.

3. Once the Cisco Unified CM configuration is completed, configure the IP-DECT Server 400 or 6500. Browse to your IP-DECT Server 400/6500 Configuration page -> Generel configuration :
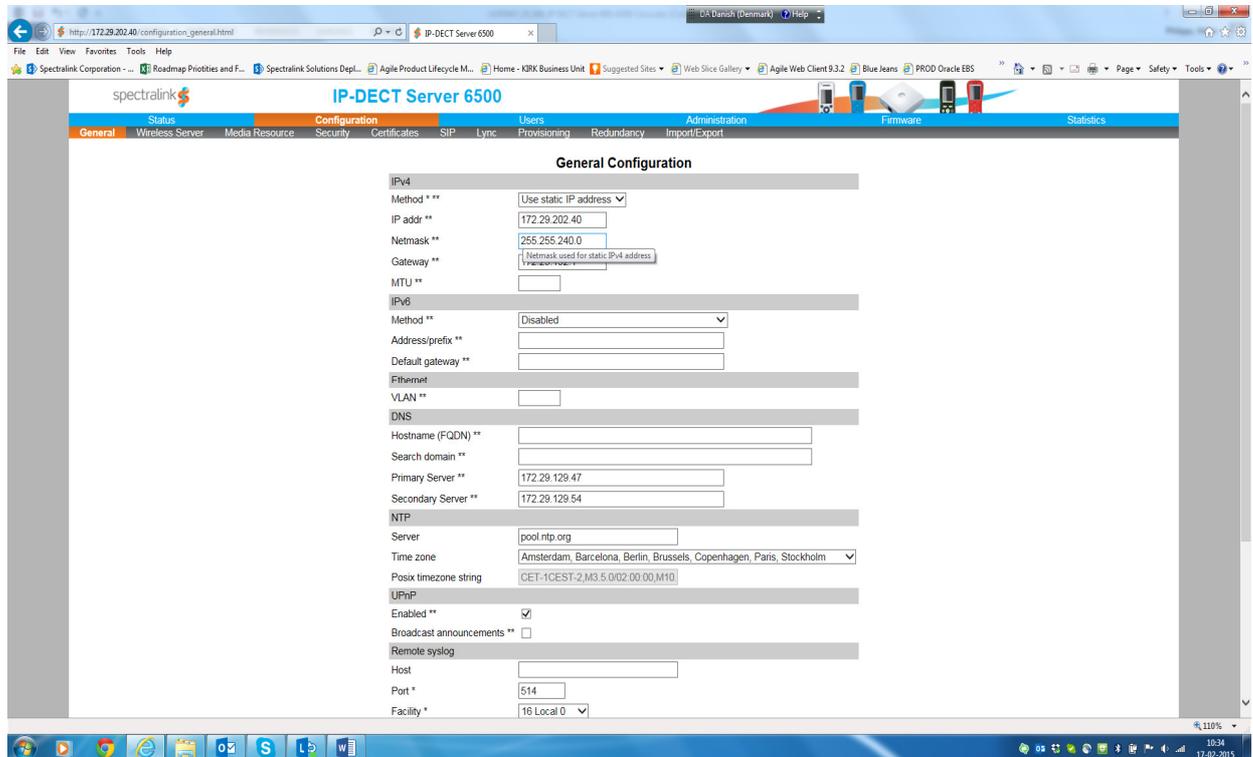
The above configuration shows a basic setup:
- Choose the designated Transport protocol as UDP only.
- Enter the CUCM Domain Name or the IP address of the Subscriber as Default domain.
- Enter the CUCM Domain Name or the IP address of the Subscriber as Proxy 1

It is usually a best practice to register all of the users with the Subscriber, rather than the Publisher, in order to reduce the overall load on the Publisher and for cases when the CUCM installation has not a CUCM service active on its Publisher.

- Enter IP address 127.0.0.1 as Proxy 2 in order for the KWS to handle internal calls between the DECT handsets in case the first Proxy cannot be reached.
- Tick the Register each endpoint on separate port and Send all messages to current registrar.
- Change the offered rfc to 101.

All other settings can be left with factory default values.

Note that Hostname must be left blank under DNS settings when connected to a CUCM.

General Configuration

IP	
DHCP assigned	○
Use static IP address	●
IP addr* **	172.29.202.1
Netmask **	255.255.240.0
Gateway **	172.29.192.1
MTU **	
VLAN **	

DNS	
Hostname **	←
Domain	
Primary Server	172.29.129.30
Secondary Server	172.29.129.31

IP-DECT Server 400/6500 & SRST (Survivable Remote Site Telephony) feature

In order for the KWS to support SRST within a Cisco Unified CM setup with a SRST router, the following settings have to be made:

- Browse to Cisco Unified CM Administration and then select System -> Cisco Unified CM -> select CUCM Publisher server -> section "Server Information" -> field "Cisco Unified Communications Manager Name". Enter the CUCM Publisher server name and description.

- Browse to your IP-DECT Server 400/6500 Configuration page and then select -> Sip menu.
  In addition to the basic sip configuration setup from above, set the following as in the
  picture below:
    - Enter the CUCM Publisher server name as the Default name.
    - Enter the IP address of the CUCM Subscriber server as Proxy 1.
    - Enter the IP address of the CUCM Publisher server as Proxy 2.
    - Enter the IP address of the SRST router as Proxy 3.
    -
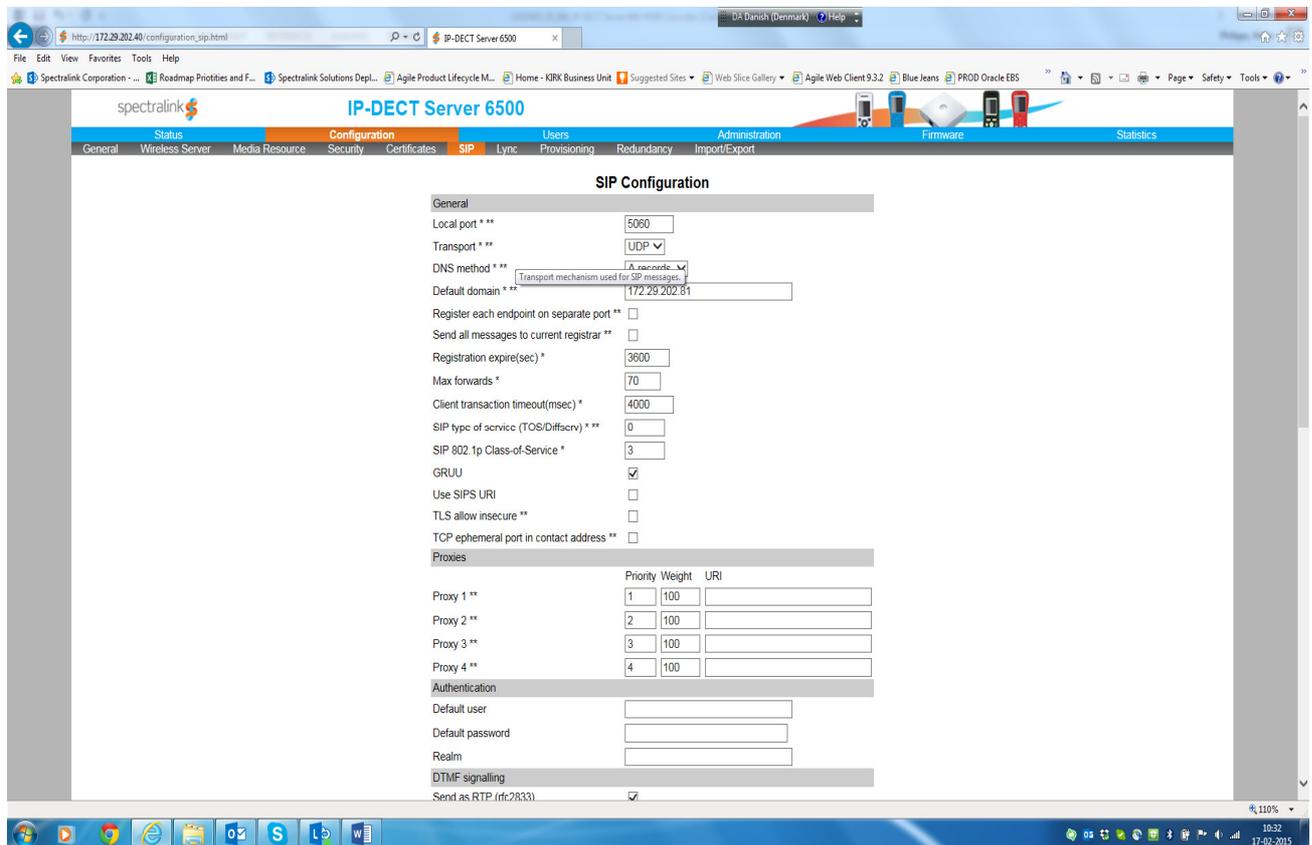
NOTE: See the configuration xml file from your IP-DECT Server 6500 system attached at the
end of this document, page 30.

Adding a user to the IP-DECT Server 400/6500:

Choose the *Users -> List Users* menu from the Web interface and select *New* and a new window will open.
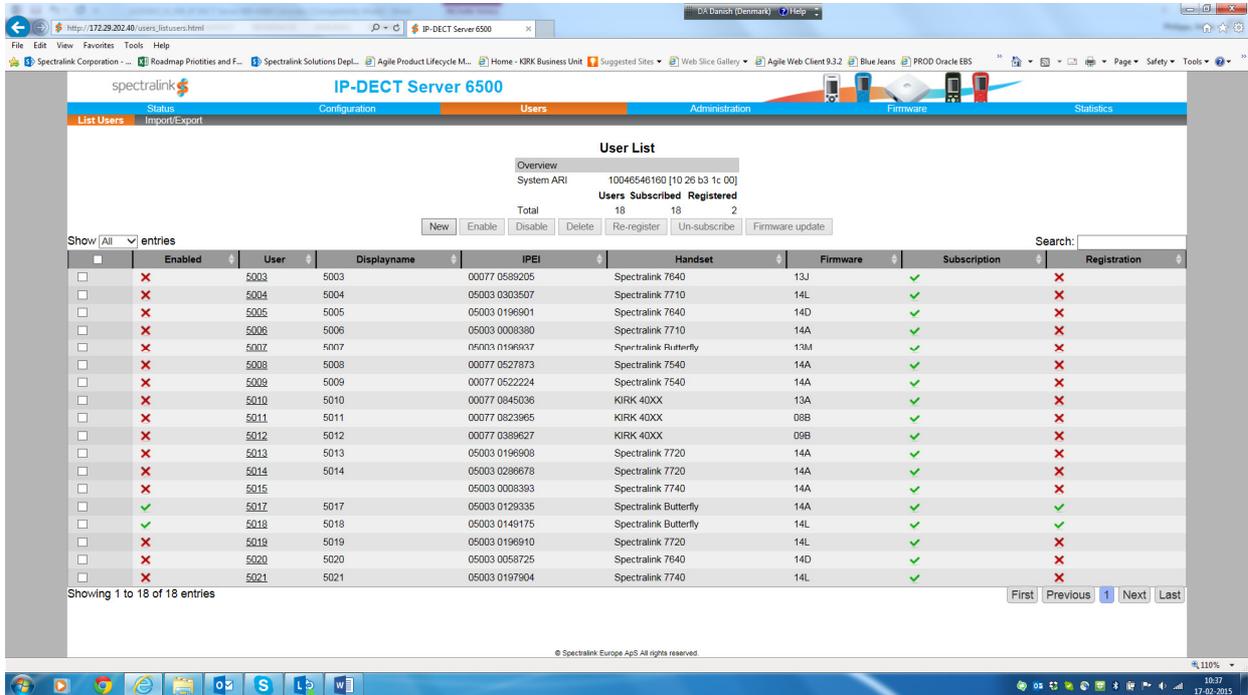
IPEI [1] = the 12 digit serial Number of the Spectralink Handset

Access Code = is not mandatory

Standby text = the text that the Handset shows when on hook

Username / Extension = the Directory number that has been added in the CUCM

Domain = is not mandatory (can be used on a per-user basis in order to register the specific handset to a separate SIP call handler).

Displayname = is not mandatory (may be overwritten by the SIP call handler).

Authentication user [2] = user ID that has been used when the user was created in the CUCM menu.

Authentication password = the PIN that has been used when the User was created in the CUCM menu

Call forward unconditional = a CFU can be added/removed via the Web interface (configure the desired extension on related field) or the

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[1] It is not necessary to fill out the IPEI field. The system will do it automatically when the handset is subscribed.

[2] With firmware >=PCS05C_ the Authentication user is not required if it is the same as the Username.

NOTE: Please be aware that 3rd party phones may need an Access code to register to the Polycom KIRK KWS server and may not support the Standby text facility or the time display.

Please check within the **Configuration => Server** menu to centrally deactivate the **Send date and time** feature.

Activating Call Forward unconditional Feature (CFU)
On the Spectralink IP-DECT Server 400/6500 Configuration -> Wireless Server Web Interface.

This Feature must be activated in order to work and the Code itself can be changed in order to match local CUCM Feature Access Codes.
When enabling the feature from Spectralink handset keypad, $ will be followed by the desired extension

CFU 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.

Successful registration
A successful registration may be verified on CUCM; it is shown in the CUCM *Device –> Phone* selection.

On the Spectralink IP-DECT Server 400/6500 *Users -> List Users* web interface:

Phone License Units

In order to be able to register Spectralink Handsets with Cisco Unified CM, license units are needed. To calculate the amount of license units required for a specific number of Handsets, go to *System -> Licensing -> License Unit Calculator* page from CUCM administration webpage.
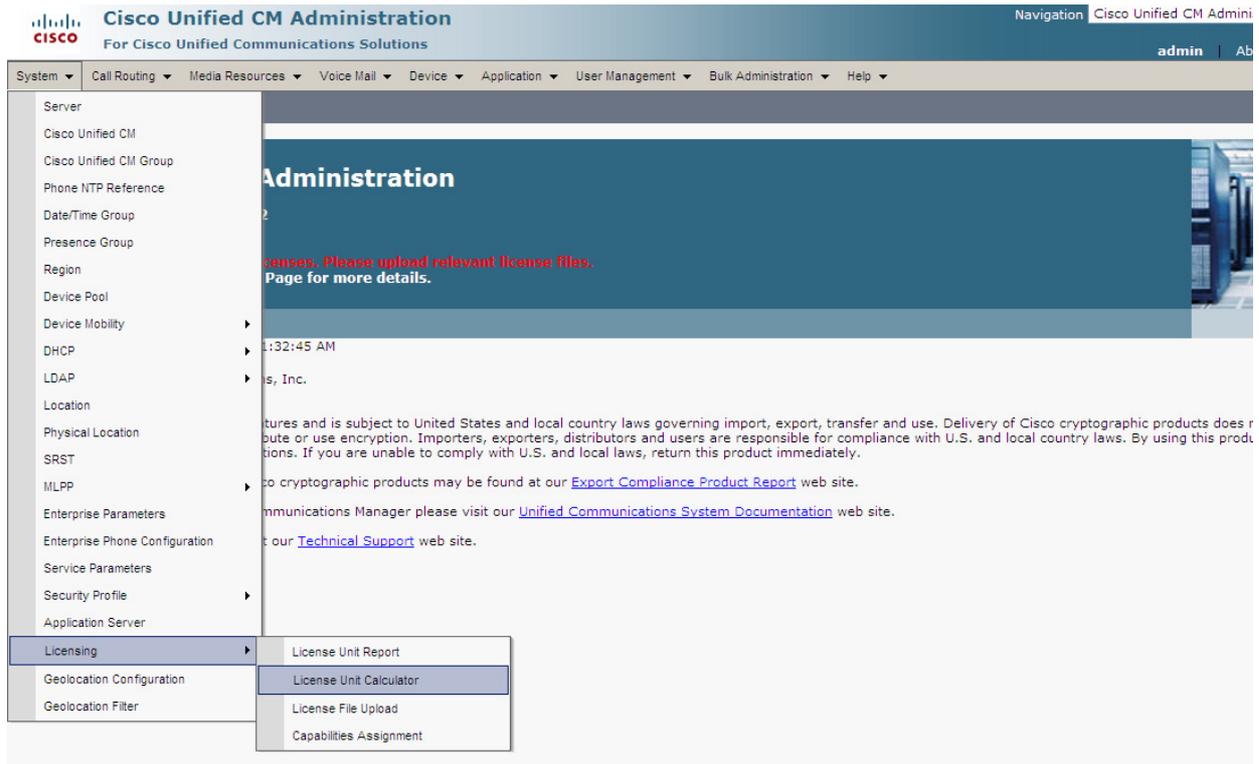
A new page similar to the one below is displayed. Scroll down until Third-Party SIP Device (Basic) appears and fill in the box with the specific number of handset required to register with Cisco Unified CM, then press Calculate. The total Phone License Units needed will be displayed:

Cisco Unified Presence Server End User Feature License	1	0	0	0	0
Cisco VGC Phone	0	0	0	0	0
Cisco VGC Virtual Phone	0	0	0	0	0
H.323 Client	2	0	0	0	0
IP-STE	6	0	0	0	0
Mobility Enabled End Users	4	0	0	0	0
Mobility Enabled End Users (Adjunct)	2	0	0	0	0
Other Phone	5	0	0	0	0
Third-party SIP Device (Advanced)	6	0	0	0	0
Third-party SIP Device (Basic)	3	1	3	0	123
Transnova S3	4	0	0	0	0
	Total Phone License Units Used:	3	**Total Phone License Units Needed:**	369	

Calculate

*- indicates required item.

Bulk Administration Tool (BAT)

The Cisco Unified CM Bulk Administration Tool (BAT) lets you add, update or delete a large number of similar phones and users at the same time. In order for BAT to work, you need first to activate Bulk Provisioning Service (BPS) from Cisco Unified CM Serviceability.

Log-on to Cisco Unified Serviceability from the Navigation Tab, as shown in the screen dump below:

Go to *Tools -> Service Activation*:

A new page similar to the one below is displayed. Go to *Cisco Bulk Provisioning Service* (found in Database and Admin Services category) and activate it (by checking the box) then click on *Save* to store the information. Activation status should change to Activated.
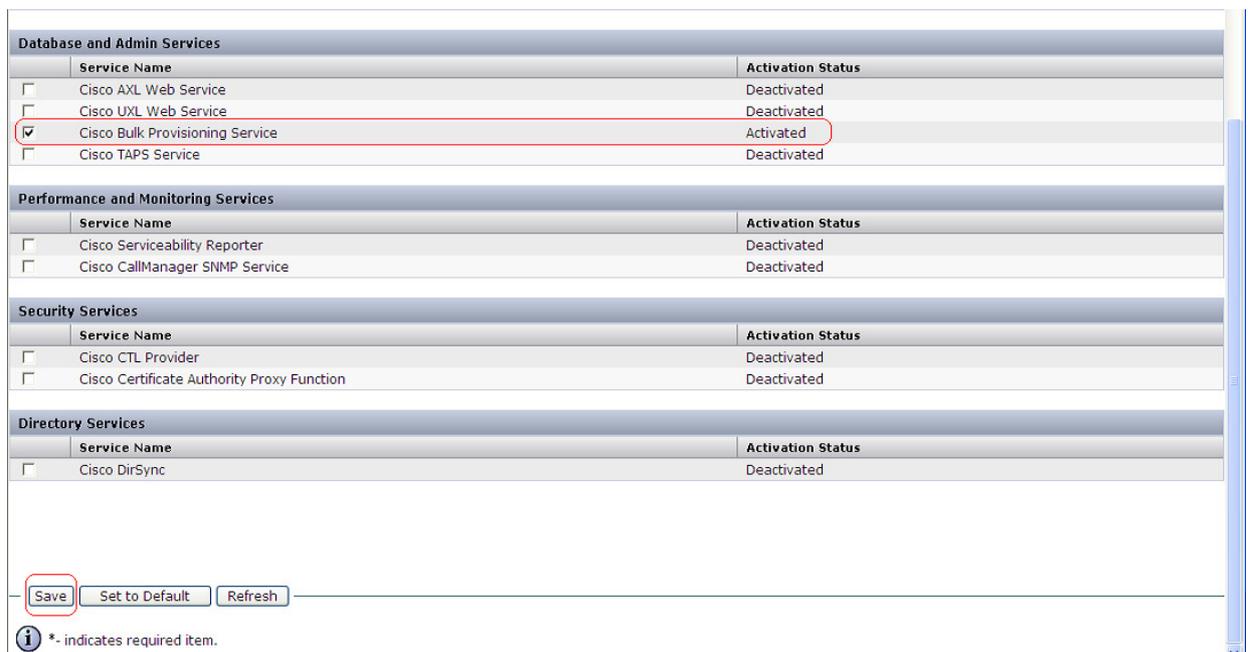
Once the service is activated, logon into Cisco Unified CM Administration page and go to Bulk *Administration -> Upload/Download Files:*
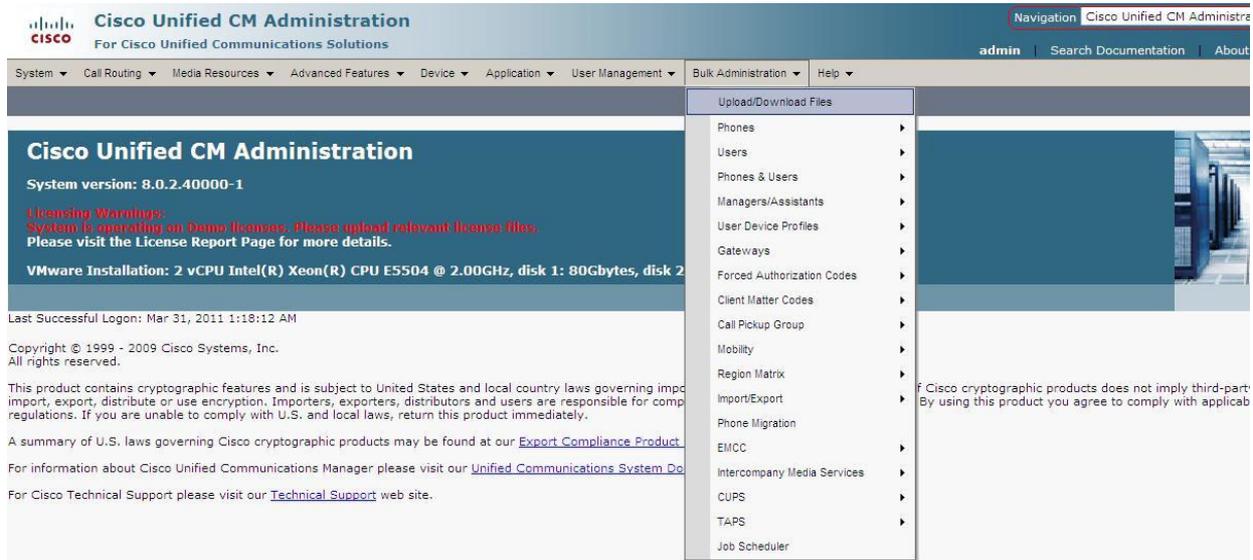
A new page as the one below is displayed. Click on *Find* and search for bat.xlt in the list. Check left side the box and click on Download Selected. Save the file on your hard drive.
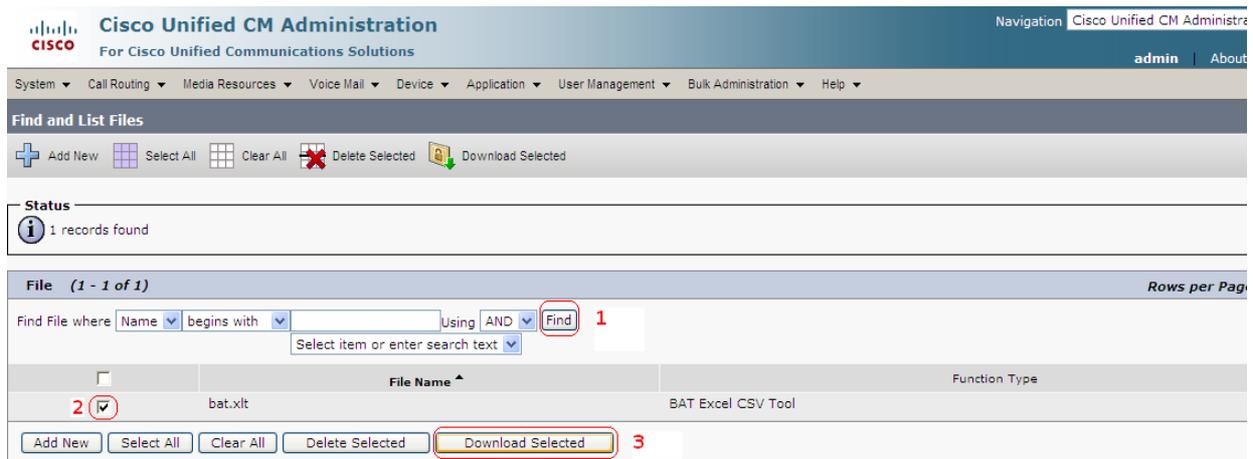
- Open the bat.xlt spread sheet you just saved on your machine.
- When prompted, click **Enable Macros** to use spread sheet capabilities.
- Click on **Phones-Users** tab at the bottom of the spread sheet.
- Make sure that Selected Model is on Phone and click on Create File Title button. A new page appears as shown in the picture below
- Add Owner User ID and Digest User to appear in Selected Device Fields
- Add Directory Number, Alerting Name, Alerting Name ASCII, Display and ASCII Display to appear in Selected Line Fields.
- Click on Create and Yes when prompted

Now you have to fill the following fields which contain minimal information about users:

- **Last Name:** used to identify the user. Ex: Spectralink IP 6500 Horsens
- **User ID:** reflects the SIP DDI that will be assigned to the Spectralink Handset. Ex: 9998
- **Password:** is recommended to use a pass for security reasons.
- **PIN:** is the Authentication Password used on the Spectralink Handset
- **MAC Address/Device Name:** the IPEI of the handset.
- **Owner User ID:** user ID of the assigned phone user. Ex: 9998
- **Digest User:** end user that is associated to the phone Ex:9998
- **Directory Number 1:** phone number (SIP DDI). Ex: 9998
- **Alerting Name 1:** is displayed whilst a SIP device rings another device. Once connected the Display1 is shown.
- **Alerting Name Ascii 1:** same as Alerting Name, but only ASCII characters
- **Display 1:** if blank the system will display the extension.
- **ASCII Display 1:** same as Display1.

You can enter as many users as needed, each one on its separate row. After the spread sheet is filled with all the above info about the users, the file must be saved and then uploaded on the Cisco Unified CM. Click on *Export to BAT Format* and save the file on your local hard drive. Next go to Cisco Unified CM Administration Page, and from there to *Bulk Administration -> Upload/Download File* page:
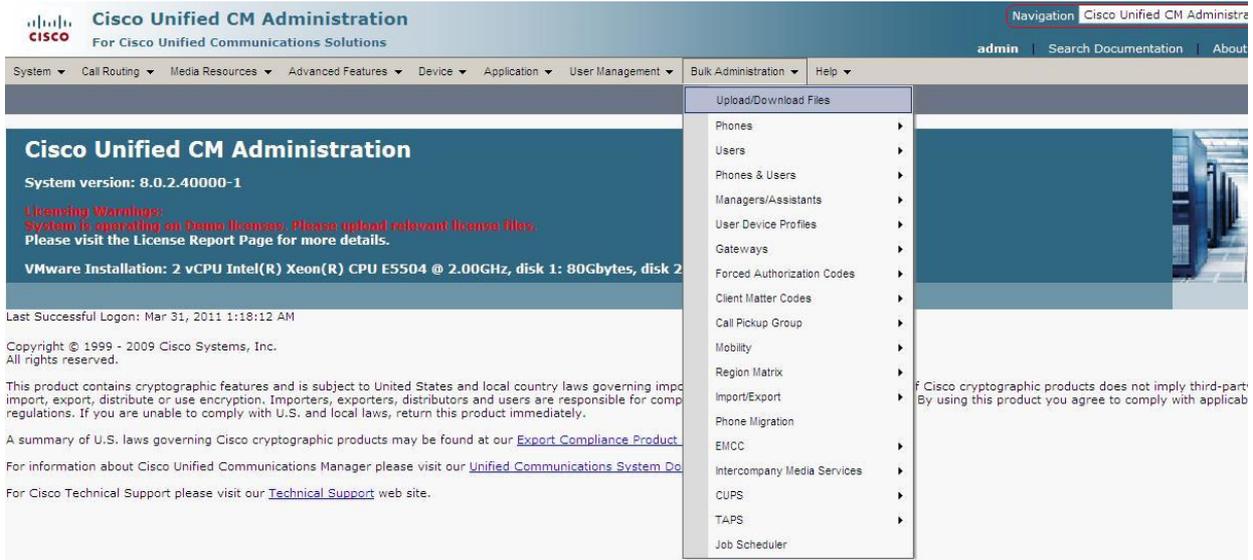
A new page similar to the one below should appear. From here you can upload the file created with bat.xlt spread sheet.
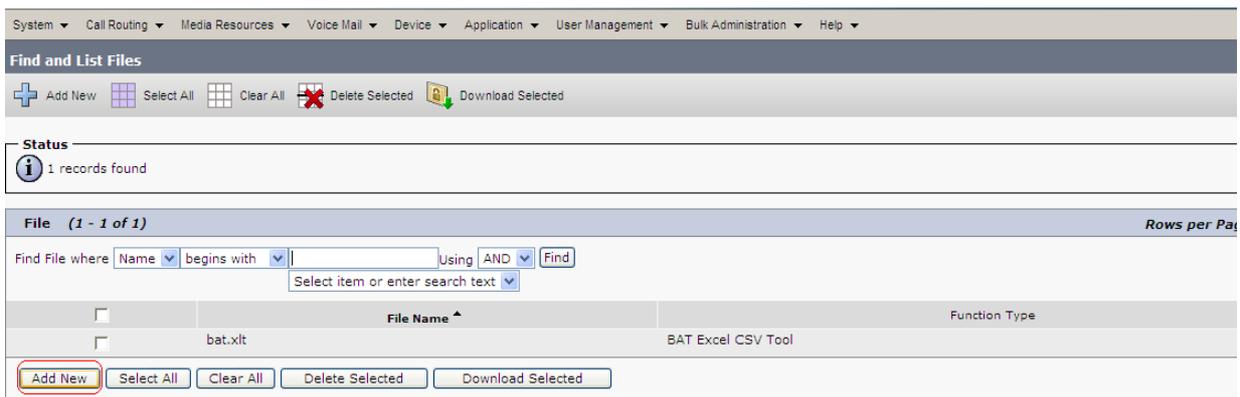
Click on Add New to add the file created with bat.xlt to the CUCM server. A page similar to the one below should appear:
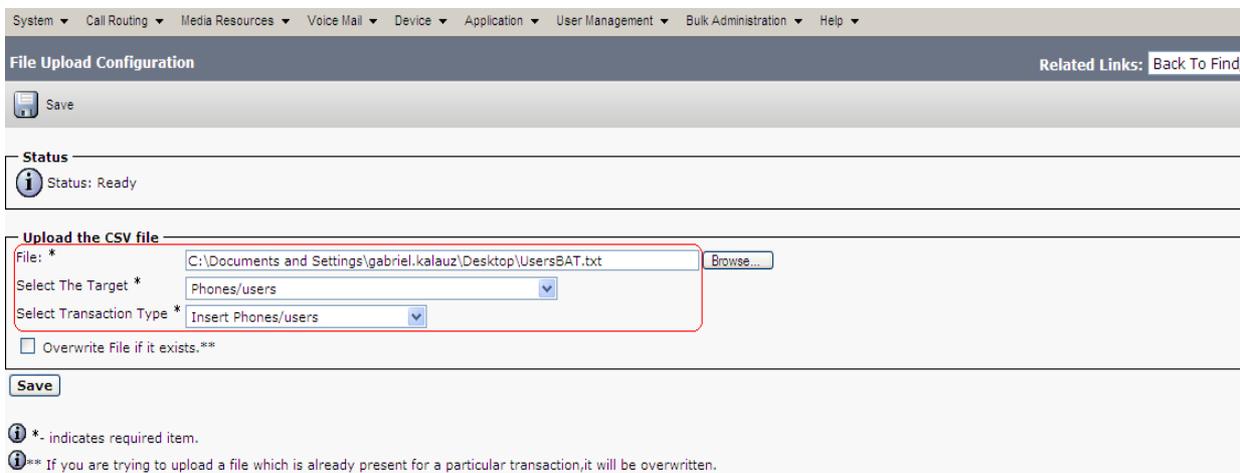
Make sure that **Select The Target** is set to Phones/users and **Select Transaction Type** is set to Insert Phones/users. Browse to the file created with bat.xlt from your local drive and then click save. To make sure the file is uploaded on the CUCM server, go to *Bulk Administration ->*

Upload/Download Files and click on Find. The uploaded file should appear along with bat.xlt file, as shown below:
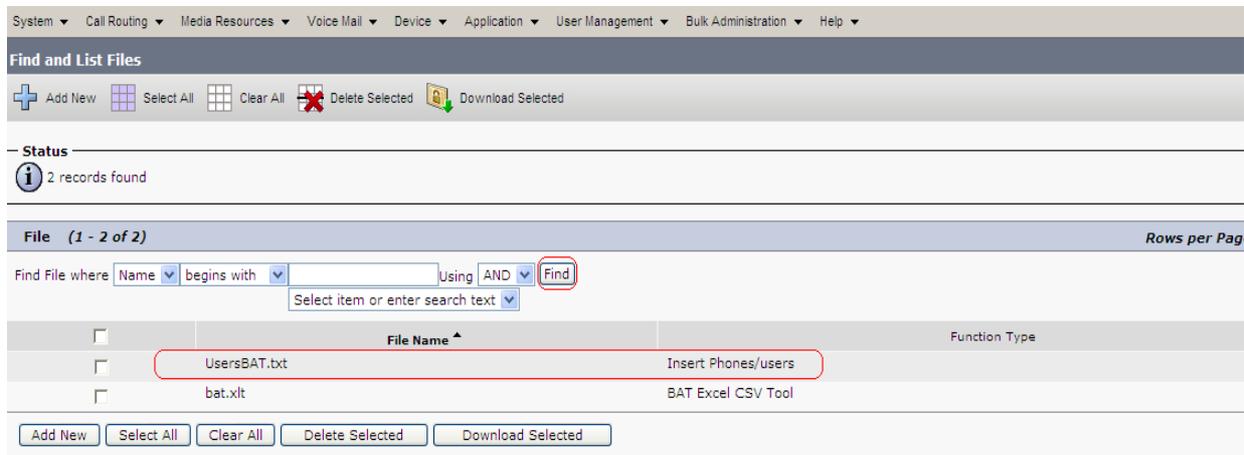
Next you have to create a Phone Template and a User Template.
To create a Phone Template, go to *Bulk Administration -> Phones -> Phone Template*.
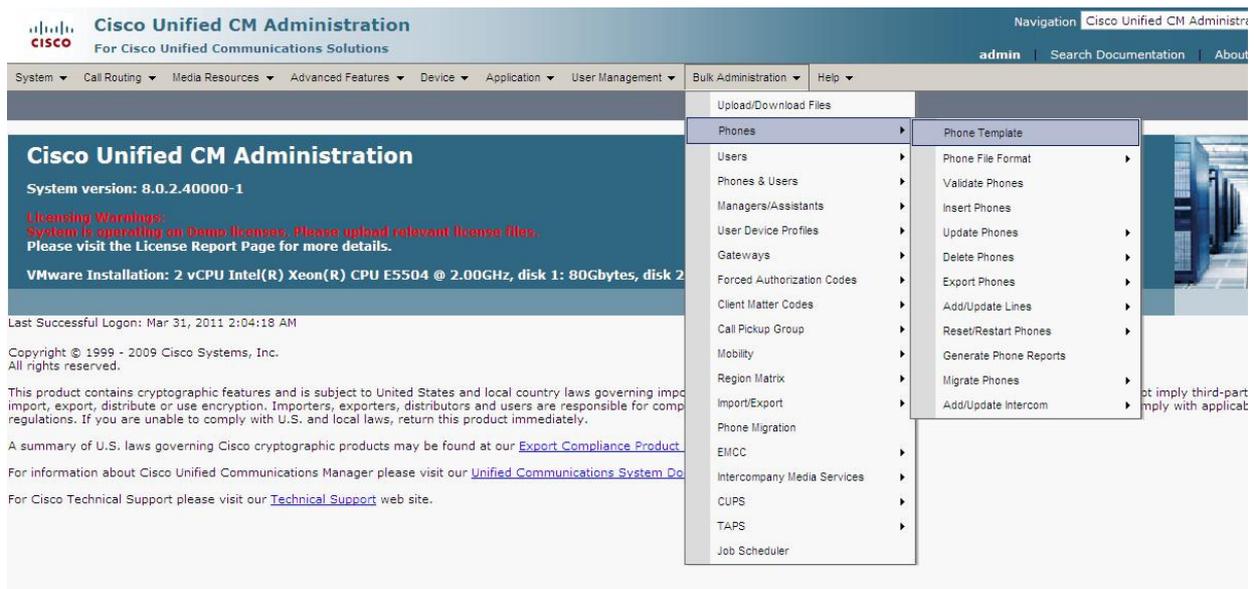
A page similar to the one below appears:
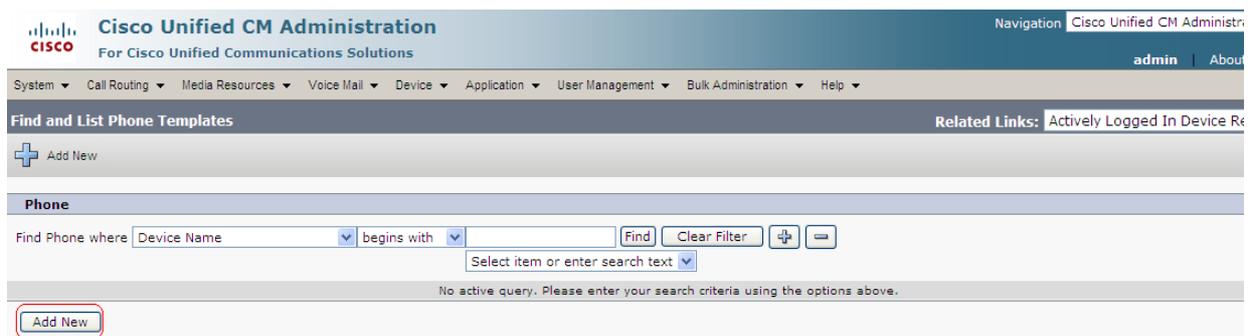
Click on Add New to add a new phone template. A new window appears as below. Make sure to select Phone type to be Third-Party SIP Device (Basic) and then click on Next.
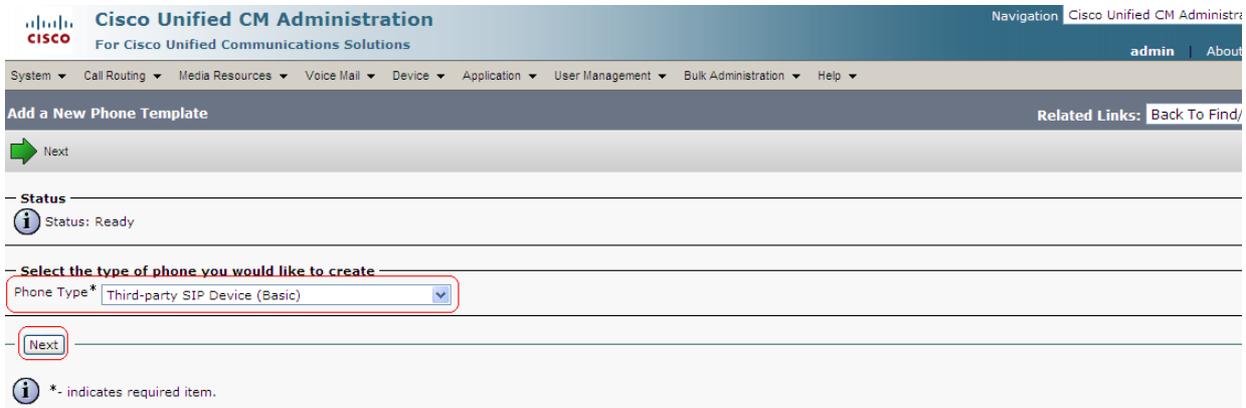
A new page is displayed as below. Make sure to fill the following fields as below:
- **Template Name**: a name of your choice. Ex: Template_Phone
- **Device Pool**: set to Default
- **Phone Button Template**: set to Third-party SIP Device (Basic)
- **Device Security Profile**: set to Third-party SIP Device Basic – Standard SIP Non-Secure
- **Sip Profile**: set to Standard SIP Profile

Click on Save after you finished storing the information.

Click on Add a new DN button:

A page similar to the one below appears. Fill the Line Template Name with a name of your choice and make sure Active check box is enabled. Press Save to store the information.

To create a Users Template, go to *Bulk Administration -> Users -> Users Template*:
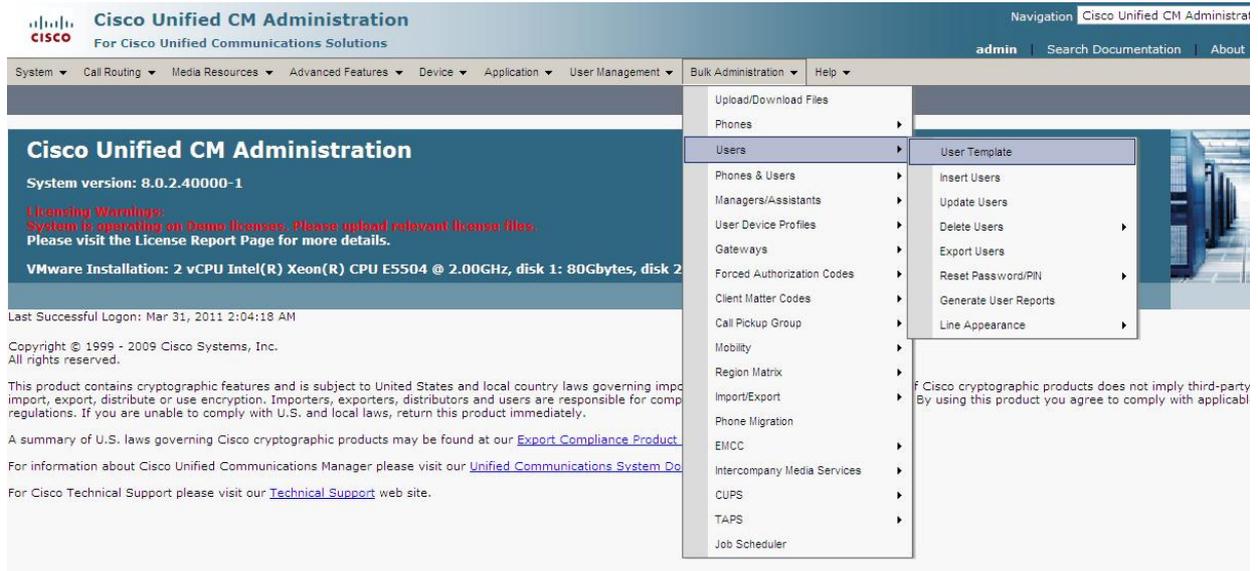
```
ERROR: stackunderflow
OFFENDING COMMAND: ~

STACK:
```