Configuring a Basic Call Center Application on the UC500

This application note provides instructions for using Cisco Configuration Assistant (CCA), out-of-the-box CallManager Express (CME) Basic ACD scripts, and Cisco IOS CLI to configure a basic call center application running on a Cisco UC500.

In this basic call center deployment scenario, inbound calls are routed to the Auto Attendant via CCA and a customized AA greeting is presented to callers. The Auto Attendant transfer script and Cisco Unity Express (CUE) B-ACD scripts are used to front-end and distribute calls to hunt groups. Reports are generated using the CME B-ACD Simple Reports Generator with Microsoft Excel.

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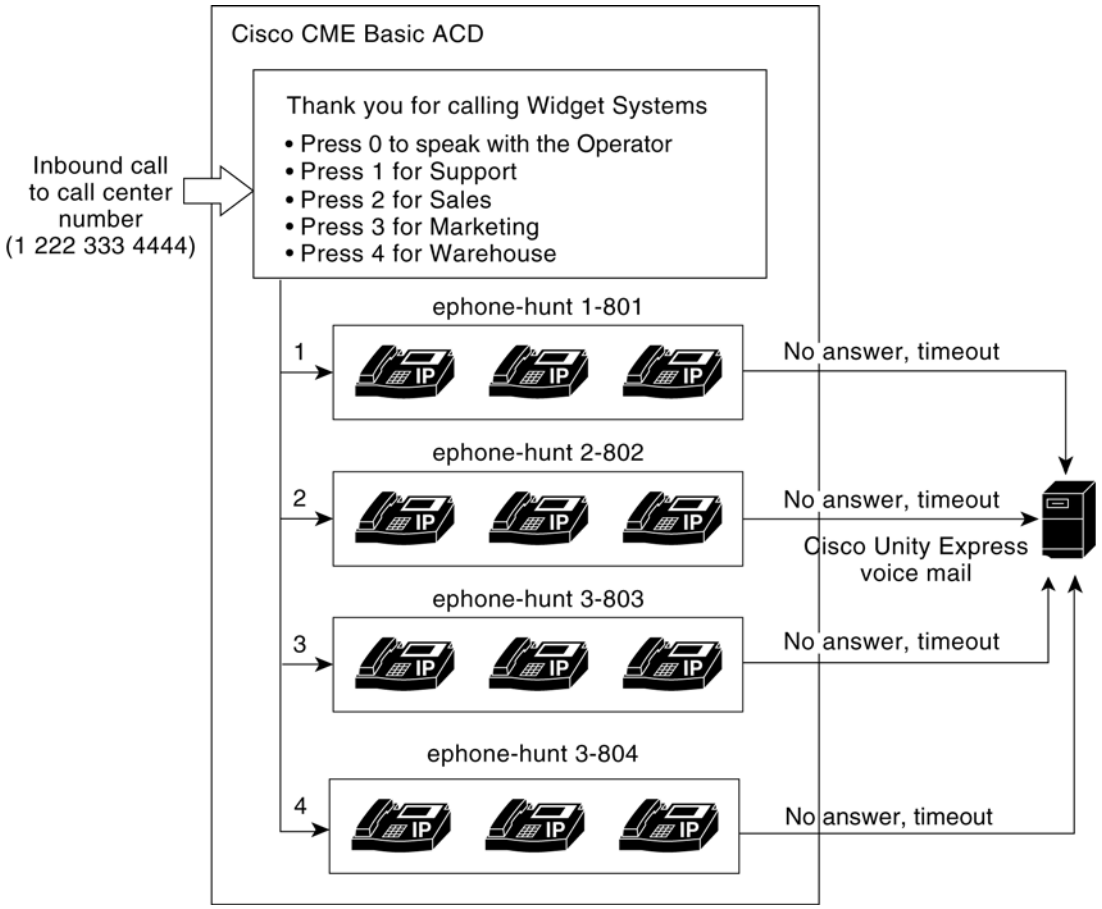
Call Flow for Basic Call Center Application

The call flow resulting from the configuration is shown in Figure 1. In this example deployment:

- Inbound calls to the main call center number are routed to AA.
- Callers are presented with a custom AA greeting that directs them to press 0 for the Operator, 1 for Support, 2 for Sales, 3 for Marketing, and 4 for Warehouse.
- AA and CME Basic ACD scripts are used to direct and distribute calls to the appropriate hunt groups.
- CME Basic ACD Report Generator is used to produce simple reports that can be viewed with Microsoft Excel.

Figure 1 Call Flow for Basic Call Center Application Example



Scope and Assumptions

The procedures and guidelines in this Application Note assume that the Cisco UC500 system has been set up using Cisco Configuration Assistant (CCA) and that the VAR administrator is familiar with CCA and Cisco IOS Command Line Interface (CLI).

This basic call center application is designed for SBCS deployments. This application note assumes that the VAR has already used CCA to configure users, phones, and basic call routing for the site. The main call center number should be configured to route to the Auto Attendant. For more information, refer to the CCA documentation and online help.

The following set-up applies to the example configuration:

- The phone number used for inbound calls routed to CUE/AA is 1 222 333 4444.
- Four hunt groups are configured in the example; up to 10 groups can be configured.

Required Software Versions

The procedures in the guide require the following software:

- Cisco Configuration Assistant (CCA), Version 1.8
- Early Adopter Software Package version 7.0.1

The software is available via links on the SBCS Support Wiki (supportwiki.cisco.com/sbcs).

A TFTP server must be active on the network in order for simple report generation or copying files to the UC500 flash via TFTP. SolarWinds (www.solarwinds.com) offers a free TFTP server that can be used for this purpose.

Overview of Configuration Steps

The configuration involves the following steps:

1. Configure CCA settings for AA script parameters, AA options, and hunt groups
2. Use CCA to assign users to the new hunt groups
3. Download and install the AA scripts on the UC500
4. Use the Cisco IOS CLI to complete the configuration
5. Customize AA greeting to present the correct options to users
6. Enable and configure report generation

These steps are described in more detail in the following sections.

Using CCA to Configure Scripts, AA Options, and Hunt Groups

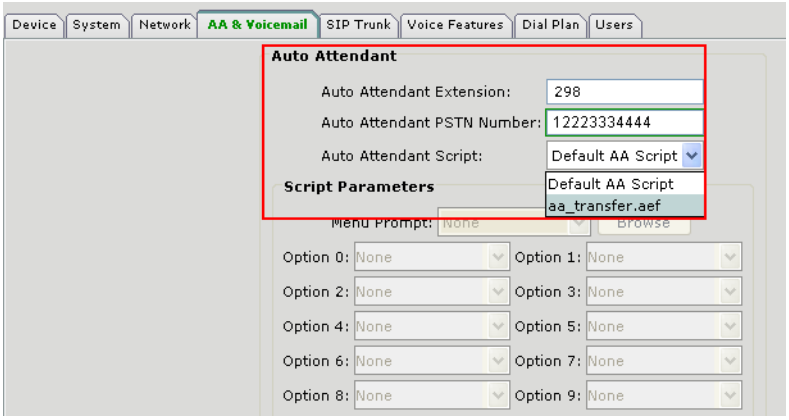
Perform the following steps to use CCA to configure settings needed for this basic call center application:

Step 1. Launch CCA, log in to the site, and navigate to **Configure** > **Telephony** > **Voice**.

Step 2. Click the **AA & Voicemail** tab.

You can use a custom AA script to route specific options to the B-ACD hunt group pilot numbers. In this example, aa_transfer.aef is used, as shown in the following step.

Step 3. In the Auto Attendant section, use the pull-down menu to change the **Auto Attendant Script** setting from Default AA Script to use a different script—in this example, aa_transfer.aef.



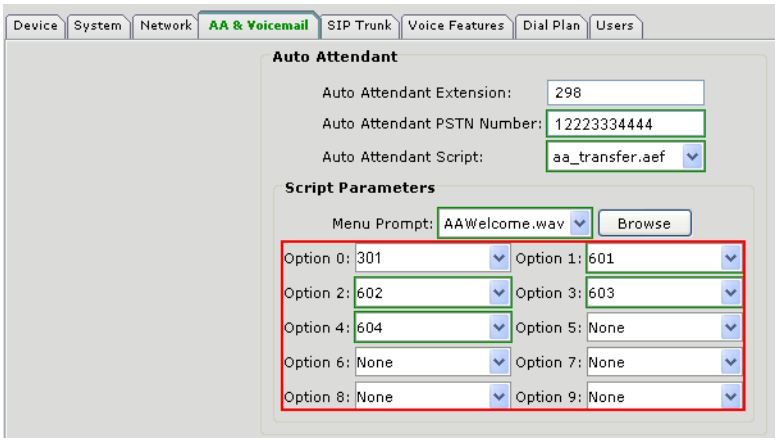
Once you have set the AA Script to aa_transfer.aef, the Option 0 through Option 9 parameters become active.

Note that the Auto Attendant PSTN Number is set to the main call center number (1 222 333 4444). This is done so that inbound calls to this number are routed directly to the AA. The AA, in turn, will use the aa_transfer.aef script.

Step 4. In the Script Parameters section, type in the extension numbers for AA Options 1 through 4. For Option 0, enter the Operator extension.

Although the Option fields display pull-down menus, you can also type in text directly.

For this example, Option 0 is set to 301, Option 1 is set to 601, Option 2 is set to 602, Option 3 is set to 603, and Option 4 is set to 604. Extensions 601 through 604 serve as pilot numbers for four groups of phones. These four groups of phones will be mapped to four hunt groups.



Step 5. Click **Apply** and confirm the changes if prompted.

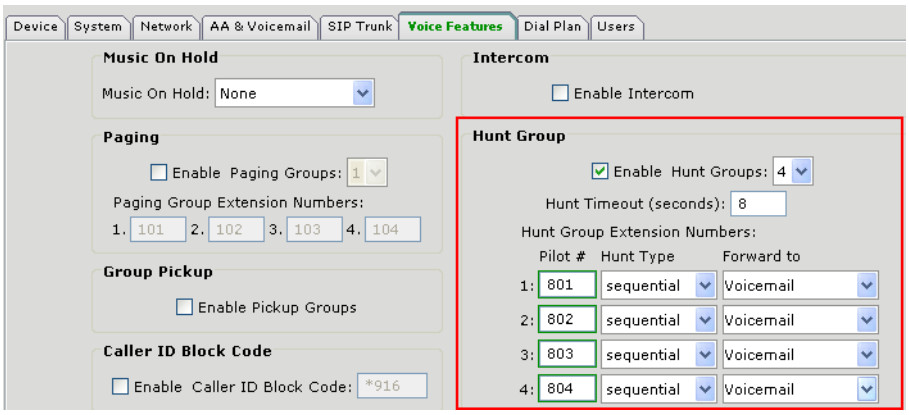
Step 6. Click the **Voice Features** tab and locate the Hunt Groups section.

For this example, four hunt groups will be configured to correspond to the Support, Sales, Marketing, and Warehouse options. Up to 10 hunt groups are supported for this configuration.

Step 7. In the Hunt Groups section, enter a pilot number and choose a Hunt Type for each hunt group.

For this example, extensions 801 through 804 are entered as pilot numbers and the Hunt type is set to Sequential. Keep the default Forward To setting so that unanswered calls roll over to Voicemail.

Note: By default, when you configure a hunt group through CCA, a general delivery mailbox (GDM) is created for the pilot number.



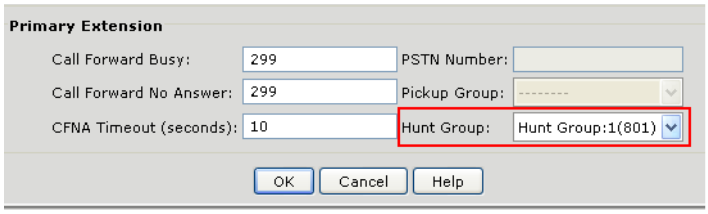
Step 8. Click **Apply**.

At this point in the configuration process, the connection between the AA option pilot numbers and hunt group pilot numbers is not yet established. The scripts that are downloaded and installed in the next series of steps provide that connection, as well as call distribution, queueing, and other basic ACD features.

In the next set of steps, you will associate user's phones with the newly configured hunt groups.

Step 9. Click the **Users** tab.

Step 10. For each user whose phone will be part of a hunt group, click the corresponding **More** button and use the Hunt Group pull-down menu to associate the users's phone with the appropriate hunt group.



Step 11. Click **OK**.

Downloading and Installing CME B-ACD Scripts to the UC500

Perform the following steps to download and install CME Basic ACD scripts to the UC500.

A Cisco.com login is required for this step.

Step 1. Log in to Cisco.com and point your Web browser to the following URL

http://www.cisco.com/pcgi-bin/tablebuild.pl/ip-iostsp

Step 2. Download the following files to a folder on the PC that you are using to run CCA:

CME-BACD-Reports-1-1.zip — CME B-ACD Reports Generator using MS Excel, for CME 4.0 and higher

cme-bacd-2.1.2.2.tar — Updated tar file with CME basic ACD files - compatible CME version 4.0, 0, 3.4, 3.3

Step 3. Open a console session to the UC500. To do this:

a. Use an Ethernet cable to connect your PC to one of the LAN ports on the UC500.

b. Open a command window on your PC. You can use the `ping` command to verify that you are connected to the UC500 (IP address 192.168.10.1).

```
C:\ ping 192.168.10.1
```

c. Use the `telnet` command to connect to the UC500 console and enter your username and password to log in. The default username is `cisco` and the default password is `cisco`.

```
C:\ telnet 192.168.10.1

User Access Verification

Username: cisco
Password:
UC520#
```

Step 4. Copy the cme-bacd-2.1.2.2.tar file to the UC500 using TFTP.

The `copy tftp flash` command lets you download a file image via TFTP.

The command syntax is as follows:

`copy tftp[:[[//`*location*`][/`*pathname*`]]] flash`

If the command is used without the *location* or *pathname* optional parameters, then the location and filename are obtained from the user interactively via a series of questions presented by Cisco IOS software.

The *location* is either an IP address or a name that resolves to an IP address. The UC500 must know how to reach this location and the TFTP server must be reachable and running.

SolarWinds (www.solarwinds.com) offers a free TFTP server that can be downloaded and used to move files to the UC500 flash.

Step 5. Extract the files from the cme-bacd-2.1.2.2.tar file you just uploaded to the flash on the UC500 using the following command:

```
UC500#archive tar /xtract cme-bacd-2.1.2.2.tar flash:
extracting app-b-acd-2.1.2.2-ReadMe.txt (18836 bytes)
extracting app-b-acd-2.1.2.2.tcl (24985 bytes)
extracting app-b-acd-aa-2.1.2.2.tcl (35485 bytes)
extracting en_bacd_allagentsbusy.au (75650 bytes)
extracting en_bacd_disconnect.au (83291 bytes)
extracting en_bacd_enter_dest.au (63055 bytes)
extracting en_bacd_invalidoption.au (37952 bytes)
extracting en_bacd_music_on_hold.au (496521 bytes)
extracting en_bacd_options_menu.au (123446 bytes)
extracting en_bacd_welcome.au (42978 bytes)
extracting en_bacd_xferto_operator.au (34794 bytes)
UC500#
```

Using Cisco IOS CLI to Complete the Configuration

Perform the steps in this section to use the Cisco IOS command-line interface (CLI) to complete the IOS configuration on the UC500.

The following example shows the exact sequence of commands used for this example. Depending on the number of AA options and hunt groups and their associated pilot numbers, you will need to edit the commands for your own use, as indicated by the comment lines in the example.

Note: When using the CLI, you can safely ignore warning messages such as "parameter xxx has not been registered under queue namespace." These messages are cosmetic and have no effect on the configuration.

```
application
  service queue flash:app-b-acd-2.1.2.2.tcl
    param queue-len 10
    param number-of-hunt-grps 4 // Edit for desired # of hunt groups, up to 10
// In the following sequence, 801 through 804 are pilot numbers for the hunt groups
// aa-hunt1, aa-hunt2, aa-hunt3, aa-hunt4 map to AA Option selections
// for that hunt group as defined in CCA
    param aa-hunt1 801
    param aa-hunt2 802
    param aa-hunt3 803
    param aa-hunt4 804
    param queue-manager-debugs 1
  !
  service aa1 flash:app-b-acd-aa-2.1.2.2.tcl
//aa1 in following sequence corresponds to AA Option 1
    paramspace english index 0
    param aa-pilot 601 // Pilot number for option 1, as defined in CCA
    param number-of-hunt-grps 1
    param handoff-string aa1 // Denotes AA Option 1
    paramspace english language en
    param service-name queue
    paramspace english location flash:
    param drop-through-option 1 // Denotes AA Option 1
    param second-greeting-time 60
    param max-time-vm-retry 2
    param max-time-call-retry 180
    param voice-mail 299 // Edit if not using default voicemail number (299)
  !
```



```
//aa2 in following sequence corresponds to AA Option 2
service aa2 flash:app-b-acd-aa-2.1.2.2.tcl
    paramspace english index 0
    param aa-pilot 602 // Pilot number for this AA option, as defined in CCA
    param number-of-hunt-grps 1
    param handoff-string aa2 // Edit this line to correspond to desired AA option
    paramspace english language en
    param service-name queue
    paramspace english location flash:
    param drop-through-option 2 // Edit this line to correspond to desired AA option
    param second-greeting-time 60
    param max-time-vm-retry 2
    param max-time-call-retry 180
    param voice-mail 299 // Edit if not using default voicemail number (299)
  !
//aa3 in following sequence corresponds to AA Option 3
  service aa3 flash:app-b-acd-aa-2.1.2.2.tcl
    paramspace english index 0
    param aa-pilot 603 // Pilot number for this AA option, as defined in CCA
    param number-of-hunt-grps 1
    param handoff-string aa3
    paramspace english language en
    param service-name queue
    paramspace english location flash:
    param drop-through-option 3 // Edit this line to correspond to desired AA option
    param second-greeting-time 60
    param max-time-vm-retry 2
    param max-time-call-retry 180
    param voice-mail 299 // Edit if not using default voicemail number (299)
  !
//aa4 in following sequence corresponds to AA Option 4
  service aa4 flash:app-b-acd-aa-2.1.2.2.tcl
    paramspace english index 0
    param aa-pilot 604 // Pilot number for this AA option, as defined in CCA
    param number-of-hunt-grps 1
    param handoff-string aa4 // Edit this line to correspond to desired AA option
    paramspace english language en
    param service-name queue
    paramspace english location flash:
    param drop-through-option 4 // Edit this line to correspond to desired AA option
    param second-greeting-time 60
    param max-time-vm-retry 2
    param max-time-call-retry 180
    param voice-mail 299 // Edit if not using default voicemail number (299)
!
dial-peer voice 2501 voip // Dial peer range must be in range 2500 to 3000
 service aa1 // corresponds to first aa option
 destination-pattern 601 // Pilot number for first aa option
 session target ipv4:10.1.1.1
 incoming called-number 601 // Pilot number for first aa option
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
```



```
dial-peer voice 2502 voip // Dial peer range must be in range 2500 to 3000
 service aa2 // Edit this line to correspond to desired AA option
 destination-pattern 602 // Pilot number for this AA option, as defined in CCA
 session target ipv4:10.1.1.1
 incoming called-number 602 // Pilot number for this AA option, as defined in CCA
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
dial-peer voice 2503 voip // Dial peer range must be in range 2500 to 3000
 service aa3 // Edit this line to correspond to desired AA option
 destination-pattern 603 // Pilot number for this AA option, as defined in CCA)
 session target ipv4:10.1.1.1
 incoming called-number 603 // Pilot number for this AA option, as defined in CCA)
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
dial-peer voice 2504 voip // Dial peer range must be in range 2500 to 3000
 service aa4 // Edit this line to correspond to desired AA option
 destination-pattern 604 // Pilot number for this AA option, as defined in CCA)
 session target ipv4:10.1.1.1
 incoming called-number 604 // Pilot number for this AA option, as defined in CCA)
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
```

Perform the following steps to use the CLI to complete the IOS configuration on the UC500:

Step 1. Use a text editor to edit the above example to fit your deployment, as described above.

Step 2. Open a console session with the UC500 and enter configuration mode.

```
C:\ telnet 192.168.10.1

User Access Verification

Username: cisco
Password:
UC520#UC500# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

Step 3. Copy and paste the entire sequence of commands into the console.

Step 4. In configuration mode, save the changes and write the configuration changes to memory.

```
UC500(config)# end
UC500# write memory
Building configuration...
Compressed configuration from 38679 bytes to 17978 bytes[OK]
UC500#
```


Customizing AA Voice Prompts

You can record prompts for Cisco CallManager Auto Attendant (AA) on any computer using Microsoft Sound Recorder. Save the prompt as a .wav file in CCITT (µ -law) 8kHz, 8-bit, mono format. You can use another audio application to record the welcome prompt if it supports this format. Once the custom AA prompt is recorded, it must be uploaded to the UC500.

For more information, visit the following location on Cisco.com:

http://supportwiki.cisco.com/ViewWiki/index.php/How_to_record_prompts_for_AutoAttendant_using_Microsoft_Sound_Recorder

Perform the following steps to upload your custom AA prompt .wav file to the UC500 using CCA:

Step 1. Launch CCA, log in to the site and choose **Configure** > **Telephony** > **Voice**.

Step 2. Click on the **AA & Voicemail** tab.

Step 3. Under Menu prompts, select Browse and navigate to the location of the custom .wav file on your hard drive.

Step 4. Click **Apply** to upload the file to the UC500.

Enabling Report Generation

Note: In order to use the CME Basic-ACD Simple Reports Generator, a TFTP server must be active on the network. The TFTP client on the UC500 is configured to periodically transfer report data to this TFTP server, as described in the procedures in this section.

Perform the steps in this section to enable data collection and configure parameters for simple report generation.

Step 1. Locate the CME-BACD-Reports-1-1.zip downloaded in a previous step.

Step 2. Extract the files to a folder on the PC connected a LAN port on the UC500.

Step 3. Open a console session on the UC500 and enter configuration mode.

```
C:\ telnet 192.168.10.1

User Access Verification

Username: cisco
Password:
UC520#UC500#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

Step 4. In configuration mode, execute the following sequence of commands to enable statistics collection for the first hunt group.

```
UC500(config)#ephone-hunt 1
UC500(config-ephone-hunt)#statistics collect
```

Step 5. Repeat the above two of commands for each additional hunt group, substituting the correct hunt group number (ephone-hunt 2, ephone-hunt 3, and so on).

Step 6. In configuration mode, enter the following set of commands to define the TFTP server and prefix for report file names:

```
UC500(config)#telephony-service
UC500(config-telephony)#hunt-group report url prefix tftp://192.168.10.11/
data
```

Step 7. In configuration mode, enter the following command to define the suffix for the report file (from 0 to 200):

```
UC500(config-telephony)#hunt-group report url suffix 0 to 200
```

Step 8. In configuration mode, enter the following command to set the frequency at which the UC500 TFTP client attempts to send/write the data to the TFTP server:

```
UC500(config-telephony)#hunt-group report every 1 hours
```

As a result of the previous two commands, statistics are collected once per hour and sent to the TFTP server. Files are named data0, data1, and so on, up to data200, before starting over.

Step 9. In configuration mode, enter the following commands to save the configuration and write it to flash:

```
UC500(config-telephony)#end
UC500#write memory
Building configuration...
Compressed configuration from 37928 bytes to 17528 bytes[OK]
UC500#
```

To send report data immediately to the TFTP server, execute the following command in enable mode:

```
UC500#ephone-hunt statistics write-all tftp://192.168.10.11/data
Writing out all ephone hunt statistics to tftp now......
```

Step 10. Use the README file included with the report files to learn how to load data into the Microsoft Excel report spreadsheet (CMEReports.xls) and interpret report data.

Limitations and Caveats

The following limitations apply to this deployment:

- Up to 10 hunt groups are supported.
- Up to 30 callers are supported per hunt group queue.
- Up to 20 agents can be assigned to each queue.
- Parallel (“blast”) hunt groups (which are configured outside CCA) are not supported.

This application does not cover configuration of dynamic hunt group membership. This feature can be useful in deployments where agents rotate shifts. For more information, visit the following URL:

http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/admin/configuration/guide/cmecover.html#wp1096443

Changing the default Music on Hold .wav file is also not covered in this application note. For more information, see the FAQ on system features, available on the SBCS Support Wiki at:

http://supportwiki.cisco.com/wiki/index.php/Category:System_Features_-_Cisco_Unified_Communications_500_Series_-_Cisco_Smart_Business_Communication_Systems

For More Information

For more information, visit the Cisco SBCS Support Wiki:

supportwiki.cisco.com/sbcs