



Cisco UC520 for SIPconnect Configuration Guide

Developed by:
Cisco Systems, Inc.

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1 Document Overview

1.1 Introduction

Cbeyond offers a service based on the SIPconnect Interface Specification, which allows Cbeyond to support customer IP PBXs over SIP trunks. SIPconnect builds on existing Internet Engineering Task Force (IETF) standards to define a model of interconnection between IP PBXs and VoIP service provider networks.

SIPconnect was conceived and developed by Cbeyond Engineering. Vendors initially supporting the effort were Cisco Systems, Avaya, Mitel, Broadsoft, and Talkswitch. By August 2006, SIPconnect gained industry-wide support via work completed by the SIP Forum.¹

In support of Cbeyond's SIPconnect service, Cisco Systems has worked with Cbeyond engineering to qualify Cisco's UC520 as a supported PBX/voicemail system under SIPconnect. This document details the topology and supporting configurations for Cbeyond VARs and customers who wish to install and operate the UC520 with Cbeyond's service.

1.2 Scope

This document is intended for systems integrators responsible for configuring and deploying UC520 for Cbeyond's SIPconnect customers. It is also intended for use by Cbeyond and Cisco personnel for troubleshooting issues associated with the integration of Cisco UC520 and Cbeyond's SIPconnect offering. It addresses the Cisco Configuration Assistant (CCA) for UC520, the graphical configuration interface, but not UC520 usage.

1.3 Revision Control

| Release | Release Date | Approval | Changes to this Version |
|---------|--------------|----------------|---|
| 1.0 | 6/4/07 | Jeff Pilgrim | Initial release. |
| 1.1 | 6/11/07 | Jeff Pilgrim | Response to comments from Bob at Cbeyond |
| 1.2 | 7/23/07 | Greg Rothman | Added Cbeyond Support Information in Section 1.5 |
| 1.3 | 7/24/07 | Greg Rothman | Updated Section 3.3.2 with the CCA Release information |
| 1.4 | 9/24/07 | Jeff Pilgrim | Updated UC500 version requirements and added section 4.4 |
| 1.5 | 10/9/07 | Corbett Nelson | Changed 4.4.2 to reflect firewall configuration change caveat. Added 4.4.3 caveat for issues with voice mail boxes. |
| 1.6 | 02/12/08 | Dipen Shah | Updated guide for CCA version 1.5 |

¹ See <http://www.sipforum.org/sipconnect>

| | | | |
|-----|----------|----------------|---|
| 1.7 | 05/19/08 | Corbett Nelson | Updated for outbound proxy configuration. |
| 1.8 | 06/13/08 | Corbett Nelson | Updated security section |

1.4 Usage

This document details how to deploy the UC520 using the Cisco Configuration Agent (CCA) graphical configuration tool. A specific example is provided that must be adapted to customer parameters and other requirements.

1.5 Questions

For any sales related questions about Cbeyond's BeyondVoice with SIPconnect service, please contact a Cbeyond sales representative.

Cbeyond Support Before or During Service Activation

Please contact your Cbeyond Service Coordinator if you need assistance

Cbeyond Support Post Service Activation

Please contact the Cbeyond Customer Support Center:

www.cbeyondonline.net
Anytime access to web-enabled account tools.

customer.care@cbeyond.net
Billing & Account Management
M-F — 8am-10pm (EST)
1-866-424-5100

technical.support@cbeyond.net
24-hour Technical Support or Call
1-866-424-5100

1.6 Suggestions / Corrections

Please send any suggestions or error reports related to this document to cornelso@cisco.com.

2 UC520 for SIPconnect Overview

2.1 Product Description

Cisco's UC520 is a Cisco IOS-based appliance that provides IP PBX, voicemail, and firewall functionality, based on Cisco Unified CallManager Express (CME), Cisco Unity Express (CUE), and the Cisco Configuration Assistant (CCA) software.

UC520 provides the following benefits:

- Cost-effective, converged data and voice solution in an appliance.
- Key system/small PBX features plus innovative convergence applications for up to 16 users with the use of an optional expansion switch.
- Intuitive graphical user interface for easy installation, adds, moves, and changes.
- Firewall and VPN support, based on US DoD certified IOS firewall technologies.
- Fully integrated voice-mail and automated attendant capabilities for IP and analog phone users.

2.2 UC520 SIPconnect Qualification and Templates

Cbeyond and Cisco engineers worked together to qualify UC520 for SIPconnect. This included the design of a "template" topology, the creation of configuration templates for the UC520 which are imbedded into the Cisco Configuration Assistant (CCA), the supporting SIPconnect service components, and addressing any software issues with respect to UC520's support for Cbeyond's network. The intent of the qualification process was to ensure that UC520 would function correctly in a SIPconnect environment.

Cbeyond's demarcation point with a network customer is at the managed Cisco Integrated Access Device (IAD) that Cbeyond deploys, which provides network access services for IP voice and data traffic. Any equipment on the customer premise, including PBXs supported by the SIPconnect service, are the responsibility of Cbeyond's customer and a supporting VAR. With that in mind, it should be understood that the main focus in developing a UC520 configuration template was to validate a configuration that works and that enables communication between the CPE-based equipment and Cbeyond's SIPconnect Broadsoft call agent. Basic voice features including on-net and off-net calling, call transfers and forwarding, voicemail access, and any other network-based voice services upon which a PBX/voicemail system depends, fall into the testing and qualification effort by Cbeyond and Cisco. More customer-specific features such as hunt-group definitions, paging groups, and the like, have been tested by Cisco but are left to VARs and customers to configure.

The templates that resulted from the testing efforts, particularly with respect to LAN topology, are tested recommendations that are subject to VAR and end-customer requirements. The only exceptions to this are required UC520 SIP

connect parameters that must be configured for communication with Cbeyond's Broadsoft platforms.

2.3 Supported Line-side Protocols

Although UC520 can also support SIP on the line side to SIP phones, this document does not address such configurations. Future versions of UC520 templates will be developed and documented in revisions to this guide.

At present, UC520 acts as a protocol converter and SIP user-agent between the SIP trunk to Cbeyond's Broadsoft call agent and Cisco IP phones running SCCP ("Skinny") images. In keeping with the SIPconnect specification, a single directory number, the designated "main number", is configured on UC520 to register with the Cbeyond servers for authentication and AOR functionality. All other directory numbers are configured such that UC520 does not register them with Cbeyond.

2.4 UC520 Security - Please review June 08 Security Notice below

Securing IP Telephony installations such as UC520 is a topic that is beyond the scope of this document and has not been directly addressed in the development of SIPconnect UC520 installation templates. Security is an area in which Cbeyond's partners may provide additional value to SIPconnect customers, if executed properly. Cisco's IOS firewall, for example, can be configured on UC520 to enable the appropriate access-lists and other elements of the firewall.

UC520's IOS cryptographic image may also be configured to enable SSH and HTTPS (SSL) access to the UC520 management interfaces. Administrative access to the UC520 management interfaces may also be configured through the use of local usernames and password, privilege levels, and the use of AAA servers such as Cisco's Access Control Server (ACS) which provides Radius and TACACS+ services. These configuration efforts may be performed by the VAR or end-customer through CCA.

The UC520 templates also include Class of Restriction (COR) to enable access control for different classes of users. International number dialing, for example, may be restricted to specific phones.

Care should be taken by the VAR or customer to avoid disabling call control, voicemail, and phone features when enabling security features manually. As an example, many security administrators will limit access to the HTTP server in IOS through the use of access control lists (ACLs). If those ACLs, however, inadvertently prevent IP phones from reaching the HTTP server imbedded in UC520 then features such as user directories and IP phone services will be disabled.

June 13, 2008 Security Notice for Preventing Toll Fraud

If a security configuration is not already in place to prevent outside callers from using a UC500 for fraudulent calls, then steps are required to prevent this. Not securing the SIP trunk on the UC500 will allow anonymous SIP connections. The result of this is that it can be used by outside parties to send unauthorized calls. To

prevent this requires adding CLI commands to the SIP Trunk configuration on Dial Peer 1000 & access-list. The configuration addition is listed below.

Telnet to the UC500 and enter configure mode.

1. Look for the dial-peer labeled

“** Incoming call from SIP Trunk **” this should be dial-peer 1000.

```
uc500# config terminal
uc500(config)# dial-peer voice 1000 voip
uc500(config-dial-peer)# permission term
uc500(config-dial-peer)# end
```

Upon completion the dial-peer should look like the example below.

```
uc500#show run | section dial-peer voice 1000 voip
dial-peer voice 1000 voip
permission term
description ** Incoming call from SIP trunk **
voice-class codec 1
voice-class sip dtmf-relay force rtp-nte
session protocol sipv2
session target sip-server
incoming called-number .%
dtmf-relay rtp-nte
ip qos dscp cs5 media
ip qos dscp cs4 signaling
no vad
```

2. Add an access-list to only allow Cbeyond SIP proxy servers:

```
uc500# config terminal
uc500(config)# access-list 2 permit 10.1.10.1
uc500(config)# access-list 2 permit sipconnect.cbeyond.net << Appropriate SIP
proxy from Cbeyond >>
uc500(config)# access-list 2 deny any
uc500(config)#voice translation-rule 411
uc500(cfg-translation-rule)# rule 1 /^9(.*)/ /ABCD9\1/
uc500(cfg-translation-rule)#voice translation-profile SIP_Incoming
uc500(cfg-translation-profile)# translate called 411
uc500(config)#voice source-group CCA_SIP_SOURCE_GROUP
uc500(cfg-source-grp)#access-list 2
uc500(cfg-source-grp)#translation-profile incoming SIP_Incoming
uc500# write memory
```

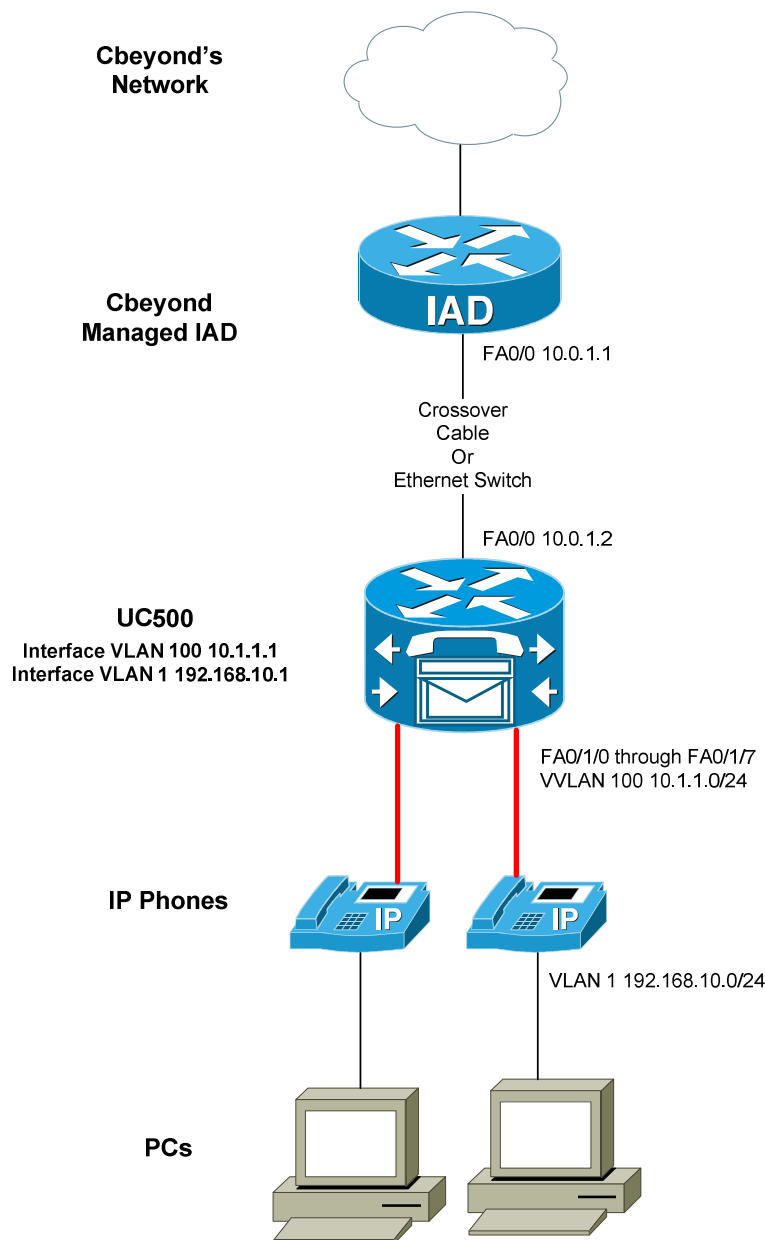
2.5 Template LAN Topology for UC520 Installation

There are several ways in which a UC520 system can be integrated into a customer’s local area network in the context of SIPconnect. The key factor to consider in the implementation, however, is that the managed Cisco IADs which Cbeyond customers enjoy as “managed access routers” are generally not modified according to various CPE scenarios. The IAD provides a SIP ALG and NAT

router for local private network addressing, but does not participate in local routing decisions for subnets and VLANs defined by the end-customer or VAR. This enables Cbeyond to provide reliable, consistent, and supportable IAD configurations across a wide customer base.

With this consideration in mind, Figure 1 depicts the LAN topology that was used to develop to UC520 configuration templates with SIPconnect.

Figure 1, LAN Template



In this topology, UC520 is placed inline between the managed IAD and any CPE devices including IP phones and personal computers. UC520 becomes the default

gateway, TFTP, and DHCP server for the phones and PCs. Requirements for this configuration include:

- A layer 2 Ethernet switch or cross over cable between the Cbeyond IAD and UC520
- Cisco UC520 appliance
- Cisco IP Phones, up to 16 if the UC520 expansion switch is employed.
- Misc analog phones or other devices such as fax machines

This template for a LAN topology also supports running the IOS firewall feature set on the UC520 platform although a firewall configuration is not presented in this document.

Considerations for this topology include:

- The “WAN” segment between the Cbeyond IAD and the UC520 can also support other data devices, such as personal computers, just as if UC520 were not present. This is the default LAN supported by Cbeyond IADs, is DHCP enabled by default, and by default falls into the 10.0.1.0/24 subnet. Both DHCP support and the subnet can be modified by the VAR or end-customer so long as the subnet changes are addressed in the UC520 “WAN” interface and routing configuration.
- “VLAN 1”, “Voice VLAN 100”, and the subnets depicted can be modified by the VAR or end-customer to suit customer requirements.
- PCs may or may not be attached through Cisco IP phones according to customer preference, but the total number of ports supported by UC520 is 16.
- Inline power support is provided by UC520.
- The UC520 provides routing for all devices in VLANs 1 and 100, and also NATs the template 192.168.10.0/24 address space for the data VLAN 1. The result is that data traffic from VLAN 1 is NATed twice: Once by the UC520 and once by the Cbeyond IAD. Without this NATing on the UC520, the managed IAD has no destination for inbound traffic. Testing by Cbeyond and Cisco has not revealed any particular difficulty with this practice.
- Some customers may prefer to obtain a publicly routable address for UC520 rather than use a private “10.x” address behind the Cbeyond IAD. Cbeyond provides this as an option and also configures the IAD to route “inside” for a block of public IP addresses. This has the benefit of avoiding “double-NATing” and can simplify remote access to the UC520, whether or not VPN access is configured on the appliance platform.
- If remote access to the UC520 is desired Cisco recommends the use SSH connections rather than the use of telnet.

3 Requirements

3.1 Hardware Requirements

The UC520 appliance supports Cisco IP phones and Cbeyond service. An Uninterruptable Power Supply (UPS) is strongly recommended for UC500, which runs a version of Linux in the embedded Unity Express module. This appliance is fairly robust but nevertheless involves a spinning hard disk drive that is subject to errors in the event of sudden power loss.

3.2 Software Requirements

Cbeyond and Cisco have qualified the following software versions for SIPconnect and UC500. No other versions of software on UC500 are currently supported. Note that as of this writing, the UC500 has not been released; packaging on CCO may be different than that of CME/CUE installation:

| Component | Supported |
|---------------|---|
| IOS Release | uc500-advipservicesk9-mz.124-11.XW5.bin |
| UC520 Release | 4.2(5) |
| CCA Release | 1.5 |

4 Configuration

The UC500 may be configured with either the Cisco Configuration Assistant (CCA) or command line interface (CLI) although there are some tasks that may only be achieved through CLI at this time. This guide documents the CCA configurations tasks plus additional CLI-based configuration that must be applied, as recognized at the time of this document update.

4.1 Installation

Please refer to the “Getting Started Guide” located at http://www.cisco.com/en/US/products/ps7293/products_getting_started_guide09186a0080824095.html for instructions about physically connecting the UC500’s ports. In a nutshell, connect the “WAN” port to the same Ethernet segment as the inside interface of the Cbeyond IAD. This may be accomplished either with a crossover cable or with a LAN switch. Connect IP phones to the FastEthernet ports on the front of the UC500. PCs should generally be connected to the switch port on the phones. Any analog devices may be connected to the FXS ports on the UC500.

Software for the platform may be downloaded from CCO at <http://www.cisco.com/cgi-bin/tablebuild.pl/UC520>. Links are provided on this page for the UC520 download, a link to the IOS page, and to various individual support files.

Cisco Configuration Assistant (CCA) may be found at <http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=281010085>. Install CCA on a PC connected to one of the FastEthernet ports on the front of the

UC500. Make sure this PC is configured to negotiate and IP address with UC500 over DHCP.

4.2 Initial Configuration

If the UC500 platform has been configured for testing or other purposes prior to the customer installation, be sure to reset it to the factory default configuration. UC500 uses factory default configuration files, for example “UC520-16U-4FXO-K9-factory.cfg”. The exact name of this file depends on the UC500 model but the procedure to restore the configuration to the factory default is the same: Using a console connection, copy this file to the startup-config in NVRAM. For example:

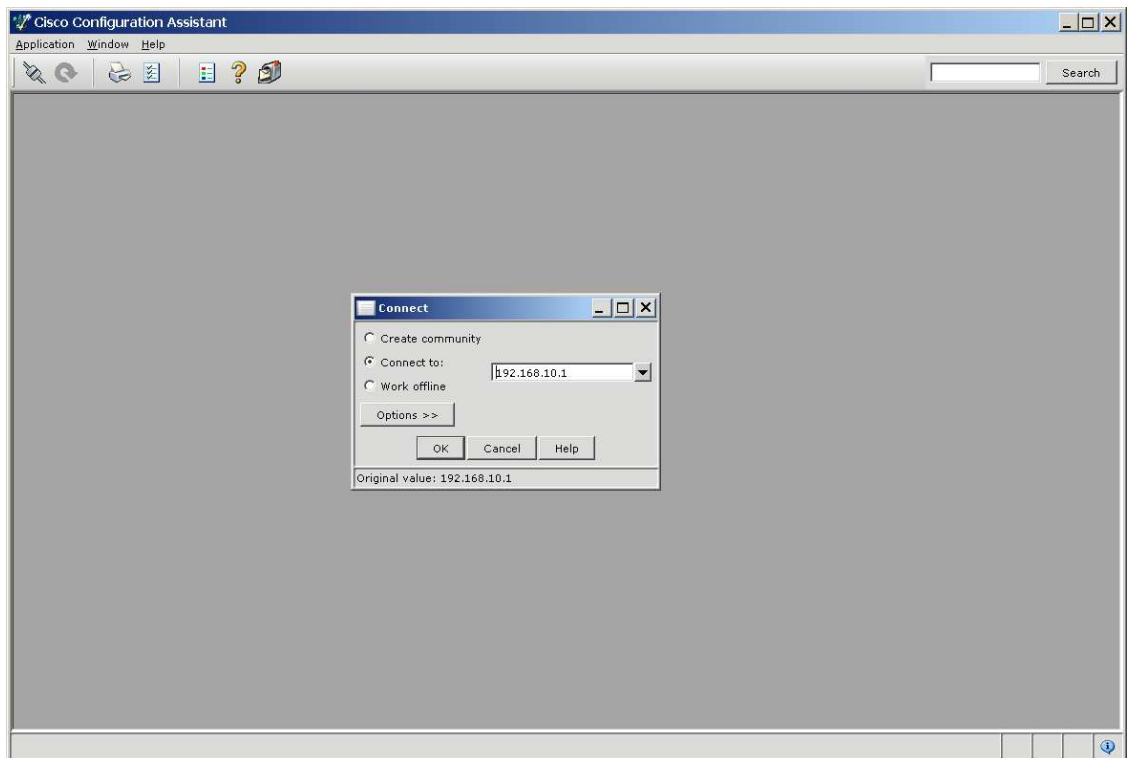
```
UC520#copy flash:UC520-16U-4FXO-K9-factory.cfg startup-config
Destination filename [startup-config]?
[OK]
11553 bytes copied in 2.340 secs (4937 bytes/sec)
UC520#
```

Then reload the UC500.

4.3 Using CCA to Configure the UC500 for Cbeyond

With the UC500 in a default configuration, launch CCA on the workstation attached to a FastEthernet port. CCA begins with a prompt to connect. This may be populated with a value. If not, enter 192.168.10.1 in the “Connect to:” field as follows:

Figure 2 CCA Connect



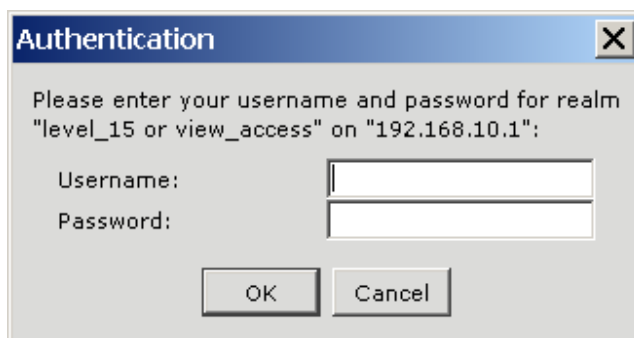
An SSH certificate warning may appear:

Figure 3 Certificate Warning



Select "Yes" or "Always" to continue to a login prompt:

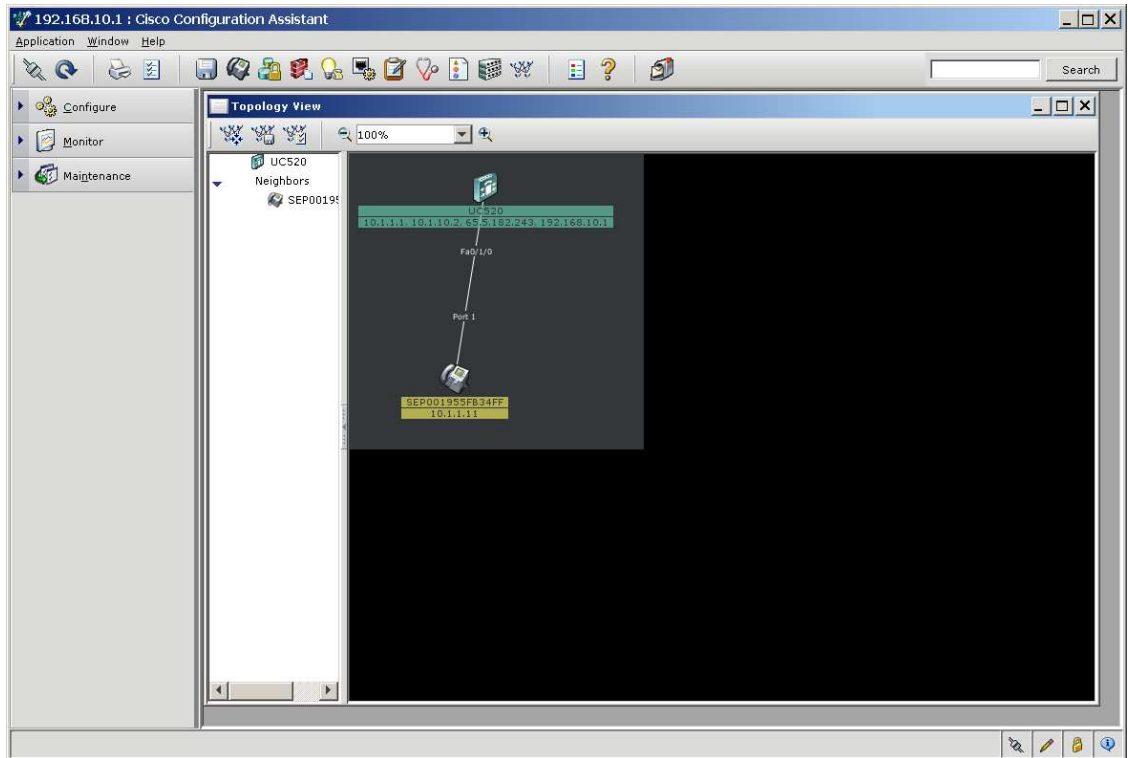
Figure 4 Login



For the first login enter a Username of "cisco" and a Password of "cisco".

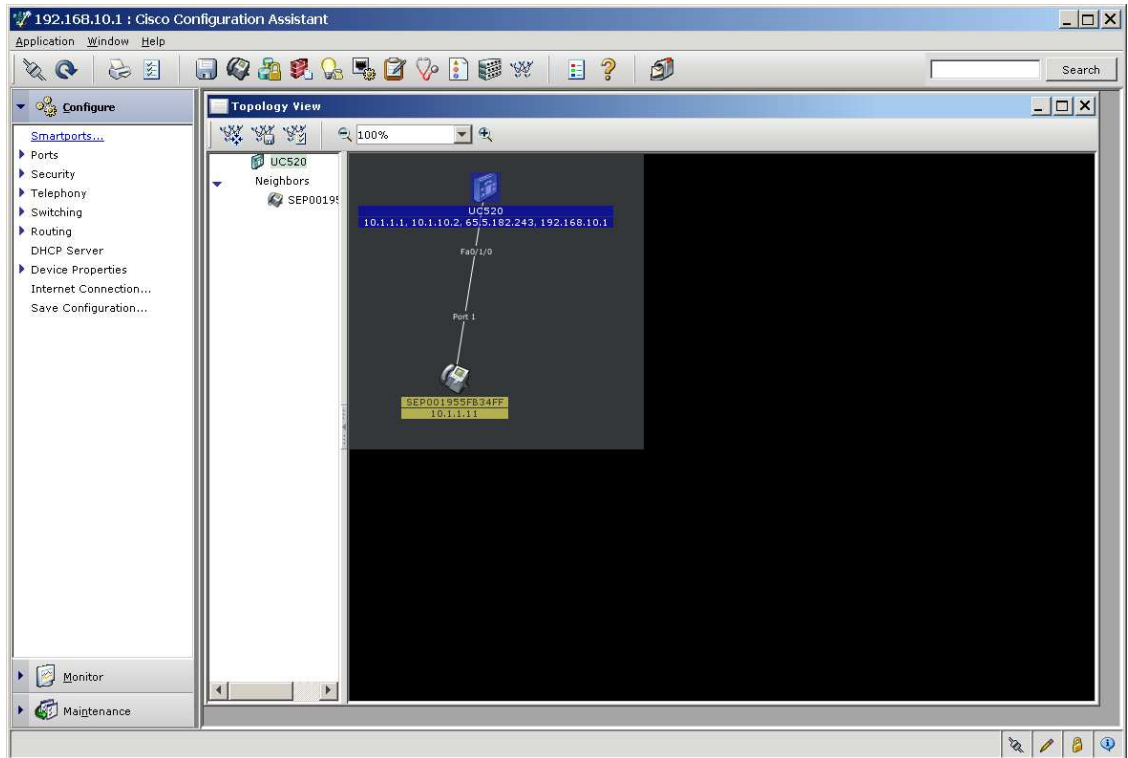
A topology view should appear after a minute or so of network discovery:

Figure 5 Topology View



In this example there is a single phone connected to the UC500. To continue the configuration click on “Configure” in the left pane:

Figure 6 Left Pane



Many of the elements of the default configuration may be accepted or changed depending on the preference of the VAR or end user.

The “Smartports” configuration option, for example, allows changing VLAN and voice VLAN assignments away from the recommended defaults that are assumed in this document. “Ports/Port Settings” allows the assignment of static duplex and speed settings, power management, and enablement. VARs are recommended to use the “Smartports” configuration options to validate or specify the type of the device plugged into each port, e.g. another switch. Otherwise accept the default values.

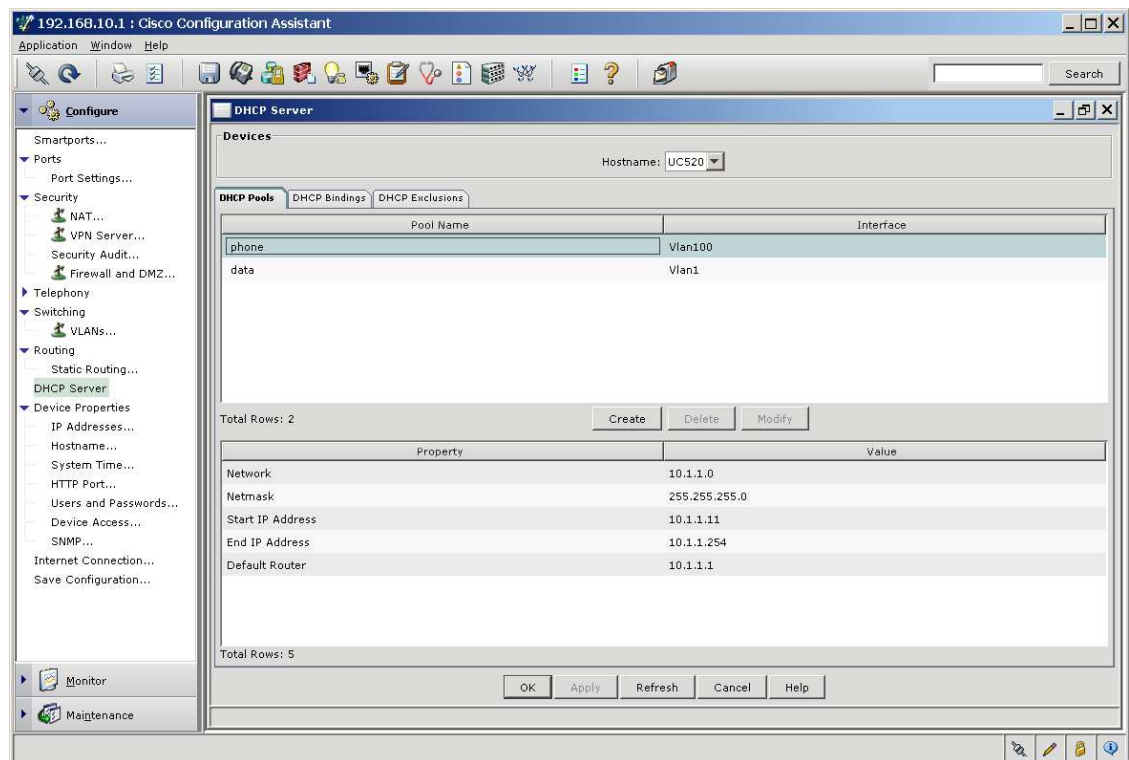
The Security tree allows the creation or modifications of NAT, VPN server and Firewall options. This will not be addressed in this document but are discussed in the UC500 product documentation.

The Telephony tree in the left panel is where the majority of configuration for SIPconnect takes place, and will be addressed in the next section of this document.

Cisco recommends that Cbeyond VARs leave the Switching and Routing tabs at their default settings unless integration into a customer network requires the addition of IP interfaces, VLANs or static routing decisions.

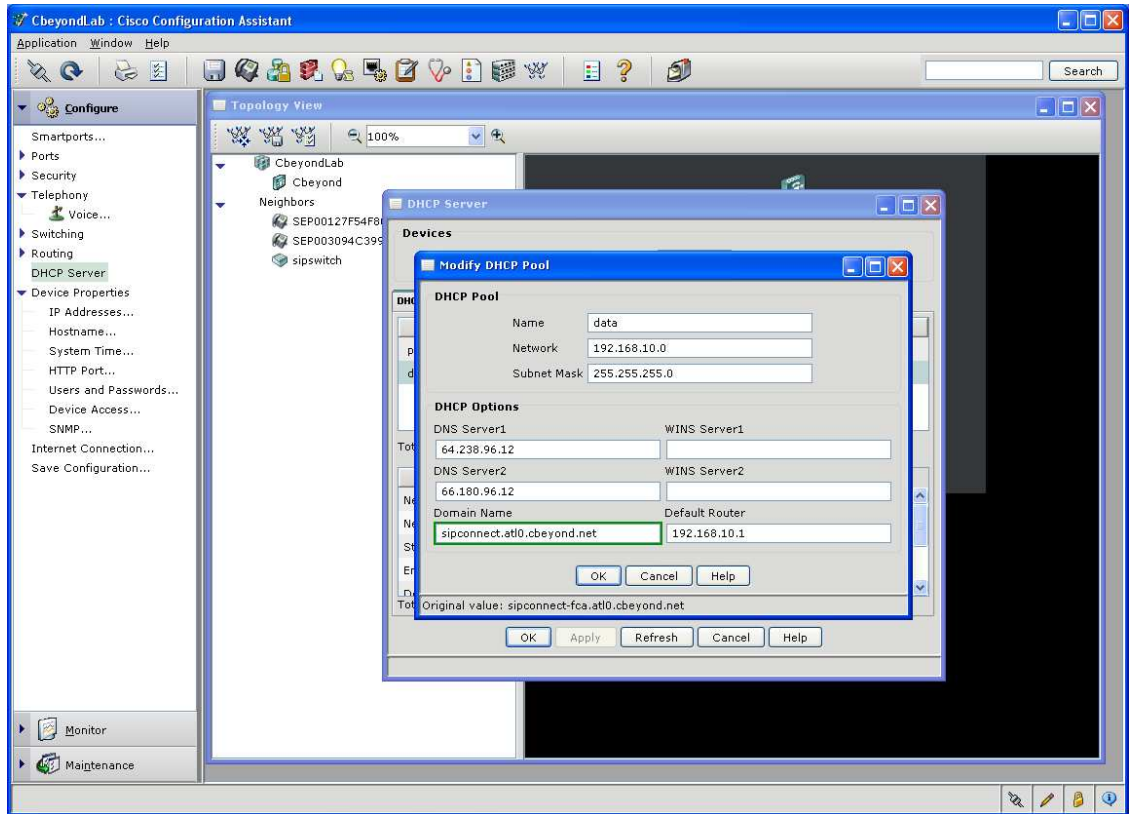
“DHCP Server” should be selected so that DNS settings may be applied:

Figure 7 DHCP Pools



For the “data” pool, configure DNS server addresses and domain names. Cbeyond typically offers DNS server addresses of 64.238.96.12 and 66.180.96.12, depending on where the end customer is located. Cbeyond will also host domain names for customers upon request. Update the fields appropriately:

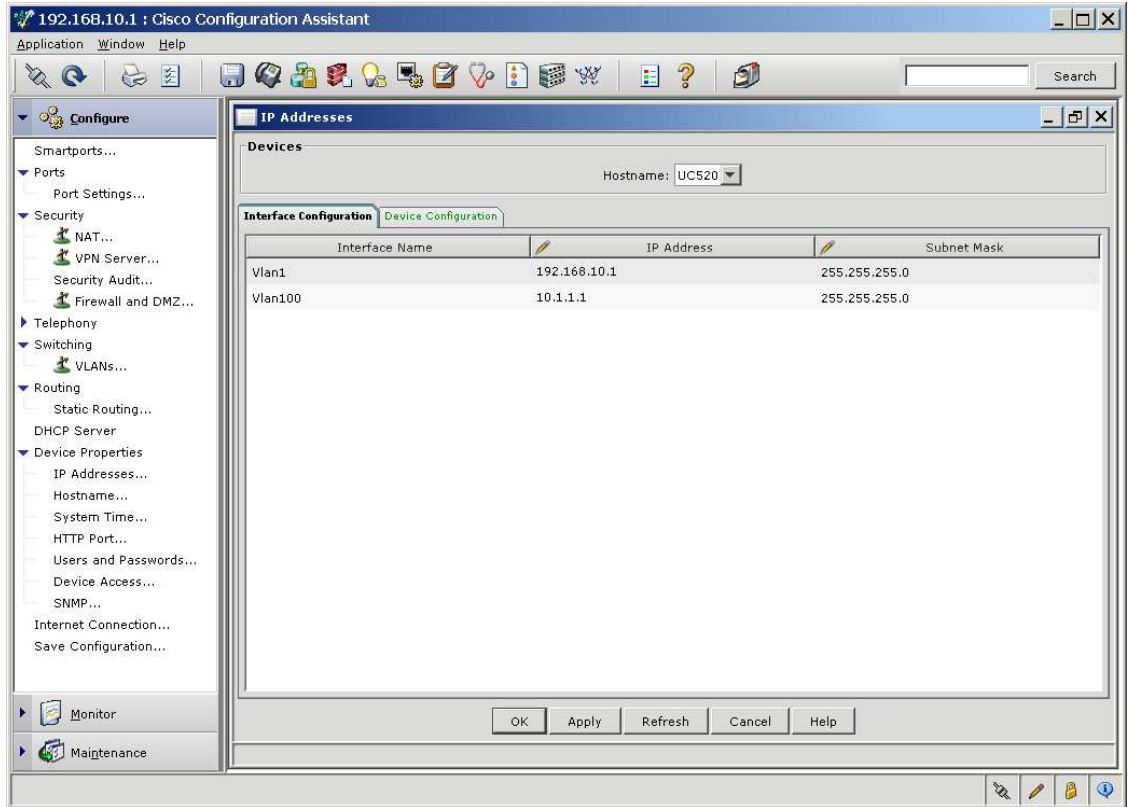
Figure 8 Modify DHCP Pool



Click “OK” to continue.

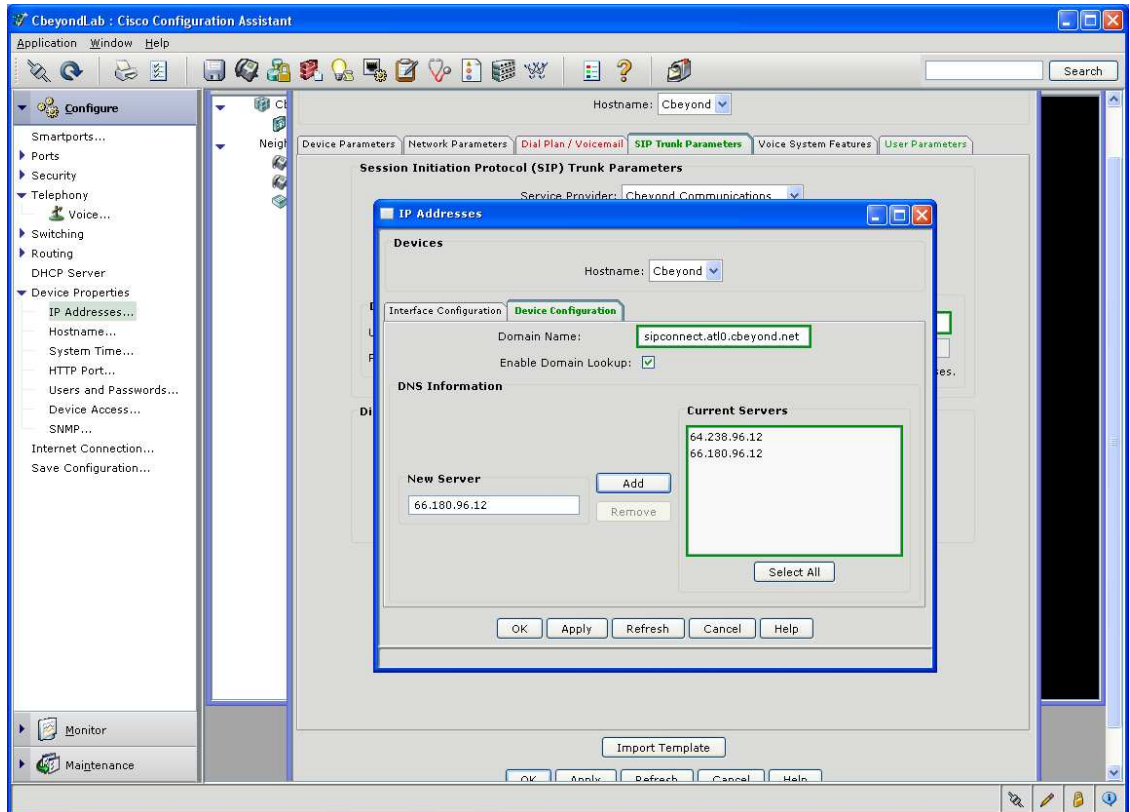
Select “Device Properties/IP Addresses” to update DNS settings for the UC500 itself:

Figure 9 DNS Settings



Inspect the VLAN settings and then select the “Device Configuration” tab and configure DNS server addresses and the domain name appropriately:

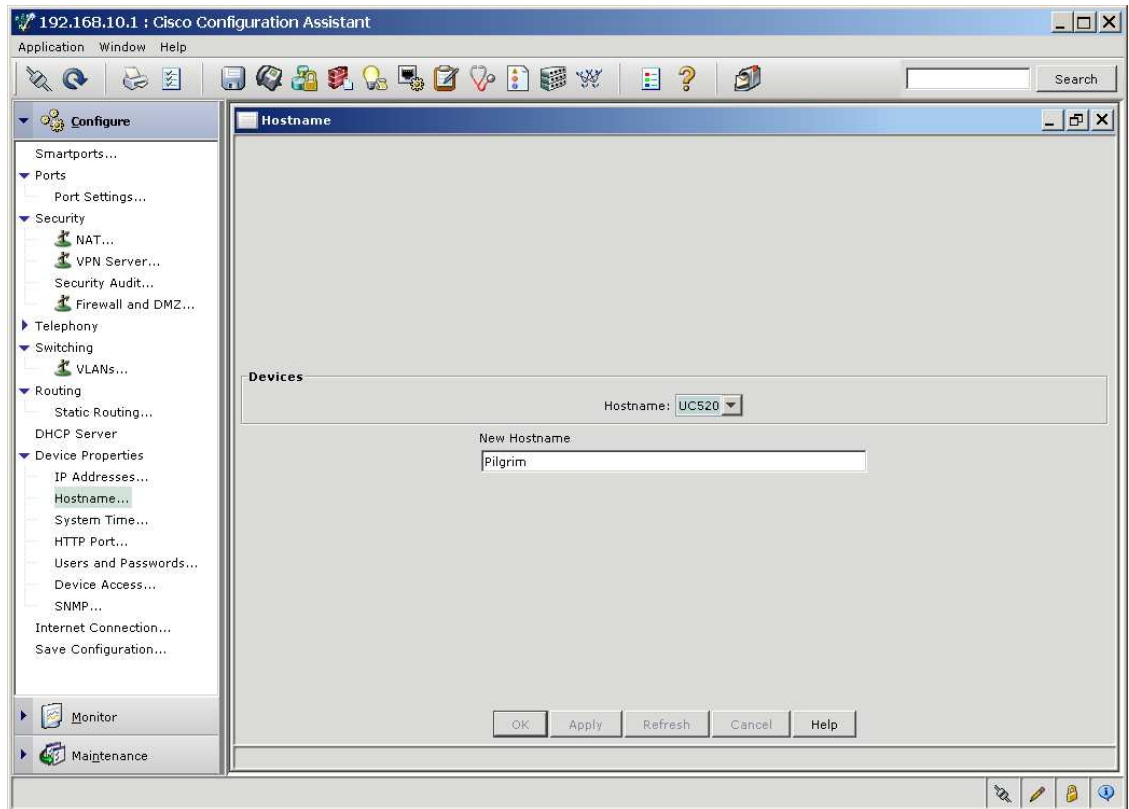
Figure 10 DNS Settings, Continued



Be sure to click “OK” to continue.

Select “Device Properties/Hostname” to change the hostname assigned to the UC500, if desired, then click “OK”:

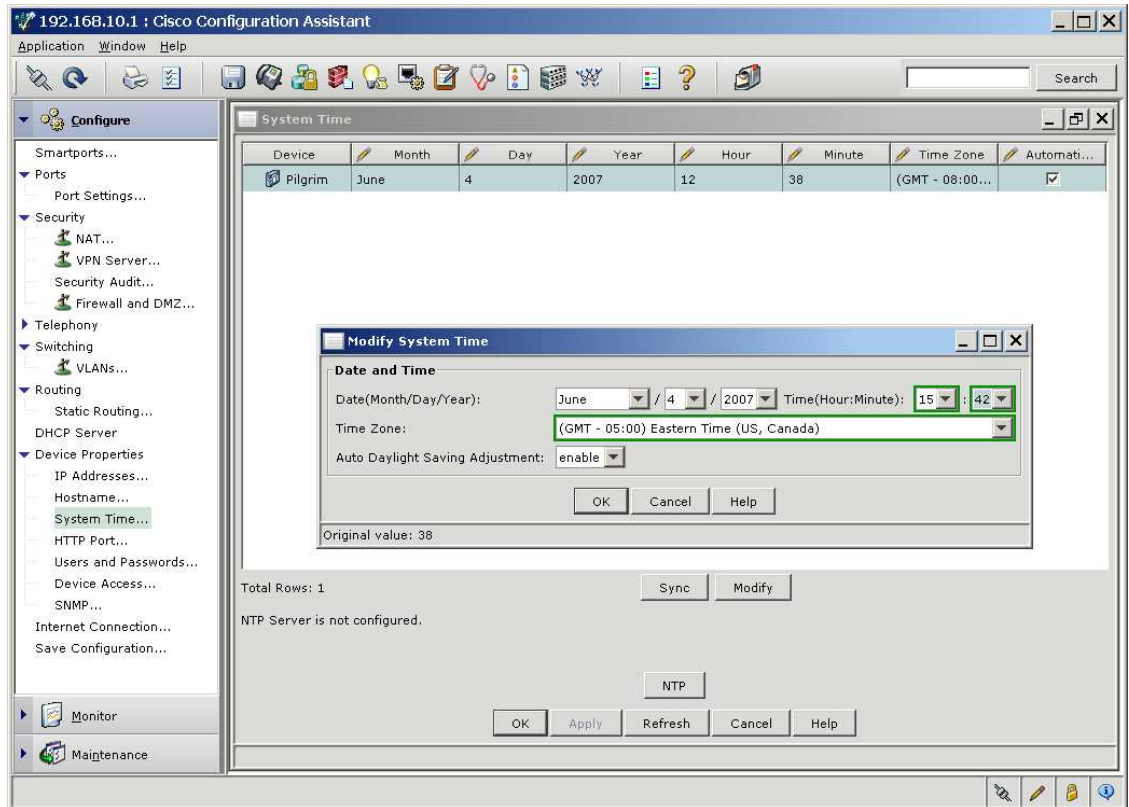
Figure 11 Change the Hostname



Note that CCA will rediscover the UC500 after updating the hostname.

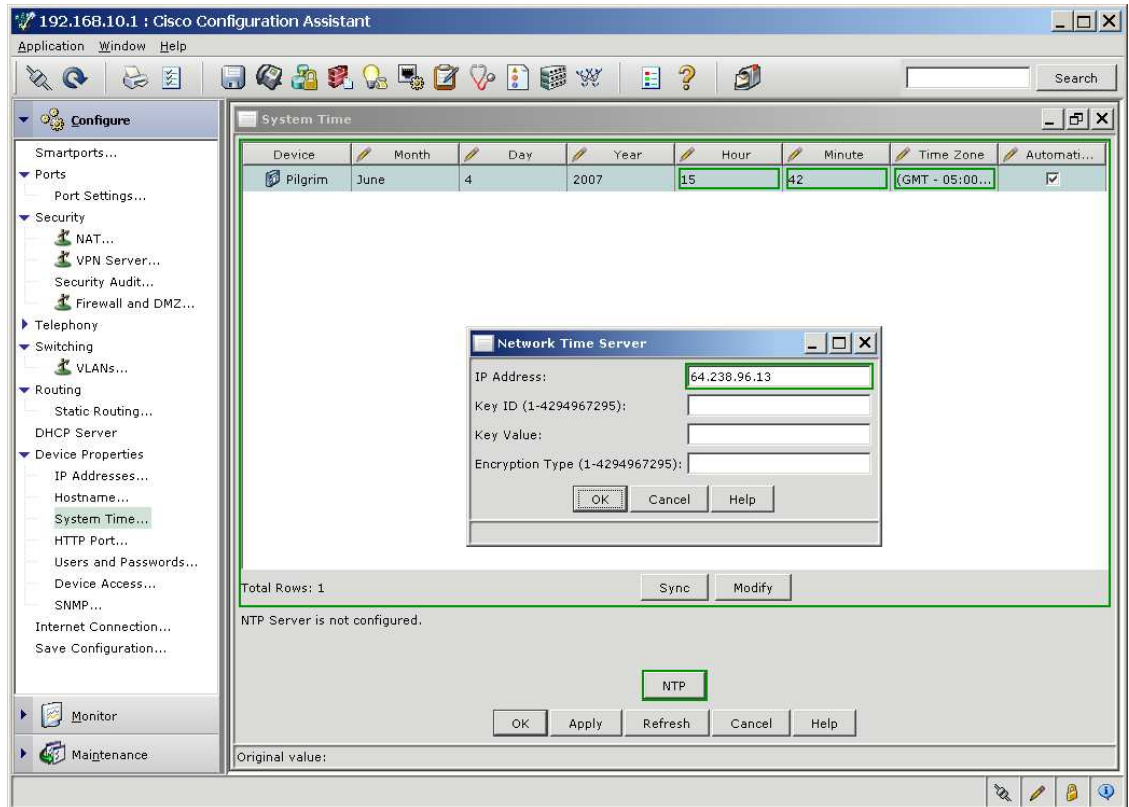
Click on “Device Properties/System Time” to set the system clock. Click the Device name (e.g. “Pilgrim”) and then the “Modify” button. Make the appropriate selections and click “OK”:

Figure 12 System Time



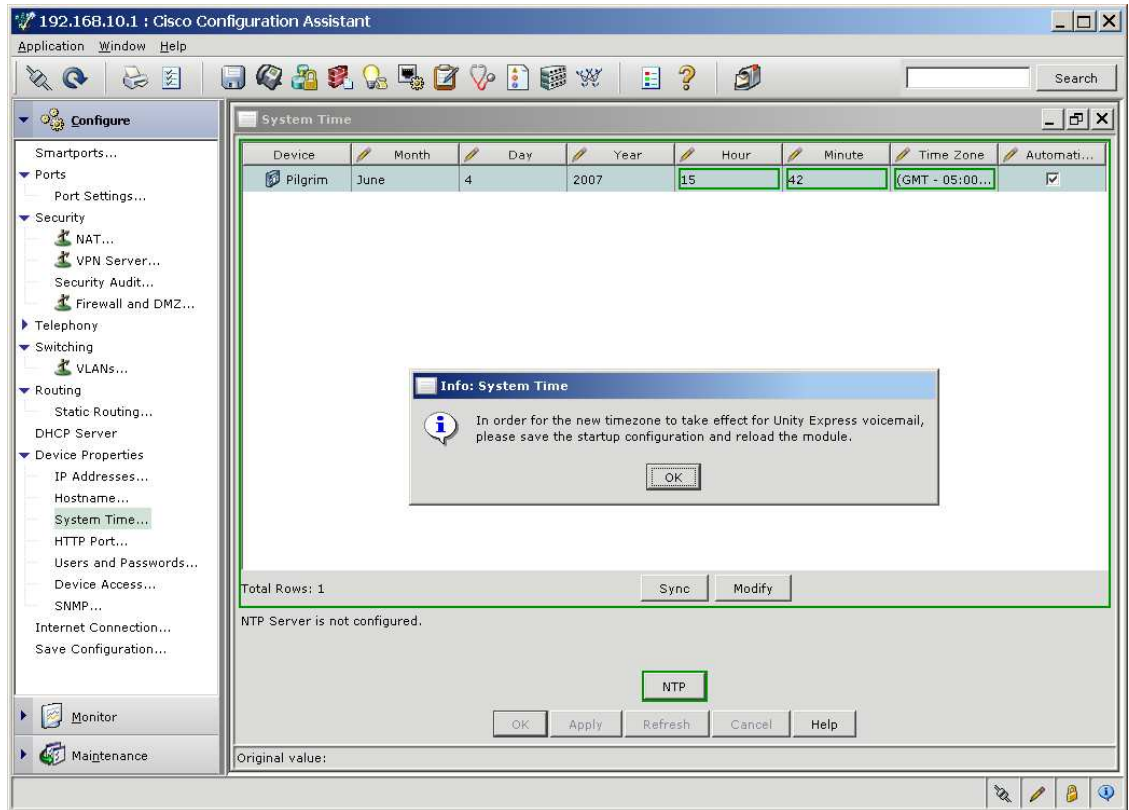
Cbeyond supplies NTP server information that can be configured in UC500 as well. This is usually simply primary and secondary IP addresses. NTP server keys and encryption settings are not used:

Figure 13 NTP



Click “OK” and “OK”, at which a notification will appear.

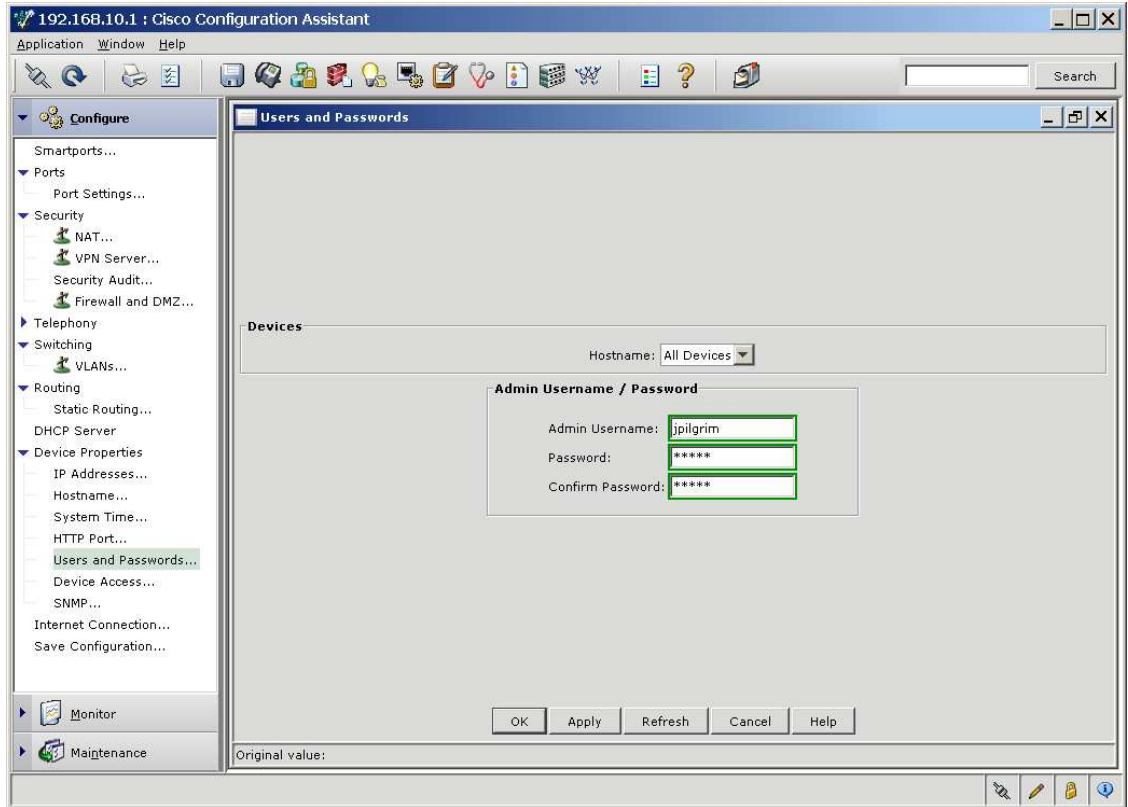
Figure 14 NTP, Continued



Disregard this for the moment and click “OK to continue.

Click on “Device Properties/Users and Password” to configure an administrative username and password for the system. This is strongly recommended:

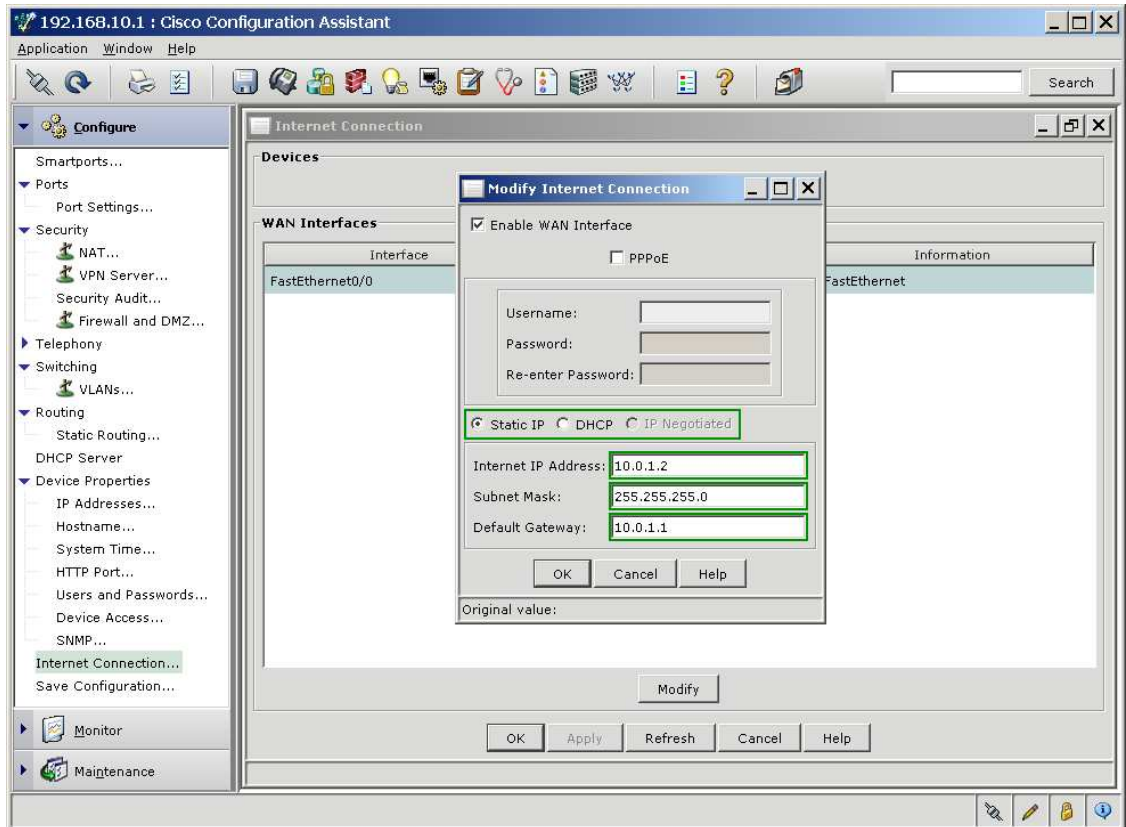
Figure 15 Users and Passwords



Click “OK” to continue.

Click “Internet Connection” from the left panel to configure the WAN interface with a static IP address. This is a **mandatory** step when using CCA for UC500 configuration. Click the FastEthernet 0/0 interface and then the Modify button. Complete the dialog box:

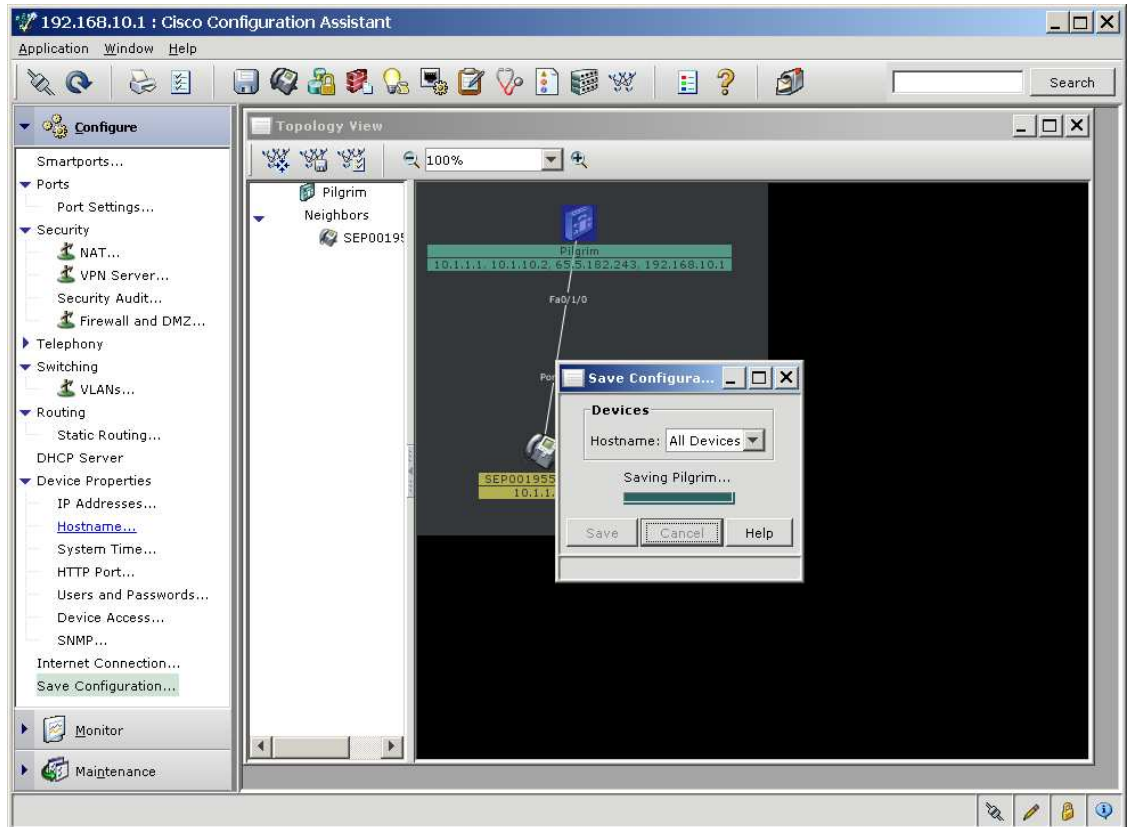
Figure 16 WAN Interface Settings



This example shows the recommended static address of 10.0.1.2 for a default Cbeyond IAD configuration. Modify the numbers as required or preferred. Click “OK” to continue, then “OK” again.

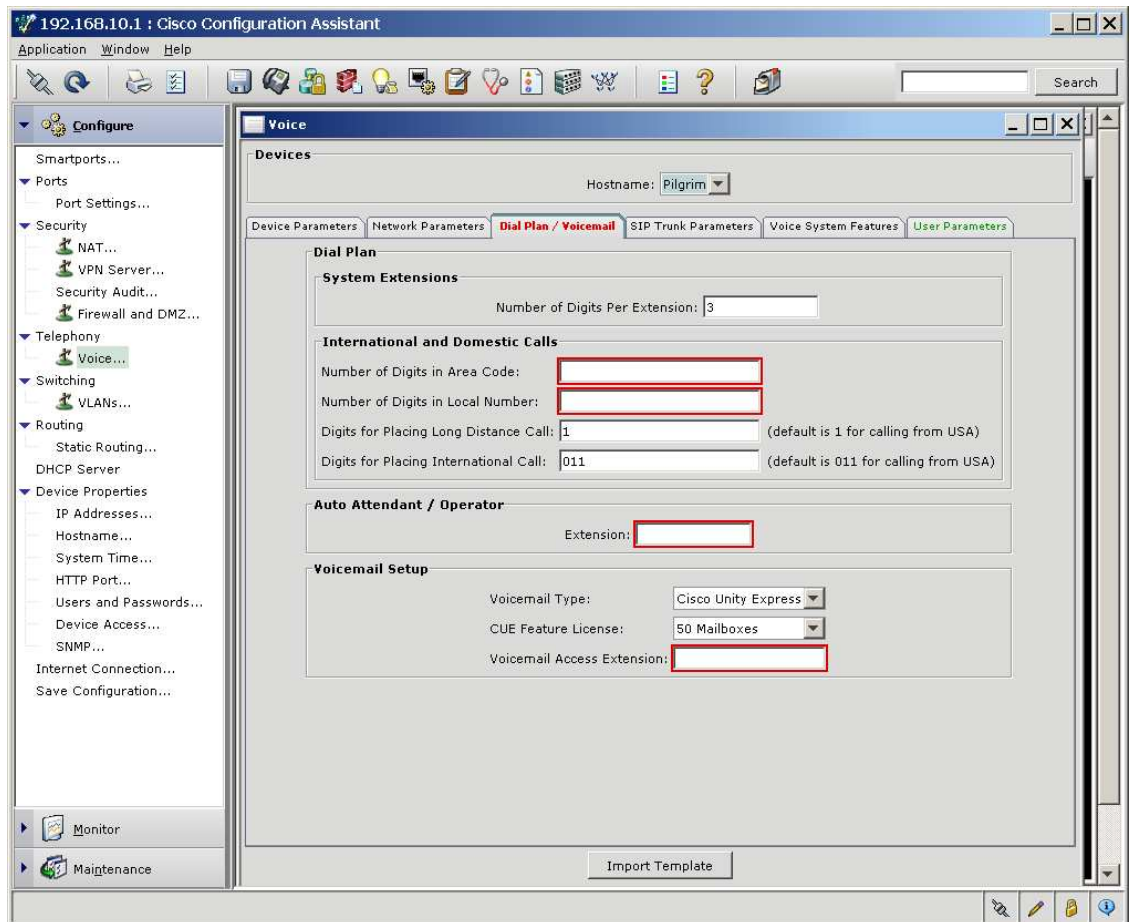
At this point, saving the configuration to NVRAM is strongly recommended. Save the configuration by clicking on the “Save Configuration” link in the left configuration pane.

Figure 17 Save the Configuration



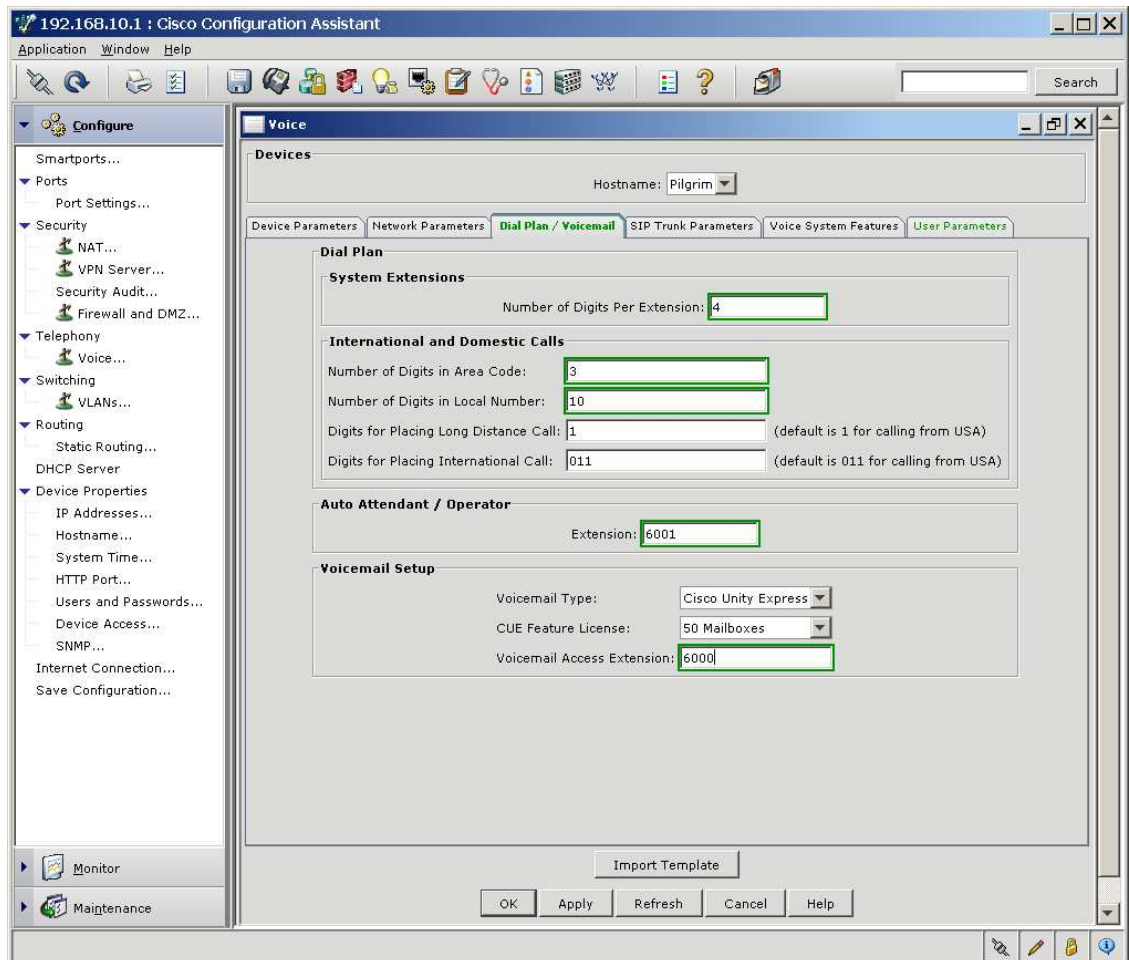
Continue to the Telephony configuration by clicking “Telephony/Voice” from the left panel. Note that the window that appears, “Device Parameters”, will switch to the “Dial Plan/Voicemail” tab automatically, with some fields highlighted in red. The highlight fields mark elements that must be completed to proceed:

Figure 18 Dial Plan / Voicemail



Complete the fields as desired. Note that changing the number of digits in an extension causes CCA to identify ANY extension number field, in the Dial Plan/Voicemail tab and also in all others in the Voice configuration that must be increased or decreased in length to ensure consistent extension numbering. In this example, 4-digit extensions will be employed. The AA pilot number is assigned extension “6001” and the CUE voicemail pilot is assigned “6000” in a convention that has developed during numerous CME/CUE installations:

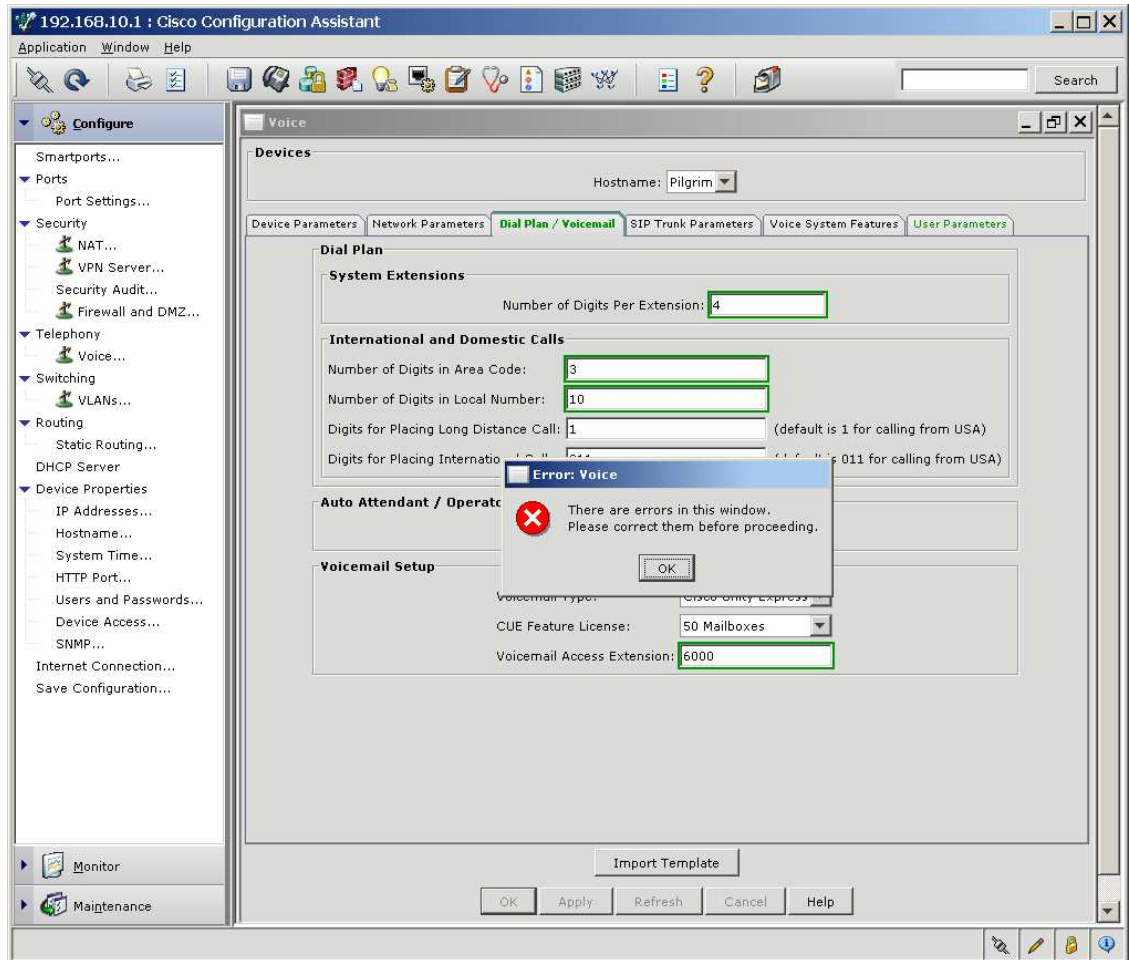
Figure 19 Dial Plan / Voicemail, Continued



Clicking “Apply” or “OK” at this point will result in an error, so do not click either one, as explained below.

If “Ok” or “Apply” is selected, an error dialog will appear as show below. This occurs because other extension fields, in other tabs of the voice configuration, have not yet be changed to 4-digit extensions. This error will not occur if 3-digits extensions, the default, are accepted:

Figure 20 Don't Click OK

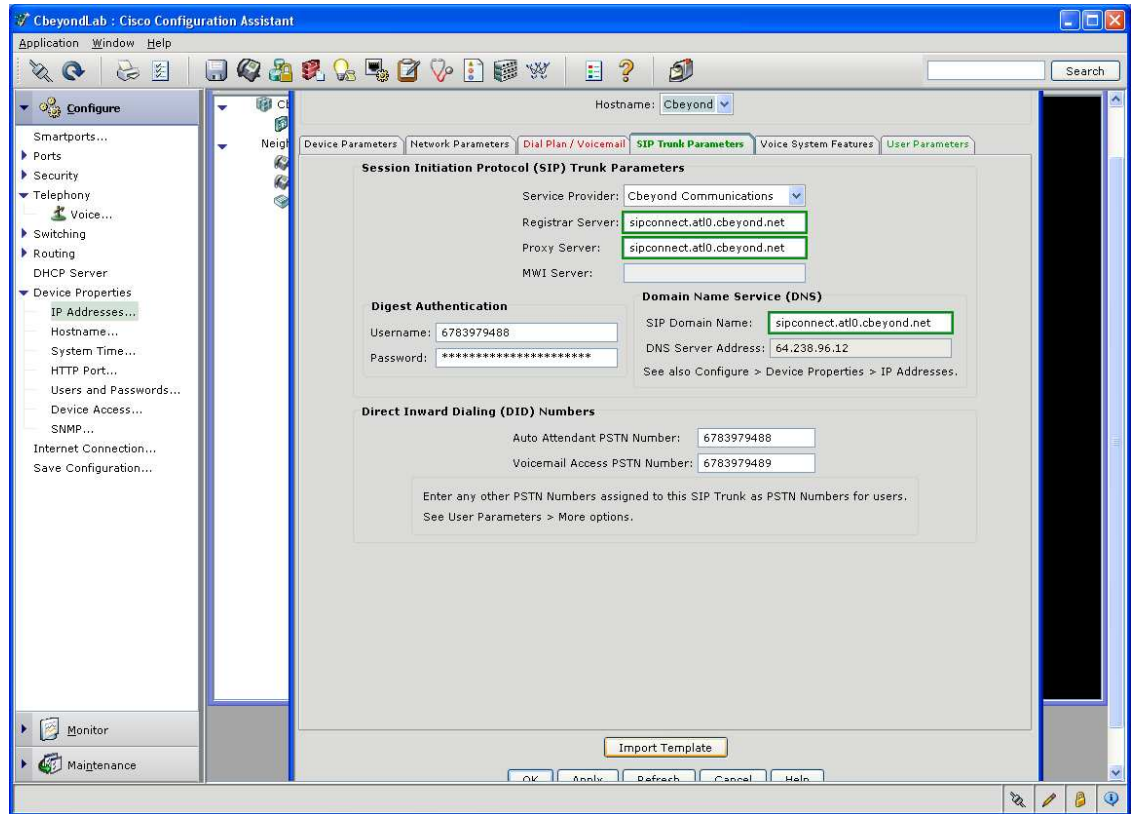


In the event that this dialog occurs, click “OK” in the error box and then click the “SIP Trunk Parameters” tab to continue.

Note that in this version of CCA, if “Ok” is selected and the fields have been corrected, when CCA will apply the configuration to NVRAM of the UC500. However, if 4-digit extensions are desired, and the user reenters “Telephony/Voice” configuration, then navigates back to the Dial Plan / Voicemail tab, the number of digits in the extension will be reset back to “3”. This is a known issue that is being addressed by Cisco.

Complete the SIP Trunk Parameters tab according to the example below:

Figure 21 SIP Trunk Parameters



The registrar server hostname, proxy server hostname (if different), and SIP domain name are all given in the install profile provided by Cbeyond during customer provisioning.

The DIDs, or 10-digit NPA numbers, that are assigned for the auto attendant and voicemail pilots, are chosen from a pool provided by Cbeyond or ported from a previous customer installation.

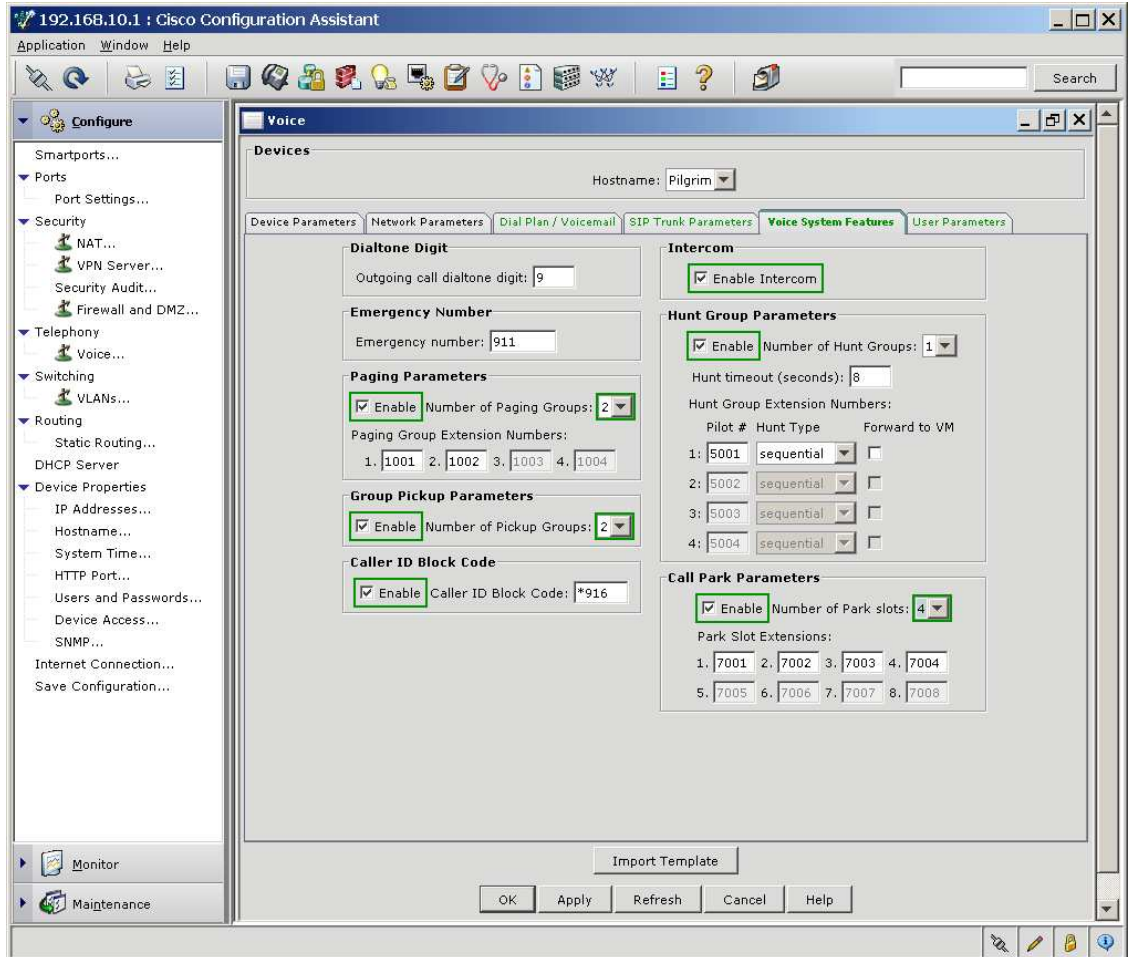
The Digest Authentication username and password are also provided by Cbeyond. This usually corresponds to the “main” number that was established by or for the customer during signup for the SIPconnect service.

Typically this “main number” is assigned to the AA or to a receptionist if an AA is not configured.

Click the “Voice System Features” tab to continue.

In this screen, select the telephony features that should be enabled for this installation:

Figure 22 Voice System Features

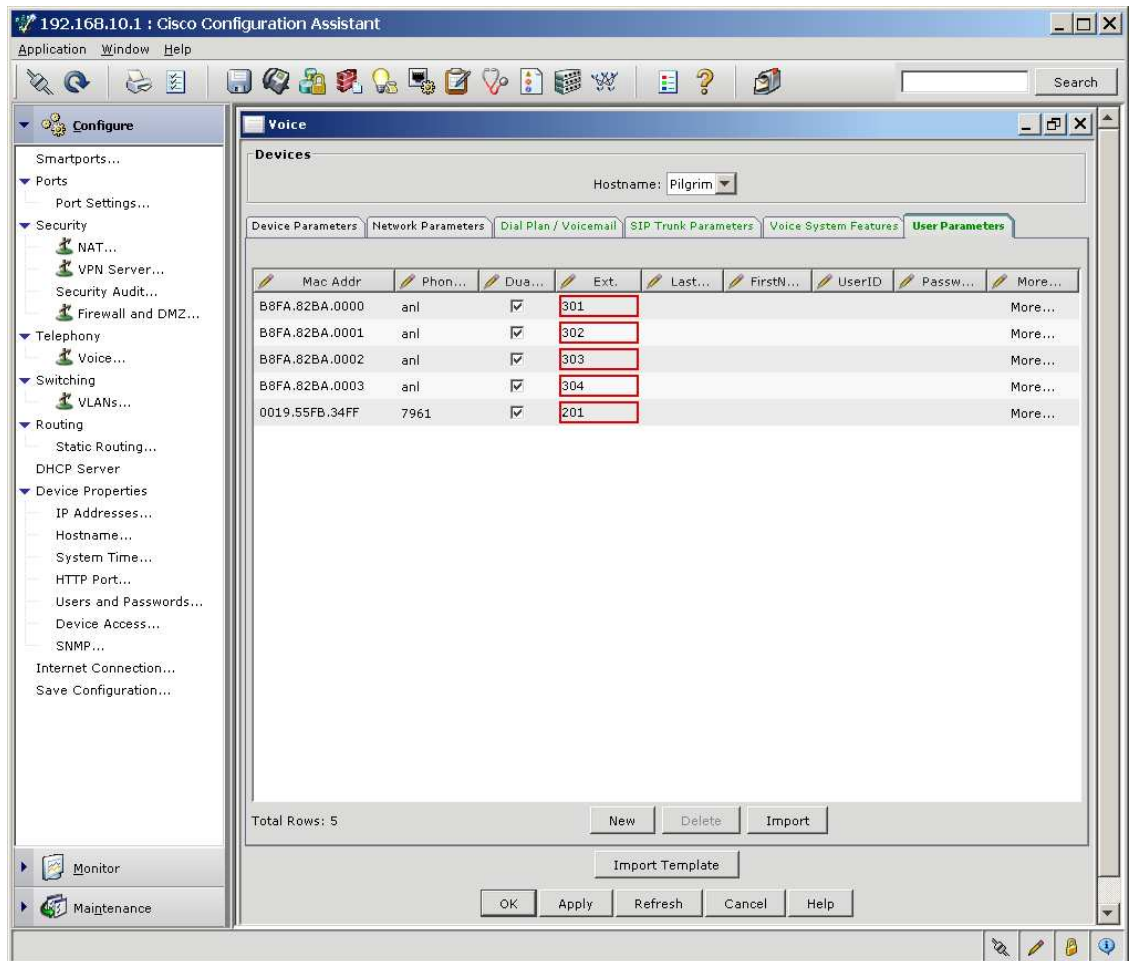


Note that 4-digit extension defaults are supplied by this screen. It is strongly recommended that these are NOT changed, to avoid conflicts with other extensions, and more importantly with dial plan elements that are “built in” and not visible through CCA. If, for example, “9” is used as the “Outgoing call dialtone digit” but some extension 9xxx is chosen for a feature or phone, there is a strong possibility that a user dialing “9” to place an offnet call will instead dial a local of extension or feature number.

Click on the “User Parameters” tab to continue.

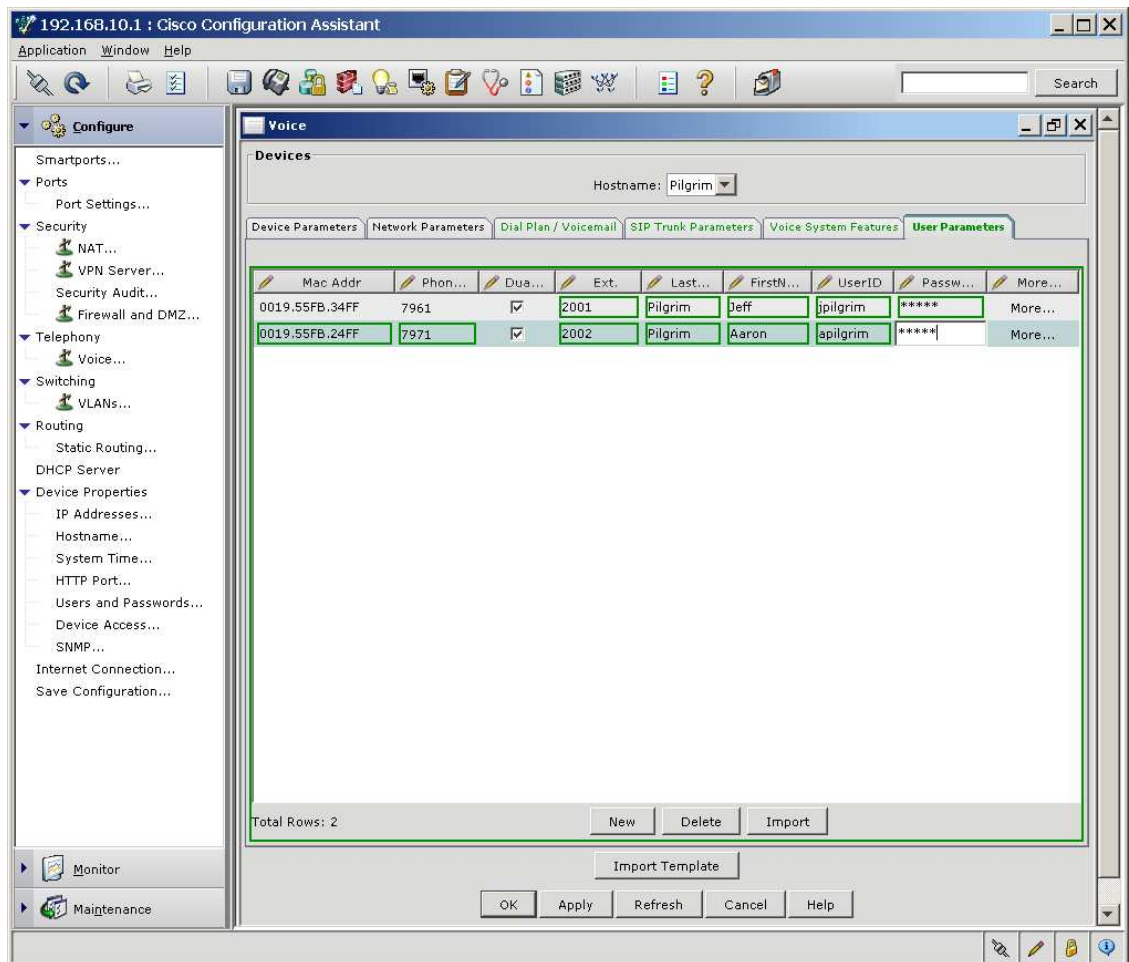
This screen is the source of the error dialog that may have occurred earlier if “OK” or “Apply” has been clicked, since the extensions for phones and analog devices default to 3-digit numbers. The problem areas are highlighted in red; assuming 4-digit extensions, change all the extensions on this page to 4 digits. In this example, the extension “201” should be changed. If the analog ports (FXS) will not be used, delete those lines from the screen.

Figure 23 User Parameters



Delete or change the devices shown, as appropriate, and complete the fields by clicking in places along the highlighted blue device line. The user names, UserIDs, and password fields are used by the UC500 to authenticate TAPI and XML application connections:

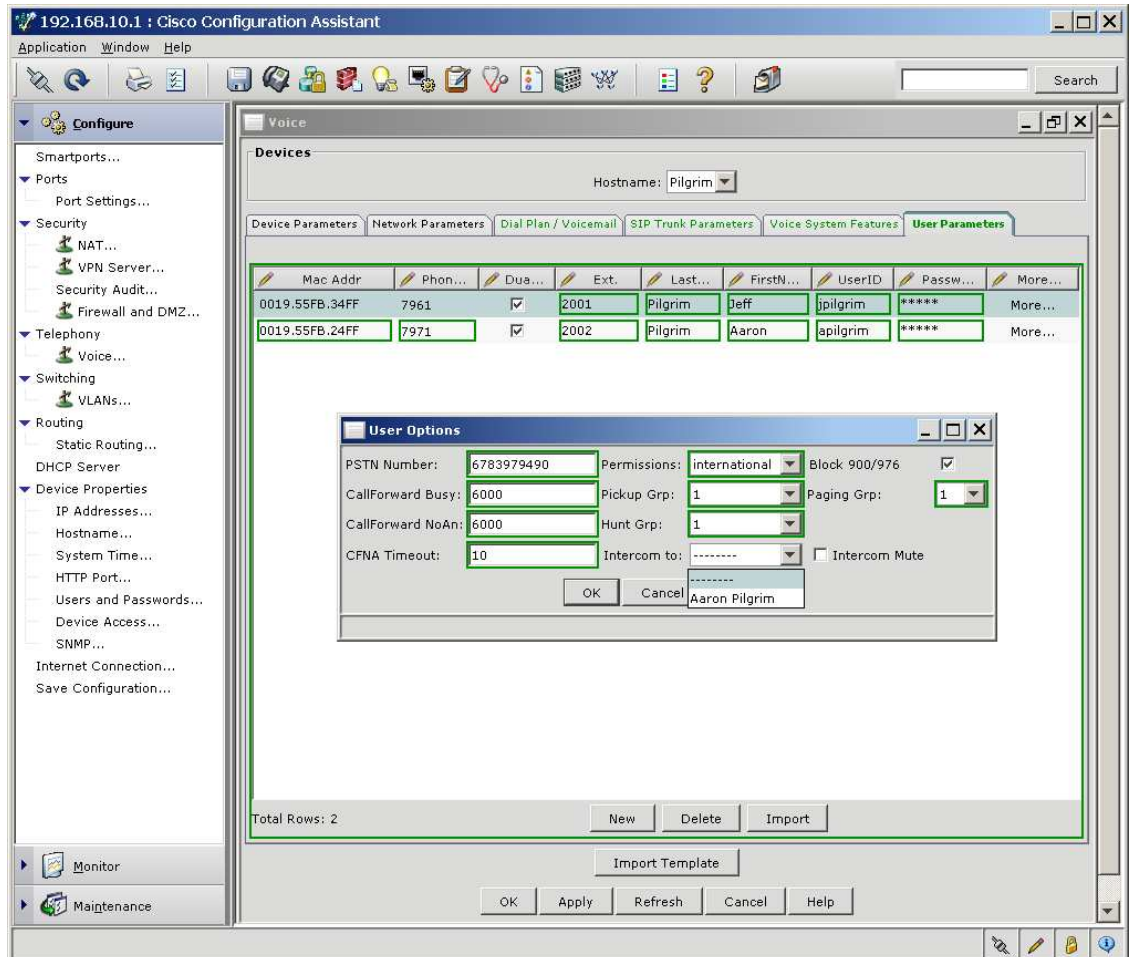
Figure 24 User Parameters, Continued



Note that in this example a manual entry for a 7971 has been completed for the purpose of showing Intercom configuration in the next step.

Click on “more”, the last device field, to complete a phone configuration:

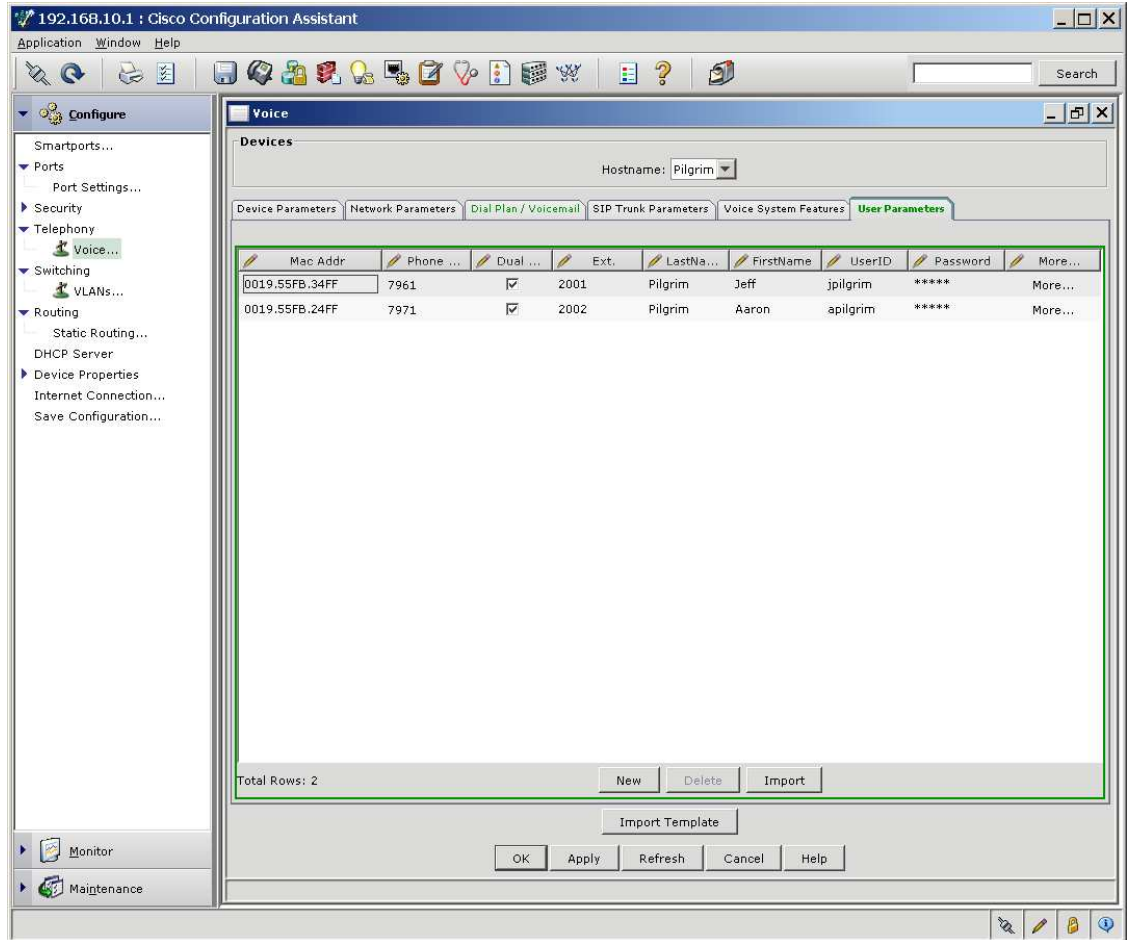
Figure 25 User Parameters, Continued



Click “OK” to continue configuring phones.

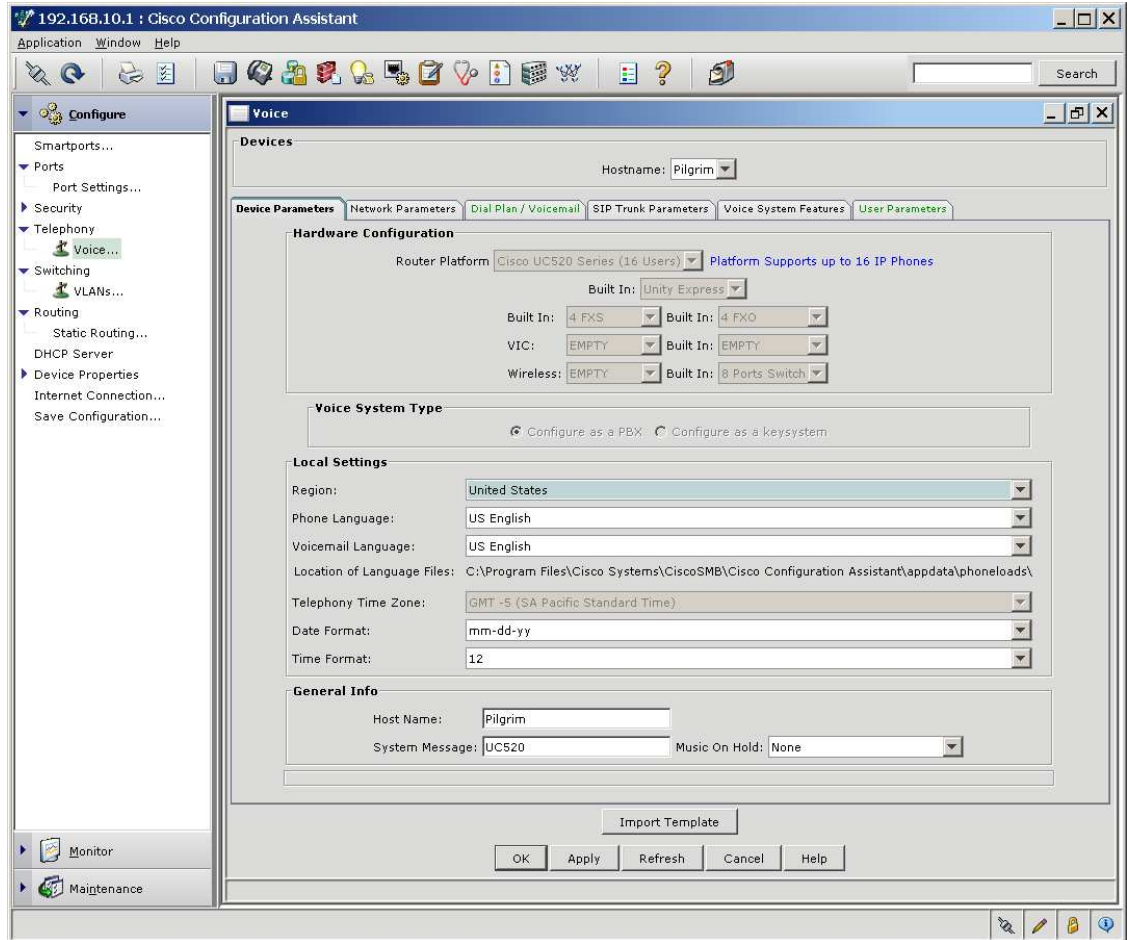
When finished with the phones, click “Apply”. Do NOT click “OK” just yet. The configuration will be applied to the UC500:

Figure 26 User Parameters, Continued



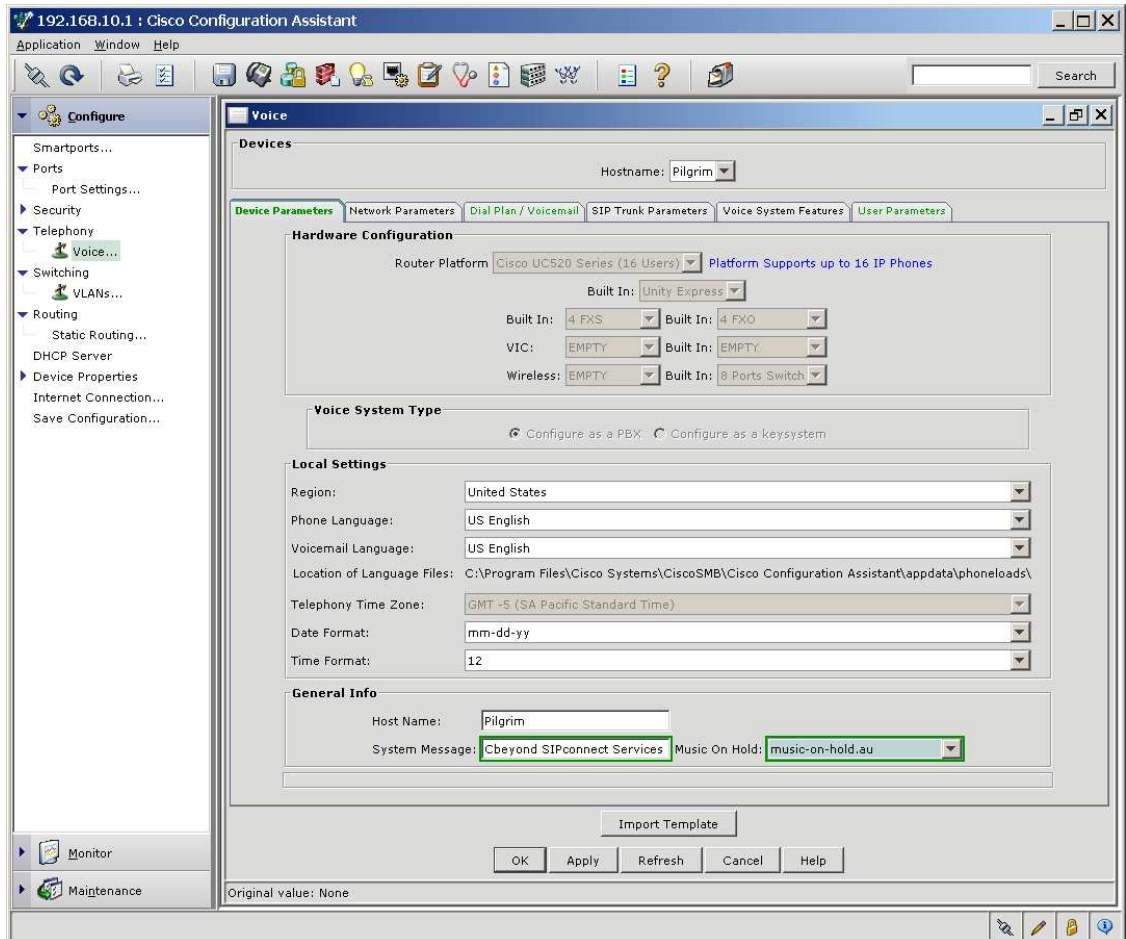
Still in the Voice configuration module, click on the Device Parameters tab and review the information presented:

Figure 27 Device Parameters



If desired, change Date and Time formats, the “System Message”, and enable Music on Hold. The “System Message” is the text that appears in the lower left corner of a Cisco IP Phone display. Select “music-on-hold.au” from the drop down list for the standard MOH file provided by Cisco:

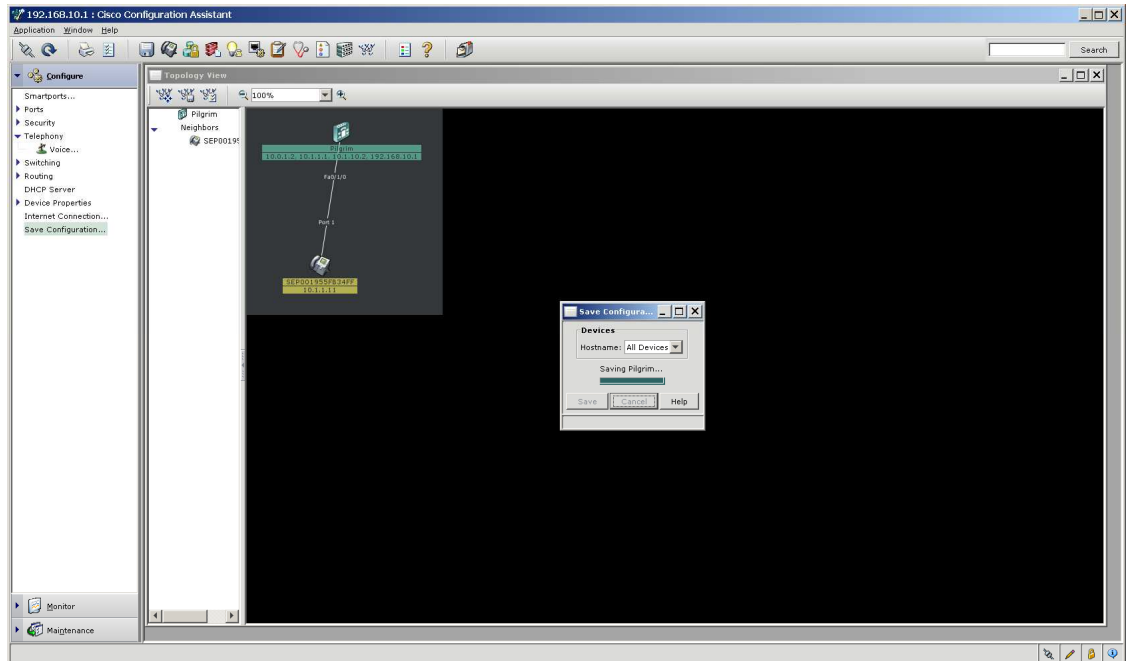
Figure 28 Device Parameters, Continued



Click “Apply” to apply the settings to the running-configuration and then “OK” to exit Voice configuration. Error messages with respect to applying the configuration generally indicate a loss of network connectivity during the configuration session. Restarting CCA and reconnecting will generally “fix” the problem.

Acknowledge that the configuration was sent to the UC500, then be sure to click “Save Configuration” from the left panel:

Figure 29 Save the Configuration , Again



UC500 configuration with CCA is now complete.

4.4 Outbound proxy support

This feature allows the UC500 to send all SIP packets to a pre defined IP instead of the IP / DNS defined in the proxy server field defined previously. This is a common method used where an SBC (Session Border Controller), interfaces with customer IP PBXes from the SP point of view. Cbeyond has deployed SBCs and the configuration must be manually added to the UC500 configuration. The outbound proxy hostname will be provided by Cbeyond where it is required. Telnet/SSH or use a console cable to connect to the UC500 to manually enter the configuration below:

```
voice service voip
sip
  outbound-proxy dns:<OUTBOUND Proxy Name>.cbeyond.net
```

Note: As the interface between UC500 & CUE (voicemail / AA) is also SIP – when configuring this make sure all SIP dial-peers on UC500 pointing to CUE have the below added. The IP address listed in the dial peer would represent the existing IP address for the CUE interface.

```

dial-peer voice 2000 voip
description ** cue voicemail pilot number **
voice-class sip outbound-proxy ipv4:10.1.10.1
!
dial-peer voice 2001 voip
description ** cue auto attendant number **
voice-class sip outbound-proxy ipv4:10.1.10.1

```

Note: Additionally, to help secure the SIP trunk please add the following commands to the configuration on dial peer 1000 to help reduce toll fraud potential if another security method is not in place to secure the SIP trunk

```

uc500# config terminal
uc500(config)# dial-peer voice 1000 voip
uc500#(config-dial-peer)# permission term
uc500#(config-dial-peer)# end
uc500# write memory

```

4.5 CCA Feature Support Matrix

The following table lists the voice features that are supported by CCA 1.5 and those that require the use of other interfaces.

Table 1

| CCA Voice Feature Support | | | | | |
|-----------------------------------|----------------------------------|-------|-------|-------|---|
| Category | Feature | v 1.0 | v 1.1 | v 1.5 | Description |
| Basic Network Config | | | | | |
| | WAN IP Address | ✓ | ✓ | ✓ | |
| | DHCP | ✓ | ✓ | ✓ | |
| | Time Zone | ✓ | ✓ | ✓ | |
| | Data & Voice VLANs | ✓ | ✓ | ✓ | IP Address on pre-existing data VLAN (VLAN 1) cannot be changed via CCA. Use CCA to create a new VLAN if required |
| | Routing | ✓ | ✓ | ✓ | Only Static Routing supported |
| Voice Deployment Scenarios | | | | | |
| | Key System / Square Mode | ✓ | ✓ | ✓ | Supported for FXO and T1/E1 CAS |
| | PBX Mode | ✓ | ✓ | ✓ | Support for DID and DOD |
| | Hybrid Mode (Key System with AA) | | | ✓ | Adds AA support to Key System mode |
| | Remote Teleworker | ✓ | ✓ | ✓ | |
| | Multi-site SBCS deployment | | | | Supported via CLI only |

| Key System Deployment | | | | | |
|-----------------------|-------------------------------|---|---|---|---|
| | Trunk Monitor | ✓ | ✓ | ✓ | Supported for pure Key System (w/o AA) |
| | Paging Groups | ✓ | ✓ | ✓ | |
| | Intercom | ✓ | ✓ | ✓ | Multiple intercom is CLI. Only supported on button #2 |
| | Speed Dials | | | ✓ | System Speed Dials supported via CCA. All others must be configured via CLI |
| | CO Trunk (FXO) | ✓ | ✓ | ✓ | Trunk line appearances on IP Phones |
| | Analog DID | | | ✓ | Only supported on the expansion VIC slot |
| | BRI | ✓ | ✓ | ✓ | Not supported on BRI SKU (unless VIC slot has FXO/T1/E1 module) |
| | T1 (PRI) including fractional | | ✓ | ✓ | |
| | E1(PRI) including fractional | | ✓ | ✓ | |
| | T1 (CAS) including fractional | | | ✓ | E&M (Wink Start & Immediate Start signaling types supported). For FXS/FXO, loop start and ground start signaling types supported. |
| | E1(CAS) including fractional | | | ✓ | E&M (Wink Start & Immediate Start signaling types supported). For FXS/FXO, loop start and ground start signaling types supported. |
| | Auto Attendant | | | ✓ | Only supported in Hybrid of Key System & PBX. Incoming call handed off to AA. |
| | E1 - R2 | | | | Supported via CLI only |
| | FXO Hook Flash | | | | Supported via CLI only |
| | Busy Lamp Field (BLF) | | | | Supported via CLI only |
| | Line Monitoring | | | | Supported via CLI only |
| Dial Plan (PBX Mode) | | | | | |
| | Inbound Call Handling | ✓ | ✓ | ✓ | Call handling for FXO, BRI/T1/E1 incoming call handling mechanism |
| | Outbound Call Handling | ✓ | ✓ | ✓ | Ability to specify multiple emergency numbers, customized call blocking capability |
| | PSTN Number Mapping (DID) | | | ✓ | Ability to 1-to-1 and 1-to-many DID to internal extension mapping. |
| | Call Forward Busy | ✓ | ✓ | ✓ | Not supported for non-primary dn - requires CLI |
| | Call Forward No Answer | ✓ | ✓ | ✓ | Not supported for non-primary dn - requires CLI |
| | Inbound Caller ID Support | ✓ | ✓ | ✓ | Supported on FXO, BRI, PRI, SIP |