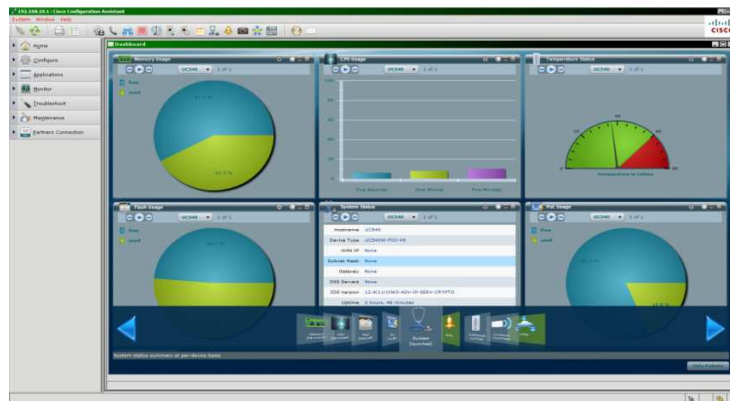
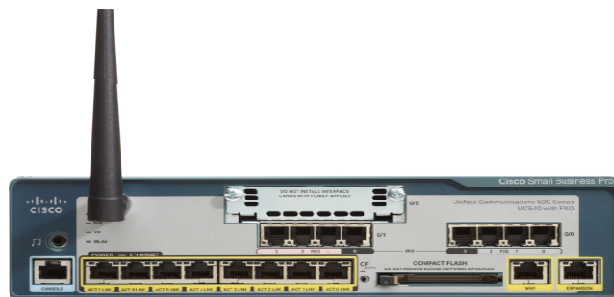


Cisco Small Business Pro

Smart Business Communication System

Technical Enablement Labs



Lab 9

Multisite

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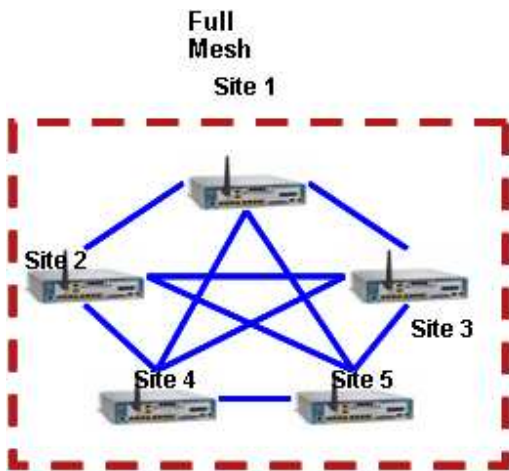
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Introduction

The UC500 supports up to 5 sites combined into a full mesh IPsec VPN tunnel mode multisite.



*This number is influenced by Remote Teleworker connections, of which you can have 10. With a 5 site multisite, you can have 5 additional teleworkers as an example. Some other assumptions follow:

Site Information	Description/Notes
Number of sites	Maximum of 5 sites
Phones / Users per site	No limit other than UC500 SKU (includes all phones and users). each site may have unique extensions or not.
WAN Connectivity (Voice and Data)	Broadband connection required (DSL, Cable, T1, MetroE etc.) at each site supporting VoIP CODEC bandwidth. Each site can have its own SIP Trunk or Legacy telephony interface (FXO, BRI, PRI)
Dial Plan Design	Each site has its own independent dial plan & call control
Call Control	Each site is controlled by its own CME and CUE, which maximizes phone users counts and voice mail size.
VPN for Data	Site to Site IPsec VPN with direct encapsulation. Coexists with remote Teleworker EZVPN connections.
Data VLAN subnet	Each site must have a 'unique' data VLAN subnet (192.168.10.0, 192.168.20.0,...)
Site-Site Voice Ext. Dialing	VoIP (H323 w/ video) is the default setup with CCA Site Index (x) unique for each site (i.e. 8xyyy, 82xyyy)
Maximum inter-site calls	Per site CAC & Traffic Shaping recommended to allocate bandwidth for site to site calls

Multisite allows extension dialing among sites, shared (unique) data VLANs, and some feature interactions among the sites:

Features	Supported
Call Transfer	Yes
Conference	Yes
Conference Calls	Yes
Video Calls between sites	Yes (384Kbps upstream bandwidth will be required per video call - if bandwidth is not available call will failover to voice only)
Paging & Call Park across sites	Yes & Yes (call pick up can only be accomplished from the site the call was parked in).
Auto Attendant/Voice Mail	Yes/Yes Each site has its own CUE AA and each site can access the others AA and Voice Mail
Fax between sites	Yes
Hunt Groups across sites	Yes*
Shared Directory across sites	No

[NOTE](#) * hunting membership could work across sites using VOICE HUNT type.

Note on the note 😊:

Ephone hunt (regular hunt-group) will have local significance. Voice hunt (Parallel hunt-group) allows configuration of external numbers, so this could expand out to extensions at remote site as well – note that CCA will not automatically list remote extensions, but you should be able to specify those (prepending the site access code).

CCA 2.1 introduces the Multisite Manager. It allows you to configure up to 5 sites on a single UC500, then save and export that configuration to the CCA 2.1 PC and connect to each other UC500 site and import it (fast and easy). This is what is used in this document.

Extension dialing will implement 'dial peers' and 'translation rules' for you and will implement the dial plan as follows (there is no OOB CLI required):

8 + Site Index + extension

So for 2 sites,

- Extensions in site 1 dial 8+2_2xx to reach site 2 extensions.
- Extensions in site 2 dial 8+1+2xx to reach site 1 extensions.

These calls route using H.323 directly between UC500s and do not traverse the SIP trunk SP if so equipped. The configuration pushed includes the necessary 'voice service voip' configuration to allow terminating call control so that calls that CFNA to voice mail will terminate on the far end voice mail system as they should.

Preparation of each site is required WRT Data VLAN uniqueness. Either using the CCA Telephony Setup Wizard (TSW) on a factory reset system or use the multisite manager to adjust it. In this Lab I used the TSW method prior.

Each site must have either a Static IP WAN address or a DHCP with DDNS address on the WAN. CCA will block configuration if this is not the case (required for reliable tunnels).

CCA 2.1 will optionally allow you to configure CAC and Traffic Shaping for the WAN Interface so you can control intersite calling to not use all the bandwidth available to the WAN interface.

In this lab, you will provision 2 sites in a multisite using CCA 2.1

Information Required

- The unique data VLAN of each site
- The Site Index to be assigned to each site
- The WAN IP Address or FQDN of each site
- A Shared secret key to be entered in each site (via CCA) that must be the same in all sites.
- The CODEC you want to employ for intersite calls (G711 or G729) considering DSP design limits
- CCA On Line Help:
 - http://localhost:8088/olhelp/index.html?multisite_connection_manager03.html#wp1044366
- Multisite Application note (reference before CCA MSM):
<https://www.myciscocommunity.com/servlet/JiveServlet/previewBody/2378-102-3-10556/SBCS-MultiSite-appnote.pdf>

Configuration

Multisite Manager (Site A)

The MS Manager will ensure you are configured for either DHCP with DDNS or Static IP. It will also remind you that CCA 2.1 can allow you to configure CAC and Traffic Shaping policy.

Getting Started with Multisite

Use the Multisite Manager to configure and manage a secure, full-mesh voice and data VPN for up to five Cisco SBCS sites. This enables users at different sites to call other sites using abbreviated dialing and also to share data over a secure VPN tunnel connection. More detailed information can be found in the online help.

Step 1: Review Configuration Procedure

The steps for configuring a multisite topology using the Multisite Manager are:

1. Plan a multisite topology and ensure that unique Data VLAN and other requirements are met.
2. Specify multisite settings for the local and remote sites at the first site.
3. Export the multisite settings to a configuration file from the first site.
4. Import the multisite configuration file at each of the remaining sites.
5. Verify connectivity among all sites.

Step 2: Configure WAN and Bandwidth Allocation Settings on Current Site

The sites must be accessible on the WAN for the VPN tunnel to be configured. In addition, it is recommended that bandwidth allocation on the WAN be tuned to achieve the desired quality of voice service.

WAN Traffic Shaping (UC500): ✘ Not Configured

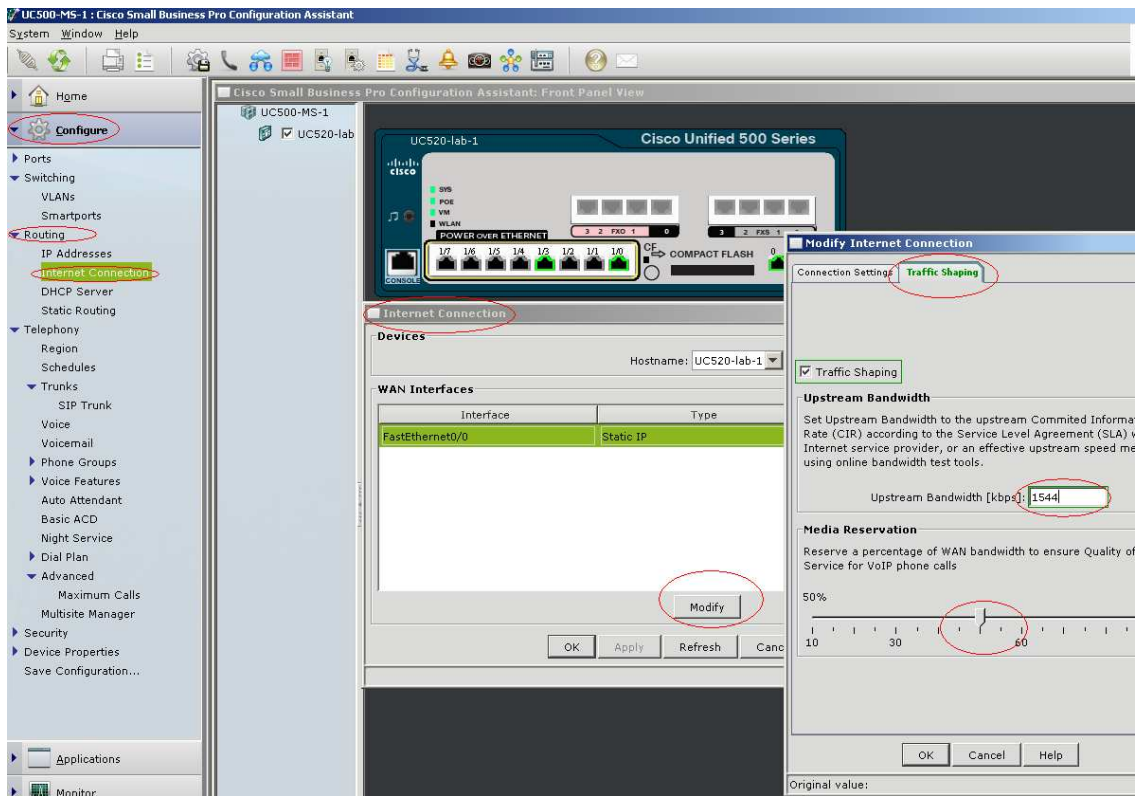
Call Admission Control (UC500): ✘ Not Configured

Step 3: Configure Multisite Settings on Current Site

If you already have a multisite configuration file exported from another site, you can import it here, otherwise Enter Multisite Settings.

OR

The screenshot shows the Cisco Small Business Pro Configuration Assistant (CCA) interface. The left sidebar contains a navigation tree with the following items: Home, Configure, Ports, Switching, VLANs, Smartports, Routing, Telephony (with sub-items: Region, Schedules, Trunks, SIP Trunk, Voice, Voicemail, Phone Groups, Voice Features, Auto Attendant, Basic ACD, Night Service, Dial Plan), Advanced (with sub-items: Maximum Calls, Multisite Manager), Security, Device Properties, and Save Configuration... The 'Maximum Calls' option under the 'Advanced' section is highlighted in green. The main window displays the 'Cisco Unified 500 Series' configuration for 'UC520-lab-1'. A 'Maximum Calls' dialog box is open, showing the 'Devices' section with 'Hostname: UC520-lab-1'. The 'Call Admission Control' section is expanded, showing 'Enter '0' to disable CAC Management' and a text input field for 'Maximum Calls' containing the value '4'. The 'Best Practice' section contains a warning: 'Traffic Shaping not Configured' and provides instructions to configure WAN traffic shaping. At the bottom of the dialog, the 'Apply' button is highlighted in red. The 'Original value: 0' is displayed at the bottom of the dialog.



The MSM (Multi Site Manager) GUI shown below allows you to edit all information shown in circles.

Multisite Configuration Multisite Status

Global Settings

Pre-Shared Key for VPN Authentication: [*****] Display Key

Codec for Intersite Calls: G.729

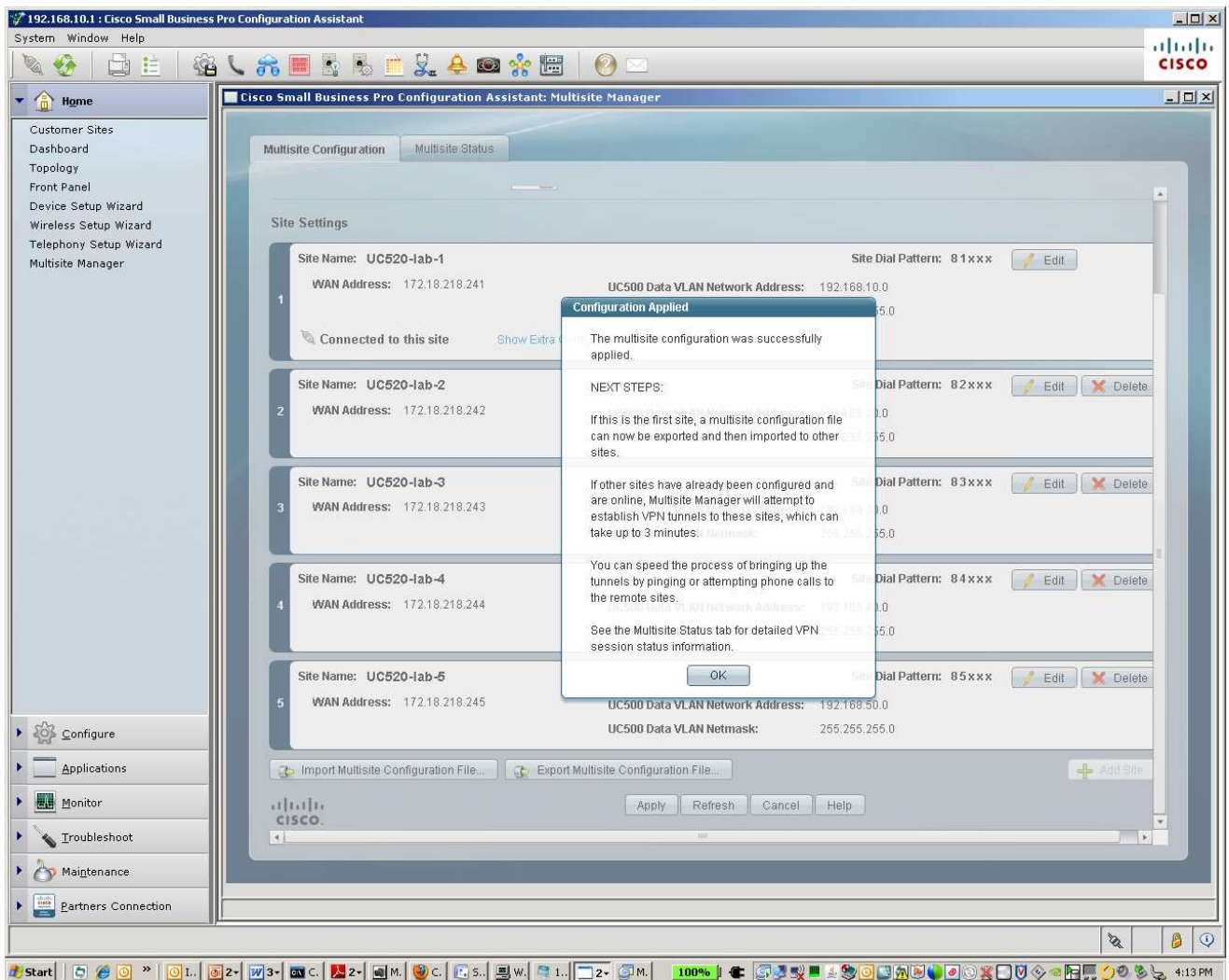
Intersite Dialing Prefix: 8

Site Settings

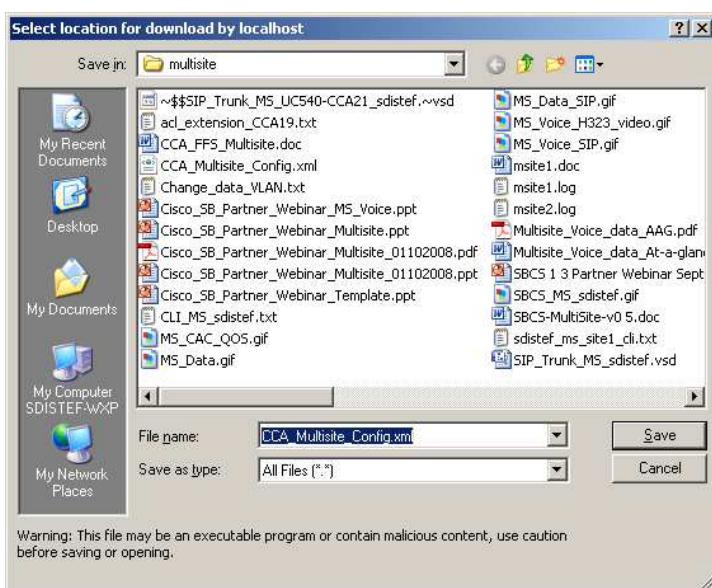
1	Site Name: UC520-lab-1	Site Dial Pattern: 81xxx	WAN Address: 172.18.218.241	UC500 Data VLAN Network Address: 192.168.10.0	UC500 Data VLAN Netmask: 255.255.255.0	<input type="button" value="Edit"/>
2	Site Name: UC520-lab-2	Site Dial Pattern: 82xxx	WAN Address: 172.18.218.242	UC500 Data VLAN Network Address: 192.168.20.0	UC500 Data VLAN Netmask: 255.255.255.0	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
3	Site Name: UC520-lab-3	Site Dial Pattern: 83xxx	WAN Address: 172.18.218.243	UC500 Data VLAN Network Address: 192.168.30.0	UC500 Data VLAN Netmask: 255.255.255.0	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
4	Site Name: UC520-lab-4	Site Dial Pattern: 84xxx	WAN Address: 172.18.218.244	UC500 Data VLAN Network Address: 192.168.40.0	UC500 Data VLAN Netmask: 255.255.255.0	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
5	Site Name: UC520-lab-5	Site Dial Pattern: 85xxx	WAN Address: 172.18.218.245	UC500 Data VLAN Network Address: 192.168.50.0		<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Connected to this site [Show Extra Configuration Options](#)

When you are finished click apply...

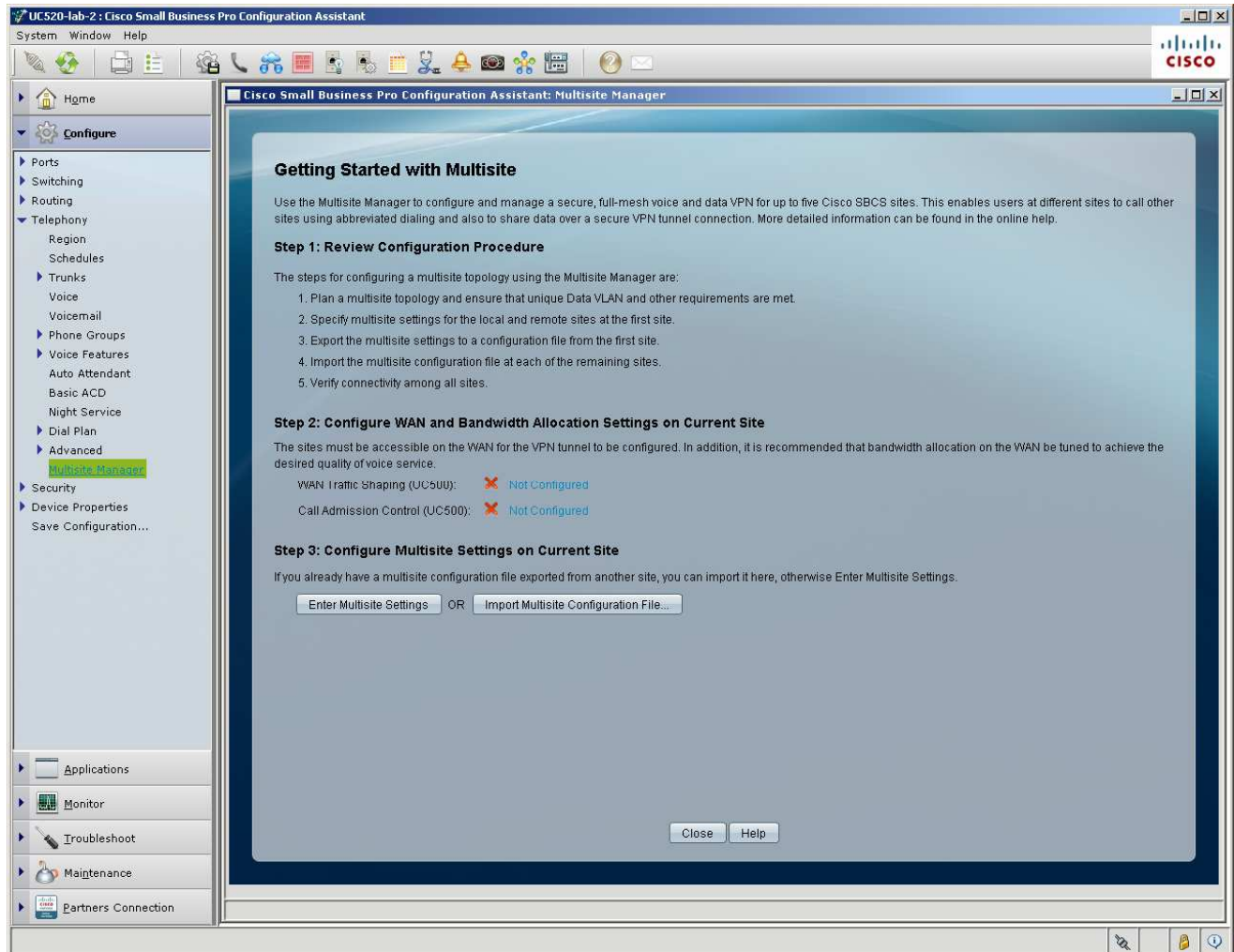


Save the file (export) to the CCA 2.1 PC.

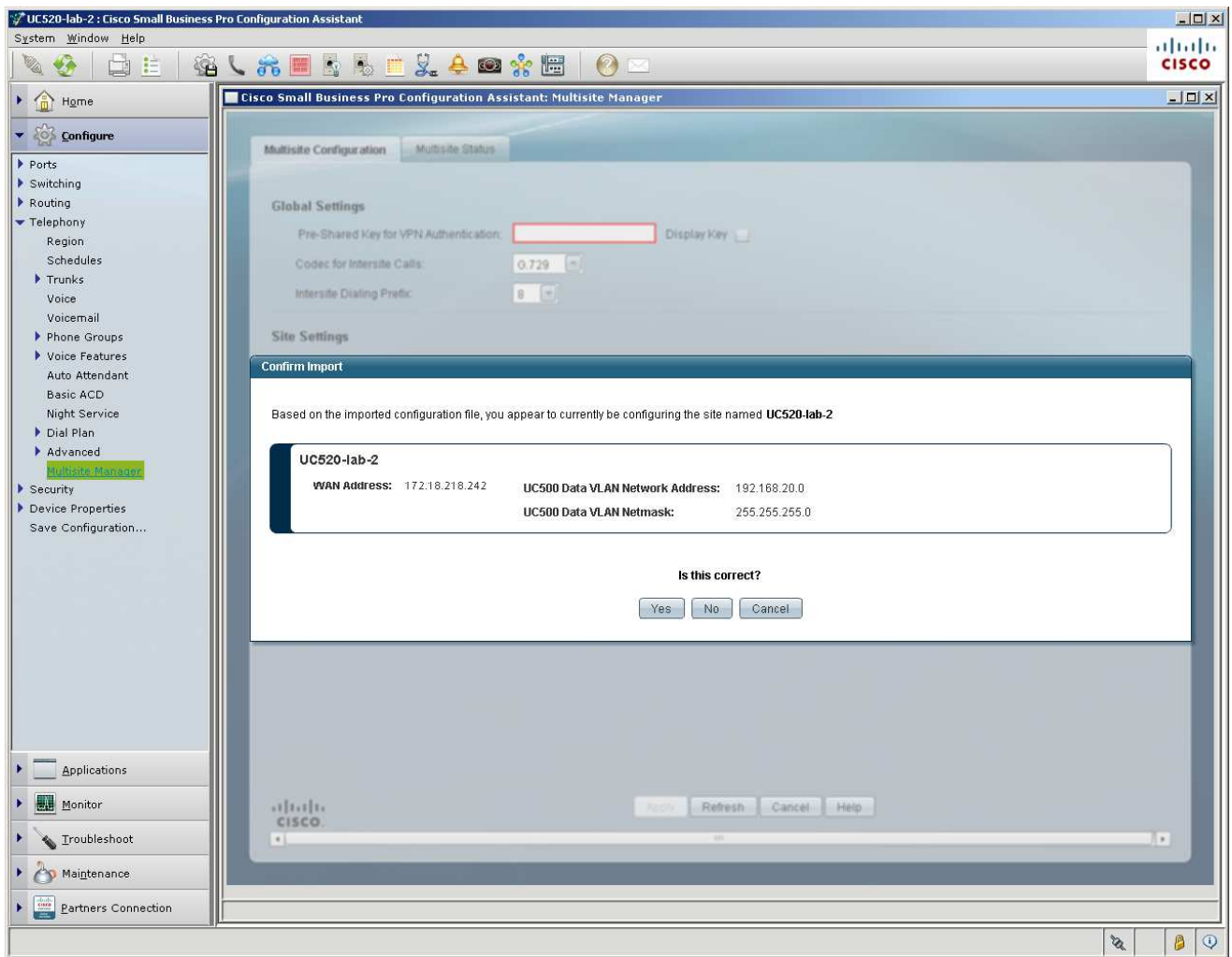


Multisite Manager (Site B)

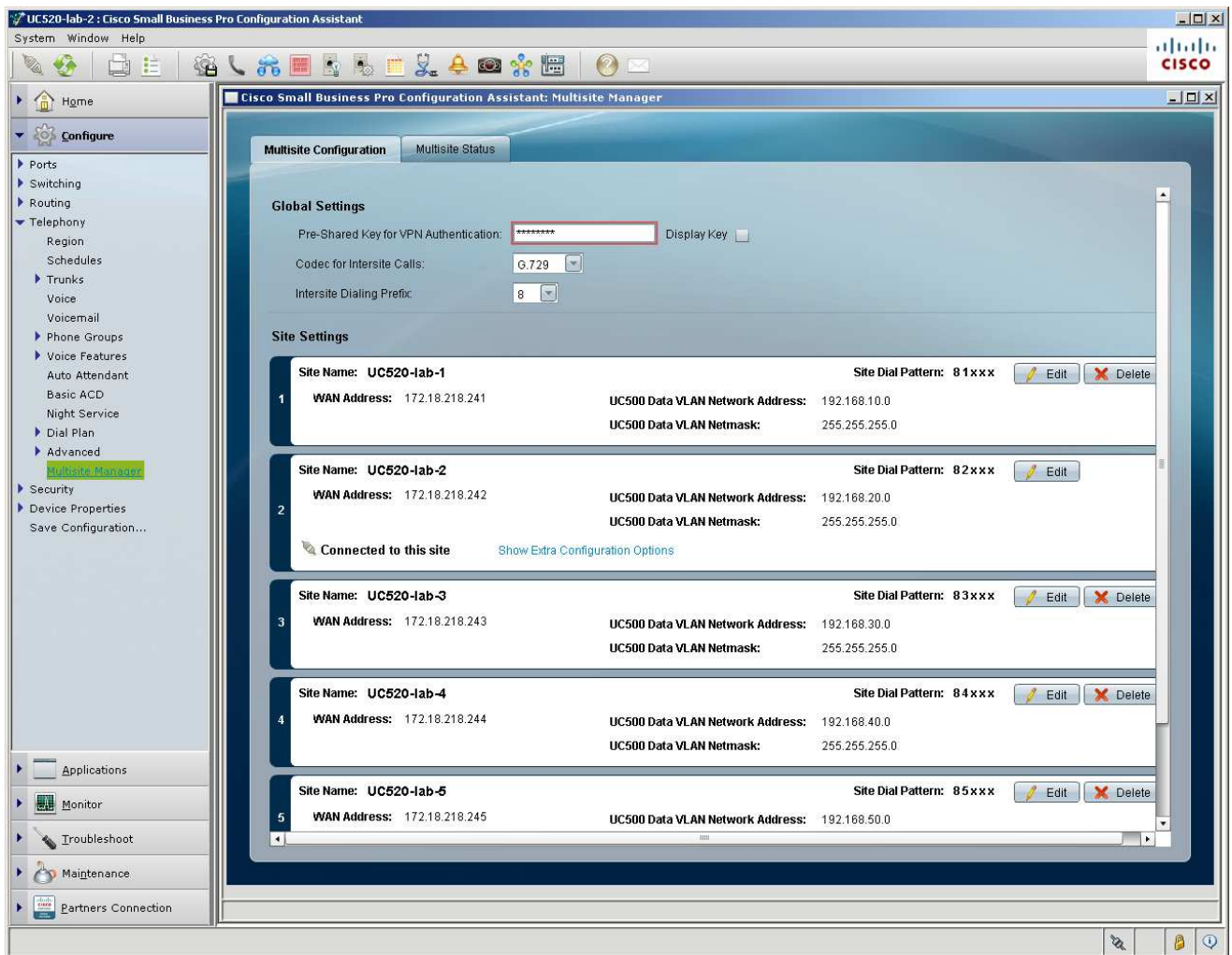
Go to the remaining sites (in this case site 2) and import that file in the MS Manager after taking care of that sites CAC and Traffic Shaping.



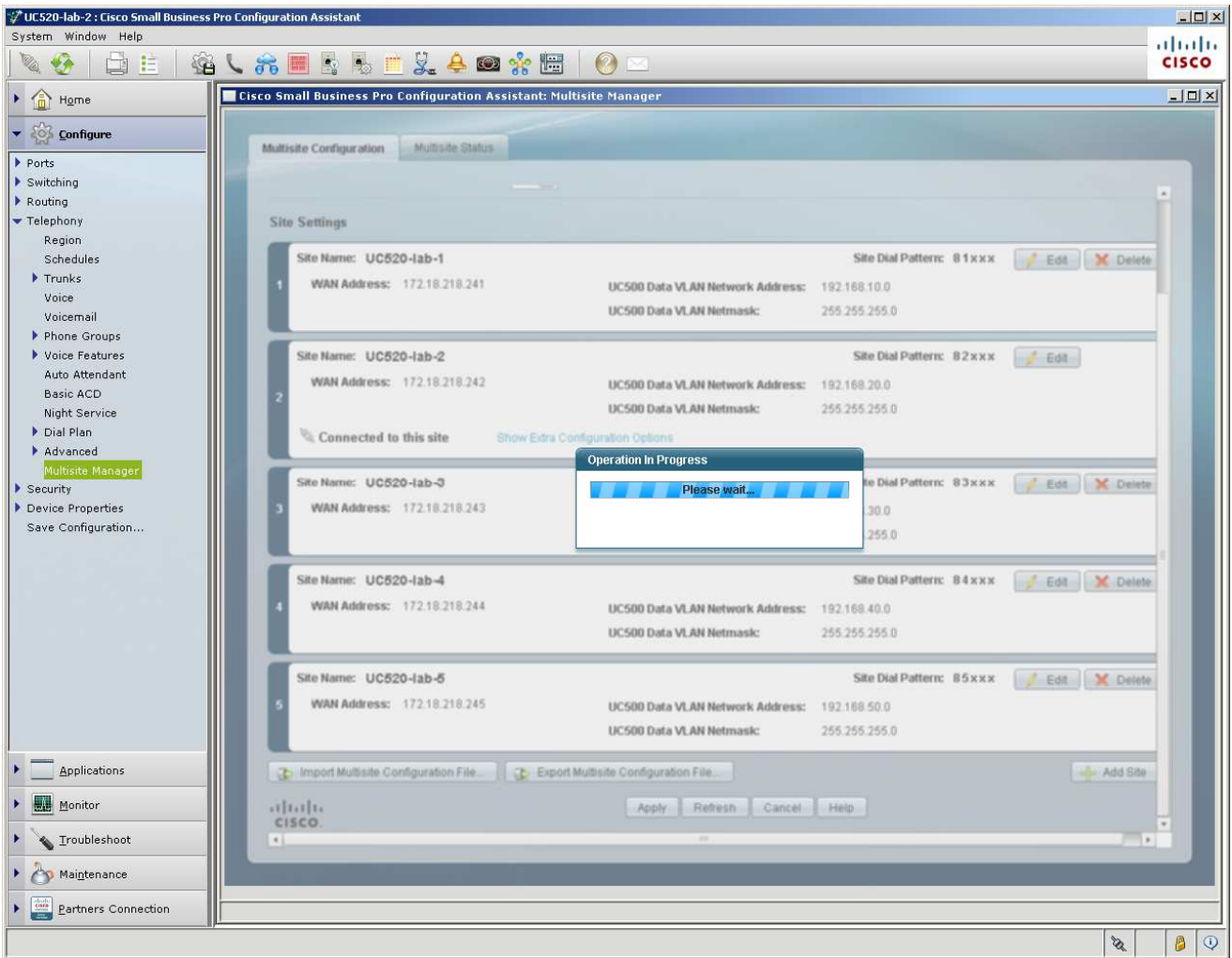
Import the file and it will recognize your site from the configuration file. Just confirm by selecting it and enter the secret key:

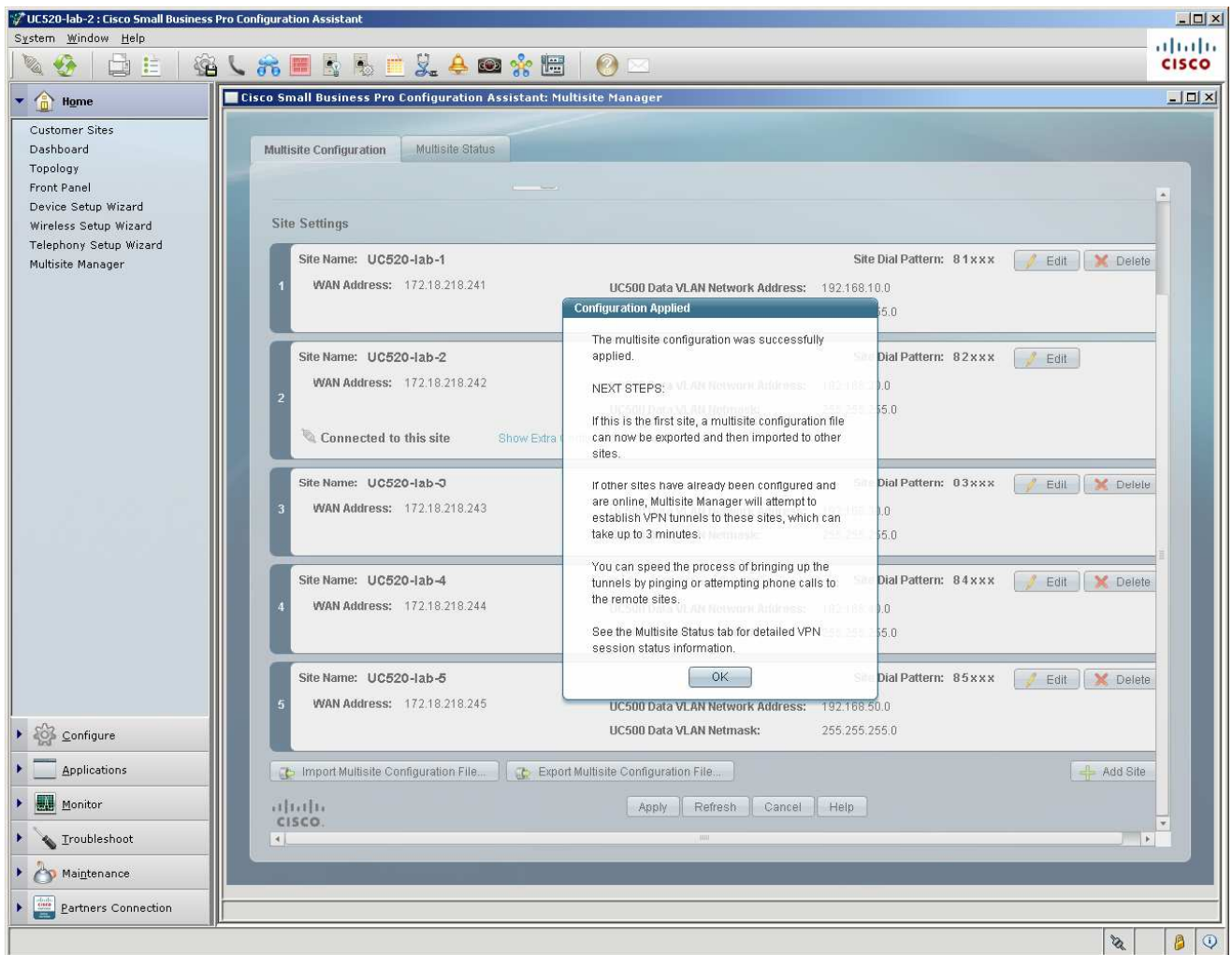


You will see the familiar map of all sites:

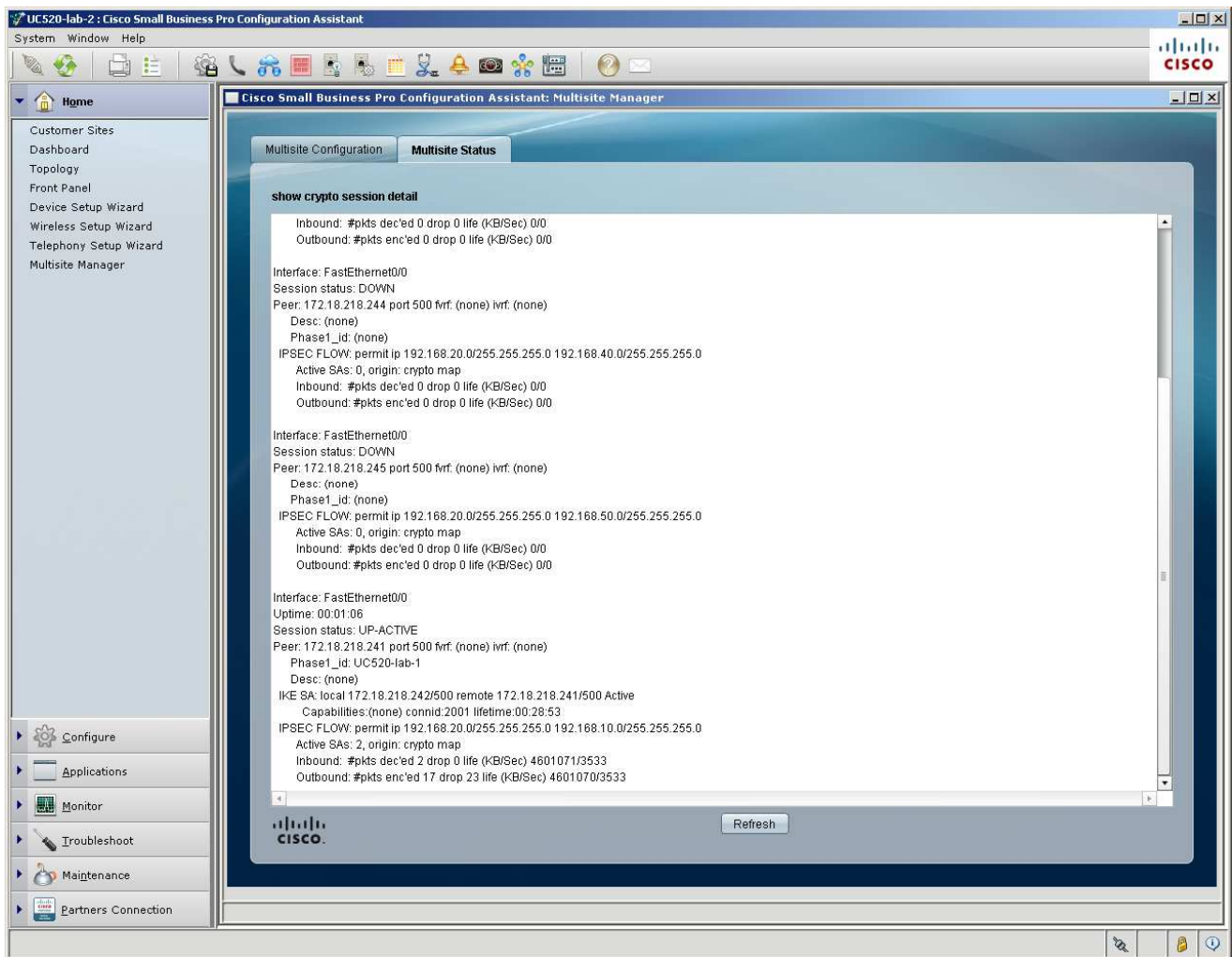


Click apply...





Check the Status...



Site 1 and 2 are now up.

Place calls between sites and share data VLANs. Rinse and Repeat for sites 3-5.

Done.