



NetVanta Unified Communications Technical Note

Installing and Configuring Cisco 7940/7960 Series IP Phones

Introduction

The 7940/7960 IP Phone models from Cisco provide easy-to-use displays, modern styles, and broad ranges of features. The 7940 offers two lines, while the 7960 offers six lines for increased productivity. The 7940 and 7960 are interoperable with ADTRAN's NetVanta Enterprise Communications Server and can be autodetected and configured with ease. The purpose of this technical note is to provide instructions for installing and configuring Cisco phones with the NetVanta Enterprise Communications Server.

Known Integration Issues

There are no known integration issues at this time.

Enabling Cisco SIP Phone Configuration

This section describes how to install the Cisco configuration files and phone firmware so that Cisco 79x0 phones can be automatically detected and provisioned by the UC server.

Obtaining Firmware Upgrades

The UC server supports Cisco 79x0 session initiation protocol (SIP) firmware version POS3-08-9-00. ADTRAN does not distribute Cisco firmware, so you must obtain the firmware files from Cisco Systems (<http://www.cisco.com>) or from your authorized Cisco reseller.

NOTE: *You must have a maintenance contract with Cisco to access the firmware upgrades on Cisco's corporate website.*

The firmware files obtained from Cisco must be comprised of the following:

- POS3-08-9-00.loads
- POS3-08-9-00.sb2
- POS3-08-9-00.bin
- POS3-08-9-00.sbn

Installing the Configuration Files

Included with this technical note is a folder containing configuration files and templates used by the UC server to automatically detect and provision Cisco 79x0 Series telephones. This folder must be copied into the UC server folder tree (along with the Cisco SIP firmware files as outlined above in [Obtaining Firmware Upgrades on page 1](#)).

To install the configuration files:

1. Extract the Cisco folder from the .zip file titled *Cisco (7940, 7960) Installation and Configuration (POS3-08-9-00)* (located in the same directory as this document) and copy it under the PhoneTypes folder located here:

X:\Program Files\ADTRAN\NetVanta UC Server\Data\System\PhoneTypes, where **X** is the drive where the UC server program files are installed.

For example, the resultant path after the folder is copied (henceforth known as the Cisco PhoneTypes folder) might appear as follows:

C:\Program Files\ADTRAN\NetVanta UC Server\Data\System\PhoneTypes\Cisco

2. Copy the Cisco SIP firmware files (as outlined in [Obtaining Firmware Upgrades on page 1](#)) into the Cisco PhoneTypes folder.

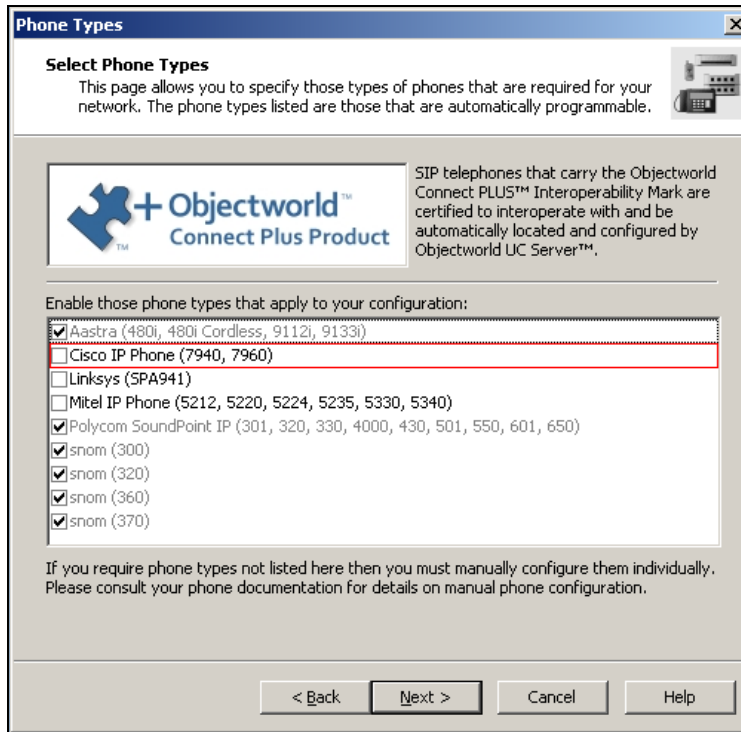
CAUTION: *Cisco phones will not automatically upgrade to the correct version if the firmware files are not copied into the above folder. Failing to upgrade the phones to the correct version may result in unexpected behavior and/or a loss of functionality.*

3. Restart the NetVanta UC Server Application Service.
 - Select **Start > Control Panel > Administrative Tools > Services**.
 - Scroll down and select **NetVanta UC Server Application Services**.
 - Right-click the entry and select **Restart**.

Enabling Support for Cisco SIP Phones

To enable support for Cisco SIP phones:

1. Select **Start > All Programs > NetVanta UC Server > Server Configuration Wizard**.
2. Select the **Phone Types** step.
3. Select **Next** to bypass the welcome screen.
4. Select the check box next to **Cisco** (see the figure below).



5. Continue through the wizard by selecting **Next** at each page until the wizard is finished.

Dynamic Host Configuration Protocol (DHCP) Server Configuration

When a Cisco phone is plugged into the network, it retrieves an IP address from the DHCP server. It also checks one of the options for the IP address of the Trivial File Transfer Protocol (TFTP) provisioning server. If this option is not present, Cisco phones do not automatically upgrade their firmware, nor are they automatically provisioned. For DHCP servers other than Windows® Server 2003 and SBS, consult the appropriate documentation and complete the option configuration as indicated in Step 3.a.

To configure the DHCP server for Windows Server 2003/2008 and Small Business Server (SBS):

1. Select **Start > Control Panel > Administrative Tools > DHCP**.
2. Right-click the domain where you want the Cisco phones to be provisioned and select **Set Predefined Options**.
3. Look for **Option 150**.
 - a. If Option 150 *is not* already defined, select **Add**.

Name	UC Server Provisioning Server
Data Type	IP Address
Code	150
Description	UC Server Provisioning Server IP Address
 - b. If Option 150 *is* already defined
 - If it is defined as an IP Address type and the value is the IP address for the UC server, no action is required.
 - If it is not defined as an IP Address type and/or the value is not the IP address for the UC server, automatic detection of the Cisco phones is not possible unless this option can be changed as per the instructions in Step 3.a.
4. Select **OK**.
5. Right-click the **Scope Options** for the domain and select **Configure Options**.
6. Select the check box next to **Option 150**.
7. In the **IP address** field, enter the IP address of the UC server.
8. Select **OK**.

Preparation

After the firmware and configuration files are installed on the UC server and the DHCP server is configured, the next step is connecting the phones to the network and waiting for the initial boot. The initial boot may take a long time to complete if firmware upgrades occur. While this upgrade is happening, *do not* unplug the phone.

Validation

After the phone firmware is upgraded and rebooted and the phone is in an idle state, make sure that the phone is running the correct firmware and has been automatically detected by the UC server.

Firmware Validation

To verify the firmware:

1. From the Cisco phone, select **Settings > Status**.
2. Scroll down and select **Firmware Versions**.
3. Examine **Application Load ID**. It should read **P0S3-08-9-00**.

If the firmware version listed on the phone does not match the above value, consult the troubleshooting section at the end of this document.

Automatic Detection Validation

To verify automatic detection:

1. Launch the UC client: select **Start > All Programs > UC Client**.
2. Log in using the **admin** authentication or using an authentication with **admin** profile access.
3. In the **Administration** menu, select **Phones**.
4. Sort by the medium access control (MAC) address column and search for the MAC address of the Cisco phone that you connected to the network. The phone's MAC address is printed on the underside of the phone.

If the phone does not appear in the list, consult the troubleshooting section at the end of this document.

Adding an Identity

You must either have an unused identity that you can add to the phone, or you must create a new identity/user to associate with the phone. For more information about creating users and identities in the UC server, refer to the *NetVanta UC Server Administrator Guide—Enterprise Communications Edition*, available online at <http://kb.adtran.com/>.


Associating an Identity with the Phone

After you install the phone and create a user/identity, you must associate that identity with the phone.

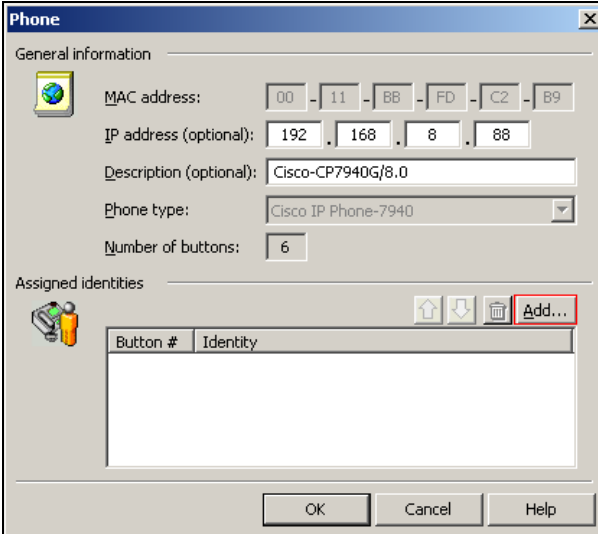
To associate the identity with the phone:

1. Launch the UC client by selecting **Start > All Programs > UC Client**.
2. Log in using the **admin** authentication or using an authentication with **admin** profile access.
3. In the **Administration** menu, select **Phones**.
4. Double-click the Cisco phone to which you want to associate the identity.

MAC Address	Description	IP Address	Phone Type	Number of Buttons	Associated Identities
00-11-BB-FD-C2-B9	Cisco-CP7940G/8.0	192.168.8.88	Cisco IP Phone-7940	6	<Not configured>

	MAC address:	00-11-BB-FD-C2-B9
	Description:	Cisco-CP7940G/8.0
	IP Address:	192.168.8.88
	Phone type:	Cisco IP Phone-7940
	Number of buttons:	6
	Associated identities:	<Not configured>

5. Select **Add**.



The image shows a 'Phone' configuration dialog box with the following fields and controls:

- General information:**
 - MAC address: 00 - 11 - BB - FD - C2 - B9
 - IP address (optional): 192 . 168 . 8 . 88
 - Description (optional): Cisco-CP7940G/8.0
 - Phone type: Cisco IP Phone-7940
 - Number of buttons: 6
- Assigned identities:**
 - Buttons: Up, Down, Delete, Add...
 - Table with columns: Button #, Identity
- Buttons:** OK, Cancel, Help

6. Select the identity you want to use and select **Select**.
7. Select **OK**.

8. Wait for the phone to automatically reboot. This should take under 5 seconds.
 - If the phone does not reboot automatically, navigate back to the **Phones** pane in the UC client, right-click the specific phone and select **Restart Phones**.
 - If the phone does not restart at this point, disconnect and reconnect the power to the phone.
9. After the bootup process is complete, the new identity will appear on the phone display.

Troubleshooting

1. The Cisco phone does not appear in the Phones list in the UC client.

Verify the following:

- DHCP server Option 150 is present, enabled, and contains the IP address of the UC server machine.
 - NetVanta TFTP service is running.
 - Select **Start > Control Panel > Administrative Tools > Services**.
 - Scroll down to **NetVanta TFTP Server**.
 - Ensure service is set to **Automatic** and is running.
 - Ensure Windows Firewall is not blocking the TFTP port.
 - Disable Windows Firewall.
- Or**
- Create an exception for the **NetVanta TFTP Service** program:
For example, *C:\Program Files\ADTRAN\NetVanta UC Server\Bin\TFTPService.exe*.
 - Ensure the Cisco phone family is enabled.
 - Run the **Server Configuration Wizard** and ensure that the Cisco phone family is checked.
 - If the check box is cleared, perform the steps outlined in [Installing the Configuration Files on page 2](#).

- Ensure Cisco firmware and configuration files are present in the TFTP Server.
 - Navigate to `.\Program Files\ADTRAN\NetVanta UC Server\Data\TFTP`.
 - Ensure (at a minimum) that the following files are present:
 - SIPDefault.cnf
 - template.cnf
 - If not present, perform the steps outlined in [Enabling Cisco SIP Phone Configuration on page 1](#).
- 2. The Cisco phone does not download its configuration from the TFTP server after being assigned an identity with the UC client.**

Verify the following:

- NetVanta TFTP service is running.
 - Select **Start > Control Panel > Administrative Tools > Services**.
 - Scroll down to **NetVanta TFTP Server**.
 - Ensure service is set to **Automatic** and is running.
- Ensure Windows Firewall is not blocking the TFTP port.
 - Disable Windows Firewall.

Or

 - Create an exception for the **NetVanta TFTP Service** program:
For example, `C:\Program Files\ADTRAN\NetVanta UC Server\Bin\TFTPService.exe`.
- Ensure that configuration files exist for the phone being provisioned.
 - Navigate to `.\Program Files\ADTRAN\NetVanta UC Server\Data\TFTP`.
 - Ensure (at a minimum) that the following files are present:
 - SIPDefault.cnf
 - SIP<MAC>.cfg (where <MAC> is the MAC address of the phone being provisioned)
 - If not present, redo the steps outlined in [Enabling Cisco SIP Phone Configuration on page 1](#).
 - Ensure that the NetVanta UC Server Application Services service has full permissions for the TFTP folder `.\Program Files\ADTRAN\NetVanta UC Server\Data\TFTP`.

3. The Cisco phone does not respond to restart/reload configuration requests from the UC client, or incorrect identity/identities assigned to the phone.

If you experience the symptoms above, you can reset the protocol settings:

- Open a Telnet session to the phone.
- Enter the password **cisco**.
- Issue the command **erase protflash**.
- A manual reboot may be required if the phone does not reboot after 10 minutes.

If this does not address the issue, you can perform a factory default reset:

- Hold down the # key as soon as the phone starts to power up.
- When prompted to enter the factory default key sequence, dial **123456789*0#**.