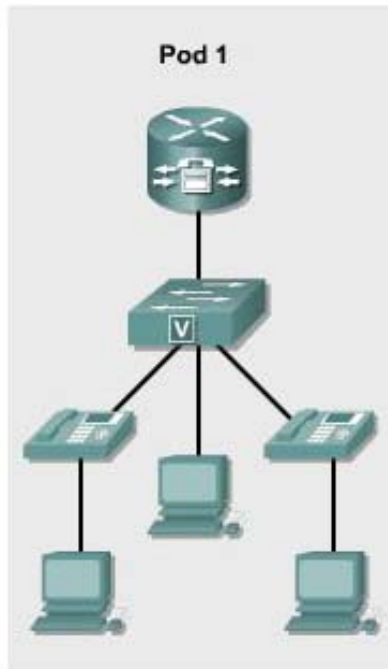


Lab 3.1.1 CME Automated Phone Setup



Objectives

- Identify the basic steps to automatically configure Cisco CallManager Express (CME)
- Configure two dual-line phones
- Verify the IP phones register and calls can be placed between two IP phones

Equipment Requirements

- Cisco CallManager Express (CME) capable router
- Inline power capable switch or non-in-line power switch with power injectors
- Workstation with FastEthernet 10/100 NIC installed
- Two Cisco IP phones
- Access to Table 1 IP Telephony IP Addressing and VLAN Assignment document
- Access to Table 2 IP Telephony Dial Plan Assignment document

In this lab the ACME.com Company has decided to use the setup utility to configure the Cisco CallManager Express router and phones. This lab relies on the labs 2.1.1, 2.1.2, and 2.1.3 being successfully completed. The lab uses information from Table 2 IP Telephony Dial Plan.

Step 1 Configure Cisco IP Telephony Express using the Automated Method

- a. From privilege exec (EXEC) mode on the router, use the **show running-config** command and view the current configuration. Save or print a copy of the current configuration to compare with changes later in this lab.

```
CMERouterX# show running-config
```

- b. From global configuration mode, enter the command

```
CMERouterX(config)# telephony-service setup
```

Note: If a mistake is made in the setup program, the mistake can be remedied at the end of the utility.

- c. When prompted with the choice to setup the DHCP service, type **y**, and press Enter.
- d. The IP network of the DHCP pool for voice devices is **10.X5.0.0** (where X is the pod number). Refer to IP Telephony Table 1 for the DHCP pool information. This command allows the IP phone to get an IP address from a DHCP pool that will be created on the router.

What pod number is assigned? _____

- e. The subnet mask for the DHCP network is **255.255.255.0** for all pods.
- f. The TFTP server IP address will be the Cisco CallManager Express router with an IP address of **10.X5.0.1** (where X is the pod number). Option 150 is an optional DHCP option which allows the IP telephony device to obtain configuration information (files) from the TFTP server.
- g. The default router for the pool will also be **10.X5.0.1** (where X is the pod number).
- h. Answer **yes** to the question regarding starting the telephony service setup.
- i. For the source IP address, enter **10.X5.0.1** (where X is the pod number).
- j. Accept the default port of 2000 by pressing the **Enter** key. Skinny will be discussed in a later lab.
- k. When asked how many phones to configure, respond with **4**. Note that even though only two phones are being configured, selecting 4 will allow up to four IP phones to be configured at this time. This value can be changed from the command prompt if necessary.
- l. When asked whether dual-lines are desired, answer **y**, and press Enter.

Dual-line IP phones have one voice port with two channels to handle two independent calls. This capability enables call waiting, call transfer, and conference functions on a phone-line button. In dual-line mode, each IP phone and its associated line button can support one or two calls. Selection of one of two calls on the same line is made using the Navigation button located below the phone display.

- m. Select the language that is desired on the phone. (The default of English may be accepted by simply pressing the Enter key.)
- n. Select the country for call progress tones. (If in the United States, the default may be used by just pressing the Enter key.)

In-band call progress tones (for example, ringback and busy tones) and announcements (for example, "The number you have dialed is no longer in service") are required to successfully signal voice calls. Call progress tones can be generated by the originating, terminating or intermediate devices.

- o. Refer to the Table 2 IP Telephony Dial Plan (back of lab manual) to find the appropriate first extension number. Use the first column in the table to locate the pod being used. The second column lists extension numbers. From the second column pick the first number in the range listed for the pod being used. For example, if Pod 1 is being used then the first extension number is 5000.
- p. When asked if DID (Direct-Inward-Dialing) is used, answer **y**, and press Enter.

DID is a local phone company service that provides a block of phone numbers used to call into a company's PBX system. With DID, individual phone numbers can be assigned to each person or PC without having to have a physical line into the PBX for each person's connection.

- q. When asked for the full E.164 number, enter the value from IP Telephony Table 2 that is specific for the pod. For example, if Pod 1 was being used the E.164 DID number would be 5105555000.

A fully qualified E.164 number contains a country code (issued by the ITU), area code (sometimes known as a STD code), and the local telephone number. Since the country has been selected already, it is just the area code and the phone number.

What E.164 number is being used on this router? _____

- r. When asked if forwarding to voicemail (voice message service) is desired, enter **y**, and press Enter.
- s. Enter the extension number for voicemail based on the pod number assigned. The extension numbers for voicemail can be seen in the IP Telephone Table 2.

What voicemail extension is being used? _____

- t. Press the **Enter** key to accept the default of 18 seconds for Call Forward timeout.
- u. When asked if any of the information is to be changed, select *yes* to change an option, or *no* to use the current settings and to exit out of the utility. If no mistakes were made in the previous steps enter **n**, press Enter, and proceed to the Step1v. If any mistakes were made enter **y**, press Enter, and go back to Step 1c.
- v. Watch the console output to see if the phones register. Output similar to the following should be seen on the terminal window. Note that this may take several minutes.

```
Mar 2 23:57:09.080: %IPPHONE-6-REGISTER: ephone-1 :SEP000F2470F92E
IP:10.15.0.11 Socket:1 DeviceType:Phone has registered.
```

Note: The power to the phone may need to be removed and reapplied in order to get the phone to re-request an IP address and register with Call Manager Express.

Step 2 Confirm Correct Setup of CME

- a. Place a call between the two IP phones. Pick up the handset on one phone and enter the number of the second IP phone. Once a connection has been made, reverse the process. Make a call from the second IP phone to the first one. Calls can also be placed by entering the number of the other IP phone and pressing the speaker button on the bottom right of the phone. Note that the speaker button could be pressed first and then the number being dialed.
- b. If the phones do connect to one another, perform troubleshoot as necessary. Reset the phone using steps from a previous exercise if necessary.

Step 3 Review Changes to the Running Configuration

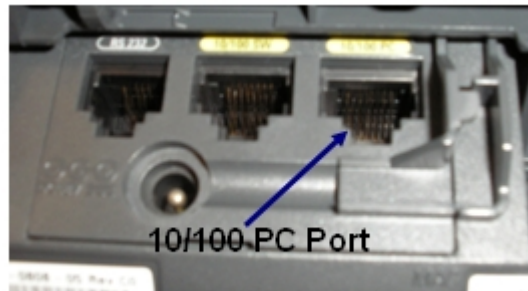
- a. From privilege exec (EXEC) mode, enter the **show running-config** command and view the changes made in the configuration. Pay particular attention to the telephony-service section. Compare this configuration with the configuration saved prior to this lab.

```
CMERouterX# show running-config
```

- b. Write the commands that changed, and the commands that were created as a result of the automatic telephony-service configuration utility used in this lab. Use additional paper if needed. _____

Step 4 Connect a PC to the IP phone port

- a. Connect a PC using a straight-through cable to the port labeled 10/100 PC on the bottom of the IP phone.



- b. Configure the PC to receive an IP address from a DHCP server.
- c. From privileged mode on the router, create a DHCP pool for the data VLAN (the PC). The **X** in the **network** and **default-router** commands represents the pod number.

```
CMERouterX(config)# ip dhcp pool DATA  
CMERouterX(dhcp-config)# network 10.X0.0.0 255.255.255.0  
CMERouterX(dhcp-config)# default-router 10.X0.0.1
```

- d. In the DHCP pool just created reserve the first 10 IP addresses for networking devices. The **X** in the **ip dhcp excluded-address** command represents the pod number.

```
CMERouterX(config)# ip dhcp excluded-address 10.X0.0.1 10.X0.0.10
```

- e. Renew the IP address on the PC. It may be necessary to use the commands **ipconfig /release** and **ipconfig /renew** if the PC had already gotten an address in the excluded-address range.
- f. Did the PC receive an IP address? If yes, what address did it receive? If no, troubleshoot as necessary.

Step 5 Reload Router

- a. Do **NOT** save the router configuration. However, it is recommended that you copy the current configuration to a text file that can be used later.
- b. Reload the router so that a manual configuration can be completed in the next task. Do **NOT** save the changes.