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Common Endpoint Registration Issues

Endpoint registration issues are some of the most common issues you will face when troubleshooting Cisco Unified CallManager. Many issues can prevent IP Phones from registering correctly, including network connectivity, IP Phone settings, DHCP settings, and Cisco Unified CallManager configuration settings.

Network Connectivity

Phone Initialization Process

When a phone initializes to a Cisco Unified CallManager server, it must go through many steps before it will actually register. Figure 2-1 shows these steps.

Once a phone has power, either through Cisco Pre-Standard POE, 802.3af POE, or an AC power adapter plugged in to the wall, it performs the following steps, as shown in Figure 2-1:

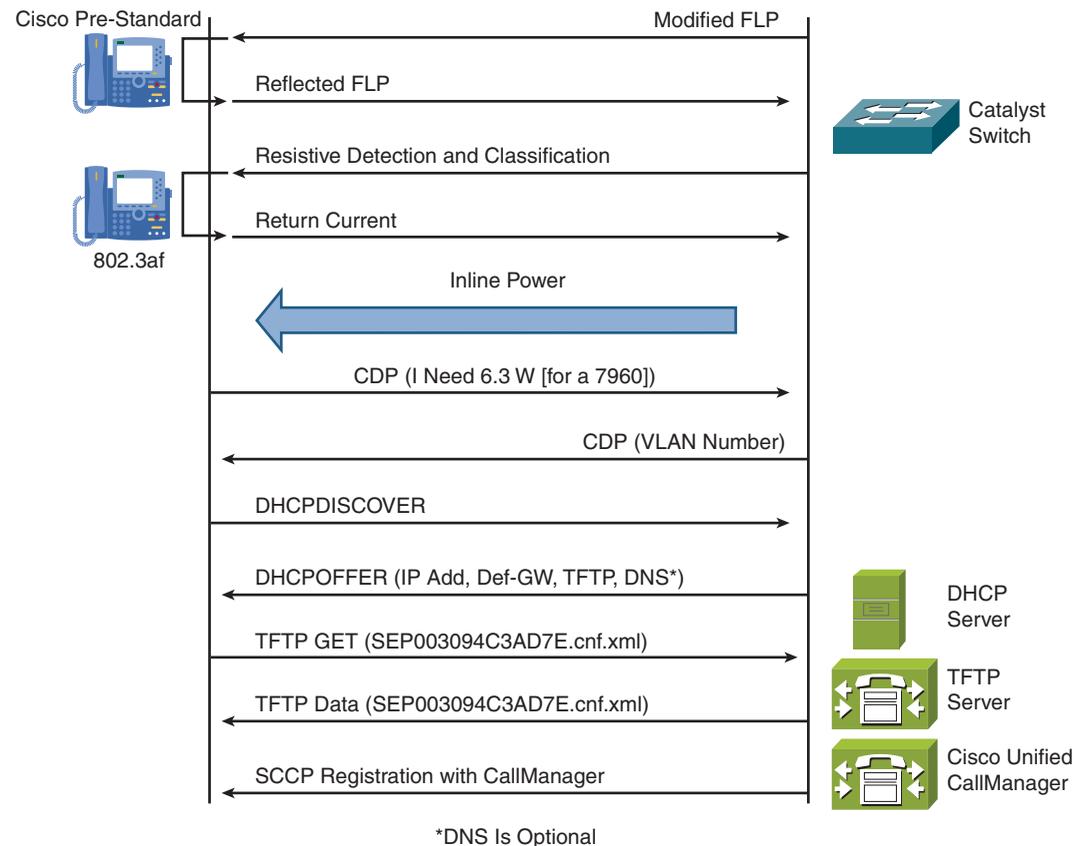
- Step 1.** The switch uses CDP to tell the phone the Voice VLAN it should use.
- Step 2.** If DHCP is enabled, the phone sends out a DHCPDISCOVER broadcast requesting an address in the voice VLAN. Be aware that it is possible to hardcode the settings acquired by DHCP (IP address, subnet mask, default gateway, DNS, TFTP Server [Option 150]).
- Step 3.** The DHCP server sends a DHCPOFFER message with an address from the scope assigned to the Voice VLAN.
- Step 4.** The phone receives the DHCPOFFER and applies the values.
- Step 5.** The phone contacts the TFTP server listed in the DHCP request through option 150 and attempts to download its configuration file. This file is formatted as SEP<mac address>.cnf.xml. If this file is not found, the phone requests the XMLDefault.cnf.xml file.
- Step 6.** The phone attempts to register with the highest priority CallManager server.

NOTE

The extension numbers, speed dials, and other settings are assigned when the SCCP IP Phone registers. They are not contained in the SEP XML file.

Cisco Unified CallManager Related Issues

FIGURE 2-1
SCCP Phone
Initialization
Procedure



If a phone is not registering, one of the first things to check is whether there is network connectivity between the phone and the CallManager server. To verify connectivity, use the **ping** or **tracert** utility. In Cisco Unified CallManager 5.x you can ping from the Operating System Administration web pages and from the CLI. If the ping is unsuccessful, try pinging from another device in the path to isolate where the network connectivity issue is.

Cisco Unified CallManager Related Issues

Endpoint Device Issues

Cisco IP Phones can display messages that can provide useful troubleshooting data. You can see these messages by pressing the following button sequence: **Settings > Status > Status Messages**. Table 2-1 lists the possible messages on Cisco Unified IP Phones and provides a brief description of the meaning of each message.

TABLE 2-1 Status Messages on the Cisco Unified IP Phones

Message	Description	Message	Description
BOOTP server used	The phone obtained its IP address from a Bootstrap Protocol (BOOTP) server rather than a DHCP server.	Load Auth failed	A signed phone load file has been modified or renamed.
CFG file not found	The name-based and default configuration file was not found on the TFTP Server.	Load ID incorrect	Load ID of the software file is of the wrong type.
CFG TFTP size error	The configuration file is too large for the file system on the phone.	Load rejected HC	The application that was downloaded is not compatible with the phone hardware.
Checksum error	Downloaded software file is corrupt.	Load server is invalid	Indicates an invalid TFTP server IP address or name in the Load Server option.
CTL installed	A Certificate Trust List (CTL) file is installed in the phone.	No CTL installed	A CTL file is not installed in the phone.
CTL update failed	The phone could not update its CTL file.	No default router	DHCP or static configuration did not specify a default router.
DHCP timeout static	DHCP server did not respond.	No DNS server IP	A name was specified but DHCP or IP configuration did not specify a DNS server address.

continues

Cisco Unified CallManager Related Issues

TABLE 2-1 Status Messages on the Cisco Unified IP Phones *(continued)*

Message	Description	Message	Description
Dialplan parsing error	The phone could not parse the dial plan XML file properly.	Programming error	The phone failed during programming.
DNS timeout	DNS server did not respond.	TFTP access error	TFTP server is pointing to a directory that does not exist.
DNS unknown host	DNS could not resolve the name of the TFTP server or Cisco Unified CallManager.	TFTP error	The phone does not recognize an error code provided by the TFTP server.
Duplicate IP	Another device is using the IP address assigned to the phone.	TFTP file not found	The requested load file (.bin) was not found in the TFTPPath directory.
Error update locale	One or more localization files could not be found in the TFTPPath directory or were not valid. The locale was not changed.	TFTP server not authorized	The specified TFTP server could not be found in the CTL of the phone.
File auth error	An error occurred when the phone tried to validate the signature of a signed file. This message includes the name of the file that failed.	TFTP timeout	TFTP server did not respond.
File not found	The phone cannot locate on the TFTP server the phone load file that is specified in the phone configuration file.	Version error	The name of the phone load file is incorrect.
IP address released	The phone has been configured to release its IP address.	XmlDefault.cnf.xml, or .cnf.xml corresponding to the phone device name	Name of the configuration file.

Cisco Unified CallManager Related Issues

The other items to check on the Cisco IP Phone are the network settings at **Settings > Network Configuration**. Here you will find information assigned by the DHCP server (for example, IP Address) as well as settings loaded from the TFTP server (for example, CallManager IP Addresses).

CallManager Configuration Issues

It is possible that some configuration issues on the CallManager server are preventing the phone from registering. Ensure that the TFTP server from which the phone is set to receive its configuration file is activated. From the Cisco Unified CallManager Serviceability interface, choose **Tools > Control Center > Feature Services** and verify that the Cisco Unified CallManager and Cisco TFTP services are started and activated.

If you are still having problems, it is possible that the configuration file is somehow corrupt. You might be able to resolve the problem by re-creating the file. To re-create this file, simply delete and re-create the phone using the Cisco Unified CallManager Administration web interface as seen in Figure 2-2. After you have finished this, power cycle the phone.

FIGURE 2-2
Delete a Cisco IP
Phone



Troubleshooting SIP Devices

SIP registration issues include many of the same possibilities as the SCCP phones. In addition, there are a few things to check for on the SIP IP Phones:

- The firmware version does not support SIP.
- Incorrect SIP configuration in Cisco Unified CallManager.
- SIP digest is incorrect or not configured on the endpoint.
- SIP digest authentication is not supported or is incorrect.