



CHAPTER 10

Troubleshooting the Cisco Unified Wireless IP Phone 7925G

This chapter provides information that can assist you in troubleshooting your Cisco Unified Wireless IP Phone. It contains the following sections:

- [Resolving Startup and Connectivity Problems, page 10-1](#)
- [Resolving Voice Quality and Roaming, page 10-8](#)
- [General Troubleshooting Information, page 10-14](#)
- [Erasing the Local Configuration, page 10-18](#)

For additional troubleshooting information, you can refer to the *Cisco Unified Communications Manager Troubleshooting Guide*.

Resolving Startup and Connectivity Problems

After installing a Cisco Unified IP Phone 7960 in your network and adding it to Cisco Unified Communications Manager Administration, the phone should start up as described in the “[Understanding the Phone Startup Process](#)” section on [page 3-17](#). If the phone does not start up properly, see the following sections for troubleshooting information:

- [Symptom: Incomplete Startup Process, page 10-1](#)
- [Symptom: No Association to Cisco Aironet Access Points, page 10-2](#)
- [Symptom: No Registration to Cisco Unified Communications Manager, page 10-3](#)

Symptom: Incomplete Startup Process

When an IP Phone connects to the wireless network, the phone should go through its normal startup process and the phone screen should display information. If the phone does not complete the startup process, the cause might be due to low RF signal strength, network outages, a dead battery in the phone, or the phone might not be functional.

To determine whether the phone is functional, follow these suggestions to systematically eliminate these potential problems:

1. Verify that the wired network is accessible by placing calls to and from other wired Cisco Unified IP Phones.
2. Verify that the wireless network is accessible:

- Power on another previously functional Cisco Unified Wireless IP Phone 7925G to verify that the access point is active.
 - Power on the wireless IP phone that will not start up and move to a different access point location that is known to be good.
3. Verify that the phone is receiving power:
 - If you see “Low Battery” on the phone screen, the battery might be dead.
 - Insert a new or fully charged battery in the wireless IP phone that will not start up.
 - If you are using the battery, try plugging in the external power supply instead.
 4. If the phone does not power up successfully, and never shows the Main screen, try using Recovery Mode:
 - Press both the Push to Talk button and the Speaker button and then press the Power-on button.
 - The phone goes into recovery mode and checks the integrity of the firmware files.
 - If error messages display indicating “recovery required,” then plug the USB cable into the phone and a PC. See [“Configuring the USB LAN on the PC” section on page 4-2](#).
 - Using a browser, access the web page for the phone. See [“Accessing the Phone Web Page” section on page 4-3](#) for instructions.
 - Go to the Phone Recovery section on the web page and upload a new Phone Software TAR file.

If, after attempting these solutions, the phone still does not start up, contact a Cisco technical support representative for additional assistance.

Symptom: No Association to Cisco Aironet Access Points

After the Greeting Message displays, if a phone continues to cycle through messages displaying on the phone screen, the phone is not associating with the access point properly. The phone cannot successfully start up unless it associates and authenticates with an access point.

Verifying Access Point Settings

The Cisco Unified Wireless IP Phone 7925G must first authenticate and associate with an access point before it can obtain an IP address. The phone follows this start up process with the access point:

1. Scans for an access point
2. Associates with an access point
3. Authenticates using a preconfigured authentication method (if configured, can use LEAP, EAP-FAST, Auto (AKM), or others)
4. Obtains an IP address

Check the SSID settings on the access point and on the phone to be sure the SSID matches.

Check the authentication type settings on the access point and on the phone to be sure authentication/encryption settings match.



Note If the message, “No Service - IP Config Failed,” DHCP failed because the encryption between the access point and phone do not match.

If using static WEP, check the WEP key on the phone to be sure it matches the WEP key on the access point. Reenter the WEP key on the phone to be sure it is correct.



Note If open authentication is set, the phone is able to associate to an access point although the WEP keys are incorrect or mismatched.

Error Messages During Authentication

If you see the following error messages, check these problems:

Authentication failed, No AP found

- Check if the correct authentication method and related encryption settings are enabled on the access point.
- Check that the correct SSID is entered on the phone.
- Check that the correct username and password are configured when using LEAP, EAP-FAST or Auto (AKM) authentication.
- If you are using A WPA Preshared key or WPA2 Preshared Key, check that you have the correct passphrase configured.
- You might need to enter the user name on the phone in the domain\username format when authenticating with a Windows domain.

EAP authentication failed

- If you are using EAP, you might need to enter the EAP user name on the phone in the *domain\username* format when authenticating with a Windows domain.
- Check that the correct EAP username and password are entered on phone.

AP Error—Cannot support all requested capabilities

On the access point, check that CKIP/CMIC is not enabled for the voice VLAN SSID. The Cisco Unified Wireless IP Phone 7925G does not support these features.

Symptom: No Registration to Cisco Unified Communications Manager

If a phone proceeds past the first stage (authenticating with access point), and, continues to cycle through the messages displaying on the phone screen, the phone is not starting up properly. The phone cannot successfully start up until it connects to the LAN and registers with a Cisco Unified Communications Manager server.

These sections can assist you in determining the reason that the phone is unable to start up properly:

- [Registering the Phone with Cisco Unified Communications Manager, page 10-4](#)
- [Checking Network Connectivity, page 10-4](#)
- [Verifying TFTP Server Settings, page 10-4](#)
- [Verifying IP Addresses, page 10-5](#)
- [Verifying DNS Settings, page 10-5](#)
- [Verifying Cisco Unified Communications Manager Settings, page 10-5](#)
- [Cisco Unified Communications Manager and TFTP Services are not Running, page 10-6](#)

- [Creating a New Configuration File, page 10-7](#)

Registering the Phone with Cisco Unified Communications Manager

A Cisco Unified Wireless IP Phone 7925G can register with a Cisco Unified Communications Manager server only if the phone has been added to the server or if auto-registration is enabled. If you see the error message, “Registration Rejected,” review the information and procedures in the [“Adding Users to Cisco Unified Communications Manager” section on page 7-19](#) to ensure that the phone has been added to the Cisco Unified Communications Manager database.

To verify that the phone is in the Cisco Unified Communications Manager database, choose **Device > Phone > Find** from Cisco Unified Communications Manager Administration to search for the phone based on its MAC Address. (To determine the MAC address of a phone, see the [“Viewing Device Information” section on page 8-4](#).)

If the phone is already in the Cisco Unified Communications Manager database, its configuration file may be damaged. See the [“Creating a New Configuration File” section on page 10-7](#) for assistance.

Checking Network Connectivity

If the network is down between the access point and the TFTP server or Cisco Unified Communications Manager, the phone cannot start up properly. Ensure that IP connectivity exists between the WLAN and the Cisco Unified Communications Manager and TFTP servers.

Verifying TFTP Server Settings

The Cisco Unified Wireless IP Phone 7925G uses the TFTP server setting to identify the primary TFTP server to use. If the TFTP server does not respond to the request, then the Communications Manager1 (CM1) shows as TFTP_AS_CM if the phone has not registered with Cisco Unified Communications Manager before.



Note

If the phone has previously registered with Cisco Unified Communications Manager, the Cisco Unified Communications Manager list information is cached in memory. If TFTP fails, you must power cycle the phone to connect to the TFTP server.

The phone tries to create a TCP connection to the TFTP IP address and then to the gateway. If Cisco Unified Communications Manager service is not running on the TFTP server, or if SRST is not running on the gateway, the wireless IP phone may continually cycle while attempting to contact the identified TFTP server.

The Cisco Unified Wireless IP Phone 7925G does not cache the IP information passed from the DHCP server, so the TFTP request must be sent and responded to every time the phone power cycles.

If you have assigned a static IP address to the phone, you must manually enter this setting. See the [“Configuring IP Network Settings” section on page 4-23](#).

If you are using DHCP and Cisco Unified Communications Manager, Release 4.x, the phone obtains the address for the TFTP server from the DHCP server. Check the IP address configured in Option 150 or Option 66. Refer to *Configuring Windows 2000 DHCP Server for Cisco Unified Call Manager* available at this URL:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_tech_note09186a00800942f4.shtml

You can also enable the phone to use a static TFTP server. Such a setting is particularly useful if the phone was recently moved from one location to another.

For information about determining and changing TFTP server settings, see “Configuring IP Network Settings” section on page 4-23 or “Viewing the Current Configuration” section on page 8-12.

Verifying IP Addresses

You should verify the IP addressing for the Cisco Unified Wireless IP Phone 7925G. If you are using DHCP, the DHCP server should provide these values. If you have assigned a static IP address to the phone, you must enter these values manually.



Note

When the wireless IP phone loses the RF signal (goes out of the coverage area), the phone will not release the DHCP server unless it reaches the time-out state.

Check for these problems:

- DHCP Server—If you have assigned a static IP address to the phone, you do not need to enter a value for the DHCP Server option. If you are using a DHCP server, and the wireless IP phone gets a response from the DHCP server, the information is automatically configured. Refer to *Troubleshooting Switch Port Problems*, available at this URL: <http://www.cisco.com/warp/customer/473/53.shtml>
- IP Address, Subnet Mask, Primary Gateway—If you have assigned a static IP address to the phone, you must configure settings for these options. See the “Configuring IP Network Settings” section on page 4-23.

If you are using DHCP, check the IP addresses distributed by your DHCP server. Be aware of DHCP conflicts and duplicate IP addresses. Refer to *Understanding and Troubleshooting DHCP in Catalyst Switch or Enterprise Networks*, available at this URL:

<http://www.cisco.com/warp/customer/473/100.html#41>

For information about determining and changing IP addressing, see “Configuring IP Network Settings” section on page 4-23

Verifying DNS Settings

If you are using DNS to refer to Cisco Unified Communications Manager, you must ensure that you have specified a DNS server. You should also verify that there is a CNAME entry in the DNS server for the Cisco Unified Communications Manager system.

You must also ensure that DNS is configured to do reverse look-ups. The default setting on Windows 2000 is to perform forward-only look-ups.

For information about determining and changing DNS settings, see “Configuring IP Network Settings” section on page 4-23.

Verifying Cisco Unified Communications Manager Settings

The Cisco Unified Wireless IP Phone 7925G attempts to open a TCP connection to all the Cisco Unified Communications Manager servers that are part of the assigned Cisco Unified Communications Manager group. Take one of these actions to verify Cisco Unified Communications Manager settings:

- On the Cisco Unified Wireless IP Phone 7925G, choose **Menu > Network Config > Current Configuration** and look at the **Communications Manager 1–4** options.
- If none of the Cisco Unified Communications Manager options contain IP addresses or show Active or Standby, the phone is not properly registered with Cisco Unified Communications Manager. See the [“Registering the Phone with Cisco Unified Communications Manager”](#) section on page 10-4 for tips on resolving this problem.

Cisco Unified Communications Manager and TFTP Services are not Running

If the Cisco Unified Communications Manager or TFTP services are not running, phones might not be able to start up properly. However, in such situations, it is likely that you are experiencing a system-wide failure and that other phones and devices are unable to start up properly.

If the Cisco Unified Communications Manager service is not running, all devices on the network that rely on it to make phone calls will be affected. If the TFTP service is not running, many devices will not be able to start up successfully.

To start Cisco Unified Communications Manager and TFTP services for Cisco Unified Communications Manager 5.0 or later, follow these steps:

Procedure

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- Step 1** From Cisco Unified Communications Manager Administration for 5.0 or later, choose **Cisco Unified Serviceability** from the Navigation drop-down list.
 - Step 2** Choose **Tools > Control Center - Network Services** and click Go.
 - Step 3** Click
 - Step 4** Choose the primary Cisco Unified Communications Manager server from the Server drop-down list.
The window displays the service names for the server that you chose, the status of the services, and a service control panel to stop or start a service.
 - Step 5** If a service has stopped, click its radio button and then click the **Start** button.
The Service Status symbol changes from a square to an arrow.
-



Note

A service must be activated before it can be started or stopped. To activate a service, choose **Tools > Service Activation**.

To start Cisco Unified Communications Manager and TFTP services for Cisco Unified Communications Manager 4.x, follow these steps:

Procedure

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- Step 1** From Cisco Unified Communications Manager Administration for 4.x, choose **Applications > Cisco Unified Communications Manager Serviceability**.
 - Step 2** Choose **Tools > Control Center**.
 - Step 3** From the Servers column, choose the primary Cisco Unified Communications Manager server.

The page displays the service names for the server that you chose, the status of the services, and a service control panel to stop or start a service.

Step 4 If a service has stopped, click the **Start** button.

The Service Status symbol changes from a square to an arrow.

**Note**

For more information, see the *Cisco Unified Communications Manager Administration Guide* and the *Cisco Unified Serviceability Administration Guide*.

Creating a New Configuration File

If you continue to have problems with a particular phone that other suggestions in this chapter do not resolve, the configuration file might be corrupted.

To create a new configuration file, follow these steps:

Procedure

- Step 1** From Cisco Unified Communications Manager, select **Device > Phone > Find** to locate the phone experiencing problems.
- Step 2** Choose **Delete** to remove the phone from the Cisco Unified Communications Manager database.
- Step 3** Add the phone back to the Cisco Unified Communications Manager database. See the [“Adding Users to Cisco Unified Communications Manager” section on page 7-19](#) for details.
- Step 4** Power cycle the wireless IP phone.
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**Note**

When you remove a phone from the Cisco Unified Communications Manager database, its configuration file is deleted from the Cisco Unified Communications Manager TFTP server. The directory number (DN) remains in the Cisco Unified Communications Manager database as an unassigned DN. You can assign these DNs to other devices or delete them from the Cisco Unified Communications Manager database. You can use the Route Plan Report to view and delete unassigned reference numbers. Refer to *Cisco Unified Communications Manager Administration Guide* for more information.

Related Topics

- [Resolving Startup and Connectivity Problems, page 10-1](#)
- [Resolving Voice Quality and Roaming, page 10-8](#)
- [General Troubleshooting Information, page 10-14](#)

Resolving Voice Quality and Roaming

Cisco Unified Wireless IP Phone 7925G users might have problems with voice quality and connectivity when roaming with their phones. See the following sections for troubleshooting information:

- [Symptom: Cisco Unified Wireless IP Phone Resets Unexpectedly, page 10-8](#)
- [Symptom: Audio Problems, page 10-10](#)
- [Symptom: Improper Roaming and Voice Quality or Lost Connection, page 10-11](#)
- [Monitoring the Voice Quality of Calls, page 10-12](#)

Symptom: Cisco Unified Wireless IP Phone Resets Unexpectedly

If users report that their phones are resetting during calls or resetting while idle on their desk, you should investigate the cause. If the network connection and Cisco Unified Communications Manager connection are stable, a Cisco Unified Wireless IP Phone 7925G should not reset on its own.

Typically, a phone resets if it has problems connecting to the access point and LAN or to Cisco Unified Communications Manager. These sections can help you identify the cause of a phone resetting in your network:

- [Verifying Access Point Settings, page 10-8](#)
- [Identifying Intermittent Network Outages, page 10-8](#)
- [Verifying DHCP Settings, page 10-9](#)
- [Verifying Voice VLAN Configuration, page 10-9](#)
- [Verifying that the Phones Have Not Been Intentionally Reset, page 10-9](#)
- [Eliminating DNS or Other Connectivity Errors, page 10-9](#)

Verifying Access Point Settings

Verify that the wireless configuration is correct. For example, check if the particular access point or switch to which the phone is connected is down. See the [“VoIP WLAN Configuration” section on page 2-21](#) for information about access point settings.

Identifying Intermittent Network Outages

Intermittent network outages affect data and voice traffic differently. Your network might have been experiencing intermittent outages without detection. If so, data traffic can resend lost packets and verify that packets are received and transmitted. However, voice traffic cannot recapture lost packets. The phone can retransmit and attempt to recover, or if the phone reaches the maximum retransmit rate, it drops the packets or loses association with the access point.

If you are experiencing problems with the voice network, you should investigate whether an existing problem is simply being exposed.

Verifying DHCP Settings

To determine if the phone has been properly configured to use DHCP, follow these steps:

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- Step 1** Verify that you have properly configured the phone to use DHCP. See the [“Configuring DHCP Settings” section on page 5-6](#) for details.
 - Step 2** Verify that the DHCP server has been set up properly.
 - Step 3** Verify the DHCP lease duration. Your local policy determines this setting.

Cisco Unified IP Phones send messages with request type 151 to renew their DHCP address leases. If the DHCP server expects messages with request type 150, the lease will be denied, forcing the phone to restart and request a new IP address from the DHCP server.

Verifying Voice VLAN Configuration

If the Cisco Unified IP Phone appears to reset during heavy network usage (for example, following extensive web surfing on a computer connected to same access point and switch as phone), it is likely that you do not have a voice VLAN or the appropriate QoS settings configured.

By isolating the wireless phones on a separate auxiliary VLAN, you can use QoS to prioritize the voice traffic over data traffic and improve the voice quality. See the [“Voice QoS in a Wireless Network” section on page 2-12](#) for details.

Verifying that the Phones Have Not Been Intentionally Reset

If you are not the only administrator with access to Cisco Unified Communications Manager, you should verify that no one else has intentionally reset the phones.

Eliminating DNS or Other Connectivity Errors

If the phone does not register with Cisco Unified Communications Manager, check to see if you are using host names or IP addresses for Cisco Unified Communications Manager servers.

To eliminate DNS or other connectivity errors, follow these steps:

Procedure

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- Step 1** Reset the phone to factory defaults. See the [“Erasing the Local Configuration” section on page 10-18](#) for details.
 - Step 2** Modify DHCP and IP settings:
 - a. Disable DHCP. See the [“Configuring DHCP Settings” section on page 5-6](#) for details.
 - b. Assign static IP values to the phone. See the [“Configuring DHCP Settings” section on page 5-6](#) for details. Use the same default router setting used for other functioning Cisco Unified IP Phones.

- c. Assign a TFTP server. See the [“Configuring an Alternate TFTP Server” section on page 5-7](#) for details. Use the same TFTP server used for other functioning Cisco Unified IP Phones.

Step 3 From Cisco Unified Communications Manager, choose **System > Server** and verify that the server is referred to by its IP address and not by its host name.



Note Cisco recommends that you configure IP addresses only and not host names to eliminate the DNS resolution in the phone registration process.

Step 4 From Cisco Unified Communications Manager, select **Device > Phone** and verify that you have assigned the correct MAC address to this Cisco Unified IP Phone.

To determine the MAC address of a phone, see the [“Viewing Device Information” section on page 8-4](#).

Step 5 Power cycle the phone.

Symptom: Audio Problems

When users report that active phone calls have poor voice quality that includes choppy audio, static or gaps in audio, or no audio, you can use the following suggestions to identify the cause of the problem.

These sections can assist you with the following symptoms:

- [No Audio During a Connected Call, page 10-10](#)
- [One-Way Audio During a Connected Call, page 10-10](#)

No Audio During a Connected Call

If you are using a release earlier than 2.0, then you must disable TKIP and MIC features on the access point. These features are only supported with release 2.0 and later on the Cisco Unified Wireless IP Phone 7925G.

One-Way Audio During a Connected Call

Use the following list to identify possible causes for the problem:

- Check the access point to see that the transmit power setting matches the transmit power setting on the phone. One-way audio is common when the access point power setting is greater (100mW) than that of the phone (20mW).

Cisco Unified Wireless IP Phone 7925G Firmware supports dynamic transmit power control (DTPC). The phone uses the transmit power that the access point advertises upon association.



Note With DTPC, if Client Transmit Power is set in the access point, the phone automatically uses the same client power setting. If the access point is set for the maximum setting (Max), the access point uses the Transmit Power setting on the phone.

- Check that the access point is enabled for ARP caching. When the Cisco Unified Wireless IP Phone 7925G is in power save mode or scanning, the access point can respond to the wireless IP phone only when ARP caching is enabled.

See the [“VoIP WLAN Configuration” section on page 2-21](#) for more information.

- Check your gateway and IP routing for voice problems.
- Check if a firewall or NAT is in the path of the RTP packets. If so, you can use Cisco IOS and PIXNAT to modify the connections so that two-way audio is possible.
- Check that the Data Rate setting for the phone and the access point are the same. These settings should match or the phone should be set for Auto.
- Check the phone hardware to be sure the speaker is functioning properly.
- Check the volume settings in the Phone Settings menu.

Symptom: Improper Roaming and Voice Quality or Lost Connection

If users report that when engaged in an active phone call and walking from one location to another (roaming), the voice quality deteriorates or the connection is lost, you can use the following suggestions to identify the cause of the problem.

These sections can assist you with the following symptoms:

- [Voice Quality Deteriorates While Roaming, page 10-11](#)
- [Delays in Voice Conversation While Roaming, page 10-11](#)
- [Phone Loses Connection with Cisco Unified Communications Manager While Roaming, page 10-11](#)
- [Phone Does Not Roam Back to Preferred Band, page 10-12](#)

Voice Quality Deteriorates While Roaming

Check the RSSI on the destination access point to see if the signal strength is adequate. The next access point should have an RSSI value of -67 dBm or greater.

Check the site survey to determine if the channel overlap is adequate for the phone and the access point to hand off the call to the next access point before the signal is lost from the previous access point.

Check to see if noise or interference in the coverage area is too great.

Check that signal to noise ratio (SNR) levels are 25 db or higher for acceptable voice quality.

Delays in Voice Conversation While Roaming

Use the Site Survey Utility on the Cisco Unified Wireless IP Phone 7925G to see if there is another acceptable access point as a roaming option. The next access point should have an RSSI value of 35 or greater to roam successfully.

Check the Cisco Catalyst 45xx switch to see if it has the correct version of Supervisor (SUP) blades. The blades must be versions SUP2+ or higher to prevent roaming delays.

Phone Loses Connection with Cisco Unified Communications Manager While Roaming

Check for the following configuration or connectivity issues between the phone and the access point:

- The RF signal strength might be weak. Use the Site Survey Tool and check the RSSI value for the next access point.
- The next access point might not have connectivity to Cisco Unified Communications Manager.

- There might be an authentication type mismatch between the phone and the next access point.
- The access point might be in a different subnet from the previous access point. The Cisco Unified Wireless IP Phone 7925G is capable of Layer 2 roaming only. Layer 3 roaming requires WLSM that uses GRE. For more information, see [“WLANs and Roaming” section on page 2-7](#).
- If using EAP-FAST, LEAP, or Auto (AKM) authentication, the access point might be using filters to block TCP ports. The ACS server uses port 1645 for authentication and 1646 for accounting and the RADIUS server uses port 1812 for authentication and 1813 for accounting.

Phone Does Not Roam Back to Preferred Band

When the Cisco Unified IP Phone 7960 is set to 5 GHz band as the preferred network and is authenticated to an AP on that band and roams to an area in which 5 GHz is not longer available but 2.4 GHz is available, the phone operates. But if you roam back to the 5 GHz band area, the phone will not return to the 5GHz band.

Since the phone will only switch between bands when connectivity has been lost, you must reboot the phone to return to the preferred band of 5 GHz.

Related Topics

- [Resolving Startup and Connectivity Problems, page 10-1](#)
- [Resolving Voice Quality and Roaming, page 10-8](#)
- [General Troubleshooting Information, page 10-14](#)
- [Monitoring the Voice Quality of Calls, page 10-12](#)

Monitoring the Voice Quality of Calls

To measure the voice quality of calls that are sent and received within the network, Cisco Unified IP Phones use these statistical metrics that are based on concealment events. The DSP plays concealment frames to mask frame loss in the voice packet stream.

- Concealment Ratio metrics—Show the ratio of concealment frames over total speech frames. An interval conceal ratio is calculated every 3 seconds.
- Concealed Second metrics—Show the number of seconds in which the DSP plays concealment frames due to lost frames. A severely “concealed second” is a second in which the DSP plays more than five percent concealment frames.
- MOS-LQK metrics—Use a numeric score to estimate the relative voice listening quality. The Cisco Unified IP Phone calculates the mean opinion score (MOS) for listening quality (LQK) based audible concealment events due to frame loss in the preceding 8 seconds, and includes perceptual weighting factors such as codec type and frame size.

MOS LQK scores are produced by a Cisco proprietary algorithm, Cisco Voice Transmission Quality (CVTQ) index. Depending on the MOS LQK version number, these scores might be compliant with the International Telecommunications Union (ITU) standard P.564. This standard defines evaluation methods and performance accuracy targets that predict listening quality scores based on observation of actual network impairment.

**Note**

Concealment ratio and concealment seconds are primary measurements based on frame loss while MOS LQK scores project a “human-weighted” version of the same information on a scale from 5 (excellent) to 1 (bad) for measuring listening quality.

Listening quality scores (MOS LQK) relate to the clarity or sound of the received voice signal. Conversational quality scores (MOS CQ such as G.107) include impairment factors, such as delay, that degrade the natural flow of conversation.

For information about configuring voice quality metrics for phones, refer to the “Phone Features” section in the “Cisco Unified IP Phone” chapter in *Cisco Unified Communications Manager System Guide*.

You can access voice quality metrics remotely by using Streaming Statistics (see [Chapter 9, “Monitoring the Cisco Unified Wireless IP Phone Remotely.”](#))

Using Voice Quality Metrics

To use the metrics for monitoring voice quality, note the typical scores under normal conditions of zero packet loss, and use the metrics as a baseline for comparison.

It is important to distinguish significant changes from random changes in metrics. Significant changes are scores that change about 0.2 MOS or greater and persist in calls that last longer than 30 seconds. Conceal Ratio changes should indicate greater than 3 percent frame loss.

MOS LQK scores can vary based on the codec that the Cisco Unified IP Phone uses. The following codecs provide these maximum MOS LQK scores under normal conditions with zero frame loss:

- G.711 codec gives 4.5 score
- G.729A/ AB gives 3.7 score

A Conceal Ratio of zero indicates that the IP network is delivering frames and packets on time with no loss.

Troubleshooting Tips

When you observe significant and persistent changes to metrics, use [Table 10-1](#) for general troubleshooting information.

Table 10-1 **Changes to Voice Quality Metrics**

Metric Change	Condition
MOS LQK scores decrease significantly	<p>Network impairment from packet loss or high jitter:</p> <ul style="list-style-type: none"> • Average MOS LQK decreases could indicate widespread and uniform impairment. • Individual MOS LQK decreases indicate bursty impairment. <p>Cross-check with Conceal Ratio and Conceal Seconds for evidence of packet loss and jitter.</p>
MOS LQK scores decrease significantly	<ul style="list-style-type: none"> • Check to see if the phone is using a different codec than expected (RxType and TxType). • Check to see if the MOS LQK version changed after a firmware upgrade.

Table 10-1 *Changes to Voice Quality Metrics (continued)*

Metric Change	Condition
Conceal Ratio and Conceal Seconds increase significantly	<ul style="list-style-type: none"> Network impairment from packet loss or high jitter.
Conceal Ratio is near or at zero, but the voice quality is poor	<ul style="list-style-type: none"> Noise or distortion in the audio channel such as echo or audio levels. Tandem calls that undergo multiple encode/decode such as calls to a cellular network or calling card network. Acoustic problems coming from a speakerphone, handsfree cellular phone or wireless headset. <p>Check packet transmit (TxCnt) and packet receive (RxCnt) counters to verify that voice packets are flowing.</p>

**Note**

Voice quality metrics do not account for noise or distortion, only frame loss.

General Troubleshooting Information

The following topics provide general information and tips for troubleshooting the Cisco Unified Wireless IP Phone 7925G.

- [Common Phone Status Messages, page 10-14](#)
- [Troubleshooting Tips for the Cisco Unified Wireless IP Phone 7925G, page 10-16](#)
- [Logging Information for Troubleshooting, page 10-17](#)

Common Phone Status Messages

[Table 10-2](#) provides a list of common status messages that display on the phone screen. The table provides possible causes and recommended actions to assist with troubleshooting the problem.

Table 10-2 Common Phone Status Messages

Message	Description	Possible Explanation and Action
Network Busy	The phone is unable to complete a call.	<p>The WLAN is not able to allocate bandwidth for the phone to complete the call.</p> <p>Wait a few minutes and try the call again. If the problem persists, the WLAN might be congested. Consider increasing the WLAN bandwidth.</p>
Leaving Service Area	The phone is unable to place or receive calls. The no signal icon displays on the phone screen.	<ul style="list-style-type: none"> The phone cannot detect any access point (AP) beacons. <p>The phone is out of range of all APs. Move to a location that is within the coverage area.</p> <ul style="list-style-type: none"> The AP has failed. Run diagnostic tests on the AP and replace if defective.
Locating Network Services	The phone is searching for an AP.	<p>The phone is searching all beacons and scanning for a channel and SSID to use.</p> <p>Wait for the phone to complete the searching and scanning process. Depending on the signal strength of the available WLAN, this process can take a few minutes.</p>
Authentication Failed	The phone is unable to access the WLAN, and the main phone screen is not active.	<p>The authentication server does not accept the security credentials.</p> <p>Verify that the security mode and credentials are correct by viewing the Network profile. For information about accessing and changing Network profiles, see the “Accessing a Network Profile” section on page 5-3.</p>
Configuring IP	The main phone screen is not active.	<p>The phone is attempting to obtain network parameters such as its IP address, or the IP address of the gateway or router from the DHCP server.</p> <p>Wait a few minutes for the phone to obtain the network parameters.</p> <p>If the phone unable to retrieve the IP address, then check that the DHCP server is up and running.</p>
Configuring CM List	The main phone screen is not active.	<p>The phone is downloading its configuration files from the TFTP server.</p> <p>Wait a few minutes for the phone to download all of its configuration files.</p>

Troubleshooting Tips for the Cisco Unified Wireless IP Phone 7925G

Table 10-3 provides general troubleshooting information for the wireless IP phone.

Table 10-3 Cisco Unified Wireless IP Phone Troubleshooting Tips

Summary	Explanation
Phone is resetting	<p>The phone resets when it loses contact with the Cisco Unified Communications Manager software. This lost connection can be due to any network connectivity disruption, including access point problems, switch outages, and switch reboots.</p> <p>See the “Symptom: Cisco Unified Wireless IP Phone Resets Unexpectedly” section on page 10-8.</p>
Time on phone is incorrect	<p>Sometimes the time or date on the phone is incorrect. The Cisco Unified Wireless IP Phone 7925G gets its time and date when it registers with Cisco Unified Communications Manager. Power cycle the phone to reset the time or date.</p> <p>The time shows in either 12 hour or 24 hour format.</p>
Ring volume is too low	<p>To see if the ring volume is set correctly on the phone, choose Settings > Phone Settings > Sound Settings > Volumes. Scroll up for the highest volume</p> <p>You can also press the volume button on the side of the phone and the volume setting appears on the phone screen.</p>
Phone does not ring	<p>To see if the phone is set to ring, choose Settings > Phone Settings > Sound Settings > Alert Pattern, and check that it a ring setting is selected.</p> <p>To see if a ring tone has been set for the phone, choose Settings > Phone Settings > Ring Tone. If none is set, add a ring tone for the phone.</p> <p>To see if the speaker is functioning properly, adjust the ring volume settings to the highest level. Enable keypad tones or call the phone to check the speaker.</p>
One-way audio on phone	<p>Check that the speaker is functioning properly. Adjust the speaker volume setting and call the phone to check the speaker.</p> <p>Check that ARP caching has been set on the AP. See “VoIP WLAN Configuration” section on page 2-21.</p>
Delays when roaming from one location to another	<p>If Cisco Catalyst 45xx series switches are being used as the main Layer 3 switches in the network, ensure that the supervisor blades are a minimum SUP2+ or later version. The Cisco Unified Wireless IP Phone 7925G (or any wireless client) experiences roaming delays when an earlier version (SUP 1 or SUP2) blade is used.</p>
Phone firmware downgrades	<p>After applying a Cisco Unified Communications Manager upgrade or patch, that is older than the current Cisco Unified Wireless IP Phone 7925G firmware, the phones could automatically downgrade to the load contained in the patch. Check the Cisco Unified Communications Manager 7925G device default image in the TFTP folder to fix this problem.</p>

Table 10-3 *Cisco Unified Wireless IP Phone Troubleshooting Tips (continued)*

Summary	Explanation
Battery life is shorter than specified	<p>An unstable RF environment can cause the phone to remain in active mode because it is constantly seeking an AP. This reduces the battery life considerably. When leaving an area of coverage, shut down the phone.</p> <p>Higher phone transmit power can affect battery life.</p> <p>To maximize idle time on the phone and conserve battery life, you need to optimize the registration time so the phone can go into power save mode more often.</p>
Phone call cannot be established	<p>The phone does not have a DHCP IP address, is unable to register to Cisco Unified Communications Manager, and shows a Configuring IP or Registering message.</p> <p>Verify the following:</p> <ol style="list-style-type: none"> 1. The Cisco Unified Communications Manager service is running on the Cisco Unified Communications Manager server. 2. Both phones are registered to the same Cisco Unified Communications Manager. 3. Audio server debug and capture logs are enabled for both phones. If needed, enable Java debug.
Call established with the iLBC protocol does not show that the iLBC codec is being used	<p>Call statistics display does not show iLBC as the receiver/sender codec.</p> <ol style="list-style-type: none"> 1. Check the following using the Cisco Unified Communications Manager administration pages: <ul style="list-style-type: none"> – Both phones are in the iLBC device pool. – The iLBC device pool is configured with the iLBC region. – The iLBC region is configured with the iLBC codec. 2. Capture a sniffer trace between the phone and Cisco Unified Communications Manager and verify that SCCP messages, OpenReceiveChannel, and StationMediaTransmit messages have media payload type value equal to 86. If so, the problem is with the phone; otherwise the problem is with the Cisco Unified Communications Manager configuration. 3. Enable audio server debug and capture logs from both phones. If needed, enable Java debug.

Related Topics

- [Logging Information for Troubleshooting, page 10-17](#)
- [General Troubleshooting Information, page 10-14](#)

Logging Information for Troubleshooting

The following options can help you gather troubleshooting information:

- [Using a System Log Server, page 10-18](#)
- [Using the Trace Logs on the Unified IP Phone, page 10-18](#)

Using a System Log Server

To gather information about problems with the wired network that can cause roaming delays or no connectivity, set up a system log server. Enable “syslog” on the network switches and access points that is logged to the system log server. Also enable Network Time Protocol (NTP) so that all access points and switches use the same times.

For information about setting up a system log server, see [“Configuring Trace Settings” section on page 4-27](#).

Using the Trace Logs on the Unified IP Phone

When you are experiencing problems with registering with Cisco Unified Communications Manager, or call connections, you can use this function to trace the path of a packet from the phone to Cisco Unified Communications Manager. The result shows the number of hops and the IP address of each hop to reach the Cisco Unified Communications Manager server. You can use this information to check connectivity between the phone, Cisco Unified Communications Manager servers and gateways during a call.

To download trace logs, click **Download Logs** from the Trace Logs page.

For information, see the [“Viewing Trace Logs” section on page 4-34](#).

Internet Explorer Error When Downloading Trace Logs

Depending on your settings, Internet Explorer might display an error when you download a trace log from the Trace Logs page.

To prevent this error from displaying, follow these steps:

Procedure

-
- | | |
|---------------|---|
| Step 1 | From Internet Explorer, choose Tools > Internet Options . |
| Step 2 | In the Internet Options window, click the Advanced tab. |
| Step 3 | Under the Security section, enable Do not save encrypted pages to disk, and click OK . |
| Step 4 | Quit all Internet Explorer sessions. |
-

Related Topics

- [Resolving Startup and Connectivity Problems, page 10-1](#)
- [Resolving Voice Quality and Roaming, page 10-8](#)
- [Erasing the Local Configuration, page 10-18](#)

Erasing the Local Configuration

You can clear all locally stored configuration options in a phone by using the Phone Settings menu. When you use the restore to factory default option, all user-defined entries in Network Profiles, Phone Settings, and Call History are erased.

To erase the local configuration, follow these steps:

Procedure

-
- Step 1** Choose **SETTINGS > Phone Settings**.
- Step 2** Press ****2** on the keypad.
- The phone briefly displays “Start factory reset now?”
- Step 3** Press the **Yes** softkey. All settings are deleted.
- The phone cycles through normal startup procedures.
- Or press **No** to cancel the reset.
- Step 4** Press **SETTINGS > Network Profiles** to reconfigure the network settings for your WLAN.
-



Caution

Erasing the local configuration removes network profiles that are set up for the Cisco Unified Wireless IP Phone to access the WLAN. You must reconfigure the network settings after performing the reset to enable the phone to access the WLAN.

Related Topics

- [Resolving Startup and Connectivity Problems, page 10-1](#)
- [Resolving Voice Quality and Roaming, page 10-8](#)
- [General Troubleshooting Information, page 10-14](#)

