



## CHAPTER 9

# Troubleshooting the Cisco Unified Wireless IP Phone 7921G

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This chapter provides information that can assist you in troubleshooting problems with your Cisco Unified Wireless IP Phone, in your IP telephony network, or with using the Cisco Unified Wireless IP Phone 7921G web pages.

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

This chapter includes the following sections:

- [Resolving Startup and Connectivity Problems, page 9-1](#)
- [Resolving Voice Quality and Roaming Problems, page 9-11](#)
- [General Troubleshooting Information, page 9-20](#)
- [Erasing the Local Configuration, page 9-25](#)

## Resolving Startup and Connectivity Problems

After installing a unified IP phone on your network and adding it to Cisco Unified CallManager, the phone should start up as described in the [“Understanding the Phone Startup Process”](#) section on page 3-26. If the phone does not start up properly, see the following sections for troubleshooting information:

- [Symptom: The unified IP phone Does Not Complete the Normal Start Up Process, page 9-2](#)

- [Symptom: The Wireless IP Phone Does Not Associate with a Cisco Aironet Access Point, page 9-3](#)
- [Symptom: The unified IP phone Does Not Register with Cisco Unified CallManager, page 9-5](#)

## Symptom: The unified IP phone Does Not Complete the Normal Start Up Process

When a unified 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 7921G 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 [“Using the USB Connection for Initial Phone Configuration”](#) section on page 4-2.
- Using a browser, access the web page for the phone. See [“Accessing the Phone Web Page”](#) section on page 4-5 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: The Wireless IP Phone Does Not Associate with a Cisco Aironet Access Point

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 7921G 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.



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

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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.



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

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## 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 7921G does not support these features.

## Symptom: The unified IP phone Does Not Register with Cisco Unified CallManager

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 CallManager 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 CallManager, page 9-5](#)
- [Checking Network Connectivity, page 9-6](#)
- [Verifying TFTP Server Settings, page 9-6](#)
- [Verifying IP Addressing, page 9-7](#)
- [Verifying DNS Settings, page 9-8](#)
- [Verifying Cisco Unified CallManager Settings, page 9-8](#)
- [Cisco Unified CallManager and TFTP Services Are Not Running, page 9-9](#)
- [Creating a New Configuration File, page 9-10](#)

## Registering the Phone with Cisco Unified CallManager

A Cisco Unified Wireless IP Phone 7921G can register with a Cisco Unified CallManager 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 CallManager” section on page 6-22](#) to ensure that the phone has been added to the Cisco Unified CallManager database.

To verify that the phone is in the Cisco Unified CallManager database, choose **Device > Phone > Find** from Cisco Unified CallManager 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 7-6.)

If the phone is already in the Cisco Unified CallManager database, its configuration file may be damaged. See the [“Creating a New Configuration File”](#) section on page 9-10 for assistance.

## Checking Network Connectivity

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

## Verifying TFTP Server Settings

The Cisco Unified Wireless IP Phone 7921G 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 CallManager1 (CM1) shows as TFTP\_AS\_CM if the phone has not registered with Cisco Unified CallManager before.



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

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The phone tries to create a TCP connection to the TFTP IP address and then to the gateway. If Cisco Unified CallManager 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 7921G 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 4-21.

If you are using DHCP, 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/warp/customer/788/AVVID/win2000\\_dhcp.html](http://www.cisco.com/warp/customer/788/AVVID/win2000_dhcp.html)

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 4-21 or “Viewing the Current Configuration” section on page 7-15.

## Verifying IP Addressing

You should verify the IP addressing for the Cisco Unified Wireless IP Phone 7921G. 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

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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.

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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 4-21.

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 4-21

## Verifying DNS Settings

If you are using DNS to refer to Cisco Unified CallManager, 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 CallManager 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 4-21.

## Verifying Cisco Unified CallManager Settings

The Cisco Unified Wireless IP Phone 7921G attempts to open a TCP connection to all the Cisco Unified CallManager servers that are part of the assigned Cisco Unified CallManager group. Take one of these actions to verify Cisco Unified CallManager settings:

- On the Cisco Unified Wireless IP Phone 7921G, choose **Menu > Network Config > Current Configuration** and look at the **CallManager 1–4** options. (See “[Viewing the Current Configuration](#)” section on page 7-15.)
- If none of the Cisco Unified CallManager options contain IP addresses or show Active or Standby, the phone is not properly registered with Cisco Unified CallManager. See the “[Registering the Phone with Cisco Unified CallManager](#)” section on page 9-5 for tips on resolving this problem.

## Cisco Unified CallManager and TFTP Services Are Not Running

If the Cisco Unified CallManager 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 CallManager 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 check that all services are running, follow these steps:

### Procedure

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- Step 1** From Cisco Unified CallManager Administration, choose **Application > Cisco CallManager Serviceability**.
  - Step 2** Choose **Tools > Control Center**.
  - Step 3** From the Servers column, choose the primary Cisco Unified CallManager 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.
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**Note** For more information about services, refer to *Cisco Unified CallManager Administration Guide* for more information.

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## 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

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- Step 1** From Cisco Unified CallManager, select **Device > Phone > Find** to locate the phone experiencing problems.
- Step 2** Choose **Delete** to remove the phone from the Cisco Unified CallManager database.
- Step 3** Add the phone back to the Cisco Unified CallManager database. See the [“Adding Users to Cisco Unified CallManager”](#) section on page 6-22 for details.
- Step 4** Power cycle the wireless IP phone.
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### Note

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

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### Related Topics

- [Resolving Startup and Connectivity Problems, page 9-1](#)
- [Resolving Voice Quality and Roaming Problems, page 9-11](#)
- [General Troubleshooting Information, page 9-20](#)

# Resolving Voice Quality and Roaming Problems

Cisco Unified Wireless IP Phone 7921G users might have problems with voice quality and connectivity when roaming with their phones. See the following sections for troubleshooting information:

- [Symptom: unified IP phone Resets Unexpectedly, page 9-11](#)
- [Symptom: The unified IP phone Has Audio Problems, page 9-14](#)
- [Symptom: The unified IP phone Does Not Roam Properly, page 9-15](#)
- [Monitoring the Voice Quality of Calls, page 9-17](#)

## Symptom: unified 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 CallManager connection are stable, a Cisco Unified Wireless IP Phone 7921G 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 CallManager. These sections can help you identify the cause of a phone resetting in your network:

- [Verifying Access Point Settings, page 9-11](#)
- [Identifying Intermittent Network Outages, page 9-12](#)
- [Verifying DHCP Settings, page 9-12](#)
- [Verifying Voice VLAN Configuration, page 9-12](#)
- [Verifying that the Phones Have Not Been Intentionally Reset, page 9-13](#)
- [Eliminating DNS or Other Connectivity Errors, page 9-13](#)

## 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 [“Voice Over IP Wireless Network Configuration”](#) section on page 2-27 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 5-8](#) 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.

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## 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 Quality in a Wireless Network” section on page 2-16](#) for details.

## Verifying that the Phones Have Not Been Intentionally Reset

If you are not the only administrator with access to Cisco Unified CallManager, 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 CallManager, check to see if you are using host names or IP addresses for Cisco Unified CallManager 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 9-25](#) for details.
- Step 2** Modify DHCP and IP settings:
- Disable DHCP. See the [“Configuring DHCP Settings” section on page 5-8](#) for details.
  - Assign static IP values to the phone. See the [“Configuring DHCP Settings” section on page 5-8](#) for details. Use the same default router setting used for other functioning Cisco Unified IP Phones.
  - Assign a TFTP server. See the [“Configuring an Alternate TFTP Server” section on page 5-10](#) for details. Use the same TFTP server used for other functioning Cisco Unified IP Phones.
- Step 3** From Cisco Unified CallManager, choose **System > Server** and verify that the server is referred to by its IP address and not by its host name.



### Note

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

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- Step 4** From Cisco Unified CallManager, 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 7-6](#).
- Step 5** Power cycle the phone.
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## Symptom: The unified IP phone Has 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 9-14](#)
- [One-Way Audio During a Connected Call, page 9-14](#)

### 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 7921G.

### 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 7921G Firmware supports dynamic transmit power control (DTPC). The phone uses the transmit power that the access point advertises upon association.

**Note**

With DTCP, 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 7921G 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 [“Voice Over IP Wireless Network Configuration”](#) section on [page 2-27](#) 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: The unified IP phone Does Not Roam Properly

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 9-16](#)
- [Delays in Voice Conversation While Roaming, page 9-16](#)
- [Phone Loses Connection with Cisco Unified CallManager While Roaming, page 9-16](#)

## 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 35 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 7921G 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 CallManager 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 CallManager.
- 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 7921G is capable of Layer 2 roaming only. Layer 3 roaming requires WLSM that uses GRE. For more information, see [“Roaming in a Wireless Network”](#) section on page 2-14.

- 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.

#### Related Topics

- [Resolving Startup and Connectivity Problems, page 9-1](#)
- [Resolving Voice Quality and Roaming Problems, page 9-11](#)
- [General Troubleshooting Information, page 9-20](#)
- [Monitoring the Voice Quality of Calls, page 9-17](#)

## 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 CallManager System Guide*.

You can access voice quality metrics remotely by using Streaming Statistics (see [Chapter 8, “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.719A/ 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 9-1](#) for general troubleshooting information.

**Table 9-1** *Changes to Voice Quality Metrics*

<b>Metric Change</b>	<b>Condition</b>
MOS LQK scores decrease significantly	<p>Network impairment from packet loss or high jitter:</p> <ul style="list-style-type: none"> <li>• Average MOS LQK decreases could indicate widespread and uniform impairment.</li> <li>• Individual MOS LQK decreases indicate bursty impairment.</li> </ul> <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"> <li>• Check to see if the phone is using a different codec than expected (RxType and TxType).</li> <li>• Check to see if the MOS LQK version changed after a firmware upgrade.</li> </ul>
Conceal Ratio and Conceal Seconds increase significantly	<ul style="list-style-type: none"> <li>• Network impairment from packet loss or high jitter.</li> </ul>
Conceal Ratio is near or at zero, but the voice quality is poor	<ul style="list-style-type: none"> <li>• Noise or distortion in the audio channel such as echo or audio levels.</li> <li>• Tandem calls that undergo multiple encode/decode such as calls to a cellular network or calling card network.</li> <li>• Acoustic problems coming from a speakerphone, handsfree cellular phone or wireless headset.</li> </ul> <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 7921G.

- [Common Phone Status Messages, page 9-20](#)
- [Troubleshooting Tips for the Cisco Unified Wireless IP Phone 7921G, page 9-22](#)
- [Logging Information for Troubleshooting, page 9-24](#)

## Common Phone Status Messages

[Table 9-2](#) 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 9-2** *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"> <li>• The phone cannot detect any access point (AP) beacons.</li> </ul> <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"> <li>• The AP has failed. Run diagnostic tests on the AP and replace if defective.</li> </ul>

**Table 9-2 Common Phone Status Messages (continued)**

<b>Message</b>	<b>Description</b>	<b>Possible Explanation and Action</b>
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 <a href="#">“Configuring Network Profile Settings”</a> 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 7921G

Table 9-3 provides general troubleshooting information for the wireless IP phone.

**Table 9-3** *unified IP phone Troubleshooting Tips*

Summary	Explanation
Phone is resetting	<p>The phone resets when it loses contact with the Cisco Unified CallManager 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 <a href="#">“Symptom: unified IP phone Resets Unexpectedly” section on page 9-11.</a></p>
Time on phone is incorrect	<p>Sometimes the time or date on the phone is incorrect. The Cisco Unified Wireless IP Phone 7921G gets its time and date when it registers with Cisco Unified CallManager. 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 <b>Settings &gt; Phone Settings &gt; Sound Settings &gt; Volumes</b>. 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 <b>Settings &gt; Phone Settings &gt; Sound Settings &gt; Alert Pattern</b>, and check that it a ring setting is selected.</p> <p>To see if a ring tone has been set for the phone, choose <b>Settings &gt; Phone Settings &gt; Ring Tone</b>. 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>

**Table 9-3** *unified IP phone Troubleshooting Tips (continued)*

Summary	Explanation
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 <a href="#">“Voice Over IP Wireless Network Configuration”</a> section on page 2-27.</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 7921G (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 CallManager upgrade or patch, that is older than the current Cisco Unified Wireless IP Phone 7921G firmware, the phones could automatically downgrade to the load contained in the patch. Check the Cisco Unified CallManager 7921G device default image in the TFTP folder to fix this problem.</p>
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>

**Related Topics**

- [Logging Information for Troubleshooting, page 9-24](#)
- [General Troubleshooting Information, page 9-20](#)

## Logging Information for Troubleshooting

The following options can help you gather troubleshooting information:

- [Using a System Log Server, page 9-24](#)
- [Using the Trace Logs on the unified IP phone, page 9-24](#)

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

For information about setting up trace logs and a system log server, see the [“Viewing Trace Logs” section on page 4-30](#).

#### Related Topics

- [Resolving Startup and Connectivity Problems, page 9-1](#)
- [Resolving Voice Quality and Roaming Problems, page 9-11](#)
- [Erasing the Local Configuration, page 9-25](#)

# 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.

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### Related Topics

- [Resolving Startup and Connectivity Problems, page 9-1](#)
- [Resolving Voice Quality and Roaming Problems, page 9-11](#)
- [General Troubleshooting Information, page 9-20](#)

Erasing the Local Configuration