Viewing Model Information, Status, and Statistics on the Cisco Unified IP Phone

This chapter describes how to use the following menus on the Cisco Unified IP Phone 7961G/7961G-GE and 7941G/7941G-GE to view model information, status messages, and network statistics for the phone:

- Model Information screen—Displays hardware and software information about the phone.
- Status menu—Provides access to screens that display the status messages, network statistics, firmware versions, and Expansion Module information.
- Call Statistics screen—Displays counters and statistics for the current call. For more information, see the "Call Statistics Screen" section on page 7-17.

You can use the information on these screens to monitor the operation of a phone and to assist with troubleshooting.

You can also obtain much of this information, and obtain other related information, remotely through the phone's web page. For more information, see Chapter 8, "Monitoring the Cisco Unified IP Phone Remotely."

For more information about troubleshooting the Cisco Unified IP Phone 7961G/7961G-GE and 7941G/7941G-GE, see Chapter 9, "Troubleshooting and Maintenance."

This chapter includes these topics:

- Status Menu, page 7-3
- Call Statistics Screen, page 7-17

Model Information Screen

The Model Information screen includes the options described in Table 7-1.

To display the Model Information screen, press the **Settings** button and then select **Model Information**.

To exit the Model Information screen, press the **Exit** softkey.

Table 7-1 Model Information Settings

Option	Description	To Change
Model Number	Model number of the phone.	Display only—cannot configure.
MAC Address	MAC address of the phone.	Display only—cannot configure.
Load File	Identifier of the factory-installed load running on the phone.	Display only—cannot configure.
Boot Load ID	Identifier of the factory-installed load running on the phone.	Display only—cannot configure.
Serial Number	Serial number of the phone.	Display only—cannot configure.
CTL File	Displays the MD5 hash of the certificate trust list (CTL) file that is installed in the phone. If no CTL file is installed on the phone, this field displays No. (If security is configured for the phone, the CTL file installs automatically when the phone reboots or resets.	For more information about this file, refer to *Cisco Unified CallManager Security Guide*.
MIC	Indicates whether a manufacturing installed certificate (used for the security features) is installed on the phone or is not installed on the phone.	For more information about how to manage the MIC for your phone, refer to the “Using the Certificate Authority Proxy Function” section in *Cisco Unified CallManager Security Guide*.

Table 7-1 Model Information Settings (continued)

Option	Description	To Change
LSC	Indicates whether a locally significant certificate (used for the security features) is installed on the phone or is not installed on the phone.	For more information about how to manage the LSC for your phone, refer to the "Using the Certificate Authority Proxy Function" section in *Cisco Unified CallManager Security Guide*.
Call Control Protocol	Indicates the call processing protocol used by the phone.	See the "Using Cisco Unified IP Phones with Different Protocols" section on page 2-17.

Status Menu

The Status menu includes theses options, which provide information about the phone and its operation:

- Status Messages—Displays the Status Messages screen, which shows a log of important system messages. For more information, see the "Status Messages Screen" section on page 7-4.
- Network Statistics—Displays the Network Statistics screen, which shows Ethernet traffic statistics. For more information, see the "Network Statistics Screen" section on page 7-13.
- Firmware Versions—Displays the Firmware Versions screen, which shows information about the firmware running on the phone. For more information, see the "Firmware Versions Screen" section on page 7-15.
- Expansion Modules—Displays the Expansion Module(s) screen, which shows information about the Cisco Unified IP Phone Expansion Module 7914, if connected to the phone. For more information, see the "Expansion Module Status Screen" section on page 7-16.
- 802.1X Authentication Status—Displays the time-stamped authentication successes and failures. For more information, see the "Supporting 802.1X Authentication on Cisco Unified IP Phones" section on page 1-18.

To display the Status menu, press the **Settings** button and then select **Status**.

To exit the Status menu, press the **Exit** softkey.

Status Messages Screen

The Status Messages screen displays up to the 10 most recent status messages that the phone has generated. You can access this screen at any time, even if the phone has not finished starting up. Table 7-2 describes the status messages that might appear. This table also includes actions you can take to address errors that are indicated.

To display the Status Messages screen, follow these steps:

Procedure

Step 1 Press the **Settings** button.

Step 2 Select **Status**.

Step 3 Select **Status Messages**.

To remove current status messages, press the **Clear** softkey.

To exit the Status Messages screen, press the **Exit** softkey.

Table 7-2 Status Messages on the Cisco Unified IP Phone

Message	Description	Possible Explanation and Action
BootP server used	The phone obtained its IP address from a BootP server rather than a DHCP server.	None. This message is informational only.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
CFG file not found	The name-based and default configuration file was not found on the TFTP Server.	The configuration file for a phone is created when the phone is added to the Cisco Unified CallManager database. If the phone has not been added to the Cisco Unified CallManager database, the TFTP server generates a `CFG File Not Found` response. • Phone is not registered with Cisco Unified CallManager. You must manually add the phone to Cisco Unified CallManager if you are not allowing phones to auto-register. See the "Adding Phones with Cisco Unified CallManager Administration" section on page 2-15 for details. • If you are using DHCP, verify that the DHCP server is pointing to the correct TFTP server. • If you are using static IP addresses, check configuration of the TFTP server. See the "Network Configuration Menu" section on page 4-7 for details on assigning a TFTP server.
CFG TFTP Size Error	The configuration file is too large for file system on the phone.	Power cycle the phone.
Checksum Error	Downloaded software file is corrupted.	Obtain a new copy of the phone firmware and place it in the TFTPPath directory. You should only copy files into this directory when the TFTP server software is shut down, otherwise the files may be corrupted.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
CTL Installed	A certificate trust list (CTL) file is installed in the phone.	None. This message is informational only. For more information about the CTL file, refer to *Cisco Unified CallManager Security Guide*.
CTL update failed	The phone could not update its certificate trust list (CTL) file.	Problem with the CTL file on the TFTP server. For more information, refer to *Cisco Unified CallManager Security Guide*.
DHCP timeout	DHCP server did not respond.	• Network is busy—The errors should resolve themselves when the network load reduces. • No network connectivity between the DHCP server and the phone—Verify the network connections. • DHCP server is down—Check configuration of DHCP server. • Errors persist—Consider assigning a static IP address. See the "Network Configuration Menu" section on page 4-7 for details on assigning a static IP address.
Disabled	802.1X Authentication is disabled on the phone.	You can enable 802.1X using the **Settings > Security Configuration > 802.1X Authentication** option on the phone. For more information, see the "802.1X Authentication and Status" section on page 4-34.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
DNS timeout	DNS server did not respond.	• Network is busy—The errors should resolve themselves when the network load reduces. • No network connectivity between the DNS server and the phone—Verify the network connections. • DNS server is down—Check configuration of DNS server.
DNS unknown host	DNS could not resolve the name of the TFTP server or Cisco Unified CallManager.	• Verify that the host names of the TFTP server or Cisco Unified CallManager are configured properly in DNS. • Consider using IP addresses rather than host names.
Duplicate IP	Another device is using the IP address assigned to the phone.	• If the phone has a static IP address, verify that you have not assigned a duplicate IP address. See the "Network Configuration Menu" section on page 4-7 section for details. • If you are using DHCP, check the DHCP server configuration.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
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.	Check that the following files are located within subdirectories in the TFTPPath directory: • Located in subdirectory with same name as network locale: – tones.xml • Located in subdirectory with same name as user locale: – glyphs.xml – dictionary.xml – kate.xml – dictionary.xml
Failed	The phone attempted an 802.1X transaction but authentication failed.	Authentication typically fails because of one of the following: • No shared secret is configured in the phone or authentication server • The shared secret configured in the phone and the authentication server do not match • Phone has not been configured in the authentication server

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
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.	• The file is corrupted. If the file is a phone configuration file, delete the phone from the Cisco Unified CallManager database using Cisco Unified CallManager Administration. Then add the phone back to the Cisco Unified CallManager database using Cisco Unified CallManager Administration. • There is a problem with the CTL file and the key for the server from which files are obtained is bad. In this case, run the CTL client and update the CTL file, making sure that the proper TFTP servers are included in this file.
File not found	The phone cannot locate on the TFTP server the phone load file that is specified in the phone configuration file.	Make sure that the phone load file is on the TFTP server and that the entry in the configuration file is correct.
IP address released	The phone has been configured to release its IP address.	The phone remains idle until it is power cycled or you reset the DHCP address. See the "Network Configuration Menu" section on page 4-7 for details.
Load auth failed	The phone could not load a configuration file.	The configuration file that the phone received from the server identified in this message is corrupt. Make sure that a good version of the configuration file exists on that server.
Load auth failed	A signed phone load file has been modified or renamed.	Make sure that the phone load file that the phone is downloading has not been altered or renamed.
Load ID incorrect	Load ID of the software file is of the wrong type.	Check the load ID assigned to the phone (from Cisco Unified CallManager, choose **Device > Phone**). Verify that the load ID is entered correctly.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
Load rejected HC	The application that was downloaded is not compatible with the phone's hardware.	Occurs if you were attempting to install a version of software on this phone that did not support hardware changes on this newer phone. Check the load ID assigned to the phone (from Cisco Unified CallManager, choose **Device** > **Phone**). Re-enter the load displayed on the phone. See the "Firmware Versions Screen" section on page 7-15 to verify the phone setting.
Load Server is invalid	Indicates an invalid TFTP server IP address or name in the Load Server option.	The Load Server setting is not valid. The Load Server specifies a TFTP server IP address or name from which the phone firmware can be retrieved for upgrades on the phones. Check the Load Server entry (from Cisco Unified CallManager Administration choose **Device** > **Phone**).
No default router	DHCP or static configuration did not specify a default router.	• If the phone has a static IP address, verify that the default router has been configured. See the "Network Configuration Menu" section on page 4-7 section for details. • If you are using DHCP, the DHCP server has not provided a default router. Check the DHCP server configuration.
No DNS server IP	A name was specified but DHCP or static IP configuration did not specify a DNS server address.	• If the phone has a static IP address, verify that the DNS server has been configured. See the "Network Configuration Menu" section on page 4-7 section for details. • If you are using DHCP, the DHCP server has not provided a DNS server. Check the DHCP server configuration.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
No CTL installed	A certificate trust list (CTL) file is not installed in the phone.	Occurs if security is not configured or, if security is configured, because the CTL file does not exist on the TFTP server. For more information, refer to *Cisco Unified CallManager Security Guide*.
Programming Error	The phone failed during programming.	Attempt to resolve this error by power cycling the phone. If the problem persists, contact Cisco technical support for additional assistance.
Successful—MD5	The phone attempted an 802.1X transaction and authentication achieved.	The phone achieved 802.1X authentication.
TFTP access error	TFTP server is pointing to a directory that does not exist.	• If you are using DHCP, verify that the DHCP server is pointing to the correct TFTP server. • If you are using static IP addresses, check configuration of TFTP server. See the "Network Configuration Menu" section on page 4-7 for details on assigning a TFTP server.
TFTP file not found	The requested load file (.bin) was not found in the TFTPPath directory.	Check the load ID assigned to the phone (from Cisco Unified CallManager, choose **Device > Phone**). Verify that the TFTPPath directory contains a .bin file with this load ID as the name.
TFTP error	The phone does not recognize an error code provided by the TFTP server.	Contact the Cisco TAC.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
TFTP server not authorized	The specified TFTP server could not be found in the phone's CTL.	• The DHCP server is not configured properly and is not server the correct TFTP server address. In this case, update the TFTP server configuration to specify the correct TFTP server. • If the phone is using a static IP address, the phone may be configured with the wrong TFTP server address. In this case, enter the correct TFTP server address in the Network Configuration menu on the phone. • If the TFTP server address is correct, there may be a problem with the CTL file. In this case, run the CTL client and update the CTL file, making sure that the proper TFTP servers are included in this file.
TFTP timeout	TFTP server did not respond.	• Network is busy—The errors should resolve themselves when the network load reduces. • No network connectivity between the TFTP server and the phone—Verify the network connections. • TFTP server is down—Check configuration of TFTP server.
Timed Out	Supplicant attempted 802.1X transaction but timed out to due the absence of an authenticator.	Authentication typically times out if 802.1X is not configured on the switch.
Version error	The name of the phone load file is incorrect.	Make sure that the phone load file has the correct name.

Table 7-2 Status Messages on the Cisco Unified IP Phone (continued)

Message	Description	Possible Explanation and Action
XmlDefault.cnf.xml, or .cnf.xml corresponding to the phone device name	Name of the configuration file.	None. This is an informational message indicating the name of the configuration file for the phone.

Network Statistics Screen

The Network Statistics screen displays information about the phone and network performance. Table 7-3 describes the information that appears in this screen.

To display the Network Statistics screen, follow these steps:

Procedure

Step 1 Press the **Settings** button.

Step 2 Select **Status**.

Step 3 Select **Status** > **Network Statistics**.

To reset the Rx Frames, Tx Frames, and Rx Broadcasts statistics to 0, press the **Clear** softkey.

To exit the Network Statistics screen, press the **Exit** softkey.

Table 7-3 Network Statistics Message Information

Item	Description
Rx Frames	Number of packets received by the phone
Tx Frames	Number of packets sent by the phone
Rx Broadcasts	Number of broadcast packets received by the phone

Table 7-3 Network Statistics Message Information

Item	Description
One of the following values: Initialized TCP-timeout CM-closed-TCP TCP-Bad-ACK CM-reset-TCP CM-aborted-TCP CM-NAKed KeepaliveTO Failback Phone-Keypad Phone-Re-IP Reset-Reset Reset-Restart Phone-Reg-Rej Load Rejected HC CM-ICMP-Unreach Phone-Abort	Cause of the last reset of the phone
Elapsed Time	Amount of time that has elapsed since the phone last rebooted
Port 1	Link state and connection of the PC port (for example, `Auto 100 Mb Full-Duplex` means that the PC port is in a link up state and has auto-negotiated a full-duplex, 100-Mbps connection)
Port 2	Link state and connection of the Network port
DHCP BOUND	Phone is bound to the DHCP server, DHCP parameters are acceptable, and the phone has received a DHCPACK message.

Firmware Versions Screen

The Firmware Versions screen displays information about the firmware version that is running on the phone. Table 7-4 describes the information that is displayed on this screen.

To display the Firmware Version screen, follow these steps:

Procedure

Step 1 Press the **Settings** button.

Step 2 Select **Status**.

Step 3 Select **Firmware Versions**.

To exit the Firmware Version screen, press the **Exit** softkey.

Table 7-4 Firmware Version Information

Item	Description
Load File	Load file running on the phone
App Load ID	Identifies the JAR file running on the phone
JVM Load ID	Identifies the Java Virtual Machine (JVM) running on the phone
OS Load ID	Identifies the operating system running on the phone
Boot Load ID	Identifies the factory-installed load running on the phone
DSP Load ID	Identifies the digital signal processor (DSP) software version used
Expansion Module 1 Expansion Module 2	Identifies the load running on the Expansion Module(s), if connected to the phone

Expansion Module Status Screen

The Expansion Module Status screen displays information about each Cisco Unified IP Phone Expansion Module 7914 that is connected to the phone.

Table Table 7-5 explains the information that is displayed on this screen for each connected expansion module. You can use this information to troubleshoot the expansion module, if necessary. In the Expansion Module Stats screen, a statistic preceded by “A” is for the first expansion module. A statistic preceded by “B” is for the second expansion module.

To display the Expansion Module Stats screen, follow these steps:

Procedure

Step 1 Press the **Settings** button.

Step 2 Select **Status**.

Step 3 Select **Expansion Module**.

To exit the Expansion Module screen, press the **Exit** softkey.

Table 7-5 Expansion Module Statistics

Item	Description
Link State	Overall expansion module status
RX Discarded Bytes	Number of bytes discarded due to errors
RX Length Err	Number of packets discarded due to improper length
RX Checksum Err	Number of packets discarded due to invalid checksum information
RX Invalid Message	Number of packets that have been discarded because a message was invalid or unsupported
TX Retransmit	Number of packets that have been retransmitted to the expansion module
TX Buffer Full	Number of packets discarded because the expansion module was not able to accept new messages

Call Statistics Screen

The Call Statistics screen displays counters statistics and voice quality metrics in these ways:

- During call—You can view the call information by pressing the ? button twice rapidly.
- After the call—You can view the call information captured during the last call by displaying the Call Statistics screen.

Note You can also remotely view the call statistics information by using a web browser to access the Streaming Statistics web page. This web page contains additional RTCP statistics not available on the phone. For more information about remote monitoring, see Chapter 8, "Monitoring the Cisco Unified IP Phone Remotely."

A single call can have multiple voice streams, but data is captured for only the last voice stream. A voice stream is a packet stream between two endpoints. If one endpoint is put on hold, the voice stream stops even though the call is still connected. When the call resumes, a new voice packet stream begins, and the new call data overwrites the former call data.

To display the Call Statistics screen for information about the last voice stream, follow these steps:

Procedure

Step 1 Press the **Settings** button.

Step 2 Select **Status**.

Step 3 Select **Call Statistics**.

To exit the Call Statistics screen, press the **Exit** softkey.

The Call Statistics Screen displays the items shown in Table 7-6.

Table 7-6 Call Statistics

Item	Description
Sender Packets	Total number of RTP data packets transmitted by the phone since starting this connection. The value is 0 if the connection is set to receive only mode.
Sender Codec	Type of audio encoding used for the transmitted stream.
Rcvr Lost Packets	Total number of RTP data packets that have been lost since starting receiving data on this connection. Defined as the number of expected packets less the number of packets actually received, where the number of received packets includes any that are late or duplicate. The value displays as 0 if the connection was set to send-only mode.
Avg Jitter	Estimate of mean deviation of the RTP data packet inter-arrival time, measured in milliseconds. The value displays as 0 if the connection was set to send-only mode.
Rcvr Codec	Type of audio encoding used for the received stream.
Rcvr Packets	Total number of RTP data packets received by the phone since starting receiving data on this connection. Includes packets received from different sources if this is a multicast call. The value displays as 0 if the connection was set to send-only mode.
MOS LQK	Score that is an objective estimate of the mean opinion score (MOS) for listening quality (LQK) that rates from 5 (excellent) to 1 (bad). This score is based on audible concealment events due to frame loss in the preceding 8-second interval of the voice stream. For more information, see the "Monitoring the Voice Quality of Calls" section on page 9-21. **Note** The MOS LQK score can vary based on the type of codec that the Cisco Unified IP Phone uses.
Avg MOS LQK	Average MOS LQK score observed for the entire voice stream.
Min MOS LQK	Lowest MOS LQK score observed from start of the voice stream.
Max MOS LQK	Baseline or highest MOS LQK score observed from start of the voice stream. These codecs provide the following maximum MOS LQK score under normal conditions with no frame loss: • G.711 gives 4.5 • G.729 A /AB gives 3.7

Table 7-6 Call Statistics (continued)

Item	Description
MOS LQK Version	Version of the Cisco proprietary algorithm used to calculate MOS LQK scores.
Cumulative Conceal Ratio	Total number of concealment frames divided by total number of speech frames received from start of the voice stream.
Interval Conceal Ratio	Ratio of concealment frames to speech frames in preceding 3-second interval of active speech. If using voice activity detection (VAD), a longer interval might be required to accumulate 3 seconds of active speech.
Max Conceal Ratio	Highest interval concealment ratio from start of the voice stream.
Conceal Secs	Number of seconds that have concealment events (lost frames) from the start of the voice stream (includes severely concealed seconds).
Severely Conceal Secs	Number of seconds that have more than 5 percent concealment events (lost frames) from the start of the voice stream.
Latency	Estimate of the network latency, expressed in miliseconds. Represents a running average of the round-trip delay, measured when RTCP receiver report blocks are received.
Max Jitter	Maximum value of instantaneous jitter, in milliseconds.
Sender Size	RTP packet size, in milliseconds, for the transmitted stream.
Rcvr Size	RTP packet size, in milliseconds, for the received stream.
Rcvr Discarded	RTP packets received from network but discarded from jitter buffers.