Monitoring the Cisco Unified IP Phone Remotely

Each Cisco Unified IP Phone has a web page from which you can view a variety of information about the phone, including:

- Device information
- Network configuration information
- Network statistics
- Device logs
- Streaming statistics

This chapter describes the information that you can obtain from the phone's web page. You can use this information to remotely monitor the operation of a phone and to assist with troubleshooting.

You can also obtain much of this information directly from a phone. For more information, see Chapter 7, "Viewing Model Information, Status, and Statistics on the Cisco Unified IP Phone."

For more information about troubleshooting the Cisco Unified IP Phone, Chapter 9, "Troubleshooting and Maintenance."

This chapter includes these topics:

- Accessing the Web Page for a Phone, page 8-2
- Disabling and Enabling Web Page Access, page 8-3
- Device Information, page 8-3
- Network Setup, page 8-4
- Network Statistics, page 8-7
- Device Logs, page 8-8
- Streaming Statistics, page 8-9

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Accessing the Web Page for a Phone

To access the web page for a Cisco Unified IP Phone, perform these steps.

> **Note** If you cannot access the web page, it may be disabled. See the "Disabling and Enabling Web Page Access" section on page 8-3 for more information.

Procedure

Step 1 Obtain the IP address of the Cisco Unified IP Phone using one of these methods:

- Search for the phone in Cisco Unified Communications Manager by choosing **Device > Phone**. Phones registered with Cisco Unified Communications Manager display the IP address on the Find and List Phones window and at the top of the Phone Configuration window.

- On the Cisco Unified IP Phone, press the **Applications** button, choose **Admin Settings > Network Configuration**, and then scroll to the IP Address option.

Step 2 Open a web browser and enter the following URL, where *IP_address* is the IP address of the Cisco Unified IP Phone:

http://*IP_address*

The web page for a Cisco Unified IP Phone includes these topics:

- **Device Information**—Displays device settings and related information for the phone. For more information, see the "Device Information" section on page 8-3.

- **Network Configuration**—Displays network configuration information and information about other phone settings. For more information, see the "Network Setup" section on page 8-4.

- **Network Statistics**—Includes the following hyperlinks, which provide information about network traffic:

  – **Ethernet Information**—Displays information about Ethernet traffic. For more information, see the "Network Statistics" section on page 8-7.

  – **Network (Port)**—Displays information about network traffic to and from the network port on the phone. For more information, see the "Network Statistics" section on page 8-7.

- **Device Logs**—Includes the following hyperlinks, which provide information that you can use for troubleshooting:

  – **Console Logs**—Includes hyperlinks to individual log files. For more information, see the "Device Logs" section on page 8-8.

  – **Core Dumps**—Includes hyperlinks to individual dump files. For more information, see the "Device Logs" section on page 8-8.

  – **Status Messages**—Displays up to the 10 most recent status messages that the phone has generated since it was last powered up. For more information, see the "Device Logs" section on page 8-8.

  – **Debug Display**—Displays debug messages that might be useful to Cisco TAC if you require assistance with troubleshooting. For more information, see the "Device Logs" section on page 8-8.

- **Streaming Statistics**—Includes the following hyperlink:

– **Stream 1**—Displays a variety of streaming statistics. For more information, see the "Streaming Statistics" section on page 8-9.

Disabling and Enabling Web Page Access

For security purposes, you may choose to prevent access to the web pages for a phone. If you do so, you will prevent access to the web pages that are described in this chapter and to the Cisco Unified CM User Options web pages.

To disable access to the web pages for a phone, follow these steps from Cisco Unified Communications Manager Administration.

Procedure

Step 1 Choose **Device > Phone**.

Step 2 Specify the criteria to find the phone and click **Find**, or click **Find** to display a list of all phones.

Step 3 Click the device name to open the Phone Configuration window for the device.

Step 4 Scroll down to the Product Specific Configuration section. From the Web Access drop-down list box, choose **Disabled**.

Step 5 Click **Update**.

> **Note** Some features, such as Cisco Quality Report Tool, do not function properly without access to the phone web pages. Disabling web access also affects any serviceability application that relies on web access, such as CiscoWorks.

To enable web page access when it is disabled, see the preceding steps about disabling access. Follow the same steps, but choose **Enabled** in Step 4 to enable the web page.

Device Information

The Device Information area on a phone's web page displays device settings and related information for the phone. Table 8-1 describes these items.

To display the Device Information area, access the web page for the phone as described in the "Accessing the Web Page for a Phone" section on page 8-2, and then click the **Device Information** hyperlink.

Table 8-1   Device Information Area Items

Item	Description
MAC Address	Media Access Control (MAC) address of the phone
Host Name	Unique, fixed name that is automatically assigned to the phone based on its MAC address
Phone DN	Directory number assigned to the phone
App Load ID	Identifier of the firmware running on the phone

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Table 8-1   Device Information Area Items (continued)

Item	Description
Boot Load ID	Identifier of the factory-installed load running on the phone
Hardware Revision	Revision value of the phone hardware
Serial Number	Unique serial number of the phone
Model Number	Model number of the phone
Message Waiting	Indicates if there is a voice message waiting on the primary line for this phone.
UDI	Displays the following Cisco Unique Device Identifier (UDI) information about the phone: • Device Type—Indicates hardware type. For example, phone displays for all phone models • Device Description—Displays the name of the phone associated with the indicated model type • Product Identifier—Specifies the phone model • Version Identifier—Represents the hardware version of the phone • Serial Number—Displays the unique serial number of the phone.
Time	Time obtained from the Date/Time Group in Cisco Unified Communications Manager to which the phone belongs
Time Zone	Time zone obtained from the Date/Time Group in Cisco Unified Communications Manager to which the phone belongs
Date	Date obtained from the Date/Time Group in Cisco Unified Communications Manager to which the phone belongs

Network Setup

The Network Setup on a phone's web page displays network setup information and information about other phone settings. Table 8-2 describes these items.

You can view and set many of these items from the Network Setup Menu and the Phone Information Menu on the Cisco Unified IP Phone. For more information, see Chapter 4, "Configuring Settings on the Cisco Unified IP Phone."

To display the Network Setup area, access the web page for the phone as described in the "Accessing the Web Page for a Phone" section on page 8-2, and then click the **Network Configuration** hyperlink.

Table 8-2   Network Configuration Area Items

Item	Description
DHCP Server	IP address of the Dynamic Host Configuration Protocol (DHCP) server from which the phone obtains its IP address.
MAC Address	Media Access Control (MAC) address of the phone.
Host Name	Host name that the DHCP server assigned to the phone.
Domain Name	Name of the Domain Name System (DNS) domain in which the phone resides.
IP Address	Internet Protocol (IP) address of the phone.
Subnet Mask	Subnet mask used by the phone.

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Table 8-2   Network Configuration Area Items (continued)

Item	Description
TFTP Server 1	Primary Trivial File Transfer Protocol (TFTP) server used by the phone.
TFTP Server 2	Backup Trivial File Transfer Protocol (TFTP) server used by the phone.
Default Router 1–5	Default router used by the phone (Default Router 1) and optional backup routers (Default Router 2–5).
DNS Server 1–5	Primary Domain Name System (DNS) server (DNS Server 1) and optional backup DNS servers (DNS Server 2–5) used by the phone.
Operational VLAN ID	Auxiliary Virtual Local Area Network (VLAN) configured on a Cisco Catalyst switch in which the phone is a member.
Admin. VLAN ID	Auxiliary VLAN in which the phone is a member.
Unified CM 1–5 -	Host names or IP addresses, in prioritized order, of the Cisco Unified Communications Manager servers with which the phone can register. An item can also show the IP address of an SRST router that is capable of providing limited Cisco Unified Communications Manager functionality, if such a router is available.
	For an available server, an item will show the Cisco Unified Communications Manager server IP address and one of the following states:
	• Active—Cisco Unified Communications Manager server from which the phone is currently receiving call-processing services.
	• Standby—Cisco Unified Communications Manager server to which the phone switches if the current server becomes unavailable.
	• Blank—No current connection to this Cisco Unified Communications Manager server.
	An item may also include the Survivable Remote Site Telephony (SRST) designation, which identifies an SRST router capable of providing Cisco Unified Communications Manager functionality with a limited feature set. This router assumes control of call processing if all other Cisco Unified Communications Manager servers become unreachable. The SRST Cisco Unified Communications Manager always appears last in the list of servers, even if it is active. You configure the SRST router address in the Device Pool section in Cisco Unified Communications Manager Configuration window.
Information URL	URL of the help text that appears on the phone.
Directories URL	URL of the server from which the phone obtains directory information.
Messages URL	URL of the server from which the phone obtains message services.
Services URL	URL of the server from which the phone obtains Cisco Unified IP Phone services.
DHCP Enabled	Indicates whether DHCP is being used by the phone.
DHCP Address Released	Indicates the setting of the DHCP Address Released option on the phone's Network Configuration menu.
Alternate TFTP	Indicates whether the phone is using an alternative TFTP server.
Forwarding Delay	Indicates whether the internal switch begins forwarding packets between the PC port and switched port on your phone when your phone becomes active. When forwarding delay is set to disabled, the internal switch begins forwarding packets immediately. When forwarding delay is set to enabled, the internal switch waits eight seconds before forwarding packets between the PC port and the SW port. You should set forwarding delay to enabled when you connect both ports to switches for redundant uplinks or when you daisy-chain phones together.

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Table 8-2   *Network Configuration Area Items (continued)*

Item	Description
Idle URL	URL that the phone displays when the phone has not been used for the time specified by Idle URL Time, and no menu is open.
Idle URL Time	Number of seconds that the phone has not been used and no menu is open before the XML service specified by Idle URL is activated.
Proxy Server URL	URL of proxy server, which makes HTTP requests to non-local host addresses on behalf of the phone HTTP client and provides responses from the non-local host to the phone HTTP client.
Authentication URL	URL that the phone uses to validate requests made to the phone web server.
SW Port Configuration	Speed and duplex of the switch port, where: • A—Auto Negotiate • 10H—10-BaseT/half duplex • 10F—10-BaseT/full duplex • 100H—100-BaseT/half duplex • 100F—100-BaseT/full duplex • No Link—No connection to the switch port
PC Port Configuration	Speed and duplex of the switch port, where: • A—Auto Negotiate • 10H—10-BaseT/half duplex • 10F—10-BaseT/full duplex • 100H—100-BaseT/half duplex • 100F—100-BaseT/full duplex • No Link—No connection to the PC port
TFTP Server 2	Backup TFTP server that the phone uses if the primary TFTP server is unavailable.
User Locale	User locale associated with the phone user. Identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.
Network Locale	Network locale associated with the phone user. Identifies a set of detailed information to support the phone in a specific location, including definitions of the tones and cadences used by the phone.
Headset Enabled	Indicates whether the Headset button is enabled on the phone.
User Locale Version	Version of the user locale loaded on the phone.
Network Locale Version	Version of the network locale loaded on the phone.
PC Port Disabled	Indicates whether the PC port on the phone is enabled or disabled.
Speaker Enabled	Indicates whether the speakerphone is enabled on the phone.
GARP Enabled	Indicates whether the phone learns MAC addresses from Gratuitous ARP responses.
Video Capability Enabled	Indicates whether the phone can participate in video calls when connected to an appropriately equipped PC.

Table 8-2   Network Configuration Area Items (continued)

Item	Description
Voice VLAN Enabled	Indicates whether the phone allows a device attached to the PC port to access the Voice VLAN.
Auto Line Select	Indicates whether the phone shifts the call focus to incoming calls on all lines.
DSCP for Call Control	DSCP IP classification for call control signaling.
DSCP for Configuration	DSCP IP classification for any phone configuration transfer.
DSCP for Services	DSCP IP classification for phone-based services.
Security Mode	Displays the security mode that is set for the phone.
Web Access Enabled	Indicates whether web access is enabled (Yes) or disabled (No) for the phone.
Span to PC Port	Indicates whether the phone will forward packets transmitted and received on the network port to the access port.
PC VLAN	VLAN used to identify and remove 802.1P/Q tags from packets sent to the PC.
CDP: PC Port	Indicates whether CDP is supported on the PC port (default is enabled).
	Enable CDP on the PC port when Cisco VT Advantage/Unified Video Advantage (CVTA) is connected to the PC port. CVTA does not work without CDP interaction with the phone.
	When CDP is disabled in Cisco Unified Communications Manager, a warning is displayed, indicating that disabling CDP on the PC port prevents CVTA from working.
	The current PC and switch port CDP values are shown on the Settings menu.
CDP: SW Port	Indicates whether CDP is supported on the switch port (default is enabled).
	Enable CDP on the switch port for VLAN assignment for the phone, power negotiation, QoS management, and 802.1x security.
	Enable CDP on the switch port when the phone is connected to a Cisco switch.
	When CDP is disabled in Cisco Unified Communications Manager, a warning is presented, indicating that CDP should be disabled on the switch port only if the phone is connected to a non-Cisco switch.
	The current PC and switch port CDP values are shown on the Settings menu.

Network Statistics

The following network statistics hyperlinks on a phone's web page provide information about network traffic on the phone. To display a network statistics area, access the web page for the phone as described in the "Accessing the Web Page for a Phone" section on page 8-2.

- Ethernet Information—Displays information about Ethernet traffic. Table 8-3 describes the items in this area.

- Network—Displays information about network traffic to and from the network port (10/100 SW) on the phone. Table 8-4 describes the items in this area.

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Table 8-3   Ethernet Information Items

Item	Description
Tx Frames	Total number of packets transmitted by the phone
Tx broadcast	Total number of broadcast packets transmitted by the phone
Tx unicast	Total number of unicast packets transmitted by the phone
Rx Frames	Total number of packets received by the phone
Rx broadcast	Total number of broadcast packets received by the phone
Rx unicast	Total number of unicast packets received by the phone

Table 8-4   Access Area and Network Items

Item	Description
Tx Frames	Total number of packets transmitted by the phone
Tx broadcast	Total number of broadcast packets transmitted by the phone
Tx Unicast	Total number of unicast packets transmitted by the phone
Rx Frames	Total number of packets received by the phone
Rx broadcast	Total number of broadcast packets received by the phone
Rx unicast	Total number of unicast packets received by the phone
CDP Neighbor Device ID	Identifier of a device connected to this port discovered by CDP protocol.
CDP Neighbor IP Address	IP address of the neighbor device discovered by CDP protocol.
CDP Neighbor Port	Neighbor device port to which the phone is connected discovered by CDP protocol.
Port Information	Speed and duplex information.
IPv4	Information on the DHCP status.

Device Logs

The following device logs hyperlinks on a phone's web page provide information you can use to help monitor and troubleshoot the phone. To access a device log area, access the web page for the phone as described in the "Accessing the Web Page for a Phone" section on page 8-2.

- Console Logs—Includes hyperlinks to individual log files. The console log files include debug and error messages received on the phone.

- Core Dumps—Includes hyperlinks to individual dump files. The core dump files include data from a phone crash.

- Status Messages—Displays up to the 10 most recent status messages that the phone has generated since it was last powered up. You can also see this information from the Status Messages screen on the phone. Table 7-2 describes the status messages that can appear.

- Debug Display—Displays debug messages that might be useful to Cisco TAC if you require assistance with troubleshooting.

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Streaming Statistics

A Cisco Unified IP Phone can stream information to and from up to three devices simultaneously. A phone streams information when it is on a a call or running a service that sends or receives audio or data.

The streaming statistics areas on a phone's web page provide information about the streams. Cisco Unified IP Phones 6900 Series use only Stream 1.

Table 8-5 describes the items in the Streaming Statistics areas.

Table 8-5   Streaming Statistics Area Items

Item	Description
Remote Address	IP address and UDP port of the destination of the stream.
Local Address	IP address and UPD port of the phone.
Start Time	Internal time stamp indicating when Cisco Unified Communications Manager requested that the phone start transmitting packets.
Stream Status	Indication of whether streaming is active or not.
Host Name	Unique, fixed name that is automatically assigned to the phone based on its MAC address.
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 Octets	Total number of payload octets transmitted in RTP data packets 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.
Sender Reports Sent[1]	Number of times the RTCP Sender Report have been sent.
Sender Report Time Sent[1]	Internal time stamp indication when the last RTCP Sender Report was sent.
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 Reports Sent[1]	Number of times the RTCP Receiver Reports have been sent.
Rcvr Report Time Sent[1]	Internal time stamp indication when a RTCP Receiver Report was sent.
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.
Rcvr Octets	Total number of payload octets received in RTP data packets by the device since starting reception on the 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.
Cumulative Conceal Ratio	Total number of concealment frames divided by total number of speech frames received from start of the voice stream.

Table 8-5   Streaming Statistics Area Items (continued)

Item	Description
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[1]	Estimate of the network latency, expressed in milliseconds. 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.
Sender Reports Received[1]	Number of times RTCP Sender Reports have been received.
Sender Report Time Received[1]	Last time at which an RTCP Sender Report was received.
Rcvr Size	RTP packet size, in milliseconds, for the received stream.
Rcvr Discarded	RTP packets received from network but discarded from jitter buffers.
Rcvr Reports Received[1]	Number of times RTCP Receiver Reports have been received.
Rcvr Report Time Received[1]	Last time at which an RTCP Receiver Report was received.
Voice Quality Metrics	
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.

1.   When the RTP Control Protocol is disabled, no data generates for this field and thus displays as 0.

Related Topics

- "Configuring Settings on the Cisco Unified IP Phone" chapter

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