CHAPTER 3

Setting Up the Cisco Unified Wireless IP Phone 7921G

This chapter includes the following topics, which help you install and configure the Cisco Unified Wireless IP Phone 7921G on an IP telephony network:

Before You Begin

Before installing a Cisco Unified Wireless IP Phone 7921G, review the requirements in these sections:

Network Requirements

For the Cisco Unified Wireless IP Phone 7921G to successfully operate as a Cisco Unified IP Phone endpoint, your network must support these requirements:

Voice-over-Wireless Network (VoWLAN)

- Cisco Aironet Access Points configured to support Voice over WLAN (VoWLAN)
- Controllers and switches configured to support VoWLAN
- Security implemented for authenticating wireless voice devices and users

Note You must verify that your wireless network is configured properly for voice service. For more information, see the "Performing a Site Survey Verification" section on page 2-31

Voice-over-IP (VoIP) Network

- Cisco routers and gateways configured for Voice over IP (VoIP)
- One of these call control products installed and configured:
  - Cisco Unified CallManager Release 4.1, 4.2 or 5.0 and later
  - Cisco Unified CallManager Express 4.1 or later
- IP network configured to support DHCP or manual assignment of IP address, gateway, and subnet mask

Related Topics

- Features Supported on the Cisco Unified Wireless IP Phone 7921G, page 1-5
- Understanding the Wireless LAN, page 2-1
- Methods for Adding Phones to Cisco Unified CallManager, page 3-3
- Installing the Cisco Unified Wireless IP Phone 7921G, page 3-10
- Powering On the Cisco Unified Wireless IP Phone 7921G, page 3-23

Methods for Adding Phones to Cisco Unified CallManager

Before installing the wireless IP phone, you must choose a method for adding phones to the Cisco Unified CallManager database. Some methods require entering the media access control (MAC) address of the phone. Table 3-1 provides an overview of these methods.

Table 3-1 Methods for Adding Phones to the Cisco Unified CallManager Database

Method	Requires MAC Address?	Notes
Using auto-registration	No	Results in automatic assignment of directory numbers
Using auto-registration with the Tool for Auto-Registered Phones Support (TAPS)	No	Requires auto-registration and BAT; updates information in the Cisco Unified IP Phone and in Cisco Unified CallManager Administration
Using Bulk Administration Tool (BAT)	Yes	Allows for simultaneous registration of multiple phones
Using the Cisco Unified CallManager Administration only	Yes	Requires phones to be added individually

The following sections describe these methods:

- Adding Phones with Auto-Registration, page 3-4
- Adding Phones with Auto-Registration and TAPS, page 3-4
- Adding Phones with BAT, page 3-5
- Adding Phones with Cisco Unified CallManager Administration, page 3-6

Adding Phones with Auto-Registration

You can use auto-registration to quickly enter phones into the Cisco Unified CallManager database without first gathering MAC addresses from the phones.

When auto-registration is enabled, Cisco Unified CallManager automatically assigns the next available sequential directory number to new phones as they register with Cisco Unified CallManager during the initial phone startup process.

After registering phones with Cisco Unified CallManager, you can modify settings, such as the directory numbers and device pools, by using Cisco Unified CallManager Administration.

Auto-registration is disabled by default in Cisco Unified CallManager. You must enable and properly configure auto-registration before connecting any Cisco Unified IP Phone to the network. For information about enabling and configuring auto-registration, refer to *Cisco Unified CallManager Administration Guide*.

Related Topics

- Adding Phones with Auto-Registration and TAPS, page 3-4
- Adding Phones with BAT, page 3-5
- Adding Phones with Cisco Unified CallManager Administration, page 3-6

Adding Phones with Auto-Registration and TAPS

You can add a group of phones quickly by using auto-registration and TAPS. First, use the Bulk Administration Tool (BAT) to add phones to the Cisco Unified CallManager database with dummy MAC addresses. Then use TAPS to update MAC addresses and download pre-defined configurations for the phones.

To implement TAPS, you or the end-users dial a TAPS directory number and follow voice prompts. When the process is complete, the phone has downloaded its directory number and other settings. The correct MAC address for the phone is updated in Cisco Unified CallManager Administration.

You must enable auto-registration in Cisco Unified CallManager Administration for TAPS to function.

Refer to *Bulk Administration Tool User Guide for Cisco Unified CallManager* for detailed instructions about BAT and about TAPS.

Related Topics

- Adding Phones with Auto-Registration, page 3-4
- Adding Phones with Cisco Unified CallManager Administration, page 3-6
- Adding Phones with BAT, page 3-5

Adding Phones with BAT

To add a group of phones to the Cisco Unified CallManager database, you can use BAT. This plug-in application for Cisco Unified CallManager enables you to perform batch operations, including registration, on multiple phones.

To add phones using BAT only (not in conjunction with TAPS), you first must obtain the appropriate MAC address for each phone.

Determining the MAC Address of a Cisco Unified IP Phone

When adding phones to the Cisco Unified CallManager database using Cisco Unified CallManager Administration or using BAT, you must enter the media access control (MAC) address of the phone. Table 3-2 describes how to determine the MAC address of the wireless IP phone.

Table 3-2 Determining the MAC Address of the Phone

Method	For More Information
Choose **Settings > Model Information > MAC Address** and look at the MAC Address field.	See "Viewing Model Information" section on page 7-10
Remove the battery and look on the back of the phone.	See the "Installing or Removing the Phone Battery" section on page 3-11

For detailed instructions about using BAT, refer to *Cisco Unified CallManager Administration Guide* and to *Bulk Administration Tool Guide for Cisco Unified CallManager*.

Note When using BAT to add Cisco Unified Wireless IP Phones, use the default setting for the phone load. The phone load name includes symbols (-, _,.) and BAT does not permit symbols in an entry.

Related Topics

- Adding Phones with Auto-Registration, page 3-4
- Adding Phones with Auto-Registration and TAPS, page 3-4
- Adding Phones with Cisco Unified CallManager Administration, page 3-6

Adding Phones with Cisco Unified CallManager Administration

You can add phones individually to the Cisco Unified CallManager database using Cisco Unified CallManager Administration. To do so, you first must obtain the MAC address for each phone. See the "Methods for Adding Phones to Cisco Unified CallManager" section on page 3-3 for instructions.

After you have collected MAC addresses, choose **Device > Add a New Device** in Cisco Unified CallManager Administration to begin.

For additional instructions and conceptual information about Cisco Unified CallManager, refer to *Cisco Unified CallManager Administration Guide* and to *Cisco Unified CallManager System Guide*.

Related Topics

- Adding Phones with Auto-Registration, page 3-4
- Adding Phones with Auto-Registration and TAPS, page 3-4
- Adding Phones with BAT, page 3-5

Safety Information

Review the following warnings before installing the Cisco Unified IP Phone. To see translations of these warnings, refer to the *Regulatory Compliance and Safety Information for the Cisco Unified Wireless IP Phone 7921G and Peripheral Devices* document that accompanied this device.

Warning **This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.** Statement 1071

Warning **Read the installation instructions before connecting the system to the power source.** Statement 1004

Warning **This equipment will not be able to access emergency services during a power outage because of reliance on utility power for normal operation. Alternative arrangements should be made for access to emergency services. Access to emergency services can be affected by any call-barring function of this equipment.**

Warning **Do not use the Cisco Unified Wireless IP Phone 7921G in hazardous environments such as areas where high levels of explosive gas may be present. Check with the site safety engineer before using any type of wireless device in such an environment.**

Warning **The plug-socket combination for the battery charger must be accessible at all times, because it serves as the main disconnecting device.** Statement 1019

Warning **The battery charger requires short-circuit (overcurrent) protection to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045

Warning **The power supply must be placed indoors.** Statement 331

Warning **Ultimate disposal of this product should be handled according to all national laws and regulations.** Statement 1040

Warning **Telephone receivers produce a magnetic field that can attract small magnetic objects such as pins and staples. To avoid the possibility of injury, do not place the handset where such objects may be picked up.**

Battery Safety Notices

These battery safety notices apply to the batteries that are approved by the Cisco Unified Wireless IP Phone 7921G manufacturer.

Warning **There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.** Statement 1015

Warning **Do not dispose of the battery pack in fire or water. The battery may explode if placed in a fire.**

Caution The battery pack is intended for use only with this device.

Caution Do not disassemble, crush, puncture, or incinerate the battery pack.

Caution To avoid risk of fire, burns, or damage to your battery pack, do not allow a metal object to touch the battery contacts.

Caution Handle a damaged or leaking battery with extreme care. If you come in contact with the electrolyte, wash the exposed area with soap and water. If the electrolyte has come in contact the eye, flush the eye with water for 15 minutes and seek medical attention.

Caution Do not charge the battery pack if the ambient temperature exceeds 104 degrees Fahrenheit (40 degrees Celsius).

Caution Do not expose the battery pack to high storage temperatures (above 140 degrees Fahrenheit, 60 degrees Celsius).

Caution When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.

Caution Use only a battery that has a Cisco part number:
Standard battery—CP-BATT-7921G-STD
Extended battery—CP-BATT-7921G-EXT

Caution Use only a power supply for your geographical region with one of the following Cisco part numbers:
Australia—CP-PWR-7921G-AU
Central Europe—CP-PWR-7921G-CE
China—CP-PWR-7921G-CN
Japan—CP-PWR-7921G-JP
North America—CP-PWR-7921G-NA
United Kingdom—CP-PWR-7921G-UK

Note The battery and power supply are not included with your phone. To order the battery and power supply, see your local dealer.

Related Topics

- Network Requirements, page 3-1
- Providing Power to the Phone, page 3-10

Installing the Cisco Unified Wireless IP Phone 7921G

After setting up the wireless network to support voice communications and configuring the wireless IP phones in Cisco Unified CallManager, you are ready to install the phones. This section includes the following installation information:

- Providing Power to the Phone, page 3-10
- Configuring Wireless LAN Settings for the Cisco Unified Wireless IP Phone 7921G, page 3-20
- Using a Headset, page 3-21

Providing Power to the Phone

The Cisco Unified Wireless IP Phone 7921G uses a battery for power. Table 3-3 lists the types of batteries available for the wireless IP phone and the maximum talk and standby times.

Table 3-3 Batteries Available for the Cisco Unified Wireless IP Phone 7921G

Type	Technology	Talk Time	Standby Time
Standard	Lithium ion	Up to 10 hr	Up to 80 hr
Extended	Lithium ion	Up to 12 hr	Up to 100 hr

Table 3-4 shows the charging time for the two types of batteries. You can stop charging the battery when the battery is fully charged, and leave the batteries in the charger with no ill effects. Lithium ion batteries can be partially charged without shortening the battery life. Batteries should handle up to 4000 recharges.

Table 3-4 Battery Charging Time Information

Battery Type	Power Supply Connected to Phone	Phone Connected to PC with USB Cable	Power Supply with Desktop Charger
Standard	2 hours	5 hours	2 hours
Extended	3 hours	7 hours	3 hours

The following sections provide information about the battery and charging the phone:

- Installing or Removing the Phone Battery, page 3-11
- Using the Power Supply to Charge the Phone, page 3-12
- Using the USB Cable to Charge the Phone, page 3-15
- Installing and Using the Desktop Charger, page 3-17

Installing or Removing the Phone Battery

To install the battery in the Cisco Unified Wireless IP Phone use Figure 3-1, and follow these steps:

Procedure

Step 1 To install the battery, insert the battery catches (as shown in Figure 3-1) in the corresponding slots at the bottom of the Cisco Unified Wireless IP Phone 7921G. Make sure that the metal contacts on the battery and the phone are facing each other.

Step 2 Press the battery to the body of the phone until it locks into place.

Step 3 To remove the battery, press up on the locking catch, then lift and remove the battery.

Figure 3-1 Cisco Unified Wireless IP Phone 7921G Battery Installation

1	Locking catch	**3**	Metal contacts
2	Battery catches		

Note The media access control (MAC) address for each Cisco Unified Wireless IP Phone 7921G appears on a printed label on the back of the phone underneath the battery.

Using the Power Supply to Charge the Phone

To charge the battery in your phone quickly, you can use the power supply. You must assemble the appropriate AC adapter plug and then connect the power supply.

Assembling or Removing the AC Plug Adapter

To assemble or remove the AC plug adapter for the power supply, use Figure 3-2, and follow these steps:

Procedure

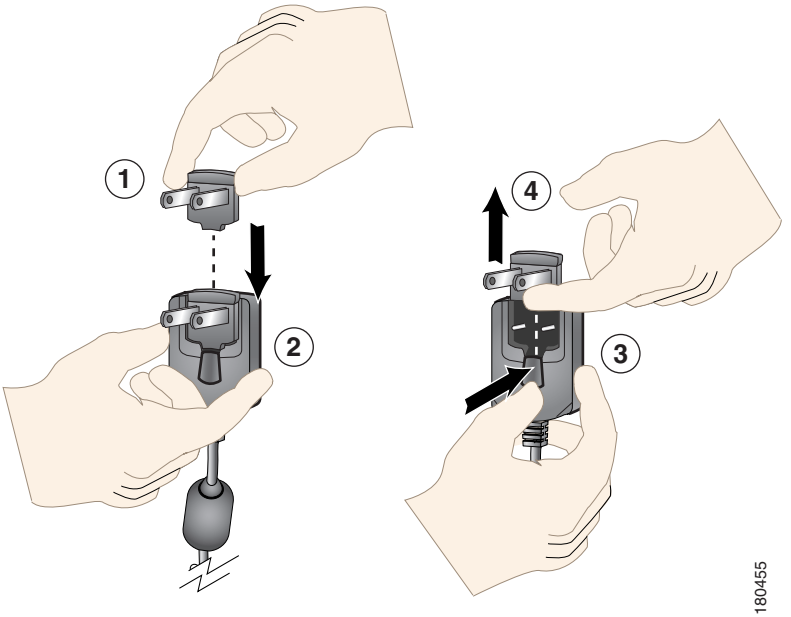
Step 1 Insert AC plug adapter (as shown in Figure 3-2) in slot on the power supply.

Step 2 Push AC plug adapter securely into place.

Step 3 To remove AC plug adapter, press on locking button.

Step 4 Pull AC plug adapter out of slot on power supply.

Figure 3-2 Assembling and Removing the AC Plug Adapter



1	AC plug adapter	**3**	Battery release button
2	Power supply	**4**	AC plug adapter removal

Charging the Phone Using the Power Supply

After assembling the power supply, you are ready to charge your Cisco Unified Wireless IP Phone 7921G. You can use the phone while the battery is being charged. For charging times, see Table 3-5.

To charge the Lithium ion battery using the power supply, follow these steps:

Procedure

Step 1 Connect the cable from the power supply to the outlet in the phone as shown in Figure 3-3.

Step 2 Connect the power supply to an AC outlet.

Step 3 Monitor the indicator light. While the battery is charging the light is red, and turns green when the battery is fully charged.

Step 4 When the battery is charged, you can disconnect the power supply from the phone, and unplug the power cord from the AC outlet.

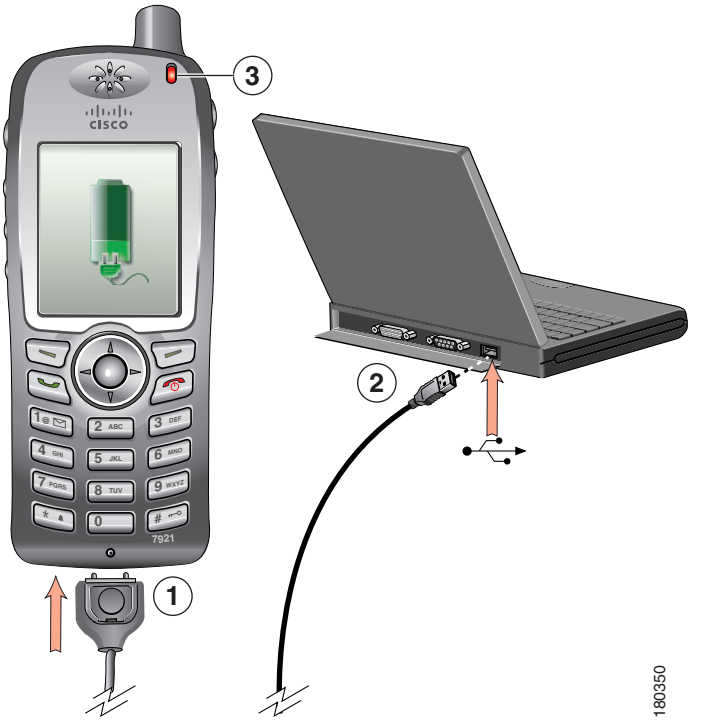
Figure 3-3 Charging the Phone Using the Power Supply

1	AC plug adapter
2	AC power supply
3	Phone connector on AC power supply cable
4	Indicator light (LED)

Using the USB Cable to Charge the Phone

You can charge the phone by using a USB cable connected to a USB port on you PC. Charging times are longer when you use the USB cable. See Table 3-4 for charging times.

Figure 3-4 Charging the Phone Using a USB Cable Connected to a PC



1	Phone connection—Insert into slot at bottom of phone.
2	USB connector—Insert into USB port on PC.
3	Indicator LED—Indicates the charging status.

Note When you plug the phone into the USB port, the Found New Hardware Wizard appears. Use the following steps to avoid this pop-up window every time you use the USB cable with your phone.

To turn off the Found New Hardware Wizard when using the USB cable to charge the phone, follow these steps:

Procedure

Step 1 Plug the USB cable into the Cisco Unified Wireless IP Phone 7921G.

Step 2 Plug the USB connector into the USB port on your PC.

The Found New Hardware Wizard dialog opens.

Step 3 To turn off the wizard, for Update New Software, click **No, not this time**.

Step 4 Next, click the button next to **Install the Software automatically (Recommended)**.

Step 5 After a time delay, the Cannot Install This Hardware dialog box appears. Click **Don't prompt me again to install this software.**

Step 6 Click **Finish** to close the dialog box.

The phone briefly displays “USB Connected” on the status line.

While the battery is charging, the indicator light is red.

Step 7 When the battery is fully charged, the indicator light turns green. You can disconnect the USB cable from the phone, and unplug the cable from the PC.

Installing and Using the Desktop Charger

The desktop charger can charge both the phone battery installed in the phone and a spare battery at the same time.You can place the phone in the desktop charger to use the speakerphone capability while charging the phone and battery. For information about using the desktop charger speakerphone, refer to the “Using a Handset, Headset, and Speakerphone” in the *Cisco Unified Wireless IP Phone 7921G Guide.*

To identify the desktop charger components and how to set up the desktop charger, use Figure 3-5.

Figure 3-5 Desktop Charger Assembly and Components

1	Power connector—Plugs into the back of the charger	**6**	Speaker—For speakerphone mode
2	AC power supply—Plugs into wall outlet	**7**	Microphone—Single-direction, internal microphone for speakerphone mode
3	Upper compartment—For charging the phone	**8**	Lock hole—For inserting a cable lock
4	Battery LED indicator—Red light indicates battery is charging; green light indicates battery is fully charged	**9**	USB connector—For B-type USB connector on cable that connects the phone to a computer
5	Power LED indicator—Green light indicates desktop charger has power	**10**	Lower slot—For charging the battery

Using the Desktop Charger to Charge the Phone

To use the desktop charger to charge the phone and spare battery, follow these steps:

Procedure

Step 1 Plug the AC adapter into an AC outlet, and insert the connector into the back of the desktop charger.

Step 2 Insert the Cisco Unified Wireless IP Phone 7921G into the upper compartment of the charger.

Step 3 Insert the spare battery into the lower compartment.

Note You can insert and charge both the phone and the spare battery at the same time or you can charge them separately.

Step 4 Check the LED indicator on the phone for charging status. The battery LED on the desktop charger provides charging status for the spare battery.

Table 3-5 gives the battery charging time information.

Battery Charging Times Using the Desktop Charger

The LED indicator on the phone turns green and the phone beeps when the phone battery is charged. The battery LED indicator on the desktop charger turns green when the spare battery is charged. Batteries will stop charging after they are fully charged. You can leave the phone or battery in the charger for extended periods of time with no problems.

Table 3-5 lists the approximate battery charging times when using the desktop charger.

Table 3-5 Battery Charging Times and Configurations for the Desktop Charger

Battery Charging Configuration	Approximate Charging Times
Spare battery alone	2 hours
Phone with battery	2 hours
Phone with battery and spare battery	2-3 hours

Related Topics

- Powering On the Cisco Unified Wireless IP Phone 7921G, page 3-23
- Installing or Removing the Phone Battery, page 3-11
- Using the Power Supply to Charge the Phone, page 3-12

Configuring Wireless LAN Settings for the Cisco Unified Wireless IP Phone 7921G

Before the phone can connect to the WLAN, you must configure the network profile for the phone with the WLAN settings. You can use two methods for setting up the network profiles:

- Cisco Unified Wireless IP Phone 7921G Web Pages, page 3-21
- Network Profile Menu on the Cisco Unified Wireless IP Phone 7921G, page 3-21

Cisco Unified Wireless IP Phone 7921G Web Pages

You can access the Cisco Unified Wireless IP Phone 7921G web pages to set up the WLAN settings in the network profile. For a new phone with the factory default settings, you must use the USB cable to connect the phone to your PC. For more information and instructions, see Chapter 4, "Using the Cisco Unified Wireless IP Phone 7921G Web Pages."

Network Profile Menu on the Cisco Unified Wireless IP Phone 7921G

You can use the Settings menu on the phone and access the Network Profiles menu to set up the network configuration and the WLAN configuration. For more information and instructions, see Chapter 5, "Configuring Settings on the Cisco Unified Wireless IP Phone 7921G."

Using a Headset

Although Cisco Systems performs some internal testing of third-party headsets for use with the Cisco Unified IP Phones, Cisco does not certify or support products from headset or handset vendors. Because of the inherent environmental and hardware inconsistencies in the locations where Cisco Unified IP Phones are deployed, there is not a single "best" solution that is optimal for all environments. Cisco recommends that customers test the headsets that work best in their environment before deploying a large number of units in their network.

In some instances, the mechanics or electronics of various headsets can cause remote parties to hear an echo of their own voice when they speak to Cisco Unified IP Phone users.

Cisco Systems recommends the use of good quality external devices, like headsets that are screened against unwanted radio frequency (RF) and audio frequency (AF) signals. Depending on the quality of these devices and their proximity to other devices such as cell phones and two-way radios, some audio noise may still occur. See the "Using External Devices with Your Cisco Unified IP Phone" section on page 3-22 for more information.

The primary reason that support of a headset would be inappropriate for an installation is the potential for an audible hum. This hum can either be heard by the remote party or by both the remote party and the Cisco Unified IP Phone user.

Some potential humming or buzzing sounds can be caused by a range of outside sources, for example, electric lights, being near electric motors, large PC monitors. See the "Safety Information" section on page 3-6 for more information.

Audio Quality Subjective to the User

Beyond the physical, mechanical and technical performance, the audio portion of a headset must sound good to the user and the party on the far end. Sound is subjective and Cisco cannot guarantee the performance of any headsets or handsets, but some of the headsets and handsets on the sites listed below have been reported to perform well on Cisco Unified IP Phones.

Nevertheless, it is ultimately still the customer's responsibility to test this equipment in their own environment to determine suitable performance. For information about headsets, see:

http://www.plantronics.com

http://www.jabra.com

Connecting a Headset

To connect a headset to the Cisco Unified Wireless IP Phone 7921G, plug it into the headset port on the right side of the phone.

You can use the headset with all of the features on the Cisco Unified Wireless IP Phone 7921G, including the Volume and Mute buttons. Use these buttons to adjust the ear piece volume and to mute the speech path from the headset microphone.

Using External Devices with Your Cisco Unified IP Phone

The following information applies when you use external devices with the Cisco Unified IP Phone:

Cisco recommends the use of good quality external devices (speakers, microphones, and headsets) that are shielded (screened) against unwanted radio frequency (RF) and audio frequency (AF) signals.

Depending on the quality of these devices and their proximity to other devices such as mobile phones or two-way radios, some audio noise may still occur. In these cases, Cisco recommends that you take one or more of the following actions:

- Move the external device away from the source of the RF or AF signals.
- Route the external device cables away from the source of the RF or AF signals.
- Use shielded cables for the external device, or use cables with a better shield and connector.
- Shorten the length of the external device cable.
- Apply ferrites or other such devices on the cables for the external device.

Cisco cannot guarantee the performance of the system because Cisco has no control over the quality of external devices, cables, and connectors. The system will perform adequately when suitable devices are attached using good quality cables and connectors.

Caution In European Union countries, use only external speakers, microphones, and headsets that are fully compliant with the EMC Directive [89/336/EC].

Powering On the Cisco Unified Wireless IP Phone 7921G

After charging the battery and configuring the wireless IP phone, you are ready to power on the phone and connect to the WLAN. Use the following sections for more information about starting up the phone:

- Active and Standby Phone Modes, page 3-25
- Understanding the Phone Startup Process, page 3-26

To power on the Cisco Unified Wireless IP Phone 7921G, press and hold the Power On button until the phone begins its startup process by cycling through these steps:

1. The phone displays the Cisco Systems screen.

2. The phone screen displays these messages as the phone starts up:
   - Locating Network Services
   - Configuring IP
   - Network Up
   - Configuring CMList
   - Registering
3. The following information displays on the main phone screen:
   - Current time and date
   - Primary directory number
   - Main screen icons for four menus and Help
   - "Your current options" on status line
   - Softkey labels (Messages and Options)

When the phone passes through these stages with no errors, the phone started up properly. Now the phone is in standby mode and is ready to place or receive calls.

The signal icon in the upper left corner shows the strength of the signal between the wireless access point and the phone. The phone must have an adequate signal to successfully place or receive calls. If the signal icon displays only one bar, the weak signal can cause problems with phone performance.

Note The status message, "Leaving Service Area" indicates that the phone is not receiving a strong signal.

If the phone does not complete these steps successfully, see the "Resolving Startup and Connectivity Problems" section on page 9-1.

Related Topics

- Active and Standby Phone Modes, page 3-25
- Understanding the Phone Startup Process, page 3-26

Active and Standby Phone Modes

When the Cisco Unified Wireless IP Phone 7921G is powered on, it can be in one of these two modes:

- Active mode
- Standby mode

Active mode

The phone is in active mode when there is an active RTP stream. When the phone is performing one of these actions, it is consuming power:

- Connected to an active call
- Scanning for channels
- Sending CDP packets
- Sending keep-alive messages
- Reregistering with Cisco Unified CallManager

The standard battery provides up to 10 hours of talk time in active mode and the extended battery provides up to 12 hours of talk time.

Standby mode

The phone goes into standby mode two seconds after a scan is complete.

The phone will awake from standby mode in response to these events:

- Pressing keys on the keypad
- Roaming between APs
- Power cycling the phone
- Losing network connectivity
- Losing RF connectivity
- Transmitting scheduled CDP or keep-alive packets.

The standard battery provides up to 80 hours of standby time and the extended battery provides up to 100 hours of standby time.

Related Topics

- Understanding the Phone Startup Process, page 3-26
- Resolving Startup and Connectivity Problems, page 9-1

Understanding the Phone Startup Process

When connecting to the wireless VoIP network, the Cisco Unified Wireless IP Phone 7921G goes through a standard startup process, as described in Table 3-6. Depending on your specific network configuration, not all of these steps may occur on your unified IP phone.

Table 3-6 Cisco Unified Wireless IP Phone Startup Process

Step	Description	Related Topics
1. Powering on the phone	The Cisco Unified Wireless IP Phone 7921G has non-volatile Flash memory in which it stores firmware images and user-defined preferences. At startup, the phone runs a bootstrap loader that loads a phone image stored in Flash memory. Using this image, the phone initializes its software and hardware.	Providing Power to the Phone, page 3-10 Resolving Startup and Connectivity Problems, page 9-1

Table 3-6 Cisco Unified Wireless IP Phone Startup Process (continued)

Step	Description	Related Topics
2. Scanning for an access point	The Cisco Unified Wireless IP Phone 7921G scans the RF coverage area with its radio. The phone searches its network profiles and scans for access points that have a matching SSID and authentication type. The phone associates with the access point with the highest RSSI that matches with its network profile.	Interacting with Cisco Unified Wireless Access Points, page 2-12 Resolving Startup and Connectivity Problems, page 9-1
3. Authenticating with access point	The Cisco Unified Wireless IP Phone 7921G begins the authenticating process. • If set for **Open**, then any device can authenticate to the access point. For added security, static WEP encryption might optionally be used. • If set to **Shared Key**, the phone encrypts the challenge text using the WEP key and the access point must verify that the WEP key was used to encrypt the challenge text before network access is available. • If set for **LEAP or EAP-FAST,** then the user name and password are authenticated by the RADIUS server before network access is available. • If set for **Auto (AKM)**, the phone looks for an access point with one of the following key management options enabled: – WPA, WPA2, or CCKM—The username and password are authenticated by the RADIUS server before network access is available. – WPA-Pre-shared key, WPA2-Pre-shared key—The phone authenticates with the access point using the pre-shared key.	Authentication Mechanisms in the Wireless Network, page 2-19

Table 3-6 Cisco Unified Wireless IP Phone Startup Process (continued)

Step	Description	Related Topics
4. Configuring IP network	If the unified IP phone is using DHCP to obtain an IP address, the phone queries the DHCP server to obtain one. If you are not using DHCP in your network, you must assign a static IP address to each phone locally. In addition to assigning an IP address, the DHCP server directs the unified IP phone to a TFTP server. If the phone has a statically defined IP address, you must configure the TFTP server IP address locally on the phone; the phone then contacts the TFTP server directly.	• Configuring DHCP Settings, page 5-8 • Disabling DHCP, page 5-8 • Resolving Startup and Connectivity Problems, page 9-1
5. Downloading Load ID	The unified IP phone checks to verify that the proper firmware is installed or if new firmware is available to download. Cisco Unified CallManager informs devices using.cnf or .cnf.xml format configuration files of their load ID. Devices using .xml format configuration files receive the load ID in the configuration file.	• Phone Configuration Files and Profile Files, page 2-25
6. Downloading config file	The TFTP server has configuration files and profile files. A configuration file includes parameters for connecting to Cisco Unified CallManager and information about which image load a phone should be running. A profile file contains various parameters and values for phone and network settings.	• Configuring an Alternate TFTP Server, page 5-10 • Phone Configuration Files and Profile Files, page 2-25 • Resolving Startup and Connectivity Problems, page 9-1

Table 3-6 Cisco Unified Wireless IP Phone Startup Process (continued)

Step	Description	Related Topics
7. Connecting to Cisco Unified CallManager	The configuration file defines how the Cisco Unified IP Phone communicates with Cisco Unified CallManager. After obtaining the file from the TFTP server, the phone attempts to make a TCP connection to the highest priority Cisco Unified CallManager on the list.	• Interacting with Cisco Unified CallManager, page 2-24 • Resolving Startup and Connectivity Problems, page 9-1
8. Registering to Cisco Unified CallManager	If the phone was manually added to the database, Cisco Unified CallManager identifies and registers the phone. If the phone was not manually added to the database and auto-registration is enabled in Cisco Unified CallManager, the phone attempts to auto-register itself in the Cisco Unified CallManager database.	• Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified CallManager, page 1-17 • Adding Users to Cisco Unified CallManager, page 6-22

Related Topics

- Configuring Cisco Unified Wireless IP Phones in Cisco Unified CallManager, page 6-2
- Phone Configuration Files and Profile Files, page 2-25