# Checklist for Deploying the Cisco Unified Wireless IP Phone 7921G

The following topics provide an overview of procedures for adding Cisco Unified Wireless IP Phones to your network:

## Configuring the Wireless Network

Table D-1 explains and provides references for many of the configuration activities for the Cisco Aironet Access Point, controller, and Ethernet switch.

**Note** When deploying the Cisco Unified Wireless IP Phone 7921G with World regulatory domain (CP-7921G-W-K9), you must enable the access points for world mode (802.11d). The world model phone gets the channels and power information from the access point.

*Table D-1      Wireless Network Configuration Tasks*

| Activity | Explanation | Reference |
|---|---|---|
| **1.** Check that the Cisco IOS version is the recommended version | • Under System Software, verify that Cisco IOS version 12.3(8)JA or later is running on the AP.<br><br>• For the controller, use Version 4.0 and Cisco IOS version 12.3(8)JX or later. | Interacting with Cisco Unified Wireless Access Points, page 2-12 |
| **2.** Configure a VLAN for voice | Isolate voice traffic and enable QoS by configuring a separate voice VLAN on the access point and network switch. | Voice Quality in a Wireless Network, page 2-16<br><br>*Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA* |
| **3.** Configure Service Set Identifier (SSID) for each VLAN | Configure an SSID for a set of wireless devices to communicate with each other. Several access points can have the same SSID to support a group of wireless phones. | Interacting with Cisco Unified Wireless Access Points, page 2-12<br><br>*Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA* |
| **4.** Configure QoS settings for VLANs | **a.** Create a QoS policy for the voice VLAN and assign a higher CoS to voice traffic.<br><br>**b.** Enable the QoS element for wireless IP phones to provide channel utilization (QBSS) information to phones. | Voice Quality in a Wireless Network, page 2-16<br><br>Configuring QoS Policies, page D-4<br><br>*Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA* |
| **5.** Enable ARP caching | Enable this option to ensure two-way audio. The access point has ARP caching disabled by default. | *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA* |

*Table D-1        Wireless Network Configuration Tasks (continued)*

| Activity | Explanation | Reference |
|---|---|---|
| 6.  Configure radio (802.11) settings | • Data Rate—Set for11 Mbps or to the rate for the frequency band that you are using.<br><br>• Client Transmit Power—After a site survey, determine the appropriate power requirements and set a specific Client Transmit Power setting. The Cisco Unified Wireless IP Phone 7921G uses the same setting as the access point.<br><br>**Note**    If set for Max, the access point does not advertise Client Transmit Power setting. | *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA*<br><br>*Cisco Unified Wireless IP Phone 7921G Deployment Guide* |
| 7.  Configure Security for the voice VLANs | Use one of these authentication and encryption options for the SSID that corresponds to the voice VLAN:<br><br>• Open<br><br>• Shared Key<br><br>• EAP<br><br>• Auto (AKM) | Choosing Authentication and Encryption Methods, page 2-22<br><br>*Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, Cisco IOS Release 12.3(8)JA* |

# Configuration Tip for Cisco Airespace Access Points

If you are using EAP-FAST with Cisco Airespace technology, you must increase the EAP request (802.1x) timeout to at least 20 seconds to ensure that the phone gets the PAC credentials successfully.

To change the request timeout on the controller, follow these steps:

**Procedure**

**Step 1**    Use SSH or Telnet to access the Airespace controller or controllers.

**Step 2**    Enter `config advanced eap request-timeout 20`

**Step 3**    Enter `save config`

**Step 4**    Enter `y` to confirm.

# Configuring QoS Policies

To ensure that voice traffic receives the highest priority in the WLAN and to place signaling traffic in a higher priority than data traffic, you need to make these changes to QoS policies and device settings.

## Access Point Configuration Settings

For detailed information about configuring the Cisco Aironet Access Points, refer to this URL:

http://www.cisco.com/univercd/cc/td/doc/product/wireless/airo1200/accsspts/b1238ja/1238jasc/index.htm

On the IOS access points, add the following Classifications to your IOS Access Point QoS policy:

- DSCP Expedited Forwarding—COS Voice <10ms Latency (6)

  Apply this policy to your voice VLAN for both incoming and outgoing traffic.

- DSCP Best Effort—COS Best Effort (0)

  Apply this policy to your data or native VLAN for both incoming and outgoing traffic.

Under the Advanced tab, set the following:

- QoS Element for Wireless Phones—**Enable**.
- Dot11e—**Enable**.
- IGMP Snooping—**Enable**.

- AVVID Priority Mapping—**Yes**.
- WiFi Multimedia (WMM) on radio interfaces—**Enabled**

# Controller Settings

For detailed information about configuring QoS policies for the controller, refer to these URLs:

- http://www.cisco.com/univercd/cc/td/doc/product/wireless/control/index.htm
- http://www.cisco.com/univercd/cc/td/doc/product/wireless/control/c44/ccfig40/index.htm

When using a controller, add the following QoS policies:

- Platinum (voice)—Apply this policy to your voice WLAN SSID/VLAN for both incoming and outgoing traffic.
- Silver (best effort)—Apply this policy to your data WLAN SSID/VLAN for both incoming and outgoing traffic.
- WLAN configuration screen for the voice WLAN SSID/VLAN—For the 7921G Phone Support field, check the AP CAC Limit checkbox to enable QoS Element for Wireless Phones (QBSS).
- General Controller configuration screen—Set Aggressive Load Balancing to **Disabled**.

# Switch Configuration

To implement QoS in the connected Ethernet switch individual configurations will vary; however, you can use this example of QoS commands as a guide.

```
mls qos
mls qos map cos-dscp 0 8 16 24 34 46 48 56
mls qos map ip-prec-dscp 0 8 16 24 34 46 48 56

interface FastEthernet0/00
switchport access vlan 11
switchport mode access
switchport voice vlan 111
no ip address
mls qos trust dscp
wrr-queue cos-map 1 1
```

```
wrr-queue cos-map 2
wrr-queue cos-map 3 2 3 4 6 7
wrr-queue cos-map 4 5
priority queue out
spanning-tree portfast
```

**Note**    When you are using U-APSD for power save, you must implement proper QoS policies on the access points and Ethernet switch.

# Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified Communications Manager

Table D-2 provides an overview and checklist of configuration tasks for the Cisco Unified Wireless IP Phone 7921G in Cisco Unified Communications Manager Administration. The list presents a suggested order to guide you through the phone configuration process. Some tasks are optional, depending on your system and user needs. For detailed procedures and information, refer to the sources in the list.

*Table D-2*      *Checklist for Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified CallManager*

| Configuration Step and Purpose | For More Information |
|---|---|
| **Step 1**  Gather the following information about the phone:<br><br>• Phone Model<br><br>• MAC address<br><br>• Name or user ID of phone user<br><br>• Device pool<br><br>• Partition, calling search space, and location information<br><br>• Number of lines and associated directory numbers (DNs) to assign to the phone<br><br>• Cisco Unified Communications Manager user to associate with the phone<br><br>• Phone usage information that affects softkey template, phone features, IP Phone services, or phone applications<br><br>Provides list of configuration requirements for setting up phones.<br><br>Identifies preliminary configuration that you need to perform before configuring individual phones, such as phone button templates or softkey templates. | Refer to *Cisco Unified Communications Manager System Guide,* "Cisco Unified IP Phone" chapter.<br><br>See Telephony Features Available for the Phone, page 7-2. |
| **Step 2**  Customize phone button templates (if required).<br><br>Changes the number of line buttons, speed-dial buttons, Service URL buttons or adds a Privacy button to meet user needs. | Refer to *Cisco Unified CallManager Administration Guide*, "Phone Button Template Configuration" chapter.<br><br>See Modifying Phone Button Templates, page 7-25. |

*Table D-2*        *Checklist for Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified CallManager (continued)*

| Configuration Step and Purpose | For More Information |
|---|---|
| **Step 3** Add and configure the phone by completing the required fields in the Phone Configuration window. Required fields are indicated by an asterisk (*) next to the field name; for example, MAC address and device pool.<br><br>Adds the device with its default settings to the Cisco Unified Communications Manager database. | Refer to *Cisco Unified CallManager Administration Guide*, "Cisco Unified IP Phone Configuration" chapter.<br><br>For information about Product Specific Configuration fields, refer to "?" Button Help in the Phone Configuration window. |
| **Step 4** Add and configure directory numbers (lines) on the phone by completing the required fields in the Directory Number Configuration window. Required fields are indicated by an asterisk (*) next to the field name; for example, directory number and presence group.<br><br>Adds primary and secondary directory numbers and features associated with directory numbers to the phone. | Refer to *Cisco Unified Communications Manager Administration Guide*:<br><br>• "Directory Number Configuration" chapter<br>• "Creating a Cisco Unity Voice Mailbox" section.<br><br>See Telephony Features Available for the Phone, page 7-2. |
| **Step 5** Customize softkey templates.<br><br>Adds, deletes, or changes order of softkey features that display on the user's phone to meet feature usage needs. | Refer to *Cisco Unified CallManager Administration Guide*, "Softkey Template Configuration" chapter.<br><br>See Configuring Softkey Templates, page 7-23. |

*Table D-2      Checklist for Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified CallManager (continued)*

| Configuration Step and Purpose | For More Information |
|---|---|
| **Step 6** Assign line view speed-dial numbers (optional).<br><br>Adds line view speed-dial numbers.<br><br>**Note** Configuring and using line view speed-dial numbers are different from speed-dial hot keys that are set up using the Phone Book feature and stored locally on the wireless IP phone.<br><br>**Note** Users can change line view speed-dial settings on their phones by using Cisco Unified CM User Options. | Refer to *Cisco Unified CallManager Administration Guide*, "Cisco Unified IP Phone Configuration" chapter, "Configuring Speed-Dial Buttons" section.<br><br>Refer to *Cisco Unified Wireless IP Phone 7921G Guide for Cisco Unified Communications Manager 4.3, 5.1, 6.0 and Later*, "Advanced Call Handling" chapter, "Speed Dialing" section.<br><br>See Telephony Features Available for the Phone, page 7-2 |
| **Step 7** Configure Cisco Unified IP Phone services and assign services (optional).<br><br>Provides IP Phone services.<br><br>**Note** Users can add or change services on their phones by using the Cisco Unified CM User Options. | Refer to *Cisco Unified CallManager Administration Guide*, "Cisco Unified IP Phone Services Configuration" chapter.<br><br>See Setting Up Services, page 7-26. |
| **Step 8** Add user information by configuring required fields. Required fields are indicated by an asterisk (*); for example, User ID and last name.<br><br>**Note** Assign a password (for User Options web pages) and PIN (for Extension Mobility and Personal Directory)<br><br>Adds user information to the global directory for Cisco Unified Communications Manager. | Refer to *Cisco Unified CallManager Administration Guide*, "End User Configuration" chapter.<br><br>See Adding Users to Cisco Unified Communications Manager, page 7-29. |

*Table D-2*      *Checklist for Configuring the Cisco Unified Wireless IP Phone 7921G in Cisco Unified CallManager (continued)*

| Configuration Step and Purpose | | For More Information |
|---|---|---|
| **Step 9** | Associate a user to a user group.<br><br>Assigns users a common list of roles and permissions that apply to all users in a user group. Administrators can manage user groups, roles, and permissions to control the level of access (and, therefore, the level of security) for system users. | Refer to the *Cisco Unified Communications Manager Administration Guide*:<br>• "End User Configuration" chapter, "End User Configuration settings" section<br>• "User Group Configuration" chapter, "Adding Users to a User Group" section |
| **Step 10** | Associate a user with a phone (optional).<br><br>Provides users with control over their phone such as forwarding calls or adding line view speed-dial numbers or services.<br><br>**Note**      Some phones, such as those used by multiple users, do not have an associated user. | Refer to *Cisco Unified CallManager Administration Guide*, "End User Configuration" chapter, "Associating Devices to a User" section. |

# Installing the Cisco Unified Wireless IP Phone 7921G

Table D-3 provides an overview and checklist of installation tasks for the Cisco Unified Wireless IP Phone 7921G. The list presents a suggested order to guide you through the phone installation. Some tasks are optional, depending on your system and user needs. For detailed procedures and information, refer to the sources in the list.

*Table D-3        Checklist for Installing the Cisco Unified Wireless IP Phone 7921G*

| Task | For More Information |
|---|---|
| **1.** Assemble the phone components and charge the battery. | See Providing Power to the Phone, page 3-10. |
| **2.** Configure the network profile by using the USB cable and the Cisco Unified Wireless IP  Phone 7921G web pages. | See Using the Cisco Unified Wireless IP Phone 7921G Web Pages, page 4-1. |
| **3.** Configure the phone settings by using the Settings menu on the phone. | See Configuring Settings on the Cisco Unified Wireless IP Phone, page 5-1. |
| **4.** Power on the phone and monitor the phone startup process. | See Understanding the Phone Startup Process, page 3-27. <br><br> See Resolving Startup and Connectivity Problems, page 10-1 |
| **5.** Make calls with the wireless IP phone. | Refer to the *Cisco Unified Wireless IP Phone 7921Guide*. <br><br> See Resolving Voice Quality and Roaming Problems, page 10-11 |
| **6.** Provide information to end users about how to use their phones and how to configure their phone options. | See Appendix A, "Providing Information to Users By Using a Website." |

■  **Installing the Cisco Unified Wireless IP Phone 7921G**