C H A P T E R 6

Configuring the Phone Using the Wavelink Avalanche Server

The Cisco Unified Wireless IP Phone 7921G supports the use of the Wavelink Avalanche Management Console to configure the phone, which can be set up as a Wavelink Avalanche client device. The Cisco Unified Wireless IP Phone 7921G Phone Configuration Utility can be installed on the Wavelink Avalanche Management Console and used to configure a single phone or multiple phones with common settings.

Before You Begin

Before you can use the Wavelink Avalanche Management Console to configure phones, make sure you have the necessary components, and follow the best practices during your setup.

Requirements

These are the required components for configuring the phone using the Wavelink Avalanche server:

- Wavelink Avalanche software
    - Avalanche Manager Agent
    - Avalanche Management Console
- Cisco Unified Wireless IP Phone 7921G firmware release 1.1

- Cisco Unified Wireless IP Phone 7921G Configuration Utility (7921CU) Avalanche Application Package
- DHCP server (optional)
- Cisco Unified Communications Manager (optional)

Best Practices

This section describes the best practices recommended for setting up and using the Cisco Unified Wireless IP Phone 7921G Configuration Utility (7921CU) on the Wavelink Avalanche server.

- Ensure that the phone is registered to Cisco Unified Communications Manager.
- Try out this process with one or two phones before deploying to many phones.
- Set up a VLAN that only has access to the Wavelink server.
- Configure DHCP Option 149 with the Wavelink server IP address. If you do not configure this option, see Assigning the Wavelink Server, page 6-2.
- Configure a Cisco Access Point to use a default SSID of "cisco" with open authentication and no encryption.

Assigning the Wavelink Server

If you did not configure DHCP Option 149 with the Wavelink server IP address, you must manually assign it.

> **Note**   Do not perform this task if you previously configured the Wavelink server address using DHCP Option 149.

To assign the Wavelink server on the phone, choose one of the following methods:

- Assigning the Wavelink Server From the Phone, page 6-3
- Assigning the Wavelink Server Using the Phone Web Page, page 6-3

Assigning the Wavelink Server From the Phone

To assign the Wavelink server from the phone, follow these steps:

Procedure

Step 1   Turn on the phone and verify that it is installed with the required firmware version and is registered to Cisco Unified Communications Manager.

Step 2   Choose **Settings > System Configuration > Wavelink Configuration**.

Step 3   Unlock the phone by pressing ****#**.

Step 4   In the Alternate Wavelink Server option, choose **Yes**.

Step 5   Enter the IP address of the Wavelink server, and press **Save**.

Assigning the Wavelink Server Using the Phone Web Page

To assign the Wavelink server using the phone web page, follow these steps:

Procedure

Step 1   From the phone web page, choose **Wavelink Settings** from the left pane.

Under Wavelink Settings, make sure that the server is enabled.

Step 2   Click **Use the following Server** and enter the IP address of the server, then click **Save**.

Setting Up and Using the Phone Configuration Utility

This section describes the tasks for configuring and using the Cisco Unified Wireless IP Phone 7921 Configuration Utility from the Wavelink Management Console.

To set up and use the Cisco Unified Wireless IP Phone 7921 Configuration Utility from the Wavelink Management Console, perform the tasks in Table 6-1 in order.

Table 6-1   ***Setting Up and Using the Phone Configuration Utility on the Wavelink Console***

Task	For more information, see...
1. Assign attributes for the phone.	Assigning Attributes for the Phone, page 6-4
2. Install the Cisco Unified Wireless IP Phone 7921G Configuration Utility on Wavelink.	Installing the Cisco Unified Wireless IP Phone 7921G Configuration Utility, page 6-6
3. Update the configuration files.	Updating Configuration Files, page 6-7
4. Update the phones.	Updating the Phone, page 6-15

Assigning Attributes for the Phone

You can assign attributes on the Cisco Unified Wireless IP Phone 7921G that can be used to distinguish it from other mobile devices connected to the Wavelink server. These attributes can be used as search criteria for locating phones on the Wavelink server. For example, the predefined ModelName field of CP7921G is used to identify a device as the Cisco Unified Wireless IP Phone 7921G.

To assign attributes, use the Wavelink Management Console, the phone UI, or the phone web page:

- If you use the Wavelink Management Console, choose the Add Properties option from the Client Settings option (for a single phone) or the Edit Device Properties option (for a mobile device group). For more information, see the Wavelink Avalanche server documentation.

- If you assign attributes from the phone or phone web page, you define values for the CustomName and CustomValue fields:

    - Defining Custom Names and Custom Values On the Phone, page 6-5

    - Defining Custom Parameters from the Phone Web Page, page 6-5

Defining Custom Names and Custom Values On the Phone

To define the CustomName and CustomValue fields from the phone, follow these steps:

Procedure

Step 1   On the main phone screen, choose **Settings > System Configuration > Wavelink Configuration**.

Step 2   Unlock the phone by pressing ****#**.

Step 3   Scroll to a CustomName, enter an attribute name (for example, "User"), and click **Save**.

> ✎
>
> **Note**   Only alphanumeric characters are allowed in the CustomName field.

Step 4   Scroll to CustomValue and enter a value for the corresponding CustomName (for example, "Admin"), and click **Save**.

You can define up to four pairs of custom parameters.

Defining Custom Parameters from the Phone Web Page

To define customer parameters from the phone web page, follow these steps:

Procedure

Step 1   From the phone web page, choose **Wavelink Settings**.

Step 2   In the Wavelink Custom Parameters section, enter values in the Name and Value fields. You can define up to four pairs of custom parameters.

> ✎
>
> **Note**   Do not use spaces in the Name field.

Installing the Cisco Unified Wireless IP Phone 7921G Configuration Utility

The Cisco Unified Wireless IP Phone Configuration Utility file is provided by Cisco in the .ava file format.

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Note   The phone configuration utility must be installed on the Wavelink Avalanche Management Console.

To install the phone configuration utility, follow these steps:

Procedure

Step 1   Launch the Wavelink Avalanche Management Console and connect to the agent.

Step 2   Choose **Software Management > Install Software Package**.

Step 3   Browse to the location of the .ava file containing the Cisco Unified Wireless IP Phone Configuration Utility and select it.

Step 4   Click **New** and enter the software collection name under which the phone configuration files will be added.

Step 5   Follow the instructions on the wizard to complete the installation.

Step 6   When the installation has completed, expand the software collection name on the left pane. The phone configuration utility file name 7921CU appears with a red "x" (disabled) next to it.

Step 7   Right-click **7921CU** and choose **Enable Package**.

✎

Note   The installation is complete. As an option, you can perform the following additional steps to configure the selection criteria so you can easily apply changes to a device group.

Step 8   Right-click the software collection (containing the phone configuration utility) and choose **Settings**.

Step 9   Click the button at right of the Selection Criteria box to launch the Selection Criteria Wizard.

Step 10   Select an item from the Source Properties list on the left, and enter a value in the Selection Expression text box.

Step 11   Repeat the previous step for each property and value you wish to include. When finished, click **Compile**, then click **Test Expression**.

Step 12   Review the list displayed under Matching Clients to ensure the selection criteria have been met. Click **Apply**, then click **OK**.

Note   For more information, see the Wavelink Avalanche Management Console documentation.

Updating Configuration Files

You can update a phone configuration file using the Cisco Unified Wireless IP Phone 7921G Configuration Utility installed on a Wavelink Avalanche Management Console.

Table 6-2 lists the configuration file settings.

Table 6-2   ***Configuration File Settings***

Setting	For more information, see...
Profile Settings	Configuring Profile Settings, page 6-8
WLAN Settings	
Network Settings	
USB Settings	Configuring USB Settings, page 6-13
Trace Settings	Configuring Trace Settings, page 6-13
Wavelink Settings	Configuring Wavelink Settings, page 6-14

To update settings in the phone configuration file, follow these steps:

Procedure

Step 1	Right click **7921CU** (in a folder under Software Collections) to launch the configuration utility.
Step 2	From the left pane, choose the settings you wish to configure: **Profile Settings**, **USB Settings**, **Trace Settings**, or **Wavelink Settings**.
Step 3	From the settings page, select or enter information for those settings.
Step 4	Click **Apply**.

Configuring Profile Settings

Table 6-3 lists the profile settings.

> **Note** See also Network Profile Settings, page 4-11, in the Using the Cisco Unified Wireless IP Phone 7921G Web Pages chapter.

Table 6-3   Profile Settings

Item	Description	For More Information, See...
Profile Name	Provides a name for the profile to make it easy to identify; up to 63 alphanumeric characters.	
Profile Enabled	Choose **Yes** or **No**.	
WLAN Settings		
SSID	Assigns the Service Set Identifier (SSID) to this profile. You must assign the same SSID to the phone that is also assigned to access points in the wireless network.	Connecting to the Wireless Network, page 2-4

Table 6-3   Profile Settings (continued)

Item	Description	For More Information, See...
WLAN Mode	Determines the signal mode or priority for selecting signal modes available in the WLAN. Options are: • 802.11 b/g—Use only 2.4 GHz band • 802.11a—Use only 5 GHz band • Auto, 802.11b/g preferred over 802.11a (dual band) • Auto, 802.11a preferred over 802.11b/g (dual band) **Note** The preferred band, if available, will be used at power-on, but the phone may switch to the less preferred 2.4 GHz band, if available, and the preferred band is lost. Once the phone has connected to the less preferred band, it will not scan for the preferred band if the current band is acceptable, and may remain connected to the less preferred band. • Auto, signal strength (RSSI)—Use strongest signal in dual band environment	The 802.11 Standards for Wireless LAN Communications, page 2-3
Single Access Point	Determines scanning frequency: True—Minimizes the scanning for APs False—Frequent scanning of all access points within range for best match	Roaming in a Wireless Network, page 2-14
Call Power Save Mode	Set for the type of power saving mode used in the WLAN. Options are: • U-APSD/PS-Poll • None	The 802.11 Standards for Wireless LAN Communications, page 2-3

Table 6-3   Profile Settings (continued)

Item	Description	For More Information, See...
WLAN Security		
Authentication Mode	Sets the authentication and encryption methods for this profile: • Open—Open access to APs • Open+WEP—Open access with WEP encryption (requires an encryption key) • Shared+WEP—Shared key authentication with WEP (requires an encryption key) • LEAP—Cisco proprietary authentication and encryption using a RADIUS server (requires a username and password) • EAP-FAST—Authentication and encryption using TLS and RADIUS server (requires a username and password)	

Authentication Mode (continued)	• Auto (AKM)—Automatic authenticated key management using:
	
	  – WPA, WPA2 (requires a username and password)
	
	  – WPA-Pre-shared key, WPA2-Pre-shared key (requires a passphrase/pre-shared key)
	
	  – CCKM (requires a username and password)
	
	• EAP-TLS—Uses a dynamic session-based WEP key derived from the client adapter and RADIUS server to encrypt data. Uses a client certificate for authentication.
	
	• PEAP—This method uses name and password authentication based on Microsoft MSCHAP V2 authentication.	

Wireless Security Credentials	Required for LEAP, EAP-FAST, and Auto (AKM) authentication methods	

Table 6-3   Profile Settings (continued)

Item	Description	For More Information, See...
Username	Assigns the network authentication username for this profile	
Password	Assigns the network authentication password for this profile	
WPA Pre-shared Key Credentials	Sets the Pre-shared key for this profile	
Pre-shared Key Type	Determines the key type: **Hex** or **ASCII**	
Pre-shared Key	Identifies the key	
Wireless Encryption	Required for Open+WEP and Shared+WEP authentication methods	
WEP Keys Type	Determines the encryption key type: **Hex** or **ASCII**	
WEP Keys TxKey	Identifies the Transmit Key.	
WEP Key Length 1-4	Determines the WEP key length with key size of 40 or 128 bits.	
WEP Key Value 1-4	Defines the WEP key value: • 40 bits—5 ASCII or 10 Hex characters • 128 bits—13 ASCII or 26 Hex characters	
Network Settings		
DHCP Enabled	• Yes—Enables DHCP to obtain IP address and DNS servers automatically. • No—DHCP is disabled and you will need to enter the following fields: – IP Address – Subnet Mask – Default Router – Primary DNS – Secondary DNS – Domain Name	

Table 6-3   *Profile Settings (continued)*

Item	Description	For More Information, See...
TFTP		
Alternate TFTP	Determines whether DHCP assigns the TFTP server. If yes, enter static IP addresses for: • TFTP Server 1 • TFTP Server 2	
Advanced WLAN Settings		
TSPEC Settings		
Minimum PHY Rate	Minimum data rate that outbound traffic uses	
Surplus Bandwidth	Excess bandwidth beyond application requirements	
Antenna Settings		
Antenna Selection for 802.11A	• Vertical • Horizontal • Diversity	
Antenna Selection for 802.11B	• Vertical • Horizontal • Diversity	
802.11G Power Settings	Enabled—Identifies enabled channels in WLAN to improve scanning for the phone Max Tx Power—Sets the maximum transmit power for the phone	
802.11A Power Settings	Enabled—Identifies enabled channels in WLAN to improve scanning for the phone Max Tx Power—Sets the maximum transmit power for the phone	

> **Note**   If you uncheck all channels in the 802.11 G Power Settings or 802.11 A Power Settings, the phone will not be able to access the WLAN.

Configuring USB Settings

You can change the IP address of the USB port on your phone by choosing one of the following options in the DHCP Enabled field:

- Yes—Obtains an IP address automatically.

- No—You can specify the IP address and subnet mask on this page.

> **Note**   See also Configuring USB Settings, page 4-37.

Configuring Trace Settings

You can configure trace settings to determine how the phone creates and saves trace files. Table 6-4 describes the trace settings.

Table 6-4   Trace Settings

Item	Description
Number of Files	Choose the number of trace files that the phone saves, from 2-10 files.
Enable Remote Syslog	Set up a remote server to store trace logs. If enabled, enter remote address and remote port.
Remote IP Address	Enter remote IP address if Enable Remote Syslog is enabled.
Remote Port	Enter a port number if Enable Remote Syslog is enabled. Valid values are: 514 and 1024 to 65535.
Kernel Level	Operating System data.
Configuration Level	Phone configuration data.
Call Control Level	Cisco Unified Communications Manager data.
Network Services Level	DHCP, TFTP, CDP data.

Table 6-4   Trace Settings (continued)

Item	Description
Security Level	Application level security data.
User Interface Level	Key strokes, softkeys, MMI data.
Wireless Level	Channel scanning, authentication data.
Audio Level	RTP, SRTP, RTCP, DSP data.
System Level	Firmware, upgrade data.

Note   See also Configuring Trace Settings, page 4-38, in the Configuring the Phone Using the Wavelink Avalanche Server chapter.

Configuring Wavelink Settings

You can configure Wavelink settings from the phone configuration utility. Table 6-5 describes the Wavelink settings.

Table 6-5   Wavelink Settings

Setting	Description
Enable	Enables the Wavelink server.
Use Alternate Server	Enables the use of alternate Wavelink server.
Alternate Server	If the User Alternate Server is enabled, enter an IP address for the alternate server.
Custom Name 1-4	Assign up to four attribute names to the phone to be used as selection criteria.
Custom Value 1-4	Define the values for each Custom Name to be used as selection criteria.

Updating the Phone

When you have completed the phone configuration changes, you must export the configuration file from the phone configuration utility to Wavelink, and then update the phone.

> **Note**   The 7921 Configuration Utility does not perform a complete validation of the phone configuration. If the configuration file contains an invalid setting, the phone might reject the configuration and send an error message to the syslog.

To update the phone with the updated configuration file, follow these steps:

Procedure

Step 1   From the phone configuration utility, select the configuration file, then choose **Export to Wavelink**.

Step 2   At the Success window, click **OK**. A message indicating the file transfer is complete appears at the bottom of the window.

Step 3   To update a mobile device group, select it from the left pane, and choose **Update Now (Disallow User Override)**.

To update a single device, expand a mobile device group or software collection from the left pane, right-click on the device listed in the right pane, and do one of the following:

- Choose **Update Now**.
- Choose **Client Settings**. In the Avalanche Client Controls window, enable the Force package sync during Update Now checkbox, and click **Update Now**.