



## Configuring Mobile Concierge

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### Information About 802.11u

Mobile Concierge is a solution that enables 802.1X capable clients to interwork with external networks. The Mobile Concierge feature provides service availability information to clients and can help them to connect available networks.

The services offered by the network can be classified into two protocols:

- 802.11u MSAP
- 802.11u Hotspot 2.0

### Guidelines and Limitations

- Mobile Concierge is not supported on FlexConnect access points.
- 802.11u configuration upload is not supported. If you perform a configuration upgrade and upload a configuration on the controller, the Hotspot configuration on the WLANs will be lost.

### Configuring 802.11u

This section contains the following topics:

- [Configuring 802.11u \(GUI\)](#), page 17-2
- [Configuring 802.11u \(CLI\)](#), page 17-3
- [Configuring Venue Details on Access Points \(GUI\)](#), page 17-6
- [Configuring Venue Details on Access Points \(CLI\)](#), page 17-7

## Configuring 802.11u (GUI)

- Step 1** Choose **WLAN** to open the WLANs page.
- Step 2** Hover your mouse over the blue drop-down arrow for the desired WLAN on which you want to configure the 802.11u parameters and choose **802.11u**. The 802.11u page appears.

**Figure 17-1** 802.11u Configuration Parameter

The screenshot shows the Cisco Wireless LAN Controller GUI for configuring 802.11u parameters. The page is titled "802.11u Parameters" and includes a "WLAN SSID" field set to "uqm-62". The "802.11u General Parameters" section includes:
 

- 802.11u Status:  Enabled
- Internet Access:  Enabled
- Network Type: Private Network (dropdown)
- Network Auth Type: Not Configured (dropdown)
- HESSID: 00:00:00:00:00:00

 The "OUI List" section contains a table with one entry:
 

OUI Index	OUI Name	Is Beacon
1	004:056	Yes

 The "Domain List" section contains a table with one entry:
 

Domain Index	Domain Name
1	cisco.com

 The "Realm List" section contains a table with one entry:
 

Realm Index	Realm Name
1	

 The "Cellular Network Information List" section contains a table with one entry:
 

Cellular Index	Country Code	Network Code
1		

- Step 3** Select the **802.11u Status** check box to enable 802.11u on the WLAN.
- Step 4** Select the **Internet Access** check box to enable this WLAN to provide Internet services.
- Step 5** From the Network Type drop-down list, choose the network type that best describes the 802.11u you want to configure on this WLAN:
- Private Network
  - Private Network with Guest Access
  - Chargeable Public Network
  - Free Public Network
  - Emergency Services Only Network
  - Personal Device Network
  - Test or Experimental
  - Wildcard
- Step 6** Choose the authentication type that you want to configure for the 802.11u parameters on this network.
- Not configured
  - Acceptance of Terms and Conditions
  - Online Enrollment
  - HTTP/HTTPS Redirection
- Step 7** In the HESSID field, enter the HESSID (Homogenous Extended Service Set Identifier) value. The HESSID is a 6-octet MAC address that identifies the homogeneous ESS.
- Step 8** In the OUI List section, enter the following details:

- **OUI name**
- **Is Beacon**
- **OUI Index**

Click **Add** to add the OUI (Organizationally Unique Identifier) entry to this WLAN. To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

**Step 9** In the **Domain List** section, enter the following details:

- **Domain Name**—Domain name operating in the 802.11 access network.
- **Domain Index**—Domain index from the drop-down list.

Click **Add** to add the domain entry to this WLAN. To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

**Step 10** In the Realm List section, enter the Realms on this network:

- **Realm Name**—The realm name.
- **Realm Index**—The realm index.

Click **Add** to add the realm name and index to this WLAN. To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

**Step 11** In the Cellular Network Information list, enter the following:

- **Country Code**
- **Cellular Index**
- **Network Code**

Click **Add** to add the country network information to this WLAN. To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

**Step 12** Click **Apply**.

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## Configuring 802.11u (CLI)

- **config wlan mobile-concierge dot11u {enable | disable}**—Enables or disables the mobile concierge feature.
- **config wlan mobile-concierge dot11u 3gpp-info {add | delete}**—Adds or deletes a 3GPP cellular network information.
- **config wlan mobile-concierge dot11u domain {add | delete | modify}**—Configures the domain for the entity operating in the 802.11u network.
- **config wlan mobile-concierge dot11u hessid hessid wlan-id**—Assigns a HESSID to a WLAN ID. The HESSID must be a valid MAC address.
- **config wlan mobile-concierge dot11u ip-addr-type add ipv4type-id ipv6type-id wlanid**—Configures the IP address availability type for the IPv4 and IPv6 IP addresses on the WLAN.

*ipv4type-id* can have one of the following values:

- 0—IPv4 address not available.
- 1—Public IPv4 address available.
- 2—Port-restricted IPv4 address available.

- 3—Single NAT configured private IPv4 address available.
- 4—Double NAT configured private IPv4 address available.
- 5—Port-restricted IPv4 address and single NAT configured IPv4 address available.
- 6—Port-restricted IPv4 address and double NAT configured IPv4 address available.
- 7—Availability of the IPv4 address is not known.

*ipv6type-id* can have one of the following values:

- 0—IPv6 address is not available.
  - 1—IPv6 address available.
  - 2—Availability of the IPv6 address is not known.
- **config wlan mobile-concierge dot11u ip-addr-type delete *wlan-id***—Deletes the IP address type availability on a WLAN.
  - **config wlan mobile-concierge dot11u net-auth-type *network-auth-type***—Configures the network authentication type.

*network-auth-type* can have one of the following values:

- 0—Acceptance of terms and conditions
  - 1—Online enrollment
  - 2—HTTP/HTTPS redirection
- **config wlan mobile-concierge dot11u oui {add | modify} *wlan-id oui-index oui is-beacon***—Configures the Organizationally Unique Identifier (OUI) for a WLAN. The values are as follows:
    - *wlanid*—The WLAN ID.
    - *oui-index*—The OUI index. The OUI index can contain a value between 1 and 32.
    - *oui*—The OUI identifier of vendor. The OUI must be a valid 6-digit number.
    - *is-beacon*—Beacon information. This field can have a value of 0 (disable) or 1 (enable).
  - **config wlan mobile-concierge dot11u oui delete *wlan-id oui-index***—Deletes the OUI from the WLAN.
  - **config wlan mobile-concierge dot11u params *wlan-id network-type internet-bit***—Configures the 802.11u parameters on a WLAN. *wlan-id* is the WLAN ID and the *network-type* field can have one of the following values:
    - 0—Private Network
    - 1—Private Network with Guest Access
    - 2—Chargeable Public Network
    - 3—Free Public Network
    - 4—Personal Device Network
    - 5—Emergency Services Only Network
    - 14—Test or Experimental
    - 15—Wildcard

*internet-bit* field specifies the availability of the Internet. This field can have one of the following values:

- 0—Non-availability of internet.

- 1—Internet Available.
- **config wlan mobile-concierge dot11u realm {add | modify} auth-method *wlan-id realm-index eap-index auth-index auth-method auth-parameter***—Adds or modifies an auth-method realm in a WLAN.
  - *wlan-id*—The WLAN ID of the WLAN on which you want to configure this realm.
  - *realm-index*—The realm index. The range is from 1 to 32.
  - *eap-index*—The EAP index. The range is from 1 to 4.
  - *auth-index*—The authentication index value. The range is from 1 to 10.
  - *auth-method*—The authentication method to be used. The range is 1 to 4. See [Table 17-1](#).
  - *auth-parameter*—This value depends on the auth-method used.
- **config wlan mobile-concierge dot11u realm {add | modify} eap-method *wlan-id realm-index eap-index eap-method***—Adds an EAP method for a realm in a WLAN.
  - *wlan-id*—The WLAN ID of the WLAN on which you want to configure this realm.
  - *realm-index*—The realm-index. The range is 1 to 32.
  - *eap-index*—The EAP index. The range is 1 to 4.
  - *eap-method*—The EAP method. The range is 0 to 7. See [Table 17-2](#).
- **config wlan mobile-concierge dot11u realm {add | modify} realm-name *wlan-id realm-index realm***—Adds or modifies the realm parameters for 802.11u on a WLAN.

**Table 17-1 Authentication Method Mappings**

Auth Method	Value
Non-EAP Inner Method	1
Inner Auth Method	2
Credential Type	3
Tunneled EAP Method Cred Type	4

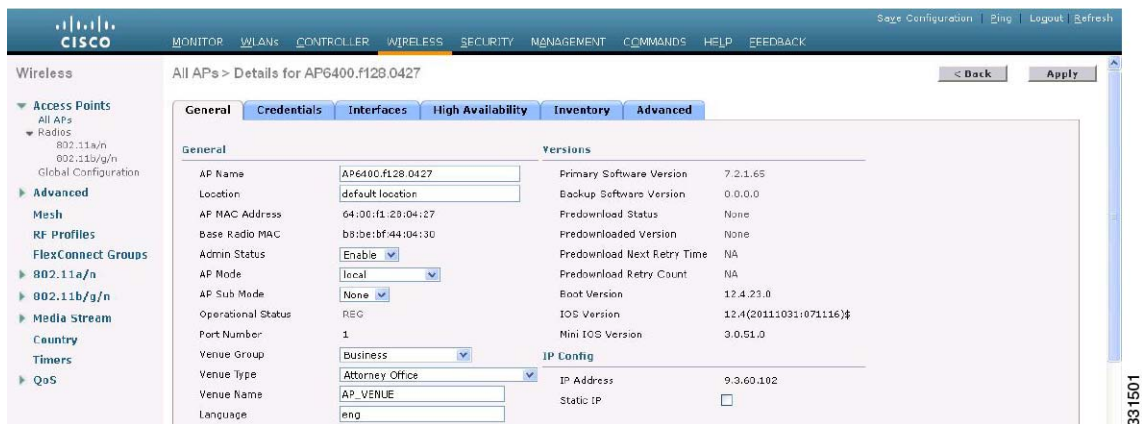
**Table 17-2 EAP Method Mappings**

EAP Method	Value
Not Applicable.	0
LEAP	1
PEAP	2
EAP-TLS	3
EAP-FAST	4
EAP-SIM	5
EAP-TTLS	6
EAP-AKA	7

# Configuring Venue Details on Access Points (GUI)

- Step 1** Click **Wireless > All APs** to open the **All APs** page.
- Step 2** Click the **AP Name** link to configure the Hotspot parameters on the desired access point. The **AP Details** page appears.

**Figure 17-2 AP Configuration Parameters for Hotspot**



- Step 3** Under the **General** Tab, configure the following parameters:
  - **Venue Group**—The venue category that this access point belongs to. The following options are available:
    - Unspecified
    - Assembly
    - Business
    - Educational
    - Factory and Industrial
    - Institutional
    - Mercantile
    - Residential
    - Storage
    - Utility and Misc
    - Vehicular
    - Outdoor
  - **Venue Type**—Depending on the venue category selected above, the venue type drop-down list displays options for the venue type.
  - **Venue Name**—Venue name that you can provide to the access point. This name is associated with the BSS. This name is used in cases where the SSID does not provide enough information about the venue.

- **Language**—Language used. An ISO-14962-1997 encoded string defining the language. This is a three character language code. Enter the first three letters of the language in English (For example: eng for English).

**Step 4** Click **Apply**.

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## Configuring Venue Details on Access Points (CLI)

- **config ap venue add** *venue-name venue-group venue-type lang-code ap-name*—Adds the venue details to the access point indicating support for Hotspot2. The values are as follows:  
where:
  - *venue-name*—The name of the venue where this access point is located.
  - *venue-group*—The category of the venue. See [Table 17-3](#).
  - *venue-type*—The type of the venue. Depending on the venue-group chosen, choose the venue type. See [Table 17-3](#).
  - *lang-code*—The language used. An ISO-14962-1997 encoded string defining the language. This is a three character language code. Enter the first three letters of the language in English (for example, eng for English)
  - *ap-name*—The access point name.



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**Tip** Press the **tab** key after entering a keyword or argument to get a list of valid values for the command.

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- **config ap venue delete** *ap-name*—Deletes the venue related information from the access point.

**Table 17-3** Venue Group Mapping

Venue Group Name	Value	Venue Type for Group
UNSPECIFIED	0	
ASSEMBLY	1	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED ASSEMBLY</li> <li>• 1—ARENA</li> <li>• 2—STADIUM</li> <li>• 3—PASSENGER TERMINAL (E.G., AIRPORT, BUS, FERRY, TRAIN STATION)</li> <li>• 4—AMPHITHEATER</li> <li>• 5—AMUSEMENT PARK</li> <li>• 6—PLACE OF WORSHIP</li> <li>• 7—CONVENTION CENTER</li> <li>• 8—LIBRARY</li> <li>• 9—MUSEUM</li> <li>• 10—RESTAURANT</li> <li>• 11—THEATER</li> <li>• 12—BAR</li> <li>• 13—COFFEE SHOP</li> <li>• 14—ZOO OR AQUARIUM</li> <li>• 15—EMERGENCY COORDINATION CENTER</li> </ul>
BUSINESS	2	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED BUSINESS</li> <li>• 1—DOCTOR OR DENTIST OFFICE</li> <li>• 2—BANK</li> <li>• 3—FIRE STATION</li> <li>• 4—POLICE STATION</li> <li>• 6—POST OFFICE</li> <li>• 7—PROFESSIONAL OFFICE</li> <li>• 8—RESEARCH AND DEVELOPMENT FACILITY</li> <li>• 9—ATTORNEY OFFICE</li> </ul>



**Table 17-3** Venue Group Mapping (continued)

Venue Group Name	Value	Venue Type for Group
EDUCATIONAL	3	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED EDUCATIONAL</li> <li>• 1—SCHOOL, PRIMARY</li> <li>• 2—SCHOOL, SECONDARY</li> <li>• 3—UNIVERSITY OR COLLEGE</li> </ul>
FACTORY-INDUSTRIAL	4	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED FACTORY AND INDUSTRIAL</li> <li>• 1—FACTORY</li> </ul>
INSTITUTIONAL	5	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED INSTITUTIONAL</li> <li>• 1—HOSPITAL</li> <li>• 2—LONG-TERM CARE FACILITY (E.G., NURSING HOME, HOSPICE, ETC.)</li> <li>• 3—ALCOHOL AND DRUG RE-HABILITATION CENTER</li> <li>• 4—GROUP HOME</li> <li>• 5—PRISON OR JAIL</li> </ul>
MERCANTILE	6	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED MERCANTILE</li> <li>• 1—RETAIL STORE</li> <li>• 2—GROCERY MARKET</li> <li>• 3—AUTOMOTIVE SERVICE STATION</li> <li>• 4—SHOPPING MALL</li> <li>• 5—GAS STATION</li> </ul>
RESIDENTIAL	7	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED RESIDENTIAL</li> <li>• 1—PRIVATE RESIDENCE</li> <li>• 2—HOTEL OR MOTEL</li> <li>• 3—DORMITORY</li> <li>• 4—BOARDING HOUSE</li> </ul>
STORAGE	8	UNSPECIFIED STORAGE

Table 17-3 Venue Group Mapping (continued)

Venue Group Name	Value	Venue Type for Group
UTILITY-MISC	9	0—UNSPECIFIED UTILITY AND MISCELLANEOUS
VEHICULAR	10	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED VEHICULAR</li> <li>• 1—AUTOMOBILE OR TRUCK</li> <li>• 2—AIRPLANE</li> <li>• 3—BUS</li> <li>• 4—FERRY</li> <li>• 5—SHIP OR BOAT</li> <li>• 6—TRAIN</li> <li>• 7—MOTOR BIKE</li> </ul>
OUTDOOR	11	<ul style="list-style-type: none"> <li>• 0—UNSPECIFIED OUTDOOR</li> <li>• 1—MUNI-MESH NETWORK</li> <li>• 2—CITY PARK</li> <li>• 3—REST AREA</li> <li>• 4—TRAFFIC CONTROL</li> <li>• 5—BUS STOP</li> <li>• 6—KIOSK</li> </ul>

## Information About Hotspot 2.0

This feature enables IEEE 802.11 devices to interwork with external networks. This feature is found in hotspots or other public networks irrespective of whether the service is subscription based or free.

The interworking service helps network discovery and selection, enabling information transfer from external networks. It provides information to the stations about the networks prior to association. Interworking will not only help users within home, enterprise, and public access, but also assist manufacturers and operators to provide common components and services for IEEE 802.11 customers. These services are configured on a per WLAN basis on the controller.

## Configuring Hotspot 2.0

This section contains the following topics:

- [Configuring Hotspot 2.0 \(GUI\), page 17-11](#)
- [Configuring Hotspot 2.0 \(CLI\), page 17-12](#)

## Configuring Hotspot 2.0 (GUI)

- Step 1** Choose **WLAN** to open the WLANs page.
- Step 2** Hover your mouse over the blue drop-down arrow for the desired WLAN on which you want to configure the Hotspot parameters and choose **Hotspot**. The **WLAN > Hot Spot** page appears.

**Figure 17-3** Hotspot Configuration Page

The screenshot shows the Cisco WLAN > HotSpot configuration page. The page has a navigation bar at the top with 'MONITOR', 'WLANs', 'CONTROLLER', 'WIRELESS', 'SECURITY', 'MANAGEMENT', 'COMMANDS', 'HELP', and 'FEEDBACK'. The 'WLANs' menu is expanded, showing 'WLANs', 'WLANs', and 'Advanced'. The main content area is titled 'WLAN > HotSpot' and has '< Back' and 'Apply' buttons. The 'HotSpot2 Enable' dropdown is set to 'Enable'. Below it is the 'Operator Name List' section with a table containing one entry: Operator Index 1, Operator Name 'ugm-name', and Language Code 'eng'. There is an 'Add' button next to the table. Below that is the 'Port Config List' section with a table containing one entry: IP Protocol 'ICMP', Port No 'ICMP', Status 'Closed', and Index '1'. There is an 'Add' button next to the table.

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- Step 3** From the **Hotspot2 Enable** drop-down list, choose the **Enable** option .
- Step 4** In the **Operator Name List** section, specify the following:
- Operator Name—Specify the name of the 802.11 operator.
  - Operator Index—Select an operator index. The range is from 1 to 32.
  - Language Code—An ISO-14962-1997 encoded string defining the language. This string is a three character language code.
- Click **Add** to add the operator details. The operator details are displayed in a tabular form. To remove an operator, hover your mouse pointer over the blue drop-down arrow and choose **Remove**.
- Step 5** In the Port Config List, specify the following:
- IP Protocol—The IP protocol that you want to enable. The following options are available:
    - ICMP
    - FTP/SSH/TLS/PPTP VPN/VoIP
    - IKEv2 (IPSec VPN/VoIP/ESP)
  - Port No—The Port number that is enabled on this WLAN. The following options are available:
    - ICMPr
    - FTP
    - SSH
    - TLS VPN
    - PPTP VPN
    - VoIP
    - IKEv2
    - ESP
  - Status—The status of the port. You can choose from the following options:

- Closed
- Open
- Unknown

- Index—The index value of the port configuration. The range is from 1 to 10.

Click **Add** to add the Port Config parameters. To remove a port configuration list, hover your mouse pointer over the blue drop-down arrow and choose **Remove**.

**Step 6** Click **Apply**.

## Configuring Hotspot 2.0 (CLI)

- **config wlan mobile-concierge hotspot2 {enable | disable} wlan-id**—Enables or disables Hotspot2 on a WLAN.
- **config wlan mobile-concierge hotspot2 operator-name {add | modify} wlan-id index operator-name lang-code**—Configures the operator name on a WLAN. The following options are available:
  - *wlan-id*—The WLAN ID on which you want to configure the operator name.
  - *index*—The operator index of the operator. The range is from 1 to 32.
  - *operator-name*—The name of the 802.11an operator.
  - *lang-code*—The language used. An ISO-14962-1997 encoded string defining the language. This is a three character language code. Enter the first three letters of the language in English (for example, eng for English).



**Tip** Press the **tab** key after entering a keyword or argument to get a list of valid values for the command.

- **config wlan mobile-concierge hotspot2 operator-name delete wlan-id index**—Deletes the operator-name with the specified index on the WLAN.
- **config wlan mobile-concierge hotspot2 port-config {add | modify} wlan-id index ip-protocol**—Configures the port configuration parameters. The *ip-protocol* argument can have one of the following values:
  - 1—ICMP
  - 6—FTP/SSH/TLS/PPTP-VPN/VoIP
  - 17—IKEv2 (IPSec-VPN/VoIP/ESP)
  - 50—ESP (IPSec-VPN)



**Tip** Press the **tab** key after entering a keyword or argument to get a list of valid values for the command.

- **config wlan mobile-concierge hotspot2 wan-metrics add wlan-id link-status symet-link downlink-speed uplink-speed**—Configures the WAN metrics for a WLAN configured with Hotspot2.

where

- *link-status*— The link status. The valid range is 1–3.
- *symet-link*—The symmetric link status. For example, you can configure the uplink and downlink to have different speeds or same speeds.
- *downlink-speed*—The downlink speed. The maximum value is 4,194,304 kbps.
- *uplink-speed*—The uplink speed. The maximum value is 4,194,304 kbps.

**Tip**

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Press the **tab** key after entering a keyword or argument to get a list of valid values for the command.

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- **config wlan mobile-concierge hotspot2 wan-metrics delete** *wlan-id*—Deletes the WAN metrics on the configured WLAN.

