Configuring Mobile Concierge

Mobile Concierge

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 associate available networks.

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

- 802.11u MSAP
- 802.11u HotSpot 2.0

Configuring Mobile Concierge (802.11u)

Configuring Mobile Concierge (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 select 802.11u. The 802.11u page appears.

Step 3 Select the **802.11u Status** check box to enable 802.11u on the WLAN.

Step 4 In the 802.11u General Parameters area, do the following:

a) Select the **Internet Access** check box to enable this WLAN to provide Internet services.

b) From the Network Type drop-down list, choose the network type that best describes the 802.11u you want to configure on this WLAN.

c) From the Network Auth Type drop-down list, choose the authentication type that you want to configure for the 802.11u parameters on this network.

d) In the HESSID box, enter the homogenous extended service set identifier (HESSID) value. The HESSID is a 6-octet MAC address that identifies the homogeneous ESS.

e) If the IP address is in the IPv4 format, then from the IPv4 Type drop-down list, choose the IPv4 address type.

f) From the IPv6 Type drop-down list, choose whether you want to make the IPv6 address type available or not.

Step 5 In the OUI List area, do the following:

a) In the OUI text box, enter the Organizationally Unique Identifier, which can be a hexadecimal number represented in 3 or 5 bytes (6 or 10 characters). For example, AABBDF.

b) Select the **Is Beacon** check box to enable the OUI beacon responses.

Note You can have a maximum of 3 OUIs with this field enabled.

c) From the OUI Index drop-down list, choose a value from 1 to 32. The default is 1.

d) Click **Add** to add the OUI entry to the WLAN.

To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

Step 6 In the Domain List area, do the following:

a) In the Domain Name box, enter the domain name that is operating in the WLAN.

b) From the Domain Index drop-down list, choose an index for the domain name from 1 to 32. The default is 1.

c) Click **Add** to add the domain entry to the WLAN.

To remove this entry, hover your mouse pointer over the blue drop-down image and choose **Remove**.

Step 7 In the Realm List area, do the following:

a) In the Realm text box, enter the realm name that you can assign to the WLAN.

b) From the Realm Index drop-down list, choose an index for the realm from 1 to 32. The default is 1.

c) 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 8 In the Cellular Network Information List area, do the following:

a) In the Country Code text box, enter the 3-character mobile country code.

b) From the CellularIndex drop-down list, choose a value between 1 and 32. The default is 1.

c) In the Network Code text box, enter the character network code. The network code can be 2 or 3 characters.

d) Click **Add** to add the cellular network information to the WLAN.

To remove this entry, hover your mouse pointer over the blue drop-down image and select **Remove**.

Step 9 Click **Apply**.

Configuring Mobile Concierge (802.11u) (CLI)

Procedure

- To enable or disable 802.11u on a WLAN, enter this command:

  config wlan hotspot dot11u {**enable** | **disable**} *wlan-id*

- To add or delete information about a third generation partnership project's cellular network, enter this command:

  config wlan hotspot dot11u 3gpp-info {**add** *index mobile-country-code network-code wlan-id* | **delete** *index wlan-id*}

- To configure the domain name for the entity operating in the 802.11u network, enter this command:

  config wlan hotspot dot11u domain {{{**add** | **modify**} *wlan-id domain-index domain-name*} | {**delete** *wlan-id domain-index*}}

- To configure a homogenous extended service set identifier (HESSID) value for a WLAN, enter this command:

  config wlan hotspot dot11u hessid *hessid wlan-id*

  The HESSID is a 6-octet MAC address that identifies the homogeneous ESS.

- To configure the IP address availability type for the IPv4 and IPv6 IP addresses on the WLAN, enter this command:

  config wlan hotspot dot11u ipaddr-type *ipv4-type ipv6-type wlan-id*

- To configure the network authentication type, enter this command:

  config wlan hotspot dot11u auth-type *network-auth wlan-id*

- To configure the Roaming Consortium OI list, enter this command:

  config wlan hotspot dot11u roam-oi {{{**add** | **modify**} *wlan-id oi-index oi is-beacon*} | {**delete** *wlan-id oi-index*}}

- To configure the 802.11u network type and internet access, enter this command:

  config wlan hotspot dot11u network-type *wlan-id network-type internet-access*

- To configure the realm for the WLAN, enter this command:

  config wlan hotspot dot11u nai-realm {{{**add** | **modify**} *realm-name wlan-id realm-index realm-name* | {**delete** *realm-name wlan-id realm-index*}}

- To configure the authentication method for the realm, enter this command:

  config wlan hotspot dot11u nai-realm {**add** | **modify**} **auth-method** *wlan-id realm-index eap-index auth-index auth-method auth-parameter*

- To delete the authentication method for the realm, enter this command:

  config wlan hotspot dot11u nai-realm delete auth-method *wlan-id realm-index eap-index auth-index*

- To configure the extensible authentication protocol (EAP) method for the realm, enter this command:

  config wlan hotpspot dot11u nai-realm {**add** | **modify**} **eap-method** *wlan-id realm-index eap-index eap-method*

- To delete the EAP method for the realm, enter this command:

  config wlan hotspot dot11u nai-realm delete eap-method *wlan-id realm-index eap-index*

Configuring 802.11u Mobility Services Advertisement Protocol

802.11u MSAP

MSAP (Mobility Services Advertisement Protocol) is designed to be used primarily by mobile devices that are configured with a set of policies for establishing network services. These services are available for devices that offer higher-layer services, or network services that are enabled through service providers.

Service advertisements use MSAP to provide services to mobile devices prior to association to a Wi-Fi access network. This information is conveyed in a service advertisement. A single-mode or dual-mode mobile device queries the network for service advertisements before association. The device's network discovery and the selection function may use the service advertisements in its decision to join the network.

This section contains the following subsections:

Configuring 802.11u MSAP (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 MSAP parameters and select **Service Advertisements**. The Service Advertisement page appears.

Step 3 Enable the service advertisements.

Step 4 Enter the server index for this WLAN. The server index field uniquely identifies an MSAP server instance serving a venue that is reachable through the BSSID.

Step 5 Click **Apply**.

Configuring MSAP (CLI)

Procedure

- To enable or disable MSAP on a WLAN, enter this command:

  config wlan hotspot msap {**enable** | **disable**} *wlan-id*

- To assign a server ID, enter this command:

  config wlan hotspot msap server-id *server-id wlan-id*

Configuring 802.11u HotSpot

Information About 802.11u HotSpot

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

The interworking service aids network discovery and selection, enabling information transfer from external networks. It provides information to the stations about the networks prior to association. Interworking not only helps users within the home, enterprise, and public access, but also assists 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.

Note The Downstream Group-Addressed Forwarding (DGAF) bit in the Hotspot 2.0 IE will not be updated automatically until you disable and enable the WLAN.

Configuring 802.11u HotSpot (GUI)

Step 1 Choose **WLAN** to open the **WLANs** window.

Step 2 Hover your mouse over the blue drop-down arrow that corresponds to the desired WLAN on which you want to configure the HotSpot parameters and choose **HotSpot**. The **WLAN > HotSpot 2.0** page is displayed.

Step 3 On the **WLAN > HotSpot 2.0** window, enable HotSpot2.

Step 4 To set the WAN link parameters, perform the following tasks:

a) From the **WAN Link Status** drop-down list, choose the status. The default is the Not Configured status.
b) From the **WAN Symmetric Link Status** drop-down list, choose the status as either **Different** or **Same**.
c) Enter the **WAN Downlink and Uplink** speeds. The maximum value is 4,294,967,295 kbps.

Step 5 In the **Operator Name List** area, perform the following tasks:

a) In the **Operator Name** text box, enter the name of the 802.11 operator.
b) From the **Operator index** drop-down list, choose an index value between 1 and 32 for the operator.
c) In the **Language Code** field, enter an ISO-14962-1997-encoded string defining the language. This string is a three-character language code.
d) 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 6 In the **Port Config List** area, perform the following tasks:

a) From the **IP Protocol** drop-down list, choose the IP protocol that you want to enable.
b) From the **Port No** drop-down list, choose the port number that is enabled on the WLAN.
c) From the **Status** drop-down list, choose the status of the port.
d) From the **Index** drop-down list, choose an index value for the port configuration.
e) Click **Add** to add the port configuration parameters.

To remove a port configuration list, hover your mouse over the blue drop-down arrow and choose **Remove**.

Step 7 Click **Apply**.

Configuring HotSpot 2.0 (CLI)

Note The character '?' is not supported in the value part of the commands.

Procedure

- To enable or disable HotSpot2 on a WLAN, enter this command:

  config wlan hotspot hs2 {**enable** | **disable**}

- To configure the operator name on a WLAN, enter this command:

  config wlan hotspot hs2 operator-name {**add** | **modify**} *wlan-id index operator-name lang-code*

  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 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 string 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.

- To delete the operator name, enter this command:

  config wlan hotspot hs2 operator-name delete *wlan-id index*

- To configure the port configuration parameters, enter this command:

  config wlan hotspot hs2 port-config {**add** | **modify**} *wlan-id index ip-protocol port-number*

- To delete a port configuration, enter this command:

  config wlan hotspot hs2 port-config delete *wlan-id index*

- To configure the WAN metrics, enter this command:

  config wlan hotspot hs2 wan-metrics *wlan-id link-status symet-link downlink-speed uplink-speed*

  The values are as follows:

  - *link-status*—The link status. The valid range is 1 to 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.

- To clear all HotSpot configurations, enter this command:

  config wlan hotspot clear-all *wlan-id*

- To configure the Access Network Query Protocol (ANQP) 4-way messaging, enter this command:

  config advanced hotspot anqp-4way {**enable** | **disable** | **threshold** *value*}

- To configure the ANQP comeback delay value in terms of TUs, enter this command:

  config advanced hotspot cmbk-delay *value*

- To configure the gratuitous ARP (GARP) forwarding to wireless networks, enter this command:

  config advanced hotspot garp {**enable** | **disable**}

- To limit the number of GAS request action frames to be sent to the controller by an AP in a given interval, enter this command:

  config advanced hotspot gas-limit {**enable** *num-of-GAS-required interval* | **disable**}

Configuring Access Points for HotSpot2 (GUI)

When HotSpot2 is configured, the access points that are part of the network must be configured to support HotSpot2.

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.

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 is used in cases where the SSID does not provide enough information about the venue.
- **Language**—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).

Step 4 Click **Apply**.

Configuring Access Points for HotSpot2 (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:

  - *venue-name*—Name of the venue where this access point is located.
  - *venue-group*—Category of the venue. See the following table.
  - *venue-type*—Type of the venue. Depending on the venue-group chosen, select the venue type. See the following table.
  - *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*—Access point name.

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

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

Table 1: Venue Group Mapping

Venue Group Name	Value	Venue Type for Group
UNSPECIFIED	0	

Venue Group Name	Value	Venue Type for Group
ASSEMBLY	1	• 0—UNSPECIFIED ASSEMBLY • 1—ARENA • 2—STADIUM • 3—PASSENGER TERMINAL (E.G., AIRPORT, BUS, FERRY, TRAIN STATION) • 4—AMPHITHEATER • 5—AMUSEMENT PARK • 6—PLACE OF WORSHIP • 7—CONVENTION CENTER • 8—LIBRARY • 9—MUSEUM • 10—RESTAURANT • 11—THEATER • 12—BAR • 13—COFFEE SHOP • 14—ZOO OR AQUARIUM • 15—EMERGENCY COORDINATION CENTER
BUSINESS	2	• 0—UNSPECIFIED BUSINESS • 1—DOCTOR OR DENTIST OFFICE • 2—BANK • 3—FIRE STATION • 4—POLICE STATION • 6—POST OFFICE • 7—PROFESSIONAL OFFICE • 8—RESEARCH AND DEVELOPMENT FACILITY • 9—ATTORNEY OFFICE
EDUCATIONAL	3	• 0—UNSPECIFIED EDUCATIONAL • 1—SCHOOL, PRIMARY • 2—SCHOOL, SECONDARY • 3—UNIVERSITY OR COLLEGE

Venue Group Name	Value	Venue Type for Group
FACTORY-INDUSTRIAL	4	• 0—UNSPECIFIED FACTORY AND INDUSTRIAL • 1—FACTORY
INSTITUTIONAL	5	• 0—UNSPECIFIED INSTITUTIONAL • 1—HOSPITAL • 2—LONG-TERM CARE FACILITY (E.G., NURSING HOME, HOSPICE, ETC.) • 3—ALCOHOL AND DRUG RE-HABILITATION CENTER • 4—GROUP HOME • 5—PRISON OR JAIL
MERCANTILE	6	• 0—UNSPECIFIED MERCANTILE • 1—RETAIL STORE • 2—GROCERY MARKET • 3—AUTOMOTIVE SERVICE STATION • 4—SHOPPING MALL • 5—GAS STATION
RESIDENTIAL	7	• 0—UNSPECIFIED RESIDENTIAL • 1—PRIVATE RESIDENCE • 2—HOTEL OR MOTEL • 3—DORMITORY • 4—BOARDING HOUSE
STORAGE	8	UNSPECIFIED STORAGE
UTILITY-MISC	9	0—UNSPECIFIED UTILITY AND MISCELLANEOUS

Venue Group Name	Value	Venue Type for Group
VEHICULAR	10	• 0—UNSPECIFIED VEHICULAR • 1—AUTOMOBILE OR TRUCK • 2—AIRPLANE • 3—BUS • 4—FERRY • 5—SHIP OR BOAT • 6—TRAIN • 7—MOTOR BIKE
OUTDOOR	11	• 0—UNSPECIFIED OUTDOOR • 1—MUNI-MESH NETWORK • 2—CITY PARK • 3—REST AREA • 4—TRAFFIC CONTROL • 5—BUS STOP • 6—KIOSK

Downloading the Icon File (CLI)

You can configure unique icons of the service providers to be displayed on the client devices. You can download these icon files to the Cisco WLC for the icon files to be sent through a gas message and displayed on the client devices. This feature enhances the user interface on the client devices wherein users can differentiate between service providers based on the icons displayed.

Step 1 Save the icon file on an TFTP, SFTP, or an FTP server.

Step 2 Download the icon file to the Cisco WLC by entering these commands:

a) **transfer download datatype icon**

b) **transfer download start**