



# Creating Wireless Networks

---

- [WLANs, page 1](#)
- [Creating Employee WLANs , page 2](#)
- [Creating Guest WLANs, page 4](#)
- [Internal Splash Page for Web Authentication, page 7](#)
- [Managing WLAN Users, page 8](#)
- [Adding MAC for Local MAC Filtering on WLANs, page 8](#)

## WLANs

Cisco Mobility Express solution supports a maximum of 16 WLANs. Each WLAN has a unique WLAN ID (1 through 16), a unique Profile Name, SSID, and can be assigned different security policies.

Access Points broadcast all active WLAN SSIDs and enforce the policies that you define for each WLAN.

You can configure WLANs with different service set identifiers (SSIDs) or with the same SSID. An SSID identifies the specific wireless network that you want the controller to access. Creating WLANs with the same SSID enables you to assign different Layer 2 security policies within the same wireless LAN. To distinguish among WLANs with the same SSID, you must create a unique profile name for each WLAN. WLANs with the same SSID must have unique Layer 2 security policies so that clients can make a WLAN selection based on information advertised in beacon and probe responses.

A number of WLAN Security options are supported on Cisco Mobility Express solution and are outlined below:

- 1 Open
- 2 WPA2 Personal
- 3 WPA2 Enterprise (External RADIUS, AP)

For Guest WLAN, a number of capabilities are supported:

- 1 CMX Guest Connect
- 2 WPA2 Personal
- 3 Captive Portal (AP)

## 4 Captive Portal (External Web Server)

## Creating Employee WLANs

### Creating Employee WLAN with WPA2 Personal

**Procedure**

---

- Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The **Add new WLAN** Window will pop up.
- Step 2** In the **Add new WLAN** window, on the General page, configure the following:
- Enter the **Profile Name**.
  - Enter the **SSID**.
- Step 3** Click on the **WLAN Security** and configure the following:
- Select **Security** as *WPA2 Personal*.
  - Enter the **Passphrase** and Confirm **PassPhrase**.
- Step 4** Click **Apply**.
- 

### Creating Employee WLAN using WPA2 Enterprise with External Radius Server

**Procedure**

---

- Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The **Add new WLAN** Window will pop up.
- Step 2** In the **Add new WLAN** window, on the General page configure the following:
- Enter the **Profile Name**.
  - Enter the **SSID**.
- Step 3** Click on the **WLAN Security** and configure the following:
- Select **Security Type** as **WPA2 Enterprise**.
  - Select **Authentication Server** as **External Radius**.
- Step 4** Add the Radius server and configure the following:
- Enter the Radius IP
  - Enter the Radius Port
  - Enter the Shared Secret
  - Click on **tick** icon

**Step 5** Click **Apply**.

---

## Creating Employee WLAN with WPA2 Enterprise and Authentication Server as AP

### Procedure

---

**Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The **Add new WLAN** Window will pop up.

**Step 2** In the **Add new WLAN** window, on the **General** page configure the following:

- a) Enter the **Profile Name**.
- b) Enter the **SSID**.

**Step 3** Click on the **WLAN Security** and configure the following:

- a) Select **Security** as **WPA2 Enterprise**.
- b) Select **Authentication Server** as **AP**.

**Note** AP is the Master AP running the controller function. In this use case, controller is the Authentication Server and therefore Local WLAN user account must exist to onboard the clients.

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

---

## Creating Employee WLAN with WPA2 Enterprise/External RADIUS and MAC Filtering

### Procedure

---

**Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN**. The **Add new WLAN** Window will pop up.

**Step 2** In the **Add new WLAN** window, on the **General** tab, configure the following:

- Enter the **Profile Name**
- Enter the **SSID**

**Step 3** Click on the **WLAN Security** tab and configure the following:

- Enable **MAC Filtering**
- Select **Security Type** as **WPA2 Enterprise**
- Select **Authentication Server** as **External RADIUS**
- Select **RADIUS Compatibility** from the drop-down list

- Select **MAC Delimiter** from the drop-down list

**Step 4** Add the Radius server and configure the following:

- Enter the **Radius IP**
- Enter the **Radius Port**
- Enter the **Shared Secret**
- Click on **tick** icon

**Step 5** Click **Apply**.

---

## Creating Guest WLANs

Mobility Express controller can provide guest user access on WLANs which are specifically designated for use by guest users. To set this WLAN exclusively for guest user access, enable the **Guest Network** under the **WLAN Security** tab.

## Creating Guest WLAN with Captive Portal on CMX Connect

### Procedure

---

**Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The Add new WLAN Window will pop up.

**Step 2** In the Add new WLAN window, on the **General** tab, configure the following:

- Enter the **Profile Name**
- Enter the **SSID**

**Step 3** Enable the **Guest Network** under the **WLAN Security** tab.

**Step 4** Select **Captive Portal** as **CMX Connect**.

**Step 5** Enter **Captive Portal URL**.

**Note** Captive Portal URL must have the following format: <https://yya7lc.cmxcisico.com/visitor/login> where **yya7lc** is your Account ID.

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

**Note** Additional steps are required on CMX Cloud to create the Captive Portal, Site with Access Points and associating Captive Portal to the Site.

---

## Creating Guest WLAN with Internal Splash Page

There is an internal splash page built into the Mobility Express controller which can be used to onboard the clients connecting to Guest WLANs. This internal splash page can also be customized by uploading a customized bundle. To upload a customized internal splash page, navigate to **Wireless Settings > Guest WLANs**. Select **Page Type** as **Customized** and click on the **Upload** button to upload a customized page bundle.

For internal splash page, Cisco Mobility Express supports multiple options for **Access Type**. They are as follows:

- 1 Local User Account
- 2 Web Consent
- 3 Email Address
- 4 RADIUS
- 5 WPA2 Personal

### Procedure

---

- Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The Add new WLAN Window will pop up.
  - Step 2** In the Add new WLAN window, on the **General** tab, configure the following:
    - Enter the Profile Name
    - Enter the SSID
  - Step 3** Enable the **Guest Network** under the **WLAN Security** tab.
  - Step 4** Select **Captive Portal** as **Internal Splash Page**.
  - Step 5** Select one of the following **Access Type** as needed:
    - 1 **Local User Account**–Splash Page will present the user to enter username and password which must be authenticated by the controller before network access is granted. Local WLAN users must be created on the controller to onboard the Guest clients.
    - 2 **Web Consent**–Splash Page will present the user to acknowledge before network access is granted.
    - 3 **Email Address**–Splash Page will present the user to enter the email address before network access is granted.
    - 4 **RADIUS**–Splash Page will present the user to enter username and password which must be authenticated by the RADIUS server before network access is granted. Select **Access Type** as **RADIUS** and enter the RADIUS server configuration.
    - 5 **WPA2 Personal**–This is an example of L2 + L3 (Web Consent). Layer 2 PSK security authentication will happen first followed by Splash Page which will present the user to acknowledge before network access is granted. Select **Access Type** as **WPA2 Personal** and enter the **Passphrase**.
  - Step 6** Click **Apply**.
-

## Creating Guest WLAN with External Splash Page

An external splash page is one which resides on an external Web Server. Similar to the internal splash page, Cisco Mobility Express supports multiple options for **Access Type** with external splash page. They are as follows:

- 1 Local User Account
- 2 Web Consent
- 3 Email Address
- 4 RADIUS
- 5 WPA2 Personal

### Procedure

---

- Step 1** Navigate to **Wireless Settings > WLANs** and then click on **Add new WLAN** button. The Add new WLAN Window will pop up.
- Step 2** In the Add new WLAN window, on the **General** tab, configure the following:
- Enter the **Profile Name**
  - Enter the **SSID**
- Step 3** Enable the **Guest Network** under the **WLAN Security** tab.
- Step 4** Select **Captive Portal** as **External Splash Page**.
- Step 5** Select one of the following **Access Type** as needed:
- 1 **Local User Account**—Splash Page will present the user to enter username and password which must be authenticated by the controller before network access is granted. Local WLAN users must be created on the controller to onboard the Guest clients.
  - 2 **Web Consent**—Splash Page will present the user to acknowledge before network access is granted.
  - 3 **Email Address**—Splash Page will present the user to enter the email address before network access is granted.
  - 4 **RADIUS**—Splash Page will present the user to enter username and password which must be authenticated by the RADIUS server before network access is granted. Select **Access Type** as **RADIUS** and enter the RADIUS server configuration.
  - 5 **WPA2 Personal**—This is an example of L2 + L3 (Web Consent). Layer 2 PSK security authentication will happen first followed by Splash Page which will present the user to acknowledge before network access is granted. Select **Access Type** as **WPA2 Personal** and enter the **Passphrase**.
- Step 6** Click **Apply**.
-

# Internal Splash Page for Web Authentication

Cisco Mobility Express supports a default internal guest portal that comes built-in and also a customized page, which can be imported by the user.

## Using default internal guest portal

To use the default Guest Portal Page or import a customized Guest Portal page, follow the procedure below:

### Procedure

---

- Step 1** Navigate to **Wireless Settings > Guest WLANs**.
- Step 2** Configure the following on the Guest WLAN page:
- **Page Type**—Select as Internal (Default).
  - **Preview**—You can Preview the page by clicking on the **Preview** button.
  - **Display Cisco Logo**—To hide the Cisco logo that appears in the top right corner of the default page, you can choose No. This field is set to Yes by default.
  - **Redirect URL After Login**—To have the guest users redirected to a particular URL (such as the URL for your company) after login, enter the desired URL in this text box. You can enter up to 254 characters.
  - **Page Headline**—To create your own headline on the login page, enter the desired text in this text box. You can enter up to 127 characters. The default headline is Welcome to the Cisco Wireless Network.
  - **Page Message**—To create your own message on the login page, enter the desired text in this text box. You can enter up to 2047 characters. The default message is Cisco is pleased to provide the Wireless LAN infrastructure for your network. Please login and put your air space to work.
- Step 3** Click **Apply**.
- 

## Using customized internal guest portal

If a customized guest portal has to be presented to guest users, a sample page can be downloaded from cisco.com which can then be edited and imported to the Cisco Mobility Express controller. After the page has been edited and ready to be uploaded to the Cisco Mobility Express controller, follow the steps below.

### Procedure

---

- Step 1** Navigate to **Wireless Settings > Guest WLANs**.
- Step 2** Configure the following on the Guest WLAN page:
- **Page Type**—Select as **Customized**.

- **Customized page Bundle**—Click on the **Upload** button to upload the he customized page bundle to the Mobility Express controller.
- **Preview**—You can Preview the Guest portal by clicking on the **Preview** button.
- **Redirect URL After Login**—To have the guest users redirected to a particular URL (such as the URL for your company) after login, enter the desired URL in this text box. You can enter up to 254 characters.

**Step 3** Click **Apply**.

---

## Managing WLAN Users

Cisco Mobility Express supports creation of local user accounts. These users can be authenticated for WLANs configured to use Security as WPA2 Enterprise with Authentication Server set to AP or Guest WLANs configured to use internal or external splash page with **Access Type** as **Local User Account**.

To create local user accounts, follow the procedure below:

### Procedure

---

**Step 1** Navigate to **Wireless Settings > WLAN Users** and then click on **Add WLAN User** button.

**Step 2** Configure the following for the WLAN user:

- **User Name**—Enter the username
  - **Guest User**—For Guest user, enable the **Guest User** checkbox
  - **Lifetime**—For Guest User, define the user account validity. Default is 86400 seconds (or, 24 hours) from the time of its creation.
  - **WLAN Profile**—Select the WLAN to which the user will connect
  - **Password**—Enter the password for the user account
  - **Description**—Additional details or comments for the user account
  - Click on **tick** icon.
- 

## Adding MAC for Local MAC Filtering on WLANs

Cisco Mobility Express supports MAC Filtering on WLANs on controller as well as with external RADIUS. MAC addresses can be added to the controller and be either Whitelisted or Blacklisted. To add MAC addresses to the controller, follow the procedure below:



## Procedure

---

**Step 1** Navigate to **Wireless Settings > WLAN Users** and click on **Local MAC Addresses**.

**Step 2** Click **Add MAC Address**.

**Step 3** In the **Add MAC Address** window, configure the following:

- **MAC Address**—Enter the MAC Address of the device
- **Description**—Enter the description
- **Type**—Select whether this MAC has to be WhiteList or BlackList
- **Profile Name**—Select the WLAN to which the user will connect

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

---

