Configuring Cisco Mobility Express for Site Survey

Introduction

Cisco 802.11ac Wave 2 access points are capable of running Cisco Mobility Express which a virtual wireless controller function embedded on an Access Point.

Cisco Mobility Express access point running the wireless controller function will also provide wireless connectivity to the clients. It also supports internal DHCP server which enables Access Point to be used for Site Survey.

Pre-requisites

1. Access Points–Cisco 802.11ac Wave 2 access points running Cisco Mobility Express software. The following APs support Cisco Mobility Express:

Access Point	Release supporting Site Survey capability
1560 Series	AireOS Release 8.3.111.0 and later
1815I Series	AireOS Release 8.4 and later
1815W Series	AireOS Release 8.4 and later
1830 Series	AireOS Release 8.3.111.0 and later
1850 Series	AireOS Release 8.3.111.0 and later
2800 Series	AireOS Release 8.3.111.0 and later
3800 Series	AireOS Release 8.3.111.0 and later

2. Power Source–Depending on the Access Point being used for Site Survey, one can use a power adapter or a battery pack capable of providing sufficient power to the Access Point.
3. Console Cable(Optional)–Cisco Mobility Express can be configure using the CLI or Over-the-air. For configuring Cisco Mobility Express via CLI, a console connect to the Access Point would be required.

Configuring Mobility Express for Site Survey using CLI

Procedure

Step 1 Connect to the console of the Access Point.

Step 2 Power up the Access Point using a power adapter or battery pack.

Step 3 Wait for the Access Point to boot up completely such that it is running the Wireless Controller and is waiting to be configured.

Step 4 Configure the Wireless Controller using the CLI Setup Wizard:

Note For Site Survey, a DHCP server is required and is supported on Cisco Mobility Express. DHCP Server configuration highlighted below is mandatory if you want to enable DHCP server on Cisco Mobility Express.

```
Would you like to terminate autoinstall? [yes]:yes
Enter Administrative User Name (24 characters max):admin
Enter Administrative Password (3 to 24 characters max):Cisco123
Re-enter Administrative Password: Cisco123
System Name:[Cisco_3a:d2:b4] (31 characters max):me-wlc
Enter Country Code list(enter 'help' for a list of countries)[US]:US
Configure a NTP server now?[YES][no]:no
Configure the system time now?[YES][no]:yes
Enter the date in MM/DD/YY format:02/28/17
Enter the time in HH:MM:SS format:11:30:00
Enter timezone location index(enter 'help' for a list of timezones):5
Management Interface IP Address: 10.10.10.2
Management Interface Netmask: 255.255.255.0
Management Interface Default Router: 10.10.10.1
Create Management DHCP Scope?[yes][NO]:yes
DHCP Network: 10.10.10.0
DHCP Netmask: 255.255.255.0
Router IP: 10.10.10.1
Start DHCP IP address: 10.10.10.10
Stop DHCP IP address: 10.10.10.250
DomainName: mewlc.local
DNS Server:[OPENDNS][user DNS]OPENDNS
Create Employee Network?[YES][no]:yes
Employee Network Name(SSID)?:site_survey
Employee VLAN Identifier?[MGMT][1-4095]:MGMT
Employee Network Security?[PSK][enterprise]:PSK
Employee PSK Passphrase (8-38 characters)?: Cisco123
Re-enter Employee PSK Passphrase: Cisco123
Re-enter Employee PSK Passphrase: Cisco123
Create Guest Network? [yes][NO]:NO
Enable RF Parameter Optimization?[YES][no]:no
Configuration correct? If yes, system will save it and reset.[yes][NO]:yes
```

Step 5 Wait for the Access Point to boot up completely. After the Wireless controller has started, log back in to the controller using administrative username or password configured during the initial setup wizard.

Step 6 (Optional): During the CLI setup wizard, Employee Network Security was configured to PSK. This can be disabled for easy association of clients and also disable SSID broadcast to avoid unwanted clients from joining the SSID. To disable PSK and SSID broadcast, enter the following commands in the Controller CLI.

```
(Cisco Controller)>config wlan disable 1
(Cisco Controller)>config wlan security wpa disable 1
(Cisco Controller)>config wlan broadcast-ssid disable wlan 1
```

```
(Cisco Controller)>config wlan enable 1
(Cisco Controller)>save config
```

Step 7 To configure channel, TX power, and channel bandwidth for the radios, disable the radio first, make the changes and then re-enable it.

To change the 2.4GHz radio to channel 6, follow the steps below:

```
(Cisco Controller)>config 802.11b disable <ap name>
(Cisco Controller)>config 802.11b channel <ap name> <ap name> 6
(Cisco Controller)>config 802.11b enable <ap name>
```

To change the 2.4GHz radio Transmit Power to power level 3, follow the steps below:

```
(Cisco Controller)>config 802.11b disable <ap name>
(Cisco Controller)>config 802.11b txPower <ap name> <ap name> 3
(Cisco Controller)>config 802.11b enable <ap name>
```

To change the 5 GHz radio to channel 44, follow the steps below:

```
(Cisco Controller)>config 802.11a disable <ap name>
(Cisco Controller)>config 802.11a channel <ap name> <ap name> 44
(Cisco Controller)>config 802.11a enable <ap name>
```

To change the 5 GHz radio Transmit Power to level 5, follow the steps below:

```
(Cisco Controller)>config 802.11a disable <ap name>
(Cisco Controller)>config 802.11a txPower <ap name> <ap name> 5
(Cisco Controller)>config 802.11a enable <ap name>
```

To change the 5 GHz radio channel width to 40MHz, follow the steps below:

```
(Cisco Controller)>config 802.11a disable <ap name>
(Cisco Controller)>config 802.11a chan_width <ap name> 40
(Cisco Controller)>config 802.11a enable <ap name>
```

If 2800 and 3800 series access points are being used for Site Survey, please note the following with respect to the XOR radio.

a. Default operation state of XOR radio is 2.4GHz.

b. One can configure the XOR radio on internal (I) Access Points from 2.4GHz to 5 and vice versa. On an external (E) Access Point, one must have an external antenna plugged into the DART connector prior to changing any configuration on the XOR radio.

c. When the XOR (2.4 GHz) radio is configured to operate at 5GHz, 100MHz frequency separation is required from dedicated 5GHz radio.

d. When the XOR radio is configured to operate in 5GHz mode on an internal (I) Access Points, the Transmit power (tx) power will be fixed and cannot be modified.

To configure the XOR (2.4GHz) radio to operate at 5GHz on 2800 and 3800 Series Access Points, follow the steps below:

```
(Cisco Controller) >config 802.11-abgn disable ap
(Cisco Controller) >config 802.11-abgn role ap manual client-serving
(Cisco Controller) >config 802.11-abgn band ap ap 5GHz
(Cisco Controller) >config 802.11-abgn enable ap
```

To configure the XOR radio operating at 5 GHz to channel 40, follow the steps below:

```
(Cisco Controller) >config 802.11-abgn disable ap
(Cisco Controller) >config 802.11-abgn channel ap ap 40
(Cisco Controller) >config 802.11-abgn enable ap
```

To configure the XOR radio operating at 5 GHz channel width to 40MHz, follow the steps below:

```
(Cisco Controller) >config 802.11-abgn disable ap
(Cisco Controller) >config 802.11-abgn chan_width ap 40
(Cisco Controller) >config 802.11-abgn enable ap
```