Connecting Cisco WLAN Controller Network Modules

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This guide describes how to connect Cisco wireless LAN (WLAN) controller network modules to your network. It contains the following sections:

Cisco Wireless LAN Controller Modules

The Cisco wireless LAN (WLAN) controller module is designed to provide small and medium-sized businesses (SMBs) and enterprise branch office customers 802.11 wireless networking solutions.

Note The wireless LAN controller module is supported only in network module slots. It is *not* supported in EVM slots available in the Cisco 2821 and Cisco 2851 integrated services routers.

Cisco WLAN controller modules ship with and boot from an installed 256-MB CompactFlash (CF) memory card. The CompactFlash memory card contains the boot loader, Linux kernel, Cisco WLAN controller module and access points executable file, and Cisco WLAN controller module configuration.

Note The 256-MB CompactFlash memory card in the Cisco WLAN controller module is not field-replaceable.

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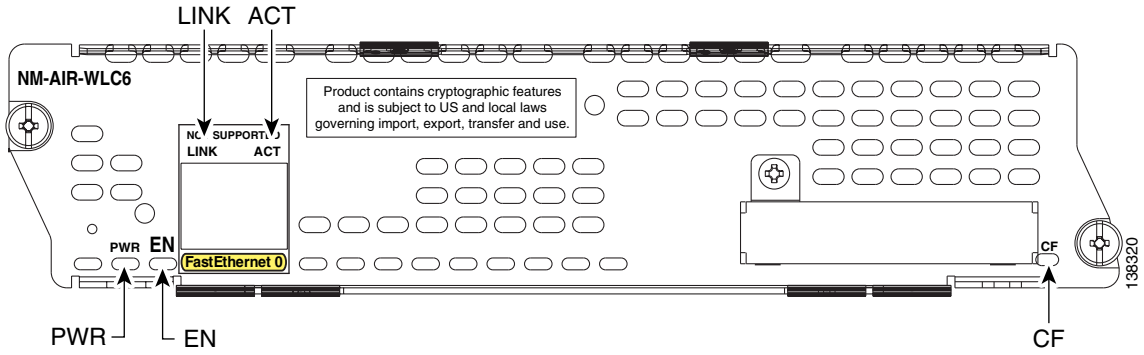
Figure 1 shows the faceplate of the Cisco WLAN controller module.

Figure 1 Cisco Wireless LAN Controller Module Faceplate



Note The external Fast Ethernet port on the faceplate of the Cisco WLAN controller module is not supported.

Cisco Wireless LAN Controller Module LEDs

Table 1 lists the Cisco wireless LAN controller module LEDs and their meanings.

Table 1 Cisco Wireless LAN Controller Module LED Meanings

LED	Meaning
CF	The CompactFlash memory card is active.
EN	The module has passed self-test and is available to the router.
PWR	Power is available to the controller module.

Connecting Cisco Wireless LAN Controller Modules to the Network

The Cisco wireless LAN controller module connects to the network through internal connections within the router and requires no additional cables for network connectivity.

Online Insertion and Removal with a Cisco Wireless LAN Controller Module

The Cisco integrated services routers (ISRs) allow you to replace network modules without switching off the router or affecting the operation of other interfaces. This feature is called online insertion and removal (OIR). OIR of network modules provides uninterrupted operation to network users, maintains routing information, and ensures session preservation.

Note OIR of the controller module is supported only on the Cisco 3745 router and the Cisco 3845 ISR.

Tip For information about module slot locations and numbering on Cisco routers, see *"Network Module Slot Locations and Numbering on Cisco Access Routers" section on page 1-3*.

For a description of informational and error messages that may appear on the console during this procedure, see the hardware installation guide for your type of router.

Saving the Configuration File

This configuration assumes a configuration file already exists on the Cisco WLAN controller module CompactFlash memory card. To save the configuration file, follow these steps with the router in privileged EXEC mode.

Step 1 Initiate a WLAN controller module console access session using the following command:

```
Router# service-module wlan-controller 1/0 session
Trying 192.0.2.254, 2066 ... Open
```

Step 2 Set the TFTP server IP address from the WLAN controller module console access session:

```
(WLAN-Controller) > transfer upload serverip 192.0.2.24
```

Step 3 Set the datatype configuration using the following command:

```
(WLAN-Controller) > transfer upload datatype configuration
```

Step 4 Set the running configuration file using the following command:

```
(WLAN-Controller) > transfer upload filename <config-running.bin>
```

Step 5 Start the TFTP transfer using the following command from the WLAN-Controller prompt:

```
(WLAN-Controller) > transfer upload start

Mode............................................. TFTP
TFTP Server IP................................... 192.0.2.24
TFTP Path........................................ /
TFTP Filename.................................... config.bin
Data Type........................................ Config File
Encryption....................................... Disabled

************************************************
***  WARNING: Config File Encryption Disabled  ***
************************************************

Are you sure you want to start? (y/n) y

Tftp Config transfer starting.

File transfer operation completed successfully.

(WLAN-Controller) >
```

Step 6 Exit the WLAN controller module console access session by pressing **Control-Shift-6**, followed by **x**.

Step 7 Disconnect the WLAN controller interface connection on the router by using the **disconnect** command and confirming the action by pressing **Enter**:

```
Router# disconnect
Closing connection to 192.0.2.254 [confirm]
Router#
```

Step 8 On the router, clear the WLAN controller access session using the following command:

```
Router# service-module wlan-controller 1/0 session clear

[confirm]
 [OK]
Router#
[Resuming connection 1 to 192.0.2.254 ... ]

[Connection to 192.0.2.254 closed by foreign host]
Router#
```

Step 9 Shut down the content engine interface:

```
Router (config)# interface wlan-controller 1/0
Router (config-if)# shutdown
Router (config-if)# exit
```

Replacing the Cisco WLAN Controller Module

Follow these steps to remove and replace the Cisco WLAN controller module.

Step 1 Loosen the two captive screws holding the WLAN controller module in the chassis slot.

Step 2 Slide the WLAN controller module out of the slot.

Step 3 Align the replacement WLAN controller module with the guides in the chassis slot, and slide it gently into the slot.

Step 4 Push the module into place until you feel its edge connector mate securely with the connector on the backplane.

Step 5 Check that the WLAN controller module LEDs are on and that the power and enable LEDs on the front panel also are on. This inspection ensures that connections are secure and that the new unit is operational.

Note Because the WLAN controller module needs to initialize itself, the EN (Enable) LED takes at least 10 seconds to come on after the PWR LED.

Configuring the Replacement WLAN Controller Module

Follow these steps to configure the replacement Cisco WLAN controller module.

Step 1 Reset the WLAN controller module:

```
Router# service-module wlan-controller 1/0 reset

Use reset only to recover from shutdown or failed state
Warning: May lose data on the hard disc!
Do you want to reset?[confirm]
Trying to reset Service Module wlan-controller1/0.
```

Step 2 Turn on the WLAN controller interface, if it is necessary for further configuration:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# interface wlan-controller 1/0
Router(config-if)# ip address 192.0.2.254 255.255.255.0
Router(config-if)# no shutdown
Router(config-if)# end
Router#
Router#
```

Step 3 Initiate a WLAN controller module console access session and access the bootloader prompt using the following command:

Note The following typical example assumes there is already a configuration image available on the WLAN controller module CompactFlash memory card. To configure a WLAN controller module without an available configuration image, see the *Cisco Wireless LAN Controller Configuration Guide* at the following URL:

http://www.cisco.com/en/US/products/ps6308/products_installation_and_configuration_guides_list.html

```
Router# service-module wlan-controller slot/unit session
Trying 192.0.2.254, 2066 ... Open

    Cisco Bootloader (Version 3.2.10.0)

Booting Primary Image...
Press <ESC> now for additional boot options...
Detecting hardware . . . .

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Cisco AireOS Version 3.2.10.0
Initializing OS Services: ok
Initializing Serial Services: ok
Initializing Network Services: ok
...
   Web Server: ok
   CLI: ok
   Secure Web: ok

(WLAN-Controller)

Enter User Name (or 'Recover-Config' to reset configuration to factory defaults)
```

Step 4 Enter the User ID and password at the WLAN controller prompt:

```
User: admin
Password: *****
(WLAN-Controller) >
```

Step 5 Set the TFTP server IP address from the WLAN controller module console access session:

```
(WLAN-Controller) > transfer download serverip 192.0.2.24
```

Step 6 Set the datatype configuration using the following command:

```
(WLAN-Controller) > transfer download datatype configuration
```

Step 7 Set the running configuration file using the following command:

```
(WLAN-Controller) > transfer download filename <config-running.bin>
```

Step 8 Start the TFTP transfer using the following command:

```
(WLAN-Controller) > transfer download start

Mode............................................. TFTP
TFTP Server IP................................... 192.0.2.24
TFTP Path........................................ /
TFTP Filename.................................... config-running.bin
Data Type........................................ Config File
Encryption....................................... Disabled

************************************************
***  WARNING: Config File Encryption Disabled  ***
************************************************

Are you sure you want to start? (y/n) y

Tftp Config transfer starting.

File transfer operation completed successfully.

(WLAN-Controller) >
```

Note After the successful file transfer, the WLAN controller module automatically reboots.

Related Documents

For additional information, see the following documents and resources.

Related Topic	Document Title
Cisco wireless LAN controller module software configuration	*Cisco WLAN Controller Network Module Feature Guide* http://www.cisco.com/en/US/docs/ios/12_4/12_4x/12_4xa/boxernm.html

Related Topic	Document Title
Regulatory compliance and safety information	*Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information* http://www.cisco.com/en/US/docs/routers/access/interfaces/rcsi/IOHrcsi.html
Cisco IOS software website and reference documentation	*Cisco IOS Software* http://www.cisco.com/web/psa/products/index.html?c=268438303

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html