CHAPTER 3

Wireless Local Area Network

A Wireless Local Area Network (WLAN) implements a flexible data communication system frequently augmenting rather than replacing a wired LAN within a building or campus. WLANs use radio frequency to transmit and receive data over the air, minimizing the need for wired connections.

The Cisco 819HGW and Cisco 819HWD ISRs have a Host router software running on the first core. The second core runs the WLAN Access Point software.

If WLAN is not supported in an SKU, all 1 GB DRAM memory is allocated to the first core. For the SKUs that support WLAN, 128 MB out of the 1 GB main memory is allocated to the second core.

If WLAN is not supported in an SKU, all 1 GB compact flash memory is allocated to the first core. For the SKUs that support WLAN, 64 MB out of the 1 GB main memory is allocated to the second core.

Note WLAN is only supported on Cisco 819HGW and Cisco 819HWD ISRs introduced in IOS release 15.2(4)M1.

WLAN Features

The Cisco 819HGW and Cisco 819HWD ISRs support the following features:

Dual-Radio

This release supports Cisco 802 Access Points (AP802). The AP802 is an integrated access point on the Next Generation of Cisco 819HGW Cisco 819HWD ISRs.

The access point is a wireless LAN transceiver that acts as the connection point between wireless and wired networks or as the center point of a standalone wireless network. In large installations, the roaming functionality provided by multiple access points enables wireless users to move freely throughout the facility while maintaining uninterrupted access to the network.

AP802 Dual Radio contains two different types of wireless radio that can support connections on both 2.4 GHz used by 802.11b, 802.11g, and 802.11n and 5 GHz used by 802.11a and 802.11n.

With the dual-radio/dual-band IEEE 802.11n access point, the Cisco 819HGW and Cisco 819HWD ISRs offer a secure, integrated access point in a single device. The ISRs support both autonomous and unified modes and are backward compatible with 802.11a/b/g.

The routers support IEEE 802.11n draft 2.0 and use multiple-input, multiple-output (MIMO) technology that provides increased throughput, reliability, and predictability.

For complete information on how to configure wireless device and radio settings, see *Basic Wireless Device Configuration* and *Configuring Radio Settings*.

Images Supported

For the images supported in the AP802 Dual radio, see *Minimum software version needed to support AP802*.

CleanAir Technology

The CleanAir is a new wireless technology that intelligently avoids Radio Frequency (RF) to protect 802.11n performance. For more information, see *Cisco CleanAir Technology.* This feature is supported in all SKUs.

Dynamic Frequency Selection

The Dynamic Frequency Selection (DFS) is the process of detecting radar signals that must be protected against 802.11a interference and upon detection switching the 802.11a operating frequency to one that is not interfering with the radar systems. Transmit Power Control (TPC) is used to adapt the transmission power based on regulatory requirements and range information.

Note The DFS functionality is disabled for FCC SKUs pending FCC certification. For more information, see *Dynamic Frequency Selection and IEEE 802.11h Transmit Power Control.*

LEDs

The WLAN LED is located at the front panel of the router. Table 3-1 describes the WLAN LED for the Cisco 819HGW and Cisco 819HWD ISRs.

Table 3-1 WLAN LED Descriptions

WLAN LED	Color	Description
Boot loader status sequence	Blinking Green	Board initialization in progress.
		Initializing FLASH file system.
		Initializing Ethernet.
		Ethernet is OK.
		Starting Cisco IOS.
		Initialization successful.
Association status	Green	Normal operating condition with no wireless client associated.
	Blue	Normal operating condition with at least one wireless client associated.
Operating status	Blinking Blue	Software upgrade in progress.
	Rapidly cycling through Blue, Green, Red, and White	Access point location command invoked.
	Blinking Red	Ethernet link not operational.
Boot loader errors	Blinking Red and Blue	FLASH file system failure.
	Blinking Red and Off	Environment variable failure.
		Bad MAC address.
		Ethernet failure during image recovery.
		Boot environment failure.
		No Cisco image file.
		Boot failure.
Cisco IOS errors	Red	Software failure. Try to disconnect and reconnect the unit power.

WLAN Configuration

For WLAN configuration, see Configuring WLAN chapter in the *Cisco 860 Series, Cisco 880 Series, and Cisco 890 Series Integrated Services Routers Software Configuration Guide.*