IR829 AP803 Access Point Module

This chapter provides background on the Internal WLAN Access Point which runs on-board the IR829 router. The AP803 runs its own IOS software independently from the IR829 IOS, and requires configuring. The AP803 works as a standalone access point or with a wireless controller.

Hardware Overview

Highlights of the Access Point are:

- Atheros QCA9550 SoC + AR9592 radio
- 256MB DDR2 RAM + 128MB NAND Flash + 1MB Boot flash and configuration/calibration storage
- Dual simultaneous 2.4GHz and 5Ghz 802.11 radios
  - Supports 2 x 2 802.11a/n MIMO and 2 x 2 802.11b/g/n MIMO
  - Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - 802.11 dynamic frequency selection (DFS)
  - Cyclic shift diversity (CSD) support
  - 20- and 40-MHz channels
  - 802.11 dynamic frequency selection (DFS) – is applicable to IR829 AP803 and is available in IOS release 8.1MR2

Software Overview

This Embedded AP supports a default Autonomous mode and a Unified mode. Both the Autonomous and Unified images are pre-loaded from Cisco on the access point's flash memory.

The image name describes what each image is for. **w7** is Autonomous Image, while **w8** is the Unified mode (LWAP) Image. For example:

- Autonomous image – ap1g3-k9**w7**-tar.153-3.JBB1.tar

- Unified mode (LWAP) image – ap1g3-k9**w8**-tar.153-3.JBB1.tar

- To select the Autonomous or Unified image use the IOS CLI:

```
IR829(config)#service-module wlan-ap 0 bootimage autonomous
IR829(config)#service-module wlan-ap 0 bootimage unified
```
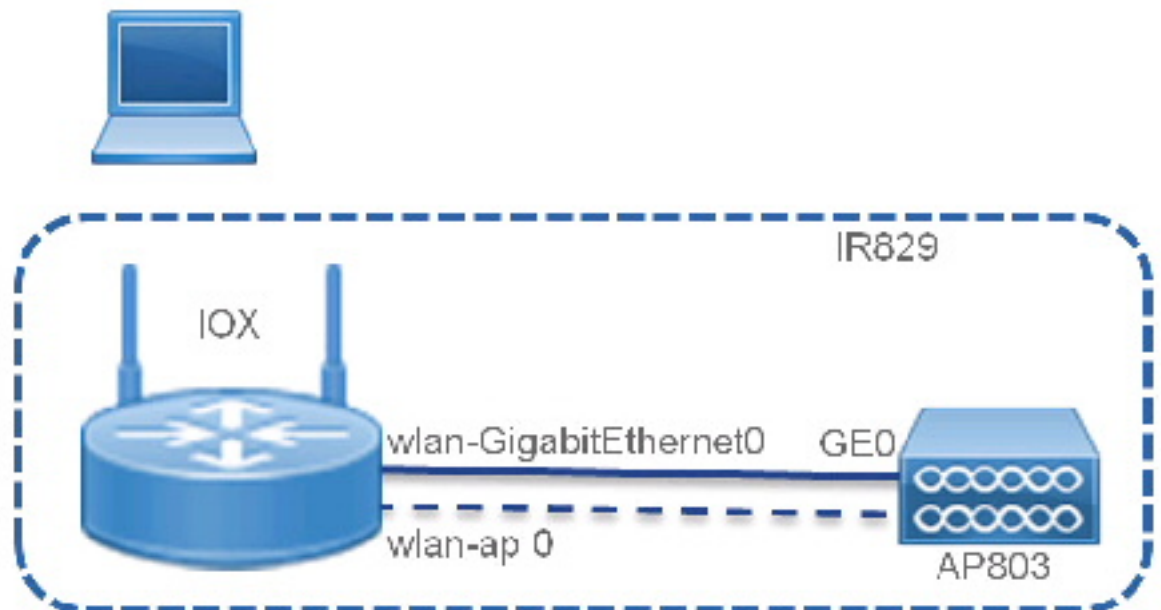
Note The initial release for the IR829 with the AP803 access point is 8.1 MR1 - 15.3(3)JBB1 - Cisco Wireless Release 8.1.111.0.

IOS Internal Interfaces

The IR829 and AP803 are connected through IOS internal interfaces. Refer to the following graphic as a conceptual guide.

AP803 IOS Gigabit Ethernet0 Interface

This interface is internally connected to the IR829 WLAN-GigabitEthernet0 switch-port.

The Access Point GE0 interface is always up. Neither the Access Point GE0 or the IR829 WLAN-GigabitEthernet0 switch-port interfaces can be shutdown. This is in order to prevent traffic disruption to the internal Access Point.

Note Access Point GE0 can NOT be configured by network operators. It always operates in 1000M/full-duplex mode.

AP803 IOS – BVI 1 (in autonomous mode only)

This is the management interface which bridges the Dot11 radio0, Dot11 radio1 and GE0 interfaces.

IR829 IOS WLAN-GigabitEthernet0

This interface connects internally to the Access Point's GE0 interface and carries all data packets between the Access Point and the Router.

The default configuration for WLAN-GigabitEthernet0 is in switch-port access mode, with native VLAN 1 (Layer-3 interface). You can configure the switch-port in trunk mode as well.

IR 829 IOS wlan-ap 0

This is the interface representing the embedded Access Point on the Router. It requires an IP address and is used only to reverse telnet into the Access Point console. This interface does not carry any data packets between the Router and the Access Point.

IR829 IOS – AP803 Console Access

Connecting to the console of the AP803 allows for monitoring Warning and informational messages. You can configure wlan-ap 0 so that a dedicated IP address is not needed, and wlan-ap 0 can share its IP address with another interface. Use the following steps:

Configuring

```
# conf term
IR829(config)#inter wlan-ap 0
The wlan-ap 0 interface is used for managing the embedded AP.
Please use the "service-module wlan-ap 0 session" command to console into the embedded AP
IR829(config-if)# ip address 10.1.1.1 255.255.255.255
IR829#service-module wlan-ap 0 session
Trying 10.1.1.1, 2004 ... Open
User Access Verification
Username: cisco
Password: <password>
ap>ena
Password: <password>
ap#
```

Connecting

```
IR829#service-module wlan-ap 0 session
Trying 10.1.1.1, 2004 ... Open
User Access Verification
Username: cisco
Password: <password>
ap>ena
Password: <password>
ap#
```

Monitoring

```
IR829#service-module wlan-ap 0 status

Service Module is Cisco wlan-ap0
Service Module supports session via TTY line 4
Service Module is in Steady state
Service Module reset on error is disabled
Service Module heartbeat-reset is enabled
Getting status from the Service Module, please wait..
  Image path      =
flash:ap1g3-k9w7-mx.wnbu_bt.201505140911/ap1g3-k9w7-mx.wnbu_bt.201505140911
  System uptime     = 0 days, 5 hours, 43 minutes, 7 seconds
```

Disconnecting

Key in the following sequence:

ctrl-^

X

This suspends the console and returns you to the command line.

IR829#

Next use one of the following two options:

```
Router> disconnect
```
-or

```
Router > service-module wlan-ap 0 session clear
[confirm]
[OK]
```

IR829 Service Module

The AP803 Access Point is managed by the IR829 Service Module Monitor. It communicates with the AP803 through layer-2 RBCP (Router Blade Configuration Protocol). The AP803 is managed through the service-module wlan-ap 0 CLI.

```
IR829#service-module wlan-ap 0 ?
  heartbeat-reset  Enable/disable Heartbeat failure to reset Service Module
  reload           Reload service module
  reset            Hardware reset of Service Module
  session          Service module session
  statistics       Service Module Statistics
  status           Service Module Information
  upgrade          Service Module Upgrade
```

```
IR829#service-module wlan-ap 0 reset ?
bootloader      Reset service-module to bootloader !
Reset to boot loader prompt
 default-config  Reset service-module to default-config !
Reset to default configuration
 — flash:cpconfig-ap803.cfg to flash:config.txt,
Only valid for Autonomous mode
<cr> !
Reset Access Point only

IR829# conf term
!
to configure Access Point boot image type

IR829(config)#service-module wlan-ap 0 bootimage ?
autonomous  Set AP boot image to autonomous
unified     Set AP boot image to unified
```
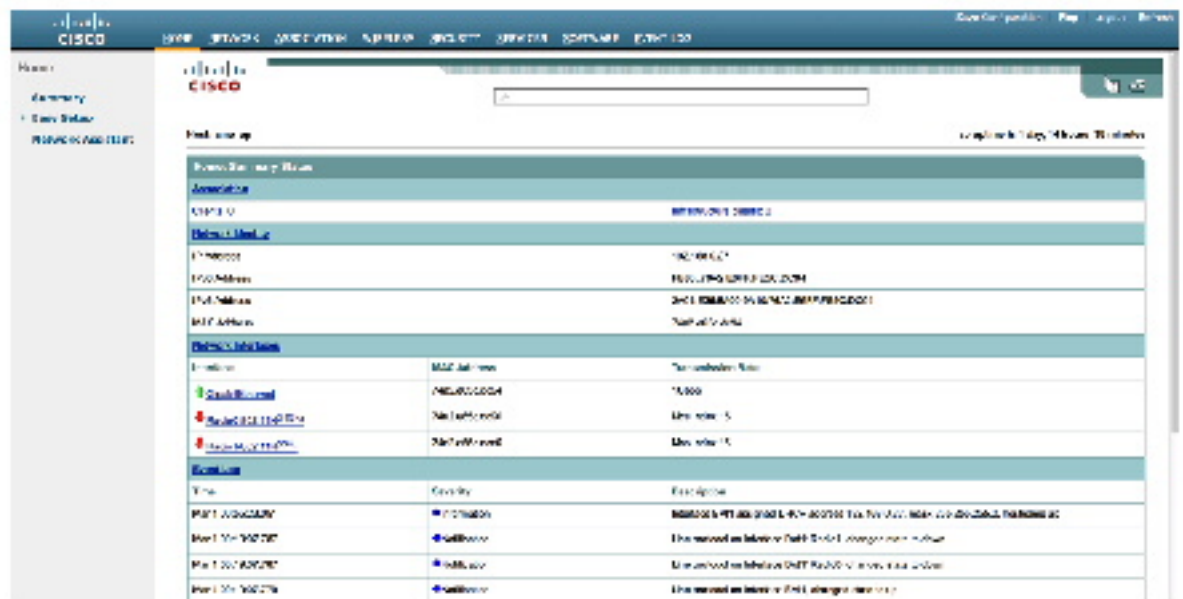
AP803 Embedded Web Manager

The IR829 AP803 has an embedded web manager. To access the web manager, open your browser to the IP address of the AP803 BV1 interface. For example:

The feature set for the AP803 is aligned with the Cisco Aironet 1532. More information can be found at:

Cisco Aironet 1530 Series

Upgrading the Firmware on the AP803

The AP803 image is not included in the IR829 IOS bundle. The AP803 image must be installed separately after obtaining the new AP803 release from Cisco.com.

1   Log onto the AP803.

2   Install the new AP803 image using the archive command. Alternately, this can be accomplished through the embedded web interface.

- archive download-sw ! Software download.

- /overwrite ! Overwrites the software image in Flash with the downloaded image.

- /reload ! Reloads the system after downloading the image unless the configuration has been changed and not saved.

The ftp protocol to download the image is:

ftp://username:password@ipaddress/directory/file

For example:

```
IR829#service-module wlan-ap 0 session

Trying 10.1.1.1, 2004 ... Open

ap#archive download-sw /over /reload
 ftp://username:password@192.168.0.90/Temp/ap1g3-k9w7-tar.153-3.JBB1.tar

examining image...
extracting info (285 bytes)!
Image info:
    Version Suffix: k9w7-.153-3.JBB1
    Image Name: ap1g3-k9w7-mx.153-3.JBB1
    Version Directory: ap1g3-k9w7-mx.153-3.JBB1
    Ios Image Size: 12114432
    Total Image Size: 13179392
    Image Feature: WIRELESS LAN
    Image Family: ap1g3
    Wireless Switch Management Version: 8.1.111.0
MwarVersion:08016F00.First AP Supported Version:08010000.
Image version check passed
Extracting files...
ap1g3-k9w7-mx.153-3.JBB1/ (directory) 0 (bytes)...
```