



Release Notes for Cisco Aironet Access Points for Cisco IOS Releases 15.3(3)JI1, 15.3(3)JI3, 15.3(3)JI4, 15.3(3)JI5, and 15.3(3)JI6

This document describes features, enhancements, and caveats for autonomous mode access points using Cisco IOS Releases 15.3(3)JI1, 15.3(3)JI3, 15.3(3)JI4, 15.3(3)JI5, and 15.3(3)JI6.

The release notes for lightweight Cisco Aironet Access Points are included in the *Release Notes for Cisco Wireless Controllers and Lightweight Access Points*, at the following URL:

<http://www.cisco.com/c/en/us/td/docs/wireless/controller/release/notes/crn88.html>

Supported Cisco Aironet Access Points

This release supports the following Cisco Aironet access points in autonomous mode:

- AP 702I
- AP 700W
- AP 1530
- AP 1570
- AP 1700
- AP 2700
- AP 3700 (AIR-RM3000AC-x-K9 802.11ac module is not supported)
- IW 3700



Warning

Install only Cisco IOS Release 15.3(3)JA1 and newer releases on Cisco Aironet Universal Access Point models. Do not install older Cisco IOS releases on Cisco Aironet Universal Access Point models as that is a violation of local radio regulations and laws.



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Introduction

The Cisco Aironet 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.

System Requirements

Cisco AP 702 and AP 1530 support 128 MB minimum flash and AP 3700 supports 64 MB minimum flash.

Finding the Cisco IOS Software Release

To find the version of Cisco IOS software that is running on your access point, use a Telnet session to log into the access point, and enter the show version EXEC command.

On access points running Cisco IOS software, you can also find the software release on the System Software Version page in the access point's web-browser interface. If your access point does not run Cisco IOS software, the software release appears at the top left of most pages in the web-browser interface.

Upgrading to a New Software Release

To upgrade your access point or bridge software, follow these steps:

-
- Step 1** Follow this link to the Cisco home page:
<http://www.cisco.com>
 - Step 2** Click **Support**. The Support and Documentation page appears.
 - Step 3** Under the Select a Product Name, click **Wireless**. The Product/Technology Support page appears.
 - Step 4** Under the Make a Selection to Continue section, click **Access Point**. Products and Access Point are highlighted.

- Step 5** Select the access point model for which you need the information. For example, click the **Cisco Aironet 1700 series**. A list of documents appears.
- Step 6** Click **Configure**. A list of configuration documents appears.
- Step 7** Click **Cisco IOS Software Configuration Guide for Cisco Aironet Access Points, 15.3(3)JI1**.
- Step 8** Navigate to the Managing Firmware and Software chapter.

For information on Cisco IOS software, click this link to browse to the Cisco IOS Software Center on Cisco.com:

<http://www.cisco.com/cisco/software/navigator.html>

Converting a Lightweight Access Point Back to Autonomous Mode

You can convert an access point from lightweight mode back to autonomous mode by loading a Cisco IOS Release that supports autonomous mode. If the access point is associated with a controller, you can use the controller to load the Cisco IOS release. If the access point is not associated with a controller, you can load the Cisco IOS release using TFTP. The image files and their supported access points are listed in [Table 1](#).



Note

Conversions from an 8.0 Wireless LAN Controller unified release AP image to autonomous 15.3(3) k9w7 image will get aborted with a message "AP image integrity check failed." To overcome this, load any previous autonomous k9w7 image and then upgrade to the 15.3(3) JAB k9w7 images. For more information, see caveat CSCuq53889.

Table 1 *Image File Names*

Image File	Supported Access Points
Ap3g2	1700I, 2700I/2700E, 3700I/3700E
Ap1g1	702I
Ap1g3	1530I/1530E
1570	1572IC, 1572EC, 1572EAC

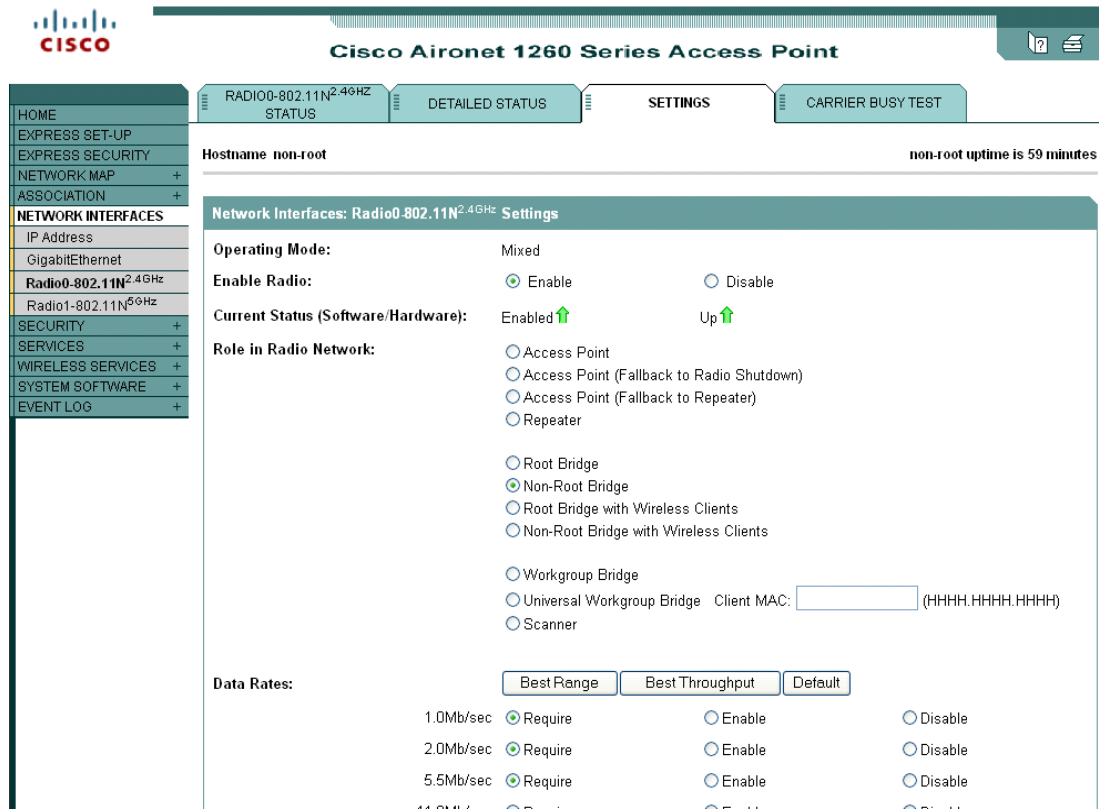
Disabling Radios to Prevent Unexpected Reboots When Upgrading the System Software

If your access point runs Cisco IOS Release 12.2(11)JA, 12.2(11)JA1, or 12.2(11)JA2, your access point might unexpectedly reboot after you upgrade to a later Cisco IOS release. However, after the access point reboots, the upgrade is complete and the access point operates normally. It is recommended to disable the radio interfaces before upgrading the software to prevent the access point from rebooting unexpectedly.

To disable the radio interfaces using the access point's web-browser interface, which you can access through the access point's Ethernet port, follow these steps:

- Step 1** Browse to the Network Interfaces: Radio Settings page. [Figure 1](#) shows the top portion of the Network Interfaces: Radio Settings page.

Figure 1 Network Interfaces: Radio Settings Page



- Step 2 Choose **Disable** to disable the radio.
- Step 3 Click **Apply** at the bottom of the page.
- Step 4 If your access point has two radios, repeat these steps for the second radio.

Beginning in privileged EXEC mode, follow these steps to disable the access point radios using the access point CLI:

	Command	Purpose
Step 1	<code>configure terminal</code>	Enters global configuration mode.
Step 2	<code>interface dot11radio {0 1}</code>	Enters interface configuration mode for the radio interface. The 2.4-GHz radio is radio 0, and the 5-GHz radio is radio 1.
Step 3	<code>shutdown</code>	Disables the radio port.
Step 4	<code>end</code>	Returns to privileged EXEC mode.
Step 5	<code>copy running-config startup-config</code>	(Optional) Saves your entries in the configuration file.

If your access point has two radios, repeat these steps for the second radio. Use the **no** form of the **shutdown** command to enable the radio.

Supported Browsers

These browsers are supported:

- Internet Explorer 8.x and later
- Firefox 3.x and later

New Updates and Features in this Release

- Support for WGB Dynamic Link Forwarding on the Cisco IW3702 Access Point. For more information, see the *WGB Dynamic Link Forwarding* section in the Configuration Guide at: https://www.cisco.com/c/en/us/td/docs/wireless/access_point/atnms-ap-8x/configuration/guide/cg-book/cg-chap-misc-spec-APs.html#15804
- RFC8175-Compliant DLEP Client Support on the Cisco IW3702 Access Point. For more information, see the *RFC8175-Compliant DLEP Client Support on WGB Deployment Guide* section in the Configuration Guide at: https://www.cisco.com/c/en/us/td/docs/wireless/outdoor_industrial/iw3702/technote/b_DLEP_RFC8175.html
- Support to configure IGMP Snooping Static Entry on the Cisco IW3702 Access Point. For more information, see the *Configuring IGMP Snooping Static Entry* section in the Configuration Guide at: https://www.cisco.com/c/en/us/td/docs/wireless/access_point/atnms-ap-8x/configuration/guide/cg-book/cg-chap-misc-spec-APs.html#pgfId-1101117
- Support to configure VLAN on WGB and uWGB mode of the Cisco AP803 and IW3702 Access Point. For more information, see the *Configuring Service VLAN* section in the Configuration Guide at: https://www.cisco.com/c/en/us/td/docs/wireless/access_point/atnms-ap-8x/configuration/guide/cg-book/cg-chap-misc-spec-APs.html#pgfId-1098598

Caveats

This section lists the [Open Caveats](#) and [Resolved Caveats](#) for access points and bridges in Cisco IOS Releases 15.3(3)J11, 15.3(3)J13, 15.3(3)J14, 15.3(3)J15, and 15.3(3)J16.

Cisco Bug Search Tool

The Bug Search Tool (BST), which is the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The BST allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has a provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To view the details of a caveat listed in this document:

1. Access the BST (use your Cisco user ID and password) at <https://tools.cisco.com/bugsearch/>.
2. Enter the bug ID in the **Search For:** field.

**Note**

To have a Cisco User ID and password, you need to be a registered cisco.com user, To become a registered cisco.com user, go to the following website:
<https://tools.cisco.com/RPF/register/register.do>

Open Caveats

There are no open caveats in Cisco IOS Releases 15.3(3)JI1, 15.3(3)JI3, 15.3(3)JI4, 15.3(3)JI5, and 15.3(3)JI6.

Resolved Caveats

There are no resolved caveats in Cisco IOS Releases 15.3(3)JI6.

[Table 2](#) lists caveats that have been resolved in Cisco IOS Release 15.3(3)JI5.

Table 2 *Resolved Caveats in 15.3(3)JI5*

Identifier	Headline
CSCvp91931	702 AP as WGB keeps sending a new association req every 7seconds when connected to 3800/2800 APs.
CSCvp64806	AP reloads due to power fluctuations when connected to CAT9400 switches.

[Table 3](#) lists caveats that have been resolved in Cisco IOS Release 15.3(3)JI4.

Table 3 *Resolved Caveats in 15.3(3)JI4*

Identifier	Headline
CSCvi06408	Wave 1 AP failed to send DHCP packet to wired side under VLAN Override.
CSCvn17267	702AP: WGB is disconnecting from root AP 'parent lost: Too many retries' RTS when root AP is offchanl'.
CSCvo45866	IOS APs working as WGB, disconnecting from root AP in 153-3.JIX releases.

[Table 4](#) lists caveats that have been resolved in Cisco IOS Release 15.3(3)JI3.

Table 4 *Resolved Caveats in 15.3(3)JI3*

Identifier	Headline
CSCvi65222	802.11 arp-cache does not work if BVI VLAN and client VLAN are different

[Table 5](#) lists caveats that have been resolved in Cisco IOS Release 15.3(3)JI1.

Table 5 *Resolved Caveats in 15.3(3)JI1*

Identifier	Headline
CSCvf45252	IW3702 WGB still has problems sending video to 1572 RAP
CSCvg63541	Unable to Pass non-native Multicast Traffic WGB client

Table 5 **Resolved Caveats in 15.3(3)J11**

Identifier	Headline
CSCvj32624	702 AP as WGB keeps being disconnected from the WLAN due to parent lost: Missed beacons
CSCvk28127	WGB crashes when 2.4G radio de-queues improperly

Troubleshooting

For the most up-to-date, detailed troubleshooting information, refer to the Cisco TAC website at <http://www.cisco.com/cisco/web/support/index.html>. Click **Technology Support**, choose **Wireless** from the menu on the left, and click **Wireless LAN**.

Important Notes

This section describes important information about access points and bridges.

Cisco Aironet Universal Access Points

Install only Cisco IOS Release 15.3(3)JA1 and newer releases on Cisco Aironet Universal Access Point models. Do not install older Cisco IOS releases on Cisco Aironet Universal Access Point models as that is a violation of local radio regulations and laws.

Point-to-Point and Point-to-Multipoint Bridging Support for 802.11n Platforms

The point-to-point and point-to-multipoint bridging is supported on the 802.11n Cisco Aironet series access points. The 5-GHz bands support 20 and 40-MHz channel widths, and the 2.4-GHz bands support only a 20-MHz channel width.

The following items are supported on the 802.11n platforms for bridging:

- MIMO, short-range bridging (on campus or inter-building bridge deployments), with dipole and MIMO antennas (line of sight and short range) under 1 km.
- 20-MHz and 40-MHz 802.11n support.
- Workgroup bridge (WGB) short-range support.
- SISO (single-in, single-out), MCS 0-7 and legacy bridge rates (802.11 a/b/g and 802.11n) using one outdoor antenna.



Note

This is only supported using short range links and is not a replacement for the 1530 and 1570 series access points which support bridging.

The following are not supported on AP 702 for bridging:

- The distance CLI command: long-range links over 1 km currently are not supported; therefore, the distance command is not supported.

- Outdoor MIMO bridging using external antennas has not been fully tested and is not fully supported with this release.

Low Throughput Seen on Access Points with 16 BSSIDs Configured

If your network uses 16 BSSIDs with 1 and 2-Mbps data rates, access points might experience very low throughput due to high management traffic.

802.11n HT Rates Apply Only to No Encryption or WPA2/AES Encryption

As per the 802.11n amendment, the 802.11n HT rates apply only to no encryption or WPA2/AES encryption. They do not apply to WEP or WPA encryption. If WEP or TKIP encryption is used, the access point and any 802.11n clients will not transmit at HT rates. Legacy rates (802.11a/b/g) will be used for any clients using WEP or TKIP encryption.

Layer 3 Not Supported with NAC for MBSSID

Layer 3 is not supported with NAC for MBSSID in this release.

Change to Default IP Address Behavior

Cisco IOS Release 12.3(2)JA and later releases change the default behavior of access points that request an IP address from a DHCP server.

Changes to the Default Configuration—Radios Disabled and No Default SSID

The radio or radios are disabled by default, and there is no default SSID. You must create an SSID and enable the radio or radios before the access point allows wireless associations from other devices. These changes to the default configuration improve the security of newly installed access points.

Clients Using WPA/WPA2 and Power Save May Fail to Authenticate

Certain clients using WPA/WPA2 key management and power save can take many attempts to authenticate or, in some cases, fail to authenticate. Any SSID that is defined to use authentication key-management WPA, together with clients using power save mode and authenticating using WPA/WPA2, can experience this problem.

A hidden configure level command, **dot11 wpa handshake timeout**, can be used to increase the timeout between sending the WPA key packets from the default value (100 ms) to a value between 101 and 2000 ms. The command stores its value in the configuration across device reloads.

Default Username and Password Are *Cisco*

When you open the access point interface, you must enter a username and a password. The default username for administrator login is *Cisco*, and the default password is *Cisco*. Both the username and password are case sensitive.

Some Client Devices Cannot Associate When QoS Is Configured

Some wireless client devices, including Dell Axim handhelds and Hewlett-Packard iPaq HX4700 handhelds, cannot associate to an access point when the access point is configured for QoS. To allow these clients to associate, disable QoS on the access point. You can use the QoS Policies page on the access point GUI to disable QoS or enter this command on the CLI:

```
ap(config-if)# no dot11 qos mode
```

Some Devices Disassociate When Multiple BSSIDs Are Added or Deleted

Devices on your wireless LAN that are configured to associate to a specific access point based on the access point MAC address (such as client devices, repeaters, hot standby units, or workgroup bridges) might lose their association when you add or delete multiple BSSIDs. When you add or delete multiple BSSIDs, check the association status of devices that are configured to associate to a specific access point. If necessary, reconfigure the disassociated device to use the BSSID new MAC address.

Enabling MBSSIDs Without VLANs Disables Radio Interface

If you use the **mbssid** configuration interface command to enable multiple BSSIDs on a specific radio interface but VLANs are not configured on the access point, the access point disables the radio interface. To re-enable the radio, you must shut down the radio, disable multiple BSSIDs, and re-enable the radio.

This example shows how to re-enable the radio:

```
AP(config)# interface d1
AP(config-if)# shut
AP(config-if)# no mbssid
AP(config-if)# no shut
```

After you re-enable the radio, you can enable VLANs on the access point and enable multiple BSSIDs.

Cannot Set Channel on DFS-Enabled Radios in Some Regulatory Domains

Access points with 5-GHz radios configured at the factory for use in Europe, Singapore, Korea, Japan, Taiwan, and Israel now comply with regulations that require radio devices to use Dynamic Frequency Selection (DFS) to detect radar signals and to avoid interfering with them. You cannot manually set the channel on DFS-enabled radios that are configured for these regulatory domains.

TACACS+ and DHCP IP Address Sometimes Locks Out Administrators

When you configure an access point for TACACS+ administration and you request for an IP address from the DHCP server, you might be locked out of the access point after it reboots if you do not have a local username and password configured on the access point. This is because the AP gets a newer IP address which is not yet added in TACACS. If you have been locked out, you must regain access by resetting the unit to default settings.

This issue does not affect access points that are configured with a static IP address.

Access Points Do Not Support Loopback Interface

You must not configure a loopback interface on the access point.



Caution

Configuring a loopback interface might generate an IAPP GENINFO storm on your network and disrupt network traffic.

Throughput Option for 802.11g Radio Blocks Association by 802.11b Clients

When you configure the 802.11g access point radio for **best throughput**, the access point sets all data rates to basic (required). This setting blocks association from 802.11b client devices. The **best throughput** option appears on the web-browser interface Express Setup and Radio Settings pages and in the **speed** CLI configuration interface command.

Use Auto for Ethernet Duplex and Speed Settings

We recommend that you use **auto**, the default setting, for both the speed and duplex settings on the access point Ethernet port. When your access point receives inline power from a switch, any change in the speed or duplex settings that resets the Ethernet link reboots the access point. If the switch port to which the access point is connected is not set to **auto**, you can change the access point port to **half** or **full** to correct a duplex mismatch, and the Ethernet link is not reset. However, if you change from **half** or **full** back to **auto**, the link is reset, and, if your access point receives inline power from a switch, the access point reboots.



Note

The speed and duplex settings on the access point Ethernet port must match the Ethernet settings on the port to which the access point is connected. If you change the settings on the port to which the access point is connected, change the settings on the access point Ethernet port to match.

Using the force-reload Option with archive download-sw Command

When you upgrade an access point or bridge system software by entering the **archive download-sw** command on the CLI, you must use the **force-reload** option. If the access point or bridge does not reload the flash memory after the upgrade, the pages in the web-browser interface might not reflect the upgrade. This example shows how to upgrade the system software by using the **archive download-sw** command:

```
AP# archive download-sw /force-reload /overwrite tftp://10.0.0.1/image-name
```

Radio MAC Address Appears in Access Point Event Log

When a client device roams from an access point (such as access point *alpha*) to another access point (access point *bravo*), a message appears in the event log on access point alpha stating that the client roamed to access point bravo. The MAC address that appears in the event message is the MAC address for the radio in access point bravo. The MAC address for the access point Ethernet port is on the label on the back of the access point.

Mask Field on IP Filters Page Behaves the Same As in CLI

In Cisco IOS Release 12.2(8)JA and later releases, the mask that you enter in the Mask field on the IP Filters page in the access point GUI behaves the same way as a mask that you enter in the CLI. If you enter 255.255.255.255 as the mask, the access point accepts any IP address. If you enter 0.0.0.0, the access point looks for an exact match with the IP address that you entered in the IP Address field.

Repeater Access Points Cannot Be Configured as WDS Access Points

Repeater access points can participate in WDS, but they cannot provide WDS. You cannot configure a repeater access point as a main WDS access point, and if a root access point becomes a repeater in fallback mode, it cannot provide WDS.

Cannot Perform Link Tests on Non-Cisco Aironet Client Devices and on Cisco Aironet 802.11g Client Devices

The link test feature on the web-browser interface does not support non-Cisco Aironet client devices.

Corrupt EAP Packet Sometimes Causes an Error Message

During client authentication, the access point sometimes receives a corrupt EAP packet and displays this error message:

```
Oct  1 09:00:51.642 R: %SYS-2-GETBUF: Bad getbuffer, bytes= 28165
-Process= "Dot11 Dot1x process", ipl= 0, pid= 32
-Traceback= A2F98 3C441C 3C7184 3C604C 3C5E14 3C5430 124DDC
```

You can ignore this message.

Removal of WPA/TKIP configuration

Wi-Fi certified access points no longer support a WPA/TKIP configuration. TKIP is only allowed in combination with WPA2/AES for backward compatibility to allow older TKIP-only devices to associate.

Authentication key-management WPA version 1 will be changed to authentication key-management WPA. The following message will be displayed:

```
Warning: WPA Version 1 no longer permitted by itself - WPA2 has been enabled
```

WPA version 1 option has been removed from the authentication key-management wpa cli and configuring TKIP only under this interface is not supported. It will be changed to aes-ccm tkip to work on mixed mode with the following message on the ap console:

Warning: TKIP encryption no longer permitted by itself - AES-CCM has been enabled

Cisco CKM Supports SpectraLink Phones

Cisco CKM (CCKM) key management is designed to support voice clients that require minimal roaming times. Voice clients must support Cisco Compatible Extensions to benefit from this feature, for the voice client security mode you selected, please refer to the following URL for the list of CCX versions and supported clients: http://www.cisco.com/web/partners/pr46/pr147/partners_pgm_concept_home.html

Non-Cisco Aironet Clients Sometimes Fail 802.1X Authentication

Some non-Cisco Aironet client adapters do not perform 802.1X authentication to the access point unless you configure Open authentication with EAP. To allow both Cisco Aironet clients using LEAP and non-Cisco Aironet clients using LEAP to associate using the same SSID, you might need to configure the SSID for both Network EAP authentication and Open authentication with EAP.

Pings and Link Tests Sometimes Fail to Clients with Both Wired and Wireless Network Connections

When you ping or run a link test from an access point to a client device installed in a PC running Microsoft Windows, the ping or link test sometimes fails when the client has both wired and wireless connections to the LAN. Microsoft does not recommend this configuration. For more information, refer to Microsoft Knowledge Base article 157025 at this URL:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;157025&Product=win2000>

Layer 3 Mobility Not Supported on Repeaters and Workgroup Bridges

Repeater access points and workgroup bridges cannot associate to an SSID that is configured for Layer 3 mobility. Layer 3 mobility is not supported on repeaters and workgroup bridges.

Potential RFC 3748 Violation

When the following command is configured under the SSID settings (for LEAP authentication):

```
authentication client username <WORD> password [0 | 7] <LINE>
```

if the first access-challenge returned by the Radius server after the access-request from the access point is not for the LEAP method but for EAP-MD5, the access point violates RFC 3748.

Instead of sending an EAP NAK requesting LEAP authentication, the access point sends the user's credentials with EAP-MD5 and drops the derived keys, since it cannot read the EAP-MD5 from the access-accept.

This violates RFC 3748.

The workaround for this is to use the commands `dot1x credentials` and `dot1x eap profile` for LEAP authentication.

For configuration procedures, see the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*.

Autonomous AP Will Treat The Sub-interface Tied To Bridge-group1 As The Native Vlan

When using a configuration on an autonomous AP where there is no native VLAN defined, each interface is being dot1q tagged, communication will fail after upgrading to release 15.3(3)J11 or later. It appears that the configuration is still correct after the upgrade, but the AP sends the untagged frames for bridge-group 1, even though the encapsulation is not defined as native. The autonomous AP will treat the sub-interface tied to bridge-group 1 as the native VLAN, even if it is not defined with the native keyword: "encapsulation dot1 <vlan> native". The VLAN associated with bridge-group 1 must be set to native on the connecting switchport configuration

The workaround for this is to configure VLAN 100 as the native VLAN on the connected switchport trunk, even though the encapsulation is not specified as native on the AP.

DHCP Failure When Access Point Renewal Time Is Greater Than Rebind Time

An access point is unable to obtain IP through the same IOS DHCP server when the access point is running on 15.2x. The problem occurs because the Renewal (T1) time dhcp option 58 is larger than Rebinding (T2) time dhcp option 59.

Configuring the radius server using the old cli

This cli command was used in the previous releases to configure radius servers:

```
radius-server host {hostname | ip-address} [auth-port port-number] [acct-port port-number]
[timeout seconds] [retransmit retries] [key string]
```

Though this command can still be used, we recommend that you use this new command:

```
radius server {server-name} [auth-port port-number] [acct-port port-number] [timeout seconds]
[retransmit retries] [key string]
```

Upgrade from IOS 12.4 to IOS 15 breaks access point L3 Connectivity

The following table shows the behavior change:

Release Name	IP Routing Enabled	Action to be Taken Before Upgrade to Cisco IOS Release 15.3(3)J11 or later
Till Cisco IOS Release 15.2(2)JA	Not Applicable	No issue in upgrade.
Cisco IOS Release 15.2(2)JB	No	
Cisco IOS Release 15.2(4)JA	Yes	IP routing and configured routes should be removed and default gateway should be configured if required.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at [Cisco Profile Manager](#).
- To get the business impact you're looking for with the technologies that matter, visit [Cisco Services](#).
- To submit a service request, visit [Cisco Support](#).
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit [Cisco Marketplace](#).
- To obtain general networking, training, and certification titles, visit [Cisco Press](#).
- To find warranty information for a specific product or product family, access [Cisco Warranty Finder](#).

Cisco Bug Search Tool

[Cisco Bug Search Tool](#) (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

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