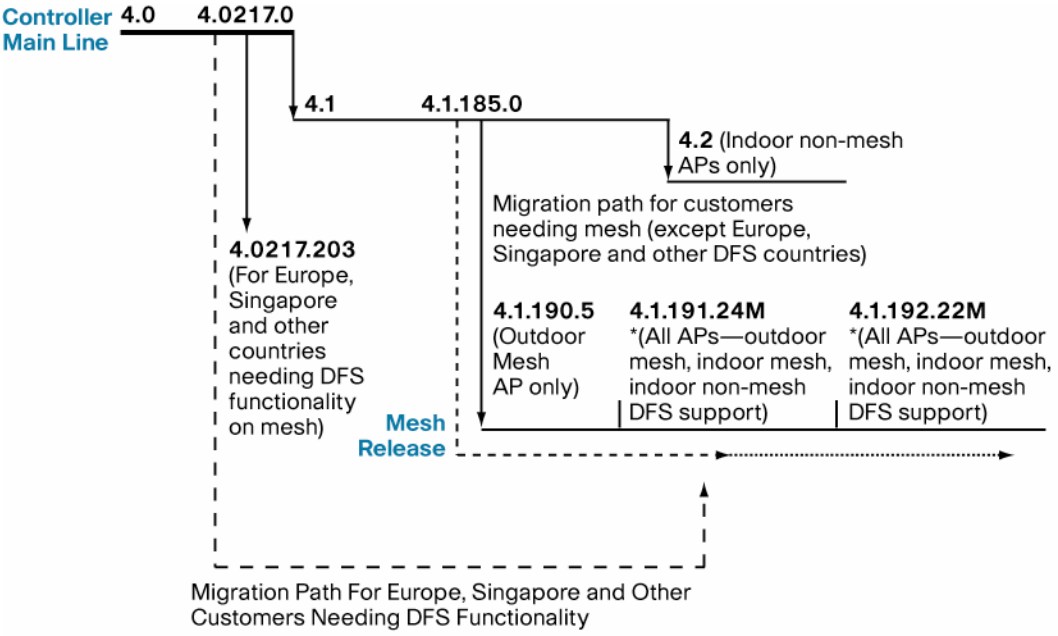
Cisco Unified Wireless Network Software Release 4.1.192.22M

PB462091

Cisco® Unified Wireless Network Software Release 4.1.192.22M introduces support for the Cisco Aironet® 1524 Mesh Access Point, with new, band-specific radios operating in the 5.8- and 4.9-GHz spectrums for public safety customers. 4.1.192.22M is the third release in the mesh train, a separate release train from the mainline Cisco Unified Wireless Network release. The mesh train branches from Release 4.1.185.0, and is an alternative release train to the Cisco Unified Wireless Network mainline release train (which provides Releases 4.2 and 5.0). Figure 1 shows a roadmap of the mesh software releases, including the migration path for customers needing Dynamic Frequency Selection (DFS).

Figure 1. Mesh Software Roadmap



*Excludes the Cisco 1250 Series indoor access points.

Access Points Supported

Cisco Unified Wireless Network Software Release 4.1.192.22M supports the following access points.

Outdoor mesh access points, including the Cisco Aironet 1520 Series (the Cisco Aironet 1522 and 1524):

- Cisco Aironet 1505 Lightweight Outdoor Mesh Access Point
- Cisco Aironet 1510 Lightweight Outdoor Mesh Access Point
- Cisco Aironet 1522 Lightweight Outdoor Mesh Access Point
- Cisco Aironet 1524 Lightweight Outdoor Mesh Access Point

Standard Cisco lightweight access points:

- Cisco Aironet 1000 Series Access Point*
- Cisco Aironet 1120 Series Access Point*
- Cisco Aironet 1130 Series Access Point**
- Cisco Aironet 1230 Series Access Point*
- Cisco Aironet 1240 Series Access Point**
- Cisco Aironet 1310 Series Access Point*

4.1.192.22M *does not* support the Cisco Aironet 1250 Series 802.11n access points. If your network contains 1250 Series Access Points, you will need to use a separate controller running Version 4.2 or later.

Features delivered in Release 4.2 and 5.0 are not available in 4.1.192.22M. If you require features delivered in those releases for example, for your indoor access points) *and* you need support for mesh access points, you will need to run two separate controllers with the applicable release. Note that mobility groups are not supported across different releases.

Controllers Supported

Release 4.1.192.22M is supported by the Cisco Wireless Control System (WCS) Software Version 5.0.56.0. WCS Version 5.0.56.0 supports WLAN controllers running Version 5.0.148.0 or earlier, and supports access points on separate controllers, such as 4.1.192.22M for mesh access points, and 5.0.148.0 for non-mesh access points.

Cisco Unified Wireless Network Software Release 4.1.192.22M is supported on the following controllers:

- Cisco 2106 Wireless LAN Controller
- Cisco 4400 Series Wireless LAN Controller
- Cisco Wireless Services Module (WiSM) (on the Cisco Catalyst® 6500 Series and the Cisco 7600 Series Router)

Software Images

Table 1 lists the filenames for the images associated with this release.

* In standard mode only
** In standard or enterprise mesh node

Table 1. Software Images List

Products	4.1.192.22M and Related Software Images		
Access Points		**Image**	**Boot Image**
	Mesh Access Points		
	1130 1240 1505 1510 1520	c1130-k9w9-tar.124-3g.JMC c1124-k9w9-tar.124-3g.JMC VxWorks VxWorks c1520-k9w9-tar.124-3g.JMC	1130-boot-m.124-3g.JMC 1240-boot-m.124-3g.JMC VxWorks VxWorks 1520-boot-m.124-3g.JMC
	Non-Mesh Access Points		
	1100 1130 1200 1240 1310	c1100-k9w8-tar.124-3g.JA2 c1130-k9w8-tar.124-3g.JA2 c1200-k9w8-tar.124-3g.JA2 c1240-k9w8-tar.124-3g.JA2 c1310-k9w8-tar.124-3g.JA2	c1100-boot-m.124-10b.JA c1130-boot-m.124-10b.JA c1200-boot-m.124-10b.JA c1240-boot-m.124-10b.JA c1310-boot-m.124-10b.JA
WLC-4400	AIR-WLC4400-K9-1-192-22M-MESH.aes		
WLC-2100	AIR-WLC2100-K9-4-1-192-22M-MESH.aes		
WiSM	SWISMK9-4-1-22M-MESH.aes		
WCS	WCS-STANDARD-K9-5.0.56.0.exe		
WCS Navigator	NAVIGATOR-K9-1.2.56.0.exe		

New Features

The following new features are supported in Release 4.1.192.22M:

Support for Cisco Aironet 1524 Mesh Access Point

The new Cisco Aironet 1524 Mesh Access Point (AIR-LAP1524PS-A-K9) is installed with new, band-specific radios operating in the 5.8- and 4.9-GHz bands, in addition to operating with a 2.4-GHz radio. With Release 4.1.192.22M, the 2.4- and 4.9-GHz radios provide access connectivity to wireless clients operating in these bands, with the 5.8-GHz radio providing backhaul connectivity between mesh access points. This configuration allows public safety customers with a license to operate in the 4.9-GHz band to provide wireless access for 4.9-GHz clients, along with client devices that operate in the 2.4-GHz band. For network providers, the Cisco Aironet 1524 Access Point allows them to offer access services to both public safety users and other users with a single installation. (Note that all traffic will backhaul over the 5.8-GHz radio.)

For 4.9-GHz Band, Channels that Are 5 and 10 MHz Wide

When operating in the 4.9-GHz band, the Cisco Aironet 1522 and 1524 Access Points can be configured to operate in channels 5 or 10 MHz wide, in addition to 20 MHz-wide channels. This allows the customer to partition their allotted spectrum into a larger number of smaller channels, which may aid in channel planning.

Infrastructure Workgroup Bridge on Cisco IOS Software Mesh Access Points

The Cisco Aironet 1520 Series Access Points (1522 and 1524) provide access services to Cisco Aironet Workgroup Bridges, extending mobility to Ethernet devices. With this feature, a 2.4- or 4.9-GHz wireless mobile interface card (WMIC) installed in a Cisco 3200 Series rugged integrated services router and configured as a workgroup bridge can connect to the wireless mesh network, providing network access to devices such as video cameras or laptops. This feature, previously

supported on the Cisco Aironet 1510 Access Point, is being extended to the 1522 and 1524 access point platforms in Release 4.1.192.22M.

High-Speed Roaming on Cisco IOS Software Mesh Access Points

The Cisco Aironet 1522 and 1524 Access Points support clients certified by the Cisco Compatible Extensions program, Version 4, to roam between mesh nodes at up to 70 MPH. For instance, a customer with a Cisco 3200 Series router operating as a wireless workgroup bridge can provide persistent network connectivity to devices within the vehicle while roaming at speeds up to 70 MPH.

Access Point Authentication Using an External AAA Server

Access points attempting to join the network can now be authenticated using any authentication, authorization, and accounting (AAA) server, whether it is the AAA server native to the Cisco WLAN controllers or a separate AAA server. Customers can simplify their end node authentication design, providing an added layer of security for mesh access points joining the wireless network.

Universal Access for Cisco Aironet 1522 Access Point

The Cisco Aironet dual-band 1522 access point can provide access services to clients on the same radio that is being used for backhaul. This will allow customers to expand access to Wi-Fi clients operating in the 4.9- or 5.8-GHz band. This feature, previously supported on the Cisco Aironet 1510 access points, is being extended to the 1522 access point platform in Release 4.1.192.22M. Note that this feature is not yet available on the Cisco Aironet 1524 access point.

Multicast Containment

For devices that are attached to the Ethernet port of the 1522 and 1524 access points and that source multicast traffic, this traffic can be contained to the Ethernet port of the root access point. This prevents traffic from being sent unnecessarily to mesh nodes that do not have any multicast group subscribers. It's useful, for instance, for video surveillance traffic being sent to multiple video content servers on the wired network.

Feature Summary

Table 2 summarizes the features available for mesh platforms with Cisco Unified Wireless Network Software Release 4.1.192.22M.

Table 2. Mesh Network Features with Software Release 4.1.192.22M

Feature/Platform	AP1505	AP1510	AP1522	AP1524*	AP1130	AP1240
Mesh Network Functionality						
Passive Scanning: Access point searches for an alternative parent on its current backhaul.	X	X	X	X	X	X
Background Scanning: Access point searches for an alternative parent on any possible backhaul channel.	X	X				
Optimal Parent Selection: Access point joins the best available parent.	X	X	X	X	X	X
Exclusion Listing: Access point avoids selecting as parent those access points that have a pattern of failing.	X	X	X	X	X	X
Radar-Free Coordinated Sector: Access point notifies parent when radar is detected on the channel so an alternative channel can be employed by the sector.	X	X	X	**	X	X

Feature/Platform	AP1505	AP1510	AP1522	AP1524*	AP1130	AP1240
Dynamic Frequency Selection: Alternative channel is selected when radar is detected in regulated bands.		X	X	**	X	X
Mesh Network Functionality (Cont.)						
Synchronized Channel Change: Parent advises children of intended channel change.	X	X	X	**	X	X
Reliable Link Layer, Extended Retries: Transmissions that do not succeed will extend the number of retry attempts in an effort to improve reliability.	X	X	X	X	X	X
Reliable Link Layer, Secondary Backhaul Radio: A secondary backhaul radio is utilized as a temporary path for traffic that cannot be sent on the primary backhaul due to intermittent interference.		X				
Passive Beaconing: Log messages from an access point that cannot connect are relayed through other access points to the controller.	X	X	X	X	X	X
Network Services						
Ethernet Bridging: Traffic is bridged from hosts connected to a wired port.	X	X	X	X	X	X
Containment of Bridged Multicast Traffic: Multicast traffic (for example, video camera broadcasts) from a mesh access point (MAP) Ethernet port is contained on a root access point (RAP) Ethernet network, and no forwarding occurs (in multicast mode). This helps ensure that: 1. Non-LWAPP multicasts received by the RAP are not transmitted back to the MAP Ethernet networks within the mesh network (their point of origin). 2. MAP-to-MAP multicasts do not occur because they are filtered out.	X	X	X	X		
Universal Access: Radio used for backhaul traffic provides access for client traffic.	X	X	X		X	X
Support for Workgroup Bridges: Allows multiple wired hosts to connect to the wireless network through a workgroup bridge.	X	X	X	X	X	X
Multiple Queues for Backhaul Traffic: Extends client traffic prioritization to the backhaul traffic.	X	X	X	X	X	X
Static Call Admission Control (CAC): Helps ensure that sufficient bandwidth is available in a mesh sector before serving new T-Spec client call requests.		X				
Mesh Security						
EAP Authentication: Restricts mesh mode access to approved, authenticated access points. Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) authentication provides secure authentication and encryption key management.	X	X	X	X	X	X
Applications						

Feature/Platform	AP1505	AP1510	AP1522	AP1524*	AP1130	AP1240
High Speed Roaming: Roam speeds of up to 70 mph are supported for Cisco Compatible Extensions v4 clients.		X	✓***	✓***		
Location: Client location is identified by closest access point.	X	X				
Platform Support						
2.4-GHz Band	X	X	X	X	X	X
4.9-GHz Band		X	X	X		
5, 10, 20 MHz Channelization on 4.9-GHz Band			X	X		
5.25-GHz Band			X		X	X
5.47-GHz Band		X	X		X	X
5.80-GHz Band		X	X	X	X	X
DOCSIS 2. 0 Cable Modem			X			
Fiber Module			X			
External Battery Status	X	X				
Internal Battery Status			X	X		
LED Status Indicator(s)	X (with LED accessory)	X (with LED accessory)	X	X	X	X

*The Cisco Aironet 1524 Access Point has three radios configured to provide backhaul on the 5.8-GHz radio and access on the 2.4-GHz and 4.9-GHz radios.
**Radar detection is not applicable for the Cisco Aironet 1524 Access Point since it does not operate in the 5.2-GHz or 5.47-GHz bands.
***Provides support for high-speed roaming with the Cisco 3200 Series Router.

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