List AireOS Feature Per Release

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Introduction

This document describes the features available in the Wireless LAN Controllers (WLC) and in which version of code they started to be supported.

Prerequisites

Note: For further details about an specific release consult its release notes: AireOS - Release Notes

Requirements

Cisco recommends that you have knowledge of AireOS Wireless LAN Controller.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Feature Introduction Per Version

Note: The Cisco 1040 Series, 1140 Series, and 1260 Series Access Points (APs) have feature parity with Cisco Wireless Release 8.0. Features introduced in Cisco Wireless Release 8.1 and later are not supported on these access points.

8.10.181.0

- Support of new hardware revision of 9105/9120/9130 as per Field Notice https://www.cisco.com/c/en/us/support/docs/field-notices/724/fn72424.html

8.10.171.0

By enabling the HTTP Strict Transport Security (HSTS) policy on the controller, you may access the controller GUI only with a client browser that uses HTTPS protocol.

8.10.151.0

- Support enabling/disabling 802.11ax support per WLAN
- Random MAC filtering. It is now possible to configure the rejection of clients with random MAC addresses
- USB support for IW6300
- Larger memory and NAND flash upgrade for IW6300

8.10.142.0

- Advanced Scheduling Request : support for clients specifying their bandwidth requirements for OFDMA
- Support for ECDHE_RSA_AES_128_GCM_SHA256 cipher
- From this release, new SSID and WLAN profile names can have up to four leading spaces. If there are more than four leading spaces in an SSID or WLAN profile name, an error message is displayed.
- Support for Type-5 Encryption Protocol for Management Password

8.10.130.0

- Support for 9105 access point
- Support for 9130 tri-radio dynamic mode
- Uplink MU-MIMO for 9130
- Support for stronger ciphers in Cisco access points
- AP 4800 prioritizes wips mode
- Stronger username and passwords requirements for controller and AP users.
- new AP image bundle for 9117
- reliable WGB downstream broadcast for multiple VLANs
- DNA Center Assurance Wifi6 dashboard (EFT)
- LAG support extended to 1850
- SNMP support for NTP server configuration on AP group
- Controller now sends the full certificate chain via HTTPS for management
- 9115 and 9120 support for hardware DTLS decryption
- Spectrum Intelligence support on 9115
- UL and DL OFDMA support for 9130
- Regulatory domain changes in Bahrain, Egypt, India, Indonesia, Japan, Russia, and Taiwan.

8.10.120.0

- Support for Power-On-Self test of crypto components on AP bootup for FIPS certification
- FT over-the-DS is now disabled by default on new WLANs
- Reliable multicast and broadcast for WGBs
- IW6300 features : RAP daisy chaining, multiple ethernet ports handling,
- Anchoring support per profile name instead of per WLAN name
- IP Source Guard enforcement on Flex Local switching when DHCP required is enabled
- RLAN local switching in flex standalone mode
- 9130 static tri-radio mode

8.10.112.0

- Support for Catalyst 9130-AXE
- Static BSS coloring
- FastLocate on Wifi6 APs
- Antenna monitoring and detection system
- Auto enrollment of certificates for Wave 2 APs in WGB mode
- Secure UDI certificate for AP authentication
- TLS 1.2 for EAP-FAST in local EAP authentication
- Console access to the AP using the default username and password is not supported. You must explicitly configure the controller AP global credentials with non-default username and password to get access to the AP console.
- APs in sensor mode are not supported anymore

8.10.105.0

- Support for 9130-AXI
- support for 9120AXE, 9120AXP
- Mesh mode on wave 2 APs
- Airtime fairness support on wave 2 APs
- Intelligent capture support added to more APs - 1800s, 9115, 9117, 9120, IW3700, Cisco 6300 Embedded AP
- WPA3 support
- Enhanced Open support
- Wi-Fi Alliance Agile Multiband (MBO) support
- SNMP traps via SNMPv3
- Support for -P domain
- Sending access points events through radius accounting
- Password encryption
- per AP group NTP server

8.9.111.0

- Support for Catalyst 9120-AXI access point

8.9.100.0

- Support for Catalyst 9115 and 9117 access points
- Support for HE PHY layer (and new MCS rates)

8.8.130.0

- No new features

8.8.125.0

- No new features

8.8.120.0

- Support for -P domain
- Support for Bluetooth Low energy (BLE) USB dongles
- Wave 2 APS (1560/2800/3800) - Workgroup Bridge image software
- 4000 WLANs support on WLCs (through "config wlan 4k-ssid enable")
- Mobility Express : Mesh (Flex+Bridge) support
- Mobility Express : Mdns policy

8.8.111.0

- Wave 2 APs - Local switching of rlan traffic supported even when AP is in Local Mode

8.8.100.0

- Wave 2 APs - Flex+Bridge support
- Wave 2 APs - VxLAN AP Infra for eCA on 4800
- Wave 2 APs - USB port of APs 2800/3800/4800/1852 can be enabled to power an external USB device
- Wave 2 APs - Support for syslog facility
- Wave 2 APs - Support for '| include <string>' for all show commands
- Wave 2 APs - Command to show client exclusion list on Flex APs (**#show flexconnect client exclusion-list)**
- Wave 2 APs - Ability to disable AP fallback to DHCP when configured for static IP address
- Wave 2 APs - AP able to get time from network
- Wave 2 APs - Improved sniffer mode for Layer 1 information
- Wave 2 APs - Abitlity to filter debug traffic based on source/destination IP (**#debug traffic wired filter...)**
- Wave 2 APs - Ability to export capture as .pcap (**#copy tmp APname_capture.pcap0 tftp...)**
- Wave 2 APs - Ability to clear ap trace logs (**#config ap client-trace clear)**
- Wave 2 APs - Debug to check UP value for client downstream (**#debug capwap client qos)**
- Wave 2 APs - Log number of deauths sent by AP (**#show dot11 clients deauth)**
- Wave 2 APs - Log number of consecutive TX fails (**#show controllers dot11radio 0/1 client aa:bb:cc:dd:ee:ff)**
- Wave 2 APs - Ability to see rate per client on client tracing (**#debug dot11 client rate address aa:bb:cc:dd:ee:ff)**
- Wave 2 APs - Client count statistics (**#show client summary)**
- Wave 2 APs - Changes in legacy/High Throughput (HT)/Very High Throughput (VHT) capabilities advertisements
- Wave 2 APs - Improved **show dot11 interface dot11radio 0/1 statistics** output
- Wave 2 APs - Ability to conver AP 2800/3800 into sensers
- Wave 2 APs - Support for RLAN local switcing on AP 1815W
- Wave 2 APs - NTP support
- Wave 2 Fabric - IPv6 Domain Name System (DNS) Access Control Lists (ACLs)
- Wave 2 Fabric - Post-auth IPv6 ACL support
- Dynamic Host Configuration Protocol (DHCP) internal server on Root AP (RAP) (Flex+Bridge AP mode)
- Network Address Translation / Port Address Translation (NAT/PAT) on RAP (Flex+Bridge AP mode)

- Splash page configuration per AP group (So same SSID can have multiple splash pages)
- Dynamic Policy Enforcement / Usage Monitoring
- Ethernet over Generic Routing Encapsulation (EoGRE) Virtual Local Area Network (VLAN) overriden withing the WLAN
- Internet Protocol security (IPSec) encryption for High Availability (HA)
- Address Space Layout Rendomisation (ASLR) Support
- Network Based Application Recognition (NBAR) update to engine 31 and protocol pack 33.0
- Webhook
- Default Differentiated Services Code Point (DSCP) marking per Application Visibility and Control (AVC) profile
- Debug arp added to debug client
- Debug commands for bonjour/mDNS added (**debug mdns client, shows mdns query stats, test mdsn)**
- Ability to see conifguration history (**show logging config-history)**
- Ability to Small Form-Factor Pluggable (SF) transceiver information (**show port sfp-info)**
- Identity PSK peer2peer blocking
- Platform information added at the begining of every debug session
- Command to see dhcp/http profiling history (**show profiling { client | history }**
- Ability to enable/disable Network Mobility Services Protocol (NMSP) port (**config nmsp service enable/disable)**
- Support to transfer upload of yang bundle through graphic interface
- Client count per radio per wlan (**show client ap { 802.11a | 802.11b } <ap-name>)**
- Netflow can no longer be enabled if AVC is disabled on the WLAN.

8.7.102.0

- Wave 2 APs - Support for FlexConnect Passive Client support
- Wave 2 APs - Support for FlexConnect Proxy Address Resolution Protocol (ARP)
- Wave 2 APs - Support for FlexConnect limit clients per radio / WLAN
- Wave 2 APs - Support for FlexConnect VLAN name Authentication, Authorization, and Accounting (AAA) override
- Wave 2 APs - Support for FlexConnect IPv6 ACL for or web authentication
- Wave 2 APs - Support for Management Frame Protection (MFP) (Not supported on 1800 series APs)
- Wave 2 APs - Support for Wired 802.1x Extensible Authentication Protocol-Transport Layer Security (EAP-TLS) and Protected EAP (PEAP)
- Wave 2 APs - Support for Bluetooth Low Energy (BLE) management
- Wave 2 APs - Support for Remote LAN (RLAN) on Aux port
- Wave 2 APs - Support for DHCP Opt 60
- Wave 2 APs - Support to use wildcard to delete or copy multiple files from AP
- Wave 2 APs - Command available to clear counters on show controller (**#clear counters [dot11radio | client]**)
- FlexConnect IPv4 pre-auth DNS ACLs
- Hyperlocation module support for multiple Connected Mobile Experience (CMX) connections
- WLC only forward probing client Received Signal Strength Indication (RSSI) data if CMX is opted
- Client statistics forwad based on CMX AP group subscription
- Daisy Chain support for AP 1560 and 1542I/D
- CleanAir with BLE Beacon disabled by default
- Custom Support configuration of Receiver Start of Packet (RX-SOP) values configurable through RF profiles
- AP 1562 backhaul speeds on 2.4GHz increased
- Support for local mac address authentication and Central Web Authentication (CWA)
- Selective client packet capture support for AP 2800/3800
- Web authentication scaling improvements for Hypertext Transfer Protocol Secure (HTTPS)

redirection
- Improved radar detection
- HA monitor includes serial number and fan status of standby WLC
- TCP Adjust MSS is now also supported for Flexconnect APs and fabric mode APs

8.6.101.0

- Beacon Point Module Support
- Custom Network access server identifier (NAS-ID) for Remote Authentication Dial-In User Service (RADIUS) accounting
- Minimum interval time for volume metering
- Maximum number of characters of password increased from 24 to 127
- Network Time Protocol (NTP) version 4 support
- Support for Secure Shell (SSH) standard login interface
- EoGRE deployment with multiple Tunnel Gateways (TGWs) enhancements
- DHCP Option 82 for EoGRE Tunnel in Cisco Wave 2 APs
- Upgrade of Access Points (APs) and Wireless LAN Controller (WLC) software with rolling AP upgrade with Prime Infrastructure 3.3
- Wave 2 APs - Support for wired 802.1x
- Wave 2 APs - Spectrum Intelligence
- Wave 2 APs - CMX FastLocate
- Mesh Leaf Node Support on IR829 AP803 and IW3700

8.5.103.0

- Support for WLC 3504
- Support for APs 1540, 1815m and 1815t
- Monitor support for APs 1540, 1560, 1810OEAP, 1810W, 1815, 1850 and 1830.
- Support for APeX
- EoGRE tunnel failover
- Identity Pre-Shared Key (PSK)
- CNAME - IPv6 Support (PreAuth ACLs with IPv6)
- 2800/3800 - Support for Client-Awre Flexible Radio Assignment (FRA)
- Wave 2 APs - Spectrum Expert Support
- Wave 2 APs - Support for Mobile Concierge
- Wave 2 APs - Addition of command **show controllers dot11radio 0/1 antenna**
- Wave 2 APs - Addition of command **show controllers dot11radio 0/1 client <mac>**
- Wave 2 APs - Collection of support bundle (**copy support-bundle { scp: | tftp: })**
- Wave 2 APs - Log history for radio reset (**show history interface dot11radio { 0 | 1 } { reset | radar })**
- Wave 2 APs - Support for IPv6 PnP (Plug-n-Play)
- Dynamic Link Exchange Protocol Client Support (DLEP) on WGB
- Transmission Control Protocol - Maximum Segment Size (TCP MSS) enabled by default with value of 1250
- GUI option to retrieve support bundle
- Apple Device and Identity Service Engine (ISE) RADIUS best practices added to monitor page
- IPv6 ping test from monitor page
- IW3702 - Support for Air Time Fairness in local and FlexConnect modes
- IW3702 - RX-SOP via CLI
- Fabric Enabled Wireless
- Support for HA N+1 on Virtual Wireless LAN Controller (vWLC)
- ISE - Support for Guest Originating URL

8.4.100.0

- Support for AP 1815
- Support for AP 1815M
- Support for AP 1542I/D
- Guest User Management - Client Allow-listing
- Domain Based Filter ACL
- ISE Simplification - Day0 RADIUS ISE default configuration
- ISE Simplication - Default RADIUS configuration for ISE server
- ISE Simplification - Default Wireless Local Area Network (WLAN) configuration for ISE server
- Captive portal bypass per Service Set Identifier (SSID)
- Client exclusion due to 802.1x timeout
- IPv6 support on 802.11ac Wave 2 APs
- AP EoGRE support on 802.11ac Wave 2 APs
- FlexConnect NAT/PAT support for central DHCP on 802.11ac Wave 2 APs
- Flexconnect AAA Quality of Service (QoS) override per client support on 802.11ac Wave 2 APs
- TrustSec enhancements
- Cisco Umbrella WLAN - OpenDNS support
- WeChat authentication
- FlexConnect - AP Easy Admin
- vWLC on Hyper-v support
- Flexconnect IPv6 EoGRE Tunnel support
- Support for HA N+1 on Virtual WLC (vWLC)
- Mesh mode and Mesh ethernet bridging support on AP 1560
- Remote LAN support on wired ports of AP 702W
- Support for Cisco Hyperlocation in HA Environment
- Link Aggregation (LAG) in Transition support
- Parallel Redundancy Protocol Enhancement on AP and WGB
- Support for NBAR2 Protocol Pack 19.1.0 (Optionally can upgrade to 24.0.0)
- No more support for APs 600, 1550, 1040, 1140 and 1260
- Ability to disable syslog server per AP and/or global
- Option to disable webauth sucess page
- Show command for the redundant port (RP port)
- Ability to add AVC profile with fastlane enabled
- TPCv1 Channel Aware Mode

8.3.111.0

- Support for AP 1560 (Local mode only)
- Support for AP 1815i
- Support for up to 4 clients (mac address) on wired ports for APs 1810 and 1810W
- Temporal Key Integrity Protocol (TKIP) support for APs 2800/3800
- Adaptive 802.11r
- QoS FastLane
  Radio Frequency IDentification (RFID) and Wi-Fi tag support
- Support for up to 512 local policies (64 before)
- Local AAA database increased to 12000 (2048 before)
- Federal Information Processing Standard (FIPS) - Support for Data Datagram Transport Layer Security (DTLS) 1.2 for AP-WLC Control and Provisioning of Wireless Access Points (CAPWAP)
- FIPS - Support new GCM cipher suites for DTLS
- FIPS - New 802.11 encryption modes

- FIPS - Simple Certificate Enrollment Protocol (SCEP) over HyperText Transfer Protocol over HTTPS support for Locally Significant Certificate (LSC)
- FIPS - IPsec configuration is profile-based
- FIPS - Syslog over IPsec support
- FIPS - IKEv1/IKEv2 supported
- FIPS - Certificate Signing Request (CSR) generation by WLC
- FIPS - Support for TLSv1.2 webadmin and webauth independent configuration
- FIPS - Different CMX server Certificate authority (CA) certificate
- FIPS - Support for CMX connectivity with TLSv1.2

8.3.102.0

- Upgrade with extra image and installation procedure (for APs 802, 1550 and 1570)
- CMX cloud connector
- URL domain filtering
- Support for -M regulatory domain in AP Industrial Wireless Local Area Network (IWLAN) 3700
- Support to enable Network Admission Control-RADIUS (NAC-RADIUS) on Pre-Shared Key (PSK) wireless network with CWA
- Foreign send called-stationID & Calling-stationID to anchor on web authentication
- Simple Network Management Protocol (SNMP) over IPSec supported over IPv6 interfaces
- SNMP traps over IPSec supported over IPv6 interfaces
- Support for ap-mac-ssid-ap-group called-stationID
- EoGRE - IPv6 support
- EoGRE - Support on WLANs for internal web authentication and WPA2-PSK
- WGB Downstream Broadcast on Multiple VLAN
- FlexConnect - Support TrustSec
- FlexConnect - Default FlexConnect group
- FlexConnect - AP only joins CAPWAP multicast group if it has a centrally switched WLAN
- PnP and Complex Programmable Logic Device (PLD) programmability
- Mesh Off Channel background Scanning
- OfficeExtended AP (OEAP) mode on Wave 2 802.11ac APs
- Log of a Radio reset event
- Link Layer Discovery Protocol (LLDP) on recovery image
- Air Time Fairness (ATF) on mesh
- NBAR Engine Upgrade on AP (NBAR2 Protocol Pack 19.1.0)
- Application Policy Infrastructure Controller Enterprise Module (APIC-EM) PnP for 802.11ac Wave 2 APs
- APIC-EM PnP for FlexConnect AP PnP
- 802.11k and 802.11v enabled by default
- DSCP/User Priority (UP) settings based on application traffic
- Fastlane support
- Proxy ARP support on FlexConnect Local Switching 802.11ac Wave 2 APs.

8.2.151.0

- TKIP Support for APs 1810/1830/1850/2800/3800

8.2.141.0

- Command to Configure Smart Dynamic Frequency Selection (DFS) (config 802.11h smart-dfs {enable | disable})

8.2.110.0

- Support for AP 2800
- Support for AP 3800
- Support for AP 1810(W)
- Support for AP -B domain
- FRA
- Fine QoS configuration
- Wired client Single Sign On (SSO)
- Graphical User Interface (GUI) Service Port SSO
- WLC Service Port support with SSO enabled
- Support of regulatory domain -K for Malaysia
- FlexConnect mode support on APs 1800/2800/3800
- Default RADIUS fallback set as passive

8.2.100.0

- Test AAA RADIUS command
- Dynamic Management User Login via AAA Server
- Custom (HyperText Transfer Protocol) HTTP Port for Profiling
- Rogue Client Information Detection for Auto Switch Port Trace (SPT)
- Large Scale Virtual WLC (vWLC)
- Smart Licensing
- Regulatory Domain -S change
- NBAR and Netflow Updates (Pack 14.0)
- WLC Netflow Enhancement
- Chromecast service on Multicast Domain Name System (mDNS) default database
- Mesh - 2.4 GHz mesh backhaul for Israel
- Mesh - Removal of Support for RX-SOP from Mesh Backhaul
- Mesh - PSK provision support for Mesh Networks
- Layer 3 (L3) Interfaces for tunneling protocols (GRE tunnels)
- ATF Phase 2
- Wireless Intrusion Prevention System (wIPS) support for 40/80 (MegaHertz) MHz and transmit capability
- AP Provisioning PnP
- Passpoint 2.0 R2 Certification
- Enhanced wIPS Support for Hyperlocation Module with Advanced Security
- WLC 5520/8510/8540 - Support to use service port on a daily basis
- WLC 5520/8510/8540 - Support Local EAP
- WLC 5520/8510/8540 - Support Wired Guest access
- WLC 2505 - Bonjour gateway support for up to 200 instance services
- Increased Channel and Transmit (Tx) Power Support for some countries
- Up to 110 country codes per WLC (prior 8.2 WLC supported 20)
- Support for TLSv1.2 for web authentication and WebAdmin
- QoS Mapping (DSCP)
- AP 3700 - Flexible Antenna port support
- AP 3700 - Daisy chain is supported
- Support for up to 32 RADIUS server (17 before)
- Support for up to 20 URLs per ACL (10 before)
- Support for learning up to 40 IP address per DNS ACL (20 before)
- Configurable EAPOL-key timeout for FlexConnect Groups - local authentication

8.1.131.0

- Support for hyperlocation module

8.1.122.0

- ATF
- Support for AP 1830

8.1.111.0

- Support for AP 1850
- Support for Universal Small Cell (USC) 8x18
- 11v - Basic Service Set (BSS) Transition Management
- Dynamic Bandwidth Selection (DBS) with Flex DFS
- Security Group Tag (SGT) Exchange Protocol (SXP) Support on WLC 8540 and WLC 5520
- QoS Map (DSCP based)
- High Speed roaming for WGB
- Mesh Convergence
- CLI addition - config ap cert-expiry-ignore {mic | ssc} enable

8.1.102.0

- Support for WLC 5520
- Support for WLC 8540
- AVC for FlexConnect
- FlexConnect Client debugs on AP
- FlexConnect Group VLAN support
- FlexConnect AAA Override of VLAN name
- HA SSO (HA-SSO) - Traps for events (when WLC turns hot standby, bulk synk complete)
- HA SSO - Management Information Base (MIB) to monitor standby status
- HA - show redundancy peer-system { statistics | cpu | memory }
- Microsoft (MS) Lync Software Defined Networking (SDN) Integration
- Support for management user session accounting records
- Guest-Anchor redundancy
- Log source IP address on failed logins
- Rogue AP validation against AAA server
- Allow WLC configurable framed Maximum Transmission Unit (MTU) size for RADIUS
- DNS radius feature changes
- Configurable dot1x exclusion attempts (1 to 10)
- Multiple User Datagram Protocol (UDP) source port support for RADIUS protocol
- EoGRE on WLC
- EoGRE on AP
- Manage of Bluetooth Low Energy (BLE) Beacons
- Faster reboot of WLC with restart instead of reset system
- Dynamic Bandwidth Selection (DBS)
- Flexible DFS (Dynamic frequency selection)
- Event Driven-Radio Resource Management (ED-RRM) triggered by Wi-Fi interference too
- Optimized roaming + 802.11v
- Seamless roaming with Inter-release controller mobility (IRCM)
- No more support for new mobility - Mobility Controller
- Kernel-based Virtual Machine (KVM) support for vWLC
- Mesh - Multi-country WLC support for mesh APs
- Mesh - RRM on 5GHz RAP
- TrustSec support on WLC 5520, 7510 and 8500
- vWLC - by default, the WLAN is locally switched
- SNMP monitor for 2ry HA-SSO controller

- 802.11k configuration available through GUI
- Multi Regulatory Domain (Country code) WLC support for Mesh APs
- FlexConnect group VLAN support override AP-specific
- Support for FlexConnect AVC on vWLC

8.0.140.0

- Multiple User Datagram Protocol (UDP) source port support for RADIUS protocol
- Support for WLC webadmin SHA256 self-signed certificate
- Logs saved in flash prior WLC reboot (show logging last-reset)
- mDNS bonjour message update with PTR RR
- SNMP MIBS support for rf-profile out-of-box

8.0.132.0

- Support for -B domain APs
- Ability to disable optimized roaming per WLAN (Disable CHD)
- Default NAS-ID per AP group as none

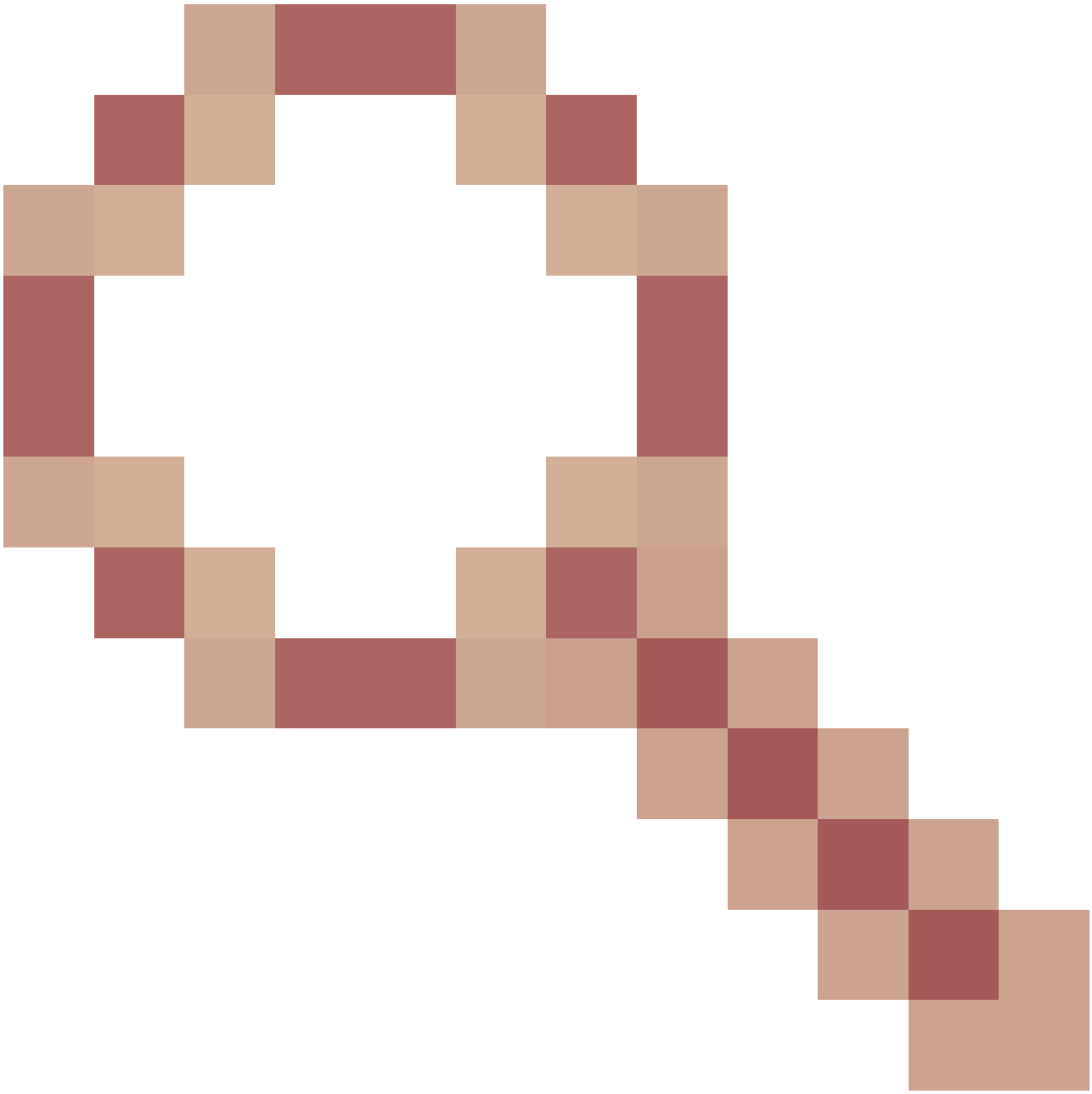
Note: AP 1572 on -B domain is properly supported until version 8.0.135.0

8.0.120.0

- Support for AP IW3702
- CLI addition - config ap cert-expiry-ignore {mic | ssc} enable

8.0.110.0

- Support for Universal Stock Keeping Unit SKU
- Support for AP 1570
- Fast SSID change enabled by default
- WLC 2500 - Express setup available through AP or client connection to any port
- Because of CSCur27551



SSLv3 is disabled by default

- Ability to enable/disable AUX ethernet port on AP 2700
- CLI command **show mesh running-config <ap-name>** to verify VLAN mapping for flex+bridge AP
- 1st client is kicked off after IP address duplication is detected

8.0.100.0

- Support for AP 1700
- 11ac module
- Support for -F domain (Indonesia)
- CleanAir Express for 1600 and 1700 AP
- OEAP AP602 GUI Enhancements
- OEAP Link Test
- OEAP - Higher priority for voice packets support (Voice QoS)
- OEAP Firewall
- OEAP AP602 Split Tunneling
- 702W (Power over Ethernet) PoE management (ability to disable PoE port)

- 702W VLAN tag per Ethernet port
- FlexConnect VideoStream in local switching
- FlexConnect - Convert AP mode from Local to FlexConnect without reboot
- FlexConnect AP joins WLC's multicast group
- FlexConnect proxy ARP
- FlexConnect + Mesh (bridge)
- Mesh - Fast Convergence
- Mesh - No MAC address Authentication
- vWLC support for 6,000 clients
- CAPWAP data keep-alive support
- Point-to-Point Protocol over Ethernet (PPPoE) client on FlexConnect AP
- WLC 2500 - Wired guest access support
- Vendor Specific attribute (VSA) value pairs (AVPs)
- RADIUS selection by realm
- HTTPS redirect
- Rejection on wrong WLAN id on 802.1x SSID
- Ability to change the SSID/Profile Name
- Ping from dynamic interface (extended ping)
- IP address included in the output of show ap summary
- AP search per IP address on GUI
- Add CLI show system… to monitor WLC's performance
- Add CLI show run-config startup-commands
- AP CLI to choose AP mode #capwap ap mode local/bridge
- Add CLI show client detail displays profile/ssid name
- Add CLI show ap join stats shows current real name
- CLI show rogue ap summary - extended options
- Ability to enable Telnet/SSH for all APs
- GUI Web Color Theme
- Flash AP light-emitting diodes (LEDs) via SNMP and GUI
- debug client shows AP name
- Ability to update Organizational Unique Identifier (OUI)/Device Profile list
- 11v support (Directed Multicast Service [DMS] and BSS Max Idle Period)
- 11r mixed mode support
- DHCP opt 82, sub-option 5 and sub-option 151/152
- FIPS 140-2
- Specific neighbor SSID and interference AP & client detection
- QinQ tag enhancement (802.1Q-in-Q VLAN tag)
- Dynamic Channel Assignment (DCA) in RF profiles
- RX SOP
- Optimized roaming
- Proxy Mobile IPv6 (PMIPv6) - FlexConnect as Mobile Access Gateway (MAG)
- HA-SSO bulk sync status
- HA-SSO new debugs/shows
- HA-SSO Configurable keep-alive timers/retries
- HA-SSO replace peer Redundancy Management Interface (RMI) Internet Control Message Protocol (ICMP) ping with UDP message
- HA-SSO default gateway reachability check enhancement
- HA-SSO Support for internal DHCP server
- HA-SSO Support for sleeping client feature
- HA-SSO support for OEAP 600 APs
- HA-SSO support for 802.11ac
- IPv6 support (Phase III)
- IPv6 - Terminal Access Controller Access Control System (TACACS+) IPv6 support
- mDNS phase 3 (ISE policies, profile enhancements, PI instant services)

- AVC AAA override
- AVC directional QoS
- AVC integration with local profile
- AVC per application, per client rate limit on WLAN
- Radio monitor for 80MHz
- Added regulatory domain -S for Hong Kong
- Country code KR is changed to KE (for Korea)
- Country code JP (for Japan) is removed
- Maximum RSSI for friendly rogue Aps
- Wi-Fi Protected Access/TKIP only configurable through CLI
- Netflow support on 3rd party NMS
- Ability to clear pmipv6 mag stats (clear pmipv6 mag stats)
- AP name duing asso/reasso on debug client output
- Out of the box config persistent option
- CLI command to verify all certificates installed in the WLC (show certificate all)
- VLAN transparent feature bridges all non-defined VLANs on flexconnect-mesh
- PoE column on WLC's GUI to check AP's PoE status (**WIRELESS > Access Points**)
- GUI support for AP Primed Joined timeout
- Configurable webauth required timeout
- Sleeping client support on web passthrough wLAN
- Ability to clear queue-info-max stats (clear queue-info [detail <queue-id>/all/capwap/dot11/ipv6/mobility/redundancy])
- iTunes home sharing removed from default mDNS list
- Ability to make changes in SNMP community through GUI
- Ability to disable MFP traps
- Ability to disable AVC stats per GUI button
- 20/40/80MHz off-channel scan on serving channel
- Windows 8 profile support

7.6.120.0

- Support for AP 2700
- Support for AP 700W
- WLC 2500 - WLAN Express Setup
- Band Select mid-RSSI support

7.6.100.0

- Support for AP 3700
- Support for AP 1530
- Support for Universal Small Cell 5310 on AP 3600
- DFS channels on Aps 700 -A domain
- Access Control List (ACLs)
- Secure Lightweight Directory Access Protocol (LDAP)
- Called Station ID for Accounting
- EAP timers per WLAN
- Ethernet Fallback shutdown
- Layer 2 (L2) ACL GUI
- 11h channel switch (easier CLI configuration)
- Apple Captive Bypass for IOS 7
- 11ac configuration on HA environment
- Last support for NBAR 3.7 (AVC v13)
- Transmit Power Control (TPC) min/max values with bands enabled

- Mesh preferred parent per GUI
- Mesh LSC authentication (MAC bypass)
- China -H domain migration (allow indoor use of 5150 MHz to 5350 MHz)
- Mesh Daisy Chain
- Can add Licenses to WLC HA SKU
- WLC 2500 - Support for 1000 sleeping clients (500 previously)
- WLC 5508 - Support for 1000 sleeping clients (same as before)
- WiSM 2 - Support for 1000 sleeping clients (same as before)
- WLC 7500 - Support for 25000 sleeping clients (9000 previously)
- WLC 8500 - Support for 25000 sleeping clients (9000 previously)
- WLC 8500 - Does not support new mobility
- vWLC - Support for 500 sleeping clients (same as before)
- HA SSO - Automatic recover from maintenance mode after network converges

7.5.102.0

- Support of 802.11ac module (Wave 1) on AP 3600
- Support for AP 700
- Support for WLC 8500 as anchor controller
- Support of SFP-10G-LR on WLC 7500
- L2 ACLS
- Introduced -Z domain (Australia and New Zealand)
- RADIUS and TACACS+ DNS
- Ping with source interface
- AP's IP address in show ap summary
- IP address in show client summary
- Add CLI - Grep support
- Wildcard support in Change Filter in GUI
- Mesh APs can be pinged before they join a controller
- VLAN tag on 1552 APs
- Client deauthtetication through username or IPv4/IPv6
- Ability to choose if local management users are Telnet capable or not
- Maximum number of APs allowed per WLC
- New Mobility and Mobility Controller (MC) support
- HA Client SSO and Redundancy Port (RP) trough L2 switch
- Internal Policy Classification Engine
- Protocol Pack update capability for AVC/NBAR2
- mDNS Phase II (Location Specific Services [LSS], mDNS-AP, priority mac, origin of service)
- Sleeping client support
- Rogue Policy per security level
- Data rate selection for rogue containment
- Validate rogue clients against Mobility Service Engine (MSE)
- FlexConnect on stand-alone can keep performing rogue containment
- Automatically assign number of APs to contain a rogue
- Wildcard SSID per rogue policy
- Set rogue policy to delete a rogue from WLC database
- DTLS support on vWLC
- AP Rate limit on vWLC
- Protected Extensible Authentication Protocol (PEAP) and Extensible Authentication Protocol-Transport Layer Security (EAP-TLS) for FlexConnect (Local Auth)
- WLAN to VLAN maps for FlexConnect Groups and APs
- Per client ACL on FlexConnect APs
- L2ACL FlexConnect

- QoS AAA Override for FlexConnect Local Switching
- FlexConnect - Client load balancing support
- No more support of PPPoE on FlexConnect Aps
- 11w on Flex and Mesh APs
- PMIPv6 (Proxy Mobile IPv6) - support for CWA/external web authentication
- Aeroscout removal from MSE
- Rest Application Programming Interface (API) support on MSE
- MSE exposes the RSSI for RFID tags
- BBX (Billboard Exchange)
- OEAP - split tunneling
- Cisco License Manager (CLM) is no longer supported
- Default 802.1p tags changed (Platinum to 5 from 6, Gold to 4 from 5, Silver 2 from 3)
- Support for certificates generated using OpenSSL v1.0
- CLI command **show queue-info** addition
- Data DTLS on vWLC support
- CAPWAPv6 AP multicast mode support
- AAA Override QoS support
- OEAP support for APs 1130,1240,1040,1140,1600,2600,3500,3600

7.4.150.0

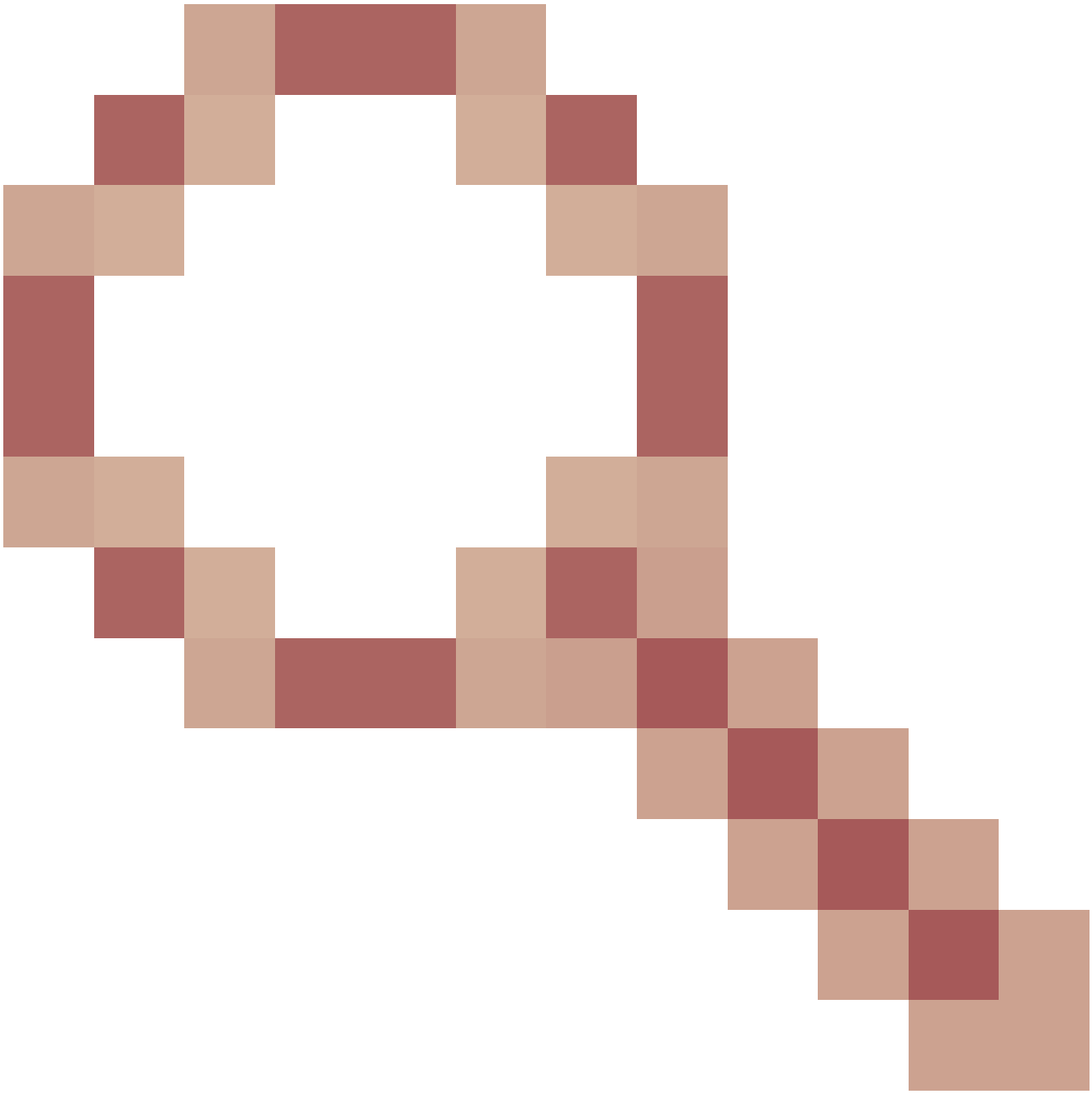
- Support for -B domain APs

7.4.140.0

- Introduction of config ap cert-expiry-ignore {mic | ssc} enable

7.4.130.0

- Because of CSCur27551



, SSLv3 is disabled by default

7.4.100.0

- Support for AP 1600
- WLC 2504 - Support for 75 Aps and 1000 clients
- WLC 2504 - Support to be anchor WLC
- WLC 2504 - Support for Link Aggregation (LAG)
- WLC 7500 - Support for LAG
- WLC 8510 - Support for LAG
- AVC with NBAR2
- Bonjour gateway (mDNS support - Phase I)
- Support for Wireless Security and Spectrum Intelligence (WSSI) monitor module
- 802.1x + web authentication support
- Support for pre-auth ACL to block DNS for web authenticated clients
- NAS-ID per interface, WLAN or AP group
- New attributes for Called station ID

- Support for RADIUS creation within FlexConnect groups (CLI changed)
- New TACACS+ command sets
- Location name of 254 characters (AP's Location)
- Support for more DHCP opt 82 attributes
- SSH File Transfer Protocol (SFTP)
- N+1 support with HA SKU controller
- User idle timeout per WLAN
- User idle threshold per WLAN
- Limit connections to 11n clients only
- Load balancing per ethernet port utilization
- Client & tags threshold warning
- wIPS Enhancements
- wIPS Attack containment
- Enhanced rogue containment
- Support for all signatures on Enhanced Local Mode (ELM)
- wIPS new signatures
- Extra DHCP opt 82 attributes
- Support for NetFlow protocol
- Attributes for Called Station ID
- 802.11w - MFP
- 802.11k
- Link Layer Discovery Protocol (LLDP) support
- Global Positioning System (GPS) support for outdoor
- WLAN for voice auto-config
- Ability to backup 3rd party certificates from WLC
- SNMP trap support for client association/disassociation

7.3.112.0

- New Mobility

Note: New mobility is not supported on version 7.4. From version 7.5 and beyond it is supported.

7.3.101.0

- Support for vWLC
- Support for WLC 8500
- Support for AP 2600
- Support for AP 1552CU/EU
- Support for AP802H
- WLC 8510 - Support for 6000 APs
- WLC 8510 - Support for 2000 FlexConnect groups
- WLC 8510 - Support for 64000 clients
- WLC 8510 - Support for 6000 AP groups
- WLC 8510 - Support for 100 APs per FlexConnect group
- WLC 8510 - Support for 4096 VLANs
- WLC 8510 - Support for 24000 rogue APs and 32,000 rogue clients
- WLC 7500 - Support for 6000 APs, 6400 clients, 2000 flex groups
- WLC 7500 - Support for 64000 clients
- WLC 7500 - Support for 2000 FlexConnect groups

- WLC 7500 - Support for 6000 AP groups
- WLC 7500 - Support for 100 APs per FlexConnect group
- WLC 7500 - Support for 4096 VLANs
- WLC 2500 - Support for 2500 rogue clients and 2000 rogue APs
- WLC 5508 - Support for 2500 rogue clients and 2000 rogue APs
- WLC WiSM2 - Support for 5000 rogue clients and 4000 rogue APs
- WLC 7500 - Support for 32000 rogue clients and 24000 rogue APs
- vWLC - support for 1500 rogue clients and 800 rogue APs
- WiSM 2 - Support for 10,000 RFIDs
- WLC 7500 - Support for 50,000 RFIDs
- WLC 8500 - Support for 50,000 RFIDs
- vWLC - Support for 3000 RFIDs
- Honor based license (Right to Use [RTU] licenses)
- FIPS 140-2
- HA AP SSO
- FlexConnect - Split tunneling
- FlexConnect - 802.11r (Fast Transition) support in Central/Local switching
- FlexConnect - Network Address Translation (NAT) and Port Address Translation (PAT) on locally switched WLAN
- FlexConnect - PPP and PPPoE support
- FlexConnect - WGB/Universal WGB support in FlexConnect Locally Switched mode
- FlexConnect - Support for 802.11u (HotSpot 2.0)
- FlexConnect - VLAN-based local and central switching
- AP packet-dump
- HTTP profiling for local and flex mode (RADIUS profiling)
- Bi-directional rate limit per WLAN/User (bandwidth contract)
- PMIPv6 (Proxy Mobile IPv6)
- CLI to enable/disable IPv6 globally
- Ability to upload the output of the show run-config to a FTP server by CLI
- Can use Ethernet VLAN tag on AP
- Default RF Profiles for High Density
- AP group out of the box
- Multicast improvement
- 802.11n voice Call Admission Control (CAC)
- 802.11n video CAC (Traffic Specification [TSPEC]-based video calls, Cius and facetime calls)
- WIPS - auto SPT
- 11u new features (hotspot)
- Local/flex/sniffer/rogue detector/monitor support for 1520 and 1550
- DHCP opt 82 - Can specify the name and SSID of the AP
- Ability to specify name and SSID of AP on RADIUS CallStationID
- WLAN with 802.1X if MAC authentication with static Wired Equivalent Privacy (WEP) fails
- Usernames are displayed in client summaries
- RADIUS servers per WLAN from 3 to 6
- RADIUS source interface per AP group
- VLAN tagging support for CAPWAP packets
- Ability to enable/disable for webauth or webauthadmin independently

7.2.110.0

- Support for AP 2600
- Bring your own device (BYOD) (ISE auto-provisioning)
- Native Sensor DHCP Support in Local and FlexConnect mode (Device Profiling)
- ISE NAC Device profiler for WLC

- External Web-Auth for Local Switching FlexConnect
- 802.11r for AP in local mode (Fast Roaming)
- AP 1520/1550 support for local and flexconnect mode
- Support for tag multicast address
- Support for RADIUS Client Profiling
- Can upgrade from a Licensed Data Payload Encryption (LDPE) controller to a non-LDPE

7.2.103.0

- FIPS
- WLC 7500 support for 3000 APs (2000 before)
- WLC 7500 support for 30,000 clients (20,000 before)
- WLC 7500 support for 1000 FlexConnect groups (500 before)
- WLC 7500 support for bandwidth central switch to 1 Gb (250 Mb before)
- WLC 7500 support for 3000 OEAP (OEAP 600s)
- WiSM2 support for 1000 APs (500 before)
- WiSM2 support for 15000 clients (7500 before)
- WiSM2 data plane of 20G (10G before)
- CleanAir - Persistent Device Avoidance
- CleanAir - Event-Driven Radio Resource Management (EDRRM)
- CleanAir - Unclassified Interference Threshold/Trap
- Rogue enhancement
- Rogue - Minimum RSSI for rogue detection/classification
- Rogue - Rogue detection report interval
- Rogue - Transient Rogue Interval
- Rogue - Rogue AP Ignore List
- Wi-Fi Direct & Peer-to-Peer (P2P) Blocking
- TPCv2
- RF Profiles
- Flexconnect - Hybrid Remote Edge Access Point (H-REAP) is called FlexConnect from this release and so on
- Flexconnect - P2P Blocking
- Flexconnect - FlexConnect efficient AP Upgrade
- Flexconnect - FlexConnect ACLs
- Flexconnect - AAA Override to Assign Dynamic VLANs
- Flexconnect - Fast Roam for Voice Clients
- Support for SKC (sticky key caching)
- DHCP opt 82 as American Standard Code for Information Interchange (ASCII) instead of binary
- Central switching mode support on WLC 7500
- Adder license without reboot
- Alloy QoS
- Trust DSCP between AP and controller
- TrustSec SXP for WLCs
- IPv6 - Block of Router Advertisement (RA) from controller and AP
- IPv6 address visibility per client
- IPv6 - Neighbor Discovery Protocol (NDP) proxy and rate limit of IPv6 packets
- IPv6 - Unknown Address Multicast Neighbor Solicitation (NS) Forwarding
- Cisco Compatible Extensions version 6 (CCXv6)
- Unlicensed National Information Infrastructure 2 (UNII-2) and UNII-2 extended for 1552 APs
- 802.11u (Hotspot 2.0)
- Key Telephone System-based CAC (KTS-based CAC)
- StadiumVision Multicast
- Local Web Authentication / Central Web Authentication Support (LWA/CWA)

- Online Certificate Status Protocol (OCSP)
- Open security WLAN with EAP passthrough
- Configuration of ClientLink only through CLI
- Support for APs behind NAT
- RFC 2869 Conformity
- iWLAN AAA override - client interface/VLAN override
- Mesh - Native VLAN not sent to Mesh Access Point (MAP) Ethernet port when VLAN transparent mode enabled
- Mesh - Indoor mesh support for AP 3600
- MSE - Virtual appliance
- MSE - High availability
- 600 OEAP - can disable local SSID and local ports trough CLI
- 600 OEAP - can configure power, channel and channel width
- 600 OEAP - dual RLAN support
- CLI command to display number of voice calls in WLC **(show cac voice stats [802.11a | 802.11b] <ap-name>)**
- Ability to disable AP HA Fallback
- Ability to debug multiple mac address
- Support for Captive portal bypass

7.1.91.0

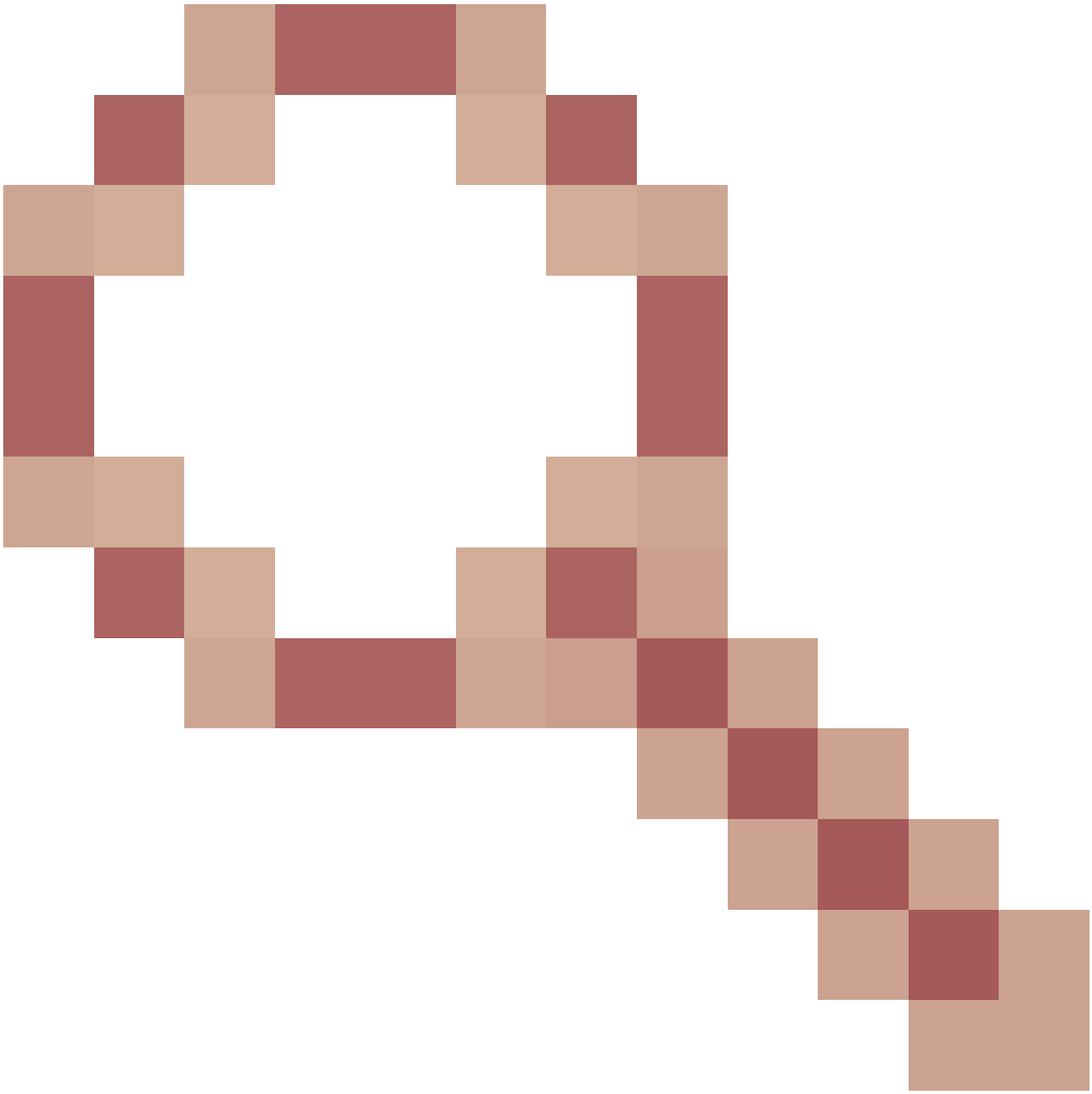
- Support for AP 3600

7.0.252.0

- Introduction of config ap lifetime-check {mic | ssc} enable

7.0.251.2

- Because of CSCur27551



, SSLv3 disable by default

7.0.220.0

- Online Certificate Status Protocol (OCSP)
- Introduction of show ap bundle
- Introduction of config network ap-discovery nat-ip-only
- Band select support on AP 1040
- Clients doing passive scan can join a WLAN wit load balancing enable at first try

7.0.116.0

- Support for WLC 7510
- Support for WLC 2504
- Support for WiSM 2
- Support for interface groups
- VLAN select per DHCP dirty

- WLAN AAA override - client interface override
- RADIUS server overwrite interface
- VLAN select per foreign WLC maps (foreign maps)
- VLAN select & L2/L3 multicast optimization
- DHCP opt 60 + vendor name
- DHCP opt 82 (AP_Eth_MAC)
- Encryption of Neighbor Discovery Packet (NDP) packets
- Cisco Discovery Protocol (CDP) over the air disable by default (non-mesh)
- RF static group leader
- Support for 100 H-REAP groups
- Opportunistic Key Caching (OKC) for H-REAP groups
- H-REAP Local Authentication
- H-REAP groups and local radius server
- H-REAP fault tolerance
- Limit number of clients per WLAN
- Rogue auto-containment level
- wIPS with ELM
- Support with ISE v1.0
- Password policies (Product Security Baseline [PSB])
- Roam between WLC for static-IP clients (static-ip tunneling)
- Fast AP failover
- WebProxy
- Web Auth on MAC filter failure
- Regulatory approval for Chile and Russia
- Voice Diagnostic tools
- Dropped channels 120, 124, 116 and 132
- Mesh - preferred parent selection
- Mesh - 2.4 GHz as mesh backhaul
- Mesh - Universal client access
- CDP over the air
- Non-Cisco WGB support
- Support for NTP Authentication
- Ability to disable old crash files from WLC (**clear crash-files...**)
- DHCP proxy status added to **show run-config** output
- Ability to create more than one SSID with same security settings and differentiate them with PSK
- Name of AP included in **show client detail** output
- IGMP snooping support
- WMM non-compliant U-APSD client support

7.0.98.218

- Flexibility for Cisco Centralized Key Management (CCKM) max timestamp validation
- WGB VLAN client feature

7.0.98.0

- Support for AP 3502
- WGB with multiple VLANs
- Support for 500 APs in 5508
- Support for 500 AP join/image download simultaneously
- Video/media stream
- CleanAir
- Initiation Protocol - CAC (SIP CAC)

- Passive clients
- Spectrum Expert 4.0
- Ability to set up upper and lower limits on TX power for RRM
- Ability to clear internal DHCP lease
- Ability to enable/disable CDP per radio interface

6.0.202.0

- CLI to disable Aggregated Mac Service Data Unit (A-MSDU) per priority
- Added -R regulatory domain

6.0.188.0

- Band Select
- Load Balancing
- TPC max/min limit
- AP image pre-download
- Off-Channel scan defer
- AP gives preference to WLC that has its same code version found on Discovery Response message
- Configurable timer when AP tries to join primary/secondary/tertiary WLC (Primed Join timeout)

6.0.182.0

- Support for WLC 5508
- Support for 1522, 1524, 1130 and 1240 in mesh mode
- Auto-Immune
- Beamforming (also called ClientLink)
- Login Banner File
- Packet capture files when controller's data plane crashes
- DCA algorithm redesigned to prevent pinning and cascading
- Transmission Control Protocol - Maximum Segment Size (TCP MSS) Adjustment
- Voice over IP (VoIP) Snooping (SIP voice calls)
- Telnet disabled by default
- GUI addition - Tx Power Control threshold
- GUI addition - Radios page (Wireless > Access Point > Radios)
- GUI addition - AP join stats page
- GUI addition - DHCP opt82
- GUI addition - Telnet-SSH configuration
- GUI addition - LSC configuration
- OEAP support for APs 1130 and 1140
- Mesh - bridge data rate auto
- Mesh - Can disable intrusion detection system (IDS) on outdoor Mesh
- 128-bit WEP no longer available
- Before delete an ap-group all the APs need to be moved to a new group
- Can specify a DNS server and AP domain on APs with static ip address
- Need to enable multicast to allow IPv6 bridging
- Can specify delimiter for MAC address in auth/acct access-request
- Rogue detection per AP
- Pico Cell configuration no longer available
- MAC addresses in called-station-id and calling-station-id now as lower case
- Support for 192 AP groups in 5500 WLC
- AP in sniffer mode
- No support for fragmented pings

- 40-MHz channels in 2.4GHz band
- Channels 120,124 and 128 disable on -E regulatory domain APs 1131, 1243 and 1252
- IPSec not supported
- Rate shifting

Features Supported Prior Version 6.0

- LAG
- Multicast - multicast
- QoS DSCP
- Call Admission Control (CAC) and U-APSD
- Support for IOS WGB association to LWAPP AP
- AP groups
- Mesh Ethernet bridging
- CPU ACLs
- Multiple WLANs with the same SSID
- Conditional Web Redirect with 802.1x Authentication
- Ability to Disable Accounting Servers per WLAN
- DFS
- L3 multicast roaming
- EDCA for spectralink phones
- RFID tags support
- Broadcast enabling/disabling independent of multicast
- ARP padding
- MFP
- Local Authentication
- Load-based CAC
- LDAP support
- Expedited BAndwith Request support
- DHCP Proxy
- Mobiity - Foreign/Anchor
- Mobility - Symetric tunneling
- Client MFP
- TACACS+ support
- ACL counters
- Mesh ethernet VLAN tagging
- Mesh multicast mode for ethernet bridged clients (in/in-out)
- Mesh multicast support for roaming L2/L3
- Mesh limited voice support (indoor)
- Coverage Hole Detection per WLAN
- CAPWAP
- Context aware
- wIPS
- LSC
- AP Authorization