Cisco Unified Wireless Network Software Release 4.0

PB3282

Cisco Systems® announces the availability of Cisco® Unified Wireless Network Software Release 4.0. This release contains new features, as well as support for the features delivered in Cisco Unified Wireless Network Software Release 3.2. This software release introduces support for the following features:

- Regulatory domain updates
- Controllers
  - Cisco Catalyst® 3750G Integrated Wireless LAN Controller
  - Security enhancements
    – Cisco Unified Intrusion Detection System (IDS)/Intrusion Prevention System (IPS)
    – IDS event correlation
    – Management frame protection (MFP)
    – Undergoing Federal Information Processing Standards (FIPS) 140-2 Level 2 Validation
  - Dynamic Host Configuration Protocol (DHCP) server enhancements
  - Ethernet over IP (EoIP) ping for mobility groups
  - DHCP relay option 82 (access point MAC, Service Set Identifier [SSID])
  - 802.3 Ethernet frame bridging
  - Voice enhancements
    – Cisco Compatible Extensions Version 4
    – Wi-Fi Multimedia Traffic Specifications (TSpec) Call Admission Control
    – Voice planning mode tool
    – Gratuitous Probe Response for dual-mode phones
    – Unscheduled Automatic Power Save Delivery (UPSD)
    – Voice-over-WLAN (VoWLAN) metrics
  - Guest access enhancements
    – Guest access custom login screen
    – Guest access lobby ambassador portal
  - Access control list (ACL) enhancements
  - Hybrid remote edge access point (REAP)
  - Unique Device Identifier (UDI)
  - Wireless mesh enhancements
    – Wireless mesh link-distance adjustment
    – Increased scalability of wireless mesh access points

- Cisco Aironet® access points
  - Lightweight Access Point Protocol (LWAPP) for Cisco Aironet 1100 Series (802.11g radio only)
  - LWAPP for Cisco Aironet 1300 Series (access point mode only)
  - LWAPP upgrade tool enhancements
  - Cisco Aironet 1500 Series mesh networking enhancements
    – Enhanced quality of service (QoS) for wireless mesh backhaul
    – 4.9-GHz support for wireless mesh
    – Wireless mesh optimal parent selection
    – Bridge group enhancements
    – Exclusion listing
  - Power over Ethernet (PoE) settings on Controller GUI
  - Command-line interface (CLI) for initial LWAPP configuration
- Cisco Wireless Control System (WCS)
  - Migration of CiscoWorks Wireless LAN Solution Engine (WLSE) to Cisco WCS
  - Cisco WCS mobility group templates
  - Cisco WCS licensing
  - Cisco WCS increased access point scalability
- Cisco WCS and Cisco Aironet 1500 Series enhancements
  - Cisco WCS increased wireless mesh access point scalability
  - Cisco WCS support for third-party antennas on the Cisco Aironet 1500 Series
  - Increased scalability of mesh information on maps
  - Hierarchical view of mesh access point associations
  - Improved heat-map accuracy for outdoor environments
- Cisco Wireless Location Appliance
  - Expanded Wi-Fi device support
  - Automated appliance scripts
  - Planning mode
  - Readiness assessment tool
  - Inspector tool
  - Location jitter reduction
  - Automatic notifications
  - Asset template
  - Calibration tool updates
  - Antenna diversity
  - Location display enhancements
  - Location troubleshooting enhancements
  - Cisco Location Appliance API Program

New Features

The following new features are included in Cisco Unified Wireless Network Software Release 4.0. These features are supported by Cisco Aironet access points running LWAPP; Cisco 2000 and 4000 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM); the Cisco Wireless LAN Controller Module (WLCM); the Cisco Catalyst 3750G Integrated Wireless LAN Controller; the Cisco 2700 Series Wireless Location Appliance; and the Cisco Wireless Control System (WCS).

Table 1 lists new features in Cisco Unified Wireless Network Software Release 4.0. These features are supported in this release for the platforms noted.

Table 1. New Cisco Unified Wireless Network Software Release 4.0 Features

New Features	Cisco Aironet 1500 Series Wireless Mesh Access Points	Cisco Aironet Access Points Running LWAPP[1]	Cisco 2000 and 4400 Series Wireless LAN Controllers	Cisco Catalyst 3750G Integrated Wireless LAN Controller	Cisco Catalyst WiSM	Cisco WLCM	Cisco Wireless Location Appliance	Management Interfaces: Cisco WCS, Wireless LAN Controller Web User Interface, Command-Line Interface (CLI)
Cisco Catalyst 3750G Integrated WLAN Controller	–	X	–	X	–	–	X	X
Cisco Unified IDS/IPS	–	X	X	X	X	X	–	–
Management Frame Protection (MFP)	–	X	–	–	–	–	–	–
IDS Enhancements	–	–	X	X	X	X	–	–
DHCP Server Enhancements	–	X	X	X	X	X	–	–
EoIP Ping for Mobility Groups	–	–	X	X	X	X	–	–
DHCP Relay Option 82 (Access Point MAC, SSID)	–	X	X	X	X	X	–	–
802.3 Ethernet Frame Bridging	–	–	X	X	X	X	–	X
Cisco Compatible Extensions Version 4	–	X	X	X	X	X	X	X
Wi-Fi Multimedia TSpec Call Admission Control (CAC)	–	X	X	X	X	X	–	–
Gratuitous Probe Response for Dual-Mode Phones	–	X	X	X	X	X	–	–
Unscheduled Automatic Power Save Delivery (UPSD)	–	X	X	X	X	X	–	–
VoWLAN Metrics	–	X	X	X	X	X	–	–

[1] Cisco Aironet 1000, Aironet 1100, Aironet 1130, Aironet 1230, Aironet 1240, Aironet 1300, and Aironet 1500 Series Lightweight Access Points

New Features	Cisco Aironet 1500 Series Wireless Mesh Access Points	Cisco Aironet Access Points Running LWAPP[1]	Cisco 2000 and 4400 Series Wireless LAN Controllers	Cisco Catalyst 3750G Integrated Wireless LAN Controller	Cisco Catalyst WiSM	Cisco WLCM	Cisco Wireless Location Appliance	Management Interfaces: Cisco WCS, Wireless LAN Controller Web User Interface, Command-Line Interface (CLI)
Guest Access Custom Login Screen	–	X	X	X	X	X	X	X
Guest Access Lobby Ambassador Portal	–	X	X	X	X	X	X	X
ACL Enhancements	–	–	X	X	X	X	–	–
Hybrid REAP	–	X	X	X	X	X	–	–
Unique Device Identifier (UDI)	–	X	X	X	X	X	X	X
Wireless Mesh User-Configurable Bridge Distance	X	–	–	–	–	–	–	–
Wireless Mesh Bridge Group	X	–	–	–	–	–	–	–
Wireless Mesh Exclusion Listing	X	–	–	–	–	–	–	–
Increased Scalability of Wireless Mesh Access Points	X	–	–	–	–	–	–	–
Regulatory Domain Updates	–	X	X	X	X	X	X	X
Pre-Stage Configuration for LWAPP Access Points	–	X	–	–	–	–	–	–
LWAPP for Cisco Aironet 1100 Series (802.11g Radio Only)	–	X	–	–	–	–	–	–
LWAPP for Cisco Aironet 1300 Series (Access Point Mode Only)	–	X	–	–	–	–	–	–
LWAPP Upgrade Tool Enhancements	–	X	–	–	–	–	–	–
Cisco Aironet 1500 Series Enhancements	–	X	–	–	–	–	–	–
PoE Settings on Controller GUI	–	X	–	X	X	X	–	X
CLI for Initial LWAPP Configuration	–	X	–	–	–	–	–	–
Migration of CiscoWorks WLSE to Cisco WCS	–	–	–	–	–	–	–	X

New Features	Cisco Aironet 1500 Series Wireless Mesh Access Points	Cisco Aironet Access Points Running LWAPP[1]	Cisco 2000 and 4400 Series Wireless LAN Controllers	Cisco Catalyst 3750G Integrated Wireless LAN Controller	Cisco Catalyst WiSM	Cisco WLCM	Cisco Wireless Location Appliance	Management Interfaces: Cisco WCS, Wireless LAN Controller Web User Interface, Command-Line Interface (CLI)
Cisco WCS Mobility Group Templates	–	–	X	X	X	X	–	X
Cisco WCS Licensing	–	–	–	–	–	–	–	X
Cisco WCS Increased Access Point Scalability	–	–	–	–	–	–	–	X
Cisco WCS Increased Wireless Mesh Access Point Scalability	X	–	–	–	–	–	–	X
Cisco WCS Support for Third-Party Antennas on the Cisco Aironet 1500 Series	X	–	–	–	–	–	–	X
Increased Scalability of Mesh Information on Maps	X	–	–	–	–	–	–	X
Hierarchical View of Mesh Access Point Associations	X	–	–	–	–	–	–	X
Improved Heat-Map Accuracy for Outdoor Environments	X	–	–	–	–	–	–	X
Expanded Wi-Fi Device Support	–	–	–	–	–	–	X	X
Automated Appliance Scripts	–	–	–	–	–	–	X	X
Planning Mode	–	–	–	–	–	–	X	X
Readiness Assessment Tool	–	–	–	–	–	–	X	X
Inspector Tool	–	–	–	–	–	–	X	X
Location Jitter Reduction	–	–	–	–	–	–	X	X
Automatic Notifications	–	–	–	–	–	–	X	_
Asset Template	–	–	–	–	–	–	X	X
Calibration Tool Updates	–	–	–	–	–	–	X	X
Antenna Diversity	–	–	–	–	–	–	X	X
Location Display Enhancements	–	–	–	–	–	–	X	X
Location Troubleshooting Enhancements	–	–	–	–	–	–	X	X

New Features	Cisco Aironet 1500 Series Wireless Mesh Access Points	Cisco Aironet Access Points Running LWAPP[1]	Cisco 2000 and 4400 Series Wireless LAN Controllers	Cisco Catalyst 3750G Integrated Wireless LAN Controller	Cisco Catalyst WiSM	Cisco WLCM	Cisco Wireless Location Appliance	Management Interfaces: Cisco WCS, Wireless LAN Controller Web User Interface, Command-Line Interface (CLI)
Cisco Location Appliance API Program	–	–	–	–	–	–	X	X

Wireless LAN Controllers

Cisco Catalyst 3750G Integrated WLAN Controller

The new Cisco Catalyst 3750G Integrated Wireless LAN Controller is introduced with this software release. This new device integrates wireless LAN controller functionality into stackable Catalyst 3750G Series Switches and delivers improved operating efficiency, unparalleled WLAN security, mobility, and ease of use for business-critical WLANs. This solution allows users to integrate WLAN functionality into the access layer of the network, or any location where they are using Cisco Catalyst 3750 Series Switches.

For more information, visit: http://www.cisco.com/en/US/products/hw/switches/ps5023/index.html

Security Enhancements

Cisco Unified Intrusion Detection System/Intrusion Prevention System

The Cisco Unified IDS/IPS (Figure 1) is part of the Cisco Self-Defending Network and is the industry's first integrated wired and wireless security solution. The Cisco Unified IDS/IPS takes a comprehensive approach to security—at the wireless edge, wired edge, WAN edge, and through the data center. When an associated client sends malicious traffic through the Cisco Unified Wireless Network, a Cisco wired IDS device detects the attack and sends shun requests to Cisco wireless LAN controllers, which will then disassociate the client device.

Figure 1. Cisco Unified IDS/IPS Detects Malicious Attacks Allowing the WLAN Controller to Disassociate the Offending Client Device

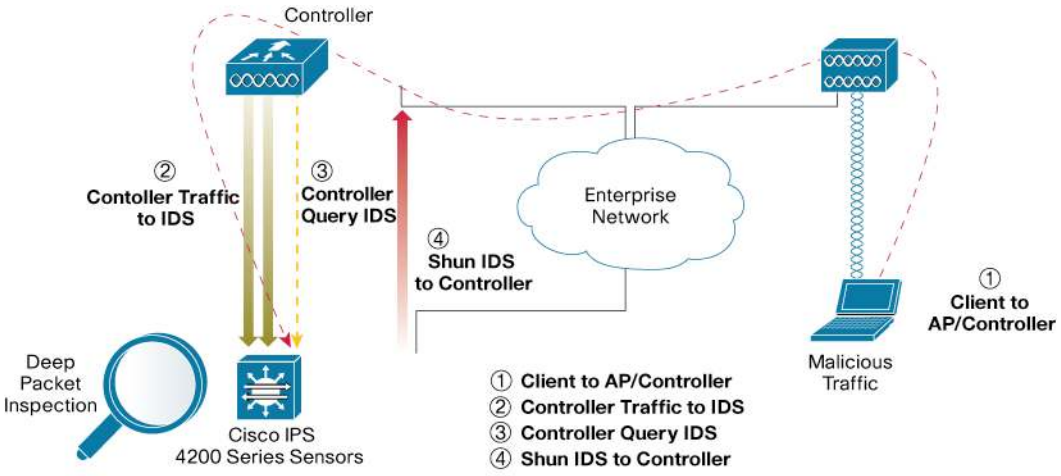


Table 2 lists the platforms supported by Cisco Unified IDS/IPS.

Table 2. Cisco Unified IDS/IPS Platforms Supported

Platform	Software Required
Cisco IPS 4200 Series Sensors	Cisco IPS Sensor Software v5.x
SSM10 and SSM20 for the Cisco ASA 5500 Series Adaptive Security Appliances	Cisco IPS Sensor Software v5.x
Cisco ASA 5500 Series Adaptive Security Appliances	Cisco IPS Sensor Software v5.x
NM-CIDS Cisco IDS Network Module	Cisco IPS Sensor Software v5.x
Cisco Catalyst 6500 Series Intrusion Detection System Module 2 (IDSM-2)	Cisco IPS Sensor Software v5.x
Cisco IOS® Intrusion Prevention System (IPS)	Cisco IOS Software Release 12.3(8)T or later

IDS Event Correlation

The Cisco IDS signature engine on controllers and on the Cisco WCS automatically eliminates duplicate alerts for rogue access points, rogue clients, and IDS signatures that previously occurred when two or more access points detected the same attacker. Now instead of one IDS alert from each detecting access point, a single alert is generated for the attack.

Management Frame Protection

Management frame protection (MFP) provides for the authentication of 802.11 management frames by the wireless network infrastructure. This allows the network to detect spoofed frames from access points or malicious users impersonating infrastructure access points.

DHCP Server IP Addresses for Access Points

This feature allows controllers to provide IP addresses to access points that are on the same subnet as the controller. In prior software releases, the DHCP server provided IP addresses to clients, but not directly to access points.

EoIP Ping Support for Mobility Group Members

Ethernet over IP (EoIP) ping can be used to validate connectivity between members of a mobility group (including guest controllers). This capability is particularly useful for validating that a guest controller located outside the firewall is reachable from within a mobility group, or to determine if a mobility group member is no longer reachable, which would affect client mobility. It is also useful to help ensure that the intermediate network infrastructure will not inhibit mobility.

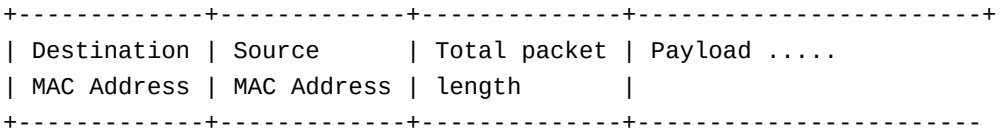
DHCP Relay Option 82 Support (Access Point MAC, SSID)

In addition to option 43, DHCP option 82 may be used for configuring the IP address, subnet mask, default gateway, and IP address of a controller for an LWAPP access point.

802.3 Ethernet Frame Bridging

Support for raw 802.3 frames allows the controller to bridge non-IP frames for applications not running over IP. Figure 3 shows an example.

Figure 2. 802.3 Ethernet Frame Bridging Example



Voice Enhancements

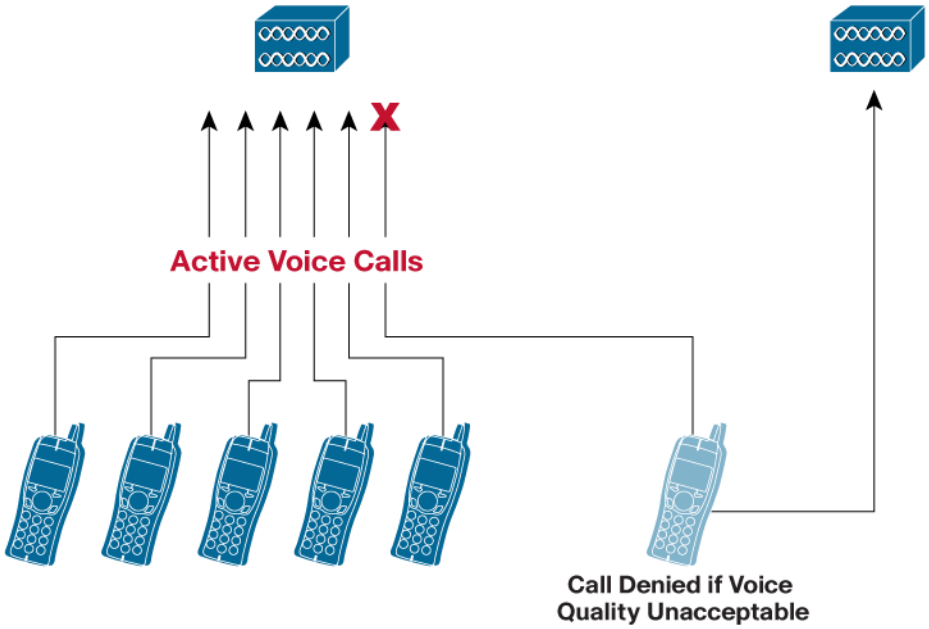
Cisco Compatible Extensions Version 4

Cisco Unified Wireless Network Software Release 4.0 supports Cisco Compatible Extensions Version 4. For details, please visit: http://www.cisco.com/go/ciscocompatible/wireless

Wi-Fi Multimedia TSpec Call Admission Control

This feature supports an optional element of Wi-Fi Multimedia (WMM). WMM is a subset of the IEEE 802.11e QoS draft standard, supporting QoS-prioritized media access using the Enhanced Distributed Channel Access (EDCA) method. The TSpec feature helps ensure predictable voice quality and encourages roaming by managing the total voice load on the access point. Call Admission Control (CAC) keeps the number of active voice calls from exceeding the configured limits of an access point (Figure 3). With this feature, phones are always connected to an access point, but not necessarily on an active call. This helps ensure that the voice quality of existing calls is maintained.

Figure 3. Call Admission Control Ensures Predictable Voice Quality Through Load-balancing



Voice Planning Mode Tool

This Cisco WCS planning mode tool provides access point placement and density recommendations for ease of deployment and delivery of a quality voice-ready WLAN network.

Gratuitous Probe Response for Dual-Mode Phones

This feature conserves the battery power of a dual-mode (cellular and WLAN) phone by providing a packet that is transmitted from the access point at a predefined high-rate time interval. With the Gratuitous Probe Response feature, the phone is not required to listen for beacons on each channel to detect the presence of a WLAN while in cellular mode. This allows the phone to spend less time detecting a WLAN and helps preserve battery life.

Unscheduled Automatic Power Save Delivery

This QoS feature extends the battery life of mobile clients and reduces the latency of traffic flow over the wireless media. Because it does not require the client station to send a poll for each individual packet buffered at the access point, this feature allows delivery of multiple downlink packets by sending a single uplink trigger packet. Unscheduled Automatic Power Save Delivery (UPSD) is enabled when WMM is enabled on the radio interface. This feature improves the quality of VoIP packet management on access points by enhancing 802.11 MAC behavior for lower latency. It provides enhanced retry and rate-shifting algorithms that reduce congestion on wireless networks.

Note: In Cisco Unified Wireless Network Software Release 4.0, UPSD supports only the access point role. Repeaters, bridges, and workgroup bridge roles are not supported.

VoWLAN Metrics

This feature provides diagnostic information pertinent to VoIP performance on the WLAN and aids in determining whether problems are being introduced by the WLAN or the wired network. Supported VoWLAN metrics include measurements of jitter and packet loss on a location, access point, or client basis, as well as information on client roaming and roam latency.

Guest Access Enhancements

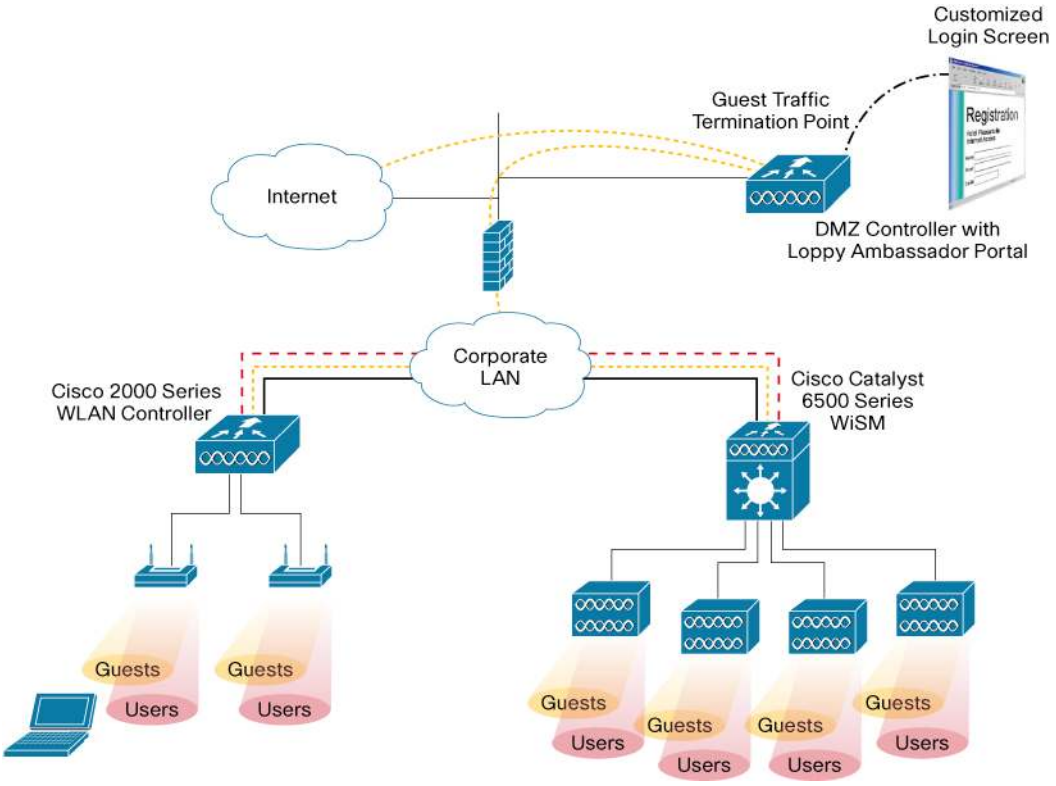
Guest Access Custom Login Screen

Administrators may upload an HTML image file to the controller that replaces the default Web authentication page that guests traditionally see when logging into a controller-based guest network. This file can be downloaded to the controller using Trivial File Transfer Protocol (TFTP) and can be up to 1 MB in size. Administrators can preview the customized page through the controller's Web user interface prior to activation. Only one of the Web authentication methods can exist at any given time on the controller: default or customizable login screen.

Guest Access Lobby Ambassador

This feature allows for the creation of local usernames and passwords and for local or RADIUS-based authentication of guest users (Figure 4). Local and remote accounts can be created and given a defined allotment of time for access. Passwords can be automatically generated or manually defined. The local database stores up to 2048 entries that expire after the time allowed on the network has expired.

Figure 4. The Cisco Unified Wireless Network Offers Secure Guest Services



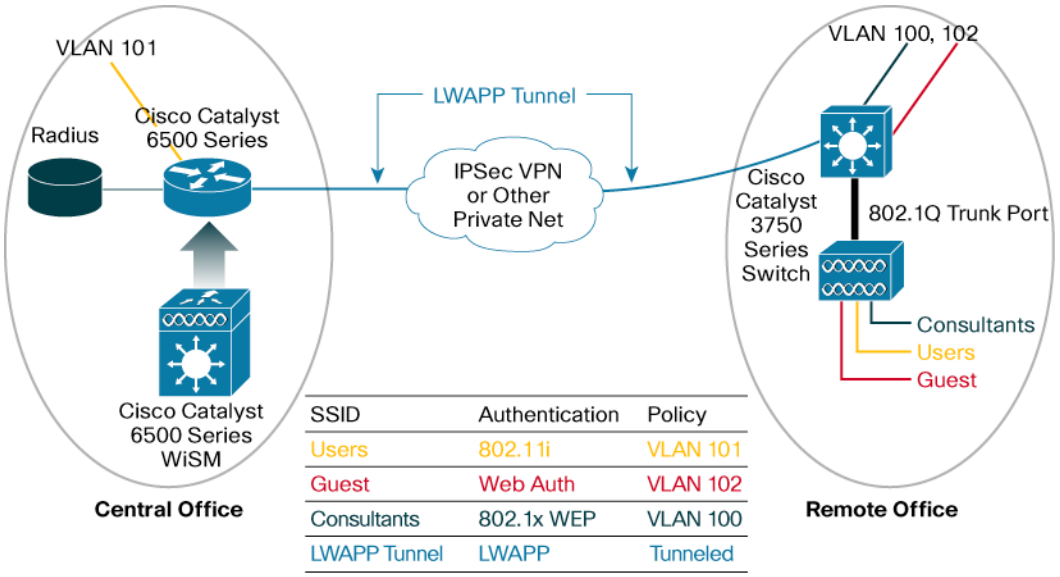
Access Control List Enhancements

In previous software releases, ACLs were tied to interfaces (VLANs) on a controller. In Cisco Unified Wireless Network Software Release 4.0, an ACL can be tied to a user. This means that users who exit a controller on the same interface can have different ACL rules applied to them.

Hybrid Remote Edge Access Point

Remote edge access point (REAP) capabilities allow the Cisco Aironet 1240 AG and Aironet 1130 AG Series Access Points to be deployed remotely from the wireless LAN controller, making it ideal for branch office and small retail locations. Hybrid REAP capabilities (Figure 5) help IT managers to centrally control Service Set Identifiers (SSIDs), security parameters, and software loads, facilitating unified, enterprisewide wireless LAN services.

Figure 5. Remote Edge Access Point (REAP) Capabilities Allow Users to Deploy Access Points in Remote Offices, and Choose Whether They Would Like to Have Traffic Bridged Locally, or Tunneled over the WAN over LWAPP on a Per-SSID Basis



SSID	Authentication	Policy
Users	802.11i	VLAN 101
Guest	Web Auth	VLAN 102
Consultants	802.1x WEP	VLAN 100
LWAPP Tunnel	LWAPP	Tunneled

Unique Device Identifier Support

This feature provides the capability to uniquely identify Cisco wireless LAN controllers and LWAPP access points. The wireless LAN controller and the access points Unique Device Identifier (UDI) is retrievable through the CLI and GUI of the wireless LAN controller. The UDI is imprinted in the wireless LAN controller and access points. This information is used for RMA, inventory control, and Cisco manufacturing processes.

Regulatory Domain Updates

The following regulatory domain updates are included in this software release. They expand the use of the Cisco Unified Wireless Network in European Union countries and offer additional channel support in China, Singapore, Mexico, Australia, and Hong Kong.

- The following countries can be configured on Cisco wireless LAN controllers:
  - Bulgaria, Chile, Columbia, Gibraltar, Liechtenstein, Malta, Monaco, Panama, Peru, Philippines, Romania, Russian Federation, Turkey, Ukraine, and Venezuela.
  - For the regulatory domain that applies to your specific country, visit: http://www.cisco.com/application/pdf/en/us/guest/products/ps5861/c1650/cdccont_0900aecd80537b6a.pdf

- The Cisco Aironet 1500 Series has been expanded to include support for additional regulatory domains. The supported regulatory domains are A, C, E, K, N, P, and S. Please check the compliance Webpage listed above for the regulatory domain that applies to your country, and for compliance availability of the Cisco Aironet 1500 Series for your country. In some cases, the regulatory domain has been made available in software, but country homologation is pending.
- Support for channel 165 in the C, N, and S regulatory domains.

Note: Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, please visit: http://www.cisco.com/application/pdf/en/us/guest/products/ps5861/c1650/cdccont_0900aecd80537b6a.pdf

Wireless Mesh Enhancements

Wireless Mesh User-Configurable Bridge Distance

Historically, wireless mesh bridge links were limited to two miles. In this release, bridge distance capabilities are expanded. Cisco wireless LAN controllers now support the ability to specify the distance between nodes used for bridging to a remote location. Performance capabilities of the radio and the RF environment determine the actual distances possible between bridges.

Increased Scalability of Wireless Mesh Access Points

Cisco wireless LAN controllers now support a greater number of wireless mesh access points, simplifying management of large-scale mesh deployments and reducing deployment and operational costs. Controllers now support from 25 percent to 100 percent more mesh access points, depending on the controller model and the number of non-mesh access points associated with the controller.

Cisco Aironet Access Points

Pre-Stage Configuration for LWAPP Access Points

This feature allows users to preconfigure the IP address, subnet mask, and default gateway, and to program a primary, secondary, and tertiary IP address of a controller into access points using the access point's serial connection. After an access point contacts a controller, the ability to change these settings is lost, and changes to these settings can then be performed only from a controller, or using DHCP.

LWAPP for Cisco Aironet 1100 Series (802.11g Radio Only)

The Cisco Aironet 1100 Series Access Point can be upgraded from autonomous access point mode to lightweight mode using the Autonomous to Lightweight mode upgrade tool.

LWAPP for Cisco Aironet 1300 Series (Access Point Mode Only)

The Cisco Aironet 1300 Series Access Point can be upgraded from autonomous access point mode to lightweight mode using the Autonomous to Lightweight mode upgrade tool. Only access point mode is supported; the Cisco Aironet 1300 Series in LWAPP mode does not support operation as a bridge or workgroup bridge.

LWAPP Upgrade Tool Enhancements

For increased robustness and scalability, the LWAPP upgrade tool provides reliable upgrades on WAN links operating at 128 kbps or more and is capable of simultaneously upgrading four access points. The channel and power settings of all access points are recorded during the upgrade process, in case there is a need to roll back while retaining RF configuration settings.

Wireless Mesh Enhancements

Enhanced QoS for Wireless Mesh Backhaul

Wireless mesh access points categorize traffic traveling between nodes over the wireless backhaul into 802.11e priority queues. This feature provides improved QoS for high-priority traffic, improving voice and video applications over the mesh network.

4.9-GHz Support for Wireless Mesh

The Cisco Aironet 1500 Series has been approved for use in the 4.9-GHz band in Japan and the United States. In the United States, the 4.9-GHz band is available only to licensed public safety agencies, providing a level of protection from interference from other wireless devices. The Cisco Aironet 1500 Series now supports operating the wireless backhaul on the 4.9 GHz channels for public safety license holders.

Wireless Mesh Optimal Parent Selection

The wireless mesh Optimal Parent Selection feature enhances the Adaptive Wireless Path Protocol (AWPP) by enabling mesh access points to scan available backhaul channels to listen for access point path ease information for neighboring access points. By selecting the optimal ”parent,” the wireless mesh access point improves the automatic formation of the mesh network, helping ensure optimal network capacity.

Bridge Group Enhancements

New wireless mesh access points can be introduced with zero-touch configuration into an existing wireless mesh network with a configured bridge group name, simplifying deployment. With the wireless mesh bridge group enhancement, new wireless mesh access points ship with the bridge group name (BGN) set to the default setting. Controllers can accept access points with the default BGN setting in addition to those with the configured BGN value. Once deployed, these access points join the controller and can be reconfigured to the desired BGN value.

Wireless Mesh Exclusion Listing

The Adaptive Wireless Path Protocol (AWPP) has been enhanced so that a mesh access point employs an intelligent exclusion-listing algorithm to exclude as a parent any access point through which it cannot establish a link to the controller. This feature improves convergence time of the mesh network.

CLI for Initial LWAPP Configuration

From the access point console, administrators can now configure new commands to program a static IP address on Cisco Aironet access points along with the subnet mask, default gateway, and the addresses of controllers in the network. This solution is useful for environments that do not support DHCP, or in remote offices, where a local DHCP server cannot be configured to support option 42. After the access point has contacted a wireless LAN controller in the network, the access point console is no longer available.

PoE Enhancements

PoE Settings on Contoller GUI

Inline power and power injector settings may now be configured for the Cisco Aironet 1130AG Series Access Point or Cisco Aironet 1230AG Series Access Point in the Cisco WLAN Controller GUI.

Cisco Aironet 1130AG Series Access Points LED Off Command

Users can choose to turn off the lights on the Cisco Aironet 1130AG Series Access Point.

Cisco Aironet 1130AG Series Access Points Flashing LED

Users can choose to have a flashing LED on their on the Cisco Aironet 1130AG Series Access Point so that a technician knows which access point to look for.

Cisco Wireless Control System

Migration of CiscoWorks WLSE to Cisco WCS

This release provides support for software conversion of an existing CiscoWorks Wireless LAN Solution Engine (WLSE), model 1130-19, into a server that runs Cisco WCS. This allows customers of CiscoWorks WLSE to migrate to the Cisco Unified Wireless Network architecture using their existing CiscoWorks WLSE platform. Once converted, a CiscoWorks WLSE is no longer a self-contained appliance; it becomes a server that runs Cisco WCS software using a Linux OS—a copy of RedHat Linux ES v. 4.0 software is included with the CiscoWorks WLSE migration CDs. The converted CiscoWorks WLSE operates as a new Cisco WCS installation and supports only lightweight access points and wireless LAN controllers that are running LWAPP. Autonomous access points are not supported by a converted CiscoWorks WLSE. A CiscoWorks WLSE that has been converted to Cisco WCS cannot be reverted back to operate as a CiscoWorks WLSE.

Special conversion CDs must be used to convert a CiscoWorks WLSE to Cisco WCS. Please read the CiscoWorks WLSE Migration to Cisco WCS Product Bulletin to understand the migration process and the Cisco WCS Licensing and Ordering Guide for ordering information. Read the Cisco WCS Configuration Guide, Appendix C, for installation and deployment guidelines.

Note: The CiscoWorks WLSE Express (Model 1030) and CiscoWorks WLSE (Model 1105 or 1133) **cannot** be converted to Cisco WCS using the conversion CDs. DO NOT install the CiscoWorks WLSE CDs on to these platforms because this conversion will not work and it is not supported by Cisco Systems®.

Cisco WCS Mobility Group Templates

Historically, Cisco WCS required users to create a template, and then to assign the template to specific controllers or access points that were in a network. In this release, users can assign a template to all of the elements in a mobility group. Users can select the mobility group name, and then apply the template across the entire mobility group domain. Users still have the option to assign templates to specific network elements.

Cisco WCS Licensing

This software release adds support for licensing enforcement of Cisco WCS software. Cisco WCS licensing enforcement is tied to the following parameters:

- **Host name**—A host name of the Cisco WCS server is now required during the registration process.
- **Feature option**—Customers can choose from two Cisco WCS feature options: Base or Location. The Cisco WCS Base feature supports standard Cisco WCS capabilities. The Cisco WCS Location feature includes all base features plus the ability to track a single Wi-Fi device on demand or expand location capabilities by adding a Cisco Wireless Location Appliance to simultaneously track up to 2500 Wi-Fi devices.
- **Access points**—The number of lightweight access points supported in set increments of 50, 100, 500, 1000, or 2500 is now tracked by the Cisco WCS licensing system.
- **Demonstration license**—A full featured, location-enabled Cisco WCS Demonstration License that supports ten access points for up to 30 days is available with this release. This free demonstration license can be downloaded from Cisco.com at http://www.cisco.com/go/license or https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet. It is listed under Network Mgmt Products > Wireless Control System > Wireless Control System 30 day trial license. There is no Cisco Technical Assistance Center (TAC) support for the Cisco WCS Demonstration License. After registering to receive a license, customers must download Cisco WCS software from http://www.cisco.com/cgi-bin/tablebuild.pl/Wireless_Control_System_Software (login required) and then follow the instructions in the email entitled “Wireless Control System Field Demo License” to activate the Cisco WCS Demonstration License. Please read the detailed instructions for registering and downloading the Cisco WCS Demonstration License in the Cisco Wireless Control System (WCS) Licensing and Ordering Guide.

To successfully complete the Cisco WCS registration process, customers must have the following Cisco WCS licensing information available before installing Cisco Unified Wireless Network Software Release Version 4.0:

- Contact information
- Correct host name of the computer where Cisco WCS will be installed. (Only one host name can be associated per Product Authorization Key (PAK) certificate.)
- PAK certificate. The PAK is a paper certificate sent via US mail upon purchase of the Cisco WCS license.

The PAK is an authorization certificate that allows customers to receive a Cisco WCS license. All customers must go to the Cisco licensing registration site listed on their PAK certificate to complete their Cisco WCS registration. The PAK certificate provides clear instructions on how to complete the Cisco WCS licensing process. Cisco WCS will not be activated until the PAK registration process is completed.

If the Cisco WCS license is not correctly installed, daily expiration alarms and Syslog messages are generated, and new controllers cannot be added.

Please read the Cisco WCS Licensing and Ordering Guide for more information about Cisco WCS licensing and the new Cisco WCS licensing SKUs now available from Cisco.com.

Cisco customers and partners should contact Cisco customer service at http://www.cisco.com/go/customerservice to resolve Cisco WCS licensing **ordering** issues.

Cisco customers and partners can request **technical support assistance** for Cisco WCS licensing by contacting Cisco TAC at (800) 553-2447 or emailing tac@cisco.com. Alternatively, customers and partners can send an email to Cisco Licensing licensing@cisco.com for Cisco WCS licensing technical support assistance.

Cisco customers and partners can request a PAK certificate to upgrade from a previous release of Cisco WCS to Release 4.0 by sending an email to: wcs-customer-license@cisco.com. Cisco will attempt to respond to requests to this alias within 48 hours Monday-Friday 9AM-5PM Pacific Standard Time. This alias is **only** for issuing PAK certificates for Cisco WCS license upgrades. It is not for requesting TAC support, troubleshooting, ordering issues, or customer service issues.

Cisco WCS Increased Access Point Scalability

Software improvements increase scalability of Cisco WCS to support up to 2500 Cisco Aironet lightweight access points.

Cisco WCS and Cisco Aironet 1500 Series Enhancements

Cisco WCS Increased Wireless Mesh Access Point Scalability

Software improvements of mesh link rendering increase scalability of the monitoring maps to support up to 100 wireless mesh access points per outdoor area.

Cisco WCS Support for Third-Party Antennas on the Cisco Aironet 1500 Series

Cisco WCS now allows third-party antennas certified for use with the Cisco Aironet 1500 Series to be selected in the access point configuration screen. This provides improved heat-map accuracy for deployments that use these antennas. Table 3 lists the third-party antennas supported by the Cisco WCS when deployed with the Cisco Aironet 1500 Series.

Table 3. Supported Third-Party Antennas

Manufacturer	Part Number	Description
Cushcraft	S2406BP7NM	2.4–2.5 GHz 8-dBi omnidirectional antenna
Cushcraft	S49014WP	4.9–5.99 GHz 14-dBi panel antenna
Cushcraft	S54717P	5.47–5.85 GHz 17-dBi panel antenna

Increased Scalability of Mesh Information on Maps

The Cisco WCS monitor maps now display mesh information (such as link signal-to-noise ratio [SNR], packet statistics, and link metrics) for up to 100 mesh access points. This improves monitoring of large mesh deployments.

Hierarchical View of Mesh Access Point Associations

The Cisco WCS monitor maps now provide a hierarchical view of the mesh network. A nested “parent-to-child” structure provides an alternative view of the paths between nodes established in the mesh.

Improved Heat Map Accuracy for Outdoor Environments

Cisco WCS provides improved heat-map accuracy for mesh access points deployed in outdoor environments. Predictive heat maps are better tuned for the RF characteristics seen in outdoor environments. This provides a more accurate prediction of metro-scale coverage by mesh access points.

Cisco Wireless Location Appliance Enhancements

Expanded Wi-Fi Device Support

The Cisco Wireless Location Appliance now supports simultaneous visibility of up to 2500 Wi-Fi devices.

Automated Appliance Scripts

The Cisco Wireless Location Appliance now supports automated scripts to assist with the initial setup of the appliance.

Planning Mode

The Cisco Wireless Location Appliance planning mode provides recommendations for access point placement and density to create a WLAN deployment that supports location accuracy within the specifications of the location appliance.

Readiness Assessment Tool

This tool helps customers determine if their current WLAN deployment is sufficient to support location accuracy within the specifications of the location appliance.

Inspector Tool

The Cisco Wireless Location Appliance inspector tool is used post-deployment to determine the location accuracy throughout the WLAN. It provides location measurements that assess the quality of location accuracy. It can also be used for on-going performance tuning of the network.

Location Jitter Reduction

This configurable parameter supports the reduction of position jitter of a stable Wi-Fi device.

Automatic Notifications

This release supports the automatic notification of two new alerts: Wi-Fi tag battery level and Wi-Fi device position change. These notifications can be provided over multiple transport types: Syslog, Simple Network Management Protocol (SNMP) traps, e-mail, and Simple Object Access Protocol (SOAP) XML API. The Wi-Fi tag battery level notification indicates the Wi-Fi tag's power level. The Wi-Fi device position change notification sends an alert when the position of a device changes. These two new notifications enhance existing location alerts based on absence, inside/outside defined areas, and distance or movement from reference points.

Asset Template

This template allows quick definition of Wi-Fi device categories, groups and names. These definitions can be distributed simultaneously to multiple devices and imported into or exported out of the location appliance.

Calibration Tool Updates

The location calibration time of the Cisco Wireless Location Appliance has been greatly reduced for WLANs using Cisco Compatible Extensions Version 2 or later wireless client devices. Improvements in location accuracy resulting from this faster calibration can be visualized using the location inspector tool.

Antenna Diversity

Antenna diversity (received signal strength indication [RSSI] per antenna) is now a factor in the Cisco Wireless Location Appliance lookup algorithm. This allows the algorithm to determine the RSSI on a per-antenna basis and provides for improved location fidelity.

Location Display Enhancements

The location details of a tracked Wi-Fi device can now be viewed in a new window. Tracked devices can be searched or viewed based upon the time their most recent signal was received or their client state such as associated or unassociated.

Location Troubleshooting Enhancements

When location accuracy does not conform to specifications, a new location debug feature can be enabled. This feature displays the access points that contributed to the location calculations, the signal strength of these devices and a time stamp of when the signal strength measurement was last received. Screenshots of this display can be sent to the Cisco Technical Assistance Center to help with location services troubleshooting.

Cisco Location Appliance API Program

The Cisco Location Appliance API Program is introduced with this release. This program allows Cisco customers and partners to interface with the Cisco Wireless Location Appliance API to create customized location applications and solutions. Organizations can join this program by accepting the Web-based license agreement. The API is available for free. Optional integration and development support is available on a fee-basis.

Download the New Software for This Release

Download Cisco Unified Wireless Network Software Release 4.0 from the Cisco Wireless Software Display Tables.

Related Information

- For more information about Cisco wireless LAN products, visit: http://www.cisco.com/go/wireless
- For more information about the Cisco Unified Wireless Network, visit: http://www.cisco.com/go/unifiedwireless

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