Cisco Unified Wireless Network Software Release 5.1

PB471258

Overview

Cisco continues to strengthen its industry-leading WLAN architecture by delivering new software features with the Cisco Unified Wireless Network Software Release 5.1. With this release, Cisco broadens its WLAN platform to deliver important infrastructure enhancements and innovative features for security and location services. Cisco Unified Wireless Network Software Release 5.1 includes the following features:

- Access point failover priority offers network managers more granular control in configuring high availability for wireless networks.
- Radio resource management (RRM) support for 802.11n 40-MHz channels improves 5-GHz client support for 802.11n networks.
- Cisco Wireless Control System (WCS) virtual domains deliver enhanced access control to organizations by allowing them to limit an individual IT administrator's access to only those wireless network segments that are the IT administrator's individual responsibility.
- Service providers can now easily manage multiple customer WLANs from a single Cisco WCS platform.
- Increased scalability allows users to roam across a larger mobility space, thus providing a better user experience for voice and data applications.
- Intuitive, real-time security dashboard and vulnerability assessment detailing errors in configurations or weak security settings with suggested remedies to increase security.
- Increased efficiencies in location calculation by selecting the areas where location should be calculated and excluding areas that may have interference or are unlikely to have clients/tags.

New Features

The following new features are included in Cisco Unified Wireless Network Software Release 5.1. These features are supported by Cisco Aironet® access points running Lightweight Access Point Protocol (LWAPP); Cisco 2100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst® 6500 Series and Cisco 7600 Series Wireless Services Module (WiSM); Cisco Wireless LAN Controller Module (WLCM) and Cisco Wireless LAN Controller Module Enhanced (WLCM-E) for integrated services routers; Cisco Catalyst 3750G Integrated Wireless LAN Controller; Cisco 3300 Series Mobility Services Engine; Cisco 2700 Series Wireless Location Appliance; Cisco WCS, and Cisco WCS Navigator.

Cisco Aironet Access Points

Table 1 describes the new Cisco Aironet access point features available with Cisco Unified Wireless Network Software Release 5.1.

Table 1. New Cisco Aironet Access Point Features

Feature	Description	Benefit
RRM Support for 802.11n 40-MHz Channels	With this release 40-MHz channels can be automatically configured on the Cisco Aironet 1250 Series Access Point using Cisco WCS or the WLAN controller. This feature only applies to 5-GHz radios and is not supported on the 2.4-GHz radios.	Customers with large WLAN deployments can reduce setup time by using dynamic channel assignment. This allows network managers to improve 802.11n network performance by automatically configuring optimal 40-MHz channels for 802.11 5-GHz clients.
Access Point Failover priority	Network managers can configure priorities for lightweight access points in the event of a controller failover. In the event a primary controller goes offline and a backup controller is saturated, the higher priority access points are allowed to join the backup controller.	Access point failover priority offers network managers more granular control in configuring high availability for wireless networks.
Cisco Aironet® 1250 Series Support for One or Two Antennas per Radio	With this release, the Cisco Aironet 1250 Series radio module can be configured to operate with only one or two antennas.	For customers who do not want to use the full 802.11n capabilities of the Cisco Aironet 1250 Series, this feature provides a variety of deployment options including workgroup bridge, support for legacy 802.11a/b/g clients, and reduced 802.11n throughput mode.
New Dipole Antenna Support in Cisco WCS	This feature provides support for heat map views of the antenna coverage pattern in Cisco WCS. Supported antennas include: • 5 GHz, 3.5dBi: AIR-ANT5135DW-R, AIR-ANT5135DG-R • 2.4 GHz, 2.2 dBi: AIR-ANT2422DW-R, AIR-ANT2422DB-R, AIR-ANT2422DG-R	Expanded antenna choice for customers.
Regulatory Compliance for Russian Federation	The existing country code for Russian Federation is modified to support A and E regulatory domains with Cisco Aironet 1130, 1230, and 1240 Series access points. The 1250 series access points are not certified in Russian Federation to support A and E regulatory domains at this time.	Updates on the regulatory compliance of Cisco Aironet access points for Russian Federation. For the latest Cisco WLAN compliance status, please visit the following website.

Cisco Wireless LAN Controllers

Table 2 describes the new Cisco Wireless LAN Controller features available with Cisco Unified Wireless Network Software Release 5.1. These features are supported by Cisco 2100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series WiSM; Cisco WLCM and WLCM-E for integrated services routers; and the Cisco Catalyst 3750G Integrated Wireless LAN Controllers.

Note: Cisco Unified Wireless Network Software Release 5.1 for Cisco Wireless LAN Controllers does not support Cisco Aironet 1520, 1510, or 1505 Series outdoor mesh access points. These access points are supported by Cisco Unified Wireless Network Software Release 4.1.192.17M (or a later release). Cisco Unified Wireless Network Software Release 4.1.192.17M is part of a specialized release train that supports mesh access points.

Note: Cisco WCS can simultaneously manage multiple Cisco Wireless LAN Controllers running different software versions. Cisco WCS running Software Release 5.1 can simultaneously manage Cisco Wireless LAN Controllers running Release 5.1 to support Cisco Aironet lightweight access points and Cisco Wireless LAN Controllers running Release 4.1.192.17M to support Cisco Aironet mesh access points. A single Cisco WCS can manage these wireless LAN controllers up to the maximum number of controllers and access points supported by Cisco WCS.

Cisco Wireless LAN Controller software is downloadable from the Cisco Software Center. Display tables for each Cisco Wireless LAN Controller model are located at:
http://www.cisco.com/kobayashi/sw-center/sw-wireless.shtml (login required).

Table 2.   New Cisco Wireless LAN Controller Features

Feature	Description	Benefit
Increased Scalability	The mobility domain is now expanded across 72 wireless LAN controllers. These controllers provide inter-and intra-subnet roaming for clients by sending mobility messages to other member controllers.	This feature expands the mobility space and provides greater coverage as users roam across a larger network area and is especially helpful when deploying voice applications across the network.
Access Point Failover Priority	Administrators can assign a critical, high, medium or low priority to an access point. This allows the higher-priority access points to join the backup controller before the lower-priority access points in the event that an access point loses connectivity to its "regular" controller.	Organizations will have better minimum coverage in case of failure for mission-critical applications.
2100 Series Multicast Enhancements	Full Internet Group Management Protocol (IGMP) snooping and pruning is supported. An access point will transmit multicast packets if a client associated with the access point is subscribed to the multicast group.	The new multicast enhancements allow organizations to optimize their wireless LAN for voice and video applications by reducing traffic and server loads and simultaneously delivering a single stream of information to multiple users. These enhancements also provide for better utilization of the WLAN resources.

Cisco Wireless Control System

Table 3 presents the new Cisco WCS management, monitoring, and ease-of-use features available with Cisco Unified Wireless Network Software Release 5.1.

Cisco WCS software is available for download from the Cisco Software Center. The Cisco WCS software display table is located at: http://www.cisco.com/cgi-bin/tablebuild.pl/Wireless_Control_System_Software (login required).

Table 3.   New Cisco WCS Management, Monitoring, and Ease-of-Use Features

Feature	Description	Benefit
Cisco WCS Virtual Domains **Cisco WCS Virtual Domains Brochure**	Cisco WCS virtual domains (partitioning) allows individual IT administrators to manage the segments of the wireless network under their responsibility. Cisco WCS virtual domains can be grouped by hierarchical domains and partitioned by access points, wireless LAN controllers or maps. Users can be restricted to discrete infrastructure components, service entities or geographic regions. • Infrastructure components include: controllers, lightweight access points, standalone (autonomous) access points, configuration templates, rogue access points, rogue ad hoc access points, summary page, events, reports, alarms, tags, clients, and chokepoints. • Service entities include guest access and location servers. • Geographic regions include: maps, buildings, floors, and campus areas. Common network management features, including searches, reports, role-based access control (RBAC), and RADIUS/TACACS+ have been enhanced to support virtual domains. The configurations of controllers and access points dedicated to a domain can be applied in a standalone manner within each individual domain or partition. In a shared controller wireless deployment, configurations of the controller and access points can be applied at the top-most level of partition within the virtual domain/partition hierarchy.	Enhanced access control is provided to organizations by allowing them to limit an individual IT administrator's access to only those wireless network segments that are under the IT administrator's individual responsibility. Service providers can easily manage multiple customer WLANs from a single Cisco WCS platform. Cisco WCS level partitioning can be provided by Cisco WCS Navigator in addition to the Cisco WCS virtual domains/partitions.
Green Initiative	Improved power management of Cisco Aironet access points to support the Cisco Green initiative. Cisco access points can be turned on or off periodically at scheduled intervals to save power.	Organizations can reduce power costs by turning access points on or off at scheduled intervals. This feature can also be used to manage network security or restrict WLAN usage.

Feature	Description	Benefit
Configuration Auditing	Configuration auditing supports auditing of the configuration of each wireless LAN controller to confirm that it's running configuration is identical to the configuration listed in Cisco WCS database. Configuration auditing can be performed at three different levels: • Controller level • Set of controllers within a mobility group • Entire network level A configuration audit set is a reference configuration based on a set of templates. Configuration templates need to be created and applied to a set of controllers before adding the templates to the configuration audit set. Setting up configurations using templates and auditing using configuration sets are two independent management tasks. Remediation of audit discrepancies can be performed using Cisco WCS audit discrepancy remediation options.	The Cisco WCS configuration audit feature has been improved to allow organizations to more easily audit their controller configurations.
Cisco WCS Integration with Cisco Secure Access Control Server (ACS) View Server 4.0	The Cisco WCS client troubleshooting tool now integrates with Cisco Secure ACS View Server 4.0 to provide aggregated client status information from multiple Cisco ACS Servers. Organizations can poll Cisco Secure ACS View Server on-demand through the Cisco Secure ACS tab located on the Cisco WCS client-troubleshooting tool user interface to determine if client issues are related to authentication issues and determine the potential reason for authentication failures.	Because of its integration with Cisco Secure ACS View Server 4.0, Cisco WCS can be used to easily troubleshoot client problems associated with client authentication failures.
Detailed Client Report	Client information can be viewed from a new detailed client report with a customized display. A variety of client statistics can be displayed including MAC address, associated access point, transmit/receive throughout, RSSI, Cisco Compatible Extensions, and signal-to-noise ratio. . Reports can be generated based on a variety of criteria including floor area, controllers, access point, and Service Set Identifiers (SSIDs),	Organizations can easily gather, track, and report on key information about client devices on the network.
Ease of Use Enhancements—Templates	Organizations can reuse and apply templates to one or all wireless LAN controllers. When attempting to delete any template, users will be prompted to indicate if the template configuration should be removed from controllers as well as Cisco WCS. New templates are uniquely identified by their user supplied template name. Existing templates are listed on the template pull-down menu. A wireless LAN controller in a configuration group can be part of multiple configuration groups. The association between a configuration and a template or mobility group is now optional.	Organizations can manage controller configurations more easily and accurately with Cisco WCS template usability enhancements.
Template Scheduling and Status	The following tasks can be scheduled to be applied at a future day or time: • Access point template • Configuration group templates The following information about scheduled tasks for Cisco WCS templates is provided: • Summary page of scheduled tasks • History of the success or failure status of scheduled tasks for up 31 days Task scheduling is timed according to the Cisco WCS time clock.	Organizations can reduce operational costs by using Cisco WCS to automate controller provisioning and software management at anytime, without manual intervention.
Ease of Use Enhancements—Client Reports	New ease-of-use enhancements for the client association report are now available that support customization of the column order and display. The client details page now has interactive charts that are customizable to view client statistics including bytes sent and received, signal-to-noise ratio (SNR) and received signal strength indication (RSSI).	Organizations can customize Cisco WCS to meet their individual needs and simplify network operations.

Feature	Description	Benefit
RRM Dashboard in Cisco WCS	The WCS provides troubleshooting and network diagnostics in an easy-to-read, graphical interface. The RRM dashboard include: • Access points with most channel changes • Access points running at maximum power • Access points with coverage hole events • Top channel change reasons RRM-related configuration mismatches across all controllers in radio frequency group	The feature simplifies troubleshooting and maintenance of the WLAN network by providing additional visibility into wireless network performance and radio frequency statistics. The RRM dashboard is easy to read and provides awareness of critical events, coverage, or lack of coverage, and configuration anomalies.
Payment Card Industry (PCI) Assistance Report	WCS PCI Assistance Report provides an analysis of Cisco Unified Wireless Network (CUWN) security event data, such as rogue and attack events from Wireless IDS, as well as network-wide configurations and audit trails for assistance in creating a PCI Assessment Report. Potentially non-compliant events and network configurations are summarized in the WCS PCI Report.	WCS PCI Assistance Report reduces the time required to determine potentially out-of-compliance network conditions, automates scanning as required by the PCI regulation and provides a consolidated report for use during a PCI Assessment.

Mobility Services Engine

Table 4 displays the features of the Mobility Services Engine available with Cisco Unified Wireless Network Software Release 5.1.

Table 4.   New Cisco Mobiltiy Services Engine Features

Feature	Description	Benefit
Cisco 3300 Series Mobility Services Engine Support	The Cisco 3300 Series Mobility Services Engine is an open platform that provides a new, practical approach for the delivery of mobility services and applications. A combination of hardware and software, the Mobility Services Engine is an appliance based solution that supports a suite of software services to provide centralized and scalable service delivery.	Provides consistent, centralized and scalable delivery of mobility services for the Cisco Unified Wireless Network.

Advanced Security

Table 5 presents the new security features available with Cisco Unified Wireless Network Software Release 5.1.

Table 5.   New Security Features

Feature	Description	Benefit
Security		
Automated Wireless Security Vulnerability Assessment **Automated Wireless Security Vulnerability Assessment Brochure**	The Cisco WCS audits the security posture of wireless network configurations, including wireless LAN controllers, access points, and management interfaces against wireless security best practices defined by Cisco. WCS provides an at-a-glance security score, a prioritized summary of vulnerabilities, and suggested remedies.	The Cisco WCS provides proactive wireless network protection by automating and simplifying the vulnerability assessments of the networkwide wireless deployment. WCS generates an intuitive, real-time summary of security vulnerabilities. The assessment increases awareness and reduces potential configuration errors or oversights in security settings that could lead to loss of data, network intrusion, or malicious attack. WCS helps to ensure that regulatory compliance requirements are met.
Rogue Switch-port Tracing and Disable	The WCS verifies the switch port to which a rogue access point on the wired network is connected and upon identification, disables the port.	The WCS reduces the time and resources required to physically locate and remove unauthorized access points. Using rogue switch-port tracing and disable lowers the potential threat to the wired network from wireless attacks.

Feature	Description	Benefit
Enhanced WCS Security Dashboard	WCS delivers a comprehensive and consolidated "at-a-glance" summary of the security status of the entire wireless network. It also provides a real-time summary of network security alarms, attempted attacks, and potential security vulnerabilities. WCS streamlines information by dynamically displaying only current alarms with the ability to drill-down to the detail on any event. WCS displays wired network security events, such as wireless client abuse of wired network, and provides Layer 3 through 7 malware detection reporting from wired network security devices.	WCS streamlines administration and monitoring of security status across the wireless network by providing a single, comprehensive view of all security-related events and network conditions. The graphical at-a-glance format greatly reduces the time needed for wireless network administrators to determine wireless network security status.
Access Point Wired Port Authentication with 802.1X	WCS authenticates access points plugged into a wired network port using 802.1X to validate credentials. It also provides secure access point provisioning and consistent policy enforcement throughout the network.	WCS proactively eliminates the ability to insert rogue access points on the wired network, which helps to prevent wireless attacks on the wired network and reduces exposure to wireless security threats. It also eases installation and authentication of new access points on 802.1X-enabled networks.
Network Access Control (NAC) Out-of-Band Support **Cisco Network Admission Control for Wireless LANs Brochure**	The Cisco Unified Wireless Network enables use of the NAC Appliance version 4.5 in out-of-band mode with guest and general WLAN traffic. It also allows for posture assessment and remediation upon authentication and polling of traffic to help ensure that clients connected to the network comply with current security configuration requirements.	The support for NAC out-of-band processing creates flexibility in designing network architectures. It also makes it possible to centralize NAC appliances and to reduce capital expenditures.

Cisco Wireless Location Appliance

Table 6 describes the new Cisco 2700 Series Wireless Location Appliance features available with Cisco Unified Wireless Network Software Release 5.1.

Cisco 2700 Series Wireless Location Appliance software is available for download from the Cisco Software Center. The Cisco 2700 Series Wireless Location Appliance software display table is located at: http://tools.cisco.com/support/downloads/pub/MDFTree.x?butype=wireless (login required).

Table 6.   New Cisco 2700 Series Wireless Location Appliance Features

Feature	Description	Benefit
Rails and Regions	This feature is designed to define map areas to use for gathering location information. More specifically, this feature allows areas to be excluded, such as an open area in the middle of a building or multifloor facility (for example, an atrium). Rails help determine and set boundaries like hallways, corridors, or the facility perimeter. Multiple rails and regions can be identified and selected to narrow down the area to use for location calculation.	Selecting the areas where location shouldn't be calculated increases the efficiency in location calculations by excluding areas where the assets wouldn't show up. The user is allowed to configure excluded regions based on prior knowledge of physical areas.
Configuration Information Exchange	This feature allows organizations to control which RSSI information gets forwarded from the controller to the location appliance. Without this feature, all of the RSSI information (such as rogue, client, and tag RSSI information) is sent to the location appliance, and the additional traffic between the controller and location appliance uses up bandwidth. In addition, the location appliance then needs to determine if the information received needs to be processed or discarded (that is, should the location of this asset be calculated or not). With the configuration exchange feature, only the relevant information is sent from controller to the location appliance.	Filtering the traffic sent from controller to the location appliance allows for better bandwidth utilization of links, especially when information has to be sent over WAN links. Processing power on the location appliance is conserved by restricting the information sent from the controller.

Feature	Description	Benefit
Operating System Hardening	This feature allows for protection of the operating system of the location appliance against certain network security attacks (such as denial of service).	Network attacks cause hours, sometimes even days of downtime, affecting the availability of critical network resources including availability of location information needed for critical business applications and creating a serious breaches in data confidentiality and integrity. Operating System Hardening for the location appliance helps to mitigate the threat posed by network attacks and critical information required for business critical applications.

Service and Support

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Cisco Wireless LAN Services

Cisco and our Cisco Advanced Wireless LAN Specialized Partners offer a broad portfolio of end-to-end services based on proven methodologies for planning, designing, implementing, operating, and optimizing the performance of a variety of secure voice and data wireless network solutions, technologies, and strategies. Cisco Advanced Wireless LAN Specialized Partners bring application expertise to help deliver a secure enterprise mobility solution with a low total cost of ownership. For more information about Cisco services, refer to Cisco Technical Support Services or Cisco Advanced Services.

Download the New Software for This Release

Download Cisco Unified Wireless Network Software Release 5.1 from the Cisco Wireless Software Display Tables (login required). Separate software release files are available for Cisco Wireless LAN Controllers, Cisco WCS, Cisco WCS Navigator, and the Cisco Wireless Location Appliance.

For More Information

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

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