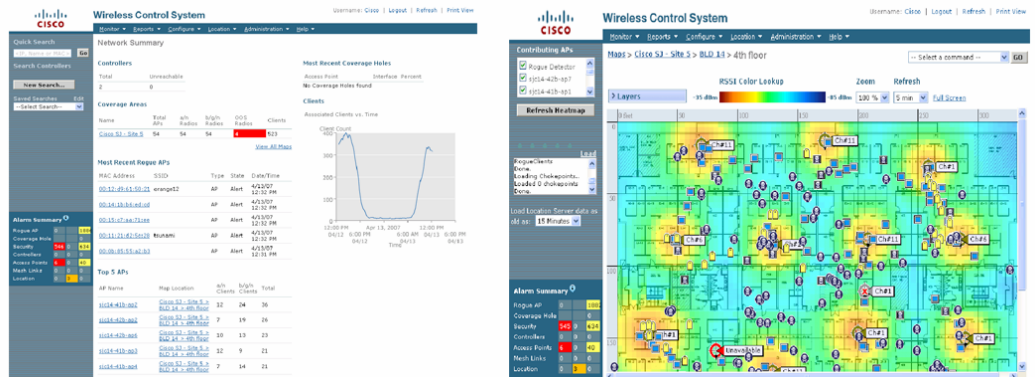


Cisco Wireless Control System (WCS)

Figure 1. Cisco Wireless Control System (WCS)



Product Overview

Cisco Wireless Control System (WCS)

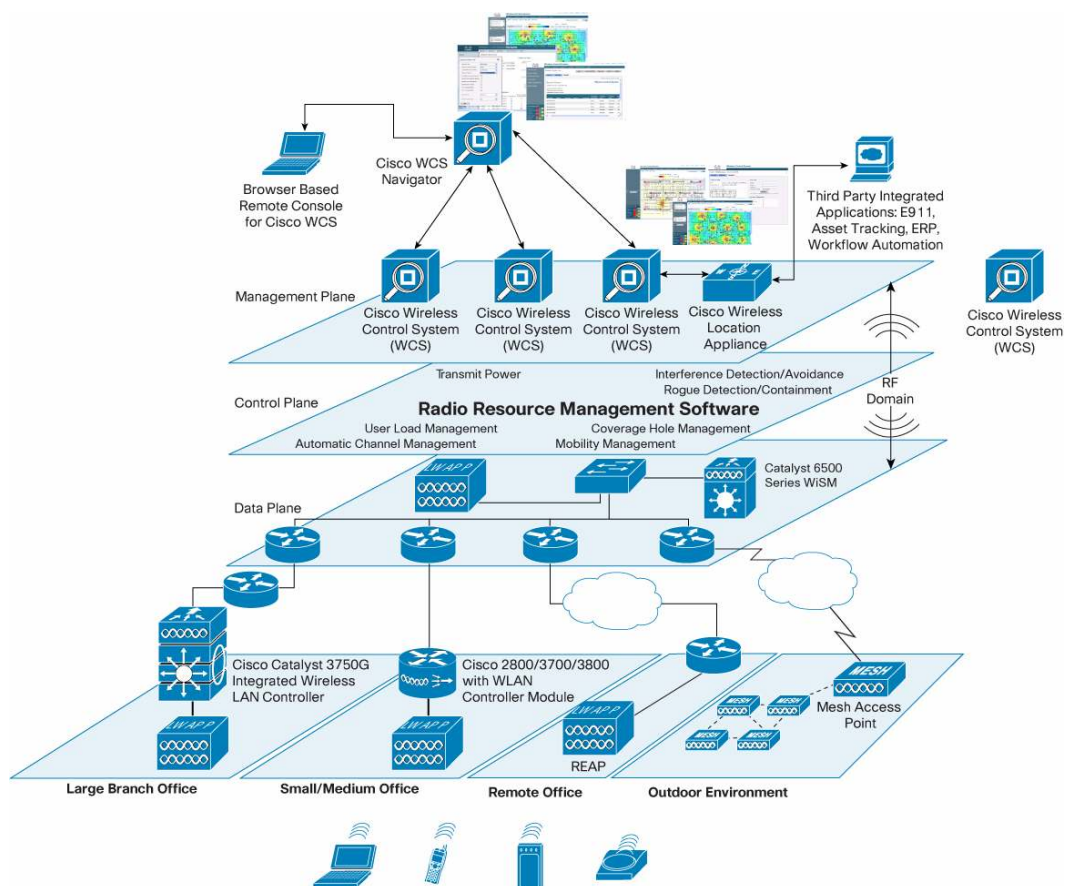
Cisco® Wireless Control System (WCS) is the industry's leading platform for wireless LAN planning, configuration, management, and mobility services. It provides a powerful foundation that allows IT managers to design, control, and monitor enterprise wireless networks from a centralized location, simplifying operations and reducing total cost of ownership. Cisco WCS is a component of the [Cisco Unified Wireless Network](#).

With Cisco WCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, device tracking, security monitoring, and wireless LAN systems management. Robust graphical interfaces make wireless LAN deployment and operations simple and cost-effective. Detailed trending and analysis reports make Cisco WCS vital to ongoing network operations.

Cisco WCS runs on a server platform with an embedded database. This provides the scalability necessary to manage hundreds of Cisco wireless LAN controllers, which in turn can manage thousands of Cisco Aironet® lightweight access points. Cisco wireless LAN controllers can be located on the same LAN as Cisco WCS, on separate routed subnets, or across a wide-area connection. All Cisco wireless LAN controller models can be managed by Cisco WCS including enterprise-class stand-alone wireless LAN controllers such as the [4400](#) and [2100](#) Series as well as the [Cisco Catalyst 6500 Series Wireless Services Module \(WiSM\)](#), the [Cisco Catalyst 3750G Integrated Wireless LAN Controller](#), and the [Cisco Wireless LAN Controller Module \(WLCM and WLCM-E\) for Integrated Services Routers](#).

Multiple, geographically diverse Cisco WCS management platforms can be cost-effectively and easily managed by the [Cisco WCS Navigator](#). Cisco WCS Navigator supports up to 20 Cisco WCS management platforms with manageability of up to 20,000 Cisco Aironet lightweight access points from a single management console. Together, Cisco WCS and Cisco WCS Navigator are the ideal wireless LAN management solution for even the largest enterprise environments and outdoor deployments. (Figure 2)

Figure 2. Enterprise Wide RF Intelligence



Cisco WCS enables the following functions across an entire wireless network:

General Management

Cisco WCS makes wireless LAN configuration, monitoring, and management as simple and as effective as wired systems management. This includes the following core capabilities:

- **Configuration templates:** With Cisco WCS, administrators can assign a template to one or all of the wireless LAN controllers or access points in a mobility group. They can then select the mobility group name and apply the template across the entire mobility group domain. A variety of wireless LAN controller templates are available to manage system, WLAN, security, access control, 802.11 a/b/g/n, mesh, rogue devices, TFTP servers, and management configurations (Figure 3 and Figure 4).
- **Bulk provisioning of Cisco wireless LAN controllers:** All Cisco wireless LAN controllers can be provisioned in bulk by importing a CSV file into Cisco WCS.
- **Software management:** With Cisco WCS, upgrades to Cisco wireless LAN controllers and access points can be performed from a centralized location, with a single click of a mouse.
- **User group-based privilege management:** Network administrators can create Cisco WCS user groups and assign management task level privileges to each individual user group.
- **Network auditing:** Network administrators can audit wireless LAN controller and access point configurations by network location, mobility group, or device. Discrepancies between the configuration stored in Cisco WCS and the current configuration of the access point or controller can be displayed. Network administrators can remediate configuration

discrepancies by retaining either the Cisco WCS configuration or the configuration stored on the device. Using network auditing in conjunction with Cisco WCS configuration templates delivers powerful real-time configuration management of connected controllers and access points.

- RADIUS and TACACS+ support for secure access:** Cisco WCS supports Simple Network Management Protocol (SNMP) version 3 and Terminal Access Controller Access Control System (TACACS+) for the highest level of network management capabilities and security. SNMP version 3 can be used for communication between a Cisco WCS server and individual wireless LAN controllers. Cisco WCS also supports SNMP version 1 and version 2, which allows other network management platforms to query it. TACACS+ is a Cisco protocol that supports authentication, authorization, and accounting (AAA) servers. Cisco WCS uses TACACS+ to authenticate and authorize access to specific Cisco WCS features.
- HTTP and HTTPS interface:** Network administrators can access Cisco WCS via any standard browser running HTTP or Secure HTTP (HTTPS), which helps ensure anytime, anywhere access to Cisco's management capabilities.

Figure 3. Cisco WCS Configuration Templates



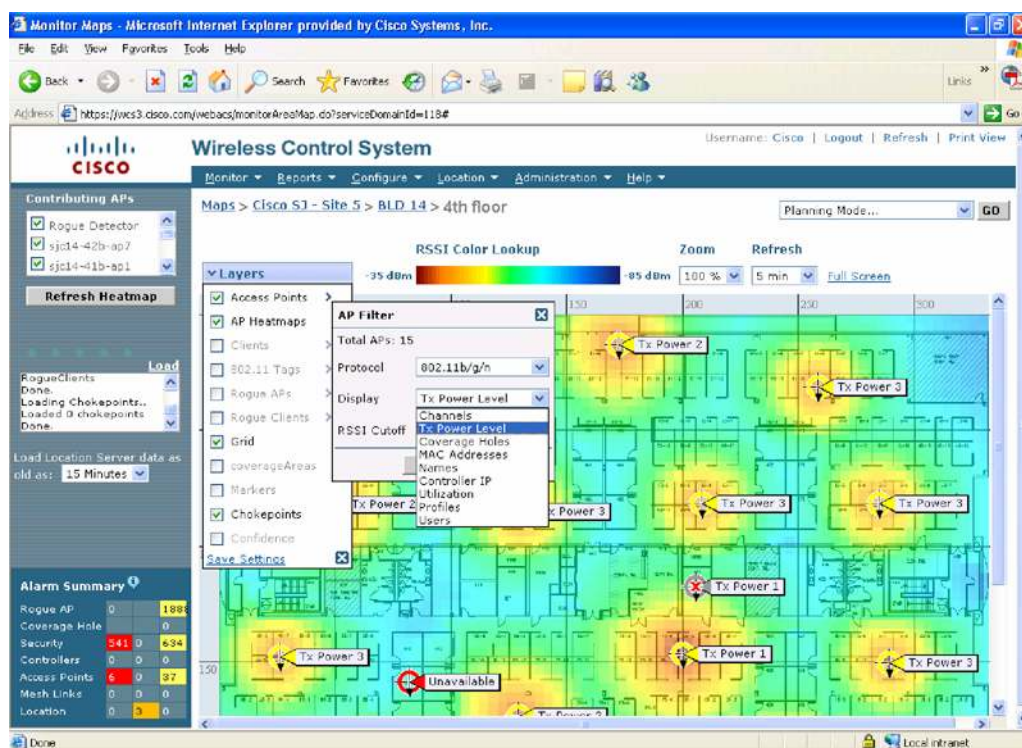
Figure 4. Cisco WCS Configuration Group Templates



Network Monitoring

Cisco WCS provides tools that enable IT managers to visualize the layout of their wireless network and monitor ongoing WLAN performance. This includes detailed heat maps that show RF coverage on top of imported floorplans. Cisco WCS also provides a portal into the real-time RF management capabilities provided by Cisco wireless LAN controllers, including channel assignments and access point transmit power settings. In addition, Cisco WCS provides quick visibility into coverage holes, alarms, and key utilization statistics for easy WLAN monitoring (Figure 5).

Figure 5. Visualize RF Coverage

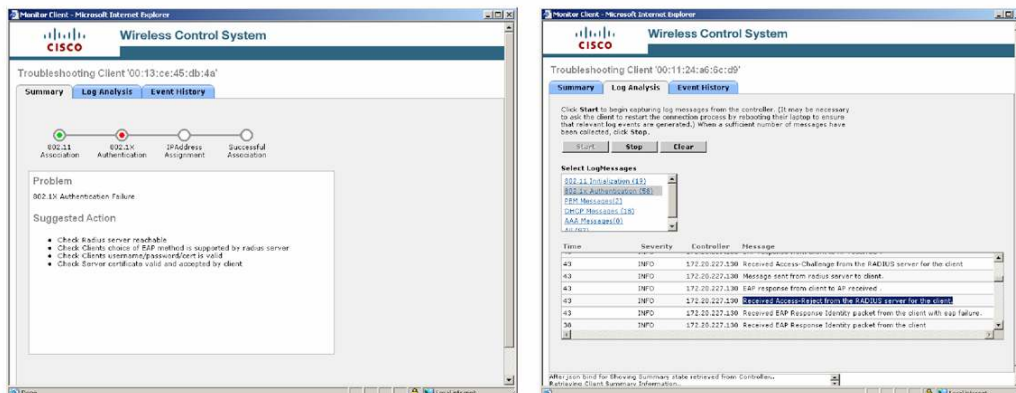


Network Troubleshooting

Cisco WCS facilitates network troubleshooting based on network reports and quick searches for areas such as noise levels, signal-noise ratio, interference, signal strength, clients, controllers, access points, security and performance. This allows network administrators to isolate and resolve problems at all layers of a wireless network. A client troubleshooting tool and integration with Cognio Spectrum Expert are also available for troubleshooting of client devices and non Wi-Fi interference.

- Client Troubleshooting Tool:** A built-in client troubleshooting tool allows network administrators to quickly and easily troubleshoot problems with a client. Detailed client information is displayed on a troubleshooting dashboard to aide network managers in quickly troubleshooting client problems. This tool includes a summary page with a list of the defined problem and suggested troubleshooting actions as well as a log analysis to capture log messages from the controller and a detailed event history. This tool helps network managers debug Layer 1 to Layer 3 client problems using a step-by-step method. (Figure 6)

Figure 6. Client Troubleshooting Tool



- **Integration with Cognio Spectrum Expert:** Cisco WCS supports integration with Cognio Spectrum Expert. This integration allows customers to use the Cognio Spectrum Expert tool to investigate non-Wi-Fi interference sources within the vicinity of the Cisco lightweight access points that are affected by interference. When the source of the interference is determined, customers can remove, move, shield, adjust, or replace the device that is generating the interference. (Figure 7)

Cisco WCS can be configured to receive non-Wi-Fi interference device traps from Cognio Spectrum Expert when a new device that is causing interference is discovered by Cognio Spectrum Expert. Cisco WCS can be configured to support the following actions:

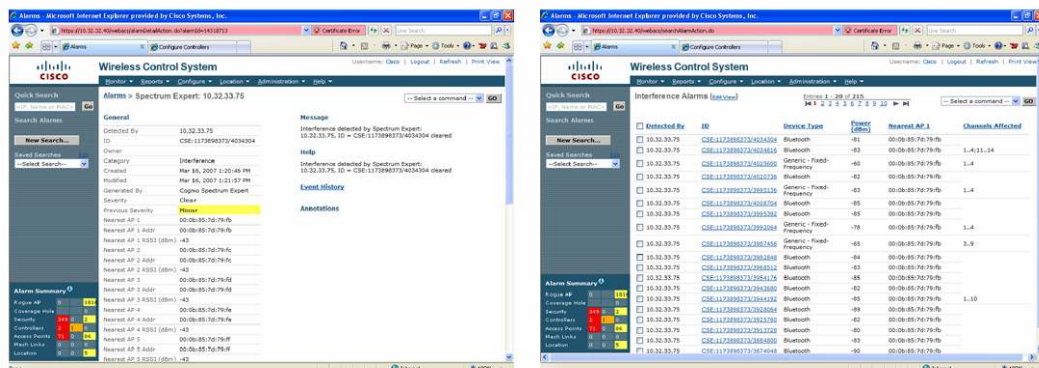
- Enable the reception of a trap from Spectrum Expert (Cardbus). The authentication mechanism is set up by adding the Cognio laptop IP address as a valid trap transmitter to Cisco WCS.
- Issue an interference alarm.
- Configure the severity of the alarm, with a default value of minor.
- Associate the alarm with a specific access point.

Users can set trap filters and threshold values within Cognio Spectrum Expert so that traps are generated only for significant interference events.

Learn more about RF interference by visiting:

http://www.cisco.com/en/US/netsol/ns736/networking_solutions_package.html.

Figure 7. Cisco WCS integration with Cognio Spectrum Expert



Reports

Reports that improve data management, simplify operations, and enhance network control can be generated by Cisco WCS on demand or for scheduled time increments. Cisco WCS general report features include:

- Exporting of reports into comma separated values (CSV) or PDF format.
- Automating and scheduling of exported reports.
- Sending e-mail notifications upon report generation.
- Specifying target or logical entity groups when generating a report.
- Configuring and customizing reports by frequency and polling to reduce the costs of unnecessary network polling and database storage
- Configuring data storage and saving parameters. Hourly aggregated data can be stored for up to 31 days. Daily aggregated data can be stored for up to 90 days. Weekly aggregated data can be stored for up to 54 weeks.

A summary of Cisco WCS reports can be found in Table 1. Sample reports are displayed in Figures 8 and 9.

Table 1. Cisco WCS Report Summary

Cisco WCS Report	Description
Inventory	Inventory reports for wireless equipment deployed within the network (access points, controllers, and location appliances) can be generated for each hardware category or as a combined report for all categories. Reports can include the hardware type, software revision, and location by building or floor.
Performance	Memory and CPU usage can be tracked and reported at configurable intervals. Coverage hole alarms can be generated to provide a better view of the coverage hole problems experienced by client devices. Metrics for voice traffic streams are available to support Cisco Compatible Extensions clients running Version 4 and later.
Security	Security information can be downloaded as a report and the number of rogue devices detected by each access point per month can be automatically listed on the summary report.
Clients	Reports on the roaming history of all clients, the busiest clients and a list of unique clients that accessed the WLAN in a specific area for a specified duration of time can be generated. Trends in client counts can be displayed in a graph
Access points	Traffic stream metrics for access points can be generated as a report or a graph. Access points can be reported by their location or SSID and the status of each access point by its profile listing can be reported. A listing of the busiest access points is available in a table format.
Mesh	A report on the number of alternate parents available to a mesh access point in case the parent is lost can be generated. Other mesh reports that can be generated for events over time include: child and parent link statistics, node hop counts, packet error rate on the backhaul link, the number of transmitted neighbor packets, worst node hops, and worst SNR links.

Figure 8. Access Point Report and Inventory Report

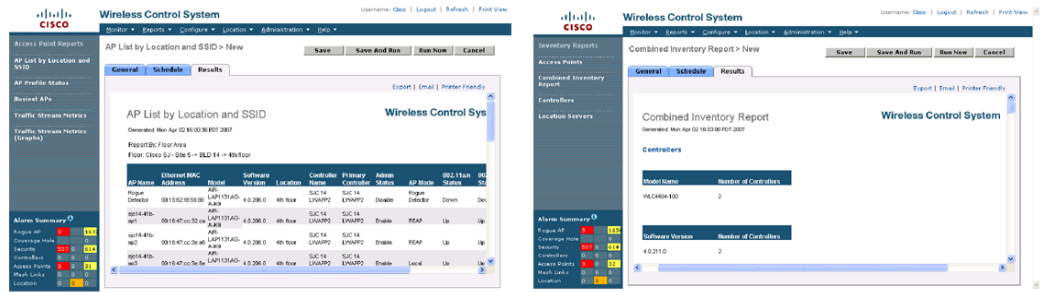
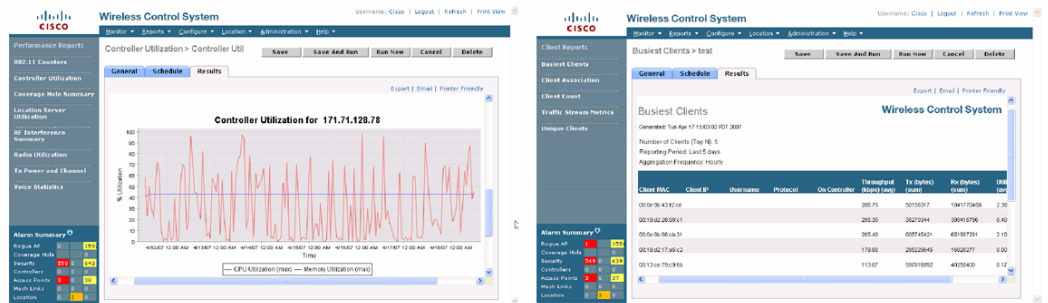


Figure 9. Controller Utilization Performance Report and Busiest Client Report

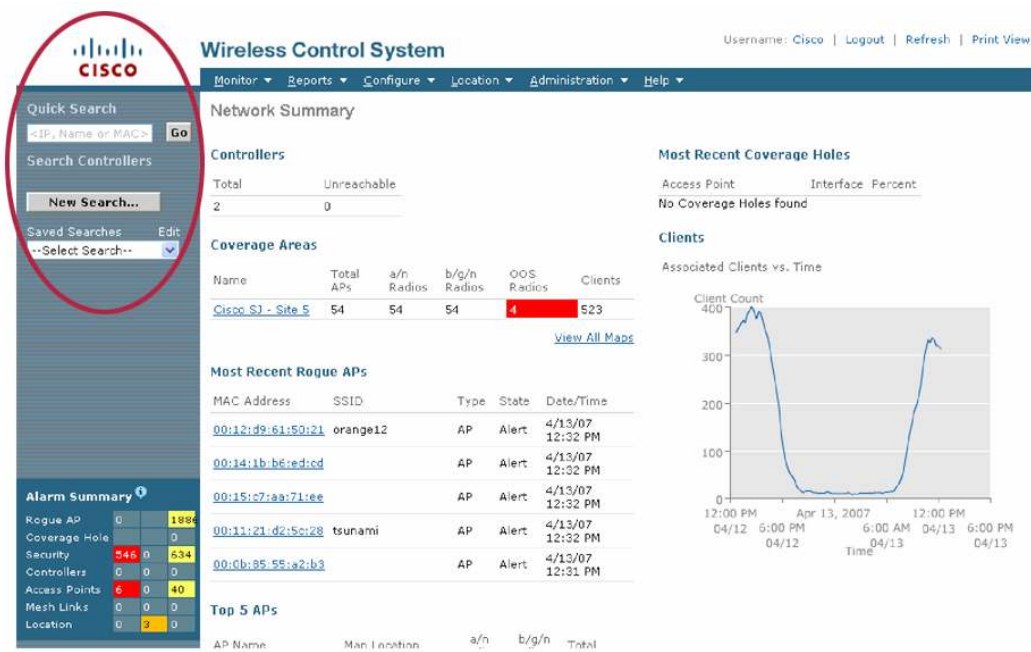


Simplified Ease-of-Use

Cisco WCS is very easy to use and requires minimal training. This robust platform supports a variety of intuitive screens that streamline configurations and simplify daily operations and management of the WLAN including:

- A quick search box that enables searches across the entire WLAN for access points, controllers, or client devices by their MAC address, IP address, or name (Figure 10).
- Advanced searches with an option for saving
- Access control list (ACL) provisioning supports creating reusable grouped IP addresses and reusable protocols
- An extensive selection of access point and controller templates with specialized tab areas that simplify the selection and design of configuration parameters
- List page record sizes are configurable to up to 500 records per page
- Alarm configuration by severity level

Figure 10. Cisco WCS Quick Search and New Search



Location Services

Cisco provides a variety of options for efficiently tracking wireless devices, including Wi-Fi enabled laptops, PDAs, voice handsets, telemetry-enabled devices and mobile assets equipped with 802.11 transceivers. Cisco WCS can determine which access point a wireless device is associated with, giving IT managers a general proximity of where wireless devices are situated.

Environments that require more granular device location capabilities can implement location services that use Cisco's patent pending "RF fingerprinting" technology. This technology compares real-time client RSSI information to known RF building characteristics, making Cisco the first WLAN infrastructure with the ability to accurately locate a wireless device, including rogue devices, to within a few meters (Figure 11). Cisco WCS with location services supports "on demand" lookups of the most recent location information for a single Wi-Fi device or rogue device. In addition, a Cisco WCS license with location services can be deployed in conjunction with the Cisco Wireless Location Appliance to simultaneously track thousands of wireless clients in real-time (Figure 12).

Outdoor location is supported by Cisco WCS and the [Cisco Wireless Location Appliance](#) to the nearest access point.

Figure 11. Cisco Wireless Location Appliance—High Resolution Map for Rogue Device Detection

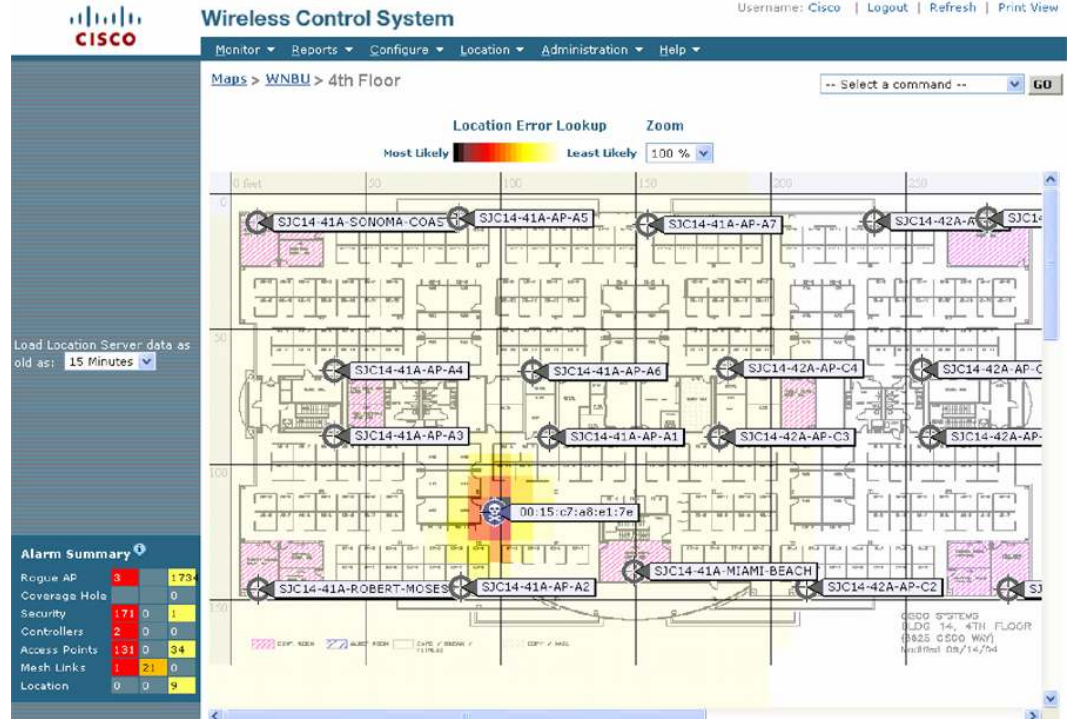
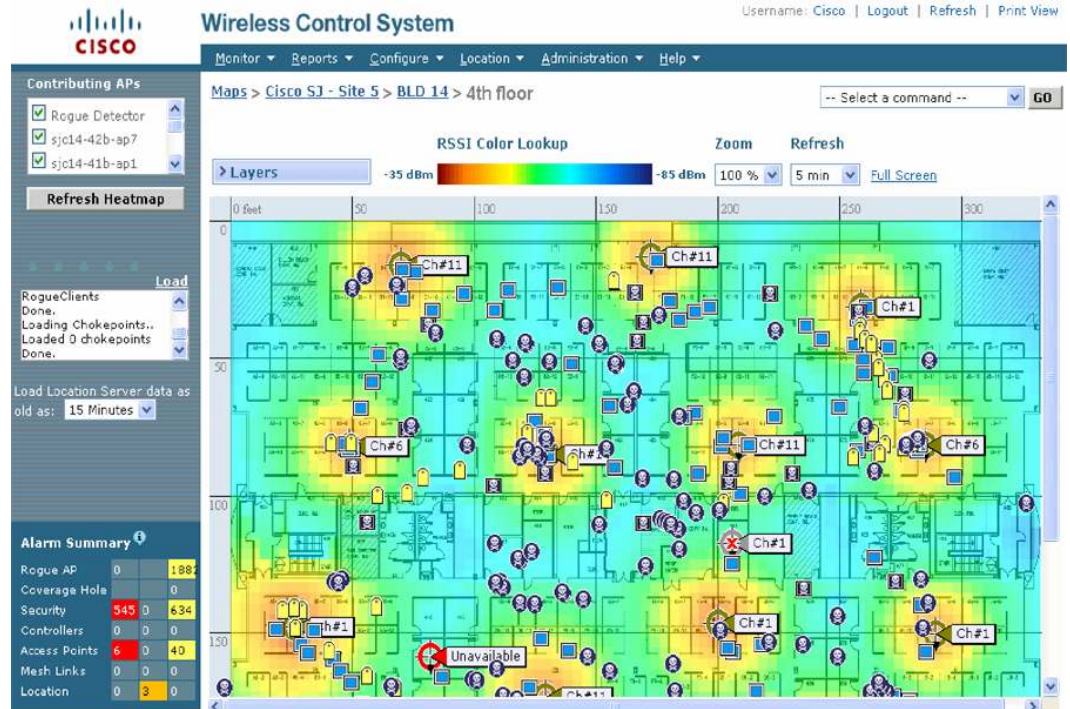


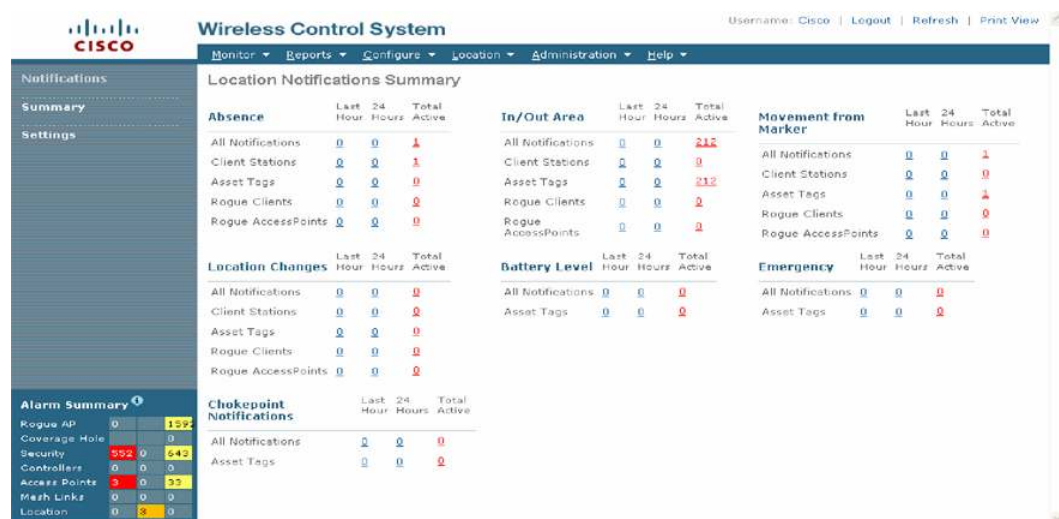
Figure 12. Cisco Wireless Location Appliance—Location Services



Cisco WCS also supports high-accuracy deterministic location-based notifications enabled through chokepoints. Chokepoint-based notifications are triggered by [Cisco Compatible Extensions](#) Wi-Fi tags as they come within range of a chokepoint. Notifications can be triggered by a variety of Wi-Fi tag actions, including entry or exit of a tag from a specified zone, doorway, or gate; and process control events such as those used in manufacturing environments. Chokepoint summary information is displayed on the Cisco WCS Location Notifications Summary. The Cisco WCS Location Notifications Summary screen also displays a client's absence, movement in or out of an area, and marker or location change, battery level and emergency group notifications (Figure 13).

With these advanced location tracking capabilities, the Cisco Unified Wireless Network is an ideal platform for helping to enable key business applications that take advantage of wireless mobility, such as asset tracking, inventory management, and enhanced 911 (e911) services for voice. By incorporating indoor location tracking into the wireless LAN infrastructure itself, Cisco reduces the complexities of wireless LAN deployment and minimizes total cost of ownership.

Figure 13. Cisco WCS Location Notifications Summary



Secure Guest Access

Cisco WCS supports customizable secure guest access that allows organizations to keep their wireless networks secure while providing customers, vendors, and partners with controlled access to their WLANs (Figure 14). With Cisco guest access, administrators can 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. Administrators can preview the customized page prior to activation and select to display either the default guest screen or customizable login screen.

Guest user provisioning personnel can schedule and customize automated guest access by time of day and date as well as pre-provisioning guests prior to their arrival at the site by sending them login credentials by email. The Cisco WCS campus, building, or floor area can also be defined to restrict guest users by their network location. 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 15).

Figure 14. Cisco Unified Wireless Network Secure Guest Access

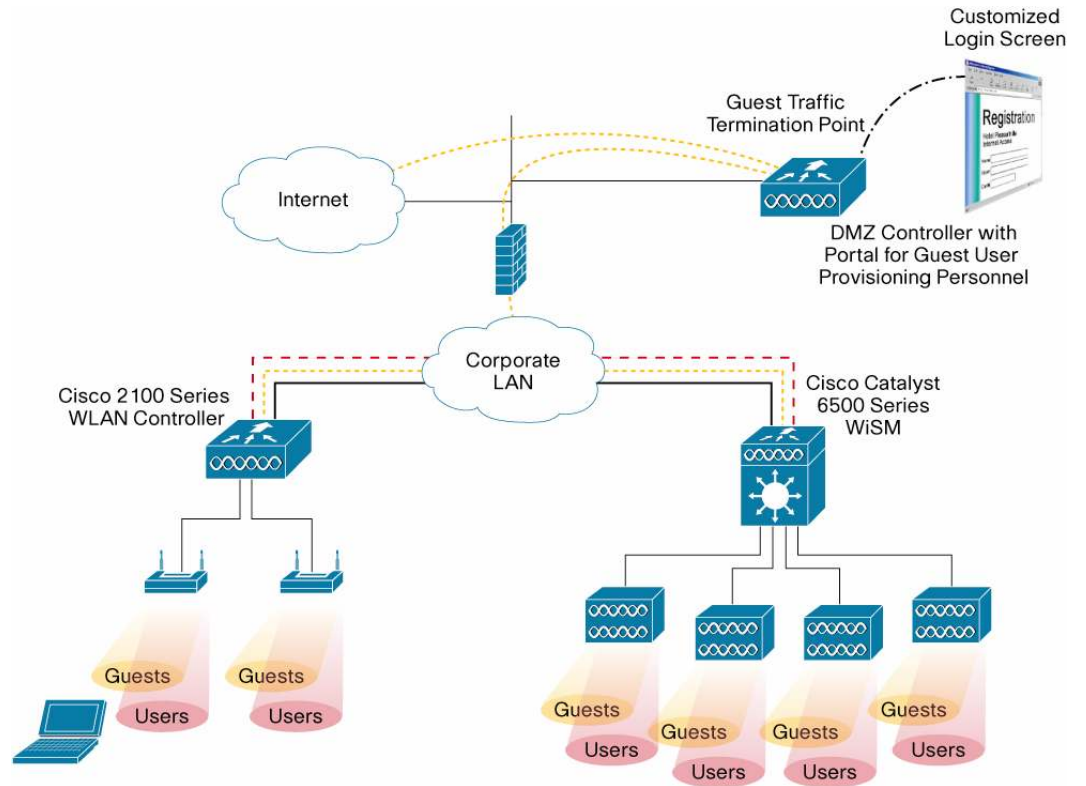
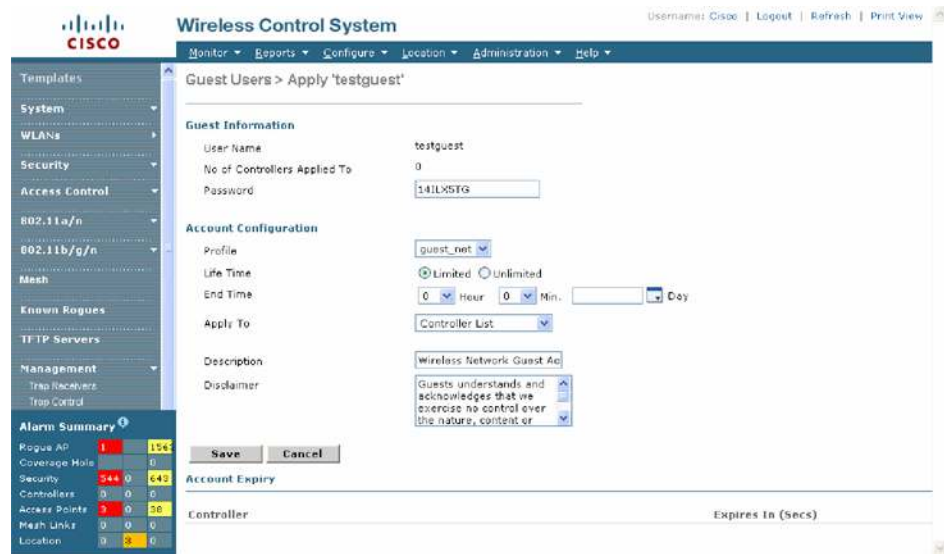


Figure 15. Cisco WCS Guest Access Configuration

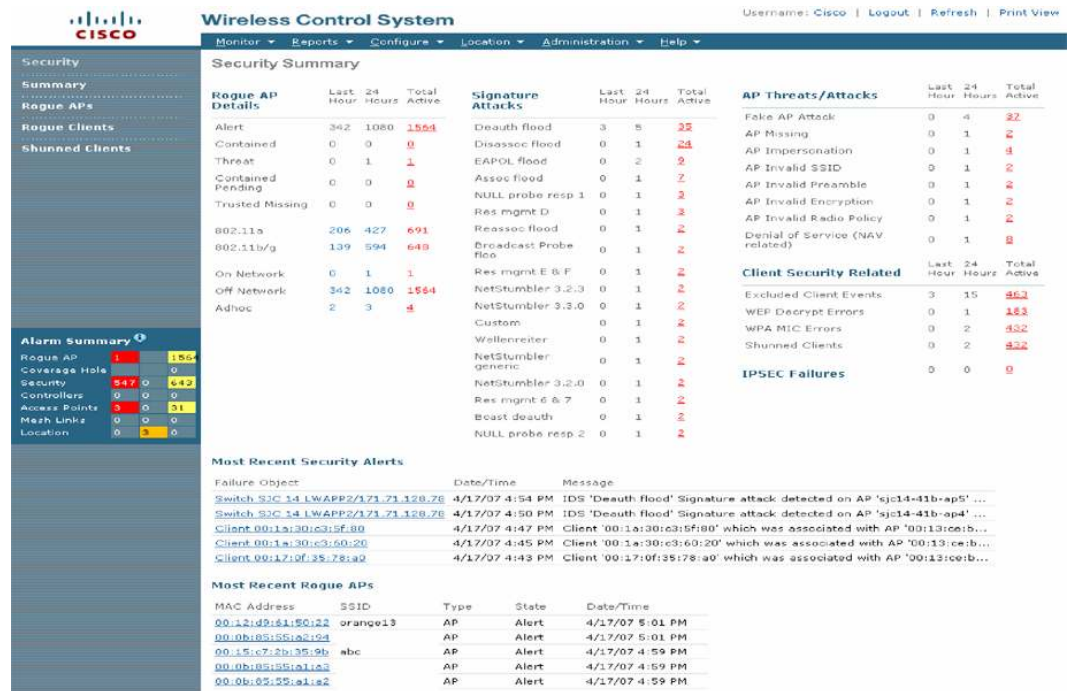


Wireless Security and Network Protection

Cisco WCS provides a full suite of tools for managing and enforcing security policies within a Cisco wireless infrastructure. These include:

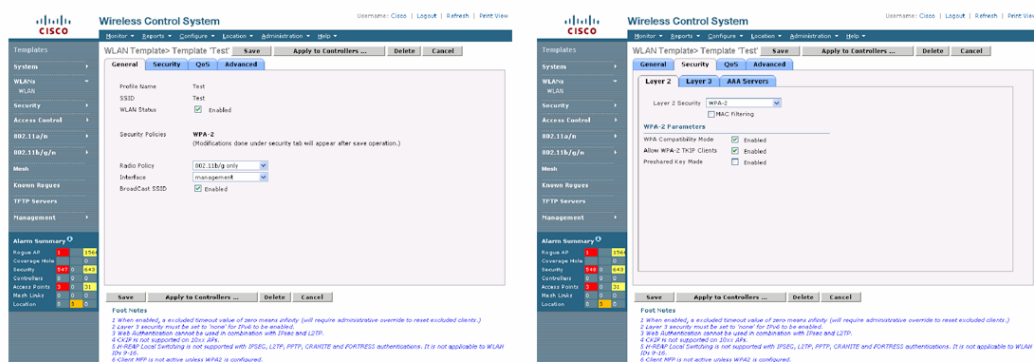
- Intrusion Detection System (IDS)/Intrusion Prevention System (IPS):** Cisco WCS supports robust IPS/IDS with the Cisco Secure Wireless Solution that integrates with the [Cisco Self-Defending Network](#) and [Network Access Control \(NAC\)](#). This solution takes a comprehensive approach to security-at 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.
- RF attack signatures and management frame protection:** Cisco WCS helps IT staff to create customizable attack signature files that can be used to rapidly detect common RF-related attacks, such as denial of service (DoS), Netstumbler, and FakeAP. Cisco WCS can be programmed to automatically generate alarms if an attack is detected. A detailed security summary report (Figure 16) enables IT staff to identify recurring security threats before they can cause significant harm. Cisco WCS also supports management frame protection (MFP) to monitor the authentication of 802.11 management frames by the wireless network infrastructure and client devices. MFP allows the network to detect spoofed frames from access points, malicious users impersonating infrastructure access points or Cisco Aironet client devices.

Figure 16. Summary of Wireless Security Threats



- Rogue detection, location, and containment:** The Cisco WCS platform uses patent-pending technology to constantly monitor the RF environment looking for unauthorized access points and ad-hoc networks. If unauthorized devices appear, Cisco WCS can be used to determine their location and assess the level of threat. If deemed malicious, IT managers can use Cisco WCS to properly contain these rogue devices. Detailed trending reports help to identify potential recurring problems.
- Policy creation and enforcement:** Cisco WCS contains a service policy engine (Figure 17) that allows network administrators to easily create virtual LAN (VLAN), RF, quality of service (QoS), and security policies. With Cisco WCS, IT staff can create multiple unique service set identifiers (SSIDs) with individual security parameters. For example, a “guest” SSID can be secured with Web authentication; a “voice” SSID might be required to take advantage of the Wired Equivalent Privacy (WEP) capabilities inherent to voice handsets; and normal data traffic can be secured using 802.11i or IP Security (IPSec). Cisco WCS can be used to enforce security policies across an entire Cisco Unified Wireless Network, in individual Cisco wireless LAN controllers, or on individual lightweight access points.

Figure 17. Policy Engine

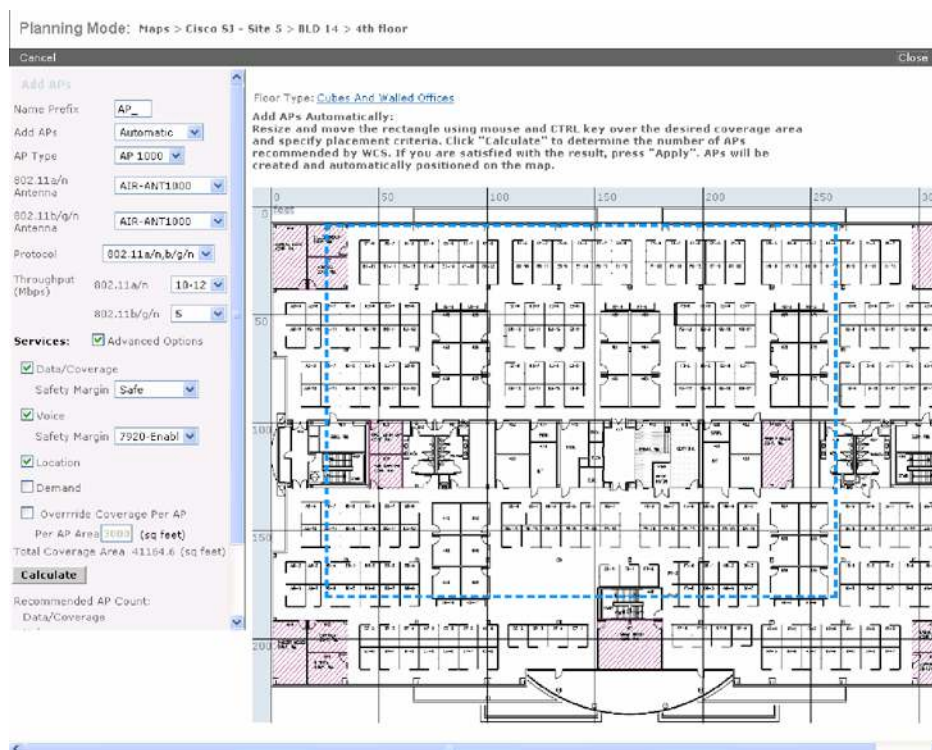


- User exclusion lists:** IT staff can use Cisco WCS to proactively exclude specific users from associating with the wireless network. In addition, if unusual activity is detected, offending devices can be flagged and excluded if they are considered to be malicious. These devices cannot access wireless LAN services until timing on the exclusion list expires, or the IT staff decides to grant them wireless LAN access.

Wireless LAN Planning and Design

Cisco WCS provides integrated RF prediction tools that can be used to create a detailed wireless LAN design, including lightweight access point placement, configuration, and performance/coverage estimates. IT staff can import real floor plans into Cisco WCS and assign RF characteristics to building components to increase design accuracy. Graphical heat maps help IT staff visualize anticipated wireless LAN behavior for easier planning and faster rollout. Drawing of irregularly shaped buildings using polygons is also supported to help organizations easily design and support WLAN deployments in such buildings (Figure 18).

Figure 18. Planning Tool



Migrate CiscoWorks WLSE to Operate as a Cisco WCS

Organizations can simply and easily convert their existing [CiscoWorks Wireless LAN Solution Engine \(WLSE\)](#) Models 1130-19 or 1133 to operate as a Cisco WCS. This allows customers of CiscoWorks WLSE to migrate to the Cisco Unified Wireless Network architecture using their existing CiscoWorks WLSE platform.

A converted CiscoWorks WLSE becomes a server that runs Cisco WCS software using RedHat Linux ES v. 4.0. (A copy of RedHat Linux ES v. 4.0 is included with the CiscoWorks WLSE migration CDs.) The converted CiscoWorks WLSE becomes a new Cisco WCS installation that supports lightweight access points and wireless LAN controllers running LWAPP.

Standalone (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. CiscoWorks WLSE Express (Model 1030) and CiscoWorks WLSE (Model 1105) cannot be converted to operate as a Cisco WCS.

To simplify the CiscoWorks WLSE to Cisco WCS migration process, selected data can be migrated, in bulk, from CiscoWorks WLSE into Cisco WCS. CiscoWorks WLSE must be running software Release 2.15 or later in order to use this function. Learn more about converting a CiscoWorks WLSE to Cisco WCS by reading the [Cisco WCS Licensing and Ordering Guide](#).

Cisco WCS Demonstration License

Customers can experience Cisco WCS, the industry's leading platform for wireless LAN planning, configuration, management, and mobility services, for free for 30 days by downloading the new full-featured, location-enabled Cisco WCS Demonstration License. This license supports 10 access points for up to 30 days. Network configurations and set up for the demonstration license are retained to make it easier to transition to a licensed Cisco WCS copy. Register to receive a license for free at <http://www.cisco.com/go/license> or <https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet?DemoKeys=Y>. Select Network Mgmt Products > Wireless Control System > Wireless Control System 30 day trial license. Then, after registration, download Cisco WCS software from the Cisco Wireless Software Center (login required). **There is no Cisco Technical Assistance Center (TAC) support for the Cisco WCS Demonstration License.**

Features And Benefits

Table 2 lists the features and benefits of Cisco WCS.

Table 2. Features and Benefits of Cisco WCS

Feature	Benefit
Intuitive GUI and simplified ease-of-use	IT staff can easily configure, monitor, and troubleshoot their wireless networks with minimal training.
Hierarchical maps	IT staff can quickly access different geographies, campuses, buildings, floors, and regions for better visibility and control.
Policy management templates	Uniform QoS, security, and RF management policies can be easily created and enforced across an entire enterprise or outdoor deployment including outdoor mesh deployments. This can be done in a scalable fashion using global templates.
Complete wireless LAN intrusion protection	Customized signature files protect against unauthorized intrusion and RF attacks; automated alarms enable rapid response to mitigate risk.
Secure access	Authentication and authorization to Cisco WCS is ensured with SNMP version 3 and TACACS+.
Client troubleshooting	Network administrators can quickly and easily troubleshoot problems with a client, debugging Layer 1 to Layer 3 client problems using a step-by-step method.
Non-Wi-Fi interference detection	Integration with the Cognio Spectrum Expert tool allows customers to investigate non-Wi-Fi interference sources within the vicinity of the Cisco Aironet lightweight access points that are affected by interference.
Reporting	Extensive customizable reports allow network managers to monitor network activity and system information including inventory, performance, security, access points, clients, radio utilization, 802.11 counters, RF management, configuration history, and alarms.
Ease of operation	Cisco wireless LAN controllers and Cisco Aironet lightweight access points remain up-to-date with no hands-on intervention. Flexible backups can be automatically scheduled for off-peak hours or run during normal business hours without impacting WLAN performance. Compressed backup files reduce file transfer times and disk space. Easily installed as a service on Windows, Linux or VMware systems.
Integrated high accuracy location tracking	Tracking users and devices protects assets and increases wireless LAN security. Indoor tracking to several meters and outdoor tracking to closest access point. High accuracy, deterministic location to within a few feet or several centimeters with third party chokepoints and the Cisco Wireless Location Appliance.
Customizable secure guest access	Organizations can keep their wireless networks secure while providing customers, vendors, and partners with controlled access to their WLANs.
Wireless LAN planning tools	Accurate RF prediction tools increase the effectiveness of wireless LAN planning and design.

Feature	Benefit
Robust APIs	The Cisco WCS interface can be easily integrated with external software systems, including workflow software, fault management systems, and other applications that use wireless services.
CiscoWorks WLSE migration	Capital expenses can be reduced by converting an existing CiscoWorks WLSE (Models 1130-19 and 1133) to operate as a Cisco WCS. Selected data can be migrated in bulk from CiscoWorks WLSE into Cisco WCS.
Support for large scale deployments	Up to 20 geographically diverse Cisco WCS management platforms can be cost-effectively and easily managed by Cisco WCS Navigator from a single management console.

Summary

Cisco WCS is ideal for enterprise wireless LAN deployments and outdoor mesh networks. This easy-to-use solution simplifies the deployment and operation of wireless networks and helps to ensure smooth performance, enhance security, and maximized network availability. Cisco WCS centrally manages all Cisco wireless LAN controllers including Cisco Catalyst 6500 Series WiSM, the Cisco Catalyst 3750G Integrated Wireless LAN Controller, the Cisco WLCM, the Cisco WLCM-E and the 2100 Series and 4400 Series Cisco wireless LAN controllers. It also manages the Cisco Wireless Location Appliance, Cisco Aironet lightweight access points within campus environments and branch locations, and Cisco Aironet lightweight outdoor mesh access points, eliminating complexity and providing network administrators with visibility and full control of their indoor and outdoor wireless LANs.

Product Specifications

Table 3 lists the product specifications for Cisco WCS.

Table 3. Product Specifications for Cisco WCS

Item	Specification
Operating systems (Customer Supplied Server)	<p>Cisco WCS can be deployed on a customer supplied server running one of the following operating systems:</p> <ul style="list-style-type: none"> Windows 2003 SP1 or greater Redhat Linux AS/ES v4.0. VMware ESX Server 3.0.1 or later. (Minimum hardware requirements for a dedicated and guaranteed VMware server: Intel® Xeon Quad CPU; 3.15 GHz, 8 GB RAM, 200 GB HDD)
Minimum server requirements	<p>Cisco WCS High-End Server</p> <ul style="list-style-type: none"> 3000 lightweight access points, 750 wireless LAN controllers Intel® Xeon Quad CPU; 3.15 GHz, 8 GB RAM, 200 GB HDD <p>Cisco WCS Standard Server</p> <ul style="list-style-type: none"> 2000 lightweight access points, 150 wireless LAN controllers Intel® Dual Core CPU; 3.2 GHz, 4 GB RAM, 80 GB HDD <p>Cisco WCS Low-End Server</p> <ul style="list-style-type: none"> 500 lightweight access points, 50 wireless LAN controllers Intel® CPU; 3.06 GHz, 2 GB RAM, 30 GB HDD <p>CiscoWorks WLSE Models 1130-19 or 1133 running Cisco WCS</p> <ul style="list-style-type: none"> 1500 lightweight access points, 100 wireless LAN controllers Intel Pentium 4 CPU; 3 GHz, 3 GB RAM, 38 GB HDD
Minimum client requirements	Internet Explorer 6.0/SP1 or later
Management and security	SNMP v1, v2c, v3 and TACACS+
Managed devices	Cisco 2000, 2100, 4100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, and Cisco Wireless Location Appliance
Database	Integrated Solid FlowEngine SQL

Cisco WCS Licenses

Ordering Guide

Please read the [Cisco WCS Licensing and Ordering Guide](#) for step-by-step instructions for ordering the correct Cisco WCS license SKUs as well as instructions for downloading, installing, and registering Cisco WCS software.

License Types

Cisco WCS base supports standard Cisco WCS capabilities. Cisco WCS location 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. All purchasable Cisco WCS licenses can be ordered from the [Cisco Ordering Tool](#).

Cisco WCS is available as a software-based license of two types: single server or enterprise.

Single Server Licenses

- License type: Standard, Location Upgrade and CiscoWorks WLSE migration to Cisco WCS.
- Typically suitable for customers deploying up to 500 Cisco Aironet lightweight access points.
- One Cisco WCS license key per Product Authorization Key (PAK) certificate.
- Available as Cisco WCS base or Cisco WCS location options in configurations of 50, 100, and 500 access points for the license families WCS-STANDARD-K9 and WCS-LOC-UPG-K9 to support new and expanded Cisco WCS deployments.
- Available as Cisco WCS base or Cisco WCS location options in configurations of 50, 100, 500, 1000, and 2500 access points for the license family WCS-WLSE-UPG-K9 to support the migration of CiscoWorks WLSE to operate as a Cisco WCS.

Enterprise Licenses

- License type: Enterprise.
- Available with Cisco WCS Software Release 4.1 or later.
- Typically suitable for customers deploying 500 or more Cisco Aironet lightweight access points.
- Multiple license files are linked to a single PAK certificate that can be deployed on one or multiple Cisco WCS servers.
- Location services are included with all enterprise licenses.
- Availability in configurations of 1000, 2500, 10,000 and 50,000 access points for the license family WCS-ENT-K9.
- Redeem licenses up to the maximum access point quantity associated with the SKU. As individual access point licenses under a PAK are redeemed, the access point quantity count tied to the PAK is decremented accordingly.
- With the licenses WCS-ENT-10000 and WCS-ENT-50000, a [Cisco WCS Navigator](#) license (WCS-NAV-20) is included to support up to 20 geographically diverse Cisco WCS management platforms.

Ordering Considerations

The following ordering considerations are applicable for Cisco WCS licenses. To select the correct Cisco WCS license SKU, please read the [Cisco WCS Licensing and Ordering Guide](#).

- All Cisco WCS SKUs can be bought as a discrete SKU (first-time purchase) or as an expansion SKU (added to an existing deployment) unless otherwise noted.
- Cisco WCS base and Cisco WCS location licenses cannot be combined. Only Cisco WCS single server licenses of the same option (base or location) can be combined.
- If a single server license is upgraded from Cisco WCS base to Cisco WCS location, all of its associated access points must stay on the single server where the license was originally deployed.
- For single server deployments, it is more cost-effective to purchase Cisco WCS location initially rather than add location at a later date to a Cisco WCS base deployment.
- Single server licenses can be combined with an enterprise license. However, if single server and enterprise licenses are combined, the license for the single server must be deployed on one server.
- Single server and enterprise licenses can only be combined if the single server license supports location. If a Cisco WCS base license was purchased, this license must be upgraded to Cisco WCS location before the enterprise licenses can be added.
- A single server license cannot be upgraded to operate as an enterprise license.
- Cisco WCS licensing is not tied to the type of lightweight access point deployed since Cisco WCS licensing does not distinguish access point types. Each lightweight access point is counted as one access point license.
- All Cisco WCS SKUs, except for the Cisco WCS Demonstration License, are orderable from the [Cisco Ordering Tool](#).

Downloading Cisco WCS Software

Customers can download Cisco WCS Software Release 4.0, 4.1 or later from http://www.cisco.com/cgi-bin/tablebuild.pl/Wireless_Control_System_Software (login required) or from the [Product Upgrade Tool](#).

Cisco WCS licensing entitlement is applicable for new or expanded Cisco WCS deployments on single or multiple servers, CiscoWorks WLSE customers upgrading to Cisco WCS, Cisco WCS location upgrades, and existing Cisco WCS installations that are upgrading to Cisco WCS Software Release 4.1.

Customers running Cisco WCS Software Release 4.0 are encouraged to upgrade to Cisco WCS Software Release 4.1, but they are not required to do so.

Ordering Information

Table 4 provides ordering information for Cisco WCS. To place an order, for all Cisco WCS licenses except the Cisco WCS Demonstration License, visit the [Cisco Ordering Website](#). To request a license for the Cisco WCS Demonstration License visit <http://www.cisco.com/go/license>.

Please read the [Cisco WCS Licensing and Ordering Guide](#) for step-by-step instructions for ordering the correct Cisco WCS license SKU as well as instructions for downloading, installing, and registering Cisco WCS software.

Note: Each license is orderable in specified quantity blocks. To add multiple quantities of license blocks, you must go back to the main screen and order additional family SKUs and then select the sub-SKU option and quantity block required. Repeat this process as needed, until the correct quantity of license blocks for your sub-SKU have been ordered.

Table 4. Ordering Information for Cisco WCS

Product Part Number	Product Description
WCS-STANDARD-K9	
New and Expanded Cisco WCS Deployments	
Cisco WCS Base	
<ul style="list-style-type: none"> Supports deployment of Cisco WCS on a single server 	
WCS-APBASE-50	Cisco WCS Base License for 50 access points, Windows/Linux
WCS-APBASE-100	Cisco WCS Base License for 100 access points, Windows/Linux
WCS-APBASE-500	Cisco WCS Base License for 500 access points, Windows/Linux
Cisco WCS Location	
<ul style="list-style-type: none"> Supports deployment of Cisco WCS on a single server Includes location services to support tracking of a single Wi-Fi device on demand or expanded location capabilities by adding a Cisco Wireless Location Appliance. Cisco WCS Location must be installed to support deployment of a Cisco Wireless Location Appliance. 	
WCS-APLOC-50	Cisco WCS with Location License for 50 access points, Windows/Linux
WCS-APLOC-100	Cisco WCS with Location License for 100 access points, Windows/Linux
WCS-APLOC-500	Cisco WCS with Location License for 500 access points, Windows/Linux
WCS-LOC-UPG-K9	
Upgrading Cisco WCS Base to Cisco WCS Location	
<ul style="list-style-type: none"> Supports upgrading a Cisco WCS base license to support location services Supports deployment of Cisco WCS on a single server Includes location services to support tracking of a single Wi-Fi device on demand or expanded location capabilities by adding a Cisco Wireless Location Appliance. Cisco WCS Location must be selected to support deployment of a Cisco Wireless Location Appliance. 	
WCS-APLOC-UPG-50	Cisco WCS Location Upgrade License supporting 50 access points, Windows/Linux
WCS-APLOC-UPG-100	Cisco WCS Location Upgrade License supporting 100 access points, Windows/Linux
WCS-APLOC-UPG-500	Cisco WCS Location Upgrade License supporting 500 access points, Windows/Linux
WCS-ENT-K9	
Enterprise licenses for large-scale deployments	
<ul style="list-style-type: none"> Supports deployment of Cisco WCS on a single or multiple servers Includes location services to support tracking of a single Wi-Fi device on demand or expanded location capabilities by adding a Cisco Wireless Location Appliance. 10,000 and 50,000 enterprises licenses include a Cisco WCS Navigator (WCS-NAV-20) license These licenses are operational with Cisco Unified Wireless Network Software Release 4.1 and later. 	
WCS-ENT-1000	Cisco WCS Enterprise License with Location for 1000 access points, Windows/Linux on Multiple Cisco WCS Servers
WCS-ENT-2500	Cisco WCS Enterprise License with Location for 2500 access points, Windows/Linux on Multiple Cisco WCS Servers
WCS-ENT-10000	Cisco WCS Enterprise License with Location for 10,000 access points, Windows/Linux on Multiple Cisco WCS Servers. Includes Cisco WCS Navigator
WCS-ENT-50000	Cisco WCS Enterprise License with Location for 50,000 access points, Windows/Linux on Multiple Cisco WCS Servers. Includes Cisco WCS Navigator
WCS-WLSE-UPG-K9	
Converting an existing CiscoWorks WLSE to Cisco WCS	
CiscoWorks WLSE Conversion to Cisco WCS Base	
<ul style="list-style-type: none"> Supports deployment of Cisco WCS on a single server Available for CiscoWorks WLSE Models 1130-19 and 1133 only 	
WCS-WLSE-APB-50	Cisco WCS Base License for WLSE conversion supporting 50 access points, Linux

Product Part Number	Product Description
WCS-WLSE-APB-100	Cisco WCS Base License for WLSE conversion supporting 100 access points, Linux
WCS-WLSE-APB-500	Cisco WCS Base License for WLSE conversion supporting 500 access points, Linux
WCS-WLSE-APB-1000	Cisco WCS Base License for WLSE conversion supporting 1000 access points, Linux
WCS-WLSE-APB-2500	Cisco WCS Base License for WLSE conversion supporting 2500 access points, Linux
CiscoWorks WLSE Conversion to Cisco WCS Location	
<ul style="list-style-type: none"> • Supports deployment of Cisco WCS on a single server • Includes location services to support tracking of a single Wi-Fi device on demand or expanded location capabilities by adding a Cisco Wireless Location Appliance. • Cisco WCS Location must be installed to support deployment of a Cisco Wireless Location Appliance. 	
WCS-WLSE-APL-50	Cisco WCS Location License for WLSE conversion supporting 50 access points, Linux
WCS-WLSE-APL-100	Cisco WCS Location License for WLSE conversion supporting 100 access points, Linux
WCS-WLSE-APL-500	Cisco WCS Location License for WLSE conversion supporting 500 access points, Linux
WCS-WLSE-APL-1000	Cisco WCS Location License for WLSE conversion supporting 1000 access points, Linux
WCS-WLSE-APL-2500	Cisco WCS Location License for WLSE conversion supporting 2500 access points, Linux
AIR-WCS-DEMO-K9	
Cisco WCS Demonstration License	
<ul style="list-style-type: none"> • Only available from http://www.cisco.com/go/license. • After requesting the license, go to Cisco Wireless Software Center (login required) to download Cisco WCS software. • There is no Cisco Technical Assistance Center (TAC) support for the Cisco WCS Demonstration License. 	
AIR-WCS-DEMO-K9	Free Cisco WCS full featured, location-enabled, 30 day demonstration license supporting ten lightweight access points

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, visit [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

For More Information

For more information about Cisco WCS, contact your local account representative or visit: <http://www.cisco.com/en/US/products/ps6305/index.html>

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



Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6367)
Fax: 408 527-0688

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#29-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7788

Europe Headquarters
Cisco Systems International BV
Houtlandpark
Houtlandparkweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 20 620 0791
Fax: +31 0 20 657 1100

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

©2007 Cisco Systems, Inc. All rights reserved. CCVP, the Cisco logo, and the Cisco Square Bridge logo are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn is a service mark of Cisco Systems, Inc.; and Access Registrar, Aronnet, BPX, Catalyst, CGSA, CDRP, CCIE, CDR CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solve, EtherChannel, EtherFast, EtherSwitch, Est, Eap, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, IPPhone, IPTV, IQ Expertise, the IQ logo, IQ Net, Readiness Scorecard, iClick Study, LightStream, Linksys, MeetingPlace, MGX, Networking Academy, Network Registrar, Packet, PIX, ProConnect, ScriptShare, SMARTnet, StackWise, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0705R)