Cisco Wireless Controller on Cisco Services-Ready Engine (SRE)

Small to Medium-Sized Enterprise and Branch Office Controller

- Support for up to 50 access points and 500 clients
- 802.11n ready support up to 500 Mbps
- Payment Card Industry (PCI) certified for scanner and kiosk support

Licensing Flexibility and Investment Protection

- Additional access point capacity licenses may be added over time up to total 50 access points

Comprehensive Wired/Wireless Security

- Supports rogue access point detection and denial-of-service attacks
- Management frame protection detects malicious users and alerts network administrators

Enterprise Wireless Mesh

- Dynamic wireless mesh networks support indoor and outdoor connectivity for areas that are difficult to wire

Product Overview

The Cisco® Wireless Controller application on the Cisco Services-Ready Engine (SRE) enables systemwide wireless functions in small to medium-sized enterprises and branch offices. Delivering 802.11n performance and scalability, the Cisco Wireless Controller on the SRE is an entry-level controller that provides low total cost of ownership and investment protection by integrating seamlessly with the existing network. The Cisco SRE Modules are router blades for the Cisco Integrated Services Routers Generation 2 (ISR G2), which allows you to provision the Cisco Wireless Controller applications on the module remotely at any time. This can help your organization to quickly deploy wireless on-demand, reduce operating costs, and consolidate the branch office infrastructure.

As a component of the Cisco Unified Wireless Network, this controller provides real-time communication between Cisco Aironet® access points, the Cisco Wireless Control System (WCS), and the Cisco Mobility Services Engine (MSE) to deliver centralized security policies, wireless intrusion prevention system (wIPS) capabilities, award-winning RF management, context-aware capabilities for location tracking, and quality of service (QoS) for voice and video.

The Cisco Wireless LAN Controller on the Cisco SRE supports from five to 50 access points, and additional access point support may be added in increments of five or 25. The licensing structure supports a variety of business mobility needs as part of the basic feature set, including Enterprise Wireless Mesh, which allows access points to dynamically establish wireless connections in locations where it may be difficult or impossible to physically connect to the wired network.

The Cisco Wireless Controller application is available for Cisco SRE Internal Services Module (ISM) 300 and the Cisco SRE Service Module (SM) 700 and SM 900, with flexible licensing and deployment options.

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Features and Benefits

The Cisco Wireless Controller on Cisco SRE Modules delivers the features and benefits listed in Table 1.

Table 1. Cisco Wireless Controller on Cisco SRE Module: Features and Benefits

Feature	Benefit
On-demand remote application provisioning	• Customers can provision the Cisco Wireless Controller either at the time of Cisco SRE installation or remotely any time thereafter. • Remote installation and activation eliminates the need for separate a truck-roll, service calls, and onsite IT personnel.
Flexible ordering options	Customers have flexibility to install the Cisco Wireless Controller application on the Cisco SRE module at network deployment time or quickly provision the SRE with the application at a later time.
Integrated module has a small physical, energy, and carbon footprint	Save on energy bills, hardware support contracts, and onsite visits.
Dedicated onboard processing, memory, and hard drive	• Dedicated hardware resources on Cisco SRE Modules help ensure maximum concurrent routing and application performance.
RAID-1 hard drive redundancy on Cisco SRE SM 900	• One-to-one hard drive redundancy increases the availability and robustness of the network. • Hard drives are field-replaceable and hot-swappable.
Integration with Cisco ISR G2 and Cisco IOS® Software	• Cisco Wireless Controller on Cisco SRE Modules can be configured through Cisco Configuration Professional or the Cisco IOS Software command-line interface (CLI). • A single-screen configuration option and proactive setup diagnostics enhance the ease of deployment.

Table 2 lists Cisco SRE ISM and SM support on Cisco Integrated Services Routers.

Table 2. Cisco SRE ISM and SM Support on Cisco Integrated Services Routers

ISR Model	Maximum Number of Cisco SRE Modules	Number of Cisco SRE ISM 300 Modules Supported	Number of Cisco SRE SM 700 and 900 Modules Supported
Cisco 1941	1	1	0
Cisco 2901	1	1	
Cisco 2911	2	1	1
Cisco 2921	2	1	1
Cisco 2951	3	1	2
Cisco 3925	3	1	2
Cisco 3945	5	1	4

Table 3 lists the features and benefits of the Cisco Wireless Controller on the Cisco SRE.

Table 3. Cisco Wireless Controller on the Cisco SRE: Features and Benefits

Feature	Benefits
Scalability	• ISM 300 supports up to 10 access points. • SM 700 and 900 support up to 50 access points.
High Performance	• Wired network speed, nonblocking performance for 802.11n networks
RF Management	• Provides both real-time and historical information about RF interference impacting network performance across controllers, via systemwide Cisco CleanAir integration
Security	• Wireless intrusion prevention system (wIPS)
Comprehensive End-to-End Security	• Offers Control and Provisioning of Wireless Access Points (CAPWAP) compliance to help ensure full-line-rate encryption between access points and controllers across remote WAN/LAN links

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Feature	Benefits
Enterprise Wireless Mesh	• Allows access points to dynamically establish wireless connections without the need for a physical connection to the wired network • Available on select Cisco Aironet access points, Enterprise Wireless Mesh is ideal for warehouses, manufacturing floors, shopping centers, and any other location where extending a wired connection may prove difficult or aesthetically unappealing
High-Performance Video	• Integrates Cisco VideoStream technology as part of the medianet framework to optimize the delivery of video applications across the WLAN
End-to-end Voice Services	• Supports Unified Communications for improved collaboration through messaging, presence, and conferencing • Supports all Cisco Unified Wireless IP Phones for cost-effective, real-time voice services
PCI Integration	• Part of Payment Card Industry (PCI) certified architecture, making the solution well-suited for retail customers who deploy transactional data applications such as scanners and kiosks
Environmentally Responsible	• Organizations may choose to turn off access point radios to reduce power consumption during off peak hours
Mobility, Security and Management for IPv6 and Dual-Stack Clients	• Secure, reliable wireless connectivity and consistent end-user experience • Increased network availability through proactive blocking of known threats • Equips administrators for IPv6 troubleshooting, planning, and client traceability from a common wired and wireless management system

Product Specifications

Table 4 lists the product specification for Cisco Wireless Controller on the Cisco SRE.

For physical specifications of Cisco SRE Modules, visit:
http://www.cisco.com/en/US/prod/collateral/modules/ps10598/data_sheet_c78-553913.html.

Table 4. Product Specifications for the Cisco Wireless Controller on Cisco SRE

Item	Specification
Wireless Standards	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n, 802.11u
Wired/Switching/Routing	Several Ethernet switching modules and Power-over-Ethernet (PoE) options are supported on Cisco 1941 ISR G2 router and the Cisco 2900 and 3900 Series ISR G2 routers
Data Request for Comments (RFCs)	• RFC 768 UDP • RFC 791 IP • RFC 2460 IPv6 (pass through Bridging mode only) • RFC 792 ICMP • RFC 793 TCP • RFC 826 ARP • RFC 1122 Requirements for Internet Hosts • RFC 1519 CIDR • RFC 1542 BOOTP • RFC 2131 DHCP • RFC 5415 CAPWAP Protocol Specification • RFC 5416 CAPWAP Binding for 802.11
Security Standards	• Wi-Fi Protected Access (WPA) • IEEE 802.11i (WPA2, RSN) • RFC 1321 MD5 Message-Digest Algorithm • RFC 1851 The ESP Triple DES Transform • RFC 2104 HMAC: Keyed Hashing for Message Authentication • RFC 2246 TLS Protocol Version 1.0 • RFC 2401 Security Architecture for the Internet Protocol • RFC 2403 HMAC-MD5-96 within ESP and AH • RFC 2404 HMAC-SHA-1-96 within ESP and AH

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Item	Specification
	• RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV • RFC 2406 IP Encapsulating Security Payload (ESP) • RFC 2407 Interpretation for ISAKMP • RFC 2408 ISAKMP • RFC 2409 IKE • RFC 2451 ESP CBC-Mode Cipher Algorithms • RFC 3280 Internet X.509 PKI Certificate and CRL Profile • RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec • RFC 3686 Using AES Counter Mode with IPsec ESP • RFC 4346 TLS Protocol Version 1.1
Encryption	• Wired Equivalent Privacy (WEP) and Temporal Key Integrity Protocol-Message Integrity Check (TKIP-MIC): RC4 40, 104 and 128 bits (both static and shared keys) • Advanced Encryption Standard (AES): CBC, CCM, Counter Mode with Cipher Block Chanining Message Authentication Code Protocol (CCMP) • Data Encryption Standard (DES): DES Cipher Block Chaining (DES-CBC), 3DES • Secure Sockets Layer (SSL) and Transport Layer Security (TLS): RC4 128-bit and RSA 1024- and 2048-bit • IPsec: DES-CBC, 3DES, AES-CBC
Authentication, Authorization, and Accounting (AAA)	• IEEE 802.1X • RFC 2548 Microsoft Vendor-Specific RADIUS Attributes • RFC 2716 PPP EAP-TLS • RFC 2865 RADIUS Authentication • RFC 2866 RADIUS Accounting • RFC 2867 RADIUS Tunnel Accounting • RFC 2869 RADIUS Extensions • RFC 3576 Dynamic Authorization Extensions to RADIUS • RFC 3579 RADIUS Support for EAP • RFC 3580 IEEE 802.1X RADIUS Guidelines • RFC 3748 Extensible Authentication Protocol (EAP) • Web-based authentication • Terminal Access Controller Access-Control System (TACACS) support for management users
Management	• SNMP v1, v2c, v3 • RFC 854 Telnet • RFC 1155 Management Information for TCP/IP-Based Internets • RFC 1156 MIB • RFC 1157 SNMP • RFC 1213 SNMP MIB II • RFC 1350 TFTP • RFC 1643 Ethernet MIB • RFC 2030 SNTP • RFC 2616 HTTP • RFC 2665 Ethernet-Like Interface types MIB • RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions • RFC 2819 RMON MIB • RFC 2863 Interfaces Group MIB • RFC 3164 Syslog • RFC 3414 User-Based Security Model (USM) for SNMPv3 • RFC 3418 MIB for SNMP • RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs • Cisco private MIBs
Management Interfaces	• Designed for use with Cisco Wireless Control System • Web-based: HTTP/HTTPS individual device manager

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Item	Specification
	• Command-line interface: Telnet, SSH
Product Compatibility	• Router: Cisco 1941, 2900 Series, and 3900 Series ISR G2 routers • Management: Cisco Wireless Control System • Location tracking: Cisco Mobility Service Engine • Wireless Controllers: Cisco 2100, 2500, 4400, and 5500 Series Wireless Controllers; Cisco Flex 7500 Series Wireless Controller; Cisco Wireless Services Module (WiSM) and WiSM2
Software Compatibility	• Routers: Cisco IOS Software Release

Ordering Information

The Cisco Wireless Controller is an application supported on Cisco SRE (ISM or SM) for ISR G2. The wireless controller application and access point licenses can be ordered together with the supported ISR G2 routers or can be ordered and installed to supported ISR G2 routers after router purchase and installation.

Tables 5 through 8 provide ordering information for the Cisco Wireless Controller on Cisco SRE. To place an order, visit the Cisco ordering website: http://www.cisco.com/en/US/ordering/index.shtml.

Table 5. Cisco SRE Ordering Information

Product Number	Product Description
ISM-SRE-300-K9	512-MB DRAM, 4-GB flash storage
SM-SRE-700-K9	2-GB DRAM, 512-MB flash storage, 500GB hard disk, field- replaceable hard disk
SM-SRE-900-K9	4-GB DRAM, 2-GB flash storage, 2 x 500-GB hard disk (1-TB storage), embedded cryptography chip, RAID 1 support, hot-swappable hard disk
SM-DSK-SATA-500GB=	Spare 50-GB hard disk for SM-SRE-900-K9

Table 6. Ordering Information for Cisco Wireless Controllers on Cisco SRE When Ordering Supported Cisco ISR G2 Routers

Part Number	Product Name	Cisco SMARTnet® 8x5xNBD
SRE-WLC	Wireless Controller on SRE option when sold with ISR G2 system	Requires SRE SASU
FL-SRE-WLC-5	5 access point license for Cisco Wireless Controller on SRE (when sold with ISR G2 system)	Requires SRE SASU
FL-SRE-WLC-25	25 access point license for Cisco Wireless Controller on SRE (when sold with ISR G2 system)	Requires SRE SASU

Service and Support Information

Cisco SRE hardware service and support is covered by the Cisco SMARTnet® Service contract for the router in which the module will reside. Cisco SRE-supported applications have associated Cisco Software Application Support plus Upgrades (SASU) options, which you must purchase separately; they are not included in the router or Cisco SRE module Cisco SMARTnet Service contract.

Additive Capacity Upgrade Licenses

The additive capacity licenses allow for the increase in access point capacity supported by the controller to up to a maximum of 10 access points for one ISM module and 50 access points for SM modules. As an example, if a wireless controller on the Cisco SM 700 Service Module was initially ordered with the 25-access point support, that capacity could be later increased to up to 50 access points by purchasing one 25-access point additive capacity license (2 x FL-SRE-WLC-25A).

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Tables 7 and 8 list capacity upgrade licenses for the Cisco Wireless LAN Controller on Cisco SRE.

Table 7. Ordering Information for Cisco Wireless Controller on Cisco SRE: Access Point Licenses (e-Delivery Product Authorization Keys [PAKs])

Part Number	Product Name	Cisco SMARTnet 8x5xNBD
L-LIC-SRE-WLC-UPG	Primary upgrade SKU: Pick any number or combination of the following options under this SKU to upgrade one or many controllers under one product authorization key	Requires SRE SASU
L-FL-SRE-WLC-5A	5 Access Point Adder License for Cisco Wireless Controller on SRE (e-Delivery)	Requires SRE SASU
L-FL-SRE-WLC-25A	25 Access Point Adder License for Cisco Wireless Controller on SRE (e-Delivery)	Requires SRE SASU

Table 8. Ordering Information for Cisco Wireless Controller on SRE: Access Point Licenses (Paper PAKs)

Part Number	Product Name	Cisco SMARTnet 8x5xNBD
LIC-SRE-WLC-UPG	Primary upgrade SKU: Pick any number or combination of the following options under this SKU to upgrade one or many controllers under one product authorization key	Requires SRE SASU
FL-SRE-WLC-5A	5 Access Point Adder License for Cisco Wireless Controller on SRE (Paper Certificate)	Requires SRE SASU
FL-SRE-WLC-25A	25 Access Point Adder License for Cisco Wireless Controller on SRE (Paper Certificate)	Requires SRE SASU

Service and Support

Wireless LAN Services

Realize the full business value of your wireless network and mobility services investments faster with intelligent, customized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, Cisco professional and technical services enable you to successfully plan, build, and run your network as a powerful business platform. Our services can help you successfully deploy the Cisco Wireless Controller and integrate mobility solutions effectively to lower the total cost of ownership and secure your wireless network.

To learn more about Cisco wireless LAN service offers, visit: https://www.cisco.com/c/en/us/products/wireless/service-listing.html.

Technical Support Services

Application software support services for the Cisco SRE has been simplified to make it easier for you to run the application software that is appropriate for your organization's business needs without the need to update service contracts when you change or move applications. A single Software Application Support plus Upgrades (SASU) contract on the Cisco SRE module provides coverage for any licensed Cisco application running on the module including the Cisco Wireless Controller application.

Hardware and operating system support for the SRE module is provided through the Cisco SMARTnet Service or Cisco Services for IPS contract attached to the ISR G2 chassis.

To learn more about Cisco Technical Services, visit: http://www.cisco.com/go/ts.

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Summary

The Cisco Wireless LAN Controller on SRE is designed for 802.11n performance with an entry-level, integrated wireless controller build on the Cisco ISR G2 for small and medium-sized businesses and branches deployments. It simplifies deployment and operation of wireless networks, helping to ensure smooth performance, enhance security, and maximize network availability. The Cisco Wireless Controller manages all the Cisco access points within campus environments and branch locations, eliminating complexity and providing network administrators with visibility and control of their wireless LANs.

For More Information

For more information about Cisco wireless controllers, contact your local account representative or visit: http://www.cisco.com/en/US/products/ps6366/index.html.

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

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