RG- WS6008

High-Performance Wireless Controller Datasheet

Ruijie RG-WS6008 High-Performance Wireless Controller is designed to support the next-generation high-speed wireless network. The RG-WS6008 Wireless Controller can be deployed at either Layer 2 or Layer 3 network to communicate with access point (AP) without any architecture or hardware changes, offering seamless and secure wireless control. The RG-WS6008 Wireless Controller can manage up to 32 wireless APs by default and a maximum capacity of 200 APs (or maximum 400 APs License for Wall AP) with license upgrade.

HIGHLIGHTS

- Scalable up to 200 APs or 400 Wall APs

- Full Resiliency Design

- Intelligent Load Balancing

- Rich Authentication Features

The RG-WS6008 Wireless Controller enables centralized control and management of APs, delivering high transparency and visibility. With Ruijie's leading management platform Smart Network Commander (RG-SNC) and AP series, the RG-WS6008 Wireless Controller can flexibly manage AP configuration and optimize radio frequency (RF) coverage to enhance the wireless network performance and minimize deployment workload at the same time.

The RG-WS6008 Wireless Controller enables role-based network services with cutting-edge security and clustering technologies. The clustering technology shares wireless user database among multiple controllers and allows users to roam seamlessly across different areas within the network. The RG-WS6008 Wireless Controller thereby delivers smooth wireless voice communications with superior security and availability.
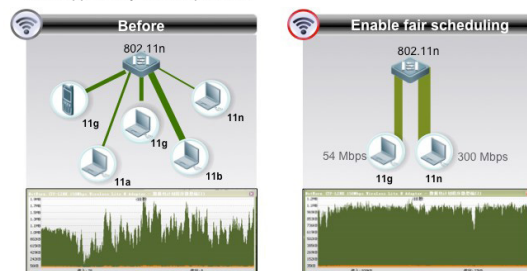
PRODUCT FEATURES

Smart Wireless Experience

Fair Scheduling

The RG-WS6008 Wireless Controller cooperates with Ruijie APs to offer equal access time for smart devices running different standards such as 802.11g, 802.11n, 802.11ac, etc. The feature solves the problems such as high latency and low network speed caused by use of an old wireless LAN card or the device is far away from the AP. The RG-WS6008 Wireless Controller ensures a fair high-speed wireless network for all users with any devices anywhere and anytime.

Fair Scheduling

After fair scheduling is enabled, the whole channel and performance of AP is fully used. Whether low-speed or high-speed the wireless terminal is, they'll have opportunity to send packets.

Fair Scheduling Mechanism

Intelligent Identification of Smart Devices

The RG-WS6008 Wireless Controller with a built-in portal server intelligently identifies the type of smart device. According to the device features, the wireless controller adaptively presents a portal authentication page in the corresponding size and page layout. The intelligent identification of smart devices eliminates the trouble of screen size adjustment and offers better wireless user experience. This technology supports all mainstream operating systems including Apple iOS, Android, and Windows.
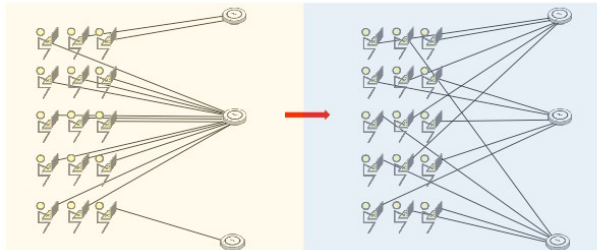
Intelligent Load Balancing

On a high-density wireless LAN, the RG-WS6008 Wireless Controller teams up with Ruijie APs to intelligently distribute users among different APs according to the number of users and data traffic in real time. This feature balances the load pressure on each AP and improves the average bandwidth and Quality of Service (QoS), offering higher network availability. In addition to the role-based and traffic-based balancing features, the RG-WS6008 Wireless Controller also enables load balancing in terms of frequency range. Since the majority of WiFi devices use 2.4GHz by default while frequency above 5GHz (802.11a/n/ac) can offer better throughput performance. With the frequency-based load balancing, the Wireless Controller allows users with dual-band devices to connect to the 5GHz as first priority. Bandwidth usage is greatly increased by 30-40% with no additional cost. The RG-WS6008 Wireless Controller hence delivers the best-in-class high-speed wireless performance to the Ruijie clients.

User-based Load Sharing

Wireless users will connect to AP according to their own choose, so certain AP may have too many users and a very heavy load while other APs are idle. This is a very common problem in large-scale wireless network.

Load sharing feature enables Ruijie APs which work in the same group to realize load balance based on number of users and download bandwidth, users then will access to the non-busy APs.

Intelligent Load Balancing Mechanism

High Performance and Reliability

Centralized or Distributed Intelligent Switching

The RG-WS6008 High-Performance Wireless Controller can be deployed at Layer 2 or Layer 3 level without modifying the original network architecture as it forms an integrated switching architecture with the wireless APs. The RG-WS6008 Wireless Controller provides ease in data switching management of all APs. With the industry-leading local forwarding technology, the RG-WS6008 Wireless Controller eliminates the traffic bottleneck of traditional Wireless Controllers. The local forwarding technology allows flexible deployment of data forwarding in the AP. It means that the AP can determine whether to forward all data via the RG-WS6008 Wireless Controller, or to send the data directly to a wired network for data communication according to a Service Set ID (SSID) or user VLAN. The local forwarding technology enables large-scale, delay-sensitive, and real-time data transmission via the wired network. With the high throughput of 802.11ac, it greatly alleviates the traffic pressure on the RG-WS6008 Wireless Controller. It also better equips the RG-WS6008 Wireless Controller to accommodate the network services with heavy traffic demand such as high definition Video on Demand (VoD) and Voice over Wireless LAN (VoWLAN) in the future.

Intelligent RF Management

The RG-WS6008 Wireless Controller enables AP to perform RF scanning in a wireless network as required. The AP can scan the wireless frequency bands and channels to identify both rogue APs and networks. The AP will send alert notifications to network administrators for immediate action once such are found, providing round-the-clock network protection. In addition, the RG-WS6008 Wireless Controller can control the real-time RF scanning function of the AP to measure signal and interference intensities. The Wireless Controller software also dynamically adjusts traffic load, power, RF coverage, and channel allocation for maximized signal coverage and capacity.

Seamless Roaming Experience

The advanced clustering technology enables real-time synchronization of online information and roaming records of all users among multiple RG-WS6008 Wireless Controllers. Simply put, user and authentication data are shared in the cluster enabling wireless users to roam freely in the whole network. Users can thereby enjoy a borderless and secure roaming experience with the IP address and authentication status remained unchanged. The RG-WS6008 Wireless Controller also achieves fast roaming and voice services with the clustering technology.

Abundant QoS Policies

The RG-WS6008 Wireless Controller supports an extensive array of QoS policies. For example, the Wireless Controller can set bandwidth limitations to give higher priority to critical data transmission applications. The Wireless Controller hence delivers guaranteed bandwidth performance for network of all sizes.

Wireless IPv6 Access

The RG-WS6008 Wireless Controller fully supports all the IPv6 features and implements IPv6 forwarding on a wireless network. Both IPv4 and IPv6 users can automatically connect to the wireless controller series over tunnels, enabling IPv6 applications to be borne on the wireless network.

Flexible and Comprehensive Security Policies

Local Authentication

The RG-WS6008 Wireless Controller has a local user database, which offers smooth integration with the built-in portal server, for easy local authentication of wireless users via web authentication. The RG-WS6008 Wireless Controller allows local authentication based on the actual user demand, saving costs by getting rid of devices such as external portal and RADIUS server. The network infrastructure is also greatly simplified. The RG-WS6008 Wireless Controller fully satisfies the needs of small and medium-sized networks for secure user access.

User Data Encryption

The RG-WS6008 Wireless Controller fully supports the advanced encryption technologies such as Wired Equivalent Privacy (WEP), Temporal Key Integrity Protocol (TKIP), and Advanced Encryption Standard (AES), ensuring end-to-end security of data transmission over the wireless network.

Standard Communication Protocol

Encrypted communication between the RG-WS6008 Wireless Controller and APs is enabled with the international standard Control and Provisioning of Wireless Access Points (CAPWAP). The function ensures complete isolation from the wired network and guarantees high security for the real-time communication between the Wireless Controller and APs. CAPWAP also allows deployment of third-party access points in the future, offering superior scalability, availability and maximizes user investment at the same time.

Virtual Wireless Packet Technology

With the virtual AP technology, the RG-WS6008 Wireless Controller can partition multiple SSIDs within the network. Network administrator can separately encrypt and isolate subnets or VLANs that have the same SSID. The deployment thereby enables specified authentication mode and encryption mechanism for each SSID.

RF Security

The RG-WS6008 Wireless Controller supports RF probe scanning feature to detect unauthorized access points or other RF interference sources. Once detected, the Wireless Controller will send real-time alerts to the network management system. It delivers easy management for network administrator to monitor potential threats and usage status.

Protection Against Viruses and Attacks

The RG-WS6008 Wireless Controller provides a wide range of built-in security mechanisms to effectively prevent and control virus spread and network traffic attacks. The mechanisms ensure secure network access by the authorized users only. Such protection mechanisms include IP/MAC/WLAN binding, hardware ACL control, traffic-based bandwidth limitation, etc. The RG-WS6008 Wireless Controller is an ideal match for large campus, hospital, or enterprise networks with high security demand for guest network access.

Secure User Access

The RG-WS6008 Wireless Controller supports Web Authentication, allowing users to perform authentication using any web browser. 802.1X authentication is another security highlight. Different from web authentication, 802.1X is suitable for the area where network security is strictly controlled. In addition, 802.1x enables IP/MAC/WLAN binding after authentication. . The feature totally guarantees the legitimacy of the user's identity.

The RG-WS6008 Wireless Controller also supports Ruijie RG-SMP (Security Management Platform) to provide insight into and control of Ruijie security and network devices. The RG-SMP offers comprehensive security management across a wide range of Ruijie security appliances and allows users to manage office networks of all sizes for a wide range of industries, with security compliance requirements in aspects of user identity, host health and security of network communication.

Flexible Authentication Modes

In addition to the traditional Web Authentication and 802.1X Authentication, the Ruijie RG-WS6008 Wireless Controller also supports PEAP Authentication, SMS Authentication, and QR Code Authentication.

The PEAP Authentication allows users to perform password authentication for once only. That means users are only required to enter credentials during their first network visit.

If the SMS authentication is adopted, users first sign in with their mobile phone numbers and then receive an SMS with login username and password for network access.

QR code authentication is another wireless security highlight. After accessing a wireless network, users will obtain a QR code on their end devices and simply ask any authorized staff's to scan it for network access.
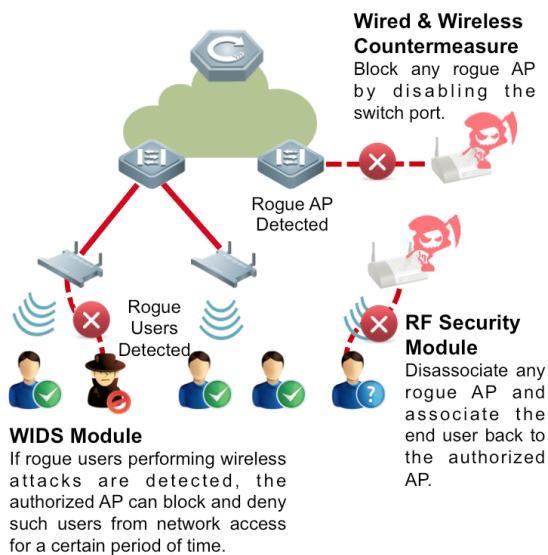

Advanced Guest Wireless Interfaces of the QR Code Authentication

Protection Against ARP Spoofing

Address Resolution Protocol (ARP) detection effectively protects network users from ARP gateway spoofing and host spoofing for secure wireless access. Automatic binding can be enabled in both dynamic and static IP address allocation environments to greatly save manpower resources and management costs. The RG-WS6008 Wireless Controller can monitor and control the rate of ARP packets transmitted to prevent malicious use of scanning tools, which triggers ARP flooding and causes network congestion.

Rogue AP Countermeasure

The RG-WS6008 Wireless Controller enables effective rogue AP detection and containment to enhance wireless security. The Wireless Controller arranges an active AP to perform rogue detection, send probe packets and hear probe responses from valid APs. Network administrator can hence easily single out rogue APs from the authorized to ensure wireless network security.

Wired & Wireless Countermeasure
Block any rogue AP by disabling the switch port.

Rogue AP Detected

Rogue Users Detected

RF Security Module
Disassociate any rogue AP and associate the end user back to the authorized AP.

WIDS Module
If rogue users performing wireless attacks are detected, the authorized AP can block and deny such users from network access for a certain period of time.

Rogue AP and User Countermeasures

DHCP Security

With Dynamic Host Configuration Protocol (DHCP) snooping, the RG-WS6008 Wireless Controller permits DHCP response messages from the trusted ports only. The Wireless Controller can thus prevent unauthorized deployment of any DHCP server to disturb the allocation and management of IP addresses and affect normal operation of the network. With the DHCP monitoring function, the RG-WS6008 Wireless Controller can effectively prevent ARP host spoofing and source IP address spoofing in the dynamic IP allocation environment by dynamically monitoring ARP and checking source IP address.
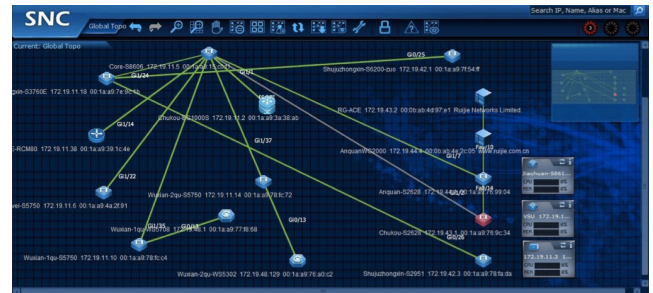
Management Information Security

To ensure the security of devices and offer protection against attacks, the Secure Shell (SSH) and SNMPv3 technologies encrypt management information by Telnet and Simple Network Management Protocol (SNMP). The RG-WS6008 Wireless Controller offers Telnet access control based on source IP address,

offering a high level of granularity on device management. Only the IP addresses authorized by network administrator can log into the Wireless Controller, which further enhances the security of device network management.

Unified Network Management

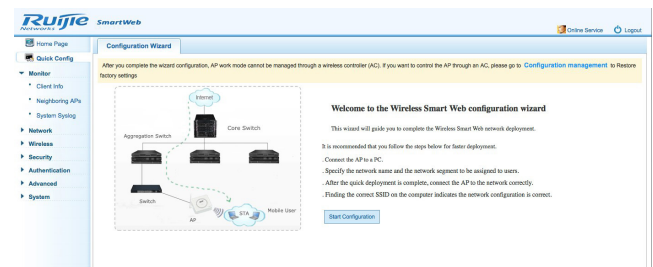## Multiple Management Protocols and Unified Management Platform

The RG-WS6008 Wireless Controller supports a vast number of management modes including Command Line. It offers centralized and efficient planning, deployment, monitoring, and management of all APs with minimized investment costs. Working with the Ruijie Smart Network Commander (SNC) which is an all-rounded network management platform, the RG-WS6008 Wireless Controller delivers enriched network management services such as topology generation, AP operation status, online user status, entire network RF planning, user location, security alert, link load, device utilization rate, roaming record and report output. These functions enable network administrator to monitor and manage the operation status of the entire network in the data center.

Ruijie SNC Unified Topology Diagram

Web Interface Management

The RG-WS6008 Wireless Controller supports web management interface for AC, which provides simplified wireless configuration and high visibility for the whole network operation. With the AC web interface, the Wireless Controller can also manage the APs and also the associated users, achieving user bandwidth control and network access restriction. Network administrator can hence plan, operate and maintain the wireless network with ease.

Ruijie Smart Web Management Interface

TECHNICAL SPECIFICATIONS

Model	RG-WS6008
Service Port	6 1000BASE-T ports 2 1000BASE-T/1000BASE-X ports (combo)
Management Port	1 console port 2 USB ports
Security Standard	GB4943, EN/IEC 60950-1
EMC Standard	GB9254, EN301 489

Performance	Default Number of Manageable APs	32
	Maximum Number of Manageable APs	200 APs or 400 wall APs (with license upgrade)
	Maximum Number of Configurable APs	2,048
	Maximum Number of Manageable Clients	6,400
	802.11 Performance	8Gbps
	VLAN	4,094
	Maximum Number of Clients Supported by the Built-in Portal	1,500
	ACL	64K
	MAC Address Table	16K
	Local Authentication	300 wireless clients
	ARP Table	12K
	IPv6 Neighbor Table	10K
	Inter-AC Roaming Switch Time	≤50ms

WLAN	802.11 LAN Protocol	802.11, 802.11b, 802.11a, 802.11g, 802.11d, 802.11h, 802.11w, 802.11k, 802.11r, 802.11i, 802.11e, 802.11n
	CAPWAP	Layer 2/Layer 3 network topology between an AP and AC Enable an AP to automatically discover an accessible AC Enable an AP to automatically upgrade software version from an AC Enable an AP to automatically download configurations from an AC Network Address Translation (NAT) traversal
	Roaming	Intra-AC Layer 2/Layer 3 roaming Inter-AC Layer 2/Layer 3 roaming Intra-AC Layer 2/Layer 3 roaming under local forwarding Inter-AC Layer 2/Layer 3 roaming under local forwarding
	Forwarding	Local forwarding Centralized forwarding Flexible forwarding based on service
	Wireless QoS	AP-based bandwidth control WLAN-based bandwidth control User-based static and smart speed control Fair balancing
	User Isolation	AC-based user isolation AP-based user isolation WLAN-based user isolation

Model		RG-WS6008
WLAN	Reliability	Fast switching between 2 ACs
		Multiple ACs redundancy (1:1 A/A and A/S, N:1)
		Multiple ACs clustering (N:N)
		Remote Intelligent Perception Technology (RIPT)
		Nonstop service upgrade
	STA Management	AP-based STA access control
		SSID-based STA access control
		AP-based load balancing
		AP traffic-based load balancing
		5G priority access
		RSSI threshold
	STA RSSI Threshold	0 to 100
	STA Idle Timeout	60 to 86,400 seconds
	STA Average Data Rate Threshold	8 to 819,200 with the accuracy of 8Kbps
	Adjusting Transmit Power of Beacon and Probe Response	Support
	Offline Syslog	Support
	RF Management	Setting country codes
		Manually setting transmit power
		Automatically setting transmit power
		Automatically setting working channel
		Automatically adjusting transmission rate
		Support blackhole compensation
		Support RF interference detection and avoidance
Security	IPv4 Security	Web authentication
		802.1x authentication
		PEAP authentication
		SMS authentication
		QR code authentication
	IPv6 Security	Web authentication
		802.1x authentication
	802.11 Security and Encryption	Multiple SSIDs
		SSID hiding
		802.11i-compliant PSK authentication
		WPA and WPA2
		WEP (WEP/WEP128)
		WAPI
		TKIP
		CCMP
		Protection against ARP spoofing
	SMP	Support
	CPP	Support
	NFPP	Support
	WIDS	Support
Internet Protocols	IPv4 Protocol	Ping, Traceroute
		DHCP Server
		DHCP Client

Model		RG-WS6008
Internet Protocols	IPv4 Protocol	DHCP Relay
		DHCP Snooping
		DNS Client
		NTP
		Telnet
		TFTP Server
		TFTP Client
		FTP Server
		FTP Client
	IPv6 Protocol	DNSv6 Client
		DHCPv6 Relay
		DHCPv6 Server
		TFTPv6 Client
		FTPv6 Server
		FTPv6 Client
		IPv6 CAPWAP
		ICMPv6
		IPv6 Ping
		IPv6 Traceroute
		Manual tunnel, automatic tunnel
		Manual configuration address, automatic local address
	IPv4 Routing	Static routing, OSPF
	IPv4 Routing Table Capacity	8K
	IPv4 Static Routing Table Capacity	1K
	IPv6 Routing	Static routing
	IPv6 Routing Table Capacity	1K
	IPv6 Static Routing Table Capacity	1K
Management	Network Management	SNMP v1/v2c/v3
		RMON
		Remote probe
		Syslog
	Network Management Platform	Web management (Smart-web)
		RG-SNC management
		Heat Map diagram
		RILL management
	User Access Management	Login via console port
		Login via Telnet
		Login via SSH
		Upload to FTP
Dimensions (W × D × H) (mm)		440 × 200 × 43.6
Rack Height		1RU
Weight		2kg
Installation Mode		19-inch rack
Power Supply		100VAC to 240VAC, 50Hz to 60Hz
Switching Power Supply		Fixed power supply

Model	RG-WS6008
Power Consumption	<40W
Temperature	Operating Temperature: 0ºC to 45ºC
	Storage Temperature: -40ºC to 70ºC
Humidity	Operating Humidity: 5% to 95%RH (non-condensing)
	Storage Humidity: 5% to 95%RH (non-condensing)
Operating Altitude	0-3000m

ORDERING INFORMATION

Model	Description
RG-WS6008	Next-Gen Wireless Controller, 6 1000BASE-T ports, 2 1000BASE-T/1000BASE-X combo ports, 32 APs License by default, maximum 200 APs License, or maximum 400 APs License for Wall AP
License	
LIC-WS-32	WS Series Wireless Controllers upgrade license for 32 APs or 64 Wall APs
LIC-WS-128	WS Series Wireless Controllers upgrade license for 128 APs or 256 Wall APs

RUIJIE
Networks
Innovation Beyond Networks

Beijing
Fax : (8610) 6815-4205
Phone : (8610) 5171-5996
Email: info@ruijienetworks.com
Address : 11/F, East Wing, ZhongYiPengao Plaza,
No. 29 Fuxing Road, Haidian District,
Beijing 100036, China

Hong Kong
Fax : (852) 3620-3470
Phone : (852) 3620-3460
Email : sales-HK@ruijienetworks.com
Address: Unit 09, 20/F, Millennium City 2,
378 Kwun Tong Road, Kowloon, Hong Kong

Malaysia
Fax : (603) 2181-1071
Phone : (603) 2181-1071
Email: sales-MY@ruijienetworks.com
Address : Office Suite 19-12-3A, Level 12, UOA Center,
No. 19 Jalan Pinang, 50450 Kuala Lumpur,
Malaysia

OEM Cooperation Division
Phone: (8610) 5171-5995
Email: OEM@ruijienetworks.com
Address : 11/F, East Wing, ZhongYiPengao Plaza,
No. 29 Fuxing Road, Haidian District,
Beijing 100036, China

For further information, please visit our website http://www.ruijienetworks.com

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