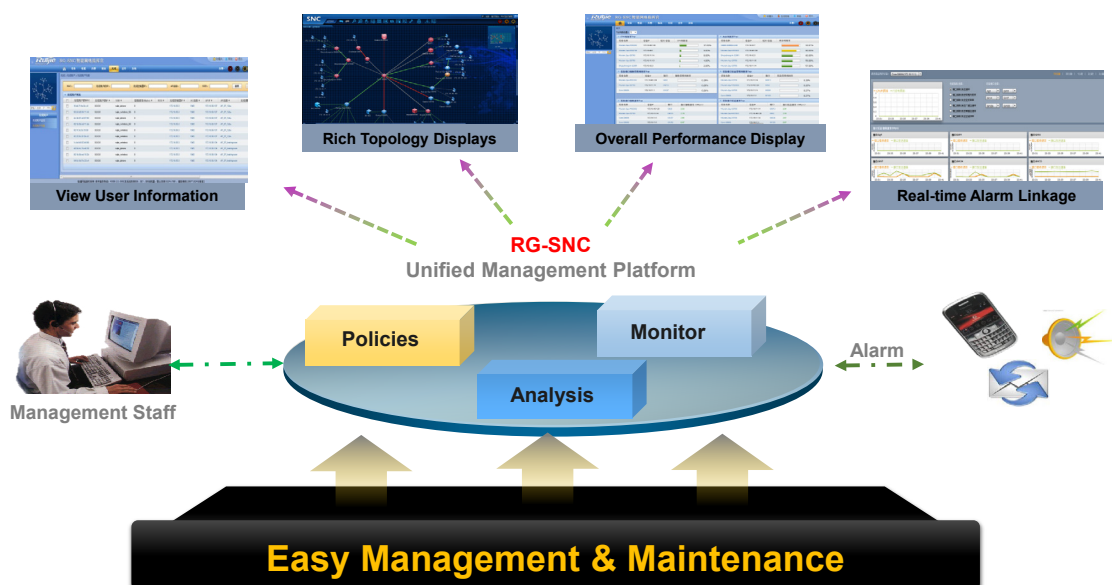# Ruijie RG-SNC
Smart Network Commander Datasheet

Ruijie RG-SNC (Smart Network Commander) is a network management system launched by Ruijie Networks especially designed for network performance management and configuration. With a friendly browser UI, the SNC provides an extensive array of features such as network topology display, device management, performance monitoring, configuration & software management, real-time alarm and log & report management.

The SNC evolves from the traditional network management system and adopts an intelligent "non-agent" mode, which is easier to deploy and maintain. It provides multiple benefits for administrators in terms of task plan customization, real-time network status monitoring, configuration backup and instant topology display of the whole network.

HIGHLIGHTS

- Unified Network Management
- Professional Topology Management
- Real-Time Performance Monitoring
- Rich and Customized Reports
- Proactive Alarm Notifications: Email & SMS

The latest SNC is an ideal match for Ruijie products and also supports fundamental management for all 3rd-party MIB products. The SNC offers a broad array of management functions including wireless management, real-time network topology display, configuration backup and protection, comprehensive reports and logs, etc. The Ruijie SNC hence simplifies network management and lessens maintenance workload.

View User Information

Rich Topology Displays

Overall Performance Display

Real-time Alarm Linkage

RG-SNC
Unified Management Platform

Policies

Monitor

Analysis

Management Staff

Alarm

Easy Management & Maintenance

PRODUCT FEATURES

## Comprehensive Network Topology Information

RG-SNC displays visual topology of the network infrastructure. And all the devices are discovered through three ways: ARP table, routing table and network segment.

Topology management allows users to work on their networks topology. Many types of topology diagram are available, such as L3 global and user-defined topology diagram. In the diagram, the joining links between the devices and PCs reflects the real physical cable links. Users can hence monitor the connectivity among devices network segments, device status and link bandwidth in real-time.

Besides, users can drag device icons freely and to add or delete links & devices manually for a better displaying purpose of the physical network topology. Key link detection is another key feature of RG-SNC. The connectivity of some sensitive links can be tested periodically to make alerts before network failure happens.

The SNC offers additional features below:

- **Topology management**: Offer strengthened topology discovery performance for Layer 2 and 3. With automatic network topology display, it supports monitoring of device status displayed by a customizable topology based on users' needs. It also supports accurate location tracking and provides a complete list of devices, allowing users to view devices in groups or in personalized format based on the actual demands.
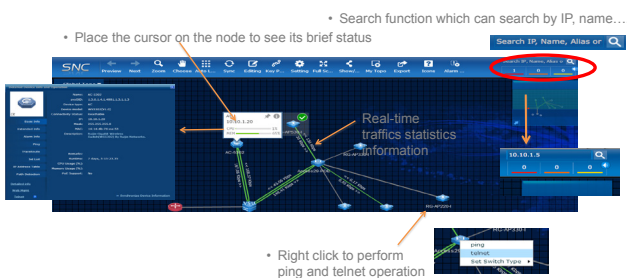
Topology Management

- **Online user info**: Topology displays full details such as user name, IP address, MAC address, uplink device and its port, security status and so on. This feature can send messages to devices or take them offline, etc. (Notes: This function works in collaboration with SMP and SAM.)
- **Network diagnosis assistant**: Regular inspection on network response status to offer network administrators easy management.

- **Event monitoring**: Married with SNMP to achieve comprehensive device monitoring. The system also has a library of 80 trap/syslog alerts as default, offering a clear picture for immediate troubleshooting.
- **IP/MAC/Port mapping table**: The system assists users to recognize ARP attacks and analyze any IP/MAC mapping changes for early warning.

Refined Device Management

The SNC offers a wide range of advanced features to facilitate network management.

- **Loop inspection**: Married with other Ruijie products and via the RLDP (Rogue Location Discovery Protocol), quick troubleshooting is enabled for any loop failure.
- **Key link inspection**: Initiate link inspection from source device to target device (manual/regular automated inspection). Alerts once failure is found and locate failure node.
- **Actual device panel**: Provide the real panel of network devices for precise information checking.

Actual Device Panel

- **Device configuration**: Graphical configuration management. Easy to operate and minimize errors.
- **Extensive info viewing**: Support info checking on device routing table, ARP table, etc. Built-in with device Telnet and device web configuration entrances for diversified management modes.
- **Asset management**: Allows users to collect devices information including manufacturer, category, product model, and software & hardware version. This provides administrators a clear understanding of the network infrastructure.
- **Hierarchical management**: Define administrators' device management rights.
- **Device group management**: Users can add or delete device groups manually to classify devices into different groups according to their geographical position or logical position.
- **Comprehensive information support**: Management efficiency enhancement with detailed information available, e.g. CPU, memory, port status, routing table, MAC table, ARP table and so on. Embedded Telnet and Web configuration

entries to offer multiple management modes.

- **Interface batch management and configuration**: Interface batch operation is supported to reduce maintenance workload.
- **Wireless device management**: Supports WLAN traffic monitor, WLAN user management and AC & AP configuration.

Wireless Management

Ruijie SNC offers the latest RG-SNC-WLAN module to achieve centralized management of wireless devices.

- **Topology management**: Real-time topology display of wireless device operation status.


Unified Wired & Wireless Management via Topology

- **Management page**: Provide global view of the wireless network in 5 seconds with customizable monitoring indicators such as out of service rate and idle AP for network optimization. Monitor the wireless network operation status via AC and AP alarm, rogue AP statistics, etc.


Wireless Device Management Page

- **Hotspot management**: Hotspot-based statistical analysis and management on APs. Hotspot diagram visualizes full details of AP distribution, signal coverage and user count, etc.
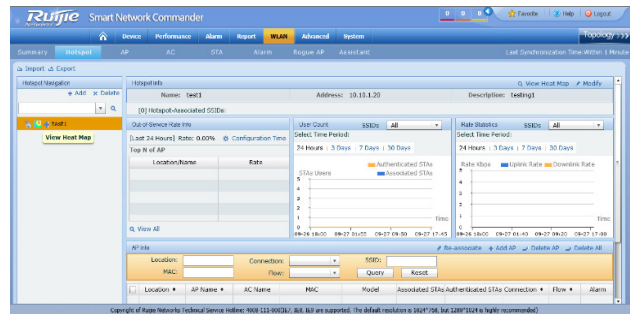

Hotspot Management Interface

- **Heat map diagram**: Display the APs inside the hotspots visually, as well as the number of devices connected to the APs. Clearly identify the connections between APs and ACs via graphical presentation and display the user information.
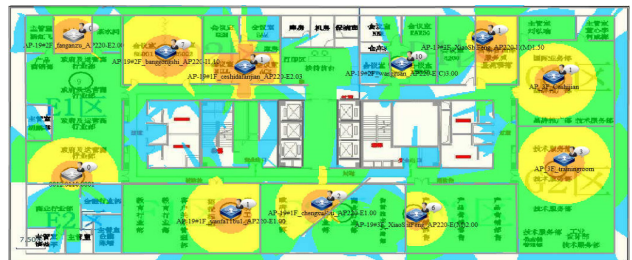
Heat Map Analysis

The SNC also supports real-time spectrum analysis including spectrum chart, duty cycle diagram and real-time FFT chart.

- **Spectrum chart**: Real-time viewing of power level and density of each frequency range in the wireless environment.
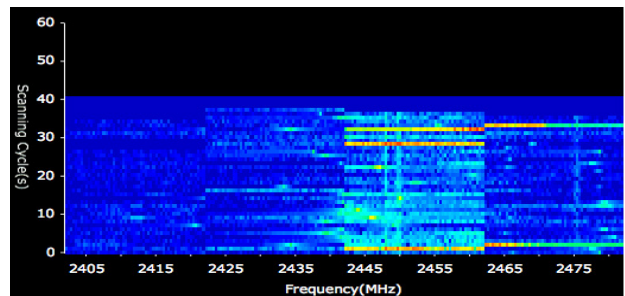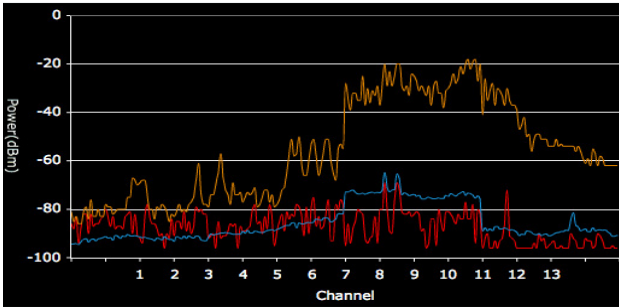

Real-time Spectrum Analysis

- **Duty cycle diagram**: Showing the effective signal ratio of a channel within a specific period of time, i.e. it indicates how busy the channel is.
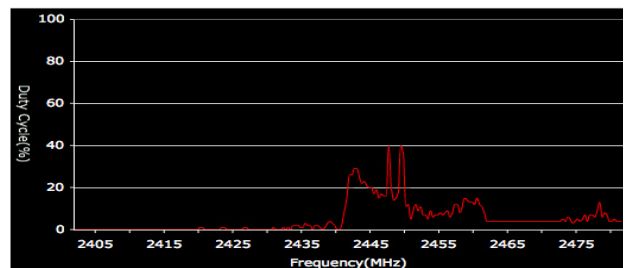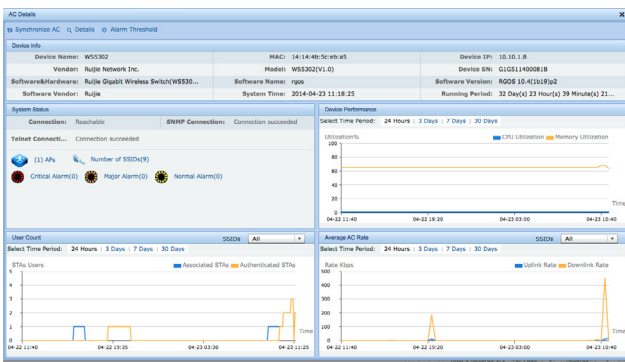

Duty Cycle Diagram

- **Real-Time FFT**: Capturing energy level of each frequency in the 802.11 channels.
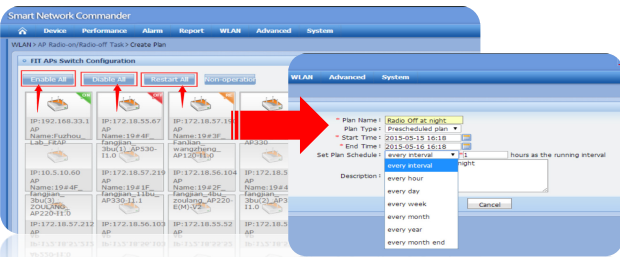

Real-time FFT

- **Wireless controller management**: The wireless module centrally manages all ACs by interface configuration, performance monitoring, etc.


Wireless Controller Management

- **FIT AP management**: Device status, load management and scheduled Wi-Fi radio management. The feature supports regular switch on/off and implements AP overloading alerts.

FIT APs Switch Configuration (Scheduled Wi-Fi Radio Management)

- **End user management**: Provide details on the number of access users, rates, user online/offline status, etc.
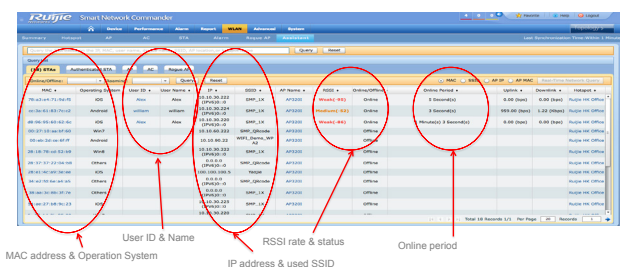

Real-time Online User Status

- **Rogue AP countermeasure**: Display basic info of any rogue AP once detected. The AP is located, linked to hotspot and reflected on the hotspot diagram. Warning messages can be issued to the rogue AP.
- **Troubleshooting assistant**: IP/MAC-based searching for end device, authentication user, AP, AC and rogue AP.
- **i-Share+ Mini AP management**: The i-Share+ Mini AP diagram shows the i-Share+ system architecture deployment details such as Mini AP status, number of users and traffic.

IP Surveillance

Low-threshold Bandwidth Monitoring

The RG-SNC provides advanced low-threshold bandwidth management feature which can monitor the transmitted bandwidth of each IP camera for fault management purpose. When video is being recorded in the IP camera, a minimum amount of bandwidth is required for data streaming over IP network to the NVR server. This feature allows users or administrators to configure the minimum threshold bandwidth for each of the IP cameras and NVR applications. When there is an error or the IP camera recording function is not operating as normal, the low threshold rule with key link detection of low bandwidth will be triggered and the RG-SNC will provide proactive alert and alarm generation. This will facilitate the administrator to find the root cause easily with the unified management software.

This feature is mainly designed for environments and situations that require 24-hour video recording for high security purpose. CCTV surveillance is critical to a lot of industry such as large logistic sector, business banking environment and public sector which requires high security with video recording used as criminal evidence in court.
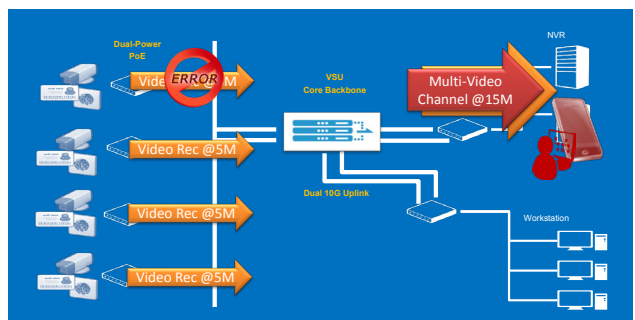
Low-threshold Bandwidth Monitoring

Remote Power Management

The RG-SNC supports remote power management such as power on/off and power restart for wireless APs, IP cameras and other PoE-powered devices via the topology management view which facilitates operation and maintenance support. The RG-SNC enables remote power control of IP cameras instead of operating on the NVR. When the IP camera is not functioning properly, identify which device it is connected to and select the port which needs to restart the PoE power. The RG-SNC can

control the PoE power in the switch to turn off or restart the device.
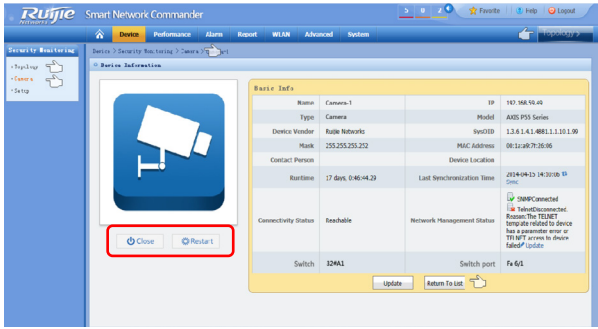
Power Restart Operation
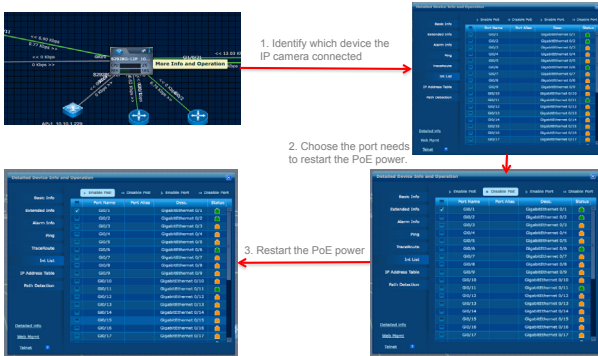
Remote Power Management

Flexible Icon Management

In Ruijie IP surveillance solution, one of the key features to monitor IP camera is flexible icon management.

1. RG-SNC provides an overview on different types of IP cameras which have been installed in your network. With different types of icons, users are able to differentiate the network cameras into indoor and outdoor categories, which can be further categorized into fixed, fixed dome, converted PTZ, and thermal network cameras.
2. RG-SNC allows the administrators or users to view details about camera description such as the IP camera models, location, port level and subnet of the PoE switch which the IP camera is connected to.
3. RG-SNC supports camera icons and image upload to the system so that users can customize their camera icons in the topology to facilitate operation and maintenance support.

Flexible Icon Management
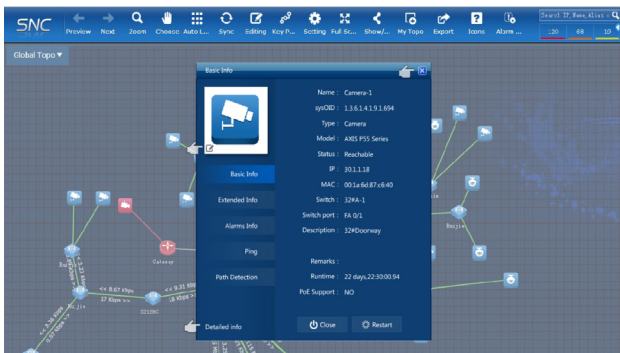
Configuration Management

The SNC supports various configuration management functions, such as regular backup and recovery of device configuration, software management and software issue schedule management. The SNC supports various configurations managing functions including:

- **Configuration snapshot**: The system supports customized collection of device configuration for backup to ensure painless recovery upon failure.
- **Configuration comparison**: Automatically compare the latest configuration details with the previous after backup is completed. Network administrators can acquire any changes easily for risk management.

Unified Management of System Software

- **Device software statistics**: Provide statistics and details on device model and software version for synchronization.
- **Device software batch assignment**: Synchronize software updates for all the devices in the network with details provided.

Performance Management

Real-time performance monitoring provides better understanding of network infrastructure, thus facilitates network management. This function includes the following features:

- Real-time performance curve display
- TOP-N performance statistic
- Performance monitoring indicator setting
- Performance threshold self-define
- Historical performance query
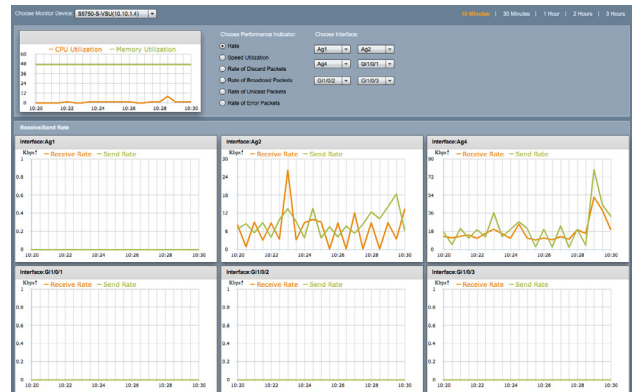
Device Performance Display

Alarm Management

The SNC supports the following alert features during operation:

- Real Time alarm monitoring
- Self-define alarm rule & time
- Voice/email/SMS alarm notification
- Historical alarm query
- Trap & syslog event monitoring
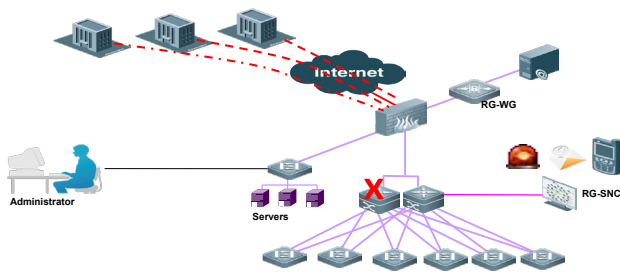
Proactive SMS Alarm

Report & Log Management

The Ruijie SNC assists administrators on network troubleshooting and problems locating to achieve desired outcome. The report & log management function includes the following features:

- Alarm report
- Assets report
- Security log
- Operation log
- Report export
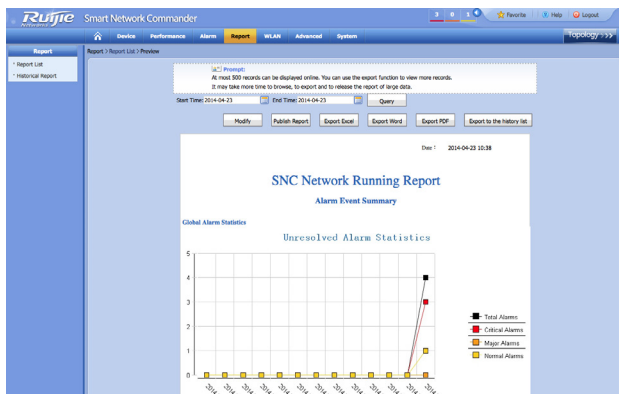
Alarm Report Display
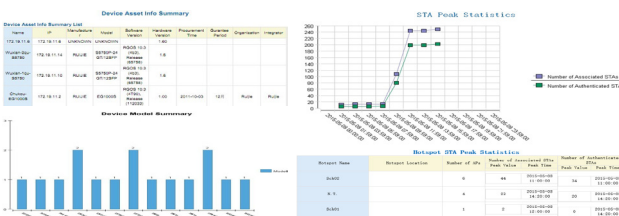
Report Management
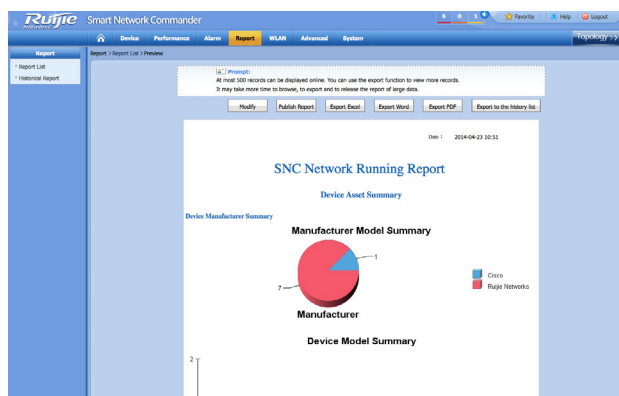
Device Assest Report

Server Management

Ruijie RG-SNC retrieves details and monitor devices in the server using the SNMP, which the monitored devices are required to open. The function supports monitoring on the following:

- CPU operation efficiency
- Internal storage usage efficiency
- Port traffic rate
- Server operation status via SNMP or PING

Graphical ACL and QoS Deployment

ACL and QoS Management: Deployment wizard will guide administrators to implement ACL or QoS on the device and relevant ports step by step.

Server Management

The SNC enables administrators to manage the network devices according to their administrative privileges. This function includes the following features:

- Device assets management
- System parameter setting
- Email server configuration
- Configuration for software update FTP server
- SAM, SMP server configuration
- Administrator management
- Role management
- Password setting
- Concurrent login management
- Schedule operation log
- Device software report
- Software update tips
- Syslog overdue settings
- Favorites menu
- Trap forward management
- Event forwarding management

TECHNICAL SPECIFICATIONS

Product Specifications

Specifications	Description
RG-SNC Basic Component	
B/S Architecture	The product should deploy pure B/S architecture. No client installation is required for users. Enable system access using any standard browsers.
System Management	Support system restart and shutdown using web browser; Monitor server CPU, memory and network card status; Support retrieval of system operation logs via the web page.
License Management	Support file licensing mode.
System Integration	Support integration of authentication-free feature of the network control interface with customer system.
	Support forwarding of network management alert, syslog, trap to customer system.
	Support integration with web services, or network management properties, alerts, performance data.
Unified Wired and Wireless Management	Support unified wired and wireless management on devices such as routers, switches, firewalls and WLAN by modularization.
IP Surveillance	Support low-threshold bandwidth monitoring, remote power management and flexible icon management.
Component Scalability	Support wireless networking for the ease of future unified management and surveillance on wired and wireless devices.
Device Management	Support a variety of device management features. Include a good presentation and basic operating features for creating, deleting or editing device interfaces and data.
	Support batch software upgrade for multiple devices.
	Support a graphical presentation of the actual physical boards, line cards and ports. Support operation directly on the page.
	Support auto software upgrade checking. Support batch software upgrade.
	Support management based on hierarchy and categorization. Enable users to set status of one device or multiple devices to be read-only, writable or hidden. For hidden devices, markings are required to be shown on topology.
	Support editing of device information such as organization name, purchase date, warranty validity, etc.
Device Configuration Management	Support auto retrieval of configuration files on a regular basis and synchronization to management server. Support comparison of the collected data with the previous configuration files. Notify the administrator via email if any difference is found.
	Support graphical guidelines for fast ACL and QoS deployment.
Topology Management	Support auto discovery of Layer 2 and Layer 3 network devices. Support auto topology formation.
	Support discovery of WAN link topology. Support adding virtual nodes such as "building", "cloud", etc.
	Support viewing of a customized topology by a designated IP range or through chosen devices. In every such topology diagram, only matching devices are shown.
	Support auto discovery of routing topology, showing routing relation among devices in the system network layer.
	Support export of the current topology.
	Support dynamically update network topology based on device and link status data collected in real time.
	Support dual-link STP detection. The topology shows real-time status of both links respectively.
	Support topology display in full screen.
	Under the full screen mode, proactively send topology alerts in an animated presentation.
	In the event of operating status changes or alerts triggered, the relative nodes in the topology can be highlighted in real time.

Specifications	Description
Topology Management	Support VSU topology and show the many-to-one virtualization in the topology in real time. Support direct viewing of links and status of multiple device members on the topology.
	Support image upload for background customization.
	Support image upload for node icon customization.
	Support traffic topology of the Weather Map mode.
Real-time Alert	The product should be built-in with a variety of common alert categories. Support alert category customization based on the actual demand whenever necessary. Provide a minimum of 10 common syslog alert customization lists.
	The product should be built-in with a variety of common alert categories. Support alert category customization based on the actual demand whenever necessary. Provide a minimum of 50 pre-defined trap alert customization lists.
	Support setting performance indicator threshold as general, important or very important. When the indicator exceeds the threshold, respective alert will be sent based on the threshold value.
	Support traffic lower limit alert. When the traffic is lower than the designated threshold, alert will be sent.
	Support maintenance schedule for designated devices. Within such period maintenance, no alert will be sent.
Key Link Detection	Support intelligent real-time detection for key links. Upon status changes, quickly locate failure. Support multiple alert modes to notify the administrator to resume network service as soon as possible.
Report Management	Customize task for long-term surveillance of the network performance. Support report generation on a real-time or periodic basis.
	Support report creation, search, editing, deletion. Support report online viewing, import/export, etc. Support periodic export and regular publishing.
	Support history report search.
Interface Mapping Management	Support regular collection of user devices IP, MAC, port mapping table. When there are abnormalities found in the mapping table, alert administrator as an event immediately.
Integration of Topology and User Information	To protect customer's early investment, support registration integration with SAM/SMP. Support searching of online user table including user name, IP address, MAC address, etc.
Compatibility	The product should support standard SNMP MIP management base. Support management on mainstream vendor standard MIB device.
Certification	The product should be compliant with the related rules under Administration of Software Products Regulation.
	With national software copyright registration certificate.

Specifications	Description
RG-SNC WLAN Component	
Topology Management	Support viewing of all wired and wireless devices on one single topology.
Surveillance Statistics	Support accessibility and alert statistics for all wireless ACs and APs.
	Support user trend statistics for the whole network, hotspots, single AC and APs. Support online user statistics for hotspots, single AC and APs.
	Support logout rate statistics for the whole network, hotspots and single AP. Support setting a time range for logout rate statistics. Support viewing of Top N logout rate statistics.
	Support idle AP statistics for the whole network. Support viewing of Top N idle APs on a daily or monthly basis.
	Support uplink and downlink rate statistics/Top N viewing for all hotspots and APs. Support trend statistics for single hotspot, AP uplink and downlink rates.
	Support surveillance indicator customization.

Specifications	Description
Device Management	Support viewing of the following information in AP: wireless radio table, device information, originating AC and hotspot, SSID, alert statistics, etc.
	Support statistics of AP online user trend, bandwidth utilization trend, CPU/memory utilization trend and STA association failure causes.
	Support radio on/off setting of AP.
	Support manually adding, deleting and auto discovery of AC.
	Support connecting AC to Web network control and Telnet management.
	Support viewing of the following information in AC: device panel, device information, device status, management AP, SSID and alert statistics.
	Support AC statistics on current user trend, bandwidth utilization trend and CPU/memory performance trend.
Wireless User Management	Support viewing of wireless user MAC, IP, online status, online duration, uplink/downlink rates, signal strength and device type.
	Support viewing of user online/offline records including time of occurrence, action, user IP, WLAN ID, SSID, associated AP, originating AC, etc.
	Support real-time surveillance on designated devices for uplink/downlink traffic trend and signal strength. Data update frequency <=5s.
	Support designating several terminals as key end devices with operation quality surveillance. Issue alerts when packet retransmission rate exceeds the designated threshold. Issue alerts when abnormal behavior is found in the key end devices. Such events include offline, association/online failure, etc.
	Support viewing of end device statistical graphs of designated user group (hotspot). Minimum requirement: present the graphs in terms of band (2.4G, 5G), connection protocols (802.11a/ 802.11b/ 802.11g/ 802.11n).
Spectrum Analysis	Support >=8 spectrum analysis: current interference table, spectrum diagram, real-time FFT diagram, FFT occupation ratio diagram, spectrum density diagram, channel occupation ratio diagram, channel occupation ratio trend diagram and power trend diagram.
Device Configuration Management	Support configuration of AC system attribute, WLAN, security, interface, trap/syslog servers, etc.
	Support synchronization of AC blacklist.
Wireless Tracking	Support tracking of end device, authentication user, AP, AC, rogue AP based on IP, MAC, login user name, real user name, device name, SSID, AP location or hotspot name.
Rogue AP Management	Support rogue AP table including rogue AP BSSID, SSID, channel, signal strength, vendor, finder AP and its location, single AP mode, countermeasure status, etc.
	Support AP operating mode and rogue AP countermeasure status statistics.
	Support graphical configuration of AP operating mode (graphical guidelines for AP operating mode configuration).
	Support setting of blacklist and whitelist.
Hotspot Heat Map Management	Support import, export and manual editing of hotspot information.
	Support existing APs management based on hotspots. Support statistics of SSID associated with hotspot, logout rate, associated user count and uplink/downlink rates.
	Support floor plan import in .jpg, .png or .gif format. Support setting AP location on the floor plan and viewing of AP coordinates.
	Support setting different kinds of obstacles. Support setting AP height and deployment scenario.
	Support viewing of AP information, AP user information on heat map and adjusting AP channel.
	Support heat map generation based on signal strength, rate, channel conflict (2.4G/5GHz).
Alert Management	The product should be built-in with a variety of wireless alert categories. Support alert category customization based on the actual demand whenever necessary. Provide a minimum of 10 common syslog alert customization lists.

| Specifications	Description
Alert Management	The product should be built-in with a variety of wireless alert categories. Support alert category customization based on the actual demand whenever necessary. Provide a minimum of 15 pre-defined trap alert customization lists.
Hierarchical Management	Support AC, hotspot and SSID management based on hierarchy and categorization.
Report Management	Customize task for long-term surveillance of the network performance. Support report generation on a real-time or periodic basis.
	Support report creation, search, editing and deletion. Support report online viewing, import/export, etc. Support periodic export and regular publishing.
	Support history report search.
	Support report data filtering based on AC, hotspot or SSID.
Integration of Topology and User Information	To protect customer's early investment, support registration integration with SAM/SMP. Support searching of online user table including user name, IP address, MAC address, etc.
Compatibility	The product should support standard SNMP MIP management base. Support management on mainstream vendor standard MIB device.
Certification	The product should be compliant with the related rules under Administration of Software Products Regulation.
	With national software copyright registration certificate.

System Requirements

Hardware Platform Requirement	
Processor	Quad-core, each core clocked at 2GHz (recommended) Dual-core, each core clocked at 2GHz (minimum)
Memory	4G DDR/DDRII (recommended) 2G DDR/DDRII (minimum)
Storage	160G (recommended) 80G (minimum)
Network Interface Adapter	100M or Above
Operating System and Database	
Operation System	Microsoft Windows Server 2003/2008/2012
Database	MySQL5.5.19-win32

TYPICAL APPLICATION

The Ruijie SNC offers the latest RG-SNC-WLAN module to achieve centralized management of wireless devices. It provides a global view of the wireless network with customizable monitoring indicators such as out of service rate and idle AP for network optimization. Users can monitor the wireless network operation status via AC and AP alarm, rogue AP statistics, etc.

The topology management of RG-SNC allows users to work on their network topology. Many types of topology diagram are available, such as L3 global and user-defined topology diagram. In the diagram, the joining links between the devices and PCs reflects the real physical cable links. Users can hence monitor the connectivity among devices network segments, device status and link bandwidth in real-time.
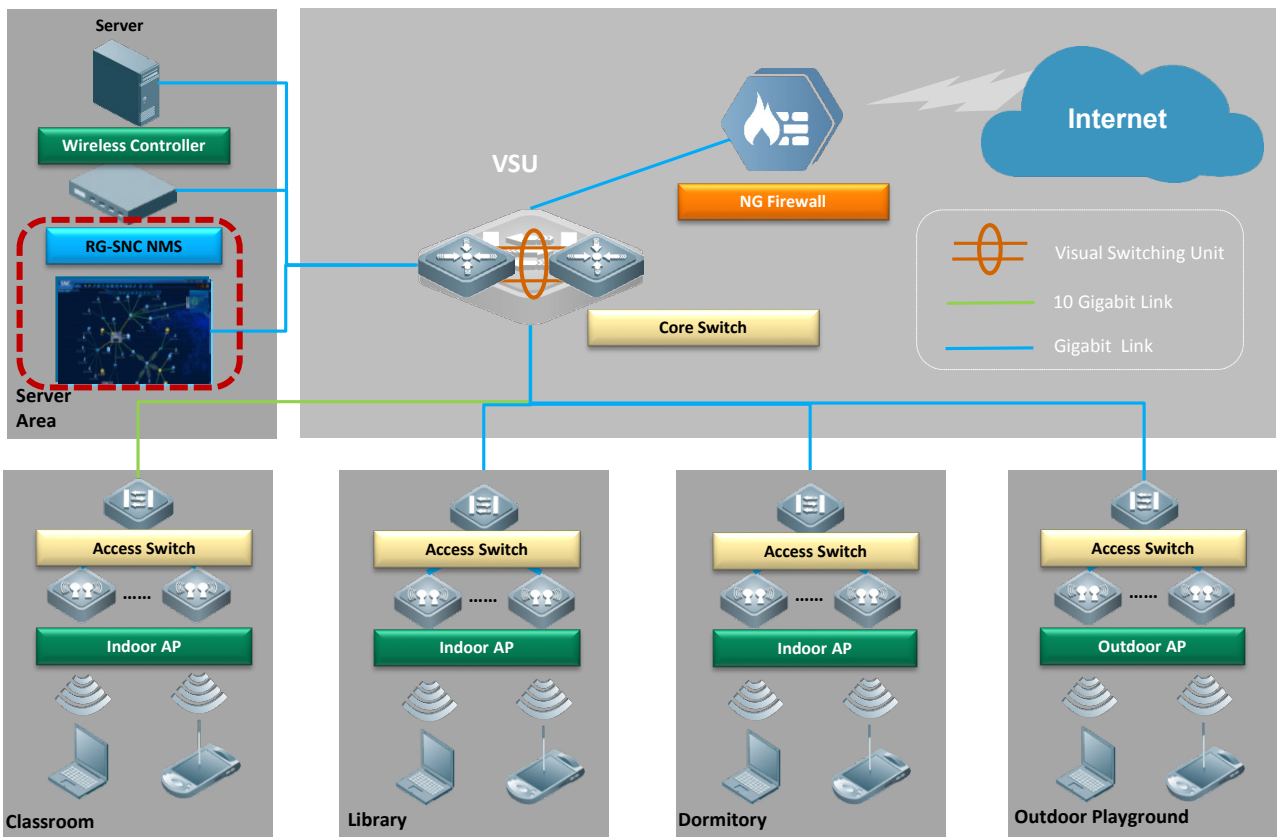
ORDERING INFORMATION

Model	Description
RG-SNC-Pro-Base-EN	Basic Component of Smart Network Commander (Node license sold separately)
RG-SNC-Pro-Topo-EN	Topology Management Component of Smart Network Commander
RG-SNC-Pro-WLAN-EN	WLAN Component of Smart Network Commander
License	
RG-SNC-Pro-EN-License-15	SNC License for 15 Nodes
RG-SNC-Pro-EN-License-25	SNC License for 25 Nodes
RG-SNC-Pro-EN-License-50	SNC License for 50 Nodes
RG-SNC-Pro-EN-License-100	SNC License for 100 Nodes
RG-SNC-Pro-EN-License-200	SNC License for 200 Nodes
RG-SNC-Pro-EN-License-500	SNC License for 500 Nodes
RG-SNC-Pro-EN-License-1000	SNC License for 1000 Nodes
RG-SNC-WLAN-License-50	SNC-WLAN License for 50 FIT APs
RG-SNC-WLAN-License-100	SNC-WLAN License for 100 FIT APs
RG-SNC-WLAN-License-200	SNC-WLAN License for 200 FIT APs
RG-SNC-WLAN-License-500	SNC-WLAN License for 500 FIT APs
RG-SNC-WLAN-License-1000	SNC-WLAN License for 1000 FIT APs
RG-SNC-WLAN-License-2000	SNC-WLAN License for 2000 FIT APs
RG-SNC-WLAN-License-5000	SNC-WLAN License for 5000 FIT APs
Optional Accessories	
RSR10-02E (for SMS gateway)	RSR10-02E Router, 8-Port 10/100 Base-T LAN, 2 -Port 10/100/1000Base-T WAN, 1 Console Port, 1 AUX Port, 1 USB port, 1 SD Slot, 2 SIC Slots, 512MB DRAM
SIC-3G-WCDMA (for SMS gateway)	3G Wireless WAN Interface SIC Module, WCDMA Mode

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