

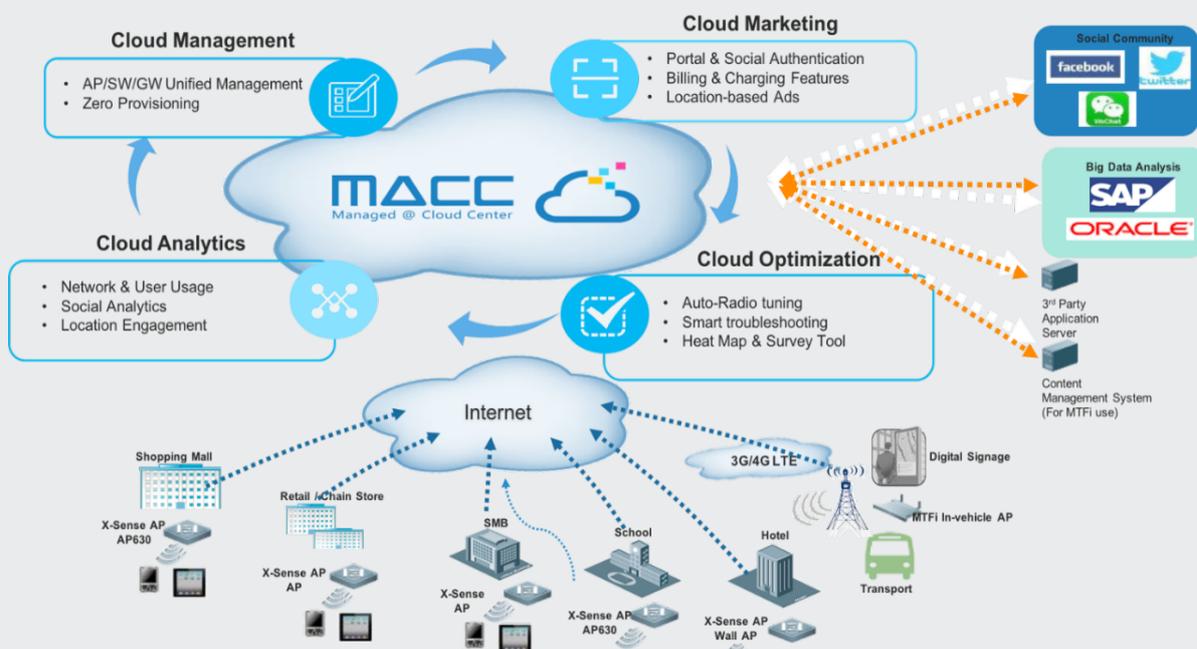


# Ruijie RG-MACC Cloud Solution Framework Overview Datasheet

## FEATURE HIGHLIGHTS

- All-in-one Platform**
  - Integrating features of device management, AAA, portal servers and marketing Wi-Fi into one platform
- Zero-provisioning**
  - Support plug-n-play AP for automatic provisioning without manual intervention
- Location-based Analysis**
  - Support Heat mapping and Footfall Measurement
  - Support Presence Analytics
  - Support Location-based Precision Marketing
- Marketing Campaign**
  - Support Ads portal: Tenants can edit their advertisements easily with Drag-n-Drop Ads Designer Tool in the RG-MACC-SAM - Campaign Management Engine: Ads and notification can be generated to customers based on the analysis of their login status and dwell time duration within RG-MACC-SAM platform
- Social Marketing**
  - Support a wide range of Social Media Authentication (i.e. Facebook, Instagram, WeChat, Twitter, etc.) with Social Analytics Engine

**The Ruijie RG-MACC (Managed @ Cloud Center)** is a revolutionary cloud management platform which supports unified management and configuration of APs, switches and gateway devices<sup>1</sup>, as well as value-added marketing features, location-based services (LBS)<sup>2</sup>, site survey, etc. The RG-MACC is designed for education, retail chain stores, shopping malls, hotels, transportation, small and medium-sized enterprises, network operators and settings alike. The RG-MACC is consisted of various feature modules, such as management, marketing and AAA (authentication, authorization and accounting), LBS, site survey planner, diagnostic tools, etc. The platform significantly reduces the total cost of investment while ensuring high usability of the RG-MACC.



NOTE:  
<sup>1,2</sup> Future release support

Figure 1: RG-MACC Cloud Wi-Fi Solution Diagram

## RG-MACC SOLUTION ARCHITECTURE

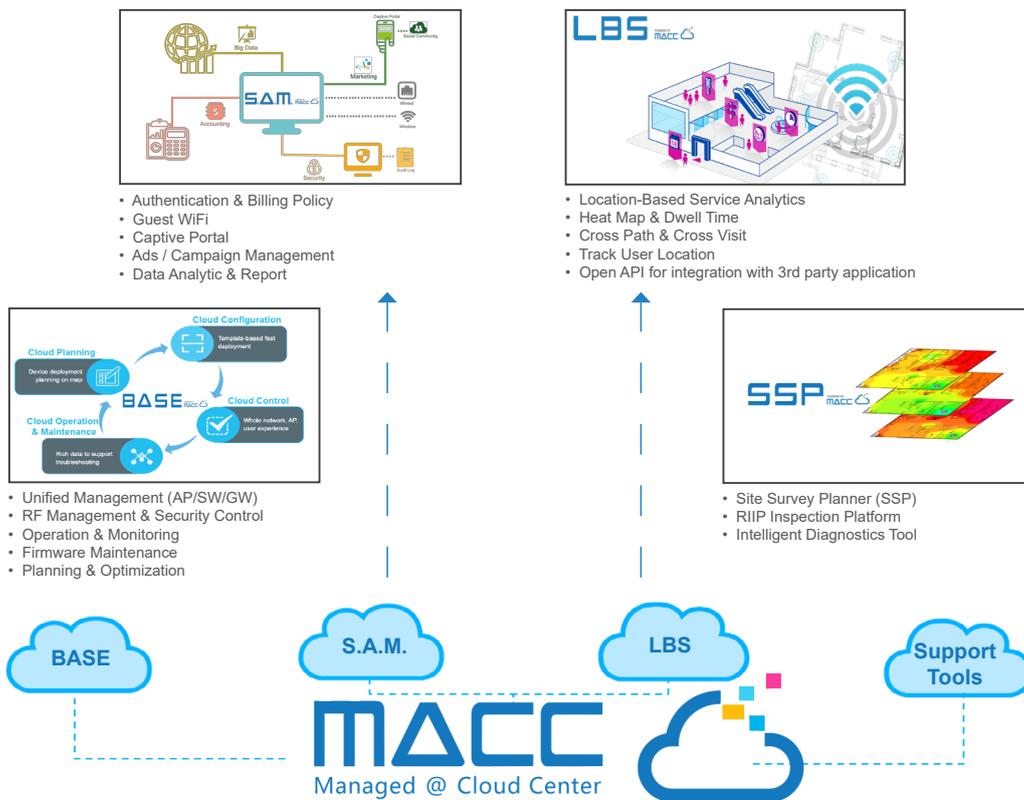


Figure 2: RG-MACC Cloud Solution Components

## MANAGEMENT MODULE

The **RG-MACC-BASE** supports device planning, configuration, control, operation and maintenance on cloud, which provides an easy solution to centrally manage all the Wi-Fi devices. Traditionally, the AC implements close coupling for AP management, which is more suitable for large-scale AP control within the LAN. On the other hand, this platform deploys loose coupling to completely

separate management and data for a better wireless environment. Teaming up with Ruijie AP Series, the RG-MACC-BASE does not only achieve AP management with ease, but also acts like a physical AC. The cloud platform supports wireless control features such as auto power and channel adjustment, RF management and optimization, L2/L3 roaming and beyond.



Figure 3: RG-MACC-BASE Cloud Features



Figure 4: RG-MACC-BASE Main Interface

## MARKETING & AAA MODULE

The **RG-MACC-SAM (Security x Accounting x Marketing)** is a single platform that provides AAA and captive portal service. It enables the clients to offer their guests public Wi-Fi and network access. Using a customizable splash portal, powerful proximity marketing, advertising, and analytic applications, they can provide an engaging Wi-Fi and network experience. RG-MACC-SAM is the next-

generation network access controller with billing and identity management in mind. Highly capable to be deployed in a broadband service network wired for high-speed access (for example, hotels, airports, apartment buildings, campuses, etc.), the RG-MACC-SAM offers an ISP-level authentication, authorization and accounting solutions system.

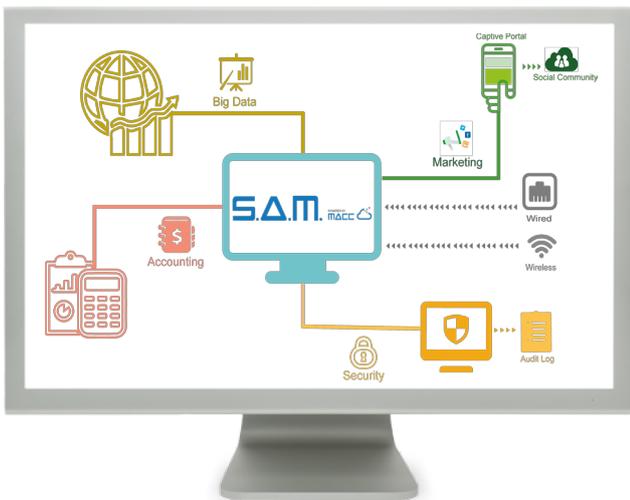


Figure 5: RG-MACC-SAM Feature Modules



Figure 6: RG-MACC-SAM's Feature at a Glance

## Location-based Service Module

The **RG-MACC-LBS** features user location tracking and user analytics to help the clients learn about the Wi-Fi environment of their venues and their users for making decisions on how to allocate project resources. The location data enabled by the positioning technology presents the paths which the users take, the entry and exit data, the dwell time and the crowd density via the heat map. The RG-MACC-LBS can be deployed in a

variety of scenarios for clients' business or projects, such as shopping mall Wi-Fi, campus Wi-Fi and Smart City Project. The RG-MACC-LBS enhances the operational efficiency and boosts the customer engagement supported by the behavioural data of the customers. It also helps the clients to refine their marketing campaigns and drive up the marketing effectiveness enabled by the analytics of user behaviour and accurate smart device location.

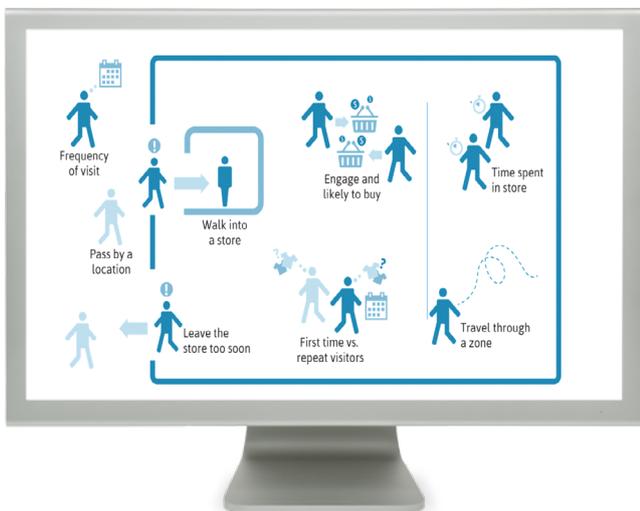


Figure 7: Application of RG-MACC-LBS in Shopping Malls

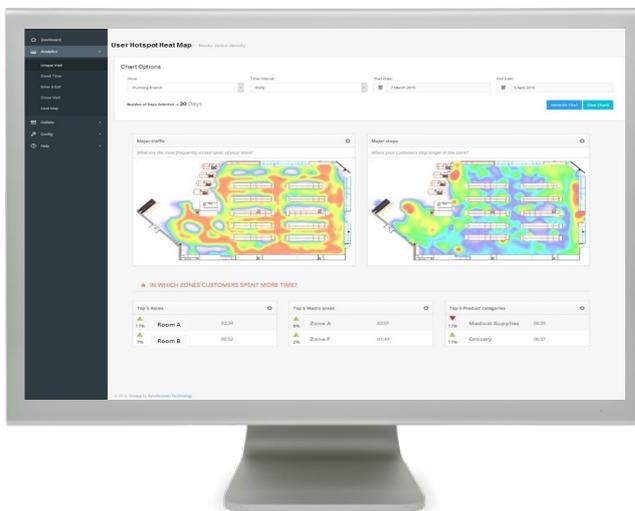


Figure 8: User Heat Map Analysis

The RG-MACC-LBS can deliver detailed analysis of mobile user onsite behaviours to optimize planning and operations, which can provide a win-win solution for both the administration and the students, offering a variety of benefits such as providing improved campus operational and management, delivering enhanced learning and wireless experience, creating promotional and marketing opportunities, etc.

The RG-MACC-LBS represents huge opportunities for both business growth and also for the delivery of better services and experiences for the citizens. By using the RG-MACC-LBS to gather information such as pedestrian traffic, available parking spaces, road traffic, etc., city services can be delivered more efficiently to minimize government costs and improve service delivery.

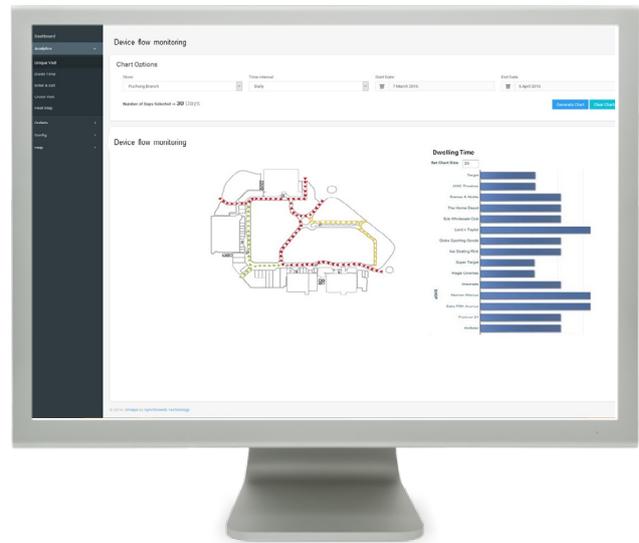


Figure 9: Device Flow Monitoring

## SITE SURVEY MODULE

The **RG-MACC-SSP (Site Survey Planner)** is an easy-to-use simulation tool to generate the heat map according to the imported floor plan with predictions of signal strength, channel interference and speed. It supports adding and removing device icons and

obstacles, enabling the pre-sales engineers to design the network plan with ease. The APs can be placed for the optimal wireless performance, powered by the data-driven simulation of the AP deployment scenario.

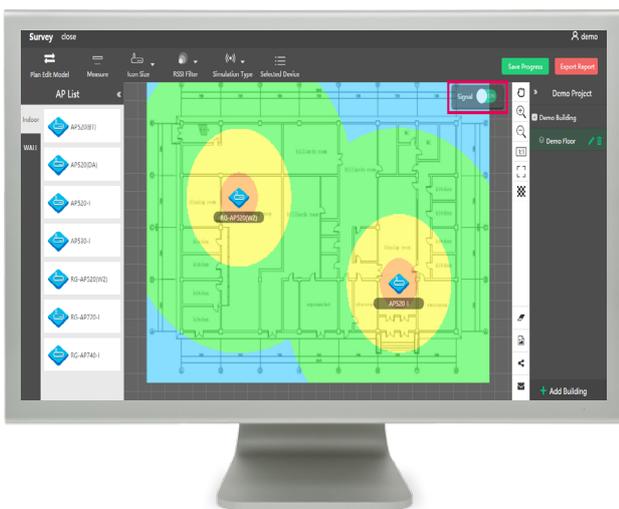


Figure 10: AP Deployment Scenario Simulation

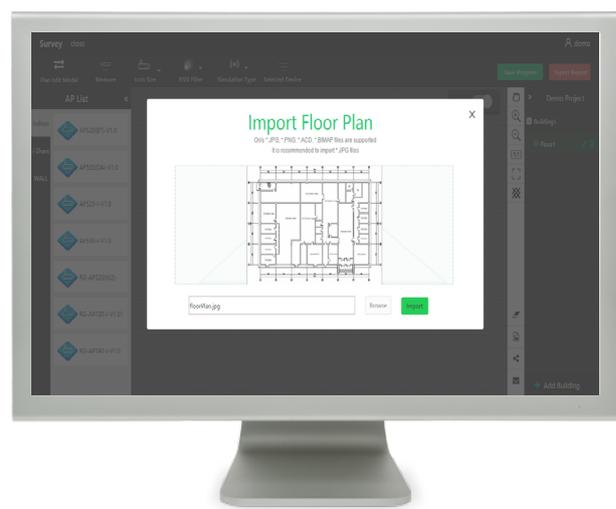


Figure 11: Importing Floor Plan

## DIAGNOSTIC TOOL MODULE

### RG-MACC-RIIP

The **RG-MACC-RIIP (Rapid Intelligent Inspection Platform)** supports periodic multi-device health monitoring and a series of connectivity tests to ensure the network reliability and optimal performance. Compared with key device metrics under normal operation, the RG-MACC-RIIP can present the problematic and risky items intuitively on the interfaces for devices network-wide. After device inspection, the RG-MACC-RIIP will generate a detailed report on the device status and provide troubleshooting suggestions against the problems detected. The regular health check of network performance will always prepare the users to be ready for any potential risks by taking preventive measures to ensure high network reliability.

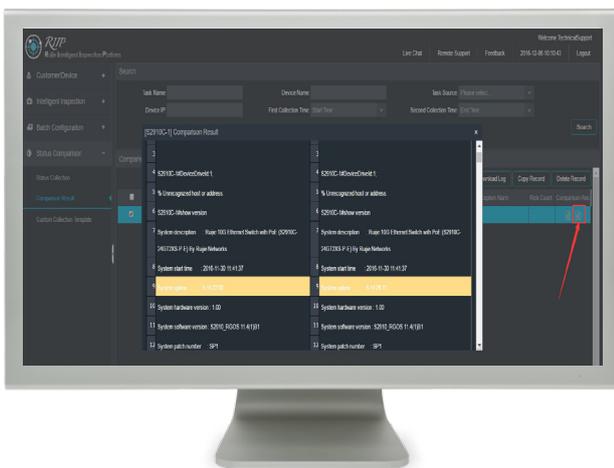


Figure 12: Status Comparison of Network Devices

### RG-Intelligent Diagnostic Tool

The **RG-Intelligent Diagnostic Tool** is an advanced troubleshooting tool which quickly detects and resolves any network problems of the entire wireless environment. It arms you with detailed diagnostic results and automatic troubleshooting to reduce your network downtime and achieve the highest level of service assurance. By simply importing the device error log, the RG-Intelligent Diagnostic Tool will automatically locate the problems and provide the solutions. In addition, the RG-Intelligent Diagnostic Tool also supports live chat with the technical experts of Ruijie Networks. Just by clicking the “Live Chat” button, Ruijie’s technical support engineer will help the users solve their network problems remotely.

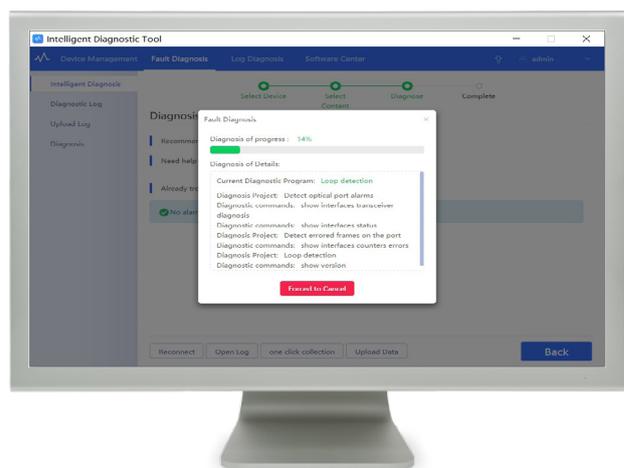


Figure 13: Fault Diagnosis

## APPLICATION SCENARIOS

### Education

- **Unified management:** With RG-MACC, the least IT expert will be required as it can perform several functions including wireless controller, AAA (Authentication, Authorization and Accounting), portal server(customized login page) and marketing Wi-Fi in one platform
- **Centralized management:** RG-MACC-BASE can conduct configuration and manage all status of AP, Switches and Gateway in one cloud management platform
- **Wireless and wired network unified authentication:** RG-MACC-BASE can control the Network Access

such as controlling numbers of accounts and granting different rights of internet access to different users within unified system

- **Customized portal:** RG-MACC-SAM can offer different landing pages based on different SSIDs
- **Two deployment methods:**
  - On premise: All servers are installed and managed in customers’ environment
  - Cloud deployment: The multi-tenant mode enables the MSPs to host multiple tenants within one system

## Hotel

- **Wireless Coverage:**  
Zero-Deadzone Wireless Coverage: With Ruijie's X-sense AP, tenants can enjoy 360 degree wireless coverage without dead zones to guarantee optimal Wi-Fi signal for each direction
- **Flexibility:**  
-Support flexible billing features: With RG-MACC-SAM, tenants can charge their customers with internet access based on bandwidth, data usage and speed limit  
-Support voucher (QR Code) login: Customers can access to the Internet and even finish check-in procedure by just scanning the QR code printed on the voucher
- **Social Marketing:**  
-Support Social Authentication: RG-MACC-SAM can support a variety of Social Authentication methods such as Twitter, LinkedIn, Google+, Facebook and WeChat as another mean for users to gain access to a free Wi-Fi  
-Support Social Analytics Engine: The demographic data of customers can be collected when they access to tenants' Wi-Fi portal

## Retail Chain & Mall

- **Zero-Provisioning:**  
With plug-n-play AP, RG-MACC allows you to provision new Access Point in your existing network automatically without manual intervention
- **Supporting voucher (QR Code) login:**  
Customers can obtain Internet access right or some special coupon when they scan the QR code placed inside the store
- **Support Ads portal:**  
Tenants can edit their advertisements easily with Drag-n-Drop Ads Designer Tool in the RG-MACC-SAM
- **Flexible Campaign Management Engine:**  
Ads and notification can be generated to customers based on the analysis of their login status and even dwell time duration within RG-MACC-SAM
- **New advertisement method:**  
Preventing the interference from other Access Points, WeChat iBeacons can be used as a tool for advertisement promotion with RG-MACC platform

- **Location Tracking Analysis:**

With footfall measurement via heat map, RG-MACC can provide valuable guest engagement information to tenants in order to assist tenants allocating their advertising resource on the proper place

## Transportation/ Digital Signal

- **Monitoring & troubleshooting:**  
With RG-MACC-BASE, Real-time and historical data of devices including device health, security status, users status and abnormal shutdown for troubleshooting can be delivered to the tenants immediately from the monitor interface
- **Media Publishing Platform:**  
Different kind of media or information stored in the RG-MACC platform can be published on the Mass Transportation or Digital Signage
- **Location-based Services:**  
The no. of passenger on board, top 5 places in terms of passengers get on/off within a specific period of time and etc. information can be measured by the RG-MACC-LBS platform
- **Location-based Precision Marketing:**  
The change of bus location triggers the push of specific advertisements instantly in order to attract the passengers' attention and precision marketing can be achieved through the RG-MACC-LBS platform
- **Marketing segmentation:**  
Passenger profile can be built by dividing into different segmentations based on passenger online duration, information of get on/off places and etc.

## Technical Specifications

### Feature List

	RG-MACC-BASE	RG-MACC-SAM	RG-MACC-LBS
<b>Deployment Mode:</b>			
(i) Single-Tenant (suitable for local premises deployment)	✓	✓	
(ii) Multi-Tenant (suitable for private/ cloud deployment)	✓	✓	✓
<b>Planning:</b>			
(i) Location Planning (Google Map)	✓		
(ii) Floor level AP Planning	✓		
(iii) Auto RF planning	✓		
(iv) Power & Channel Optimization	✓		
(v) WLAN Site Survey Planner (RG-MACC-SSP)	✓		
<b>Wireless Configuration:</b>			
(i) Radio Configuration	✓		
(ii) SSID Configuration	✓		
(iii) Web Authentication Configuration	✓		
(iv) Log Configuration	✓		
(v) System Configuration	✓		
<b>Load Balancing:</b>			
(i) AP load balancing	✓		
(ii) Band Steering	✓		
<b>Wireless Roaming:</b>			
(i) Layer 2 Roaming	✓		
(ii) Layer 3 Roaming	✓		
<b>Monitoring:</b>			
(i) Global View (Dashboard)	✓		
(ii) User Overview	✓		
(iii) AP Overview	✓		
<b>Authentication:</b>			
(i) Radius Server		✓	
(ii) Radius Proxy		✓	
(iii) MAC Authentication		✓	
(iv) Captive Portal (Web Authentication)		✓	
(v) Local user database		✓	
(vi) Active Directory		✓	
(vii) LDAP		✓	
(viii) PMS		✓	
(ix) WISPr		✓	
(x) SMS gateway integration		✓	
<b>Social Media Login:</b>			
(i) Integration with Facebook, LinkedIn, Twitter, Google+& WeChat		✓	
<b>Accounting Management:</b>			
(i) Subscription Charging		✓	
(ii) Billing & Invoice management		✓	
(iii) Quota limit		✓	
(iv) Speed limit		✓	
(v) Time limit		✓	
(vi) Profile advance (Automatically change users profile to another profile when their volume usage limit is reach)		✓	
<b>3<sup>rd</sup> Party Payment GW Integration:</b>			
(i) Support 3 <sup>rd</sup> party API (e.g. VISA, Master, PayPal)		✓	
<b>Self-Service Portal:</b>			
(i) User usage and status review		✓	

	RG-MACC-BASE	RG-MACC-SAM	RG-MACC-LBS
<b>Customized Landing Page:</b>			
(i) Designer Ads Maker		✓	
(ii) Pre-built page template		✓	
(iii) Login Journey		✓	
(iv) Dual login type at same page		✓	
(v) Auto-adjustable for various screen resolution		✓	
<b>Wi-Fi Marketing Platform:</b>			
(i) Automated SMS/email marketing tool		✓	
(ii) Promotional voucher creation (QR code)		✓	
(iii) T&C		✓	
<b>Marketing Campaign:</b>			
(i) Support Ads Portal & Campaign Management		✓	
(ii) Public/Guest Signup		✓	
(iii) Survey		✓	
<b>Security Control:</b>			
(i) Zone restriction (by IP, VLAN, SSID, NAS ID combination)		✓	
(ii) Wall garden (White list / black list)		✓	
(iii) Radius attributes (e.g. VLAN Quarantine, ACL)		✓	
<b>Reporting &amp; Log:</b>			
(i) Top Report		✓	
(ii) Impression Report		✓	
(iii) User & Login Report		✓	
(iv) Operation Log		✓	
(v) Bandwidth Usage Overall Report		✓	
(vi) Account Summary Report		✓	
(vii) Voucher Activation Report		✓	
(viii) Campaign Click Engagement Report		✓	
(ix) Device Availability Report		✓	
<b>Analytics:</b>			
(i) Visitors Analytics		✓	
(ii) Network Analytics		✓	
(iii) Social Network Analytics		✓	
<b>Location-based Service:</b>			
(i) Presence (1 AP) or Location-tracking (min 3AP) mode			✓
(ii) Measure Unique, Cross Path & Cross Visit			✓
(iii) Measure Entry & Exit			✓
(iv) Loyalty & distribution analysis			✓
(v) Support the footfall measures			✓
(vi) Support Heat mapping feature			✓
(vii) Measure Unique Visit, Exit & Dwell time			✓
(viii) Support Location-based Precision Marketing			✓
(ix) Track User Location			✓
(x) 3 <sup>rd</sup> Party API Integration			✓
<b>Maintenance:</b>			
(i) Firmware Upgrade	✓		
(ii) Online Upgrade	✓		
(iii) Fault Detection	✓		
(iv) Disk Monitoring & Automated Cleanup	✓		
<b>Alarm:</b>			
(i) Alarm Customization	✓		
(ii) Alarm Pushes (SMS/Email/WeChat)	✓		
<b>System Management:</b>			
(i) Role-based privilege management	✓		

	RG-MACC-BASE	RG-MACC-SAM	RG-MACC-LBS
(ii) License Management	✓		
(iii) Account Language Support	✓		
(iv) Time Zone Support	✓		
<b>Security:</b>			
(i) Role-based Management (Account Classification & Authority Management)	✓		
(ii) Wireless Intrusion Prevention System (Network device that monitors the radio spectrum for the presence of unauthorized access points)	(Future Release Support)		
<b>Support:</b>			
(i) Online document support	✓		
(ii) Online 24-hour support	✓		
(iii) Free Diagnostic Tool (RG-MACC-RIIP, RG-Intelligent Diagnostic Tool)	✓		

## Supported Models

### Supporting Ruijie Hardware Models

Product Type	Product Series	Hardware Model
AP (RGOS AP)	AP120 Series	AP120-W, AP120-W(V2)
	AP130 Series	AP130(W2), AP130(L), AP130-W
	AP500 Series	AP520-I(G2), AP520(W2), AP520(BT), AP520(DA), AP530-I V2
	AP700 Series	AP740-I, AP720-I
	AP630 Series	AP630(IDA) , AP630(IODA), AP630(CD)
	MR620 Series	MR620
Switch	S2910XS-E/PXS Series	S2910-24GT4XS-E, S2910-48GT4XS-E, S2910-24GT2XS-P-E, S2910-24GT2XS-HP-E, S2910-48GT2XS-HP-E, S2910-10GT2SFP-P-E

## System Requirements

### RG-MACC-BASE System Requirements

Scale	Recommended System Specifications				
Number of APs	CPU	RAM	HDD	NIC	Number of Servers
< 1,000	4	8 GB	256 GB	100M/1GE	1
1,000 to 4,000	8	16 GB	512 GB	100M/1GE	1
4,000 to 10,000	8	16 GB	512 GB	2 x 1GE	2
Above 10,000	If cluster solution is required, please contact Ruijie local sales representative for details				

### RG-MACC-SAM System Requirements

Scale	Recommended System Specifications				
Number of APs	CPU	RAM	HDD	NIC	Concurrent Clients
< 500	1	16 GB	500 GB	1GE	15,000
500 to 1,000	1	32 GB	800 GB	1GE	30,000
1,000 to 2,000	1	32 GB	1 TB	1GE	60,000
2,000 to 3,000	2	32 GB	1.5 TB	2 x 1GE	90,000
3,000 to 5,000	4	64 GB	3 TB	2 x 1GE	150,000
Above 5,000	If cluster solution is required, please contact Ruijie local sales representative for details				

## RG-MACC-LBS System Requirements

Scale	Recommended System Specifications				
Number of APs	CPU	RAM	HDD	NIC	Concurrent Clients
< 500	1	16 GB	500 GB	1GE	15,000
500 to 1,000	1	32 GB	800 GB	1GE	30,000
1,000 to 2,000	1	32 GB	1 TB	1GE	60,000
2,000 to 3,000	2	32 GB	1.5 TB	2 x 1GE	90,000
3,000 to 5,000	4	64 GB	3 TB	2 x 1GE	150,000
Above 5,000	If cluster solution is required, please contact Ruijie local sales representative for details				

## Ordering Information

Model	Description
RG-MACC-BASE	RG-MACC Base Platform, including 10 registered device licenses and 1-year software support service (i.e. software patches and maintenance support)
<b>RG-MACC-BASE License</b>	
RG-MACC-BASE-LIC-25	RG-MACC-BASE Licenses for 25 registered devices
RG-MACC-BASE-LIC-50	RG-MACC-BASE Licenses for 50 registered devices
RG-MACC-BASE-LIC-100	RG-MACC-BASE Licenses for 100 registered devices
RG-MACC-BASE-LIC-500	RG-MACC-BASE Licenses for 500 registered devices
RG-MACC-BASE-LIC-1K	RG-MACC-BASE Licenses for 1K registered devices
RG-MACC-BASE-LIC-5K	RG-MACC-BASE Licenses for 5K registered devices
RG-MACC-BASE-LIC-10K	RG-MACC-BASE Licenses for 10K registered devices
<b>RG-MACC Bundle Pack</b>	
RG-MACC-SAM-LBS-BundlePack-25	RG-MACC-SAM-LBS-BundlePack-25 includes: RG-MACC-BASE RG-MACC-BASE-LIC-25 RG-MACC-SAM-LIC-25 RG-MACC-LBS-LIC-25
RG-MACC-SAM-LBS-BundlePack-200	RG-MACC-SAM-LBS-BundlePack-200 includes: RG-MACC-BASE RG-MACC-BASE-LIC-100 (Qty: 2) RG-MACC-SAM-LIC-100 (Qty: 2) RG-MACC-LBS-LIC-100 (Qty: 2)
RG-MACC-SAM-LBS-BundlePack-1K	RG-MACC-SAM-LBS-BundlePack-1K includes: RG-MACC-BASE RG-MACC-BASE-LIC-1K RG-MACC-SAM-LIC-1K RG-MACC-LBS-LIC-1K
<b>RG-MACC-SAM License</b>	
RG-MACC-SAM-LIC-25	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 25 registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-50	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 50 registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)

Model	Description
RG-MACC-SAM-LIC-100	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 100 registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-500	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 100 registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-1K	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 1K registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-5K	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 5K registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-10K	RG-MACC Security x Accounting x Marketing (S.A.M.) License, providing all-in-one AAA/portal, security control, billing, campaign and ads management, analytic reporting and social login. Single-tenant edition. License for 10K registered devices (for multi-tenant deployment, please purchase upgrade feature license separately)
RG-MACC-SAM-LIC-Multi-Tenant	RG-MACC Security x Accounting x Marketing (S.A.M.) Multi-tenant Feature Upgrade License
<b>RG-MACC-LBS License</b>	
RG-MACC-LBS-LIC-25	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 25 registered devices
RG-MACC-LBS-LIC-50	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 50 registered devices
RG-MACC-LBS-LIC-100	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 100 registered devices
RG-MACC-LBS-LIC-500	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 500 registered devices
RG-MACC-LBS-LIC-1K	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 1K registered devices
RG-MACC-LBS-LIC-5K	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 5K registered devices
RG-MACC-LBS-LIC-10K	RG-MACC Location-based Service (LBS) Feature License, providing presence and heat map features. Multi-tenant edition. License for 10K registered devices
<b>RG-MACC Software Support Service</b>	
RG-MACC-SSS-Service	RG-MACC Software Support Service for 1 year, including software patches and maintenance support
<b>RG-MACC-SAM 3rd Party Gateway/Router Integration Service</b>	
RG-MACC-SAM-INT-Service	RG-MACC Security x Accounting x Marketing (S.A.M.) 3rd Party Gateway/Router Integration Service



Innovation · Simplicity · Experience

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

Copyright © 2017 Ruijie Networks Co., Ltd. All rights reserved. Ruijie reserves the rights to change, modify, transfer, or otherwise revise this publication without notice, and the most current version of the publication shall be applicable. If there is any inconsistency or ambiguity between this datasheet and the website, the information on the website shall prevail.

