



# Ruckus Wireless RuckOS™ 3.0

## What's New in Release 3.0

## Document Revision

Rev	Date	Change Description
1.0	Dec 3, 2014	<ul style="list-style-type: none"><li>Original Release Document for RuckOS 3.0 GA version 3.0.0.0.558 for the SCG-200.</li></ul>
1.1	Jan 28, 2015	<ul style="list-style-type: none"><li>Updated for RuckOS 3.0.3 MR version 3.0.3.0.628 to add support for SmartZone 100™ and Virtual SmartCell™ Gateway (vSCG).</li></ul>

## About This Document

This document provides a high level overview of the new features and capabilities introduced in the 3.0 release of RuckOS supporting the SmartCell™ Gateway (SCG) 200, Virtual SmartCell™ Gateway (vSCG) and SmartZone 100™. This document will help you understand the key highlights and benefits of the new features in this release.

This document does not intend to replace other documents that may address the technical specifications and interface specifications of the features. For additional details, guides and reference documentation, please refer to the *SmartCell Gateway 200 Documentation Suite* for RuckOS 3.0.

## Highlights of This Release

RuckOS 3.0 provides Enterprises, Managed Service Providers and Wi-Fi Service Providers a higher performing, more reliable and easier to deploy and use way of providing wireless access to diverse groups of users across multiple locations.

The new features and enhancements in this release include:

- Support for ZoneFlex T300E 802.11ac DualBand Outdoor Access Point
- Support for the SmartZone 100™ 1 GE and 10 GE WLAN Controller
- Simplified Single Domain/Enterprise GUI for SmartZone 100™
- Option for Single Domain/Enterprise or Multi-Domain/Carrier GUI with vSCG
- Easy Setup: UPnP Network Discovery and Installation Wizard
- ZoneFlex AP Auto Discovery
- Ruckus SPoT Location Support
- Ruckus SWIPE 2.0 Support
- Capacity Based Client Admission Control
- Band Balancing
- SmartWay Bonjour Gateway
- Zero-IT™ Onboarding with User Roles for BYOD (Supports 802.1x with external RADIUS server)
- AP Survivability for 802.1x, Guest Access and Web-Auth Portal
- WIDS/WIPS Rogue Detection Detection and Prevention
- Internal Web-Auth Portal to Active Directory, LDAP, RADIUS
- Guest Access Enhancements
- Time-based WLAN Scheduling
- Per WLAN Access Control List support (L2 white/black list, L3/L4 Access Control Lists)
- Device Policy Enforcement
- Multi-hop SpeedFlex Mesh Traffic Testing
- Force DHCP
- RESTful API for Configuration and Data Export
- SmartLicensing Support for SmartZone 100 and vSCG Running RuckOS 3.0

## Supported Platforms

### Major Supported Platforms

- SmartCell™ Gateway 200 (SCG-200)
- Virtual SmartCell™ Gateway (vSCG)



- SmartZone 100™ 1 GE and 10 GE WLAN Controller
- ZoneFlex R300 802.11n Dual-band Access Point
- ZoneFlex R500 802.11ac Dual-band Access Point
- ZoneFlex R600 802.11ac Dual-band Access Point
- ZoneFlex R700 802.11ac Dual-band Access Point
- ZoneFlex 7025 802.11n Wired/Wireless Wall Switch
- ZoneFlex 7055 802.11n Dual-band Wired/Wireless Wall Switch
- ZoneFlex 7321 802.11n Access Point
- ZoneFlex 7321-u 802.11n Access Point
- ZoneFlex 7341 802.11n Access Point
- ZoneFlex 7343 802.11n Access Point
- ZoneFlex 7351 802.11n Dual-band Access Point
- ZoneFlex 7352 802.11n Dual-band Access Point
- ZoneFlex 7363 802.11n Dual-band Access Point
- ZoneFlex 7372 802.11n Dual-band Access Point
- ZoneFlex 7372-E 802.11n Dual-band Access Point
- ZoneFlex 7441 802.11n Access Point for In-Building Distributed Antenna Systems
- ZoneFlex 7982 802.11n Dual-band Access Point
- ZoneFlex T300/T300E 802.11ac Dual-band Outdoor Access Point
- ZoneFlex T301N/T301S 802.11ac Dual-band Outdoor Access Point
- ZoneFlex 7761-CM 802.11n Dual-band Outdoor Access Point with Cable Modem
- ZoneFlex 7762 802.11n Dual-band Outdoor Access Point
- ZoneFlex 7762-S 802.11n Dual-band Outdoor Access Point with Sector Antenna
- ZoneFlex 7762-T 802.11n Dual-band Outdoor Access Point with High Gain 2.4 GHz Omni Antenna
- ZoneFlex 7762-AC Dual-band 802.11n Outdoor Access Point
- ZoneFlex 7762-S-AC Dual-band 802.11n Outdoor Access Point with Sector Antenna
- ZoneFlex 7781-CM 802.11n Dual-band Outdoor Access Point with Cable Modem
- ZoneFlex 7782 Dual Band 802.11n Outdoor Access Point with Omni Antenna
- ZoneFlex 7782-S Dual Band 802.11n Outdoor Access Point with Sector Antenna
- ZoneFlex 7782-E Dual Band 802.11n Outdoor Access Point with External Antenna
- ZoneFlex 7782-N Dual Band 802.11n Outdoor Access Point with 30 degree Narrow Sector Antenna
- SmartCell 8800-S Dual Band 802.11n Outdoor Access Point with Sector Antenna
- SmartCell 8800-S-AC Dual Band 802.11n Outdoor Access Point with Sector Antenna

**NOTE:** RuckOS 3.0 no longer supports the following access points: ZoneFlex 2741, ZoneFlex 2942, and ZoneFlex 7962.

For a complete list of supported access points please refer to the *SCG-200 Release Notes for RuckOS 3.0*.



## Simplified Single GUI for SmartZone 100™

The Graphical User Interface (GUI) on the SmartZone 100™ and the Enterprise GUI option on the vSCG has been simplified from the Carrier SCG-200 to provide a simple and streamlined user experience. ZoneDirector users will feel at home with the easy to navigate interface. The GUI provides a ‘single pane of glass’ view across the entire cluster of devices, greatly simplifying configuration and monitoring of an N+1 redundant solution. 30 days of reporting data and e-mail alerting are embedded in the controller to provide rich user experience and an all-in-one solution that does not require an external NMS. If desired, standard management interfaces are provided to hook RuckOS into a variety of standards based NMS packages. The Domain, Zone and multi-tenant concepts are removed from the simplified GUI.

### *Customer Benefits*

- Simplified easy to use GUI.
- Single Pane of Glass management across the cluster.
- 30 days of embedded reporting.

## Easy Setup: UPnP Network Discovery and Installation Wizard

No console cable required! Out of the box, RuckOS 3.0 provides Universal Plug and Play (UPnP) support for easy setup. Simply plug in the hardware and it can be discovered on a Windows network browser to provide one-click access to the Installation Wizard. The Installation Wizard allows step by step configuration for basic operations and unparalleled ease of use in setting clustering support for N+1 redundancy.

### *Customer Benefits*

- Out-of-the-box UPnP Network Discovery for easy setup.
- No console cable required.

## ZoneFlex AP Auto Discovery

RuckOS 3.0 can automatically discover Ruckus ZoneFlex access points, the same access points used by the ZoneDirector controllers. This provides an easy migration for ZoneDirector customers and allows the use of existing ZoneFlex access point inventory for building out RuckOS WLAN networks. Ruckus now ships all new access points with a universal base image supporting standalone operation and discovery by ZoneDirector and RuckOS platforms.

### *Customer Benefits*

- No need to purchase separate “SmartCell Gateway” configuration access points.
- Enables easy migration using existing ZoneFlex access points.

## Smart Positioning Technology (SPoT) Support

This release introduces support for Ruckus’ Smart Positioning Technology (SPoT) location-based service. Ruckus SPoT™ is the industry’s first cloud-based location technology suite that enables carriers, service providers and enterprises to deliver a wide range of location-based services. The solution works with ZoneFlex Access Points to track foot-fall usage and provides an API to accurately pinpoint user locations for real time applications.

### *Customer Benefits*

- Accurately pinpoint, in real time, a user’s location in any indoor or dense urban environment.
- Enables real time tracking of user movement and historical analysis of footfall trends.
- Provides data to a set of APIs that power a new generation of mobile apps giving them “Location Intelligent” features for user location and target messaging.

## Ruckus SWIPE 2.0 Support

RuckOS 3.0 supports Ruckus Smart Wireless Installation & Provisioning Engine (SWIPE) version 2.0, a mobile application supporting iOS and Android. SWIPE makes deploying a new AP as simple as scanning the barcode of the AP, entering the AP name and taking a picture of the AP and choosing the configuration profile. The AP will then be automatically connected to the RuckOS controller and provisioned into the correct AP group. Additionally, SWIPE eliminates the error prone process of manually updating back end systems with hand written MAC addresses, serial numbers and AP placement locations.

### *Customer Benefits*

- Provisions new access points out of box for simple, speedy deployment, even when deploying in a mesh environment. No pre-configuration necessary.
- Eliminates error prone process of manually updating inventory systems.
- Installation verification with pictures, SpeedFlex performance tests and network connectivity validation.

## Capacity Based Client Admission Control

This new RF feature helps to ensure existing Wi-Fi customers' quality of experience is maintained when the maximum load of the access point is reached. A minimum bandwidth per client can be configured and enforced by monitoring user counts, radio load and average user throughput. When the access point detects thresholds are exceeded that could impact the minimum bandwidth per client it will stop accepting new client connections. This will force the new client to connect to either cellular or another nearby access point.

### *Customer Benefits*

- Maintain best bandwidth option between Wi-Fi and cellular networks.
- Protects connected user experience when AP is under heavy load.
- Maintains minimum bandwidth per client.

## Band Balancing

Intelligent Band Steering steers clients towards the less-utilized radio band on a dual-radio access points to achieve better throughput. This option is configurable and allows optimal use of the Wi-Fi spectrum by load balancing across the 2.4 and 5 GHz radios.

### *Customer Benefits*

- Optimizes channel usage by distributing the load across both 2.4 and 5 GHz Wi-Fi radios.
- Higher throughput for dual-radio access points.
- Interoperates with cross AP load balancing for network wide performance optimization.

## SmartWay Bonjour Gateway

The SmartWay Bonjour Gateway allows customers to discover Bonjour services (such as AirPlay, Apple TV and other Apple network services) and other mDNS based products like ChromeCast across VLANs and subnets. Additionally, the SmartWay Bonjour Gateway provides filtering services to limit which Bonjour services are allowed to be shared across network segments. RuckOS is preconfigured with the common Bonjour service types, making configuration of the SmartWay Bonjour Gateway extremely simple. The Bonjour Gateway service can be enabled at the AP to support flexible deployment options supporting larger and more complex networks with Layer 3 isolation between the RuckOS controller and the access point.

### *Customer Benefits*

- Extend Bonjour discovery advertisements across VLAN and subnet network boundaries.
- Selectively filter Bonjour and mDNS discovery advertisements to prevent cross network service flooding.

## Zero-IT Onboarding with User Roles for BYOD

Zero-IT onboarding provides ease-of-use device provisioning for WLAN configuration parameters and allows easy segmentation of users into secure WLAN/VLANs based on user roles. It supports a wide variety of laptop and smart mobile devices: Windows XP/Vista/7/8, OSX, iPhone and Android based devices.

### *Customer Benefits*

- Zero touch wireless configuration for laptops and smart mobile devices.
- Allows self registration for 802.1x secure Wi-Fi connections.

## AP Survivability for 802.1x, Guest Access and Captive Web-Auth Portal

RuckOS provides a robust architecture designed to be WAN friendly and to provide basic access point functionality when connectivity to the RuckOS WLAN controller is lost. In addition to providing continuous service to existing and new clients for open and PSK WLANs, RuckOS 3.0 introduces AP survivability operation for 802.1x, Guest Access and Captive Web-Auth Portal WLANs. To enable secure access, credentials are cached for Guest Access operation while a local, onsite AAA server is required for Web-Auth and 802.1x secure access.

### *Customer Benefits*

- Allows ongoing client association requests when a RuckOS controller is offline.
- Enables Guest Access and Captive Web-Auth operation when RuckOS controller is offline.
- Provides an additional layer of survivability on top of RuckOS N+1 Active Clustering.

## WIDS/WIPS Rogue AP Detection and Prevention

RuckOS adds Wireless Intrusion Detection and Prevention System (WIDS/WIPS) functionality for rogue AP detection and prevention. Rogue access points can be automatically detected and flagged as malicious when they pose a significant threat to RuckOS' wireless and wired network. Malicious rogue access points are identified as being connected to RuckOS' internal network or those spoofing an SSID or BSSID of any



RuckOS-connected access point. Once identified as malicious, and if enabled, RuckOS access points can automatically start defending the network.

**Customer Benefits**

- Automatically detects rogue access points.
- Automatically identifies malicious rogue access points that could be a possible threat to a RuckOS network.
- Automatically protects RuckOS' network from clients accessing Rogue access points.

## Internal Web Authorization Portal

Provides simple Web authorization security for clients connecting via a login portal on the access point or RuckOS controller with no OS or client configuration required. Users can be authenticated from an external RADIUS, Active Directory or LDAP server using usernames and passwords. Web authorization can operate on the access point and supports AP survivability to operate when the RuckOS controller is offline.

**Customer Benefits**

- Simple web based username and password login security.
- No client or OS installation required, authentication is via web browser.
- Authenticates to existing RADIUS, Active Director or LDAP server.

## Guest Access Enhancements

Guest access in RuckOS 3.0 has been enhanced to provide added functionality and ease of use enhancements. Guest credentials can be delivered via SMS using Twillio or using e-mail. The guest access authentication page can use a customized logo and welcome text as well as multiple languages. To support multiple guest WLANS and managed services, multiple guest access templates can be created and used in multiple WLANS. Finally, guest passes can be imported to support events and large groups.

**Customer Benefits**

- Easy guest credential delivery via SMS or email.
- Guest portal customization and multiple language support.
- Multiple customer support with guest access templates per WLAN.

## Time Based WLAN Scheduling

WLAN availability can be scheduled using an intuitive GUI based time scheduler. This allows granular WLAN On/Off control per WLAN for hourly, daily and weekly scheduling to provide specific time based access to the network. Multiple time schedules can be created to provide flexibility for guest, corporate and other needs.

### *Customer Benefits*

- Allows hourly, daily and weekly network availability.
- WLANs can be enabled only during business hours.

## Per WLAN Access Control Lists (L2/L3/L4)

Access lists can be created and deployed per WLAN to control device access and IP traffic flows. Layer 2 MAC address black lists/white lists can be created to permit or deny individual device access based on MAC addresses of mobile devices. User IP Traffic Profiles allow control over L3 and L4 network traffic flows.

### *Customer Benefits*

- Control device level access using MAC address black list/white list.
- Control the flow of IP network traffic using IP Traffic Profiles.

## Device Policy Enforcement

Administrators can now apply rules to allow, deny, rate limit or assign devices to separate VLANs based on the device operating system. Completely managed by RuckOS, this allows segregating network access on a single SSID without the need to maintain user roles or RADIUS/Active Directory attributes.

### *Customer Benefits*

- Control network access per operating system/device type.
- Permits flexible access rules without the need for external services.

## Multi-Hop SpeedFlex™ Mesh Traffic Testing

The SpeedFlex™ tool now supports multiple test topologies to provide detailed mesh performance and testing capabilities. SpeedFlex can provide automatic testing of each hop along the mesh tree, reporting each access point to access point hop and edge access point to RuckOS controller. This detailed analysis of the mesh topology provides easy determination of performance issues and eliminates the need for a truck roll to evaluate performance issues.

### *Customer Benefits*

- Automates mesh node testing, no need for a truck roll.
- Reports each mesh hop's performance to quickly identify any network problems.

## Force DHCP on WLAN

The Force DHCP option can be enabled to prevent clients configured with static IP addresses from accessing the WLAN and consuming wireless resources.

### *Customer Benefits*

- Prevents stuck clients when roaming between access points with the same SSID but different IP subnets.
- Prevents clients from hijacking IP addresses and obtaining unrestricted network access.

## RESTful API for configuration and data export

RuckOS 3.0 introduces a RESTful API for access to common configuration and monitoring functions. The API enables a RuckOS controller to integrate into existing automated systems and provide a 'headless' interface for WLAN system control and monitoring.

### *Customer Benefits*

- Automate configuration and monitoring for RuckOS controllers.
- Integrate RuckOS into existing process flows and service automation.

## SmartLicensing Support for SmartZone 100 and vSCG Running RuckOS 3.0

With introduction of RuckOS 3.0, Ruckus is releasing a new online licensing feature called SmartLicensing. This modernizes the process of licensing and makes it extremely easy for end customers and VARs to manage licenses. SmartLicensing allows licenses to be purchased in increments of one. This pay as you grow model matches license counts to AP counts while providing easy room for growth. Licenses are pooled and owned by the customer, not individual controllers. This allows distribution and re-distribution between any RuckOS controller supported by SmartLicensing (Currently SmartZone 100 and vSCG). It also provides investment protection by allowing migration of licenses to new RuckOS controllers in the future.

### ***Customer Benefits***

- Investment protection for future controller upgrades.
- Distribution of licenses across RuckOS controllers to meet customer's deployment needs. For RuckOS controllers supporting SmartLicensing.
- Pay as you grow model allowing purchase increments of one license.