

What's New in ZoneFlex Software Release 9.9?

This application note describes the new features available in Version 9.9 of the Ruckus Wireless ZoneFlex family. This document assumes familiarity with the Ruckus ZoneFlex product line and the features of earlier releases till version 9.8.

Highlights of this Release

ZoneFlex software release 9.9 provides Enterprises, HotZone Operators and Managed 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 few features and enhancements in this release include:

- Support for Access Point T300e (External Antenna with 5Ghz)
- VLAN Pooling
- Ethernet Port Tunneling
- Secure LDAP
- RadSec (Radius Security) - RFC 6614
- Mobile Friendly DPSK
- Support for LLDP on APs
- Smart Roam+ using 802.11v
- Display of MCS value and Data Rate per client
- Enhanced Smart Redundancy
- Enhancements to Application Recognition and Control (ARC)
- Support for 'HTTPS Redirection'
- New Country codes
- Enhancement to DHCP Option 82 Sub-Option 2 (CUID)
- Support Entitlement enforcement
- Login Banner
- Standalone AP SKU
- Flex Master Enhancements

Supported Platforms

- FlexMaster v.9.9
- ZoneDirector Remote Control 9.9
- ZoneDirector 1100 Smart/OS v.9.9
- ZoneDirector 3000 Smart/OS v.9.9
- ZoneDirector 5000 Smart/OS v.9.9
- ZoneFlex R300 802.11n Dual-band Access Point v.9.9
- ZoneFlex R500 802.11ac Dual-band Access Point v.9.9
- ZoneFlex R600 802.11ac Dual-band Access Point v.9.9
- ZoneFlex R700 802.11ac Dual-band Access Point v.9.9
- ZoneFlex T300 802.11ac Dual-band Access Point v.9.9
- ZoneFlex T300E 802.11ac Dual-band Access Point v.9.9
- ZoneFlex T301N 802.11ac Dual-band Access Point v.9.9
- ZoneFlex T301S 802.11ac Dual-band Access Point v.9.9
- ZoneFlex 7025 802.11n Wired/Wireless Wall Switch v.9.9
- ZoneFlex 7055 802.11n Dual-band Wired/Wireless Wall Switch v.9.9

- ZoneFlex 7321 802.11n Access Point v.9.9
- ZoneFlex 7321-u 802.11n Access Point v.9.9
- ZoneFlex 7341 802.11n Access Point v.9.9
- ZoneFlex 7343 802.11n Access Point v.9.9
- ZoneFlex 7351 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7352 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7363 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7372 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7372-E 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7962 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7982 802.11n Dual-band Access Point v.9.9
- ZoneFlex 7761-CM 802.11n Dual-band Outdoor Access Point with Cable Modem v.9.9
- ZoneFlex 7762 802.11n Dual-band Outdoor Access Point v.9.9
- ZoneFlex 7762-S 802.11n Dual-band Outdoor Access Point with Sector Antenna v.9.9
- ZoneFlex 7762-T 802.11n Dual-band Outdoor Access Point with High Gain 2.4 GHz Omni Antenna v.9.9
- ZoneFlex 7762-AC Dual-band 802.11n Outdoor Access Point v.9.9
- ZoneFlex 7762-S-AC Dual-band 802.11n Outdoor Access Point with Sector Antenna v.9.9
- ZoneFlex 7781-CM 802.11n Dual-band Outdoor Access Point with Cable Modem v.9.9
- ZoneFlex 7782 Dual Band 802.11n Outdoor Access Point with Omni Antenna v.9.9
- ZoneFlex 7782-S Dual Band 802.11n Outdoor Access Point with Sector Antenna v.9.9
- ZoneFlex 7782-E Dual Band 802.11n Outdoor Access Point with External Antenna v.9.9
- ZoneFlex 7782-N Dual Band 802.11n Outdoor Access Point with 30 deg. Narrow Sector Antenna v.9.9
- SmartCell 8800-S Dual Band 802.11n Outdoor Access Point with Sector Antenna v.9.9
- SmartCell 8800-S-AC Dual Band 802.11n Outdoor Access Point with Sector Antenna v.9.9
- ZoneFlex 7441 802.11n Access Point for In-Building Distributed Antenna Systems v.9.9

NOTE: *ZoneFlex 9.9 does not support ZoneFlex 7351 and 7962 Access Points*
ZoneFlex 9.9 does not support ZoneFlex 7321-u - OurFi Access Point
Zone Director 1100 does not support ZoneFlex 7025 Access Point (support removed since 9.8.1)

1. Support for AP model T300e

The T300e is an outdoor dual-band, two-stream 802.11ac AP that supports data rates of up to 300 Mbps on the 2.4 GHz and 867 Mbps on the 5 GHz radio. It features compact size, 802.3af power input, single GbE port, flexible mounting options and up to 500 concurrent client connections.

The T300e is available with internal 2.4 and 5GHz antennas. The T300e can optionally be equipped with one or two customer-supplied external 5GHz antennas, which can be used instead of the internal 5GHz antenna.

2. VLAN Pooling

In large Wi-Fi deployments where 10s of thousands of client devices are connecting to Wi-Fi network such as university campus, stadiums, airports etc VLAN Pooling enables Wi-Fi admin to create and manage only one or few WLANs/SSIDs while attaching multiple VLANs to restrict the broadcasts to smaller domains.

For example, in a large stadium, customer will be able to broadcast just only one SSID (say 'FreeWiFi') yet create multiple VLANs to restrict the broadcasts like VLAN for each direction - North, South, East, and West. Thus, while a user in North side of the stadium will get an IP address from a VLAN that is dedicated for North side but will be connecting to FreeWiFi and similarly, while a user in South side of the stadium will get an IP address from a VLAN that is dedicated for South side but will be connecting to the same FreeWiFi.

Customer Benefits

- *Helps to improve end user performance in large deployments like University campus, public stadium, etc by restricting the broadcast domain and through load-balancing client devices across VLANs/subnets.*
- Reduces the number of WLANs creation and management for Wi-Fi admin

3. Ethernet Port Tunneling

In small retail stores or branch offices only few wired devices are used. For example in small retail stores, typically the Point of Sale (PoS) terminals require wired connectivity to reach the application server. With Ethernet Port Tunneling feature customers now can leverage wireless infrastructure to tunnel the wired traffic while preserving the VLAN information.

Customer Benefits

- Helps customer to leverage wireless infrastructure to send wired traffic - saves CapEx and OpEx for customers as they don't need wired infrastructure just for fewer wired clients
- Reduces network management overhead since wired infrastructure is eliminated

4. Secure LDAP

Secure LDAP feature ensures the end user traffic is encrypted end-to-end as it will encrypt the traffic between Zone Director and Active Directory / LDAP server using TLS 1.0, 1.1 and 1.2.

Customer Benefits

- Secures communication between ZD and LDAP/Active Directory server
- Critically important when LDAP/Active Directory servers are deployed in the Cloud

5. RadSec (Radius Security) - RFC 6614

RadSec follows the RFC 6614 to ensure the end user traffic is encrypted end-to-end as it will encrypt the traffic between Zone Director and Radius server. As it supports both TLS 1.0, 1.1 and 1.2 to encrypt the traffic, based on the TLS version used by Radius server it switches between TLS versions 1.0, 1.1, or 1.2.

Supported Radius Servers: Free Radius,

Customer Benefits

- Secures communication between ZD and Radius server
- Critically important when Radius servers are deployed in the Cloud

6. Mobile Friendly DPSK

Mobile Friendly DPSK creates Pre Shared Keys that are mobile device friendly. In other words, the keys generated by the system would have combination of upper case, lower case, and numbers only. The special characters are excluded from the key.

In 9.9 release, the DPSK can be enabled per WLAN.

Customer Benefits

- Easier keys to be typed in WiFi devices
- Per WLAN enable/disable option gives additional flexibility to WiFi admin as to which WLAN need to be enabled with complex DPSK values for greater security and which WLANs need to be enabled for easier DPSK values.

7. Support for LLDP

With ZF 9.9 release, APs can be discovered by neighboring devices such as LAN switches through LLDP. To enable LLDP use ZD's CLI "LLDP enable" under AP or AP Group.

Customer Benefits

- Enables the WiFi admin to have network topology map that includes APs
- Aids with troubleshooting

8. SmartRoam+

To reduce the battery usage, after associating with an Access Point (AP), mobile devices like Apple's iPhone and iPad do not scan the environment even though the user may have moved far away from originally associated AP. This would result in poor end user experience.

To solve the above mentioned client stickiness issue the SmartRoam feature was introduced wherein the AP would send 'dis-associate' frame to client device which will disconnect the client device. This triggers the client device to find better alternate AP.

SmartRoam+ feature of ZF 9.9 further enhances the Ruckus' SmartRoam in order to provide better quality of experience for the end user. After associating with an AP if user moves far away from initially connected AP, then the AP will send a BSS Transmission message (part of 802.11v) to the client device. This triggers the client device to start the scanning process to find an AP that can provide better service.

The client device scans the environment using the filtered AP neighbor list (part of 802.11k) provided by the original AP. While the client device is scanning the environment it continues to stay connected to the original AP.

After client device chooses a specific AP to connect to it uses 802.11r for faster transition by re-using previously-established 802.1x security keys.

Customer Benefits

- Client device roams seamlessly and rapidly
- End user will have higher quality of experience
- Client device saves battery from not having to scan all the APs and channels

9. Displaying MCS index value and Data Rate per client

This feature enables the ZD to display the MCS index value and Data Rate per client device in a given instant. This will aid the WiFi admin to troubleshoot and narrow down WiFi network's performance issue. This will also help with site planning.

Customer Benefits

- Helps in troubleshooting the WiFi network performance issues
- Helps in site planning

10. Enhancements to Application Recognition and Control (ARC)

ZF version 9.9 further enhanced the Application Recognition and Control by adding new and easily consumable charts. With this feature the WiFi admin has a quick view of the Top 10 Applications to Users mapping and Top 10 Clients to Applications mapping.

Customer Benefits

- Helps WiFi admin to understand about their network's usage to take appropriate actions

11. Support for HTTPS Redirection

After connecting to a WiFi network, the very first time, when a client attempts to reach HTTPS based site it can be redirected to a captive portal for authentication. After successful authentication the 'HTTPS Redirection' feature will redirect users originally intended HTTPS based destination.

Customer Benefits

- Improves quality of experience for users

12. New Country codes

New country codes for are added to ZD and AP. Additionally, a new country code called Zone-2 is added. Under Zone-2, countries that share the same Tx power and Band levels will be part of it.

The following country codes added to AP

Belarus, Belgium, Bolivia, Croatia, Dominican Republic, El Salvador, Ethiopia, Georgia, Ghana, Lebanon, Macau, Mongolia, Montenegro, Nepal, Namibia, Peru, Rwanda, Syria, Tanzania, Uganda, Venezuela, Yemen, Zimbabwe, Zambia

The following country codes have been added to ZD

Albania, Algeria, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Bolivia, Bosnia, Herzegovina, Brunei Darussalam, Costa Rica, Dominican Republic, El Salvador, France_Res, Georgia, Guatemala, Honduras, Iran, Jamaica, Kazakhstan, North Korea, Korea Republic2, Korea Republic3, Kuwait, Libya, Liechtenstein, Macau, Macedonia, Malta, Monaco, Morocco, Nepal, Netherlands-Antilles, Oman, Papua New Guinea, Panama, Paraguay, Peru, Puerto Rico, Syria, Trinidad & Tobago, Tunisia, Ukraine, United States (Public Safety), Uzbekistan, Venezuela, Yemen

Customer Benefits

- Up on choosing the country code correct TX power and Band levels will be chosen based on regulatory requirements for the chosen country.

13. Chargeable User Identity (CUID) using DHCP Option 82 Sub-option 2

For HS2.0, as defined in RFC 4372, ZoneDirector has added support for DHCP option 82 sub-option 2 to uniquely identify client devices that are using EAP-SIM and requesting IP addresses from DHCP server.

Customer Benefits

- Helps to track the client devices by uniquely identifying them

14. Support Entitlement Enforcement

In ZF 9.8, a notification service has been implemented in ZoneDirector to verify if a support contract has been purchased for an individual ZoneDirector. The ZoneDirector will remotely connect to a Ruckus Entitlement Server and retrieve an "entitlement file" from Ruckus that provides current active/expired status of the ZoneDirector Support Contract. If the support entitlement is not found or expired a warning message will be presented to the user with instructions on how to resolve the issue.

In ZF 9.9, this feature is expanded such that if the support entitlement is not found or expired ZD cannot be upgraded to either minor or major release. The on screen message will provide Instructions on how to resolve the issue.

Customer Benefits

- Easily determine if ZoneDirector has a valid support contract.
- Guided instructions on how to resolve any missing support entitlements.

15. Login Banner

Customers will be able to set login banner such that if someone login into ZD either via GUI or CLI a banner will be displayed on users' screen with WiFi admin customized message.

Customer Benefits

- Helps the organization to display policy or warning messages to the user

16. Standalone AP SKU

Standalone or Single SKU AP enables only one AP image to be maintained regardless of whether the AP will be deployed in ZD or SCG environment.

Starting with AP version 100.0, Ruckus Wireless APs are shipped from the factory with a single firmware image, referred to as the base image. The AP's base image is capable of discovering the Ruckus Wireless controllers listed below. When the AP does not discover any of those controllers, the AP can be operated in standalone mode using the base image.

NOTE APs with the base image (100.0 or later) can only operate in standalone mode with or without a FlexMaster manager.

Customer Benefits

- Simplifies customer ordering
- Simplifies Distributors and VARs stocking need

FlexMaster Changes

17. PCI Report

PCI Report & Rogue Detection Reports can be generated in XLS format.

Customer Benefits

- Detect & report on the Malicious APs that the ZDs detect in the network
- Must have for Enterprise deployments where PCI is a requirement

18. Event Capacity

In large networks, FlexMaster sometimes got overwhelmed by event storms, thereby losing events. This feature sets a hard upper limit on the number of events, and sets different queues to handle these events.

Customer Benefit

- FM does a better job of handling event storms and reduces the number of times these events are lost

19. Normalize the file format for Scheduled Reports

There was some inconsistency in the way that scheduled reports were running. This feature will prompt the user to select the report format when scheduling it

Customer Benefit

- Improves usability

20. Color Coded Indoor Maps

In previous releases, FM introduced the concept of an indoor map, however these maps didn't show the status of the underlying APs. This feature shows the highest severity alarm to the indoor map icon.

Customer Benefit

- Improves usability

21. Login Authentication Order

Allows an administrator to select the order of authentication to be performed on the Login Screen. Options include local authentication or authentication with a TACACS+ server.

Customer Benefit

- Improves usability

22. 802.11d Config Template

Allows the users to enable 802.11d configurations to the AP.

Customer Benefit

- Improves usability