



# Ruckus Wireless™ ZoneDirector™ Version 9.12

## Release Notes

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# About This Release

# 1

## Introduction

This document provides release information on ZoneDirector release 9.12, including new features, enhancements, known issues, caveats, workarounds, upgrade details and interoperability information for version 9.12.

**NOTE:** By downloading this software and subsequently upgrading the ZoneDirector and/or the AP to version 9.12, please be advised that:

- The ZoneDirector will periodically connect to Ruckus and Ruckus will collect the ZoneDirector serial number, software version and build number. Ruckus will transmit a file back to the ZoneDirector and this will be used to display the current status of the ZoneDirector Support Contract.
- The AP may send a query to Ruckus containing the AP's serial number. The purpose is to enable your AP to autonomously connect with a wireless LAN controller operated by your choice of cloud service provider. Ruckus may transmit back to the AP, the Fully Qualified Domain Name (FQDN) or IP address of the controller that the AP will subsequently attempt to join.

Please be advised that this information may be transferred and stored outside of your country of residence where data protection standards may be different.

## Supported Country Codes

Refer to the Ruckus Wireless Price List for available country certifications.

## What's New in This Release

For a additional information on the new features that have been added in this release, see the *What's New in ZoneFlex 9.12* document, available from the Ruckus Wireless support website. Please refer to Release Notes for prior releases for information on previously documented caveats, limitations, enhancements and resolved issues. These documents can be found at: <https://support.ruckuswireless.com/>.

# Supported Platforms and Upgrade Information

# 2

## Supported Platforms

ZoneDirector version **9.12.0.0.336** supports the following ZoneDirector models:

- ZoneDirector 1200
- ZoneDirector 3000
- ZoneDirector 5000

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**NOTE:** ZoneDirector 1100 is discontinued (EOL) as of this release, and cannot be upgraded to 9.12.

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## Access Points

ZoneDirector version **9.12.0.0.336** supports the following Access Point models:

- H500
- R300
- R500
- R600
- R700
- R710
- SC8800-S
- SC8800-S-AC
- T300
- T300e
- T301n
- T301s
- ZF7055
- ZF7321
- ZF7231-u

- ZF7341
- ZF7343
- ZF7352
- ZF7363
- ZF7372
- ZF7372-E
- ZF7441
- ZF7761-CM
- ZF7762
- ZF7762-AC
- ZF7762-S
- ZF7762-S-AC
- ZF7762-T
- ZF7781CM
- ZF7782
- ZF7782-E
- ZF7782-N
- ZF7782-S
- ZF7982



## Upgrading to This Version

This section lists important notes on upgrading ZoneDirector to this version.

### Officially Supported 9.12 Upgrade Paths

The following ZoneDirector builds can be directly upgraded to ZoneDirector build 9.12.0.0.336:

- 9.9.0.0.205 (9.9 GA)
- 9.9.0.0.212 (9.9 GA refresh)
- 9.9.0.0.216 (9.9 GA refresh 2)
- 9.9.1.0.31 (9.9 Maintenance Release 1)
- 9.10.0.0.218 (9.10 GA)

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**NOTE:** If you do not have a valid Support Entitlement contract, you will be unable to upgrade ZoneDirector to this release. See *Administer > Support* page for information on Support Entitlement activation.

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If you are running an earlier version, you must first upgrade to one of the above builds before upgrading to this release.

# Enhancements and Resolved Issues

# 3

This section lists new features and enhancements that have been added in this release and resolved issues from previous releases.

## Enhancements

### **New Access Point Support: R710 (802.11ac Wave 2)**

This release adds support for the new R710 Dual Band 802.11ac Wave 2 Multimedia Wi-Fi Access Point.

The new Ruckus ZoneFlex R710 is the first Wi-Fi access point to support major technical advances in the 802.11ac standard that allow the simultaneous transmission of multiple client streams to different devices over the same frequency, a highly anticipated new capability called multi-user multiple input/multiple output (MU-MIMO). This enables over two times the density of mobile devices versus Wave 1.

### **R710 Major Features**

- Link Aggregation on Ethernet Ports (LACP)
- 802.3af PoE operating mode
- MU-MIMO
- Tx Beamforming
- Background Scanning is supported, and the following features which rely on Background Scanning are also enabled:
  - WIDS/WIPS (Rogue detection on channels other than service channel on 5G radio)
  - 802.11k Radio Resource Management
  - Channel Selection with Background Scanning
  - AP Neighbor List

## Configuring Link Aggregation on R710

To enable Link Aggregation on R710, use the following AP CLI commands:

- `set bond bond0 add eth0`
- `set bond bond0 add eth1`

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**NOTE:** For additional instructions on configuring Link Aggregation, see *Ruckus Wireless ZoneFlex Indoor Access Point User Guide*, available from [support.ruckuswireless.com](http://support.ruckuswireless.com).

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## R710 Capacity

- 256 STA support on 5 GHz radio  
No more than 256 STA can be associated with the 5 GHz radio at any time – this limit applies to unencrypted and encrypted (AES & TKIP) association.
- 256 STA support on 2.4 GHz radio  
No more than 256 STA can be associated with the 2.4 GHz radio at any time – this limit applies to unencrypted and encrypted (AES & TKIP) association.
- 13 Service WLAN support on 5GHz radio  
WLAN Group assigned to 5GHz radio cannot have more than 13 WLANs.
- 13 Service WLAN support on 2GHz radio  
WLAN Group assigned to 2GHz radio cannot have more than 13 WLANs.

## R710 Input Power Notes

The R710 can be powered by a Ruckus Wireless 902-1169-xx00 AC power adapter (sold separately)

--OR--

an 802.3at-compliant Power over Ethernet (PoE) switch or PoE injector.

--OR--

an 802.3af-compliant PoE switch or PoE injector.

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**NOTE:** The AP can operate off of 802.3af power, but the feature set is reduced, as follows: the USB port is disabled, the second (eth1) Ethernet port is disabled, and the 2.4GHz transmit power is reduced from 28 dBm to 25 dBm (aggregate of spatial streams), and country limits apply.

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## **LLDP Enabled by Default**

LLDP (Link Layer Discovery Protocol) is now *enabled* by default for all APs.

## **DFS Channels for H500, R500, R600, and R710**

When configured with US country code, these APs now support DFS channels in the 5 GHz radio band.

# Caveats, Limitations, and Known Issues

# 4

This section lists the caveats, limitations, and known issues in this release.

## Ethernet Port Settings

ZoneFlex AP Ethernet ports can become disabled if half-duplex is forced on any port. (ID ER-1208, ER-1229)

This problem affects the following:

- APs: ZoneFlex 7341, 7343, 7363, 7761, and 7762

Workaround: Uplink switch ports must be set to 100Mbps auto-negotiation or 1000Mbps auto-negotiation.

## Web Interface

- ZoneDirector release 9.12 supports the following Web browsers:
  - Firefox 31 and later
  - Internet Explorer 10, 11
  - Chrome 36 and later

## General

- Access to the AP web interface is not supported while an AP is under ZoneDirector control. While under ZoneDirector control, all AP configuration should be performed via the ZoneDirector web interface.

Configuration via AP web interface is supported in standalone operation. To revert an AP to standalone operation, disconnect it from the ZoneDirector, perform a factory reset of the AP, and upload standalone software to the AP (available at [support.ruckuswireless.com](http://support.ruckuswireless.com)) via the AP web interface.

# R710 Features Not Supported in This Release

Support for these features is planned for a future release.

- AirTime Fairness
- Smart Mesh
- Spectrum Analysis
- WLAN Prioritization

## R710 Known Issues

- When LACP is enabled, streaming mode packet capture can be executed but users are unable to remote connect to the AP using Wireshark. (ZF-13230)  
Customer impact: Limited ability to use Wireshark with the Remote Capture option.  
Workaround: Disable LACP to use Remote Capture.
- Smartcast QoS traffic classification settings must be set on each Ethernet interface separately when LACP is enabled. (ZF-13154)  
Customer impact: Configuring QoS settings requires enabling classification on both Ethernet ports instead of one.  
Workaround: When using LACP, classification must be enabled on both Ethernet ports rather than enabling it once on the "bond0" interface.
- After MAC filter time, Macbook stations become unable to associate to the AP. (ZF-13037)  
Customer impact: When using SmartRoam and MAC filter timeout, when the AP kicks the station off, Macbook clients will not reconnect to the same AP.  
Workaround: Do not specify MAC filter timeout.
- Heuristics is disabled by default on 2.4 and 5 GHz radios.  
The Heuristics feature which classifies UDP traffic with video priority is disabled on the R710. If enabled via CLI, it remains not in effect.
- When changing channelization on the 5G radio, from 80MHz, to 20MHz, one VAP in a multi-VAP configuration may experience a short delay coming up (ZF-13378)  
Customer Impact: Changing 5GHz channelization configuration from the default of "Auto" to 20MHz can potentially result in the AP restarting, or a delay in bringing a VAP up in multi-VAP configuration.

Workaround: It is recommended that Background Scan be enabled with a period <60 seconds on the 5G radio. If you choose to not enable Background Scan, it's possible the AP may restart when the change is made. After the change, the AP will recover automatically. This option is located in the AP configuration screen, under "Radio A/N/AC (5.0 Ghz).

- SNMPv3 trap cannot be deleted from ZD GUI (ZF-13366)

Customer Impact: SNMPv3 traps cannot be deleted. If deleting from the AP CLI, they still remain in the GUI display. AP CLI still shows as being deleted.

Workaround: None

- Spectrum Analysis option in ZD Monitor page can be selected for an R710 AP, when the feature is not supported for this AP model.

Customer Impact: If the Spectrum Analysis option is selected from the ZD Monitor page for an R710, a new Spectrum Analysis page will be displayed. Selecting this option does not invoke the feature. No impact on operation, the user must close the page.

Workaround: None

## H500, R500, R600, R700 and T300 Series APs

The following features are not included in this release:

- Airtime Fairness on 5 GHz radio
- Spectrum Analysis on 5 GHz radio
- WLAN Prioritization on 5 GHz radio

## Ethernet

- Ethernet 802.1x - Port-Based AP keeps forwarding EAPOL packets after the first client has passed authentication. (ZF-11990)

Customer Impact: None, frames will be dropped but will succeed with retry.

## Interoperability

- HTTPS requests are failing to redirect to web authentication page in IE browser on Windows mobile devices. (ZF-10826)
- After successfully roaming with 802.11r, clients repeat the complete authentication process after receiving dis-association packets from the source AP. (ZF-12269)

- Application Recognition data fails to sync to peer AP when station roams. (ZF-12567).

Customer Impact: None

Workaround: None required

## 802.1X

- AAA VLAN attribute setting overrides the WLAN setting even when the WLAN Precedence Policy is higher than AAA. (ZF-12240)

## Bonjour Gateway

- When creating rules for Bonjour Gateway, the "Edit" and "Clone" hyperlinks in the actions field are blank when using IE 11 and Firefox browsers. (ZF-12473)

## SPoT

- Running the "get lbs-server" CLI command fails to return the venue name when the venue name is 16 characters in length. (ZF-12397)

Customer Impact: None

## 802.11

- 802.11- PS (Power Saving) AP sends out group address frames after unicast frames (70%). (ZF-12320).

Customer Impact: WiFi Alliance test, minimal impact. Customer must disable directed-multicast and directed-thr via CLI. If done, under specific conditions where multicast traffic with AC\_VI is used, and unicast traffic is sent to 1 of 2 STA's in the test, most of the multicast traffic will be delivered before directed traffic.

Workaround: None

- When 802.11r is enabled, Samsung Note-II clients may display WPA2 profile as unknown security in the scan list. (ZF-11974)

## Zero-IT

- Zero-IT WLANs with "Limit-DPSK" enabled are not properly deployed using the Zero-IT auto configuration file on Android and iPhone clients. (ZF-12433)



- Zero-IT profiles with a Guest Access WLAN do not properly redirect clients to the register device page to access WLAN Connection Activation on Safari browser on iPhone 4. (ZF-12184)

## ZD GUI

- The Neighbor AP's list does not display the channel that the neighbor AP is currently using after the user switches radio bands (between 2.4 and 5Ghz). (ZF-12547)

## ZoneDirector Remote iOS App

- Spectrum Analysis page is displayed for 802.11ac APs, though the feature is currently unsupported on all 11ac APs.
- ZoneDirector 1200 is incorrectly displayed as “ZD 1100” on the login page.

## ZoneDirector Controller and RuckOS Controller Interoperability

To ensure reliable network operations, it is recommended that ZoneDirector controllers and RuckOS controllers (SCG, vSCG, SZ, SAMs controllers) not be deployed on the same IP subnet or in such a way as the controllers share the same DHCP address scopes and domain name servers (DNS) as there may be limitations or restrictions in AP controller discovery capabilities. An effective network segmentation strategy should be developed when ZoneDirector and RuckOS controllers co-exist in the same network.

### Redeploying ZoneFlex APs with RuckOS Controllers

Note that a supported ZoneFlex AP configured to operate with ZoneDirector will require an upgrade to a compatible RuckOS controller approved software release prior to interoperating with a SmartCell Gateway, vSCG, SmartZone or SAMs controller. Once the AP firmware is updated, the AP will no longer be able to communicate with its old ZoneDirector controller. The AP must be reset to factory-default setting before attempting to configure the AP from the RuckOS controller.

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**NOTE:** There are established ZoneDirector to RuckOS controller migration tools and procedures. Contact [support.ruckuswireless.com](http://support.ruckuswireless.com) for the latest available procedures and utilities.

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### ZoneFlex Release 9.9 and AP Standalone Mode and FlexMaster Managed Mode Operation

Starting January 1, 2015 the default image that ships from the factory on Ruckus access points (APs) will change from ZoneFlex Release 9.8.x to ZoneFlex Base Image Release 100.0.x. Most customers will not notice any difference in AP operation. The APs will continue to support standalone mode and FlexMaster managed mode operations and will automatically discover and connect to ZoneDirector or RuckOS controllers.

Beginning in ZoneFlex Release 9.9 and higher, the AP has a new behavior: once an AP connects to a controller the AP will no longer support standalone mode and FlexMaster managed mode operation after the controller completes the necessary AP firmware update during initialization.

An AP removed from a controller managed network may be restored to operate in standalone mode and FlexMaster managed mode operation by updating the AP firmware back to ZoneFlex Base Image Release 100.0.x or to a ZoneFlex-AP Release 9.8.x or lower.

These software images are available on the Ruckus support site, see [support.ruckuswireless.com](http://support.ruckuswireless.com) for more information.

## AP Interoperability

APs with ordering number prefix 901- (example 901-T300-WW81), may now be supplied with an AP base image release 100.0. or higher.

The AP base image is optimized for controller-discovery compatibility to support all Ruckus Wireless controller products including ZoneDirector, SCG, vSCG, Smart-Zone and SAMS.

Once the AP discovers and joins a controller (for example ZoneDirector), the AP is updated to the compatible controller-specific AP firmware version. The updated AP firmware version becomes the factory-default image. The updated AP firmware version (for example ZoneFlex 9.9) will remain persistent on the AP after reset to factory defaults.

An AP configured with base image release 100.0 may be managed by the FlexMaster management tool or may be used in standalone controller-less operation if controller discovery is disabled on the AP web UI.

## Client Interoperability

ZoneDirector and ZoneFlex APs use standard protocols to interoperate with third-party Wi-Fi devices. Ruckus Wireless qualifies its functionality on the most common clients.

The following client operating systems and browsers have been tested for compatibility with this release (for specific OS and browser limitations, including compatibility with Zero-IT, see subsequent sections below).

### PC OS:

- Windows 7
- Windows 8
- Windows 8.1
- Mac OS 10.8.5
- Mac OS 10.9.3
- Mac OS 10.9.4
- Mac OS 10.10

### Smart Phone/Tablet OS:

- iOS (6.x, 7.x, 8.0, 8.0.2, 8.1)
- Android (4.0.4, 4.1.2, 4.4.2, 4.4.4, 5.0.1)
- Windows Phone (8, 8.1)
- BlackBerry OS (10.1.0.4633, 10.3.0.1172)
- Kindle (7.4.9)
- Chrome OS

### Officially Supported Browsers:

- Internet Explorer 10, 11
- Firefox 33 and later
- Chrome 39 and later

### Not Officially Supported Browsers:

Safari, Dolphin, Opera Mini, Android Default, BlackBerry Default, etc.

# Zero-IT Compatibility with Client Devices

Table 1. Zero-IT Compatibility

OS	WPA2 WLAN			802.1x EAP (external Radius Server)		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
iOS 6.x	Y	Y	N(ZF-2888)	Y	Y	N(ZF-2888)
iOS 7.x	Y	Y	N(ZF-2888)	Y	Y	N(ZF-2888)
iOS 8.0	Y	Y	N(ZF-2888)	Y	Y	N(ZF-2888)
iOS 8.0.2	Y	Y	N(ZF-2888)	Y	Y	N(ZF-2888)
iOS 8.1	Y	Y	N(ZF-2888)	Y	Y	N(ZF-2888)
MAC OS 10.8.5	Y	Y	Y	Y	Y	N(ZF-4699)
Mac OS 10.9.3	Y	Y	Y	Y	Y	N(ZF-4699)
MAC OS 10.9.4	Y	Y	Y	Y	Y	N(ZF-4699)
Mac OS 10.9.5	Y	Y	Y	Y	Y	N(ZF-4699)
Mac OS 10.10	Y	Y	Y	Y	Y	N(ZF-4699)
Windows 7	Y	Y	Y	Y	Y	Y
Windows 8	Y	Y	Y	Y	Y	Y
Windows 8.1	Y	Y	Y	Y	Y	Y
Windows Phone 8	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)
Windows Phone 8.1	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)	N (ZF-3478)
BlackBerry OS 10.1	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)
BlackBerry OS 10.3	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)	N (ZF-6402)
Kindle 7.4.9	Y	Y	Y	Y	Y	Y
Android 4.0.4	Y	Y	Y	Y	Y	Y
Android 4.1.2	Y	Y	Y	Y	Y	Y
Android 4.4.4	Y	Y	Y	Y	Y	Y
Android 5.0.1	Y	N (ZF-13263)	N (ZF-13263)	Y	N (ZF-13263)	N (ZF-13263)
Chrome OS	N (ZF-8076)	N (ZF-8076)	N (ZF-8076)	N (ZF-8076)	N (ZF-8076)	N (ZF-8076)

- Step 1: Download Zero-IT file
- Step 2: Install Zero-IT script
- Step 3: Automatically connect to the appropriate SSID

## Client Interoperability Issues

- Zero-IT is not supported on Windows Phone 7/8/8.1 devices. (ZF-3478)
- Zero-IT is not supported on Blackberry OS devices. (ZF-6402)
- Zero-IT is not supported on Chrome OS devices. (ZF-8076)
- iOS clients cannot connect to the Zero-IT WLAN automatically. Users must reconnect to the target WLAN after installing the Zero-IT configuration file. (ZF-2888)
- Mac OS 10.7 and 10.8 cannot automatically connect to an 802.1x EAP WLAN after installing Zero-IT script. (ZF-4699)
- Zero-IT prov installation file fails to run on Galaxy Note 4 clients running Android 5.0.1. (ZF-13263)
- Zero-IT is not supported on Android 5.0. (ER-2825)



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