



# Ruckus Wireless™ FlexMaster™

## Release Notes for 9.12.1.0.5

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# About This Release

# 1

This document provides release information on FlexMaster version 9.12.1.0.5, including new features, enhancements, known issues, caveats, workarounds, upgrade details and interoperability information.

**NOTE:** Beginning with the 9.9.0 release, the ZoneFlex Release Notes (which previously included ZoneDirector, FlexMaster and ZoneFlex access points) are now divided into three separate Release Notes documents. This document covers FlexMaster only. For ZoneDirector and Ruckus Wireless access point release information, please refer to their respective Release Notes documents.

By downloading this software and subsequently upgrading FlexMaster and/or Ruckus Wireless controllers to version 9.9.0 or later, and/or Ruckus Wireless APs to base image 100.0.0 or later, please be advised that:

- The ZoneDirector periodically connects to Ruckus and Ruckus collects the ZoneDirector serial number, software version and build number. Ruckus transmits a file back to the ZoneDirector and this is 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. This allows your AP to autonomously connect with a wireless LAN controller operated by your choice of cloud service provider. Ruckus may transmit the Fully Qualified Domain Name (FQDN) or IP address of the controller that the AP will subsequently attempt to join back to the AP.
- Please be advised that this information may be transferred and stored outside of your country of residence where data protection standards may be different.

# Minimum Recommended RAM and CPU

The amount of memory and CPU power required on the FlexMaster server depends on the number of ZoneDirector devices and standalone APs that FlexMaster is to manage, and on the FM system configuration.

Refer to the following:

- [Three-Tier Model](#)
- [Purge Policy](#)
- [ZD1200 Scaling Capacity without UE Sessions](#)

## Three-Tier Model

Refer to the following table for the minimum recommended RAM and CPU for managing ZoneDirector devices using the FM 3-tier model.

Table 1. Minimum recommended RAM and CPU for the FM 3-tier model

Managed Population	Minimum RAM	Minimum CPU
Up to 500 ZD-managed APs (with up to two UE sessions per hour, <b>NOTE</b> )	8GB	2.0GHz Quad Core Intel® Xeon® E5606 or equivalent
Up to 10,000 ZoneDirector-managed APs	48GB	2* 2.5GHz Six Core Intel® Xeon® E5670 or equivalent

**NOTE:** User Equipment session services provide more accurate client traffic reports. However, if the FlexMaster manager is managing many ZoneDirector controllers, then the FM database may become overloaded with inputs. Enable User Equipment sessions in *Administer > System Settings*.

## Purge Policy

Since release 9.5, FM can store up to 31 days of AP history data. In addition to the recommended RAM listed above, the number of APs that the FlexMaster server can support is determined by the amount of available RAM and the number of days of historical data defined in the *Purge Policy* setting. Refer to the following table for additional RAM requirements.

Table 2. Minimum RAM and CPU for various Purge Policies

Purge Policy	Max Capacity	Recommended Capacity
2 days	12k APs//120k Clients	10k APs/100k Clients
7 days	10k APs/100k Clients	6k APs/60k Clients
31 days	1.5k APs/15k Clients	1k APs/10k Clients

The capacity decreases when FM is hosted on a VMware Virtual Machine.

Table 3. Sample FM Capacity Decreases on a VMware Virtual Machine

Purge Policy	FM Max Capacity	Recommended Capacity	Hardware Notes (RAM/Disk RPM)
7 days	1k APs + 10k clients + 10M events	600 APs	8G/10000 RPM
	1k APs + 50k clients + 14M events		16G/10000 RPM
	1k APs + 10k clients + 6M events		8G/7200 RPM
	1k APs + 50k clients + 9M events		16G/7200 RPM

Too many SSIDs on the ZDs impacts the FM capacity. So when the FM is fully loaded, Ruckus Wireless recommends that the operator not implement the 64 SSID feature for the ZDs.

Because adding User Equipment sessions (refer to **NOTE** in [Table 1](#)) affects the XML memory in FM, the FM capacity is affected when there are more client sessions with different purge policies. Ruckus Wireless recommends that customers install 48GB RAM in the FM server, and then observe the maximum and recommended capacity limitations for two-day, seven-day, and 31-day Purge Policies listed in [Table 4](#).

Table 4. Sample FM Capacity Decreases on a VMware Virtual Machine

Purge Policy	FM Max Capacity	Recommended Capacity	Hardware Notes (RAM/Disk RPM)
2 days	12k APs/120k Clients	10k APs/100k Clients	48G/10000 RPM/7200RPM

Table 4. Sample FM Capacity Decreases on a VMware Virtual Machine (Continued)

Purge Policy	FM Max Capacity	Recommended Capacity	Hardware Notes (RAM/Disk RPM)
7 days	10k APs/100k Clients	6k APs/60k Clients	48G/10000 RPM/7200RPM
31 days	1.5k APs/15k Clients	1k APs/10k Clients	48G/10000 RPM/7200RPM

## ZD1200 Scaling Capacity without UE Sessions

Table 5. ZD1200 Scaling Capacity (no UE sessions)

Scenario	ZDs	APs for each ZD 1200	Total APs	Clients per AP (concurrent)	Total Clients	Status	Hardware Notes (CPU\RAM\ Disk RPM)
1	300	15	4500	30 (100 clients for 1 hour, 2 times every day, and 30 clients on at other times; 10 clients at night)	141000	(300ZDs + 4.5k APs + 141k clients.) Reports can be generated, FM cannot generate Client Association Activity 7days reports on the Dashboard.	2* 2.5G Eight Core (Intel Xeon X5670 equivalent or above) 48G/10000 RPM/7200RPM
2	250	15	3750	50	187500	(250 ZDs + 3.75k APs + 187k clients.) All reports can be generated.	2* 2.5G Eight Core (Intel Xeon X5670 equivalent or above) 48G/10000 RPM/7200RPM

## Included ZD Firmware Loads

There are no ZD firmware images included with FlexMaster since the 9.5.0.0.11 build. However, the operator can upload any required ZD firmware image in the **Configure -> Manage Firmware Files** window.

## Supported Country Codes

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



# Supported ZDs and APs

# 2

## Supported ZoneDirector Models

This release supports the following ZD models:

- ZD1200
- ZD3000
- ZD5000

## Supported Access Point Models

This release supports the following AP models:

- H500
- P300
- R300
- R500
- R600
- R700
- R710
- SC8800-S
- SC8800-S-AC
- T300
- ZF2741
- ZF2942
- ZF7025
- ZF7055
- ZF7321
- ZF7321-U
- ZF7341
- ZF7341-U
- ZF7343

- ZF7343-U
- ZF7351
- ZF7351-U
- ZF7352
- ZF7352-U
- ZF7363
- ZF7363-U
- ZF7372
- ZF7372-E
- ZF7372-U
- ZF7441
- ZF7761CM
- ZF7762
- ZF7762-AC
- ZF7762-S
- ZF7762-S-AC
- ZF7762-T
- ZF7781-M
- ZF7781CM
- ZF7781CM-E
- ZF7781CM-S
- ZF7781FN
- ZF7781FN-E
- ZF7781FN-S
- ZF7782
- ZF7782-E
- ZF7782-N
- ZF7782-S
- ZF7962
- ZF7982

# Caveats, Limitations, and Known Issues

# 3

This section lists the caveats, limitations, and known issues for FlexMaster in this release. Please also refer to previous (for example, 9.12.0, 9.10.0) Release Notes documents for previously documented caveats and limitations.

## Caveats and Limitations

- Facebook WiFi WLANs are not supported in this release.
- Firefox version 40.0.2 exhibits issues with UI elements in the ZD template WLAN configuration screens. (ZF-14354)

Workaround: Upgrade Firefox to version 40.0.3 or later.

# Enhancements and Resolved Issues

# 4

This section lists the enhancements that have been added in this release and resolved issues/bug fixes identified in previous releases.

## Enhancements

- Added support for OAuth 2.0 WLANs, or “Social Media” WLAN types, including:
  - Google/Google+
  - LinkedIn
  - Microsoft Windows Live

Note that Facebook WiFi is not supported by FlexMaster in this release, though it is supported in ZoneDirector 9.12.1. The remaining Social Media WLAN types can be configured from a FlexMaster template and pushed to FM-controlled ZoneDirectors.

- Added support for standalone R710 Access Points.

## Resolved Issues

- No customer-reported issues.

# Upgrading to This Release

# 5

This section lists important notes on installing and upgrading FlexMaster, ZoneDirector, and Ruckus Wireless Access Points to this version.

- [FlexMaster Upgrade](#)
- [FlexMaster Environment Notes](#)
- [Editing the Hosts File](#)
- [FlexMaster Upgrade Paths](#)

## FlexMaster Upgrade

For better upgrade process control, FM is delivered in tar format as a patch since release 9.4. There are new upgrade scripts and patch files in this tarball.

Please refer to following steps as an upgrade example:

- a Upload the patch file (e.g. 9.12.0.0.101-9.12.1.0.5.tar) to the FM server.
- b Copy the patch file (e.g. 9.12.0.0.101-9.12.1.0.5.tar) to the FM folder (for example, /opt/FlexMaster/):  

```
# cp 9.12.0.0.101-9.12.1.0.5.tar /opt/FlexMaster/
```
- c Untar the patch file with following command:  

```
# tar -vxf 9.12.0.0.101-9.12.1.0.5.tar
```
- d Make sure the \*.patch (9.12.1.0.5.patch) file has been extracted from the tar file and then upgrade the FM with following command:  

```
# ./upgrade.sh 9.12.1.0.5
```

# FlexMaster Environment Notes

**NOTE:** Also refer to [Caveats, Limitations, and Known Issues](#) for further information.

FlexMaster requires the following:

- RedHat Enterprise 5.5 (64 bit) or RedHat Enterprise 6.5 (64 bit).  
--OR--  
CentOS release 6.3 (64 bit) or CentOS release 6.5 (64 bit).
- Ruckus Wireless recommends that you use the 'Web Server' option during RedHat Enterprise or CentOS installation. Do not use the 'Minimal' option, since that causes FM startup failure (ZF-6874).
- The FM installation requires several MySQL packages that are not included in a Minimal CentOS (or RHEL) install.
  - a When installing or upgrading to 9.12.1.0.5 *install.sh* or *upgrade.sh* will check that the following packages are installed on your system:
    - PERL
    - UNZIP
    - Libaio

If the check is successful, you can install or upgrade FlexMaster 9.12.1.0.5 successfully.

If the check is unsuccessful, you will need to install the Perl, Unzip and/or libaio packages before installing or upgrading FlexMaster 9.12.1.0.5:

- **yum -y install unzip**
- **yum -y install perl**
- **yum -y install libaio**

- b Once the packages are installed, you can install or upgrade FM normally.

## Other Notes

- When FM is installed on RedHat or CentOS, FM may have port conflicts with the following. Modify those port numbers as required.
  - MySQL (3306)
  - apache (80)
  - tomcat (80)
  - or the default port on RedHat or CentOS.

- Because of compatibility issues between MySQL and the ext4 partition (for details, refer to <http://bugs.mysql.com/bug.php?id=46959>), Ruckus Wireless recommends that you install FM with an ext3 partition.
- If the operator has to use an ext4 partition, for better system performance, Ruckus Wireless recommends that you disable the barrier option on the partition where FM is installed. Following is an example of how to disable the barrier option:

```
# umount /opt
# mount -o barrier=0 /dev/sda1 /opt
```

## Editing the Hosts File

FlexMaster stores some of its configuration settings in a MySQL server database that is installed with the FM software. To make sure that FM can connect to this MySQL database after installation, you need to edit your Linux server's hosts file to include its DNS-related information (ER-1631).

- 1 Go to the `/etc` directory, and then open the `hosts` file.
- 2 Add the following line to the `hosts` file:

```
127.0.0.1    hostname hostname.domainname
```

- 3 Save the `hosts` file.

**NOTE:** If you use a full stop (.) in the hostname, then you are not allowed to use only digits after the full stop. If you use a domain in the `hosts` file, then the domainname is also not allowed to consist of a digit or only digits.

- Valid hostname/hostname.domainname combinations:
  - FlexMaster/FlexMaster.ruckus
  - FlexMaster.98ABC/FlexMaster.98ABC
  - FlexMaster.com/FlexMaster.orange
- Invalid hostname/hostname.domainname combinations:
  - FlexMaster.98/FlexMaster.98
  - FlexMaster.126/FlexMaster.126
  - Localhost.12345/Localhost.12345

# FlexMaster Upgrade Paths

Official 9.12.1.0.5 upgrade paths supported:

- FM 9.12.0.0.101 -> FM 9.12.1.0.5

If you are running an earlier version, then you must first upgrade to FM 9.12.0.0.101 before upgrading to FM 9.12.1.0.5.

**NOTE:** The FM manager and ZD controllers are generally updated in the following order:

- Operator upgrades the FM first and then upgrades the ZDs.
- Operator upgrades the FM and ZDs release by release; please refer to [Table 6](#) for details.
- For multi-release upgrades, the operator should align the ZD version with FM first, and then continue with the FM upgrade. For instance, FM/ZD 9.10 -> 9.12.1 upgrade:

Step 1, upgrade FM 9.10 -> 9.12

Step 2, upgrade ZD 9.10 -> 9.12

Step 3, upgrade FM 9.12 -> 9.12.1

Step 4, upgrade ZD 9.12 -> 9.12.1

[Table 6](#) contains a comprehensive list of FM upgrade paths and corresponding ZD alignments.



Table 6. FM Upgrade Path and ZD Alignments

<b>FM version</b>	<b>Official FM Upgrade Path</b>	<b>ZD Alignment</b>
FM 9.2	N/A	ZD 9.2
FM 9.3	9.2 -> 9.3	ZD 9.3
FM 9.3.2	9.3 -> 9.3.2	ZD 9.3.2
FM 9.4	9.3 -> 9.4	ZD 9.4
FM 9.5	9.3 -> 9.5 9.3.2 -> 9.5 9.4 -> 9.5	ZD 9.5
FM 9.5.1	9.5 -> 9.5.1	ZD 9.5.1
FM 9.5.2	9.5.1 -> 9.5.2	ZD 9.5.2
FM 9.6	9.5 -> 9.6 9.5.1 -> 9.6	ZD 9.6
FM 9.7	9.6 -> 9.7	ZD 9.7 (or ZD9.5.1)
FM 9.8	9.7 -> 9.8	ZD 9.8
FM 9.8.1	9.8 -> 9.8.1	ZD 9.8.1 ZD 9.8.
FM 9.9	9.8 -> 9.9 9.8.1->9.9	ZD 9.9
FM 9.10	9.9 -> 9.10	ZD 9.10
FM 9.12	9.10 -> 9.12	ZD 9.12
FM 9.12.1	9.12 -> 9.12.1	ZD 9.12.1

# Interoperability Information

# 6

The following client web browsers have been tested for compatibility with this release:

**NOTE:** Ruckus Wireless strongly recommends that you use the latest release of an officially-supported browser with FlexMaster.

- *Officially Supported Browsers:*
  - Internet Explorer 8.0 and later (refer to [Caveats, Limitations, and Known Issues](#))
  - Firefox 3.0 and later
  - Safari 5.1.7 and later
  - Chrome 5.0 and later
- *Not Officially Supported Browsers:*
  - Dolphin, Opera Mini, Android Default, BlackBerry Default, and others.



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