



FlexMaster 9.10.2

Release Notes

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About This Release

This document provides release information on FlexMaster version 9.10.2, 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.

NOTE: 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.

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, NOTE)	8GB	2.0GHz Quad Core Intel® Xeon® E5606 or equivalent

Managed Population	Minimum RAM	Minimum CPU
Up to 10,000 ZoneDirectormanaged 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
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	2* 2.5G Eight Core (Intel Xeon X5670

Scenario	ZDs	APs for each ZD 1200	Total APs	Clients per AP (concurrent)	Total Clients	Status	Hardware Notes (CPU/RAM/Disk/RPM)
						clients.) All reports can be generated.	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 AP and ZoneDirector Platforms

Supported ZoneDirector Models

This release supports the following ZD models:

- ZoneDirector 1100 -- 9.10.0.0.218 and later (The ZoneFlex H500 is not supported by the ZD 1100)
- ZoneDirector 1200 -- 9.10.0.0.218 and later
- ZoneDirector 3000 -- 9.10.0.0.218 and later
- ZoneDirector 5000 -- 9.10.0.0.218 and later

Supported Access Point Models

This release supports the following AP models:

- SC8800-S -- 100.1.0.0.194 and later
- SC8800-S-AC -- 100.1.0.0.194 and later
- ZoneFlex 7025 -- 100.1.0.0.194 and later (only supported by ZD3000 and ZD5000)
- ZoneFlex 7055 -- 100.1.0.0.194 and later
- ZoneFlex 7321 -- 100.1.0.0.194 and later
- ZoneFlex 7341 -- 100.1.0.0.194 and later
- ZoneFlex 7343 -- 100.1.0.0.194 and later
- ZoneFlex 7352 -- 100.1.0.0.194 and later
- ZoneFlex 7363 -- 100.1.0.0.194 and later
- ZoneFlex 7372 -- 100.1.0.0.194 and later
- ZoneFlex 7372-E -- 100.1.0.0.194 and later
- ZoneFlex 7441 -- 100.1.0.0.194 and later
- ZoneFlex 7761-CM -- 100.1.0.0.194 and later
- ZoneFlex 7762 -- 100.1.0.0.194 and later
- ZoneFlex 7762-AC -- 100.1.0.0.194 and later
- ZoneFlex 7762-S -- 100.1.0.0.194 and later
- ZoneFlex 7762-S-AC -- 100.1.0.0.194 and later
- ZoneFlex 7762-T -- 100.1.0.0.194 and later
- ZoneFlex 7781CM -- 100.1.0.0.194 and later
- ZoneFlex 7782 -- 100.1.0.0.194 and later
- ZoneFlex 7782-E -- 100.1.0.0.194 and later
- ZoneFlex 7782-N -- 100.1.0.0.194 and later
- ZoneFlex 7782-S -- 100.1.0.0.194 and later
- ZoneFlex 7962 -- 100.1.0.0.194 and later
- ZoneFlex 7982 -- 100.1.0.0.194 and later
- ZoneFlex H500 -- 100.1.0.0.194 and later (The H500 is not supported on the ZoneDirector 1100.)

- ZoneFlex R300 -- 100.1.0.0.194 and later
- ZoneFlex R500 -- 100.1.0.0.194 and later
- ZoneFlex R600 -- 100.1.0.0.194 and later
- ZoneFlex R700 -- 100.1.0.0.194 and later
- ZoneFlex T300 -- 100.1.0.0.194 and later
- ZoneFlex T300e -- 100.1.0.0.194 and later
- ZoneFlex T301n -- 100.1.0.0.194 and later
- ZoneFlex T301s -- 100.1.0.0.194 and later

Caveats, Limitations, and Known Issues

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

Caveats and Limitations

As a result of the new FlexMaster SSL certificate in ZoneDirector, though FlexMaster 9.10.2 works with ZoneDirector 9.10.2 and prior versions, ZoneDirector 9.10.2 only works with FlexMaster 9.10.2. Therefore, customers using FlexMaster to manage ZoneDirector must upgrade FlexMaster to 9.10.2 to continue to be able to communicate with ZoneDirector 9.10.2.

Known Issues

There are no known issues in this release.

Enhancements and Resolved Issues

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

Enhancements

There are no enhancements in this release.

Resolved Issues

There are no resolved issues in this release.

Upgrading to This Release

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

FlexMaster Environment Notes

FlexMaster requires the following:

- RedHat Enterprise 5.5 (64 bit) or RedHat Enterprise 6.5,
OR
CentOS release 6.3 (64 bit) or CentOS release 6.5.
- 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.

- When installing or upgrading to 9.10.0 `install.sh` or `upgrade.sh` will check that the following packages are installed on your system: PERL, UNZIP, and Libaio.

If the check is successful, you will install or upgrade FlexMaster 9.10.0 successfully. If the check is unsuccessful, you will need to install the Perl, Unzip and/or libaio packages before installing or upgrading FlexMaster 9.9:

```
yum -y install unzip
```

```
yum -y install perl
```

```
yum -y install libaio
```

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

Recommendations

- 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 ensure 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

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:

1. Upload the patch file (e.g. 9.10.0.0.7-9.10.2.0.1.tar) to the FM server.

- Copy the patch file (e.g. 9.10.0.0.7-9.10.2.0.1.tar) to the FM folder (for example, /opt/FlexMaster/) using the following command:

```
# cp 9.10.0.0.7-9.10.2.0.1.tar /opt/FlexMaster/
```

- Extract the patch file using the following command:

```
# tar -vxf 9.10.0.0.7-9.10.2.0.1.tar
```

- Upgrade FlexMaster with following command:

NOTE: Before you upgrade, ensure that the *.patch (9.10.2.0.1.patch) file is extracted from the tar file.

```
# ./upgrade.sh 9.10.2.0.1
```

FlexMaster Upgrade Paths

Official FM 9.10.2.0.1 upgrade paths supported:

- FM 9. 10.0.0.7 -> FM 9.10.2.0.1

If you are running an earlier version, then you must first upgrade to FM 9. 10.0.0.7 before upgrading to FM 9.10.2.0.1.

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 the table 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 9.9 -> 9.10.2 upgrade:
 - Step 1, upgrade FM 9.9 -> 9.10
 - Step 2, upgrade ZD 9.9 -> 9.10
 - Step 3, upgrade FM 9.10 -> 9.10.2
 - Step 4, upgrade ZD 9.10 -> 9.10.2

Table 6 contains a comprehensive list of FM upgrade paths and corresponding ZD alignments.

Table 6: FM Upgrade Path and ZD Alignments

FM version	Official FM Upgrade Path	ZD Alignment
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 version	Official FM Upgrade Path	ZD Alignment
FM 9.5	9.3 -> 9.5	ZD 9.5
	9.3.2 -> 9.5	
	9.4 -> 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	ZD 9.6
	9.5.1 -> 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	ZD 9.9
	9.8.1->9.9	
FM 9.10	9.9 -> 9.10	ZD 9.10
FM 9.10.2	9.10 -> 9.10.2	ZD 9.10.2

Interoperability Information

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

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.