



# Ruckus Wireless™ FlexMaster™ Release 9.8

## CLI Reference Guide

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# About This Guide

This *Ruckus Wireless* FlexMaster 9.8 CLI Reference Guide contains the syntax and commands for configuring and managing FlexMaster from a command line interface.

This guide is written for service operators and system administrators who are responsible for managing, configuring, and troubleshooting Ruckus Wireless devices. Consequently, it assumes a basic working knowledge of local area networks, wireless networking, and wireless devices.

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**NOTE** If release notes are shipped with your product and the information there differs from the information in this guide, then follow the instructions in the release notes.

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Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Wireless Support Web site at <https://support.ruckuswireless.com/documents>.

## Related Documentation

In addition to this *Reference Guide*, each FlexMaster documentation set includes the following:

- *User Guide*: Provides detailed information on how to use FlexMaster. The FlexMaster User Guide is available for download on the Ruckus Wireless Support Web site at <http://support.ruckuswireless.com>.
- *Online Help*: Provides instructions for performing tasks using the FlexMaster Web interface. The online help is accessible from the Web interface and is searchable.
- *Release Notes*: Provide information about the current software release, including new features, enhancements, and known issues.

# Document Conventions

Table 1 and Table 2 list the text and notice conventions that are used throughout this guide.

Table 1. Text conventions

Convention	Description	Example
monospace	Represents information as it appears on screen	[Device name]>
<b>monospace bold</b>	Represents information that you enter	[Device name]> <b>set ipaddr 10.0.0.12</b>
<b>default font bold</b>	Keyboard keys, software buttons, and field names	On the <b>Start</b> menu, click <b>All Programs</b> .
<i>italics</i>	Screen or page names	Click <b>Advanced Settings</b> . The <i>Advanced Settings</i> page appears.

Table 2. Notice conventions

Notice Type	Description
<b>NOTE</b>	Information that describes important features or instructions
<b>CAUTION!</b>	Information that alerts you to potential loss of data or potential damage to an application, system, or device
<b>WARNING!</b>	Information that alerts you to potential personal injury

# Documentation Feedback

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- Document title
- Document part number (on the cover page)
- Page number (if appropriate)

For example:

- *FlexMaster 9.8 CLI Reference Guide*
- Part number: 800-70596-001 Revision A
- Page 9

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# About the FlexMaster Command Line Interface

# 1

Ruckus Wireless FlexMaster uses Linux shell commands to control basic system and FlexMaster functions. You can issue these commands from an operating system prompt, such as a Linux operating system terminal or SSH (Secure Shell) client. Each command performs a specific action for configuring device settings or returning information about the status of a specific device feature.

In this chapter:

- [Accessing the Command Line Interface](#)
- [Viewing Linux Commands](#)
- [Setting the Interface MTU](#)
- [Configuring Time Zones](#)



# Accessing the Command Line Interface

This section describes the requirements and the procedure for accessing the FlexMaster CLI.

## Requirements

To access the FlexMaster CLI, you need the following:

- A local terminal connected to the FlexMaster server.
- --OR--
- A computer that you want to designate as administrative computer, with
- an SSH (secure shell) client program, and
- a network connection to FlexMaster, or
- a serial cable (type depends on the FlexMaster server).

---

**NOTE** If you are using the FlexMaster local terminal, then start with [Step 3: Log Into the CLI](#). If you are using an administrative computer, then start with [Step 1: Connecting the Administrative Computer to FlexMaster](#).

---

## Step 1: Connecting the Administrative Computer to FlexMaster

The FlexMaster Command Line Interface can be accessed in one of two ways:

- [Using SSH](#)
- [Using a Serial Connection](#)

### Using SSH

- 1 Make sure that the administrative computer and FlexMaster are on the same subnet or broadcast domain.
- 2 Continue with “[Step 2: Start and Configure the SSH Client](#)”.

### Using a Serial Connection

The steps for connecting the administrative computer directly to FlexMaster using a serial cable depend on the FlexMaster server. Refer to the administrative computer and FlexMaster server documentation for the required cable.

**NOTE** Before continuing, make sure that both the administrative computer and FlexMaster server are both powered on.

---

- 1 Connect one end of the serial cable to the serial port labeled on the FlexMaster server.
- 2 Connect the other end of the serial cable to a COM port on the administrative computer.
- 3 Continue with “[Step 2: Start and Configure the SSH Client](#)”.

## Step 2: Start and Configure the SSH Client

Before starting this procedure, make sure that your SSH client is already installed on the administrative computer.

---

**NOTE** The following procedure uses PuTTY, a free and open source SSH client, for accessing the FlexMaster CLI. If you are using a different SSH client, the procedure may be slightly different (although the connection settings should be the same). For more information on PuTTY, visit [www.putty.org](http://www.putty.org).

---

See the following section depending on your connection method:

- [Using SSH](#)
- [Using a Serial Connection](#)

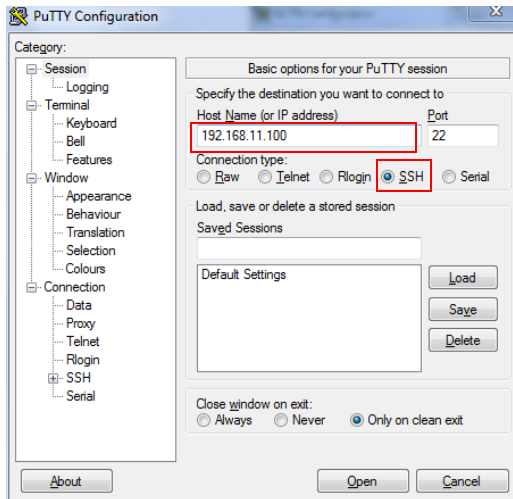
### Using SSH

- 1 Start PuTTY. The PuTTY Configuration dialog box appears, showing the *Session* screen.
  - 2 In *Connection type*, select **SSH**.
- 

**NOTE** Telnet access is disabled by default. SSH is the recommended access method and you are not allowed to access the FlexMaster CLI via Telnet unless you have specifically enabled Telnet access.

---

Figure 1. Selecting SSH as the connection type

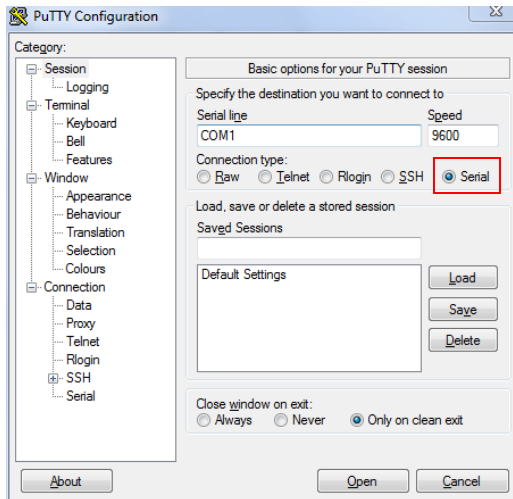


- 3 Enter the FlexMaster IP address in the **Host Name (or IP address)** field.
- 4 Click **Open**. The PuTTY console appears and displays the login prompt.
- 5 Continue with [“Step 3: Log Into the CLI”](#).

## Using a Serial Connection

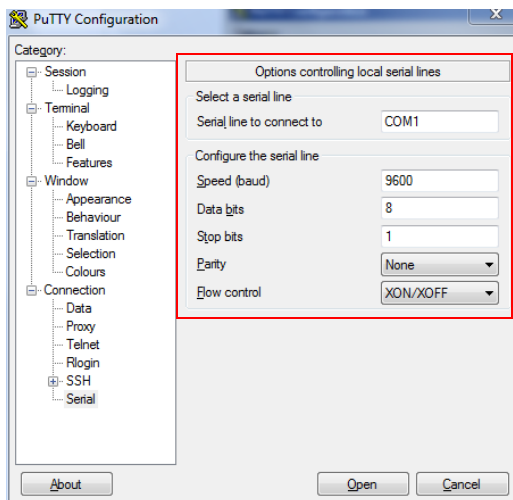
- 1 Start PuTTY. The PuTTY Configuration dialog box appears, showing the *Session* screen.
- 2 In *Connection type*, select **Serial** if you are connecting via serial cable.

Figure 2. Select Serial as the connection type



- 3 Under *Category*, click **Connection** > **Serial**. The serial connection options appear on the right side of the dialog box, displaying PuTTY's default serial connection settings.

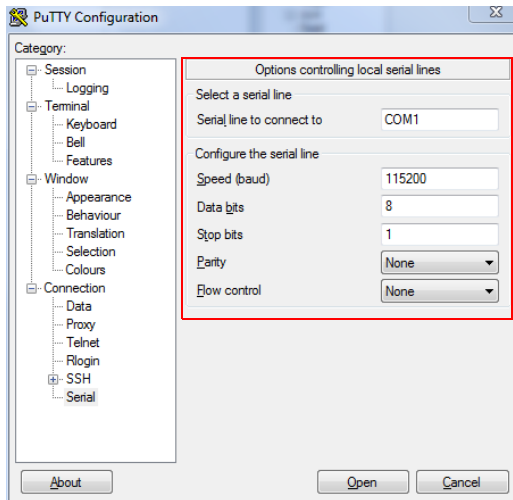
Figure 3. PuTTY's default serial connection settings



- 4 Configure the serial connection settings as follows:

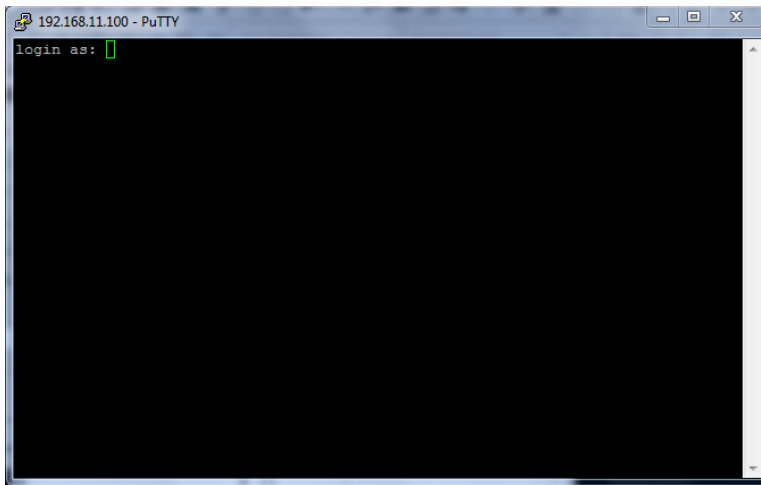
- *Serial line to connect to:* Type the COM port name to which you connected the RS-232 cable.
- *Bits per second:* 115200
- *Data bits:* 8
- *Stop bits:* 1
- *Parity:* None
- *Flow control:* None

Figure 4. PuTTY's serial connection settings for connecting to FlexMaster



- 5 Click **Open**. The PuTTY console appears and displays the login prompt.

Figure 5. The PuTTY console displaying the login prompt



- 6 Continue with [“Step 3: Log Into the CLI”](#).

### Step 3: Log Into the CLI

- 1 At the `login as:` prompt, enter the login name.
- 2 At the `password:` prompt, enter the login password. The FlexMaster CLI displays the shell prompt.

---

**NOTE** The login and password are not included in this document. Contact your network administrator or Ruckus Wireless Support for these values.

---

# Viewing Linux Commands

To view a list of commands that are available at the Linux system level, enter:

```
# help
GNU bash, version 3.2.25(1)-release (x86_64-redhat-linux-gnu)
These shell commands are defined internally. Type `help' to see this list.
Type `help name' to find out more about the function `name'.
Use `info bash' to find out more about the shell in general.
Use `man -k' or `info' to find out more about commands not in this list.

A star (*) next to a name means that the command is disabled.

JOB_SPEC [&]                (( expression ))
. filename [arguments]      :
[ arg... ]                  [[ expression ]]
alias [-p] [name[=value] ... ]  bg [job_spec ...]
bind [-lpvsPVS] [-m keymap] [-f fi break [n]
builtin [shell-builtin [arg ...]] caller [EXPR]
case WORD in [PATTERN [| PATTERN]. cd [-L|-P] [dir]
command [-pVv] command [arg ...] compgen [-abcdefgjkusv] [-o option
complete [-abcdefgjkusv] [-pr] [-o continue [n]
declare [-affirtx] [-p] [name[=val dirs [-clpv] [+N] [-N]
disown [-h] [-ar] [jobspec ...] echo [-neE] [arg ...]
enable [-pnds] [-a] [-f filename] eval [arg ...]
exec [-cl] [-a name] file [redirect exit [n]
export [-nf] [name[=value] ...] or false
fc [-e ename] [-nlr] [first] [last fg [job_spec]
for NAME [in WORDS ... ;] do COMMA for (( exp1; exp2; exp3 )); do COM
function NAME { COMMANDS ; } or NA getopts optstring name [arg]
hash [-lr] [-p pathname] [-dt] [na help [-s] [pattern ...]
history [-c] [-d offset] [n] or hi if COMMANDS; then COMMANDS; [ elif
jobs [-lnprs] [jobspec ...] or job kill [-s sigspec | -n signum | -si
let arg [arg ...]                local name[=value] ...
logout                            popd [+N | -N] [-n]
printf [-v var] format [arguments] pushd [dir | +N | -N] [-n]
pwd [-LP]                         read [-ers] [-u fd] [-t timeout] [
readonly [-af] [name[=value] ...] return [n]
select NAME [in WORDS ... ;] do CO set [--abefhkmnptuvxBCHP] [-o opti
shift [n]                          shopt [-pqsu] [-o long-option] opt
source filename [arguments]        suspend [-f]
test [expr]                        time [-p] PIPELINE
times                              trap [-lp] [arg signal_spec ...]
```

```
true                                type [-afptP] name [name ...]
typeset [-afFirtx] [-p] name[=valu ulimit [-SHacdfilmpqstuvx] [limit
umask [-p] [-S] [mode]              unalias [-a] name [name ...]
unset [-f] [-v] [name ...]          until COMMANDS; do COMMANDS; done variables
- Some variable names an wait [n]
while COMMANDS; do COMMANDS; done { COMMANDS ; }
```



## Setting the Interface MTU

Generally speaking, the MTU should be the same across the across the network for maximum transmission throughput. An MTU (maximum transmission unit) set too high can result in fragmented packets and packet loss.

If the network interface card and the network components such as switch allow or require a different MTU to reduce packet fragmenting, then you can test for packet fragmenting, and view and change the MTU on a FlexMaster server port as follows:

- [Testing for Packet Fragmenting](#)
- [Viewing the MTU for a Port](#)
- [Temporarily Changing the MTU](#)
- [Permanently Changing the MTU](#)

## Testing for Packet Fragmenting

The `ping -M do` (ping, don't fragment) command can be used to verify the largest packet (in bytes) that can be sent between any two network elements without fragmenting. Login as **root** and use the `ping -M do` command as follows:

```
# ping -M do -s (packet size) (IP address or URL)
```

For instance:

```
# ping -M do -s 1452 www.yahoo.com
PING ds-any-fp3-real.wa1.b.yahoo.com (72.30.38.140) 1452(1480) bytes of data.
1460 bytes from ir1.fp.vip.sp2.yahoo.com (72.30.38.140): icmp_seq=1 ttl=49
time=1064 ms
```

```
.
.
.
```

```
--- ds-any-fp3-real.wa1.b.yahoo.com ping statistics ---
```

```
8 packets transmitted, 7 received, 12% packet loss, time 7003ms
rtt min/avg/max/mdev = 761.501/970.399/1085.357/103.462 ms, pipe 2
```

- If you receive a “Frag needed and DF set” response, then your packet size is too large.
- If you receive no responses and a *100% packet loss*, then your packet size is too large, or the network is not passing packets.

---

**NOTE** The largest packet size that is found using the ping command is not the MTU. Normally, MTU = largest packet + TCP header + IP header = 1500. Refer to one of the many resources available to determine the actual MTU.

---

## Viewing the MTU for a Port

To view the current the MTU (in bytes) for a port, log in and enter:

```
# /sbin/ifconfig <Interface>
```

For instance:

```
# /sbin/ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:0C:29:AF:xx:xx
          inet addr:192.168.xx.xxx Bcast:192.168.25.255  Mask:255.255.254.0
          inet6 addr: 2222:3333:aaaa:3333:20c:29ff:xxxx:xxxx/64 Scope:Global
          inet6 addr: 2222:3333:aaaa:3333:250:56ff:xxxx:xxxx/64 Scope:Global
          inet6 addr: fe80::20c:29ff:feaf:xxxx/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2859375 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2547487 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1725584461 (1.6 GiB)  TX bytes:1999833286 (1.8 GiB)
```

## Temporarily Changing the MTU

To temporarily set the MTU for a port, log in as **root** and enter:

```
# /sbin/ifconfig <Interface> mtu <SIZE> up
```

For instance:

```
# /sbin/ifconfig eth1 mtu 1452 up
```

## Permanently Changing the MTU

To permanently set the MTU for the `eth1` port:

- 1 Log in as **root** and edit `/etc/sysconfig/network-scripts/ifcfg-eth1`:

```
# vi /etc/sysconfig/network-scripts/ifcfg-eth1
```

- 2 Add an MTU line with the new setting:

```
MTU=1452
```

- 3 Save and close the file.

- 4 Restart networking:

```
# service network restart eth1
```

```
--OR--
```

Reboot the FlexMaster server (required when changing the MTU back to the default = 1500):

```
# init
```

```
--OR--
```

```
# shutdown -r now
```

# Configuring Time Zones

The Earth is divided into time zones that are 15 degrees of longitude each, as this corresponds to the amount of angular distance the Sun appears to travel in one hour. 0 degrees longitude runs through the Royal Observatory in Greenwich, England. This is the origin of Greenwich Mean Time, or GMT. For all practical purposes, GMT and UTC are the same.

Some countries observe DST (day light saving) while others do not. Within some countries, some states or districts do not observe DST while the rest of the country does!

DST also begins and end on different days in different countries UNIX/LINUX has many commands to configure and edit these parameters;

If the FM server is managing ZDs on different NTP settings, this becomes an issue when trying to source various bits of information for the FM to display and log.

Continue with the following:

- [Displaying Time in Selected Time Zones](#)
- [Configuring the FM Time Zone Using NTP Tools](#)

## Displaying Time in Selected Time Zones

One way to verify the Linux container for the Time Setting is to use this command in the Commander.

```
# zdump - This utility prints the current time and date in the specified time zone.
```

Example:

```
# zdump United Kingdom  
United kingdom  Thur Mar 29 00:47:57 2012 BST  
# zdump Iceland  
Iceland Wed Mar 28 15:48:02 2012 GMT
```

## Configuring the FM Time Zone Using NTP Tools

If the FlexMaster server clock is not correctly synchronized, the FM application will not synchronize correctly to the ZD clock.

In this condition, the FlexMaster Server reports, client data logs and displays, and client use data displays, are lost due to this difference. This is because the data written back from the ZD is time skewed in comparison to the FM.

The Red-Hat Linux distribution has user-friendly programs to set the time zone, often accessible through the program menus or by right-clicking the clock in a desktop environment such as KDE or GNOME. Failing that, it is possible to manually change the system time zone in Linux in a few short steps:

## Finding an NTP Time Server

Network Time Protocol (NTP) allows computers, servers, and network devices to synchronize their internal clock systems to an external reference source. In some cases, the reference source can be an atomic clock or GPS receiver. This is useful for a number of reasons. If you would like to automatically keep the time on your Linux system synchronized to standard world times, then you have two built-in tools to do this: `ntpdate` and `ntpd` (NTP Daemon).

The `ntpdate` command allows you to view or set system time from one or more NTP servers. The first thing you need to do is find a time server you can query. Here are a few public time servers:

- [clock.redhat.com](http://clock.redhat.com)
- [clock2.redhat.com](http://clock2.redhat.com)
- [ns1.tuxfamily.org](http://ns1.tuxfamily.org)
- [time.nist.gov](http://time.nist.gov)

For example, if you only want to query an NTP server and make sure that you can reach it, use this command:

```
# ntpdate -q clock.redhat.com
```

## Configuring the Time Zone Using NTP

There are two methods to modify FlexMaster clock that are covered in the next sections:

- [Setting Up the NTP Clock](#)
- [Manually Configuring the Clock](#)
- [Configuring Local Instead of Universal Time](#)

### *Setting Up the NTP Clock*

The best option to keep FM synchronized at all times is to use the existing NTP daemon in the Linux OS. If both FM and ZD are synchronized to an NTP source, then clock synchronization should not be a problem.

- 1 Modify `/etc/ntp.conf` file so that it contains the correct NTP server IP address:

```
cd /etc/  
cp ntp.conf ntp.conf.bk  
vi ntp.conf
```

---Use the `vi` editor to add the line with NTP server as: `server 'NTP-server-IP-address'`

Save the file inside 'vi'.

This is a sample file after this modification:

```
# For more information about this file, see the man pages  
# ntp.conf(5), ntp_acc(5), ntp_auth(5), ntp_clock(5), ntp_misc(5),  
ntp_mon(5).  
  
driftfile /var/lib/ntp/drift  
  
# Permit time synchronization with our time source, but do not  
# permit the source to query or modify the service on this system.  
restrict default kod nomodify notrap nopeer noquery  
restrict -6 default kod nomodify notrap nopeer noquery  
  
# Permit all access over the loopback interface. This could  
# be tightened as well, but to do so would effect some of  
# the administrative functions.  
restrict 127.0.0.1  
restrict -6 ::1  
  
# Hosts on local network are less restricted.  
#restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap
```

```
# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
server 81.23.48.133
#server 0.rhel.pool.ntp.org
#server 1.rhel.pool.ntp.org
#server 2.rhel.pool.ntp.org

#broadcast 192.168.1.255 autokey          # broadcast server
#broadcastclient                          # broadcast client
#broadcast 224.0.1.1 autokey             # multicast server
#multicastclient 224.0.1.1               # multicast client
#manycastserver 239.255.254.254          # manycast server
#manycastclient 239.255.254.254 autokey  # manycast client

# Undisciplined Local Clock. This is a fake driver intended for backup
# and when no outside source of synchronized time is available.
#server      127.127.1.0          # local clock
#fudge       127.127.1.0 stratum 10

# Enable public key cryptography.
#crypto

includefile /etc/ntp/crypto/pw

# Key file containing the keys and key identifiers used when operating
# with symmetric key cryptography.
keys /etc/ntp/keys

# Specify the key identifiers which are trusted.
#trustedkey 4 8 42

# Specify the key identifier to use with the ntpdc utility.
#requestkey 8

# Specify the key identifier to use with the ntpq utility.
#controlkey 8

# Enable writing of statistics records.
#statistics clockstats cryptostats loopstats peerstats
```

- 2 Modify the `/etc/sysconfig/ntpd` file so that it has the correct option line:

```
cd /etc/sysconfig
cp ntpd ntpd.bk
vi ntpd
```

--Use the *vi* editor to change the options line: `OPTIONS="-u ntp -x -p /var/run/ntpd.pid"`

This is a sample file after this modification:

```
# Drop root to id 'ntp:ntp' by default.  
OPTIONS="-u ntp -x -p /var/run/ntpd.pid"
```

- 3 Force clock synchronization to the NTP server using the following command:

```
ntpdate 'NTP-server-IP-address'
```

- 4 Force hardware clock to synchronize to software using the following command:

```
hwclock --systohc
```

- 5 Start NTP daemon service using the following command:

```
service ntpd start
```

- 6 Now date can be verified:

```
date -R
```

- 7 Once the clock is correctly modified, the FlexMaster services need to be restarted executing:

```
cd /opt/FlexMaster/  
./restart.sh
```

### ***Manually Configuring the Clock***

If there is no NTP server available or reachable, then a manual clock setup is needed. To properly configure the clock in the FM server please follow these steps:

- 1 Verify current time settings using the following command:

```
date
```

- 2 Set correct date using the following command:

```
date -s DD/MM/YYYY
```

- 3 Set correct time using the following command:

```
date -s HH:MM:00
```

- 4 Force hardware clock to synchronize to software using the following command:

```
hwclock -w
```

- 5 Now the date can be verified:

```
date -R
```

- 6 Once the clock is correctly modified, the FlexMaster services need to be restarted:

```
cd /opt/FlexMaster/  
./restart.sh
```



## ***Configuring Local Instead of Universal Time***

Aside from clock setting, the FM server can be configured for local time instead of Universal Time. To configure that, execute the following command and select from the menu for the correct country:

**tzselect**

Here it is an example of execution for UK time zone:

```
[ruckus@nms ~]$ tzselect
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
 1) Africa
 2) Americas
 3) Antarctica
 4) Arctic Ocean
 5) Asia
 6) Atlantic Ocean
 7) Australia
 8) Europe
 9) Indian Ocean
10) Pacific Ocean
11) none - I want to specify the time zone using the Posix TZ format.
#? 8
Please select a country.
 1) Aaland Islands      18) Greece              35) Norway
 2) Albania             19) Guernsey            36) Poland
 3) Andorra             20) Hungary             37) Portugal
 4) Austria             21) Ireland            38) Romania
 5) Belarus             22) Isle of Man         39) Russia
 6) Belgium            23) Italy                40) San Marino
 7) Bosnia & Herzegovina 24) Jersey              41) Serbia
 8) Britain (UK)       25) Latvia              42) Slovakia
 9) Bulgaria           26) Liechtenstein      43) Slovenia
10) Croatia            27) Lithuania          44) Spain
11) Czech Republic    28) Luxembourg          45) Sweden
12) Denmark           29) Macedonia          46) Switzerland
13) Estonia           30) Malta               47) Turkey
14) Finland           31) Moldova            48) Ukraine
15) France            32) Monaco             49) Vatican City
16) Germany           33) Montenegro
17) Gibraltar         34) Netherlands

#? 8
```

The following information has been given:

Britain (UK)

Therefore TZ='Europe/London' will be used.

Local time is now: Mon Sep 24 14:53:47 BST 2012.

Universal Time is now: Mon Sep 24 13:53:47 UTC 2012.

Is the above information OK?

1) Yes

2) No

#? **1**

In this chapter:

- [Backing Up FlexMaster](#)
- [Starting FlexMaster](#)
- [Restarting FlexMaster](#)
- [Shutting Down FlexMaster](#)
- [Uninstalling FlexMaster](#)
- [Installing FlexMaster](#)
- [Upgrading FlexMaster Software](#)
- [Restoring a FlexMaster Backup](#)

## Backing Up FlexMaster

Make sure you back up the FlexMaster database periodically and before uninstalling FlexMaster. The backup file is written to `/opt/FlexMaster/backup/YYYY-MM-DD_HHhMMm.tgz`.

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Back up the FlexMaster database:

```
# ./backup.sh
Linux version [x86_64]
backup_pid= 3839
Shutdown FlexMaster for the database backup process...
shutdown_pid= 3854
Shutting down Tomcat server...
...
Going to kill FlexMaster process.
Done.
Going to kill FlexMaster process.
killing HttpShellProxy process pid= 3336
Done.
Going to kill Snmpagent process.
killing Snmpagent process pid= 3391
Done.
```

```

...
Backup database...
...
data/itms/connectivity_graph_data.frm
...
Backup process was done, restarting FlexMaster...
# pwd
/opt/FlexMaster/backup
# ll
-rw-r--r--. 1 root root 255539200 Sep 18 23:34 2012-09-18_23h34m.tgz

```

## Starting FlexMaster

Start FlexMaster as follows.

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Shut down FlexMaster:

```
# ./startup.sh
```

## Restarting FlexMaster

Restart FlexMaster as follows.

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Shut down FlexMaster:

```
# ./restart.sh
```

## Shutting Down FlexMaster

Shut down FlexMaster as follows.

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Shut down FlexMaster:

```
# ./shutdown.sh
```

# Uninstalling FlexMaster

Make sure you back up the FlexMaster database before uninstalling FlexMaster as described in [Backing Up FlexMaster](#).

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Uninstall FlexMaster:

```
# ./uninstall.sh
shutdown_pid= 2445
Shutting down Tomcat server...
...
Going to kill FlexMaster process.
Done.
Going to kill FlexMaster process.
killing HttpShellProxy process pid= 1376
Done.
Going to kill Snmpagent process.
killing Snmpagent process pid= 1400
Done.
...
Uninstalling JRE...
Uninstalling Tomcat...
Uninstalling MySQL...
```

## Installing FlexMaster

FlexMaster installation requires a number of steps which must be completed in the correct order. Refer to the *FlexMaster User Guide* for complete installation instructions.

## Upgrading FlexMaster Software

Update files typically use *{version number}.patch.tar* for their file naming convention (for example, *9.5.0.0.11.patch.tar*).

---

**NOTE** Although the software update process has been designed to preserve all FlexMaster configuration settings, Ruckus Wireless strongly recommends that you back up the FlexMaster database, in case the update process fails for any reason. For information on how to back up the FlexMaster database, refer to [Backing Up](#)

## FlexMaster.

- 1 Log in to the host server as **root**.
- 2 Insert the FlexMaster upgrade CD into the CD-ROM drive.
- 3 If the FlexMaster server does not automatically mount the FlexMaster CD-ROM, then continue with Step 4. If the server automatically mounts the CD-ROM, then continue with Step 6.
- 4 Type the following command to create a mount point (or directory where you want to mount the CD-ROM):

```
# mkdir -p /mnt/cdrom
```

- 5 Type the following command to mount the CD-ROM manually to the created mount point:

```
# mount /dev/cdrom /mnt/cdrom
```

- 6 Upload the patch file (for example, 9.5.0.0.11.patch.tar) to the FlexMaster server.

- 7 Copy the patch file to the FlexMaster folder /opt/FlexMaster/:

```
# cp 9.5.0.0.11.patch.tar /opt/FlexMaster/
```

- 8 Untar the patch file with following command:

```
# tar -vxf 9.5.0.0.11.patch.tar
```

- 9 Make sure that the {version number}.patch file has been extracted from the tar file:

```
# ls 9.5.*.patch
```

```
9.5.0.0.11.patch
```

- 10 Upgrade FlexMaster with following command:

```
# ./upgrade.sh 9.5.0.0.11
```

```
Shutdown webserver...
```

```
Backup database...
```

```
Update...
```

```
Restart FlexMaster...
```

```
FLEXMASTER PATCH UPGRADE SUCCESSFUL.
```

---

**NOTE** After completing the software update, Ruckus Wireless recommends backing up the FlexMaster database so that you have a backup of the updated database schema. For instructions on how to back up the FlexMaster database, refer to [Backing Up FlexMaster](#).

---

# Restoring a FlexMaster Backup

Make sure you restore the FlexMaster database after re-installing FlexMaster. The backup file is restored from `/opt/FlexMaster/backup/YYYY-MM-DD_HHhMMm.tgz`.

- 1 If not already done, navigate to the FlexMaster directory:

```
# cd /opt/FlexMaster
```

- 2 Back up the FlexMaster database:

```
# ./restore.sh
```

```
Please enter the path of your backup file
```

```
Backup file path: /opt/FlexMaster/backup/2012-09-18_23h34m.tgz
```

```
Validating backup file...
```

```
...
```

```
Restoring database...
```

```
...
```

```
Restore process was done, restarting FlexMaster...
```

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350 West Java Dr. Sunnyvale, CA 94089. USA  
[www.ruckuswireless.com](http://www.ruckuswireless.com)