Ruckus Wireless™ FlexMaster™ 9.6 Command Line Interface

Reference Guide

Part Number 800-70431-001 Rev A
April 2013

www.ruckuswireless.com

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About This Guide

This *Ruckus Wireless FlexMaster Command Line Interface 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.

NOTE: If a release note is shipped with FlexMaster your Ruckus Wireless product and the information there differs from the information in this guide, follow the instructions in the release note.

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 http://support.ruckuswireless.com

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]>`
`monospace bold`	Represents information that you enter	`[Device name]>` **`set ipaddr 10.0.0.12`**
default font bold	Keyboard keys, software buttons, and field names	On the **Start** menu, click **All Programs**.
italics	Screen or page names	Click **Advanced Settings**. The *Advanced Settings* page appears.

Table 2. Notice Conventions

Icon	Notice Type	Description
	Information	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

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When contacting us, please include the following information:

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

For example:

- *FlexMaster 9.6 Command Line Interface Reference Guide*
- Part number: 800-70431-001 Rev A
- Page 11

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1

About the FlexMaster Command Line Interface

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Introduction

Ruckus Wireless FlexMaster use 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.

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`.

See the following section depending on your connection method:

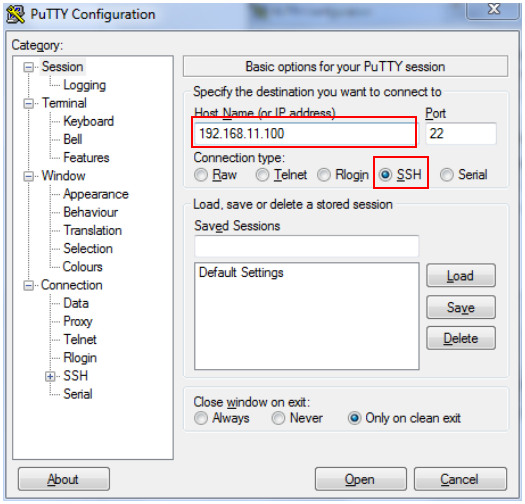
- Using SSH
- Using a Serial Connection

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

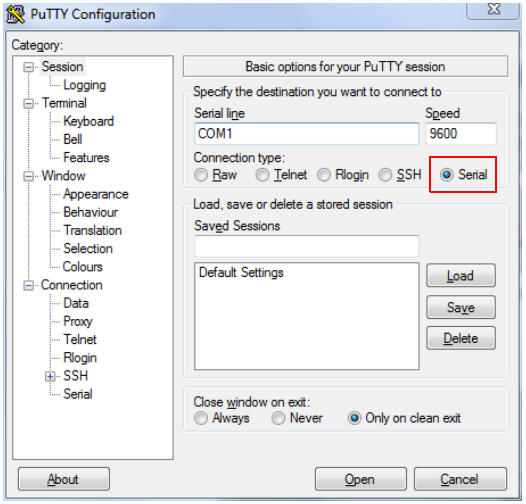


3. Enter the FlexMaster IP address in the **Host Name (or IP address)** field.
4. Click **Open**. The PuTTY console appears and displays the login prompt.
5. Continue with "Step 3: Log Into the CLI".

Using a Serial Connection

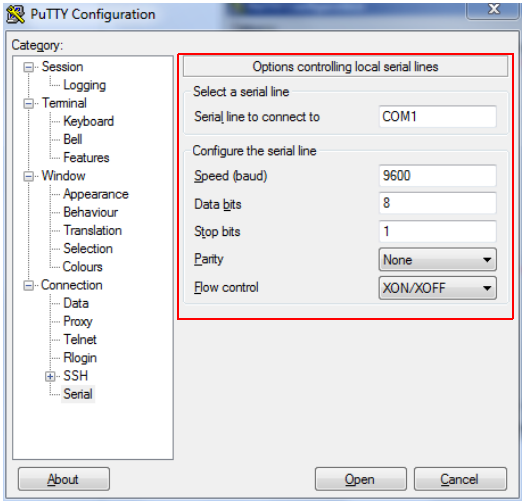
1. Start PuTTY. The PuTTY Configuration dialog box appears, showing the *Session* screen.
2. In *Connection type*, select **Serial** if you are connecting via serial cable.

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

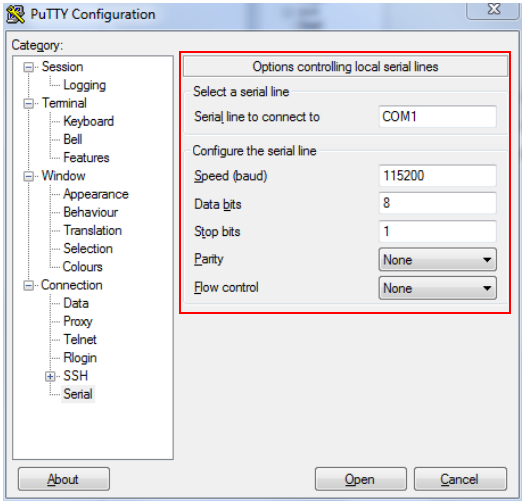


4. Configure the serial connection settings as follows:

- *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

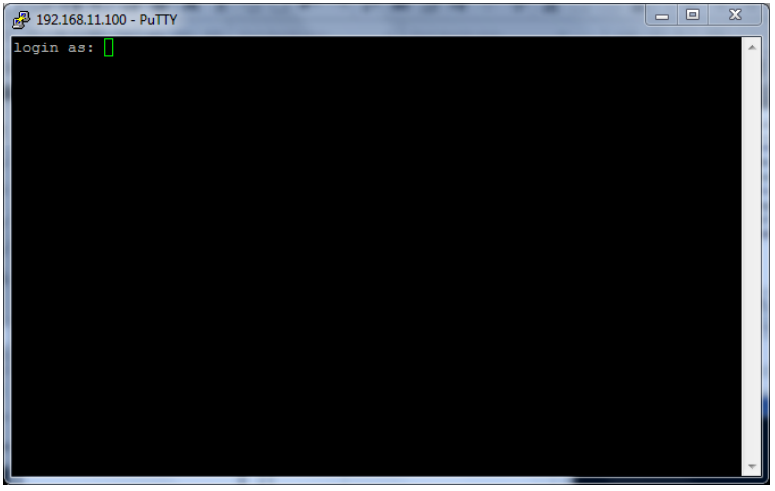
- *Stop bits*: 1
- *Parity*: None
- *Flow control*: None

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's 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 [-abcdefgjksuv] [-o option
 complete [-abcdefgjksuv] [-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 [redirec 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 [-SHacdfilmnpqstuvx] [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 ; }
```

Other Linux Commands

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

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

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

Add an MTU line with the new setting:

```
MTU=1452
```

Save and close the file.

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
```

Viewing FlexMaster Shell Commands

The FlexMaster shell commands are in `/opt/FlexMaster`:

```
# pwd
/opt/FlexMaster
# ll *.sh
-rwxr-xr-x 1 root root 2704 Sep 18 18:03 backup.sh
-rwxr-xr-x 1 root root  544 Sep 18 18:03 fm_db_rep.sh
-rwxr-xr-x 1 root root 3592 Sep 18 18:03 restart.sh
-rwxr-xr-x 1 root root 3291 Sep 18 18:03 restore.sh
-rwxr-xr-x 1 root root 5802 Sep 18 18:03 shutdown.sh
-rwxr-xr-x 1 root root 8453 Sep 18 18:03 startup.sh
-rwxr-xr-x 1 root root 3925 Sep 18 18:03 uninstall.sh
-rwxr-xr-x 1 root root 3260 Aug 10 15:17 upgrade.sh
```

2

Using FlexMaster Shell Commands

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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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