



# Cisco RF Switch Firmware Command Reference Guide

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April 29, 2008

Cisco RF Switch Firmware Version 3.92

OL-15733-02

This document describes the cable-specific RF Switch Firmware and supporting command-line interface (CLI) through Version 3.92, to be used with Cisco IOS Release 12.3(21)BC and later releases, in the Cisco RF Switch. This document supports commands and features (existing) in previous versions of Cisco RF Switch Firmware, subject to the restrictions and support for the N+1 Redundancy feature in Cisco IOS Release 12.3 BC.

For a list of the software enhancements or caveats that apply to Cisco RF Switch Firmware Version 3.92 or earlier, see the following document located on Cisco.com:

- *Release Notes for Cisco RF Switch Firmware, Version 3.92*

<http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/release/notes/rfswrn36.html>

For a list of general software configuration and operation procedures that are used for Cisco RF Switch Firmware Version 3.92 or earlier, see the following document located on Cisco.com:

- *Cisco RF Switch Firmware Configuration Guide, Version 3.92*

<http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/configuration/guide/rfswcf36.html>

For detailed configuration and operation procedures that apply to HCCP N+1 Redundancy on the Cisco CMTS, see the following document located on Cisco.com:

- *N+1 Redundancy for the Cisco CMTS*

<http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html>

For a list of the software enhancements or caveats that apply to Cisco IOS Release 12.3 BC, see the following document located on Cisco.com:

- *Release Notes for Cisco IOS Software Release 12.3 BC*

[http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod_release_notes_list.html)



**Note**

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You can find the most current Cisco IOS documentation on Cisco.com. This set of electronic documents may contain updates and modifications made after this document was initially published.

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## Contents

This document describes Cisco RF Switch Firmware commands through Version 3.90. Detailed command explanations follow through the remainder of this document.

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## Prerequisites for Firmware Version 3.92

This section describes prerequisites that apply specifically to Firmware Version 3.92 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- The Cisco RF Switch must be cabled and installed in full compliance with the documents listed in the [“Additional References” section on page 110](#).

## Restrictions for Firmware Version 3.92

This section describes restrictions that apply specifically to Firmware Version 3.92 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- Cisco recommends upgrading to Firmware Version 3.92, even with earlier Cisco IOS releases subject to N+1 Prerequisites and Restrictions such as feature interoperability, factory default configurations, etc.

Refer to the following document located on Cisco.com for further information on Firmware Version 3.92:

*Release Notes for Cisco IOS Software Release 12.3 BC*

[http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod_release_notes_list.html)

- Version 3.92 allocates new nvram location to support long passwords (up to 32 characters) and SNMP community string (up to 64 characters).
- In Version 3.92, on first reboot after migration from previous version, the new password and community string areas are installed and old settings (if any) are copied to new location.
- **If the user downgrades from 3.92 to a previous version, some of the configuration parameters in the newer versions are not recognized by the older software which causes the some of the config elements to be reset to default values.**
- **If user downgrades from Version 3.92 to Version 3.80, the new nvram location for password and community string is not recognized, and the password is removed and community string is set to private.**
- **If the user downgrades from Version 3.92 to Version 3.60 or earlier, the password is removed and community string is set to private, and the ip address, default gateway and tftp address are reset to default values.**

**Note**

Version 3.92 is case-sensitive and stores passwords and SNMP community strings as they are entered on the CLI. In previous versions the case-sensitivity was not preserved and passwords and community strings were converted internally — passwords were stored in all uppercase and community strings in all lowercase. The parser allowed the user to type in any case as long as the letters matched.

**When the user upgrades to Version 3.92, the mixed case passwords and SNMP community strings from previous versions are stored as lower case characters. After the upgrade, the user should verify the password and community string and set them as desired.**

## Prerequisites for Firmware Version 3.90

This section describes prerequisites that apply specifically to Firmware Version 3.90 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- The Cisco RF Switch must be cabled and installed in full compliance with the documents listed in the [“Additional References” section on page 110](#).

## Restrictions for Firmware Version 3.90

This section describes restrictions that apply specifically to Firmware Version 3.90 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- Cisco recommends upgrading to Firmware Version 3.90, even with earlier Cisco IOS releases subject to N+1 Prerequisites and Restrictions such as feature interoperability, factory default configurations, etc.

Refer to the following document located on Cisco.com for further information on Firmware Version 3.90:

*Release Notes for Cisco IOS Software Release 12.3 BC*

[http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod_release_notes_list.html)

## Prerequisites for Firmware Version 3.80

This section describes prerequisites that apply specifically to Firmware Version 3.80 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- The Cisco RF Switch must be cabled and installed in full compliance with the documents listed in the “[Additional References](#)” section on page 110.
- The password on the RF Switch should be removed before upgrading the RF Switch to Version 3.80. The password can be set on the RF Switch when the upgrade to Version 3.80 is complete.

## Restrictions for Firmware Version 3.80

This section describes prerequisites that apply specifically to Firmware Version 3.80 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

Cisco recommends upgrading to Firmware Version 3.80, even with earlier Cisco IOS releases subject to N+1 Prerequisites and Restrictions such as feature interoperability, factory default configurations, etc.

For further information on Firmware Version 3.80, refer to the *Release Notes for Cisco IOS Software Release 12.3 BC* on Cisco.com:

[http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5187/prod_release_notes_list.html)

## Prerequisites for Firmware Version 3.60

This section describes prerequisites that apply specifically to Firmware Version 3.60 on the Cisco RF Switch, used in conjunction with the Cisco IOS N+1 Redundancy feature on the Cisco CMTS.

- The Cisco RF Switch must be cabled and installed in full compliance with the documents listed in the “[Additional References](#)” section on page 110.
- Cisco recommends that the RF Switch Firmware be upgraded to Version 3.60 from previous Firmware versions, particularly for operation of the Cisco uBR10012 router with Cisco IOS Release 12.3(21)BC in N+1 Redundancy. Refer to general field notices, and the following documents for additional information:
  - *Field Notice: FN - 62695 - Cisco RF Switch Firmware Version 3.60 - Mandatory Upgrade*, Document ID: 82266  
[http://www.cisco.com/en/US/products/hw/cable/ps2209/prod\\_field\\_notices\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_field_notices_list.html)
  - *Release Notes for Cisco uBR10012 Universal Broadband Router for Cisco IOS Release 12.3 BC*  
[http://www.cisco.com/en/US/docs/cable/cmts/ubr10012/release/notes/12\\_3bc/ubr10k\\_123bc\\_rn.html](http://www.cisco.com/en/US/docs/cable/cmts/ubr10012/release/notes/12_3bc/ubr10k_123bc_rn.html)

## Restrictions for Firmware Version 3.60

- The Cisco uBR7246VXR router only supports N+1 Redundancy using Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS releases. Firmware Version 3.60 supports N+1 Redundancy in these earlier releases.
- Cisco recommends upgrading to Firmware Version 3.60, even with earlier Cisco IOS releases, subject to N+1 Prerequisites and Restrictions in the Cisco IOS release, such as feature interoperability, factory default configurations, and so forth.
- Refer to the following Firmware Upgrade Field Notice for additional information:
  - *Field Notice: FN - 62695 - Cisco RF Switch Firmware Version 3.60 - Mandatory Upgrade*, Document ID: 82266  
[http://www.cisco.com/en/US/products/hw/cable/ps2209/prod\\_field\\_notices\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_field_notices_list.html)

## Cisco RF Switch Firmware Command Matrix

Table 1 below summarizes Cisco RF Switch Firmware commands through Version 3.92. These commands are subject to the prerequisites and restrictions cited in this document.

**Table 1** Cisco RF Switch Firmware Commands

| Command                                 | NRU Image (CLI Prompt)           | Level  | Initial Availability <sup>1</sup> | Description   |
|---|----------------------------------|--------|-----------------------------------|---|
| <a href="#">allow erase</a>             | NruApp and SysLoader (rfswitch>) | System | 3.90                              | Enables use of the <b>erase</b> commands (one instance only). Command available in SysLoader with <code>rfswitch&gt;</code> prompt commencing in Version 3.60.  |
| <a href="#">configure card count</a>    | NruApp (rfswitch>)               | System | 2.50 (EOL)                        | Sets the number of installed cable interface line cards or broadband processing engines (BPEs). This command replaced by the <a href="#">set slot config</a> command for Cisco RF Switch Firmware Version 3.30 and later. |
| <a href="#">config default mac addr</a> | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Sets the default MAC hardware address as set during manufacturing. For run time changes, use <b>set mac addr</b> . Command available in SysLoader with <code>rfswitch&gt;</code> prompt commencing in Version 3.60.       |
| <a href="#">config lcc</a>              | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Sets Line Card Controller configuration. To restore the defaults, use <b>config lcc default</b> . Command available in SysLoader with <code>rfswitch&gt;</code> prompt commencing in Version 3.60.                        |
| <a href="#">config module serialno</a>  | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Sets module serial number on the Cisco RF Switch. Command available in SysLoader with <code>rfswitch&gt;</code> prompt commencing in Version 3.60.  |
| <a href="#">config protection reset</a> | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Enables or disables the resetting of all Cisco RF switches to the IDLE state. Command available in SysLoader with <code>rfswitch&gt;</code> prompt commencing in Version 3.60.  |

Table 1 Cisco RF Switch Firmware Commands

| Command                      | NRU Image (CLI Prompt)  | Level  | Initial Availability <sup>1</sup> | Description  |
|------------------------------|---|--------|-----------------------------------|--|
| <b>config wdog timeout</b>   | NruApp and SysLoader (rfswitch>)                                      | System | 2.50                              | Sets the Watchdog (RTOS-based) timeout in seconds. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>copy tftp</b>             | NruApp (rfswitch>)<br>or<br>SysLoader (Sys>)<br>SysLoader (rfswitch>) | User   | 2.50                              | Transfers the Cisco RF Switch Firmware images from a remote TFTP host. This command applies to both NruApp/Flash and SysLoader/Bootflash images. Firmware Version 3.60 adds the <b>noverify</b> option to the <b>copy</b> command, enabling you to override the file type verification, and place a file in either the flash (FL:) or bootflash (BF:) device. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |
| <b>disable</b>               | NruApp and SysLoader (rfswitch>)                                      | EXEC   | 3.80                              | Enables to exit privileged EXEC mode and return to the user EXEC mode. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>enable</b>                | NruApp and SysLoader (rfswitch>)                                      | EXEC   | 3.80                              | Enables to enter privileged EXEC mode. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>enable erase</b>          | NruApp and SysLoader (rfswitch>)                                      | System | 2.50                              | Enables use of the <b>erase</b> commands (one instance only). Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. This command replaced by the <b>allow erase</b> command for Cisco RF Switch Firmware Version 3.90.  |
| <b>erase</b>                 | NruApp and SysLoader (rfswitch>)                                      | System | 2.50                              | Erases (either partially or entirely) the contents of the Cisco RF Switch non-volatile memory (nvmem). Alternatively, erases the contents of either the Flash image (NruApp) or the Bootflash image (SysLoader) on the Cisco RF Switch, as specified. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>enable password</b>       | NruApp and SysLoader (rfswitch>)                                      | User   | 3.80                              | Sets a password to restrict Telnet client access to the RF Switch CLI. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>generate switch fault</b> | NruApp and SysLoader (rfswitch>)                                      | System | 2.50                              | Causes the specified line card with corresponding RFSwitch Module to generate a switchover fault. Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>generate trap</b>         | NruApp and SysLoader (rfswitch>)                                      | System | 2.50                              | Sends a SNMPv1 trap to the specified trap host(s). Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |

Table 1 Cisco RF Switch Firmware Commands

| Command                      | NRU Image (CLI Prompt)               | Level  | Initial Availability <sup>1</sup> | Description   |
|------------------------------|--------------------------------------|--------|-----------------------------------|---|
| <b>generate wdog fault</b>   | NruApp and SysLoader (rfswitch>)     | System | 2.50                              | Generates an immediate Watchdog hardware fault and reboots the system.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>generate wdog timeout</b> | NruApp and SysLoader (rfswitch>)     | System | 2.50                              | Generates an infinite loop in the command parser/execution unit, which simulates a lost program.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.                |
| <b>help or ?</b>             | NruApp and SysLoader (rfswitch>)     | User   | 2.50                              | Displays RF Switch command-line help, including available commands and command syntax options.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.                  |
| <b>module getcap</b>         | NruApp and SysLoader (rfswitch>)     | System | 2.50                              | Displays enumeration information for Cisco RF Switch modules 1-14.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>module getid</b>          | NruApp and SysLoader (rfswitch>)     | System | 2.50                              | Displays the line card device information for RF Switch modules 1-14.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>password system</b>       | NruApp and SysLoader (rfswitch>)     | User   | 2.50                              | Enters the default system-level password on the Cisco RF Switch. This enables the use of system-level commands.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |
| <b>ping</b>                  | NruApp and SysLoader (rfswitch>)     | User   | 2.50                              | Sends ICMP ECHO packets to a specified IP address.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>reboot</b>                | NruApp and SysLoader (rfswitch>)     | User   | 2.50                              | Stops the Cisco RF Switch and performs a cold restart. Identical to the <b>reload</b> command.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.                  |
| <b>reload</b>                | NruApp and SysLoader (rfswitch>)     | User   | 2.50                              | Stops the Cisco RF Switch and performs a cold restart. Identical to the <b>reboot</b> command.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.                  |
| <b>run</b>                   | RomMon (rommon>) or SysLoader (Sys>) | System | 2.50                              | Runs either the RomMon or SysLoader image.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>save config</b>           | NruApp and SysLoader (rfswitch>)     | System | 2.50                              | Saves the configuration parameters on the Cisco RF Switch to non-volatile memory (nvram).<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.                       |

Table 1 Cisco RF Switch Firmware Commands

| Command                                | NRU Image (CLI Prompt)           | Level  | Initial Availability <sup>1</sup> | Description  |
|--|----------------------------------|--------|-----------------------------------|--|
| <a href="#">set access system</a>      | NruApp and SysLoader (rfswitch>) | User   | 3.80                              | Allows to access commands previously available only via backdoor password. However, it does not override any current password protection.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set arp timeout</a>        | NruApp and SysLoader (rfswitch>) | User   | 3.50                              | Allows you to change the Address Resolution Protocol (ARP) cache implementation in an effort to reduce the number of ARP requests.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set dhcp lease</a>         | NruApp and SysLoader (rfswitch>) | User   | 3.30                              | Sets the lease time that the DHCP client requests from the server, if DHCP operation is enabled.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set ip address</a>         | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the IP address and subnet mask for the Switch's Ethernet interface.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set ip default-gateway</a> | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Sets the IP address of the default gateway for the Cisco RF Switch.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set log</a>                | NruApp and SysLoader (rfswitch>) | System | 2.50                              | Sets history log filter level.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set mac address</a>        | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the Ethernet MAC hardware address.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set password</a>           | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets a password to restrict Telnet client access to the RF Switch CLI.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.<br><br>This command replaced by the <a href="#">enable password</a> command for Cisco RF Switch Firmware Version 3.90.                          |
| <a href="#">set protection</a>         | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the line card protection scheme for use with the Cisco RF Switch in N+1 Redundancy.   |
| <a href="#">set slot config</a>        | NruApp and SysLoader (rfswitch>) | User   | 3.30                              | Sets the slots in the Cisco RF Switch chassis for use with line cards in the router chassis.<br><br><b>Note</b> Replaces the <a href="#">configure card count</a> command featured in RF Switch Firmware Version 2.50.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |

Table 1 Cisco RF Switch Firmware Commands

| Command                                | NRU Image (CLI Prompt)           | Level  | Initial Availability <sup>1</sup> | Description   |
|--|----------------------------------|--------|-----------------------------------|---|
| <a href="#">set snmp community</a>     | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Specifies the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch. This command enables you to gain read and write access to the Cisco RF Switch.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |
| <a href="#">set snmp cache</a>         | NruApp and SysLoader (rfswitch>) | System | 3.80                              | Sets default state for caching SNMP requests. SNMP Cache enabled by default.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set snmp host</a>          | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the IP addresses for one or more SNMP trap hosts.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set snmp traps</a>         | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Enables SNMP reporting for all modules on the Cisco RF Switch.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <a href="#">set snmp trap interval</a> | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the time interval for the SNMP crash trap.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set switchover-group</a>   | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Specifies a new or existing switchover group name (to which a module on the Cisco RF Switch is assigned).<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set telnet echo</a>        | NruApp and SysLoader (rfswitch>) | System | 3.80                              | Sets default TELNET echo state. TELNET echo mode is enabled by default.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set telnet timeout</a>     | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the inactivity timeout period for the Telnet client connection to the Cisco RF Switch.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">set tftp-host</a>          | NruApp and SysLoader (rfswitch>) | User   | 2.50                              | Sets the host address for TFTP transfers.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <a href="#">show arp</a>               | NruApp and SysLoader (rfswitch>) | User   | 3.50                              | Displays the contents of the Address Resolution Protocol (ARP) cache on the Cisco RF Switch, and additional ARP configurations.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |

Table 1 Cisco RF Switch Firmware Commands

| Command                   | NRU Image (CLI Prompt)              | Level  | Initial Availability <sup>1</sup> | Description  |
|---------------------------|-------------------------------------|--------|-----------------------------------|--|
| <b>show config</b>        | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays the running system configuration information for the Cisco RF Switch.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show dhcp</b>          | NruApp and SysLoader<br>(rfswitch>) | User   | 3.30                              | Displays the values received from the DHCP server, as well as the status of the lease time.  |
| <b>show file</b>          | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays the status of both Flash (NruApp) and Bootflash (SysLoader) images.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show ip</b>            | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays IP configuration information for the Cisco RF Switch. The <b>count</b> keyword is supported starting in Version 3.30.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |
| <b>show ip count</b>      | NruApp and SysLoader<br>(rfswitch>) | System | 2.50                              | Shows interface statistics.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>show lcc config</b>    | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays various configuration settings of the Line Card Controller (LCC), which is used to communicate with the line cards.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show log</b>           | NruApp and SysLoader<br>(rfswitch>) | System | 3.80                              | Shows execution history log.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show module</b>        | NruApp and SysLoader<br>(rfswitch>) | System | 2.50                              | Shows current status of modules.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show rtos status</b>   | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays real-time operating system (RTOS) information.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |
| <b>show slot config</b>   | NruApp and SysLoader<br>(rfswitch>) | User   | 3.30                              | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>show switch status</b> | NruApp and SysLoader<br>(rfswitch>) | User   | 2.50                              | Displays status of the specified module on the Cisco RF Switch.<br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.  |

Table 1 Cisco RF Switch Firmware Commands

| Command             | NRU Image (CLI Prompt)           | Level | Initial Availability <sup>1</sup> | Description   |
|---------------------|----------------------------------|-------|-----------------------------------|---|
| <b>show version</b> | NruApp and SysLoader (rfswitch>) | User  | 2.50                              | Displays the slot population and status of modules in the RF Switch chassis, in addition to Firmware image information.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60. |
| <b>switch</b>       | NruApp and SysLoader (rfswitch>) | User  | 3.30                              | Performs N+1 switchover testing with the specified Cisco RF Switch module(s).<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |
| <b>test module</b>  | NruApp and SysLoader (rfswitch>) | User  | 2.50                              | Performs switching test on all module relays.<br><br>Command available in SysLoader with rfswitch> prompt commencing in Version 3.60.   |

1. Command support begins with the Version cited in this column, and is continued through later versions, unless cited as end-of-life (EOL).

# Cisco RF Switch Firmware Commands

This section describes detailed command syntax and usage information for commands supported in Cisco RF Switch Firmware, Versions 3.92 and prior.

**Note**

One or more Cisco RF Switch Firmware commands that were introduced in prior Firmware versions may be discontinued and not supported in Cisco RF Switch Firmware Version 3.92. Refer to the Firmware Command-line Interface (CLI) for additional information. See the [“help or ?” section on page 42](#) and [Table 1](#).

- [allow erase](#)
- [configure card count](#)
- [config default mac addr](#)
- [config lcc](#)
- [config module serialno](#)
- [config protection reset](#)
- [config wdog timeout](#)
- [copy tftp](#)
- [disable](#)
- [enable](#)
- [enable erase](#)
- [enable password](#)
- [erase](#)
- [generate switch fault](#)
- [generate trap](#)
- [generate wdog fault](#)
- [generate wdog timeout](#)
- [help or ?](#)
- [module getcap](#)
- [module getid](#)
- [password system](#)
- [ping](#)
- [reboot](#)
- [reload](#)
- [run](#)
- [save config](#)
- [set access system](#)
- [set arp timeout](#)
- [set dhcp lease](#)

- **set ip address**
- **set ip default-gateway**
- **set log**
- **set password**
- **set mac address**
- **set protection**
- **set slot config**
- **set snmp cache**
- **set snmp community**
- **set snmp host**
- **set snmp traps**
- **set snmp trap interval**
- **set switchover-group**
- **set telnet echo**
- **set telnet timeout**
- **set tftp-host**
- **show arp**
- **show config**
- **show dhcp**
- **show file**
- **show ip**
- **show ip count**
- **show lcc config**
- **show log**
- **show module**
- **show rtos status**
- **show slot config**
- **show switch status**
- **show version**
- **switch**
- **test module**

# allow erase

To enable the use of the separate **erase** commands for a single execution, use the **allow erase** command in System mode. This command helps to prevent accidental image erasure.

## allow erase



### Note

The **allow erase** command replaces the earlier **enable erase** command effective with Firmware Version 3.90.

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

Erase commands are disabled by default and are disabled again after each instance of use.

### Command Modes

System

### Command History

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

### Usage Guidelines

The **allow erase** command must be used prior to each erase command.



### Note

This is a system-level command. You may need to type the **set access system** command prior to using the **allow erase** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command      | Description   |
|--------------|---|
| <b>erase</b> | Removes the contents of the Cisco RF Switch non-volatile memory (nvmem). Alternatively, removes the contents of either Flash: (NruApp) or Bootflash: (SysLoader). |

# configure card count

To define the number of upstream and downstream channels and modules in the Cisco RF Switch chassis, use the **configure card count** command in System mode.

```
configure card count { n | maxcards }
```



## Note

The **set slot config** command replaces the **configure card count** command beginning with Cisco RF Switch Firmware Version 3.30.

## Syntax Description

|                 |  |
|-----------------|--|
| <i>n</i>        | The number of downstream and upstream modules to be configured for use with the Cisco RF Switch.   |
| <i>maxcards</i> | Sets the maximum number of downstream and upstream modules installed in the associated Cisco router: <ul style="list-style-type: none"> <li><b>13</b> — the number of modules for the Cisco 3x10 RF Switch with the Cisco uBR10012 router</li> </ul> |

## Defaults

The default configuration is 13 slots defined for the chassis card count in the 3x10 scheme.

## Command Modes

System

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | Support continues from previous versions of Cisco RF Switch Firmware.  |
| Version 3.30 | Command not supported. The <b>set slot config</b> command replaces the <b>configure card count</b> command beginning with Cisco RF Switch Firmware Version 3.30. |
| Version 3.50 | Command not supported.   |
| Version 3.60 | Command not supported.   |
| Version 3.80 | Command supported.   |
| Version 3.90 | Command supported.   |
| Version 3.92 | Command supported.   |

## Usage Guidelines

This command can be used to enable Slot 14, which is normally unused in the Cisco RF Switch. If Slot 14 is used, then there are up to 28 virtual modules in the Cisco 3x10 RF Switch when configured for 4+1 Redundancy mode.



## Note

This is a system-level command. You may need to type the **set access system** command prior to using the **configure card count** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)   | Supported Cable Interface Line Card(s)   |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |



**Tip**

If you are using upstream (US) dense-mode combining on the Cisco universal broadband router, you can make this configuration at the CMTS interface and save some US ports on the Cisco RF Switch. Cisco supports a 3x10 downstream-to-upstream configuration. You may also be required to configure the Cisco RF Switch in the 4+1 mode if using the Cisco uBR7246VXR router chassis in Cisco IOS Release 12.3(9a)BC.

Refer to these documents for additional command usage information:

- *N+1 Tips and Configuration for the Cisco uBR10012 Router with Cisco MC28C Cards*  
[http://www.cisco.com/en/US/products/hw/cable/ps2209/prod\\_tech\\_notes\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_tech_notes_list.html)
- *N+1 Redundancy on the Cisco Cable Modem Termination System*  
<http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html>

**Examples**

The following example configures the RF Switch module for the maximum number of cable interface line cards (14):

```
rfswitch> configure card count maxcards
```

The following **show config** command example illustrates the configuration of a Cisco RF Switch with maximum line cards configured (14) in 4+1 Redundancy mode:

```
rfswitch> show config

IP addr: 192.168.3.2
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-B3

Gateway IP: none
TFTP host IP: 192.168.3.171
DHCP lease time: infinite
TELNET inactivity timeout: 60 secs
Password: (none)

SNMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: none

Card Protect Mode: 4+1
Protect Mode Reset: Disabled
Slot Config: 0x0fff 0x3000 (14 cards)
Watchdog Timeout: 20 sec(s)

Group definitions: 10
  ALL      0xffffffff
  GRP1     0x80100000
  GRP2     0x801c0000
  GRP3     0x803c0000
  GR4      0x44440400
  GR5      0x11110100
  GR6      0x00005040
  GR7      0x00000a00
  GR8      0x88880800
  GRP9     0x22220200
```

**Related Commands**

| Command                     | Description   |
|-----------------------------|---|
| <a href="#">show config</a> | Lists Cisco RF Switch configuration file contents and status, including the number of downstream and upstream modules configured. |

# config default mac addr

To set the default MAC address, use the **config default mac addr** command in System mode.

**config default mac addr** *mac-address*

|                           |                    |  |
|---------------------------|--------------------|--|
| <b>Syntax Description</b> | <i>mac-address</i> | The desired hardware MAC address. You may specify the MAC address as words in H.H.H format, or as octet bytes in H.H.H.H.H.H format. |
|---------------------------|--------------------|--|

|                      |        |
|----------------------|--------|
| <b>Command Modes</b> | System |
|----------------------|--------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                                      |
|------------------------|----------------|--|
|                        | Version 2.50   | This command was introduced to Cisco RF Switch Firmware. |
|                        | Version 3.30   | Command supported.                                       |
|                        | Version 3.50   | Command supported.                                       |
|                        | Version 3.60   | Command supported.                                       |
|                        | Version 3.80   | Command supported.                                       |
|                        | Version 3.90   | Command supported.                                       |
|                        | Version 3.92   | Command supported.                                       |

## Usage Guidelines



### Note

The **config default mac addr** command is used only by the manufacturer. If user wants to set a MAC address different from factory setting, they should use **set mac addr** command.

### Supported Cisco CMTS Headend Equipment

| <b>Supported Router(s)</b>  | <b>Supported Cable Interface Line Card(s)</b>  |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following example shows the **config default mac addr** command to set default MAC address.

```
rfswitch#set access system
```

```
rfswitch(system)#config default mac addr 0002-8f02-04ed
```

**Related Commands**

| Command                         | Description   |
|---------------------------------|---|
| <a href="#">set mac address</a> | Enables run-time change of the MAC address on the Cisco RF Switch (used to connect to the LAN). |

# config lcc

To set the Line Card Controller configuration, use the **config lcc** command in System mode. To restore the defaults, use Sets Line Card Controller configuration.

To restore the defaults, use **config lcc default** command.

**config lcc** {**default** | {**report** | **timeout** | **speed** | **delay** | **reset**} *parameter* }

## Syntax Description

|                  |  |
|------------------|--|
| <b>default</b>   | The default value to be configured for the Line Card Controller. |
| <b>report</b>    | Specifies whether reporting is enabled.                          |
| <b>timeout</b>   | Specifies the timeout period in milliseconds.                    |
| <b>speed</b>     | Displays the operating speed.                                    |
| <b>delay</b>     | Sets the delay period.   |
| <b>reset</b>     | Allows reset of all RF Switches.                                 |
| <i>parameter</i> | Value of the parameter of the config lcc command.                |

## Defaults

The default config values for linecard controller are:

- Reporting: enabled
- Timeout: 25ms
- Speed: 500kHz
- Delay: 50us
- Reset: 100ms

## Command Modes

System

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

**Usage Guidelines**



**Note**

The **config lcc** command controls some parameters of the ethernet controller to communicate with linecard interface. It is a debugging tool, and should not be changed by the user, as it may change the ability of the controller to communicate correctly with the linecard.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)   | Supported Cable Interface Line Card(s)   |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example shows the **config lcc** command to set Line Card Controller configuration.

```
rfswitch(system)#config lcc default
```

```
rfswitch(system)#sh lcc config
```

```
LineCard Controller Config:
  Reporting: enabled
  Timeout: 25ms
  Speed: 500kHz
  Delay: 50us
  Reset: 100ms
```

**Related Commands**

| Command                         | Description   |
|---------------------------------|---|
| <a href="#">show lcc config</a> | Displays configuration settings of the Line Card Controller used to communicate between Cisco RF Switch modules and the corresponding line cards. |

# config module serialno

To set the module serial number on the Cisco RF Switch, use the **config module serialno** command in System mode.

```
config module serialno modno serialno hdwrev
```

| Syntax Description |  |  |
|--------------------|--|--|
| <i>modno</i>       |  | Module number range is from 1-14, or 999 for the controller module. Module serial numbers are stored in non-volatile memory on the respective cable interface line card. |
| <i>serialno</i>    |  | String   |
| <i>hdwrev</i>      |  | String   |

**Command Modes** System

| Command History | Release      | Modification   |
|-----------------|--------------|--|
|                 | Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
|                 | Version 3.30 | Command supported.                                       |
|                 | Version 3.50 | Command supported.                                       |
|                 | Version 3.60 | Command supported.                                       |
|                 | Version 3.80 | Command supported.                                       |
|                 | Version 3.90 | Command supported.                                       |
|                 | Version 3.92 | Command supported.                                       |

## Usage Guidelines



### Note

This is a system-level command. You may need to type the **set access system** command prior to using the **config module serialno** command.

## Supported Cisco CMTS Headend Equipment

| Supported Router(s)   | Supported Cable Interface Line Card(s)   |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                     | Description   |
|------------------|-----------------------------|---|
|                  | <a href="#">show config</a> | Lists Cisco RF Switch configuration file contents and status, including the number of downstream and upstream modules configured. |

# config protection reset

To enable or disable the resetting of all switches to the IDLE state when the **set protection** command is received, use the **config protect reset** command in System mode.

**config protection reset { 0 | 1 }**

| Syntax Description | 0 | Off—Disables the resetting of all RF Switches, leaving them unaltered.   |
|--------------------|---|--|
|                    | 1 | On—Enables the resetting of all RF Switches, which are set to IDLE when using the <b>set protection</b> command. |

**Defaults** IDLE state is disabled (0) by default.

**Command Modes** System

| Command History | Release      | Modification   |
|-----------------|--------------|--|
|                 | Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
|                 | Version 3.30 | Command supported.                                       |
|                 | Version 3.50 | Command supported.                                       |
|                 | Version 3.60 | Command supported.                                       |
|                 | Version 3.80 | Command supported.                                       |
|                 | Version 3.90 | Command supported.                                       |
|                 | Version 3.92 | Command supported.                                       |

## Usage Guidelines



**Note**

This is a system-level command. You may need to type the **set access system** command prior to using the **config protect reset** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                     | Description   |
|------------------|-----------------------------|---|
|                  | <a href="#">show config</a> | Lists Cisco RF Switch configuration file contents and status, including the number of downstream and upstream modules configured. |

# config wdog timeout

To set the Watchdog timeout period, use the **config wdog timeout** command in System mode.

**config wdog timeout** *seconds*



## Note

The Watchdog timeout period may also be referred to as the real-time operating system (RTOS)-based timeout.

## Syntax Description

|                |   |
|----------------|---|
| <i>seconds</i> | Timeout duration in seconds. Valid range is from 10 to 120 seconds. |
|----------------|---|

## Defaults

The default timeout is 20 seconds.

## Command Modes

System

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

## Usage Guidelines



## Note

This is a system-level command. You may need to type the **set access system** command prior to using the **config wdog timeout** command.

The N+1 Redundancy Unit (NRU) controller card implements a hardware-based Watchdog timer (WDOG) that is used to provide run-time failure protection. The WDOG is a fixed 1.6-second timer that times out and generates a reset to the NRU microprocessor if it is not periodically reset by using a special command sequence. The WDOG contains a status register that the processor can use to detect a WDOG reset event, so that the processor can distinguish between a power-on reset and WDOG timeout reset.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

---

**Related Commands**

---

| Command                               | Description   |
|---------------------------------------|---|
| <a href="#">generate wdog timeout</a> | Generates a WDOG timeout, which is RTOS-based (software) and uses the <b>config wdog timeout</b> setting. |

---

## copy tftp

To transfer Cisco RF Switch Firmware images (Flash and Bootflash images) from a remote TFTP host, use either of the following two **copy tftp** commands in User mode:

```
copy tftp: URL-filename {flash: | bootflash:} [ noverify ]
```

```
copy {flash: | bootflash:} tftp:URL-filename [ noverify ]
```

These **copy** commands are fully implemented starting with Firmware Version 2.50. Version-specific limitations are cited below in “Command History.”

| Syntax Description | <i>URL-filename</i> | IP address and image filename on the TFTP host, in the following format for the IP address of 10.1.1.10:<br><br><b>copy tftp://10.0.0.10/file.bin</b> |
|--------------------|---------------------|---|
| <b>flash:</b>      |                     | Copies the Firmware image to Flash: on the Cisco RF Switch. The keyword <b>flash:</b> may be abbreviated as <b>FL:</b> .                              |
| <b>bootflash:</b>  |                     | Copies the Firmware image to Bootflash: on the Cisco RF Switch. The keyword <b>bootflash:</b> may be abbreviated as <b>BF:</b> .                      |
| <b>noverify</b>    |                     | Firmware Version 3.60 or later. Overrides the file type verification, and places a file in either the flash (FL:) or bootflash (BF:) device.          |

**Defaults** No default behaviors or values.

**Command Modes** User

| Command History | Release      | Modification   |
|-----------------|--------------|--|
|                 | Version 2.50 | Support for <b>copy tftp</b> commands introduced to Cisco RF Switch Firmware. For Version 2.50, if no TFTP host is defined, the system does not prompt you for one. You can, however, specify a host address as <i>URL-filename</i> , if desired. For example, the command <b>copy tftp://10.0.0.10/file.bin</b> attempts to download the file from the specified IP address of 10.0.0.10 even if there is a different TFTP host previously defined with <b>set tftp-host</b> command. |
|                 | Version 3.30 | Command supported.   |
|                 | Version 3.50 | Command supported.   |
|                 | Version 3.60 | Command introduces optional <b>noverify</b> keyword.   |
|                 | Version 3.80 | Command supported.   |
|                 | Version 3.90 | Command supported. For Version 3.90, the <b>copy tftp</b> command shows the number of bytes transferred when transfer is in progress.  |
|                 | Version 3.92 | Command supported.   |

**Usage Guidelines**

Version 3.60 adds the **noverify** option to the **copy** command, enabling you to override the file type verification, and place a file in either the flash (FL:) or bootflash (BF:) device. Version 3.60 updates the online help to reflect this new option. This new option provides the ability to place a copy of the main application into the bootflash, so that normal system operation is restarted in the case of a system crash, instead of having the "sys>" prompt as in previous versions of Firmware.

When performing remote TFTP image downloads, the **copy tftp** command prompts you to verify the image file type corresponding to the correct destination. For example, the **copy tftp** command does not allow you to copy the SysLoader image into the Flash: memory because the SysLoader image functions only in the Bootflash: memory instead. These TFTP prompts prevent you from copying Firmware images to the wrong respective location on the Cisco RF Switch.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example for the **copy tftp** command displays the number of bytes transferred as the transfer progresses in Cisco RF Switch Firmware Version 3.90.

```
rfswitch#copy tftp:1935030L.BIN flash:
Connecting to TFTP server at 2.41.17.10 ...
Opening flash for writing...
Receiving file...
327680 bytes
Reception complete. 327680 bytes (15369 bytes/sec)
Closing flash...
```

The following example displays the **copy tftp ?** command options available in Cisco RF Switch Firmware Version 3.50.

```
rfswitch> copy ?
COPY source destination

Syntax
COPY TFTP:<url-filename> {FLASH: | BOOTFLASH:}
COPY {FLASH: | BOOTFLASH:} TFTP:<url-filename>

Access-level : password

! Notes
! Copies remote file identified by <url-filename> via TFTP to/from application
! flash: or sysloader bootflash: memory. The first argument is the source, the
! second is the destination. It allows the user to download an image from the
! network and save in flash, or upload an image from flash to the network server.
! By default, the transfer uses the host IP address specified by SET TFTP-HOST.
! However, if the <url-filename> contains an address, the transfer will use this
! address instead. For example, 'copy tftp://10.0.0.10/file.bin flash:' would
! attempt to download the file from the specified address of 10.0.0.10, ignoring
! the current TFTP-HOST setting, if any.
```

The following examples display the **copy tftp** command when used for Flash: and Bootflash: memory:

```
rfswitch> copy tftp://10.0.0.2/rfsw320-fl-1935030g FL:
Connecting to TFTP server at 10.0.0.2 ...
Opening flash for writing...
Receiving file...
Reception complete. 262144 bytes (16697 bytes/sec)
Closing flash...

rfswitch> copy tftp://10.0.0.2/r rfsw320-bf-1935022f BF:
Connecting to TFTP server at 10.0.0.2 ...
Opening flash for writing...
Receiving file...
Reception complete. 262144 bytes (18447 bytes/sec)
Closing flash...
```

---

**Related Commands**

| Command               | Description  |
|-----------------------|--|
| <a href="#">erase</a> | Removes the contents of the Cisco RF Switch non-volatile memory (nvmem). |

---

# disable

To exit privileged EXEC mode and return to user EXEC mode, or to exit to a lower privilege level, enter the **disable** command in EXEC mode.

## disable

This **disable** command functions the same as the previous **logout** command

### Syntax Description

This command requires no additional keywords or arguments.

### Command Modes

User EXEC  
Privileged EXEC

### Command History

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

### Usage Guidelines

Use the **disable** command to exit privileged EXEC mode and return to the user EXEC mode. Entering the **disable** command in EXEC mode to exit to a lower privilege level.

### Examples

In the following example, the user enters privileged EXEC mode using the **enable** command, then exits back to user EXEC mode using the **disable** command. Note that the prompt for user EXEC mode is >, and the prompt for privileged EXEC mode is #.

```
rfswitch#disable
```

```
rfswitch>
```

### Related Commands

| Command                | Description  |
|------------------------|--|
| <a href="#">enable</a> | Enables higher privilege level access, such as privileged EXEC mode. |

# enable

To enter privileged exec mode, use the **enable** command in user EXEC mode.

## **enable**

This **enable** command is similar to the previous rfs **password** command.

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

Privilege-level 15 (privileged EXEC)

### Command Modes

User EXEC

Privileged EXEC

### Command History

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

### Usage Guidelines

Entering privileged EXEC mode enables the use of privileged commands. Because many of the privileged commands set operating parameters, privileged access should be password-protected to prevent unauthorized use. If the system administrator has set a password with the **enable password** global configuration command, you are prompted to enter the password before being allowed access to privileged EXEC mode. The password is case sensitive.

If an **enable** password has not been set, only enable mode can be accessed through the console connection.

#### RF Switch

If no password is currently set, you will enter enable mode and get "rfswitch#" prompt.

If a password is set, then the rfs prompts "password:" appears and awaits entry of a password. If a valid password is entered, then enter enable mode and get "rfswitch#" prompt.

### Examples

In the following example, the user enters privileged EXEC mode using the **enable** command. The system prompts the user for a password before allowing access to the privileged EXEC mode. The password is not printed to the screen. Note that the prompt for user EXEC mode is the greater than symbol (>), and the prompt for privileged EXEC mode is the number sign (#).

```
rfswitch> enable
Password: ***
rfswitch#
```

**Related Commands**

| <b>Command</b>                  | <b>Description</b>  |
|---------------------------------|---|
| <a href="#">disable</a>         | Exits from privileged EXEC mode to user EXEC mode, or, if privilege levels are set, to the specified privilege level. |
| <a href="#">enable password</a> | Sets a local password to control access to various privilege levels.  |

# enable erase

To enable the use of the separate **erase** commands for a single execution, use the **enable erase** command in System mode. This command helps to prevent accidental image erasure.

## enable erase

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

Erase commands are disabled by default and are disabled again after each instance of use.

### Command Modes

System

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines

The **enable erase** command must be used prior to each erase command.



#### Note

This is a system-level command. You may need to type the **password system** command prior to using the **enable erase** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command               | Description   |
|-----------------------|---|
| <a href="#">erase</a> | Removes the contents of the Cisco RF Switch non-volatile memory (nvmem). Alternatively, removes the contents of either Flash: (NruApp) or Bootflash: (SysLoader). |

# enable password

To set enable mode password and store it in nvram, use the **enable password** command in privileged exec mode. To remove the password requirement, use the **no** form of this command.

**enable password** *actual-password*

**no enable password** *actual-password*

This command is similar to the previous rfs **set password** command.

## Syntax Description

|                        |   |
|------------------------|---|
| <i>actual-password</i> | Password users type to enter enable mode. The string can be up to 32 characters (maximum 11 characters for versions prior to 3.92) in length from and may contain any of the printable ASCII characters (0x20-0x7e), except the space (0x20), double quote (0x22), semicolon (0x3b), backslash (\), forward slash (/) characters, and the stand-alone '?' and 'HELP', as they invoke the CLI help function. |
|------------------------|---|

## Defaults

This command has no default values.

## Command Modes

Privileged EXEC

## Command History

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

## Usage Guidelines

You must be in privileged exec mode (enable mode) at the "#" prompt to use this cmd.

## Examples

The following example enables the password "pswd2" for privilege level 2:

```
enable password level 2 pswd2
```

## Related Commands

| Command        | Description   |
|----------------|---|
| <b>disable</b> | Exits privileged EXEC mode and returns to user EXEC mode. |
| <b>enable</b>  | Enters privileged EXEC mode.                              |

# erase

To remove the contents of the Cisco RF Switch non-volatile memory (nvmem) (either partially or entirely), use the **erase { config | eeprom }** command in System mode, preceded by the **enable erase** command.

```
erase { config | eeprom }
```

To remove the contents of either Flash: (NruApp) or Bootflash: (SysLoader) on the Cisco RF Switch, use the **erase { flash: | bootflash: }** RF Switch command in System mode.

```
erase { flash: | bootflash: } copyno
```

## Syntax Description

|                   |   |
|-------------------|---|
| <b>config</b>     | Erases most components of the Cisco RF Switch configuration in non-volatile memory (nvmem). There are some areas of the nvmem that are not effected by <b>erase config</b> , such as the controller's serial number.  |
| <b>eeprom</b>     | Erases the entire image contents and configuration in non-volatile memory (nvmem). After using the <b>reload</b> command, the system defaults are in effect.  |
| <b>flash:</b>     | Keyword erases the NruApp image in Flash, which may be abbreviated as <b>fl:</b> .  |
| <b>bootflash:</b> | Keyword erases the SysLoader image in Bootflash, which may be abbreviated as <b>bf:</b> .   |
| <b>copyno</b>     | This optional <i>copyno</i> argument allows you to specify the value as follows: <ul style="list-style-type: none"> <li>• <b>1</b> for backup copy</li> <li>• <b>2</b> for working copy</li> <li>• <b>3</b> for both copies (not recommended, but allowed)</li> </ul> |

## Defaults

Erase commands are disabled by default, and must be enabled with the **enable erase** command.

## Command Modes

System

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

**Usage Guidelines**



**Warning**

The **erase { flash: | bootflash: }** command allows you to erase all image copies (Working and Backup) from either the Flash (NruApp) or Bootflash (SysLoader) areas. If the system fails in this state, the only way of re-programming the system is by using the RomMon's serial port XMODEM download.



**Note**

This is a system-level command. You may need to type the **enable** and **set access system** commands command prior to using the **erase { flash: | bootflash: }** or the **erase config** commands.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example removes a copy of the Cisco RF Switch Firmware from the flash device:

```
rf switch> erase flash 1
```

**Related Commands**

| Command                      | Description   |
|------------------------------|---|
| <a href="#">enable erase</a> | Enables use of the <b>erase</b> commands (one instance only). |

# generate switch fault

To generate diagnostic switching faults for a line card (specified with the corresponding chassis slot numbers 1-14), use the **generate switch fault** command in System mode.



## Note

The generated switch fault applies to both switch modules when the RF Switch is in 4+1 redundancy mode.

**generate switch fault** *linecardno swpos*

## Syntax Description

|                   |  |
|-------------------|--|
| <i>linecardno</i> | The line card number, with range from 1-14.  |
| <i>swpos</i>      | The specified cable interface line card is set with value from 1 to 8.<br>Setting swpos to 0 turns off the fault, as you cannot fault the IDLE (0) position. |

## Defaults

This command is disabled by default.

## Command Modes

System

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

## Usage Guidelines



## Note

This is a system-level command. You may need to type the **enable** and **set access system** commands prior to using the **generate switch fault** command.

## Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Related Commands**

| <b>Command</b>                        | <b>Description</b>   |
|---------------------------------------|--|
| <a href="#">generate trap</a>         | Sends an SNMPv1 trap from the Cisco RF Switch module to the SNMP trap host(s).                   |
| <a href="#">generate wdog fault</a>   | Generates an immediate Watchdog (wdog) hardware fault within one second and restarts the system. |
| <a href="#">generate wdog timeout</a> | Generates a WDOG timeout, which originates in the RTOS-based software.                           |

# generate trap

To send an SNMPv1 trap from the Cisco RF Switch module to the SNMP trap host(s), use the **generate trap** command in System mode.

**generate trap** *tratype module*

|                           |                |  |
|---------------------------|----------------|--|
| <b>Syntax Description</b> | <i>tratype</i> | <p>The type of SNMP trap is specified as an integer, where:</p> <ul style="list-style-type: none"> <li>• <b>0</b>—offline nruNotification, coldstart trap</li> <li>• <b>1</b>—online nruNotification, warmstart trap</li> <li>• <b>2</b>—nruNotification type 2, linkDown trap</li> <li>• <b>3</b>—nruNotification type 3, linkUp trap</li> <li>• <b>4</b>—nruNotification type 4, authenticationFailure trap</li> <li>• <b>5</b>—nruNotification type 5, egpNeighborLoss trap</li> <li>• <b>6</b>—Enterprise-specific trap</li> </ul> <p>Additional information about SNMP traps and notification types can be found in SNMP RFCs, available online at the following Web site:</p> <p style="text-align: center;"><a href="http://www.faqs.org/rfcs/">http://www.faqs.org/rfcs/</a></p> <p style="text-align: center;">(Refer to RFC1215, for example.)</p> |
|                           | <i>module</i>  | <p>The module number from which to send the SNMP trap. The valid range is 1-26 or 999.</p>   |

**Defaults** No default behavior or values.

**Command Modes** System

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                 |
|------------------------|----------------|-------------------------------------|
|                        | Version 2.50   | Command and SNMPv1 traps supported. |
|                        | Version 3.30   | Command and SNMPv1 traps supported. |
|                        | Version 3.50   | Command and SNMPv1 traps supported. |
|                        | Version 3.60   | Command supported.                  |
|                        | Version 3.80   | Command supported.                  |
|                        | Version 3.90   | Command supported.                  |
|                        | Version 3.92   | Command supported.                  |

**Usage Guidelines**



**Note**

This is a system-level command. You may need to type the **enable** and **set access system** commands prior to using the **generate trap** command.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Related Commands**

| Command                               | Description  |
|---------------------------------------|--|
| <a href="#">generate switch fault</a> | Generates diagnostic switching faults for a specified line card.                                 |
| <a href="#">generate wdog fault</a>   | Generates an immediate Watchdog (wdog) hardware fault within one second and restarts the system. |
| <a href="#">generate wdog timeout</a> | Generates a WDOG timeout, which originates in the RTOS-based software.                           |

# generate wdog fault

To generate an immediate Watchdog (wdog) hardware fault within one second and restarts the system, use the **generate wdog timeout** command in System mode. This command performs a disabling interrupt and halt sequence.

## generate wdog timeout

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command is disabled by default.

### Command Modes

System

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines



#### Note

This is a system-level command. You may need to type the **password system** command prior to using the **generate wdog fault** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command                               | Description  |
|---------------------------------------|--|
| <a href="#">generate trap</a>         | Sends an SNMPv1 trap from the Cisco RF Switch module to the SNMP trap host(s). |
| <a href="#">generate wdog timeout</a> | Generates a WDOG timeout, which originates in the RTOS-based software.         |

# generate wdog timeout

To generate a WDOG timeout, which originates in the RTOS-based software, and which uses the setting defined with the **config wdog timeout** command, use the **generate wdog timeout** command in System mode. This command generates an infinite loop in the command parser/execution unit, which simulates a lost program.

## generate wdog timeout

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default values.

### Command Modes

System

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines



#### Note

This is a system-level command. You may need to type the **password system** command prior to using the **generate wdog timeout** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command                      | Description  |
|------------------------------|--|
| <b>generate switch fault</b> | Generates diagnostic switching faults for a specified line card. |

| Command                    | Description  |
|----------------------------|--|
| <b>generate trap</b>       | Sends an SNMPv1 trap from the Cisco RF Switch module to the SNMP trap host(s).                   |
| <b>generate wdog fault</b> | Generates an immediate Watchdog (wdog) hardware fault within one second and restarts the system. |

# help or ?

To display RF Switch command-line help, use the **help or ?** command in RF Switch User or System mode.

**help**  
?

## Syntax Description

This command requires no additional keywords or arguments.

## Defaults

This command has no default values.

## Command Modes

User or System

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

## Usage Guidelines

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following example displays the output for the CLI **help or ?** command for Cisco RF Switch Firmware Version 2.50 through Version 3.50.

```
rfswitch> ?
Commands:

SET          Set configuration parameters
SHOW        Show running system configuration
SWITCH      Perform switchover operations
RELOAD      Halt and perform a cold restart
COPY        TFTP file transfer
PASSWORD    Enter password
PING        Sends ICMP ECHO packet
TEST MODULE Performs switching test on linecards
HELP or ?   Shows help
```

To recall previous command, use <ctrl-P>

Note: most commands have alternate short forms  
To see a list of keyword abbreviations, type 'CMD ?'  
For a list of diagnostic and test cmds, type 'SYS ?'

**Related Commands**

| <b>Command</b> | <b>Description</b>                          |
|----------------|---|
| All commands   | All commands and modes support online help. |

# module getcap

To display the module numbers and corresponding line card device capability, with additional Firmware information for the specified module, use the **module getcap** command in System mode.

**module getcap** *module*

|                           |               |   |
|---------------------------|---------------|---|
| <b>Syntax Description</b> | <i>module</i> | Specifies the desired RF Switch module number (1-14). |
|---------------------------|---------------|---|

|                 |                                |  |
|-----------------|--------------------------------|--|
| <b>Defaults</b> | No default behavior or values. |  |
|-----------------|--------------------------------|--|

|                      |        |  |
|----------------------|--------|--|
| <b>Command Modes</b> | System |  |
|----------------------|--------|--|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b> |
|------------------------|----------------|---------------------|
|                        | Version 2.50   | Command supported.  |
|                        | Version 3.30   | Command supported.  |
|                        | Version 3.50   | Command supported.  |
|                        | Version 3.60   | Command supported.  |
|                        | Version 3.80   | Command supported.  |
|                        | Version 3.90   | Command supported.  |
|                        | Version 3.92   | Command supported.  |

|                         |  |  |
|-------------------------|--|--|
| <b>Usage Guidelines</b> | The <b>module getcap</b> is only available in system mode. |  |
|-------------------------|--|--|



**Note** This is a system-level command. You may need to type the **set access system** command prior to using the **module getcap** command.

### Supported Cisco CMTS Headend Equipment

| <b>Supported Router(s)</b>   | <b>Supported Cable Interface Line Card(s)</b>  |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| <b>Related Commands</b> | <b>Command</b>               | <b>Description</b>  |
|-------------------------|------------------------------|---|
|                         | <a href="#">module getid</a> | Displays the line card device information for the specified RF Switch modules (1-14). |

# module getid

To display the line card device information for RF Switch modules 1-14, use the **module getid** command in System mode.

**module getid** *module*

|                           |               |  |
|---------------------------|---------------|--|
| <b>Syntax Description</b> | <i>module</i> | (Optional) Specifies an individual module for information displayed. |
|---------------------------|---------------|--|

**Defaults** No default behavior or values.

**Command Modes** System

| Command History | Release      | Modification       |
|-----------------|--------------|--------------------|
|                 | Version 2.50 | Command supported. |
|                 | Version 3.30 | Command supported. |
|                 | Version 3.50 | Command supported. |
|                 | Version 3.60 | Command supported. |
|                 | Version 3.80 | Command supported. |
|                 | Version 3.90 | Command supported. |
|                 | Version 3.92 | Command supported. |

**Usage Guidelines** The **module getid** is only available in system mode.



**Note**

This is a system-level command. You may need to type the **enable** and **set access system** commands prior to using the **module getid** command.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                       | Description  |
|------------------|-------------------------------|--|
|                  | <a href="#">module getcap</a> | Displays the module numbers and corresponding line card device capability, with additional Firmware information. |

# password system

To use system-level commands, enter the **password system** command in User mode followed by the system-level command. The **password system** command allows you log in anytime, not merely after the initial password prompt.

## password system

### Syntax Description

|               |  |
|---------------|--|
| <b>system</b> | The pre-defined system-level password. |
|---------------|--|

### Defaults

The default password for system-level commands is **system**.

### Command Modes

System

### Command History

| Release      | Modification  |
|--------------|---|
| Version 2.50 | Command supported.  |
| Version 3.30 | Command supported. Version 3.30 modifies the <code>password</code> field output displayed in the <b>show config</b> Firmware command so as to preserve password security with encryption. |
| Version 3.50 | Command supported.  |
| Version 3.60 | Command supported.  |
| Version 3.80 | Command not supported.  |
| Version 3.90 | Command not supported.  |
| Version 3.92 | Command not supported.  |

### Usage Guidelines

This command is often abbreviated as **pass system**.

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Examples

The following example illustrates the use of the **pass system** command prior to using the **save config** and **reboot** commands (the latter two commands being system-level commands).

```

rfs witch> pass system
rfs witch> save config
rfs witch> reboot

Nru Rom Monitor V1.10

Firmware: 1935033   Nov 12 2001,15:15:38

Locating boot device...AMD 29F400T (128k bytes)
Locating flash device...AMD 29F016 (4096k bytes)

Watchdog Reg: 0xc080
ResetCfg Reg: 0x00
...

```

**Related Commands**

| <b>Command</b>               | <b>Description</b>   |
|------------------------------|--|
| <a href="#">set password</a> | Sets a password to restrict Telnet client access to the RF Switch CLI. |

# ping

To send ICMP ECHO packets to an interface or node with a specified IP address, use the **ping** command in User mode.

**ping** *ip-address*

|                           |                   |  |
|---------------------------|-------------------|--|
| <b>Syntax Description</b> | <i>ip-address</i> | The IP address of the destination interface or node. |
|---------------------------|-------------------|--|

**Defaults** No default behaviors or values.

**Command Modes** User

| <b>Command History</b> | <b>Release</b> | <b>Modification</b> |
|------------------------|----------------|---------------------|
|                        | Version 2.50   | Command supported.  |
|                        | Version 3.30   | Command supported.  |
|                        | Version 3.50   | Command supported.  |
|                        | Version 3.60   | Command supported.  |
|                        | Version 3.80   | Command supported.  |
|                        | Version 3.90   | Command supported.  |
|                        | Version 3.92   | Command supported.  |

**Usage Guidelines** **Supported Cisco CMTS Headend Equipment**

| <b>Supported Router(s)</b>   | <b>Supported Cable Interface Line Card(s)</b>  |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples** The following example uses the **ping** command to send an ICMP ECHO packet to IP address 172.16.10.3:

```
rfswitch> ping 172.16.10.3
```

| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>  |
|-------------------------|--------------------------------|---|
|                         | <a href="#">set ip address</a> | Sets the IP address and subnet mask for the Ethernet interface on the Cisco RF Switch |

# reboot

To stop the Cisco RF Switch and perform a cold restart, use the **reboot** command at the switch CLI.

## reboot

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default behaviors.

### Command Modes

System

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Examples

The following **reboot** command sequence illustrates the use of the **pass system** and **save config** commands for Firmware Version 2.50:

```
rfswitch> pass system
rfswitch> save config
rfswitch> reboot

Nru Rom Monitor V1.10

Firmware: 1935033   Nov 12 2001,15:15:38

Locating boot device...AMD 29F400T (128k bytes)
Locating flash device...AMD 29F016 (4096k bytes)

Watchdog Reg: 0xc080
ResetCfg Reg: 0x00

Validating bootflash: contents...ok. status (0,0)
Validating flash: contents...ok. status (0,0)

Opening flash:...
```

```

Loading...

Weinschel uBR-RFSW Nru CLI V2.50

Firmware: 1935030E Feb 22 2002,10:21:10

Init hardware...
Running selftest...ok
Locating FlashFile...AMD 29F016 (4096k bytes)
Creating system resources...

Recalling nvmem...
Initializing linecard controller...
Enumerating linecards... 13 card(s) found

Installing network stack...
Initializing network interface 10.0.0.1 ...
Installing Telnet server...
Installing SNMP agent...

System initialization completed.

Error -241: Hardware missing

rfs witch>
Nru Rom Monitor V1.10

Firmware: 1935033 Nov 12 2001,15:15:38

Locating boot device...AMD 29F400T (128k bytes)
Locating flash device...AMD 29F016 (4096k bytes)

Watchdog Reg: 0xc080
ResetCfg Reg: 0x00

Validating bootflash: contents...ok. status (0,0)
Validating flash: contents...ok. status (0,0)

Opening flash:...
Loading...

Weinschel uBR-RFSW Nru CLI V2.50

Firmware: 1935030E Feb 22 2002,10:21:10

Init hardware...
Running selftest...ok
Locating FlashFile...AMD 29F016 (4096k bytes)
Creating system resources...

Recalling nvmem...
Initializing linecard controller...
Enumerating linecards... 13 card(s) found

Installing network stack...
Initializing network interface 10.0.0.1 ...
Installing Telnet server...
Installing SNMP agent...

System initialization completed.

```

**Related Commands**

| Command                | Description  |
|------------------------|--|
| <a href="#">reload</a> | The <b>reboot</b> and <b>reload</b> commands are identical in function. Both commands initiate a coldstart on the Cisco RF Switch. |

# reload

To stop the Cisco RF Switch and perform a cold restart, use the **reload** command in System mode.

## reload

**Syntax Description** This command requires no additional keywords or arguments.

**Defaults** This command has no default behaviors.

**Command Modes** System

| Command History | Release      | Modification       |
|-----------------|--------------|--------------------|
|                 | Version 2.50 | Command supported. |
|                 | Version 3.30 | Command supported. |
|                 | Version 3.50 | Command supported. |
|                 | Version 3.60 | Command supported. |
|                 | Version 3.80 | Command supported. |
|                 | Version 3.90 | Command supported. |
|                 | Version 3.92 | Command supported. |

**Usage Guidelines** **Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples** The following **reload** command process displays the startup sequence for Firmware Version 2.50:

```

rfs switch> reload
Nru Rom Monitor V1.10
Firmware: 1935033   Nov 12 2001,15:15:38
Locating boot device...AMD 29F400T (128k bytes)
Locating flash device...AMD 29F016 (4096k bytes)

Watchdog Reg: 0xc080
ResetCfg Reg: 0x00

Validating bootflash: contents...ok. status (0,0)
Validating flash: contents...ok. status (0,0)

Opening flash:...
Loading...

Weinschel uBR-RFSW Nru CLI V2.50
Firmware: 1935030E   Feb 22 2002,10:21:10

Init hardware...
Running selftest...ok
Locating FlashFile...AMD 29F016 (4096k bytes)

```

```

Creating system resources...
Recalling nvmem...
Initializing linecard controller...
Enumerating linecards... 13 card(s) found

Installing network stack...
Initializing network interface 10.0.0.1 ...
Installing Telnet server...
Installing SNMP agent...

System initialization completed.

```

The following **reload** command process displays the startup sequence for Firmware Version 3.50:

```

rfswitch> pass system

rfswitch> save config

rfswitch> reload

Nru Rom Monitor V1.10

Firmware: 1935033   Nov 12 2001,15:15:38

Locating boot device...AMD 29F400T (128k bytes)
Locating flash device...AMD 29F016 (4096k bytes)

Watchdog Reg: 0xc080
ResetCfg Reg: 0x00

Validating bootflash: contents...ok. status (0,0)
Validating flash: contents...ok. status (0,0)

Opening flash:...
Loading...

Weinschel uBR-RFSW Nru CLI V3.500

Firmware: 1935030G   Jul 25 2003,10:51:06

Init hardware...
Running selftest...ok
Locating FlashFile...AMD 29F016 (4096k bytes)
Creating system resources...

Recalling nvmem...** nvmem default(s) used (0x60) **
Initializing linecard controller...
Chassis configuration: 10 upstream/3 dnstream linecards
Enumerating linecards... 13 card(s) found

Installing network stack...
Initializing network interface...IP addr: 10.0.0.1
Installing Telnet server...
Installing SNMP agent...

System initialization completed.

```

**Related Commands**

| Command                | Description  |
|------------------------|--|
| <a href="#">reboot</a> | The <b>reboot</b> and <b>reload</b> commands are identical in function. Both commands initiate a coldstart on the Cisco RF Switch. |

# run

To run either the Firmware RomMon or SysLoader image, use the **run** command in System mode.

```
run { rommon | sysloader }
```

| Syntax Description | rommon   | sysloader   |
|--------------------|--|---|
|                    | Keyword runs the RomMon image, which is the first image to run on the Cisco RF Switch upon restart. For additional information about the RomMon image and its function within the Cisco RF Switch, refer to the “RomMon Overview” section of the <i>Cisco RF Switch Firmware Configuration Guide</i> .<br>The RomMon image is only available via local console access. | Keyword runs the copy of the SysLoader image. For additional information about the SysLoader image and its function within the Cisco RF Switch, refer to the “NruApp and SysLoader Overview” section of the <i>Cisco RF Switch Firmware Configuration Guide</i> . |

**Defaults** Manual image reload is disabled by default.

**Command Modes** System

| Command History | Release      | Modification       |
|-----------------|--------------|--------------------|
|                 | Version 2.50 | Command supported. |
|                 | Version 3.30 | Command supported. |
|                 | Version 3.50 | Command supported. |
|                 | Version 3.60 | Command supported. |
|                 | Version 3.80 | Command supported. |
|                 | Version 3.90 | Command supported. |
|                 | Version 3.92 | Command supported. |

## Usage Guidelines



### Note

This is a system-level command. You may need to type the **enable** and **set access system** commands prior to using the **run** command.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

# save config

To save the current RF Switch configuration to non-volatile memory (nvmem), use the **save config** command in System mode.

## save config

**Syntax Description** This command requires no additional keywords or arguments.

**Defaults** No default behaviors or values.

**Command Modes** System

| Command History | Release      | Modification       |
|-----------------|--------------|--------------------|
|                 | Version 2.50 | Command supported. |
|                 | Version 3.30 | Command supported. |
|                 | Version 3.50 | Command supported. |
|                 | Version 3.60 | Command supported. |
|                 | Version 3.80 | Command supported. |
|                 | Version 3.90 | Command supported. |
|                 | Version 3.92 | Command supported. |

## Usage Guidelines



### Note

This is a system-level command. You may need to type the **enable** and **set access system** commands prior to using the **save config** command.

The **save config** command updates all fields in the non-volatile memory (nvmem).

The **save config** command is normally used after the **erase** and **reload** commands (which saves the default settings on the Cisco RF Switch).

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                      | Description  |
|------------------|------------------------------|--|
|                  | <a href="#">show version</a> | Displays a list of Firmware images and status, slot population and module status, and line card information. |

# set access system

To enable access to the commands that were previously available only via backdoor password, use the **set access system** in User mode. This command works in addition to any installed password, and does not override any current password protection. To exit and return to normal user mode, use the **disable** command.

**set access system**

## Syntax Description

This command requires no additional keywords or arguments.

## Defaults

No default behaviors or values.

## Command Modes

User

## Command History

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

## Usage Guidelines

Cisco RF Switch Firmware Version 3.80 enables access to previous backdoor password only commands through **set access system**. The **set access system** command works in addition to any installed password, and does not override any current password protection. Note that you must be in the enable mode to use the **set access system** command.

To exit and return to normal user mode, use the **disable** command.

## Examples

The following example illustrates typical output from the **set access system** command in Version 3.80.

```
rfswitch> enable
Password: ***

rfswitch#set access system

rfswitch(system)#disable

rfswitch>
```

## Related Commands

No related commands.

# set arp timeout

To configure Address Resolution Protocol (ARP) timeout on the Cisco RF Switch, use the **set arp timeout** command in User mode. To restore the default timeout setting of 14400 seconds (four hours), use the **no set arp timeout** command. You can change the Address Resolution Protocol (ARP) cache implementation in an effort to reduce the number of ARP requests.

**set arp timeout** *seconds*



**Note**

In earlier versions of Cisco RF Switch Firmware (versions 3.30 and earlier), the ARP timeout value was permanently fixed at 60 seconds. This is now a definable setting from the CLI, beginning with Firmware Version 3.50 and continuing to later versions.

**Syntax Description**

*seconds* ARP timeout value in seconds.

**Defaults**

- Default timeout is 14400 seconds (4 hours).
- The **no set arp timeout** command restores the default setting.

**Command Modes**

User

**Command History**

| Release      | Modification   |
|--------------|--|
| Version 3.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

**Usage Guidelines**

Cisco RF Switch Firmware Version 3.50 changes ARP timeout behavior in two ways:

- First, the ARP timeout value has been greatly increased and is now programmable.
- Secondly, the table logic now attempts to preserve table entries that have a valid ARP time limit, and will not reuse these entries until the ARP entry exceeds the timeout. This approach does have its consequences, however. Once the table fills (currently set to 32 entries), no further additions can occur until one of the entries expires.

**Examples**

The following example illustrates typical output from the **show config** command in Version 3.50.

```
rfswitch> show config

IP addr: 192.168.3.30
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-13

Gateway IP: 192.168.3.170
TFTP host IP: 192.168.3.170
ARP timeout: 500 secs
DHCP lease time: infinite
TELNET inactivity timeout: 240 secs
Password: (none)
```

**Related Commands**

| <b>Command</b>              | <b>Description</b>   |
|-----------------------------|--|
| <a href="#">show config</a> | Command displays configuration file contents of the Cisco RF Switch, including ARP timeout settings in Cisco RF Switch Firmware Version 3.50 and later versions. |
| <a href="#">show arp</a>    | Multiple command variations display ARP cache and timeout settings in Cisco RF Switch Firmware Version 3.50 and later versions.                                  |

# set dhcp lease

To set the lease time that the DHCP client requests from the server, use **set dhcp lease** command in User mode. To return the DHCP lease to the default setting of an infinite lease (0xffffffff), use the **no** form of this command.

This command requires that DHCP operation be enabled by using the guidelines in the “Enabling and Operating DHCP on the Cisco RF Switch” section of the *Cisco RF Switch Firmware Configuration Guide*.

**set dhcp lease** *leasetime*

**no set dhcp lease**

## Syntax Description

|                  |  |
|------------------|--|
| <i>leasetime</i> | The leasetime in seconds, and must be a minimum of 60 seconds. Any value longer than 30 days (2,592,000 seconds) results in the Cisco RF Switch requesting an infinite lease (0xffffffff), which is the default setting. |
|------------------|--|

## Defaults

The default DHCP lease time is an infinite lease (0xffffffff).

## Command Modes

User

## Command History

| Release      | Modification           |
|--------------|------------------------|
| Version 2.50 | Command not supported. |
| Version 3.30 | Command supported.     |
| Version 3.50 | Command supported.     |
| Version 3.60 | Command supported.     |
| Version 3.80 | Command supported.     |
| Version 3.90 | Command supported.     |
| Version 3.92 | Command supported.     |

## Usage Guidelines

The **set dhcp lease** command is used primarily for testing purposes, and does not normally need to be changed.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

---

**Related Commands**

| <b>Command</b>         | <b>Description</b>  |
|------------------------|---|
| <code>show dhcp</code> | Displays the values received from the DHCP server, as well as the status of the lease time. |

---

# set ip address

To set the IP address and subnet mask for the Ethernet interface on the Cisco RF Switch, use the **set ip address** command in User mode. To restore the default setting on the Cisco RF Switch, use the **no** form of this command.

**set ip address** *ip-address mask* [ **dhcp** ]

**no set ip address**



**Note**

Default settings differ according to your Firmware Version. See “Defaults” immediately below.

**Syntax Description**

|                   |  |
|-------------------|--|
| <i>ip-address</i> | IP address assigned to the RF interface.   |
| <i>mask</i>       | (Optional) Subnet mask assigned to the IP address.   |
| <b>dhcp</b>       | (Optional) Keyword enables the specified IP address as the address for DHCP services on the network. This keyword also produces the same result as the <b>no</b> form of this command for Version 3.30 and 3.50—it enables DHCP. |



**Note**

Both *ip-address* and subnet *mask* are in the form of A.B.C.D.

**Defaults**

This command allows you to select between assigning a static IP address on the Switch or choosing your Firmware’s default setting. The default IP configuration on the Cisco RF Switch varies according to your Firmware Version:

- The default IP configuration for Version 3.30 and 3.50 is DHCP enabled.
- The default IP configuration for Version 2.50 is the static IP address of 10.0.0.1 255.255.255.0.

**Command Modes**

User

**Command History**

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

**Usage Guidelines**

Restart is required when making changes to the IP configuration of the Cisco RF Switch. Use the **reboot** or **reload** command.

**Note**

Assigning an address of 0.0.0.0 enables DHCP.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example sets the IP address and subnet mask of the Cisco RF Switch to 172.10.16.1 255.255.0.0 and restarts the Switch:

```
rfswitch> set ip address 172.10.16.1 255.255.0.0
rfswitch> reload
```

The following example enables DHCP by default with Firmware Version 3.30 or 3.50 and restarts the Switch:

```
rfswitch> no set ip address
rfswitch> reboot
```

The following example defines the default IP address of 10.0.0.1 255.255.255.0 with Firmware Version 2.50 and restarts the Switch:

```
rfswitch> no set ip address
rfswitch> reload
```

**Related Commands**

| Command                                | Description   |
|--|---|
| <a href="#">set ip default-gateway</a> | Sets the IP address of the default gateway for the Cisco RF Switch. |

# set ip default-gateway

To set the IP address of the default gateway for the Cisco RF Switch, use the **set ip default-gateway** command in User mode. To restore the default gateway to the system default (no default gateway defined), use the **no** form of this command.

**set ip default-gateway** *ip-address*

**no set ip default-gateway**



**Note**

Restart may or may not be required for default gateway changes to take. See below “Usage Guidelines”.

**Syntax Description**

*ip-address* The IP address of the default gateway to be used for the Cisco RF Switch.

**Defaults**

The default setting is no default gateway defined on the Cisco RF Switch.

**Command Modes**

User

**Command History**

| Release      | Modification  |
|--------------|---|
| Version 2.50 | Introduces the <b>set ip default-gateway</b> command. |
| Version 3.30 | Command supported, without required restart.          |
| Version 3.50 | Command supported, without required restart.          |
| Version 3.60 | Command supported, without required restart.          |
| Version 3.80 | Command supported.                                    |
| Version 3.90 | Command supported.                                    |
| Version 3.92 | Command supported.                                    |

**Usage Guidelines**

With Firmware Version 2.50, the Cisco RF Switch must be restarted for this setting to take effect. Use the **reboot** or **reload** command. With Firmware Version 3.30 or 3.50, this command does not require a restart for the default gateway (or its removal) to take effect.

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example sets the default gateway address and subnet mask of the Cisco RF Switch to 172.10.16.1 255.255.0.0 and restarts the Switch:

```
rfswitch> set ip address 172.10.16.1 255.255.0.0
rfswitch> reload
```

The following example removes the default gateway configuration from the Cisco RF Switch. Restart with the **reboot** or **reload** command would be required only for Firmware Version 2.50:

```
rfswitch> no set ip default-gateway
rfswitch> reboot
```

| Related Commands | Command                 | Description  |
|------------------|-------------------------|--|
|                  | <a href="#">show ip</a> | Displays IP configuration information for the Cisco RF Switch. |

# set log

To set the filter level for recording history log events, use the **set log** command. The parameter, however, is not stored.

To restore the defaults, use **no set log** command.

**set log** *level*

|                           |              |                                    |
|---------------------------|--------------|------------------------------------|
| <b>Syntax Description</b> | <i>level</i> | Sets the history log filter level. |
|---------------------------|--------------|------------------------------------|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | User |
|----------------------|------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                                      |
|------------------------|----------------|--|
|                        | Version 2.50   | This command was introduced to Cisco RF Switch Firmware. |
|                        | Version 3.30   | Command supported.                                       |
|                        | Version 3.50   | Command supported.                                       |
|                        | Version 3.60   | Command supported.                                       |
|                        | Version 3.80   | Command supported.                                       |
|                        | Version 3.90   | Command supported.                                       |
|                        | Version 3.92   | Command supported.                                       |

| <b>Usage Guidelines</b> | <b>Supported Cisco CMTS Headend Equipment</b>   |  |
|-------------------------|---|--|
|                         | <b>Supported Router(s)</b>  | <b>Supported Cable Interface Line Card(s)</b>  |
|                         | <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
|                         | <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

|                 |   |
|-----------------|---|
| <b>Examples</b> | <p>The following example shows the <b>set log</b> command to set history log level.</p> <pre>rfswitch&gt; set log level</pre> |
|-----------------|---|

| <b>Related Commands</b> | <b>Command</b>           | <b>Description</b>                  |
|-------------------------|--------------------------|-------------------------------------|
|                         | <a href="#">show log</a> | Displays the execution history log. |

# set mac address

To specify the MAC address of the Ethernet port on the Cisco RF Switch (used to connect to the LAN), use the **set mac address** command in User mode.

**set mac address** *mac-address*

The MAC address must be specified using a trio of hexadecimal values such as with **set mac address** *hex.hex.hex*. To negate the existing MAC address assignment and specify a new one, use the **no** form of this command. If no MAC address is specified, the Cisco RF Switch assumes the default OUI MAC address value.

| Syntax Description | <i>mac-address</i> | The desired hardware MAC address. You may specify the MAC address as words in H.H.H format, or as octet bytes in H.H.H.H.H.H format. |
|--------------------|--------------------|--|
|--------------------|--------------------|--|

**Defaults** The Cisco RF Switch assumes the default OUI MAC address unless otherwise configured.

**Command Modes** User

| Command History | Release      | Modification   |
|-----------------|--------------|--|
|                 | Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
|                 | Version 3.30 | Command supported.                                       |
|                 | Version 3.50 | Command supported.                                       |
|                 | Version 3.60 | Command supported.                                       |
|                 | Version 3.80 | Command supported.                                       |
|                 | Version 3.90 | Command supported.                                       |
|                 | Version 3.92 | Command supported.                                       |

**Usage Guidelines** Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                     | Description   |
|------------------|-----------------------------|---|
|                  | <a href="#">show config</a> | Displays configuration file contents of the Cisco RF Switch, including MAC address assignments, and ARP timeout settings in Cisco RF Switch Firmware Version 3.50 and later versions. |

# set password

To restrict the use of some Firmware commands and configuration changes to be made on the Cisco RF Switch, use the **set password** command in User mode.

**set password** *string*

## Syntax Description

|               |  |
|---------------|--|
| <i>string</i> | Custom password defined in alpha-numeric text. |
|---------------|--|

## Defaults

Telnet passwords are disabled by default. System-level commands are secured, by default.

## Command Modes

User

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command not supported.                                   |
| Version 3.90 | Command not supported.                                   |
| Version 3.92 | Command not supported.                                   |

## Usage Guidelines

Use the **set password** command restricts the use of some Firmware commands and configuration changes on the Cisco RF Switch.



### Note

The **set password** command is not supported on Firmware Version 3.80 or later. Use the **enable password** instead.

## Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Related Commands

| Command              | Description                           |
|----------------------|---------------------------------------|
| <a href="#">ping</a> | Enables use of system-level commands. |

# set protection

To set the line card protection scheme, specifying the N+1 protection scheme under which the Cisco RF Switch operates, use the **set protection** command in User mode. To disable the existing protection scheme, use the **no** form of this command.

```
set protection { 4 | 8 }
```

```
no set protection
```

## Syntax Description

|          |  |
|----------|--|
| <b>4</b> | Specifies that the Cisco RF Switch use a 4+1 protection scheme.  |
| <b>8</b> | Specifies that the Cisco RF Switch use an 8+1 protection scheme. |

## Defaults

The default protection scheme for the Cisco RF Switch is 8+1 (**set protection 8**).

## Command Modes

User

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

## Usage Guidelines

Changing the Protect mode could invalidate the current Cisco RF Switch positions, but this is dependent on line cards and their positions.

To enable the system to set all line cards to the IDLE position automatically when the protection mode is changed, use the **config protection reset** command.

To negate the existing protection scheme specification, use the **no** form of this command. The default protection scheme for the Cisco RF Switch is 8+1.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following example configures the Cisco RF Switch to use the 8+1 protection scheme, in which there are seven Working line cards with one Protect line card:

```
rfswitch> set protection 8
```

**Related Commands**

| Command                     | Description   |
|-----------------------------|---|
| <a href="#">show config</a> | Displays configuration file contents of the Cisco RF Switch, including MAC address assignments, and ARP timeout settings in Cisco RF Switch Firmware Version 3.50 and later versions. |

## set slot config

To configure the slots for cable interface line cards, and to configure the upstream (US) and downstream (DS) slots, use the **set slot config** command in User mode. To return the chassis slot configuration to Firmware default (3x10—three downstream and 10 upstream slots), use the **no** form of this command. There are 14 slots in the RF Switch chassis.

```
set slot config { upstreamslots | downstreamslots }
```

```
no set slot config
```



### Note

The **set slot config** command replaces the earlier **configure card count** command effective with Firmware Version 3.30. The **configure card count** command does not allow for any slot configuration other than 3x10.

### Syntax Description

|                        |   |
|------------------------|---|
| <i>upstreamslots</i>   | Upstream slots—16-bit hex integer bit-mask that represents whether the slot is enabled and configured for the type of line card. The right-most bit represents slot 1.<br><br><b>Note</b> The bit-mask for US slots must precede the bitmap for DS slots. |
| <i>downstreamslots</i> | Downstream slots—16-bit hex integer bit-mask that represents whether the slot is enabled and configured for the type of line card. The right-most bit represents slot 1.  |

### Defaults

Slots are configured for 3x10 by default, as follows:

- three DS slots, *dnstreamslots* = 0x1c00
- 10 US slots, *upstreamslots* = 0x03ff
- Slot 14 is not used for 3x10 configuration.

### Command Modes

User

### Command History

| Release      | Modification  |
|--------------|---|
| Version 2.50 | Command not supported. See the <b>configure card count</b> command.   |
| Version 3.30 | Introduces support for the <b>set slot config</b> command, enabling alteration of US and DS slots in the RF Switch chassis. |
| Version 3.50 | Command supported.  |
| Version 3.60 | Command supported.  |
| Version 3.80 | Command supported.  |
| Version 3.90 | Command supported.  |
| Version 3.92 | Command supported.  |

**Usage Guidelines**

The Cisco RF Switch must be restarted for the changes to take effect (**reboot** or **reload** command), or an event occurs which causes the enumeration of the chassis line cards to reset.

Setting a bit position tells the Cisco RF Switch to expect that type of card installed in the slot. A zero in both parameters indicates that the slot should be empty. As there are only 14 slots in the Cisco RF Switch chassis, the upper two Most Significant Bits (MSBs) of the 16-bit integer are ignored.

The slot configuration is stored in non-volatile memory (nvmem), separate from the application firmware. This allows future upgrades to the application firmware without requiring the user to reprogram the slot configuration, and allows a single application code distribution for any or all RF Switch configurations.

Normally, Cisco defines this configuration during manufacture of Cisco RF Switches, but this command allows you to change the chassis slot setup in the field, and to use any number or mix of line cards that you might need in the future.

For additional information about bitmaps on the Cisco RF Switch, refer to these online resources:

- *Bitmap Calculator for N+1 Configuration with the Cisco RF Switch* (Microsoft Excel format)  
<http://www.cisco.com/warp/public/109/BitMap.xls>
- “Creating Cisco RF Switch Module Bitmaps” in *N+1 Redundancy for the Cisco Cable Modem Termination System*  
<http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html>

**Examples**

**Example for 3x10 Slot Configuration**

The following example configures 3x10 slot configuration:

```
rfswitch> set slot config 0x03ff 0x1c00
```

The command example above configures these US and DS slots with following decimal bitmask conversions:

- 10 US slots, three DS slots, one empty slot
- *upstream* bitmask = 0000 0011 1111 1111 = 0x03ff
- *dnstream* bitmask = 0001 1100 0000 0000 = 0x1c00

**Example for US and DS Cable Interface Line Cards in Slots 1-4**

The following example configures the RF Switch chassis with four cable interface line cards, with US cards in slots 1-2 and DS cards in slots 3-4:

```
rfswitch> set slot config 0x03 0x0c
```



**Note**

Type **set slot config ?** for additional command information.

**Related Commands**

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show config</a>      | Displays the running system configuration information for the Cisco RF Switch.       |
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |

# set snmp cache

To set the state of the SNMP cache enable flag, use the **set snmp cache** command. Setting <onoff> to 0 disables caching. Any other value enables caching.

To restore the defaults, use **no set snmp cache** command. By default SNMP caching is enabled.

**set snmp cache** *on-off*

|                           |               |   |
|---------------------------|---------------|---|
| <b>Syntax Description</b> | <i>on-off</i> | Sets the default state for caching SNMP requests. |
|---------------------------|---------------|---|

|                      |          |
|----------------------|----------|
| <b>Command Modes</b> | Password |
|----------------------|----------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                                      |
|------------------------|----------------|--|
|                        | Version 3.80   | This command was introduced to Cisco RF Switch Firmware. |
|                        | Version 3.90   | Command supported.                                       |
|                        | Version 3.92   | Command supported.                                       |

## Usage Guidelines

### Supported Cisco CMTS Headend Equipment

| <b>Supported Router(s)</b>  | <b>Supported Cable Interface Line Card(s)</b>  |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following example shows the **set snmp cache** command to enable the SNMP caching.

```
rfswitch> set snmp cache 1

rfswitch> sh config
.....
SNMP Community: private
SNMP Cache: enabled
SNMP Traps: enabled
.....
rfswitch>
```

| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>   |
|-------------------------|--------------------------------|--|
|                         | <a href="#">set snmp traps</a> | Enables SNMP reporting for all modules on the Cisco RF Switch. |

# set snmp community

To specify the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch, use the **set snmp community** command in User mode. This command enables you to gain read and write access to the Cisco RF Switch. The *community* string must be entered as a string of text.

To negate the existing community string and make way for a new one, use the **no** form of this command.

**set snmp community** *community-string*

## Syntax Description

|                         |   |
|-------------------------|---|
| <i>community-string</i> | Alpha-numeric community string identifier. The string can be up to 64 characters (maximum 11 characters for versions prior to 3.92) in length and may contain any of the printable ASCII characters (0x20-0x7e), except the space (0x20), double quote (0x22), semicolon (0x3b), backslash (\), forward slash (/) characters, and the stand-alone '?' and 'HELP', as they invoke the CLI help function. |
|-------------------------|---|

## Defaults

If no SNMP string is entered, the SNMP string assumes the default value **private**.

## Command Modes

User

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

## Usage Guidelines

To specify the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch, use the **set snmp community** command at the Cisco RF Switch command line interface.

This command enables you to gain read and write access to the Cisco RF Switch. The community string must be entered as a string of text. To negate the existing community string and make way for a new one, use the **no** form of this command. If no SNMP string is entered, the SNMP string assumes the default value **private**.

Non-SNMP upconverters are supported on the Cisco CMTS commencing with Cisco IOS Release 12.2(15)BC2a.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| Cisco uBR10012   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release. | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example sets SNMP parameters as follows:

```
rfswitch#set snmp community new string
```

**Related Commands**

| Command                                | Description  |
|--|--|
| <a href="#">set snmp host</a>          | Sets the IP addresses for one or more SNMP trap hosts.         |
| <a href="#">set snmp traps</a>         | Enables SNMP reporting for all modules on the Cisco RF Switch. |
| <a href="#">set snmp trap interval</a> | Sets the time interval for the SNMP crash trap.                |

# set snmp host

To set the IP addresses for one or more SNMP trap hosts, use the **set snmp host** command in User mode. To remove a host from the list, use the **no set host *ip-address*** command, or use the **no set host all** command to remove all such hosts.

**set snmp host *ip-address***

**no set host *ip-address***

|                           |                   |  |
|---------------------------|-------------------|--|
| <b>Syntax Description</b> | <i>ip-address</i> | Desired IP address for the SNMP host. Up to 16 hosts can be defined. |
|---------------------------|-------------------|--|

**Defaults** SNMP Trap hosts are not defined by default.

**Command Modes** User

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                                      |
|------------------------|----------------|--|
|                        | Version 2.50   | This command was introduced to Cisco RF Switch Firmware. |
|                        | Version 3.30   | Command supported.                                       |
|                        | Version 3.50   | Command supported.                                       |
|                        | Version 3.60   | Command supported.                                       |
|                        | Version 3.80   | Command supported.                                       |
|                        | Version 3.90   | Command supported.                                       |
|                        | Version 3.92   | Command supported.                                       |

**Usage Guidelines** Non-SNMP upconverters are supported on the Cisco CMTS commencing with Cisco IOS Release 12.2(15)BC2a.

**Supported Cisco CMTS Headend Equipment**

| <b>Supported Router(s)</b>   | <b>Supported Cable Interface Line Card(s)</b>  |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples** The following example sets the MAC address as follows:

```
rf switch> set shmp host 10.1.1.1
```

**Related Commands**

| <b>Command</b>                         | <b>Description</b>   |
|--|--|
| <a href="#">set snmp cache</a>         | Specifies the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch. |
| <a href="#">set snmp traps</a>         | Enables SNMP reporting for all modules on the Cisco RF Switch.                                   |
| <a href="#">set snmp trap interval</a> | Sets the time interval for the SNMP crash trap.  |

# set snmp traps

To enable SNMP reporting for all modules on the Cisco RF Switch, use the **set snmp traps** command in the User mode. To deactivate SNMP reporting, use the **no** form of this command.

**set snmp traps**

**no set snmp traps**

## Syntax Description

This command requires no additional keywords or arguments.

## Defaults

SNMP reporting is enabled by default.

## Command Modes

User

## Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

## Usage Guidelines

Non-SNMP upconverters are supported on the Cisco CMTS commencing with Cisco IOS Release 12.2(15)BC2a.

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following example enables SNMP reporting for all Cisco RF Switch modules:

```
rfswitch> set snmp traps
```

## Related Commands

| Command                                | Description  |
|--|--|
| <a href="#">set snmp cache</a>         | Specifies the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch. |
| <a href="#">set snmp host</a>          | Sets the IP addresses for one or more SNMP trap hosts.   |
| <a href="#">set snmp trap interval</a> | Sets the time interval for the SNMP crash trap.  |

# set snmp trap interval

To set the time interval for the SNMP crash trap, use the **set snmp trap interval** command in User mode.

**set snmp trap interval** *seconds*

|                           |                |  |
|---------------------------|----------------|--|
| <b>Syntax Description</b> | <i>seconds</i> | Specifies the interval duration in seconds. Seconds can range from 10 -to- 600 seconds (10 minutes). |
|---------------------------|----------------|--|

**Defaults** SNMP reporting is enabled by default, with the SNMP trap interval set to five minutes (300 secs).

**Command Modes** User

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>                                      |
|------------------------|----------------|--|
|                        | Version 2.50   | This command was introduced to Cisco RF Switch Firmware. |
|                        | Version 3.30   | Command supported.                                       |
|                        | Version 3.50   | Command supported.                                       |
|                        | Version 3.60   | Command supported.                                       |
|                        | Version 3.80   | Command supported.                                       |
|                        | Version 3.90   | Command supported.                                       |
|                        | Version 3.92   | Command supported.                                       |

**Usage Guidelines** Non-SNMP upconverters are supported on the Cisco CMTS commencing with Cisco IOS Release 12.2(15)BC2a.

### Supported Cisco CMTS Headend Equipment

| <b>Supported Router(s)</b>   | <b>Supported Cable Interface Line Card(s)</b>  |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>   |
|-------------------------|--------------------------------|--|
|                         | <a href="#">set snmp cache</a> | Specifies the Simple Network Management Protocol (SNMP) community string on the Cisco RF Switch. |
|                         | <a href="#">set snmp host</a>  | Sets the IP addresses for one or more SNMP trap hosts.   |
|                         | <a href="#">set snmp traps</a> | Enables SNMP reporting for all modules on the Cisco RF Switch.                                   |

# set switchover-group

To specify a new or existing switchover group name (to which a Cisco RF Switch module is assigned), use the **set switchover group** command in User mode. To remove all groups, except for the reserved group map of **all**, use the **no** form of this command.

**set switchover group** *group-name module-bitmap* { **all** }

**no set switchover-group**

## Syntax Description

|                      |  |
|----------------------|--|
| <i>group-name</i>    | Can be an alpha-numeric string beginning with a non-numeric character. If <i>group-name</i> specifies an existing group, the current definition is overwritten. <i>Group-name</i> can be up to 10 characters in length.  |
| <i>module-bitmap</i> | Defines a Cisco RF Switch module, and must be specified as an eight-character hexadecimal identifier or assigned the <b>all</b> keyword.<br><b>Note</b> Refer to the “Additional References” section on page 110 for links to instructions on creating an appropriate hexadecimal module bitmap.   |
| <b>all</b>           | Keyword instructs the Cisco RF Switch to switch over automatically all upstream and downstream interfaces connected to the switch module in question.<br><b>Note</b> When setting bit maps on the RF Switch, type <b>0x</b> in front of the bitmap identifier so that the RF Switch recognizes hexadecimal code. Otherwise, the RF Switch assumes the bitmap is in decimal code. |

## Defaults

The system automatically creates the group **all**, with a *module-bitmap* value of 0xFFFFFFFF.

## Command Modes

User

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

## Usage Guidelines

A switchover group is a collection of Cisco RF Switch interfaces that are all configured to switch over at the same time.

- This command can be abbreviated as **set group**.
- The system can hold up to 28 group definitions.

Once a switchover group containing one or more Cisco RF Switch modules has been defined, you can use the Cisco IOS **switch** command in the Router CLI to test N+1 Redundancy behavior on the Cisco RF Switch, as described in the section, “Switchover Testing Tasks for N+1 Redundancy” in the document *N+1 Redundancy for the Cisco Cable Modem Termination System*:

<http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html>

**Note**

You do not need to specify *module-bitmap* when negating an existing switchover group. For example, the command **no set switchover-group a12345** will eliminate the switchover group named “a12345.”

The Cisco RF Switch CLI does not check that the modules specified in the *module-bitmap* are unique, so a module may be mapped to different groups.

The **no set group all** command in User mode can be used to remove all groups, except for the reserved group map of **all**.

**Examples**

The following example gives the group name of **a12345** with a bitmap of 0xAA200000.

```
rfswitch> set switchover-group a12345 0xAA200000
```

**Related Commands**

| Command                              | Description                        |
|--------------------------------------|------------------------------------|
| <a href="#">set switchover-group</a> | Sets the switchover group bitmaps. |

# set telnet echo

To set the default state for echoing in the rfs w telnet server, use the **set telnet echo** command. To restore the default state, us the **no** form of the command.

**set telnet echo**

**no set telnet echo**



**Note**

With Firmware 3.80 or later, typing the **quit** or **exit** command in a telnet session will cause the rfs w telnet server to close the connection.

**Syntax Description**

This command requires no additional keywords or arguments.

**Defaults**

By default, telnet echo is set to the ON setting.

**Command Modes**

User

**Command History**

| Release      | Modification   |
|--------------|--|
| Version 3.80 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

**Usage Guidelines**

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

The following example illustrates the **set telnet echo** command running Cisco Firmware Version 3.80:

```
rfs w switch#set telnet echo
rfs w switch#
```

**Related Commands**

| Command                            | Description   |
|------------------------------------|---|
| <a href="#">enable password</a>    | Set enable mode password and store it in nvram.               |
| <a href="#">set telnet timeout</a> | Sets the inactivity timeout period for the Telnet connection. |

# set telnet timeout

To set the inactivity timeout period for the Telnet connection, use the **set telnet timeout** command in User mode. The inactivity timeout automatically closes the opened connection after a period of time if no activity occurs on the port.

**set telnet timeout seconds**



## Note

With Firmware 3.80 or later, typing the **quit** or **exit** command in a telnet session will cause the rfsw telnet server to close the connection.

## Syntax Description

*seconds* Duration of inactivity timeout, in seconds. A setting of “0” will disable the server echoing.

## Defaults

By default, the Telnet inactivity timeout is set to 10 minutes (600 seconds).

## Command Modes

User

## Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

## Usage Guidelines

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Related Commands

| Command                      | Description  |
|------------------------------|--|
| <a href="#">set password</a> | Sets a password to restrict Telnet client access to the RF Switch CLI. <ul style="list-style-type: none"> <li>Enables password in Version 3.80.</li> <li>Indicates enable password from Version 3.80 onwards.</li> </ul> |

# set tftp-host

To sets the host address for TFTP transfers, use the following command in User mode.

**set tftp-host** *ip-address*

|                           |                   |                              |
|---------------------------|-------------------|------------------------------|
| <b>Syntax Description</b> | <i>ip-address</i> | IP address of the TFTP host. |
|---------------------------|-------------------|------------------------------|

**Defaults** TFTP hosts are supported but not defined by default.

**Command Modes** User

| <b>Command History</b> | <b>Release</b> | <b>Modification</b> |
|------------------------|----------------|---------------------|
|                        | Version 2.50   | Command supported.  |
|                        | Version 3.30   | Command supported.  |
|                        | Version 3.50   | Command supported.  |
|                        | Version 3.60   | Command supported.  |
|                        | Version 3.80   | Command supported.  |
|                        | Version 3.90   | Command supported.  |
|                        | Version 3.92   | Command supported.  |

**Usage Guidelines** **Supported Cisco CMTS Headend Equipment**

| <b>Supported Router(s)</b>   | <b>Supported Cable Interface Line Card(s)</b>  |
|--|--|
| <ul style="list-style-type: none"> <li>• Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>• Cisco uBR10-MC5X20S/U/H</li> <li>• Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>• Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>• Cisco uBR-MC28C</li> <li>• uBR-MC16C/S</li> </ul>             |

| <b>Related Commands</b> | <b>Command</b>            | <b>Description</b>   |
|-------------------------|---------------------------|--|
|                         | <a href="#">copy tftp</a> | transfer Cisco RF Switch Firmware images (Flash and Bootflash images) from a remote TFTP host. |

# show arp

To display the contents of the Address Resolution Protocol (ARP) cache on the Cisco RF Switch, and additional ARP configurations (such as ARP timeout or table), use the **show arp** command in User mode.

**show arp** [ **all** | **table** ]

| Syntax Description | all          | Optional keyword displays additional ARP details, including link-list info and entries that may be expired. This keyword supported only in Cisco RF Switch Firmware Version 3.50 or later. |
|--------------------|--------------|--|
|                    | <b>table</b> | Optional keyword displays the full ARP table, including unused entries. This keyword supported only in Cisco RF Switch Firmware Version 3.50 or later.                                     |

**Defaults** This command has no default behavior or values.

**Command Modes** User

| Command History | Release      | Modification  |
|-----------------|--------------|---|
|                 | Version 2.50 | Command supported.  |
|                 | Version 3.30 | Command supported.  |
|                 | Version 3.50 | Additional keywords <b>all</b> and <b>table</b> added to display additional ARP status and configuration information. |
|                 | Version 3.60 | Command supported.  |
|                 | Version 3.80 | Command supported.  |
|                 | Version 3.90 | Command supported.  |
|                 | Version 3.92 | Command supported.  |

**Usage Guidelines** Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> </ul>              |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul> |

| Related Commands | Command                         | Description  |
|------------------|---------------------------------|--|
|                  | <a href="#">set arp timeout</a> | Allows you to change the Address Resolution Protocol (ARP) cache implementation in an effort to reduce the number of ARP requests.                       |
|                  | <a href="#">show config</a>     | Displays configuration file contents of the Cisco RF Switch, including ARP timeout settings in Cisco RF Switch Firmware Version 3.50 and later versions. |

# show config

To display the running system configuration information for the Cisco RF Switch, including all configurations available for the command-line interface (CLI), use the **show config** command in User mode. This information includes IP addressing, SNMP configuration, and Working/Protect status.

**show config set**

|                           |            |   |
|---------------------------|------------|---|
| <b>Syntax Description</b> | <i>set</i> | Version 3.80 enables the use of the <i>set</i> option. This option displays the config information formatted as SET commands. |
|---------------------------|------------|---|

|                 |   |  |
|-----------------|---|--|
| <b>Defaults</b> | The default setting is 14,400 seconds, which is four hours, in Firmware Version 3.50. |  |
|-----------------|---|--|

|                      |      |  |
|----------------------|------|--|
| <b>Command Modes</b> | User |  |
|----------------------|------|--|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>  |
|------------------------|----------------|--|
|                        | Version 2.50   | Command supported.   |
|                        | Version 3.30   | Version 3.30 makes the following modifications: <ul style="list-style-type: none"> <li>• Modifies the information displayed in the <code>password</code> field so as to preserve password security. This field now displays all asterisks (*).</li> <li>• No longer displays the Card Count field. Instead, this command displays a message showing the Slot Config parameters in its place:                             <pre>Slot Config: 0x03ff 0x1c00 (13 cards)</pre> </li> <li>• Shows the requested DHCP lease time setting.</li> <li>• Displays the non-volatile memory (nvmem) settings for network parameters.</li> </ul> |
|                        | Version 3.50   | Supports Version 3.30 enhancements, and introduces ARP information in the command display.   |
|                        | Version 3.60   | Command supported.   |
|                        | Version 3.80   | Command supported. Version 3.80 enables the use of the <i>set</i> option. This option displays the config information formatted as SET commands.   |
|                        | Version 3.90   | Command supported.   |
|                        | Version 3.92   | Command supported.   |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | <p>Displays the current setting of the configuration parameters as stored in the non-volatile memory, including MAC and IP addresses, SNMP community string, protect mode, password, groups, etc.</p> <p>Note that for the network parameters, these may not be the settings currently in use (see SHOW IP and SHOW DHCP commands).</p> <p>If the SET option is used, then the configuration information is formatted as a series of SET commands.</p> |
|-------------------------|--|

**Supported Cisco CMTS Headend Equipment**

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>• Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>• Cisco uBR10-MC5X20S/U/H</li> <li>• Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>• Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>• Cisco uBR-MC28C</li> <li>• uBR-MC16C/S</li> </ul>             |

**Examples**

The following output from the **show config set** RF Switch command illustrates the configuration of N+1 redundancy with these Cisco CMTS headend components:

```
rfswitch#sh config set

SET IP ADDR 1.10.47.101 255.255.255.0

SET IP DEFAULT-GATEWAY 1.10.47.1

SET TFTP-HOST 1.10.47.1

SET ARP TIMEOUT 14400

SET DHCP LEASE 0xffffffff

SET TELNET TIMEOUT 600

SET TELNET ECHO 1

SET SNMP COMMUNITY 'private'

SET SNMP CACHE 1

SET SNMP TRAPS

SET SNMP TRAP INTERVAL 300

NO SET SNMP HOST

SET PROTECT 4

SET SLOT CONFIG 0x03ff 0x1c00

NO SET GROUP ALL
```

The following output from the **show config** RF Switch command illustrates the configuration of N+1 redundancy with these Cisco CMTS headend components:

- Cisco RF Switch
- Cisco uBR10012 router
- Cisco MC28 line cards

```
rfswitch> show config

IP addr: 172.18.73.3
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-13

Gateway IP: 172.18.73.1
TFTP host IP: 172.18.73.2
TELNET inactivity timeout: 600 secs
```

```

Password: (none)

SNMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: 1
    172.18.73.165

Card Protect Mode: 4+1
Protect Mode Reset: Disabled
Chassis Config: 13 cards
Watchdog Timeout: 20 sec(s)

Group definitions: 3
    ALL          0xffffffff
    GRP1         0xaa200000
    GRP2         0x55100000
  
```

The following output from the **show config** command illustrates the configuration of N+1 redundancy with these Cisco CMTS headend components:

- Cisco RF Switch
- Cisco uBR10012 router
- Cisco MC5x20 line cards

```

rfs switch> show config

IP addr: 192.168.3.30
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-13

Gateway IP: 192.168.3.170
TFTP host IP: 172.18.73.165
DHCP lease time: infinite
TELNET inactivity timeout: 600 secs
Password: xxxx

SNMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: 1
    172.18.73.165

Card Protect Mode: 4+1/8+1
Protect Mode Reset: Disabled
Slot Config: 0x03ff 0x1c00 (13 cards)
Watchdog Timeout: 20 sec(s)

Group definitions: 7
    ALL          0xffffffff
    GRP1         0xaa200000
    GRP2         0x55100000
    GRP3         0x00c80000
    GRP4         0x00c00000
  
```

The following example illustrates the **show config** command for the Cisco RF Switch running Cisco Firmware Version 3.30 in 4+1 mode with maximum line cards configured (14):

```

rfs switch> show config

IP addr: 192.168.3.2
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-B3

Gateway IP: none
TFTP host IP: 192.168.3.171
  
```

```

DHCP lease time: infinite
TELNET inactivity timeout: 60 secs
Password: (none)

SNMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: none

Card Protect Mode: 4+1
Protect Mode Reset: Disabled
Slot Config: 0x0fff 0x3000 (14 cards)
Watchdog Timeout: 20 sec(s)

Group definitions: 10
  ALL          0xffffffff
  GRP1         0x80100000
  GRP2         0x801c0000
  GRP3         0x803c0000
  GR4          0x44440400
  GR5          0x11110100
  GR6          0x00005040
  GR7          0x00000a00
  GR8          0x88880800
  GRP9         0x22220200

```

The following example illustrates the **show config** command for the Cisco RF Switch running Cisco Firmware Version 3.30 in 4+1 mode. This example is from Firmware Version 2.50.

```

rfswitch> show config

IP addr: 10.0.0.1
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-12-25

ateway IP: none
TFTP host IP: none
DHCP lease time: infinite
TELNET inactivity timeout: 600 secs
Password: (none)

NMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: none

Card Protect Mode: 8+1
Protect Mode Reset: Disabled
Slot Config: 0x0fff 0x3000 (14 cards)
Watchdog Timeout: 20 sec(s)

roup definitions: 1
  ALL          0xffffffff

```

The following **show config** command example illustrates a sample Cisco RF Switch configuration in 8+1 Redundancy mode. This example is from Firmware Version 3.50.

```

rfswitch> show config

IP addr: 10.0.0.1
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-12-25

Gateway IP: none
TFTP host IP: none
TELNET inactivity timeout: 600 secs
Password: (none)

NMP Community: private
SNMP Traps: Enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: none

```

```
Card Protect Mode: 8+1
Protect Mode Reset: Disabled
Chassis Config: 13 cards
Watchdog Timeout: 20 sec(s)
```

```
Group definitions: 1
  ALL             0xffffffff
```

**Related Commands**

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |

# show dhcp

To display the values received from the DHCP server, as well as the status of the lease time, use the **show dhcp** command in User mode.

## show dhcp

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default behavior or values.

### Command Modes

User

### Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | Command not supported.                               |
| Version 3.30 | Support introduced for the <b>show dhcp</b> command. |
| Version 3.50 | Command supported.                                   |
| Version 3.60 | Command supported.                                   |
| Version 3.80 | Command supported.                                   |
| Version 3.90 | Command supported.                                   |
| Version 3.92 | Command supported.                                   |

### Usage Guidelines

The time values displayed are in the format HH:MM:SS, and are relative to the current system time, which is also displayed.

DHCP can be used to obtain the IP address while retaining the setting for the TFTP server, as set via the [set dhcp lease](#) command.

The one exception to this is when moving from using a static IP address to using DHCP. Because the DHCP client is only installed at bootup as required, changing from a static IP address to DHCP requires that the system be rebooted for DHCP to take effect. Use either the [reboot](#) or [reload](#) command.

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> </ul>              |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul> |

### Examples

The following example displays DHCP information for a Cisco RF Switch running Firmware Version 3.50:

```
rfswitch> show dhcp
DHCP client: inactive (0)

DHCP Server IP: 0.0.0.0
IP addr: 0.0.0.0
Mask: 255.255.255.0
Gateway IP: 0.0.0.0
TFTP Server: 0.0.0.0
DHCP lease length: 0:00:00

DHCP LeaseTime: 0:00:00
DHCP RenewalTime: 0:00:00
DHCP RebindTime: 0:00:00

Current time: 50:40:28
Lease remaining: 0:00:00
```

Time till renewal: 0:00:00

**Related Commands**

| <b>Command</b>                 | <b>Description</b>                      |
|--------------------------------|---|
| <a href="#">set dhcp lease</a> | Sets the requested lease time for DHCP. |

# show file

To display the status of both Flash (NruApp) and Bootflash (SysLoader) images and configuration, including header information, Cyclic Redundancy Check (CRC), date, and so forth, use the **show file** command in User mode.

## show file

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default behavior or values.

### Command Modes

User

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Examples

The following example displays information from the **show file** command for Firmware Version 3.50 (Flash: 3.50 and Bootflash: 2.20).

```
rfswitch# show file

bootflash: Status (0,0)
  HdrCrc   : 0x0590a438
  DataCrc  : 0x4781d087
  File     : 1935022G
  Type     : SYS
  Version  : 2.20
  Date     : Sep  8 2003 , 10:27:29
  Size     : 262144
  LoadAddr: 0x00050000
```

```
flash: Status (0,0)
HdrCrc : 0xd55788fd
DataCrc : 0x3525daef
File : 1935030H
Type : APP
Version : 3.30
Date : Sep 8 2003 , 10:25:15
Size : 262144
LoadAddr: 0x00050000
```

Table 2 describes the significant fields shown in the display.

**Table 2** *show file Field Descriptions*

| Field         | Description  |
|---------------|--|
| Status (X, Y) | <p>X—Backup copy</p> <p>Y—Working copy</p> <p>A status of 0 for either of the image files (backup or working) indicates that the slot population and module status in the RF Switch chassis is valid.</p> <p>A status of less than 0 for either of the image files indicates an error was detected in the image.</p> <p>The remaining information from the <b>show file</b> command is from the image that is or will be in use upon next reboot, assuming there is a valid image.</p> <p>For example, Bootflash: Status(-252, 0) indicates that there is a CRC error in the backup copy, while the working copy is ok. You can use the <b>show file</b> command along with the <b>erase</b> command to try to generate system errors in the file structure, but be aware that the auto-backup/restore function may correct the error before you see it.</p> |

**Related Commands**

| Command                      | Description  |
|------------------------------|--|
| <a href="#">show config</a>  | Displays the running system configuration information for the Cisco RF Switch. |
| <a href="#">show version</a> | Displays the slot population and status of modules in the RF Switch chassis.   |

# show ip

To display IP configuration information for the Cisco RF Switch, use the **show ip** command in User mode.

```
show ip [ count ]
```

| Syntax Description | <i>count</i> | Optional keyword displays the ifInCounters and ifOutCounters (received, disgrams, errors, and so forth). This keyword is only supported in Firmware Version 3.30 or later. |
|--------------------|--------------|--|
|--------------------|--------------|--|

**Defaults** This command has no default behavior or values.

**Command Modes** User

| Command History | Release      | Modification   |
|-----------------|--------------|--|
|                 | Version 2.50 | Command supported without the <b>count</b> keyword.  |
|                 | Version 3.30 | Added optional <b>count</b> keyword that displays the ifInCounters and ifOutCounters (received, disgrams, errors, and so forth). |
|                 | Version 3.50 | Command and <b>count</b> keyword supported.  |
|                 | Version 3.60 | Command supported.   |
|                 | Version 3.80 | Command supported.   |
|                 | Version 3.90 | Command supported.   |
|                 | Version 3.92 | Command supported.   |

**Usage Guidelines** Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> </ul>              |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul> |

**Examples** The following example illustrates the **show ip** command running Cisco Firmware Version 3.30:

```
rfswitch> show ip

Current IP mode: static (0)
IP addr: 192.168.3.2
Mask: 255.255.255.0
Gateway IP: 0.0.0.0
TFTP Server: 192.168.3.171
NetApps: running (1)
DHCP client: inactive (0)
```

**Related Commands**

| <b>Command</b>                         | <b>Description</b>   |
|--|--|
| <a href="#">set ip address</a>         | Sets the IP address and subnet mask for the Ethernet interface on the Cisco RF Switch. |
| <a href="#">set ip default-gateway</a> | Sets the IP address of the default gateway for the Cisco RF Switch.                    |

# show ip count

To display interface statistics information for the Cisco RF Switch, use the **show ip count** command in User mode.

## show ip count

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default behavior or values.

### Command Modes

User or System

### Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | Command supported without the <b>count</b> keyword.  |
| Version 3.30 | Added optional <b>count</b> keyword that displays the ifInCounters and ifOutCounters (received, discards, errors, and so forth). |
| Version 3.50 | Command and <b>count</b> keyword supported.  |
| Version 3.60 | Command supported.   |
| Version 3.80 | Command supported.   |
| Version 3.90 | Command supported.   |
| Version 3.92 | Command supported.   |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> </ul>              |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul> |

### Examples

The following example illustrates the **show ip** command running Cisco Firmware Version 3.30:

```
rfswitch> show ip count
```

```
ifInOctets: 296150
ifInUcastPkts: 3232
ifInNUcastPkts: 6
ifInDiscards: 0
ifInErrors: 0
ifInUnknownProtos: 0
ifOutOctets: 299792
ifOutUcastPkts: 3231
ifOutNUcastPkts: 1
ifOutDiscards: 0
ifOutErrors: 0
```

**Related Commands**

| <b>Command</b>                 | <b>Description</b>   |
|--------------------------------|--|
| <a href="#">set ip address</a> | Sets the IP address and subnet mask for the Ethernet interface on the Cisco RF Switch. |
| <a href="#">show ip</a>        | Displays IP configuration information for the Cisco RF Switch.                         |

# show lcc config

To display various configuration settings of the Line Card Controller (LCC), which is used to communicate between Cisco RF Switch modules and the corresponding line cards, use the **show lcc config** command in User mode.

## show lcc config

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default values.

### Command Modes

User

### Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |
| <a href="#">show version</a>     | Displays the slot population and status of modules in the RF Switch chassis.         |

# show log

To display the contents of the execution/error history log buffer, use the **show log** command. The buffer stores the last 128 system events in volatile ram memory. The log entries consist of a timestamp relative to last boot (in the form hrs:min:sec.msec), an entry related code, and a descriptive message of the event. Reading the buffer will automatically clear it.

## show log

### Syntax Description

This command requires no additional keywords or arguments.

### Command Modes

User or System

### Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | This command was introduced to Cisco RF Switch Firmware. |
| Version 3.30 | Command supported.                                       |
| Version 3.50 | Command supported.                                       |
| Version 3.60 | Command supported.                                       |
| Version 3.80 | Command supported.                                       |
| Version 3.90 | Command supported.                                       |
| Version 3.92 | Command supported.                                       |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)   | Supported Cable Interface Line Card(s)   |
|---|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>  | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router with Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Examples

The following example shows the **show log** command and the execution history log.

```
rfswitch> sh log
History log has 1 entries

Timestamp   Code  Message
1:43:58.870 0 log cleared
```

### Related Commands

| Command                 | Description                        |
|-------------------------|------------------------------------|
| <a href="#">set log</a> | Sets the history log filter level. |

# show module

To display the module numbers, slots, and states of each relay on the Cisco RF Switch, use the **show module all** command in User mode:

```
show module { module | group-name | all }
```

| Syntax Description | Option            | Description  |
|--------------------|-------------------|--|
|                    | <i>module</i>     | Option allows you to display module information for a specified module.                        |
|                    | <i>group-name</i> | Option allows you to display module information for all modules within a specified HCCP group. |
|                    | <b>all</b>        | Displays information for all modules.  |

**Defaults** This command has no default values.

**Command Modes** User

| Command History | Release      | Modification       |
|-----------------|--------------|--------------------|
|                 | Version 2.50 | Command supported. |
|                 | Version 3.30 | Command supported. |
|                 | Version 3.50 | Command supported. |
|                 | Version 3.60 | Command supported. |
|                 | Version 3.80 | Command supported. |
|                 | Version 3.90 | Command supported. |
|                 | Version 3.92 | Command supported. |

**Usage Guidelines** The **show module** command is available at the RF Switch CLI, and supports the following Cisco routers and cable interface line cards in N+1 Redundancy:

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U</li> <li>uBR-LCP-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>uBR-LCP-MC28C</li> <li>uBR-LCP-MC16X</li> </ul>         |

**Examples** The following example shows module information from the Cisco RF Switch, configured in N+1 redundancy with these Cisco CMTS headend components:

- Cisco RF Switch with 14 modules active
- Cisco uBR10012 router
- Cisco MC28 line cards

```
rfswitch> show module all
```

```
Module  Presence  Admin  Fault
      1   online    0      ok
      2   online    0      ok
      3   online    0      ok
      4   online    0      ok
      5   online    0      ok
      6   online    0      ok
      7   online    0      ok
      8   online    0      ok
```

```

 9  online  0  ok
10  online  0  ok
11  online  0  ok
12  online  0  ok
13  online  0  ok
14  offline 0  ok

```

Table 3 describes the significant fields shown in the display.

**Table 3** *show module Field Descriptions*

| Field    | Description  |
|----------|--|
| Module   | Displays module numbers in the Cisco RF Switch.  |
| Presence | Displays online or offline presence for each module.   |
| Admin    | Displays administrative status for each module. <ul style="list-style-type: none"> <li>• 0 in the Admin column indicates Working mode.</li> <li>• 1-8 — Indicates that there has been a switchover, and the corresponding module is in Protect mode, and the header is being protected. For example, an Admin state of 8 for Module 1 would indicate a switchover for port A (Module 1) on header 8 on the Cisco RF Switch. After a switchover, verify that this Admin state corresponds with the actual wiring on the Cisco RF Switch.</li> <li>• 9 indicates fault.</li> </ul> |
| Fault    | Displays module faults when present.   |

**Related Commands**

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |
| <a href="#">show version</a>     | Displays the slot population and status of modules in the RF Switch chassis.         |

# show rtos status

To display real-time operating system (rtos) status, use the **show rtos status** command in User mode.

## show rtos status

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default values.

### Command Modes

User

### Command History

| Release      | Modification       |
|--------------|--------------------|
| Version 2.50 | Command supported. |
| Version 3.30 | Command supported. |
| Version 3.50 | Command supported. |
| Version 3.60 | Command supported. |
| Version 3.80 | Command supported. |
| Version 3.90 | Command supported. |
| Version 3.92 | Command supported. |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |
| <a href="#">show version</a>     | Displays the slot population and status of modules in the RF Switch chassis.         |

# show slot config

To display the module numbers, slots, and states of each relay on the Cisco RF Switch, use the **show slot configuration** command in User mode:

```
show slot configuration
```

## Syntax Description

This command requires no additional keywords or arguments.

## Defaults

This command has no default values.

## Command Modes

User

## Command History

| Release      | Modification                         |
|--------------|--------------------------------------|
| Version 2.50 | Command not supported.               |
| Version 3.30 | Support introduced for this command. |
| Version 3.50 | Command supported.                   |
| Version 3.60 | Command supported.                   |
| Version 3.80 | Command supported.                   |
| Version 3.90 | Command supported.                   |
| Version 3.92 | Command supported.                   |

## Usage Guidelines

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> </ul>              |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul> |

## Examples

The following example shows typical module information and status on the Cisco 3x10 RF Switch. This example displays the current value of the six SNMP objects:

```
rfswitch> sh slot config

Slot Configuration:
  Upstream config: 0x03ff
  Upstream detected: 0x03ff
  Upstream errors: 0x0000

  Dnstream config: 0x1c00
  Dnstream detected: 0x1c00
  Dnstream errors: 0x0000
```

## Related Commands

| Command                         | Description   |
|---------------------------------|---|
| <a href="#">set slot config</a> | Configures the slots in the Switch chassis for use with line cards in the router chassis. |
| <a href="#">show log</a>        | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch.      |
| <a href="#">show version</a>    | Displays the slot population and status of modules in the RF Switch chassis.              |

# show switch status

To display detailed RF Switch status for all modules (1-28), including the last command used, the detected module position, and any relays that are in error, use the show switch status command in User mode.

**show switch status** *module all*

| Syntax Description | module     | Optional <i>module</i> number allows you to display information for one specified module. The module range is 1-28. |
|--------------------|------------|---|
|                    | <i>all</i> | Displays switch status of all modules.  |

**Defaults** This command has no default values.

**Command Modes** User

| Command History | Release      | Modification  |
|-----------------|--------------|---|
|                 | Version 2.50 | Command supported.  |
|                 | Version 3.30 | Command supported.  |
|                 | Version 3.50 | Command supported.  |
|                 | Version 3.60 | Command supported.  |
|                 | Version 3.80 | Command supported. Version 3.80 adds the optional <i>all</i> , which displays the switch status of all modules. |
|                 | Version 3.90 | Command supported.  |
|                 | Version 3.92 | Command supported.  |

**Usage Guidelines** A position of -1 for one or more modules indicates an error in the detected state of the line card switches.

## Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

**Examples**

```

rfs witch#sh switch status 1

module: 1

last cmd: 0

reported position: 0

relay errors: 0x0000

```

```

rfswitch#sh config
IP addr: 1.10.47.101
Subnet mask: 255.255.255.0
MAC addr: 00-03-8F-01-04-17
Gateway IP: 1.10.47.1
TFTP host IP: 1.10.47.1
ARP timeout: 14400 secs
DHCP lease time: infinite
TELNET inactivity timeout: 600 secs
TELNET echo mode: on
Password: ***

SNMP Community: private
SNMP Cache: enabled
SNMP Traps: enabled
SNMP Trap Interval: 300 sec(s)
SNMP Trap Hosts: none
Card Protect Mode: 4+1
Protect Mode Reset: disabled
Slot Config: 0x03ff 0x1c00 (13 cards)
Watchdog Timeout: 20 sec(s)
Group definitions: 1
ALL 0xffffffff
rfswitch#

```

**Related Commands**

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch.                         |
| <a href="#">show version</a>     | Displays a list of Firmware images and status, slot population and module status, and line card information. |

# show version

To display a list of Firmware images and status, slot population and module status, and line card information as currently configured on the Cisco RF Switch, use the **show version** command in User mode:

```
show version
```

## Syntax Description

This command requires no additional keywords or arguments.

## Defaults

This command has no default values.

## Command Modes

User

## Command History

| Release      | Modification  |
|--------------|---|
| Version 2.50 | Command modified to list each of three RF Switch Firmware versions.                           |
| Version 3.30 | Command supported with the addition of line card configuration information according to slot. |
| Version 3.50 | Command supported.  |
| Version 3.60 | Command supported.  |
| Version 3.80 | Command supported.  |
| Version 3.90 | Command supported.  |
| Version 3.92 | Command supported.  |

## Usage Guidelines

### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

## Examples

The following output of the show version command illustrates the configuration of N+1 Redundancy for Cisco RF Switch Firmware Version 3.60, installed in conjunction with Cisco IOS Release 12.3(21)BC on the Cisco uBR10012 router:

```
Controller firmware:
RomMon: 1935033 V1.10
Bootflash: 1935030J V3.60
Flash: 1935030J V3.60

Slot Model Type SerialNo HwVer SwVer Config
999 193-5001 10BaseT 1043 E 3.60
1 193-5002 upstream 1100432 F 1.30 upstream
2 193-5002 upstream 1095154 F 1.30 upstream
3 193-5002 upstream 1095156 F 1.30 upstream
4 193-5002 upstream 1095111 F 1.30 upstream
5 193-5002 upstream 1095192 F 1.30 upstream
6 193-5002 upstream 1095078 F 1.30 upstream
7 193-5002 upstream 1095105 F 1.30 upstream
8 193-5002 upstream 1095184 F 1.30 upstream
9 193-5002 upstream 1102465 F 1.30 upstream
```

```

10 193-5002 upstream 1102624 F 1.30 upstream
11 193-5003 dnstream 1095361 J 1.30 dnstream
12 193-5003 dnstream 1102777 J 1.30 dnstream
13 193-5003 dnstream 1095417 J 1.30 dnstream
14 not detected none

```

The following output from the **show version** command illustrates the configuration of N+1 Redundancy with these Cisco CMTS headend components with Cisco RF Switch Firmware Version 3.50:

- Cisco RF Switch
- Cisco uBR10012 router
- Cisco MC5x20 line cards
- Firmware (NruApp) Version 3.50

```
rfswitch> show version
```

```
Controller firmware:
```

```

RomMon: 1935033 V1.10
Bootflash: 1935022G V2.00
Flash: 1935030 V3.50

```

| Slot | Model    | Type     | SerialN | HwVer | SwVer | Config   |
|------|----------|----------|---------|-------|-------|----------|
| 999  | 193-5001 | 10BaseT  | 1043    | E     | 3.50  |          |
| 1    | 193-5002 | upstream | 1095107 | F     | 1.30  | upstream |
| 2    | 193-5002 | upstream | 1095154 | F     | 1.30  | upstream |
| 3    | 193-5002 | upstream | 1095156 | F     | 1.30  | upstream |
| 4    | 193-5002 | upstream | 1095111 | F     | 1.30  | upstream |
| 5    | 193-5002 | upstream | 1095192 | F     | 1.30  | upstream |
| 6    | 193-5002 | upstream | 1095078 | F     | 1.30  | upstream |
| 7    | 193-5002 | upstream | 1095105 | F     | 1.30  | upstream |
| 8    | 193-5002 | upstream | 1095161 | F     | 1.30  | upstream |
| 9    | 193-5002 | upstream | 1095184 | F     | 1.30  | upstream |
| 10   | 193-5002 | upstream | 1095113 | F     | 1.30  | upstream |
| 11   | 193-5003 | dnstream | 1095361 | J     | 1.30  | dnstream |
| 12   | 193-5003 | dnstream | 1095420 | J     | 1.30  | dnstream |
| 13   | 193-5003 | dnstream | 1095417 | J     | 1.30  | dnstream |

The following output from the **show version** command illustrates the configuration of N+1 redundancy with these Cisco CMTS headend components:

- Cisco RF Switch
- Cisco uBR10012 router
- Cisco MC28 line cards
- Firmware (NruApp) Version 2.50

```
rfswitch> show version
```

```
Controller firmware:
```

```

RomMon: 1935033 V1.10
Bootflash: 1935022D V1.40
Flash: 1935030E V2.50

```

| Slot | Model        | Type     | SerialNo | HwVer | SwVer |
|------|--------------|----------|----------|-------|-------|
| 999  | 193-5001     | 10BaseT  | 1043     | E     | 2.50  |
| 1    | 193-5002     | upstream | 1095107  | F     | 1.30  |
| 2    | 193-5002     | upstream | 1095154  | F     | 1.30  |
| 3    | 193-5002     | upstream | 1095156  | F     | 1.30  |
| 4    | 193-5002     | upstream | 1095111  | F     | 1.30  |
| 5    | 193-5002     | upstream | 1095192  | F     | 1.30  |
| 6    | 193-5002     | upstream | 1095078  | F     | 1.30  |
| 7    | 193-5002     | upstream | 1095105  | F     | 1.30  |
| 8    | 193-5002     | upstream | 1095161  | F     | 1.30  |
| 9    | 193-5002     | upstream | 1095184  | F     | 1.30  |
| 10   | 193-5002     | upstream | 1095113  | F     | 1.30  |
| 11   | 193-5003     | dnstream | 1095361  | J     | 1.30  |
| 12   | 193-5003     | dnstream | 1095357  | J     | 1.30  |
| 13   | 193-5003     | dnstream | 1095417  | J     | 1.30  |
| 14   | not detected |          |          |       |       |

**Related Commands**

| <b>Command</b>                   | <b>Description</b>   |
|----------------------------------|--|
| <a href="#">show log</a>         | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |

# switch

To perform N+1 switchover testing with the specified Cisco RF Switch module(s), use the **switch** command in User mode.

```
switch {module | group-name | all} {idle | workingN | moduleAdminState } {slot #}
```

| Syntax Description |  |
|--------------------|--|
| <i>module</i>      | Module number.   |
| <i>group-name</i>  | HCCP group number.   |
| <i>workingN</i>    | The command allows any abbreviations for the working1-workingN switch setting that begin with "W" (i.e. "working1", "W1", "WORK1", etc). You can also enter the integer numbers 0-8 (same as the MIB moduleAdminState) for this parameter. |

**Defaults** This command has no default values.

**Command Modes** User

| Command History | Release      | Modification                                      |
|-----------------|--------------|---|
|                 | Version 2.50 | Command not supported.                            |
|                 | Version 3.30 | Introduces support for the <b>switch</b> command. |
|                 | Version 3.50 | Command supported.                                |
|                 | Version 3.60 | Command supported.                                |
|                 | Version 3.80 | Command supported.                                |
|                 | Version 3.90 | Command supported.                                |
|                 | Version 3.92 | Command supported.                                |

**Usage Guidelines** Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

| Related Commands | Command                          | Description   |
|------------------|----------------------------------|---|
|                  | <a href="#">test module</a>      | Performs a diagnostic test on the switching functions of the Cisco RF Switch chassis. |
|                  | <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch.  |

# test module

To perform a diagnostic test on the switching functions of the Cisco RF Switch chassis, testing all modules for functionality, use the **test module** command in User mode.

## test module



Warning

**This command exercises all switch positions of all line cards. At the end of the test, the current Protect mode is restored, but all line cards are in the IDLE position. This command may be used to verify system functionality during installation and testing.**



Warning

**Do not use the test module command when the Cisco CMTS is in Protect Mode for N+1 Redundancy.**

### Syntax Description

This command requires no additional keywords or arguments.

### Defaults

This command has no default values.

### Command Modes

User

### Command History

| Release      | Modification   |
|--------------|--|
| Version 2.50 | Command supported.   |
| Version 3.30 | Command enhanced to display the slot configuration type for the corresponding line card, and verifies that the card type is as expected. |
| Version 3.50 | Command supported with Version 3.30 enhancement.   |
| Version 3.60 | Command supported.   |
| Version 3.80 | Command supported.   |
| Version 3.90 | Command supported.   |
| Version 3.92 | Command supported.   |

### Usage Guidelines

#### Supported Cisco CMTS Headend Equipment

| Supported Router(s)  | Supported Cable Interface Line Card(s)   |
|--|--|
| <ul style="list-style-type: none"> <li>Cisco uBR10012</li> </ul>   | <ul style="list-style-type: none"> <li>Cisco uBR10-MC5X20S/U/H</li> <li>Cisco uBR-MC28C</li> </ul> |
| <ul style="list-style-type: none"> <li>Cisco uBR7246VXR router running Cisco IOS Release 12.3(9a)BC or prior N+1-enabled Cisco IOS release.</li> </ul> | <ul style="list-style-type: none"> <li>Cisco uBR-MC28C</li> <li>uBR-MC16C/S</li> </ul>             |

### Related Commands

| Command                          | Description  |
|----------------------------------|--|
| <a href="#">switch</a>           | perform N+1 switchover testing with the specified Cisco RF Switch module(s).         |
| <a href="#">show slot config</a> | Displays the module numbers, slots, and states of each relay on the Cisco RF Switch. |

# Additional References

## Related Documents

| Related Topic  | Document Title   |
|--|--|
| Broadband Cable Command References                     | <ul style="list-style-type: none"> <li>• <i>Cisco Broadband Cable Command Reference Guide</i><br/> <a href="http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_command_reference_list.html">http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_command_reference_list.html</a></li> </ul>  |
| Cisco RF Switch Firmware                               | <ul style="list-style-type: none"> <li>• <i>Release Notes for Cisco RF Switch Firmware, Version 3.92</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/release/notes/rfswrn36.html">http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/release/notes/rfswrn36.html</a></li> <li>• <i>Cisco RF Switch Firmware Configuration Guide, Version 3.92</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/configuration/guide/rfswcf36.html">http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/configuration/guide/rfswcf36.html</a></li> <li>• <i>N+1 Redundancy for the Cisco CMTS</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html">http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html</a></li> <li>• <i>Field Notice—uBR-RF-SW (N+1 Switch) Firmware Upgrade to Version 3.3 to Enable Setting of Default Gateway for Remote Software Upgrades</i><br/> <a href="http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_field_notices_list.html">http://www.cisco.com/en/US/products/hw/cable/ps2209/prod_field_notices_list.html</a></li> </ul> |
| Cisco RF Switch Hardware                               | <ul style="list-style-type: none"> <li>• <i>Cisco RF Switch Documentation Guide</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/roadmap/rdmp310.html">http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/roadmap/rdmp310.html</a></li> <li>• <i>Cisco RF Switch Installation and Cabling Guide</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/installation/guide/icg.html">http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/installation/guide/icg.html</a></li> <li>• <i>Cisco RF Switch Product Home Page</i><br/> <a href="http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html">http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html</a></li> </ul>   |
| Cisco uBR7246VXR Universal Broadband Router            | <ul style="list-style-type: none"> <li>• <i>Cisco uBR7200 Series Universal Broadband Routers</i> Web page (complete documentation set)<br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/roadmap/7200rdmp.html">http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/roadmap/7200rdmp.html</a></li> </ul>   |
| Cisco uBR10012 Universal Broadband Router              | <ul style="list-style-type: none"> <li>• <i>Cisco uBR10012 Universal Broadband Router</i> Web page (complete documentation set)<br/> <a href="http://www.cisco.com/en/US/products/hw/cable/ps2209/products_documentation_roadmaps_list.html">http://www.cisco.com/en/US/products/hw/cable/ps2209/products_documentation_roadmaps_list.html</a></li> </ul>  |
| High Availability References for Cisco Broadband Cable | <ul style="list-style-type: none"> <li>• <i>N+1 Redundancy for the Cisco CMTS</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html">http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/uFGnpls1.html</a></li> <li>• <i>N+1 Tips and Configuration for the uBR 10012 Router with MC28C Cards</i><br/> <a href="http://www.cisco.com/warp/public/109/n_1_ubr10k_19135_1.html">http://www.cisco.com/warp/public/109/n_1_ubr10k_19135_1.html</a></li> <li>• <i>Bitmap Calculator for N+1 Configuration with the Cisco RF Switch</i> (Microsoft Excel format)<br/> <a href="http://www.cisco.com/warp/public/109/BitMap.xls">http://www.cisco.com/warp/public/109/BitMap.xls</a></li> <li>• <i>PacketCable and PacketCable Multimedia for the Cisco CMTS</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg_pkcb.html">http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg_pkcb.html</a></li> </ul>  |
| DOCSIS and EuroDOCSIS                                  | <ul style="list-style-type: none"> <li>• <i>DOCSIS 1.1 for Cisco uBR7200 Series Universal Broadband Routers</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/feature/DOCSIS11.html">http://www.cisco.com/en/US/docs/cable/cmts/feature/DOCSIS11.html</a></li> <li>• <i>Internal DOCSIS Configurator File Generator for the Cisco Cable Modem Termination System</i><br/> <a href="http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufgCFile.html">http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufgCFile.html</a></li> </ul>  |

| Related Topic                                  | Document Title  |
|--|---|
| Additional Broadband Cable Technical Reference | <ul style="list-style-type: none"> <li>• <i>Cisco Cable Solutions Home Page</i><br/><a href="http://cisco.com/warp/public/779/servpro/solutions/cable/">http://cisco.com/warp/public/779/servpro/solutions/cable/</a></li> <li>• <i>Cisco Multiservice Broadband Cable Guide</i><br/><a href="http://www.cisco.com/en/US/prod/collateral/video/ps8806/ps5684/ps2209/prod_brochure09186a008014eb0.pdf">http://www.cisco.com/en/US/prod/collateral/video/ps8806/ps5684/ps2209/prod_brochure09186a008014eb0.pdf</a></li> <li>• <i>Cable Radio Frequency (RF) FAQs</i><br/><a href="http://www.cisco.com/warp/public/109/cable_faq_rf.html">http://www.cisco.com/warp/public/109/cable_faq_rf.html</a></li> </ul> |

## Standards

The Cisco uBR10012 router, Cisco uBR7246VXR router and the Cisco RF Switch each support N+1 redundancy in compliance with these industry standards:

- Data-Over-Cable Service Interface Specifications (DOCSIS):
  - *DOCSIS 1.0 support for end-to-end cable telecommunications*
  - *DOCSIS 1.1 support for end-to-end cable telecommunications*
- European DOCSIS (EuroDOCSIS)
- PacketCable

Refer to the release notes for additional information about standards supported by your specific CMTS equipment.

## MIBs

### MIBs for Cisco RF Switch Firmware Version 3.30

Access to the chassis line card configuration via SNMP requires the addition of the following new objects to the MIB database, summarized in [Table 4](#). Each of these objects has these three attributes:

- SYNTAX: OCTET STRING (SIZE(2))
- ACCESS: read-only
- STATUS: mandatory



#### Note

Because these objects are 16-bit hex integer bitmasks, in keeping with the conventions currently used in other bitmask values, they are declared as OCTET STRING (SIZE(2)).

**Table 4** MIBs Objects Required with Firmware Version 3.30 and Later.

| Object                  | Description  |
|-------------------------|--|
| nruCacheSnmpData        | Value of <b>set snmp cache</b> command. A value of <b>1</b> in a bit position indicates that the caching is enabled. It is enabled by default.   |
| nruUpstreamSlotConfig   | Value of the <i>upstreamslots</i> parameter of the <b>set slot config</b> command. A value of <b>1</b> in a bit position indicates that the corresponding slot should expect an upstream linecard. |
| nruUpstreamSlotDetected | Results of line card enumeration. A value of <b>1</b> in a bit position indicates that an upstream linecard was detected in the slot. Normally, this value should equal nruUpstreamSlotConfig.     |
| nruUpstreamSlotErrors   | A value of <b>1</b> in any bit position indicates that there is a discrepancy between the configured versus the detected settings for the slot.  |

| Object                  | Description  |
|-------------------------|--|
| nruDnstreamSlotConfig   | Value of the <i>dnstreamslots</i> parameter of the <b>set slot config</b> command. A value of <b>1</b> in a bit position indicates that the corresponding slot should expect a downstream line card. |
| nruDnstreamSlotDetected | Results of line card enumeration. A value of <b>1</b> in a bit position indicates that a downstream linecard was detected in the slot. Normally, this value should equal nruDnstreamSlotConfig.      |
| nruDnstreamSlotErrors   | A value of <b>1</b> in any bit position indicates that there is a discrepancy between the configured versus the detected settings for the slot   |

#### Additional MIB Information

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the [Cisco Network Management Software](#) web page (MIBs sections) on Cisco.com.

## RFCs

No new or modified RFCs are supported by this feature.

## Technical Assistance

| Description  | Link  |
|--|---|
| Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content. | <a href="http://www.cisco.com/en/US/support/index.html">http://www.cisco.com/en/US/support/index.html</a> |

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