



# H3C MSR Router Series

## Comware 5 Fundamentals Command Reference

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Software version: MSR-CMW520-R2516  
Document version: 20180820-C-1.13

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# Preface

This command reference describes the configuration commands for CLI, Logging In to the Device, FTP and TFTP, File Management, Configuration File Management, Software Upgrade, Device Management, and so on.

This preface includes the following topics about the documentation:

- [Audience.](#)
- [Conventions.](#)
- [Documentation feedback.](#)

## Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the routers.

## Conventions

The following information describes the conventions used in the documentation.

### Command conventions

Convention	Description
<b>Boldface</b>	<b>Bold</b> text represents commands and keywords that you enter literally as shown.
<i>Italic</i>	<i>Italic</i> text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x   y   ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[ x   y   ... ]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x   y   ... }*	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[ x   y   ... ]*	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

### GUI conventions

Convention	Description
<b>Boldface</b>	Window names, button names, field names, and menu items are in Boldface. For example, the <b>New User</b> window opens; click <b>OK</b> .
>	Multi-level menus are separated by angle brackets. For example, <b>File &gt; Create &gt;</b>

Convention	Description
	Folder.

## Symbols

Convention	Description
 <b>WARNING!</b>	An alert that calls attention to important information that if not understood or followed can result in personal injury.
 <b>CAUTION:</b>	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
 <b>IMPORTANT:</b>	An alert that calls attention to essential information.
<b>NOTE:</b>	An alert that contains additional or supplementary information.
 <b>TIP:</b>	An alert that provides helpful information.

## Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

## **Examples provided in this document**

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

## **Documentation feedback**

You can e-mail your comments about product documentation to [info@h3c.com](mailto:info@h3c.com).

We appreciate your comments.

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# CLI configuration commands

Table 1 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode.

**Table 1 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No.
MSR 900	No.
MSR900-E	No.
MSR 930	No.
MSR 20-1X	No.
MSR 20	Yes.
MSR 30	Yes (except the MSR 3016).
MSR 50	Yes.
MSR 2600	Yes.
MSR3600-51F	Yes.

## command-alias enable

Use **command-alias enable** to enable the command keyword alias function.

Use **undo command-alias enable** to disable the command keyword alias function.

### Syntax

**command-alias enable**

**undo command-alias enable**

### Default

The command keyword alias function is disabled.

### Views

System view

### Default command level

2: System level

### Usage guidelines

Disabling the command keyword alias function does not delete the configured aliases, but the aliases do not take effect anymore.

### Examples

# Enable the command keyword alias function.

```
<Sysname> system-view
```

```
[Sysname] command-alias enable
```

# Disable the command keyword alias function.

```
<Sysname> system-view
[Sysname] undo command-alias enable
```

## Related commands

**command-alias mapping**

# command-alias mapping

Use **command-alias mapping** to configure a command keyword alias.

Use **undo command-alias mapping** to delete a command keyword alias.

## Syntax

```
command-alias mapping cmdkey alias
undo command-alias mapping cmdkey
```

## Default

A command keyword has no alias.

## Views

System view

## Default command level

2: System level

## Parameters

*cmdkey*: Complete form of the first keyword of a non-undo command, or the second keyword of an **undo** command.

*alias*: Alias for the keyword, which must be different from the first keyword of any non-undo command.

## Usage guidelines

Command keyword aliases take effect only after you enable the command keyword alias function.

## Examples

# Define **show** as the alias of the **display** keyword.

```
<Sysname> system-view
[Sysname] command-alias mapping display show
```

After you configure the alias, you can enter **show** to execute a **display** command. For example, you can enter **show clock** to execute the **display clock** command.

# Delete the alias of the **display** keyword.

```
<Sysname> system-view
[Sysname] undo command-alias mapping display
```

# command-privilege

Use **command-privilege** to assign a level for a specific command in a view.

Use **undo command-privilege** to restore the default.

## Syntax

```
command-privilege level level view view command
undo command-privilege view view command
```

## Default

Each command in a view has a specified level.

## Views

System view

## Default command level

3: Manage level

## Parameters

**level** *level*: Command level in the range of 0 to 3.

**view** *view*: Specifies a view.

*command*: Command to be set in the specified view.

## Usage guidelines

Command levels include four privileges: visit (0), monitor (1), system (2), and manage (3). You can assign a privilege level according to the user's need. When logging in to the device, the user can access the assigned level and all levels below it.

Inappropriate use of this command can cause maintenance, operation, and security problems. Make sure you understand the impact of this command on your network before you use it.

The *command* specified for the **command-privilege** command must be complete, and have valid parameters. For example, the default level of the **tftp server-address { get | put | sget } source-filename [ destination-filename ] [ source { interface interface-type interface-number | ip source-ip-address } ]** command is 3. After the **command-privilege level 0 view shell tftp 1.1.1.1 put a.cfg** command is executed, when users with the user privilege level of 0 log in to the device, they can execute the **tftp server-address put source-filename** command (such as **tftp 192.168.1.26 put syslog.txt**), but cannot execute the command with the **get**, **sget** or **source** keyword, and cannot specify the *destination-filename* argument.

The *command* specified for the **undo command-privilege view** command can be incomplete. For example, after the **undo command-privilege view system ftp** command is executed, all commands starting with the keyword **ftp** (such as **ftp server acl**, **ftp server enable**, and **ftp timeout**) are restored to their default level. If you have modified the level of commands **ftp server enable** and **ftp timeout**, and you want to restore only the **ftp server enable** command to its default level, use the **undo command-privilege view system ftp server** command.

If you modify the command level of a command in a specified view from the default command level to a lower level, you must modify the command levels of the **quit** command and the command used to enter this view. For example, the default command level of commands **interface** and **system-view** is 2 (system level). If you want to make the **interface** command available to the level 1 users, execute the following three commands: **command-privilege level 1 view shell system-view**, **command-privilege level 1 view system interface ethernet 1/1**, and **command-privilege level 1 view system quit**. Then, the level 1 users can enter system view, execute the **interface ethernet** command, and return to user view.

## Examples

```
# Set the command level of the interface command to 0 in system view.
```

```
<Sysname> system-view
```

```
[Sysname] command-privilege level 0 view system interface
```

## display clipboard

Use **display clipboard** to display data in the clipboard.

## Syntax

**display clipboard** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

To copy some content to the clipboard:

1. Move the cursor to the starting position of the content and then press the **Esc+Shift+**, combination.
2. Move the cursor to the ending position of the content and then press the **Esc+Shift+**, combination.

## Examples

```
# Display data in the clipboard.  
<Sysname> display clipboard  
----- CLIPBOARD-----  
display current-configuration
```

# display command-alias

Use **display command-alias** to display the command keyword alias configuration.

## Syntax

**display command-alias** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the command keyword alias configuration.
<Sysname> display command-alias
Command alias is enabled
index  alias                               command key
1      show                               display
```

## display history-command

Use **display history-command** to display commands saved in the command history buffer.

### Syntax

```
display history-command [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

By default, the system can save up to 10 commands in the buffer. You can use the **history-command max-size** command to change the buffer size.

## Examples

```
# Display all commands saved in the command history buffer.
<Sysname> display history-command
display history-command
system-view
vlan 2
quit
```

## display hotkey

Use **display hotkey** to display hotkey information.

### Syntax

```
display hotkey [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

## Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

# Display hotkey information.

```
<Sysname> display hotkey
```

```
----- HOTKEY -----
```

```
                =Defined hotkeys=
```

```
Hotkeys Command
CTRL_G display current-configuration
CTRL_L display ip routing-table
CTRL_O undo debug all
```

```
                =Undefined hotkeys=
```

```
Hotkeys Command
CTRL_T NULL
CTRL_U NULL
```

```
                =System hotkeys=
```

```
Hotkeys Function
CTRL_A Move the cursor to the beginning of the current line.
CTRL_B Move the cursor one character left.
CTRL_C Stop current command function.
CTRL_D Erase current character.
CTRL_E Move the cursor to the end of the current line.
CTRL_F Move the cursor one character right.
CTRL_H Erase the character left of the cursor.
CTRL_K Kill outgoing connection.
CTRL_N Display the next command from the history buffer.
CTRL_P Display the previous command from the history buffer.
CTRL_R Redisplay the current line.
CTRL_V Paste text from the clipboard.
CTRL_W Delete the word left of the cursor.
CTRL_X Delete all characters up to the cursor.
CTRL_Y Delete all characters after the cursor.
CTRL_Z Return to the User View.
CTRL_] Kill incoming connection or redirect connection.
ESC_B Move the cursor one word back.
ESC_D Delete remainder of word.
ESC_F Move the cursor forward one word.
ESC_N Move the cursor down a line.
ESC_P Move the cursor up a line.
```

ESC\_< Specify the beginning of clipboard.  
ESC\_> Specify the end of clipboard.

## hotkey

Use **hotkey** to assign a command to a configurable hotkey.

Use **undo hotkey** to restore the default.

### Syntax

**hotkey** { CTRL\_G | CTRL\_L | CTRL\_O | CTRL\_T | CTRL\_U } *command*

**undo hotkey** { CTRL\_G | CTRL\_L | CTRL\_O | CTRL\_T | CTRL\_U }

### Default

- **Ctrl\_G: display current-configuration** (display the running configuration)
- **Ctrl\_L: display ip routing-table** (display the IPv4 routing table information)
- **Ctrl\_O: undo debugging all** (disable all debugging functions)
- **Ctrl\_T:** No command is assigned to this hotkey.
- **Ctrl\_U:** No command is assigned to this hotkey.

### Views

System view

### Default command level

2: System level

### Parameters

**CTRL\_G:** Assigns a command to **Ctrl+G**.

**CTRL\_L:** Assigns a command to **Ctrl+L**.

**CTRL\_O:** Assigns a command to **Ctrl+O**.

**CTRL\_T:** Assigns a command to **Ctrl+T**.

**CTRL\_U:** Assigns a command to **Ctrl+U**.

*command:* Command to be assigned to the hotkey.

### Examples

```
# Assign the display tcp status command to the hotkey Ctrl+T.
```

```
<Sysname> system-view
```

```
[Sysname] hotkey ctrl_t display tcp status
```

## quit

Use **quit** to return to the upper-level view.

### Syntax

**quit**

### Views

Any view

### Default command level

0: Visit level (executed in user view)

2: System level (executed in other views)

## Usage guidelines

Executing this command in user view disconnects you from the device.

## Examples

# Return from Ethernet 1/1 interface view to system view and then to user view.

```
[Sysname-Ethernet1/1] quit  
[Sysname] quit  
<Sysname>
```

## return

Use **return** to return to user view from any other view. Pressing **Ctrl+Z** has the same effect.

## Syntax

**return**

## Views

Any view except user view

## Default command level

2: System level

## Examples

# Return to user view from Ethernet 1/1 interface view.

```
[Sysname-Ethernet1/1] return  
<Sysname>
```

## Related commands

**quit**

## screen-length disable

Use **screen-length disable** to disable pausing between screens of output for the current session.

Use **undo screen-length disable** to enable pausing between screens of output for the current session.

## Syntax

**screen-length disable**

**undo screen-length disable**

## Default

A login user uses the settings of the **screen-length** command. The default settings of the **screen-length** command are: pausing between screens of output and displaying up to 24 lines on a screen.

## Views

User view

## Default command level

1: Monitor level

## Usage guidelines

When the screen pause function is disabled, all output is displayed at one time and the screen is refreshed continuously.

This command takes effect only for the current session. When you log out, the setting by this command is restored to the default.

## Examples

```
# Disable pausing between screens of output for the current session.
<Sysname> screen-length disable
```

## Related commands

**screen-length**

# super

Use **super** to switch from the current user privilege level to another user privilege level.

## Syntax

```
super [ level ]
```

## Views

User view

## Default command level

0: Visit level

## Parameters

*level*: User level in the range of 0 to 3. The default is 3.

## Usage guidelines

If a *level* is not specified, the command switches the user privilege level to 3.

There are four user privilege levels: visit (0), monitor (1), system (2), and manage (3). You can assign different privilege levels for different users. After login, a user can access the commands at or under the assigned level.

A user can switch to a lower privilege level unconditionally. To switch to a higher privilege level, a user must provide the password set for the level with the **super password** command. If the entered password is incorrect, the switching operation fails. If no password is configured for the level, a console user can switch to the level but other users cannot.

When the login authentication method is **scheme**, a user who fails to provide the correct password during five consecutive attempts must wait 15 minutes before trying again. Trying again before the 15-minute period elapses restores the wait timer to 15 minutes and restarts the timer.

## Examples

```
# Switch to user privilege level 2 from user privilege level 3.
<Sysname> super 2
User privilege level is 2, and only those commands can be used
whose level is equal or less than this.
Privilege note: 0-VISIT, 1-MONITOR, 2-SYSTEM, 3-MANAGE

# Switch back to user privilege level 3. (Suppose that the switching password is 123. If no password
is set, users cannot switch to user privilege level 3.)
<Sysname> super 3
Please input the password to change the privilege level, press CTRL_C to abort.
```

Password:  
User privilege level is 3, and only those commands can be used  
whose level is equal or less than this.  
Privilege note: 0-VISIT, 1-MONITOR, 2-SYSTEM, 3-MANAGE

## Related commands

- **super password**
- **super authentication-mode**

# super authentication-mode

Use **super authentication-mode** to set the authentication mode for user privilege level switching.

Use **undo super authentication-mode** to restore the default.

## Syntax

**super authentication-mode { local | scheme } \***

**undo super authentication-mode**

## Default

The authentication mode for the user privilege level switching is **local**.

## Views

System view

## Default command level

2: System level

## Parameters

**local:** Uses the local password set with the **super password** command for user privilege level switching authentication. If no password is set with the command, the system allows a console user (who uses the console port or an AUX port operating as the console port) to switch the privilege level without authentication, but denies the switching requests of AUX, TTY, and VTY users.

**scheme:** Uses AAA for user privilege level switching authentication. For more information about AAA, see *Security Configuration Guide*.

**local scheme:** Uses the local password, if configured, for user privilege level switching authentication. If the password is not configured, the system allows a console user to switch the privilege level but uses AAA to authenticate other types of login users.

**scheme local:** Uses AAA for user privilege level switching authentication. If the AAA configuration is incomplete or invalid or the server does not respond, the system uses the local password for the authentication.

## Examples

**# Set the authentication mode for user privilege level switching to local.**

```
<Sysname> system-view  
[Sysname] super authentication-mode local
```

**# Set the authentication mode for user privilege level switching to scheme local.**

```
<Sysname> system-view  
[Sysname] super authentication-mode scheme local
```

## Related commands

**super password**

# super password

Use **super password** to set the password used to switch from the current user privilege level to a higher one.

Use **undo super password** to restore the default.

## Syntax

```
super password [ level user-level ] [ [ hash ] { cipher | simple } password ]
```

```
undo super password [ level user-level ]
```

## Default

No password is set for switching to a higher privilege level.

## Views

System view

## Default command level

2: System level

## Parameters

**level** *user-level*: User privilege level in the range of 1 to 3. The default is 3.

**hash**: Enables hash-based encryption.

{ **cipher** | **simple** } *password*: Specifies a case-sensitive password string. In FIPS mode, the password must include upper-case alphabetical characters, lower-case alphabetical characters, digits, and special characters. The password length and form requirements vary as shown in [Table 2](#) and [Table 3](#).

**Table 2 Password length and form requirements for the *password* argument in non-FIPS mode**

Keyword combination	Password string form	Length (in characters)
<b>simple</b>	Plain text	1 to 16
<b>hash simple</b>	Plain text	1 to 16
<b>cipher</b>	Plain text, ciphertext	Plain text: 1 to 16 Ciphertext: 1 to 53
<b>hash cipher</b>	Ciphertext (hashed form)	1 to 110

**Table 3 Password length and form requirements for the *password* argument in FIPS mode**

Keyword	Password string form	Length (in characters)
<b>simple</b>	Plain text	8 to 16
<b>hash simple</b>	Plain text	8 to 16
<b>cipher</b>	Plain text, ciphertext	Plain text: 8 to 16 Ciphertext: 8 to 53 (the corresponding plaintext string of the password must have 8 to 16 characters)
<b>hash cipher</b>	Ciphertext (hashed form)	8 to 110

## Usage guidelines

For security purposes, all passwords, including passwords configured in plain text, are saved in cipher text.

## Examples

```
# Set the password for switching to privilege level 3 to plaintext string abc.
```

```
<Sysname> system-view
```

```
[Sysname] super password level 3 simple abc
```

# system-view

Use **system-view** to enter system view from user view.

## Syntax

```
system-view
```

## Views

User view

## Default command level

2: System level

## Examples

```
# Enter system view from user view.
```

```
<Sysname> system-view
```

```
System View: return to User View with Ctrl+Z.
```

```
[Sysname]
```

## Related commands

- **quit**
- **return**

# Login management commands

Table 4 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode.

**Table 4 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No.
MSR 900	No.
MSR900-E	No.
MSR 930	No.
MSR 20-1X	No.
MSR 20	Yes.
MSR 30	Yes (except the MSR 3016).
MSR 50	Yes.
MSR 2600	Yes.
MSR3600-51F	Yes.

## acl (user interface view)

Use **acl** to reference ACLs to control access to the VTY user interface.

Use **undo acl** to cancel the ACL application.

### Syntax

To use a basic or advanced ACL:

```
acl [ ipv6 ] acl-number { inbound | outbound }
```

```
undo acl [ ipv6 ] acl-number { inbound | outbound }
```

To use a WLAN or Ethernet frame header ACL:

```
acl acl-number inbound
```

```
undo acl acl-number inbound
```

### Default

Access to the VTY user interface is not restricted.

### Views

VTY user interface view

### Default command level

2: System level

### Parameters

**ipv6**: When this keyword is present, the command supports IPv6; otherwise, it supports IPv4.

**acl-number**: Specifies the number of the ACL. The value ranges are as follows:

- **WLAN ACL**—100 to 199. WLAN ACLs are not supported on MSR 50 routers that use MPU-G2 cards, MSR800 routers, MSR900-E routers, and MSR 930 routers.
- **Basic IPv4 ACL**—2000 to 2999.
- **Advanced IPv4 ACL**—3000 to 3999.
- **Ethernet frame header ACL**—4000 to 4999.
- **User-defined ACL**—5000 to 5999.

**inbound:** Restricts Telnet or SSH connections established in the inbound direction through the VTY user interface. If the received packets for establishing a Telnet or SSH connection are permitted by an ACL rule, the connection is allowed to be established. When the device functions as a Telnet server or SSH server, use this keyword to control access of Telnet clients or SSH clients.

**outbound:** Restricts Telnet connections established in the outbound direction through the VTY user interface. If the packets sent for establishing a Telnet connection are permitted by an ACL rule, the connection is allowed to be established. When the device functions as a Telnet client, use this keyword to define Telnet servers accessible to the client.

## Usage guidelines

If no ACL is referenced in VTY user interface view, the VTY user interface has no access control over establishing a Telnet or SSH connection.

If an ACL is referenced in VTY user interface view, the connection is permitted to be established only when packets for establishing a Telnet or SSH connection match a permit statement in the ACL.

The system regards the basic/advanced ACL with the **inbound** keyword, the basic/advanced ACL with the **outbound** keyword, WLAN ACL, and Ethernet frame header ACL as different types of ACLs, which can coexist in one VTY user interface. The match order is WLAN ACL, basic/advanced ACL, Ethernet frame header ACL. At most one ACL of each type can be referenced in the same VTY user interface, and the most recent configuration takes effect.

For more information about ACL, see *ACL and QoS Command Reference*.

## Examples

# Allow only the user with the IP address of 192.168.1.26 to access the device through Telnet or SSH.

```
<Sysname> system-view
[Sysname] acl number 2001
[Sysname-acl-basic-2001] rule permit source 192.168.1.26 0
[Sysname-acl-basic-2001] quit
[Sysname] user-interface vty 0
[Sysname-ui-vty0] acl 2001 inbound
```

After the configuration, user A (with the IP address 192.168.1.26) can Telnet to the device, but user B (with the IP address 192.168.1.60) cannot. Upon a connection failure, a message appears: "%connection closed by remote host!"

# Allow the device to only Telnet to the Telnet server with IP address 192.168.1.41.

```
<Sysname> system-view
[Sysname] acl number 3001
[Sysname-acl-adv-3001] rule permit tcp destination 192.168.1.41 0
[Sysname-acl-adv-3001] quit
[Sysname] user-interface vty 0 4
[Sysname-ui-vty0-4] acl 3001 outbound
[Sysname-ui-vty0-4] return
<Sysname>
```

After your configuration, if you Telnet to 192.168.1.46, your operation fails.

```
<Sysname> telnet 192.168.1.46
%Can't access the host from this terminal!
```

But you can Telnet to 192.168.1.41.

```
<Sysname> telnet 192.168.1.41
```

```
Trying 192.168.1.41 ...
```

```
Press CTRL+K to abort
```

```
Connected to 192.168.1.41 ...
```

# Allow only the WLAN client with the SSID of **Admin** to access the device through VTY 0.

```
<Sysname> system-view
```

```
[Sysname] acl number 100
```

```
[Sysname-acl-wlan-100] rule permit ssid Admin
```

```
[Sysname-acl-wlan-100] quit
```

```
[Sysname] user-interface vty 0
```

```
[Sysname-ui-vty0] acl 100 inbound
```

## activation-key

Use **activation-key** to define a shortcut key for starting a terminal session.

Use **undo activation-key** to restore the default.

### Syntax

**activation-key** *character*

**undo activation-key**

### Default

Pressing the **Enter** key starts a terminal session.

### Views

User interface view

### Default command level

3: Manage level

### Parameters

*character*: Shortcut key for starting a terminal session, a single character (or its corresponding ASCII code value in the range of 0 to 127), or a string of 1 to 3 characters. However, only the first character functions as the shortcut key. For example, if you enter an ASCII code value of 97, the system uses its corresponding character **a** as the shortcut key. If you enter string **b@c**, the system uses the first character **b** as the shortcut key.

### Usage guidelines

This command is not supported on VTY user interfaces.

To display the shortcut key you have defined, use the **display current-configuration** command.

### Examples

# Configure character **s** as the shortcut key for starting a terminal session on the console user interface.

```
<Sysname> system-view
```

```
[Sysname] user-interface console 0
```

```
[Sysname-ui-console0] activation-key s
```

# Verify the configuration:

1. Exit the console session.

```
[Sysname-ui-console0] return  
<Sysname> quit
```

2. Log in to the console user interface again.

The following message appears.

```
*****  
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved.*  
* Without the owner's prior written consent, *  
* no decompiling or reverse-engineering shall be allowed. *  
*****  
  
User interface con0 is available.
```

```
Please press ENTER.
```

3. Press **Enter**.

Pressing **Enter** does not start a session.

4. Enter **s**.

A terminal session is started.

```
<Sysname>  
%Mar 2 18:40:27:981 2005 Sysname SHELL/5/LOGIN: Console login from con0
```

## authentication-mode

Use **authentication-mode** to set the authentication mode for a user interface.

Use **undo authentication-mode** to restore the default.

### Syntax

```
authentication-mode { none | password | scheme }
```

```
undo authentication-mode
```

### Default

The authentication mode is **password** for VTY and AUX user interfaces, and **none** for console and TTY user interfaces.

### Views

User interface view

### Default command level

3: Manage level

### Parameters

**none**: Performs no authentication. This keyword is not available in FIPS mode.

**password**: Performs local password authentication. This keyword is not available in FIPS mode.

**scheme**: Performs AAA authentication. For more information about AAA, see *Security Configuration Guide*.

### Usage Guidelines

In FIPS mode, the authentication mode can only be scheme.

## Examples

# Enable the none authentication mode for user interface VTY 0.

```
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname-ui-vty0] authentication-mode none
```

# Enable password authentication for user interface VTY 0 and set the password to **321**.

```
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname-ui-vty0] authentication-mode password
[Sysname-ui-vty0] set authentication password simple 321
```

# Enable scheme authentication for user interface VTY 0 and the username to **123** and the password to **321**.

```
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname-ui-vty0] authentication-mode scheme
[Sysname-ui-vty0] quit
[Sysname] local-user 123
[Sysname-luser-123] password simple 321
[Sysname-luser-123] service-type telnet
[Sysname-luser-123] authorization-attribute level 3
```

## Related commands

**set authentication password**

## auto-execute command

### CAUTION:

After configuring this command for a user interface, you might be unable to access the CLI through the user interface. Make sure you can access the CLI through a different user interface before you configure this command and save the configuration.

Use **auto-execute command** to specify a command that is to be automatically executed when a user logs in to the current user interface.

Use **undo auto-execute command** to remove the configuration.

## Syntax

**auto-execute command** *command*

**undo auto-execute command**

## Default

Command auto-execution is disabled.

## Views

User interface view

## Default command level

3: Manage level

## Parameters

*command*: Specifies the command to be automatically executed.

## Usage guidelines

This command is not supported on the console user interface, or the AUX user interface when the device has only one AUX port and no console port.

The system automatically executes the specified command when a user logs in to the user interface, and tears down the user connection after the command is executed. If the command triggers another task, the system does not tear down the user connection until the task is completed.

The command auto-execute function is typically used for redirecting a Telnet user to a specific host.

## Examples

# Configure the device to automatically Telnet to 192.168.1.41 after a user logs in to interface VTY 0.

```
<Sysname> system-view
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname -ui-vty0] auto-execute command telnet 192.168.1.41
% This action will lead to configuration failure through ui-vty0. Are you sure?
[Y/N]:y
[Sysname-ui-vty0]
```

# To verify the configuration, Telnet to 192.168.1.40.

The device automatically Telnets to 192.168.1.41, and the following output is displayed:

```
C:\> telnet 192.168.1.40
*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved.*
* Without the owner's prior written consent,                               *
* no decompiling or reverse-engineering shall be allowed.                 *
*****

<Sysname>
Trying 192.168.1.41 ...
Press CTRL+K to abort
Connected to 192.168.1.41 ...
*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved.*
* Without the owner's prior written consent,                               *
* no decompiling or reverse-engineering shall be allowed.                 *
*****

<Sysname.41>
```

This operation is the same as directly logging in to the device at 192.168.1.41. If the Telnet connection to 192.168.1.41 is broken down, the Telnet connection to 192.168.1.40 breaks down at the same time.

## command accounting

Use **command accounting** to enable command accounting.

Use **undo command accounting** to restore the default.

## Syntax

**command accounting**

**undo command accounting**

### Default

Command accounting is disabled, and the accounting server does not record executed commands.

### Views

User interface view

### Default command level

3: Manage level

### Usage guidelines

When command accounting is enabled and command authorization is not, every executed command is recorded on the HWTACACS server.

When both command accounting and command authorization are enabled, only the authorized and executed commands are recorded on the HWTACACS server.

### Examples

```
# Enable command accounting for user interface VTY 0.  
<Sysname> system-view  
[Sysname] user-interface vty 0  
[Sysname-ui-vty0] command accounting
```

## command authorization

Use **command authorization** to enable command authorization.

Use **undo command authorization** to restore the default.

### Syntax

**command authorization**

**undo command authorization**

### Default

Command authorization is disabled. Logged-in users can execute commands without authorization.

### Views

User interface view

### Default command level

3: Manage level

### Usage guidelines

With command authorization enabled, users can perform only commands authorized by the server.

### Examples

```
# Enable command accounting for VTY 0 so users logged in to VTY 0 can perform only the  
commands authorized by the HWTACACS server.  
<Sysname> system-view  
[Sysname] user-interface vty 0  
[Sysname-ui-vty0] command authorization
```

# databits

Use **databits** to specify the number of data bits for each character.

Use **undo databits** to restore the default.

## Syntax

**databits** { 5 | 6 | 7 | 8 }

**undo databits**

## Default

Eight data bits are used for each character.

## Views

User interface view

## Default command level

2: System level

## Parameters

**5**: Uses five data bits for each character.

**6**: Uses six data bits for each character.

**7**: Uses seven data bits for each character.

**8**: Uses eight data bits for each character.

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

This setting must be the same as that on the configuration terminal.

## Examples

```
# Configure AUX 0 to use 5 data bits for each character.
```

```
<Sysname> system-view  
[Sysname] user-interface aux 0  
[Sysname-ui-aux0] databits 5
```

# display ip http

Use **display ip http** to display HTTP information.

## Syntax

**display ip http** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

## Views

Any view

## Default command level

1: Monitor level

## Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

This command is not available in FIPS mode.

## Examples

```
# Display information about HTTP.
```

```
<Sysname> display ip http
```

```
HTTP port: 80
```

```
WLAN ACL: 100
```

```
Basic ACL: 2222
```

```
Current connection: 0
```

```
Operation status: Running
```

**Table 5 Command output**

Field	Description
HTTP port	Port number used by the HTTP service.
WLAN ACL	WLAN ACL associated with the HTTP service.
Basic ACL	Basic ACL number associated with the HTTP service.
Current connection	Number of current connections.
Operation status	Operation status: <ul style="list-style-type: none"><li>• <b>Running</b>—The HTTP service is enabled.</li><li>• <b>Stopped</b>—The HTTP service is disabled.</li></ul>

## display ip https

Use **display ip https** to display information about HTTPS.

### Syntax

```
display ip https [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display information about HTTPS.
```

```

<Sysname> display ip https
HTTPS port: 443
SSL server policy: test
Certificate access-control-policy:
WLAN ACL: 100
Basic ACL: 2222
Current connection: 0
Operation status: Running

```

**Table 6 Command output**

Field	Description
HTTPS port	Port number used by the HTTPS service.
SSL server policy	SSL server policy associated with the HTTPS service.
Certificate access-control-policy	Certificate attribute access control policy associated with the HTTPS service.
WLAN ACL	WLAN ACL number associated with the HTTPS service.
Basic ACL	Basic ACL number associated with the HTTPS service.
Current connection	Number of current connections.
Operation status	Operation status: <ul style="list-style-type: none"> <li>• <b>Running</b>—The HTTPS service is enabled.</li> <li>• <b>Stopped</b>—The HTTPS service is disabled.</li> </ul>

## display telnet client configuration

Use **display telnet client configuration** to display the configuration of the device when it serves as a Telnet client.

### Syntax

```
display telnet client configuration [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

This command is not available in FIPS mode.

## Examples

```
# Display the configuration of the device when it serves as a Telnet client.
```

```
<Sysname> display telnet client configuration
The source IP address is 1.1.1.1.
```

The output shows that the device uses the source IPv4 address 1.1.1.1 for outgoing Telnet packets when it serves as a Telnet client.

## display user-interface

Use **display user-interface** to display user interface information.

### Syntax

```
display user-interface [ num1 | { aux | console | tty | vty } num2 ] [ summary ] [ [ { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

*num1*: Specifies the absolute number of a user interface. The value range typically starts from 0.

**aux**: Specifies the AUX user interface.

**console**: Specifies the console user interface.

**tty**: Specifies the TTY user interface.

**vty**: Specifies the VTY user interface.

*num2*: Specifies the relative number of a user interface.

**summary**: Displays summary information about user interfaces.

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display information about user interface 0.
```

```
<Sysname> display user-interface 0
  Idx  Type      Tx/Rx      Modem Privi Auth  Int
+ 0    CON 0     9600       -    3    N    -

+      : Current user-interface is active.
F      : Current user-interface is active and work in async mode.
Idx    : Absolute index of user-interface.
Type   : Type and relative index of user-interface.
Privi  : The privilege of user-interface.
Auth   : The authentication mode of user-interface.
```

Int : The physical location of UIs.  
 A : Authentication use AAA.  
 L : Authentication use local database.  
 N : Current UI need not authentication.  
 P : Authentication use current UI's password.

**Table 7 Command output**

Field	Description
Idx	Absolute number of the user interface.
Type	Type and relative number of the user interface.
Tx/Rx	Transmit/receive rate of the user interface.
Modem	Whether the modem is allowed to dial in (in), dial out (out), or both (inout). If modem dial-in is disabled, a hyphen (-) is displayed.
Privi	Command level of a user under that user interface.
Auth	Authentication mode for the users: <ul style="list-style-type: none"> <li>• <b>A</b>—Scheme authentication mode.</li> <li>• <b>L</b>—Local authentication mode (not supported).</li> <li>• <b>N</b>—None authentication mode.</li> <li>• <b>P</b>—Password authentication mode.</li> </ul>
Int	Physical port that corresponds to the user interface. The detailed port information is displayed only for TTY user interfaces. For console, AUX, and VTY user interfaces, a hyphen (-) is displayed.

# Display summary information about all user interfaces.

```

<Sysname> display user-interface summary
  User interface type : [CON]
    0:X

  User interface type : [TTY]
    1:XXXX XXXX XXXX XXXX
    17:XXXX XXXX XXXX XXXX
    33:XXXX XXXX XXXX XXXX
    49:XXXX XXXX XXXX XXXX
    65:XXXX XXXX XXXX XXXX

  User interface type : [AUX]
    81:X

  User interface type : [VTY]
    82:XUXU U

    3 character mode users.      (U)
    83 UI never used.           (X)
    3 total UI in use
  
```

**Table 8 Command output**

Field	Description
0:X	0 represents the absolute number of the user interface. If the user interface is not used, an X is displayed. If the user interface is in use, a U is displayed. For example, 9:UXXX X shows that the absolute number of the first user interface is 9, and the user

Field	Description
	interface is in use. User interfaces 10, 11, 12, and 13 are not in use.

## display users

Use **display users** to display information about the user interfaces being used.

Use **display users all** to display information about all user interfaces supported by the device.

### Syntax

**display users** [ **all** ] [ [ { **begin** | **exclude** | **include** } *regular-expression* ]

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**all**: Displays information about all user interfaces the device supports.

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

# Display information about the user interfaces being used.

```
<Sysname> display users
```

```
The user application information of the user interface(s):
```

```
  Idx UI      Delay    Type Userlevel
+ 178 VTY 0    00:00:00 TEL    3
   179 VTY 1    00:02:34 TEL    3
```

```
Following are more details.
```

```
VTY 0  :
        Location: 192.168.1.54
```

```
VTY 1  :
        Location: 192.168.1.58
```

```
+      : Current operation user.
```

```
F      : Current operation user work in async mode.
```

The output shows that two users have logged in to the device: one is using user interface VTY 0 and the other is using VTY !. The one using VTY 0 is at 192.168.1.54 and is the one who executed the **display** command.

### Table 9 Command output

Field	Description
Idx	Absolute number of the user interface.

Field	Description
UI	Relative number of the user interface. For example, with VTY, the first column represents user interface type, and the second column represents the relative number of the user interface.
Delay	Time elapsed after the user's most recent input, in the format <i>hh:mm:ss</i> .
Type	User type, such as Telnet, SSH, or PAD.
Userlevel	User level: 0 for visit, 1 for monitor, 2 for system, and 3 for manage.
+	Current user, the user who executed the <b>display</b> command.
Location	IP address of the user.
F	The current user is operating in asynchronous mode.

## display web users

Use **display web users** to display information about the Web users.

### Syntax

**display web users** [ [ { **begin** | **exclude** | **include** } *regular-expression* ]

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

# Display information about the Web users.

```
<Sysname> display web users
```

```
UserID   Name       Language  Level      State      LinkCount  LoginTime  LastTime
ab890000 admin      Chinese   Management Enable      0          14:13:46  14:14:18
```

**Table 10 Command output**

Field	Description
UserID	Web user ID.
Name	Web username.
Language	Language used in Web login.
Level	Web user level.
State	Web user status.
LinkCount	Number of tasks running for the Web user.

Field	Description
LoginTime	Login time.
LastTime	Last time when the Web user accessed the device.

## escape-key

Use **escape-key** to define a shortcut key for terminating a task.

Use **undo escape-key** to disable the shortcut key for terminating tasks.

### Syntax

**escape-key** { **default** | *character* }

**undo escape-key**

### Default

Pressing **Ctrl+C** terminates a task.

### Views

User interface view

### Default command level

3: Manage level

### Parameters

*character*: Specifies the shortcut key for terminating a task, a single character (or its corresponding ASCII code value in the range of 0 to 127) or a string of 1 to 3 characters. Only the first character of a string functions as the shortcut key. For example, if you enter an ASCII code value of 113, the system uses its corresponding character **q** as the shortcut key. If you enter the string **q@c**, the system uses the first character **q** as the shortcut key.

**default**: Restores the default escape key sequence **Ctrl+C**.

### Usage guidelines

You can execute this command multiple times, but only the most recent configuration takes effect. To display the effective shortcut key definition, use the **display current-configuration** command.

If you set the *character* argument in a user interface of a device, when you use the user interface to log in to the device and then Telnet to another device, the *character* argument can be used as a control character to terminate a task rather than used as a common character. For example, if you specify *character e* in VTY 0 user interface of Device A, when you log in to Device A using VTY 0 from a PC (HyperTerminal), you can enter **e** as a common character on the PC, and you can also use **e** to terminate the task running on Device A. If you Telnet to Device B from Device A, you can only use **e** to terminate the task running on Device B, rather than use **e** as a common character. It is a good practice to specify a key sequence.

### Examples

# Define character **a** as the shortcut key for terminating a task.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] escape-key a
```

# To verify the configuration:

1. Ping IP address 192.168.1.49, specifying the **-c** keyword to set the number of ICMP echo request packets to 20.

```
<Sysname> ping -c 20 192.168.1.49
```

```
PING 192.168.1.49: 56 data bytes, press a to break
Reply from 192.168.1.49: bytes=56 Sequence=1 ttl=255 time=3 ms
Reply from 192.168.1.49: bytes=56 Sequence=2 ttl=255 time=3 ms
```

## 2. Press a.

The task terminates and the system returns to user view.

```
--- 192.168.1.49 ping statistics ---
 2 packet(s) transmitted
 2 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 3/3/3 ms
```

<Sysname>

# flow-control

Use **flow-control** to configure the flow control mode.

Use **undo flow-control** to restore the default.

## Syntax

```
flow-control { hardware | none | software }
```

```
flow-control hardware flow-control-type1 [ software flow-control-type2 ]
```

```
flow-control software flow-control-type1 [ hardware flow-control-type2 ]
```

```
undo flow-control
```

## Default

For an independent AUX port, hardware flow control is performed. For an AUX and console integrated port, no flow control is performed.

## Views

User interface view

## Default command level

2: System level

## Parameters

**hardware**: Performs hardware flow control.

**none**: Disables flow control.

**software**: Performs software flow control.

*flow-control-type1*, *flow-control-type2*: Specifies the direction of flow control, **in** or **out**. If **in** is specified, the local device receives flow control information from the remote device. If **out** is specified, the local device sends flow control information to the remote device.

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

- A flow control mode can be **hardware**, **software**, or **none**. Only one control mode takes effect in one direction.
- To set the same flow control mode for the inbound and outbound directions, use the **flow-control** { **hardware** | **software** | **none** } command.

- To set different flow control modes for the inbound and outbound directions, use command **flow-control hardware** *flow-control-type1* [ **software** *flow-control-type2* ] or command **flow-control software** *flow-control-type1* [ **hardware** *flow-control-type2* ]. If a direction is not specified, flow control is disabled in that direction. For example, command **flow-control hardware in** automatically disables flow control in the outbound direction.
- The flow control mode setting on one end in the inbound/outbound direction must be the same as that in the outbound/inbound direction on the other end.

## Examples

# Configure software flow control in the inbound and outbound directions for user interface Console 0.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] flow-control software
```

# Configure hardware flow control in the inbound direction and disable flow control in the outbound direction for user interface Console 0.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] flow-control hardware in
```

# Configure hardware flow control in the inbound direction and software flow control in the outbound direction for user interface Console 0.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] flow-control hardware in software out
```

## free user-interface

Use **free user-interface** to release a user interface.

### Syntax

```
free user-interface { num1 | { aux | console | tty | vty } num2 }
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*num1*: Specifies the absolute number of a user interface. The value range typically starts from 0.

**aux**: Specifies the AUX user interface.

**console**: Specifies the console user interface.

**tty**: Specifies the TTY user interface.

**vty**: Specifies the VTY user interface.

*num2*: Specifies the relative number of a user interface.

### Usage guidelines

This command cannot release the connection you are using.

### Examples

# Release user interface VTY 1:

1. Display which users are operating the device.

```
<Sysname> display users
The user application information of the user interface(s):
  Idx UI      Delay    Type Userlevel
+ 82 VTY 0    00:00:00 TEL 3
  83 VTY 1    00:00:03 TEL 3
Following are more details.
VTY 0  :
        Location: 192.168.1.26
VTY 1  :
        Location: 192.168.1.20
+      : Current operation user.
F      : Current operation user work in async mode.
```

2. If the operations of the user on VTY 1 affect your operations, log out the user.

```
<Sysname> free user-interface vty 1
Are you sure to free user-interface vty1? [Y/N]:y
```

## free web-users

Use **free web-users** to log out Web users.

### Syntax

```
free web-users { all | user-id user-id | user-name user-name }
```

### Views

User view

### Default command level

2: System level

### Parameters

**all**: Specifies all Web users.

*user-id*: Web user ID, a hexadecimal number of eight digits.

*user-name*: Web user name, a string of 1 to 80 characters.

### Examples

```
# Log out all Web users.
```

```
<Sysname> free web-users all
```

### Related commands

```
display web users
```

## history-command max-size

Use **history-command max-size** to set the size of the command history buffer for a user interface.

Use **undo history-command max-size** to restore the default.

### Syntax

```
history-command max-size size-value
```

```
undo history-command max-size
```

## Default

The buffer of a user interface saves 10 history commands at most.

## Views

User interface view

## Default command level

2: System level

## Parameters

*size-value*: Specifies the maximum number of history commands the buffer can store, in the range of 0 to 256.

## Usage guidelines

Each user interface uses a separate command history buffer to save commands successfully executed by its user. The size of the buffer determines how many history commands the buffer can store.

To view stored history commands on your user interface, press the up arrow key or down arrow key or execute the **display history-command** command.

Terminating the CLI session clears the commands in the history buffer.

## Examples

# Set the size of the command history buffer to 20 for user interface Console 0.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] history-command max-size 20
```

# idle-timeout

Use **idle-timeout** to set the session idle-timeout timer.

Use **undo idle-timeout** to restore the default.

## Syntax

**idle-timeout** *minutes* [ *seconds* ]

**undo idle-timeout**

## Default

The idle-timeout time is 10 minutes.

## Views

User interface view

## Default command level

2: System level

## Parameters

*minutes*: Specifies the number of minutes for the idle-timeout time, in the range of 0 to 35791. The default is 10 minutes.

*seconds*: Specifies the number of seconds for the idle-timeout time, in the range of 0 to 59. The default is 0 seconds.

## Usage guidelines

The system automatically terminates the user connection on the user interface if there is no information interaction between the device and the user within the idle-timeout time.

Setting the idle-timeout timer to 0 disables the idle-timeout function.

## Examples

```
# Set the idle-timeout timer to 1 minute and 30 seconds.
```

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] idle-timeout 1 30
```

## ip alias

Use **ip alias** to associate a Telnet redirect listening port with an IP address.

Use **undo ip alias** to restore the default.

## Syntax

```
ip alias ip-address port-number
```

```
undo ip alias ip-address
```

## Default

A Telnet redirect listening port is not associated with any IP address.

## Views

System view

## Default command level

2: System level

## Parameters

*ip-address*: IP address associated with the Telnet redirect listening port. The IP address cannot be an interface's address on the device, but can be in the same subnet as an interface's address.

*port-number*: Telnet redirect listening port in the range of 2000 to 50000.

## Usage guidelines

For example, a user is connected to device A, and device A is connected to device B through its serial port. If the **redirect enable** and **redirect listen-port** *port-number* commands are configured on device A, the user can log in to device B by Telnetting to the IP address of device A and the specified port number. If you associate device A's IP address with the specified port number by using the **ip alias** *ip-address* *port-number* command, the user can log in to device B by only Telnetting to the IP address of device A.

## Examples

```
# Associate the Telnet redirect listening port 2000 with the IP address 1.1.1.1.
```

```
<Sysname> system-view
[Sysname] ip alias 1.1.1.1 2000
```

## Related commands

- **redirect enable**
- **redirect listen-port**

# ip http acl

Use **ip http acl** to associate the HTTP service with an ACL.

Use **undo ip http acl** to remove the association.

## Syntax

For devices supporting both WLAN ACL and basic ACL:

**ip http acl** *acl-number*

**undo ip http acl** *acl-number*

For devices supporting basic ACL only:

**ip http acl** *acl-number*

**undo ip http acl** *acl-number*

## Default

The HTTP service is not associated with any ACL.

## Views

System view

## Default command level

2: System level

## Parameters

*acl-number*: ACL number. The value ranges are as follows:

- **WLAN ACL**—100 to 199. WLAN ACLs are not supported on MSR 50 routers that use MPU-G2 cards, MSR800 routers, MSR900-E routers, and MSR 930 routers.
- **Basic IPv4 ACL**—2000 to 2999.

## Usage guidelines

This command is not available in FIPS mode.

After the HTTP service is associated with an ACL, only the clients permitted by the ACL can access the device through HTTP.

The HTTP service can be associated with a WLAN ACL and a basic ACL, and the two types of ACLs will not overwrite each other. However, ACLs of the same type will overwrite each other. If you execute the **ip http acl** command multiple times to associate the HTTP service with the same type of ACLs, the HTTP service is only associated with the ACL specified most recently.

When the HTTP service is associated with a WLAN ACL, the HTTP service uses this ACL to filter wireless clients only, and does not filter wired clients with this ACL.

## Examples

# Associate the HTTP service with ACL 100 to allow only the wireless client with the SSID **user-ssid-name** to access the device through HTTP.

```
<Sysname> system-view
[Sysname] acl number 100
[Sysname-acl-wlan-100] rule permit ssid user-ssid-name
[Sysname-acl-wlan-100] quit
[Sysname] ip http acl 100
```

# Associate the HTTP service with ACL 2001 to only allow the clients within the 10.10.0.0/16 network to access the device through HTTP.

```
<Sysname> system-view
```

```

[Sysname] acl number 2001
[Sysname-acl-basic-2001] rule permit source 10.10.0.0 0.0.255.255
[Sysname-acl-basic-2001] quit
[Sysname] ip http acl 2001

```

## Related commands

- **display ip http**
- **acl number** (*ACL and QoS Command Reference*)

## ip http enable

Use **ip http enable** to enable the HTTP service.

Use **undo ip http enable** to disable the HTTP service.

## Syntax

**ip http enable**

**undo ip http enable**

## Default

The following matrix shows the default HTTP service status values:

Hardware	Default HTTP service status
MSR800	Enabled
MSR 900	Enabled
MSR900-E	Enabled
MSR 930	Enabled
MSR 20-1X	Enabled
MSR 20	Disabled
MSR 30	Disabled
MSR 50	Disabled
MSR 2600	Enabled
MSR3600-51F	Disabled

## Views

System view

## Default command level

2: System level

## Usage guidelines

This command is not available in FIPS mode.

The device can act as the HTTP server that can be accessed only after the HTTP service is enabled.

## Examples

```

# Enable the HTTP service.
<Sysname> system-view
[Sysname] ip http enable

```

```
# Disable the HTTP service.
<Sysname> system-view
[Sysname] undo ip http enable
```

### Related commands

**display ip http**

## ip http log-file frequency

Use **ip http log-file frequency** to set the interval for writing HTTP service log messages to a log file.

Use **undo ip http log-file frequency** to restore the default.

### Syntax

```
ip http log-file frequency frequency
```

```
undo ip http log-file frequency
```

### Default

The interval for writing HTTP service log messages to a log file is 30 minutes.

### Views

System view

### Default command level

3: Manage level

### Parameters

*frequency*: Specifies the interval for writing HTTP service log messages to a log file in minutes. The value range is 10 to 240.

### Examples

```
# Set the interval for writing HTTP service log messages to a log file to 100 minutes.
```

```
<Sysname> system-view
[Sysname] ip http log-file frequency 100
```

## ip http port

Use **ip http port** to configure the port number of the HTTP service.

Use **undo ip http port** to restore the default.

### Syntax

```
ip http port port-number
```

```
undo ip http port
```

### Default

The port number of the HTTP service is 80.

### Views

System view

### Default command level

3: Manage level

## Parameters

*port-number*: Port number of the HTTP service, in the range of 1 to 65535.

## Usage guidelines

This command is not available in FIPS mode.

Verify that the port number is not used by another service, because this command does not check for conflicts with configured port numbers.

## Examples

```
# Configure the port number of the HTTP service as 8080.
<Sysname> system-view
[Sysname] ip http port 8080
```

## Related commands

**display ip http**

# ip https acl

Use **ip https acl** to associate the HTTPS service with an ACL.

Use **undo ip https acl** to remove the association.

## Syntax

For devices supporting both WLAN ACL and basic ACL:

**ip https acl** *acl-number*

**undo ip https acl** *acl-number*

For devices supporting basic ACL only:

**ip https acl** *acl-number*

**undo ip https acl** *acl-number*

## Default

The HTTPS service is not associated with any ACL.

## Views

System view

## Default command level

3: Manage level

## Parameters

*acl-number*: ACL number. The value ranges are as follows:

- **WLAN ACL**—100 to 199. WLAN ACLs are not supported on MSR 50 routers that use MPU-G2 cards, MSR800 routers, MSR900-E routers, and MSR 930 routers.
- **Basic IPv4 ACL**—2000 to 2999.

## Usage guidelines

After the HTTPS service is associated with an ACL, only the clients permitted by the ACL can access the device.

The HTTPS service can be associated with a WLAN ACL and basic ACL, and the two types of ACLs will not overwrite each other. However, ACLs of the same type will overwrite each other. If you execute the **ip https acl** command multiple times to associate the HTTPS service with the same type of ACLs, the HTTPS service is only associated with the ACL specified most recently.

When the HTTPS service is associated with a WLAN ACL, the HTTPS service uses this ACL to filter wireless clients only, and does not filter wired clients with this ACL.

## Examples

```
# Associate the HTTPS service with ACL 100 to only allow the wireless client with the SSID
user-ssid-name to access the device through HTTP.
```

```
<Sysname> system-view
[Sysname] acl number 100
[Sysname-acl-wlan-100] rule permit ssid user-ssid-name
[Sysname-acl-wlan-100] quit
[Sysname] ip https acl 100
```

```
# Associate the HTTPS service with ACL 2001 to only allow the clients within the 10.10.0.0/16
network segment to access the HTTPS server through HTTP.
```

```
<Sysname> system-view
[Sysname] acl number 2001
[Sysname-acl-basic-2001] rule permit source 10.10.0.0 0.0.255.255
[Sysname-acl-basic-2001] quit
[Sysname] ip https acl 2001
```

## Related commands

- **display ip https**
- **acl number** (*ACL and QoS Command Reference*)

## ip https certificate access-control-policy

Use **ip https certificate access-control-policy** to associate the HTTPS service with a certificate attribute access control policy.

Use **undo ip https certificate access-control-policy** to remove the association.

## Syntax

```
ip https certificate access-control-policy policy-name
```

```
undo ip https certificate access-control-policy
```

## Default

The HTTPS service is not associated with any certificate attribute access control policy.

## Views

System view

## Default command level

3: Manage level

## Parameters

*policy-name*: Name of the certificate attribute access control policy, a string of 1 to 16 characters.

## Usage guidelines

Association of the HTTPS service with a certificate attribute access control policy can control the access rights of clients.

## Examples

```
# Associate the HTTPS server with certificate attribute access control policy myacl.
```

```
<Sysname> system-view
[Sysname] ip https certificate access-control-policy myacl
```

## Related commands

- **display ip https**
- **pki certificate access-control-policy** (*Security Command Reference*)

## ip https enable

Use **ip https enable** to enable the HTTPS service.

Use **undo ip https enable** to disable the HTTPS service.

### Syntax

**ip https enable**

**undo ip https enable**

### Default

The HTTPS service is disabled.

### Views

System view

### Default command level

3: Manage level

### Usage guidelines

The device can act as the HTTP server that can be accessed only after the HTTP service is enabled.

Enabling the HTTPS service triggers an SSL handshake negotiation process:

- If the local certificate of the device exists, the SSL negotiation succeeds, and the HTTPS service can be started.
- If no local certificate exists, the SSL negotiation triggers a certificate application process that often fails because it times out. If that happens, execute the **ip https enable** command multiple times to start the HTTPS service.

### Examples

```
# Enable the HTTPS service.  
<Sysname> system-view  
[Sysname] ip https enable
```

## ip https port

Use **ip https port** to configure the port number of the HTTPS service.

Use **undo ip https port** to restore the default.

### Syntax

**ip https port** *port-number*

**undo ip https port**

### Default

The port number of the HTTPS service is 443.

### Views

System view

## Default command level

3: Manage level

## Parameters

*port-number*: Port number of the HTTPS service, in the range of 1 to 65535.

## Usage guidelines

Verify that the port number is not used by another service, because this command does not check for conflicts with configured port numbers.

## Examples

```
# Configure the port number of the HTTPS service as 6000.
<Sysname> system-view
[Sysname] ip https port 6000
```

## Related commands

**display ip https**

# ip https ssl-server-policy

Use **ip https ssl-server-policy** to associate the HTTPS service with an SSL server-end policy.

Use **undo ip https ssl-server-policy** to remove the association.

## Syntax

```
ip https ssl-server-policy policy-name
undo ip https ssl-server-policy
```

## Default

The HTTPS service is not associated with any SSL server-end policy, and the device uses a self-signed certificate for authentication. (A self-signed certificate is generated and signed by the device itself, rather than the CA.)

## Views

System view

## Default command level

3: Manage level

## Parameters

*policy-name*: Name of an SSL server policy, a string of 1 to 16 characters.

## Usage guidelines

The HTTPS service can be enabled only after this command is configured successfully.

With the HTTPS service enabled, you cannot modify the associated SSL server-end policy or remove the association between the HTTPS service and the SSL server-end policy after the HTTPS service is enabled.

## Examples

```
# Associate the HTTPS service with SSL server-end policy myssl.
<Sysname> system-view
[Sysname] ip https ssl-server-policy myssl
```

## Related commands

- **display ip https**

- **ssl server-policy** (*Security Command Reference*)

## lock

Use **lock** to lock the current user interface.

### Syntax

**lock**

### Default

This function is disabled.

### Views

User view

### Default command level

3: Manage level

### Usage guidelines

This command is not available in FIPS mode.

When you need to leave the device for a while, use this command to lock the current user interface to prevent unauthorized access.

After you enter this command, you are asked to enter a password (up to 16 characters) and then confirm it by entering the password again.

To unlock the user interface, press **Enter** and enter the correct password.

### Examples

# Lock the current user interface and then unlock it.

```
<Sysname> lock
```

```
Please input password<1 to 16> to lock current user terminal interface:
```

```
Password:
```

```
Again:
```

```
locked !
```

```
Password:
```

```
<Sysname>
```

## parity

Use **parity** to specify a parity check mode.

Use **undo parity** to restore the default.

## Syntax

```
parity { even | mark | none | odd | space }  
undo parity
```

## Default

The setting is **none**, and no parity check is performed.

## Views

User interface view

## Default command level

2: System level

## Parameters

**even**: Performs even parity check.

**mark**: Performs mark parity check.

**none**: Disables parity check.

**odd**: Performs odd parity check.

**space**: Performs space parity check.

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

The configuration terminal and the device must be configured with the same parity check mode to communicate.

## Examples

```
# Configure user interface AUX 0 to perform odd parity check.  
<Sysname> system-view  
[Sysname] user-interface aux 0  
[Sysname-ui-aux0] parity odd
```

# protocol inbound

Use **protocol inbound** to enable a user interface to support Telnet, PAD, SSH, or all of them.

Use **undo protocol inbound** to restore the default.

## Syntax

In non-FIPS mode:

```
protocol inbound { all | pad | ssh | telnet }  
undo protocol inbound
```

In FIPS mode:

```
protocol inbound { all | pad | ssh }  
undo protocol inbound
```

## Default

All the three protocols are supported.

## Views

VTY interface view

## Default command level

3: Manage level

## Parameters

**all**: Supports all the three protocols in non-FIPS mode or PAD and SSH in FIPS mode.

**pad**: Supports PAD only.

**ssh**: Supports SSH only.

**telnet**: Supports Telnet only. This keyword is not available in FIPS mode.

## Usage guidelines

This configuration is effective only for a user who logs in to the user interface after the configuration is made.

Before configuring a user interface to support SSH, set the authentication mode to **scheme** for the user interface. For more information, see **authentication-mode**.

## Examples

```
# Enable the VTYs 0 through 4 to support only SSH.
<Sysname> system-view
[Sysname] user-interface vty 0 4
[Sysname-ui-vty0-4] authentication-mode scheme
[Sysname-ui-vty0-4] protocol inbound ssh
```

# redirect disconnect

Use **redirect disconnect** to manually terminate redirected Telnet connections.

## Syntax

**redirect disconnect**

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Manually terminate redirected Telnet connections.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect disconnect
```

# redirect enable

Use **redirect enable** to enable Telnet redirect for the current user interface.

Use **undo redirect enable** to disable this function.

## Syntax

**redirect enable**

**undo redirect enable**

## Default

The Telnet redirect function is disabled.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

Before using the redirect function or configuring redirect service related parameters, use this command to enable redirect.

The stop bit setting must be the same for the user interfaces of the connecting ports on the device and the target terminal device for communication. Before enabling redirect, use the **stopbit-error intolerance** command to check their settings.

## Examples

```
# Enable redirect on user interface TTY 7.
```

```
<Sysname> system-view
```

```
[Sysname] user-interface tty 7
```

```
[Sysname-ui-tty7] redirect enable
```

## Related commands

- **display tcp status**
- **telnet**

# redirect listen-port

Use **redirect listen-port** to specify a Telnet redirect listening port.

Use **undo redirect listen-port** to restore the default listening port.

## Syntax

```
redirect listen-port port-number
```

```
undo redirect listen-port
```

## Default

The port number is the absolute user interface number plus 2000.

## Views

User interface view

## Default command level

2: System level

## Parameters

*port-number*: Number of the listening port, in the range 2000 to 50000.

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Configure port 3000 as the listening port for the redirected Telnet connections.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect listen-port 3000
```

## Related commands

**ip alias**

# redirect refuse-negotiation

Use **redirect refuse-negotiation** to disable Telnet option negotiation during redirecting a Telnet connection.

Use **undo redirect refuse-negotiation** to enable Telnet option negotiation during redirecting a Telnet connection.

## Syntax

```
redirect refuse-negotiation
undo redirect refuse-negotiation
```

## Default

Telnet option negotiation is enabled.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Disable Telnet option negotiation when the device is establishing a redirected Telnet connection.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect refuse-negotiation
```

# redirect refuse-teltransfer

Use **redirect refuse-teltransfer** to configure the user interface to not convert the ASCII characters 0xff during redirecting a Telnet connection.

Use **undo redirect refuse-teltransfer** to restore the default.

## Syntax

```
redirect refuse-teltransfer
undo redirect refuse-teltransfer
```

## Default

The user interface converts the ASCII characters 0xff to 0xff 0xff when redirecting a Telnet connection.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

The device filters the characters of 0xff sent by the Telnet client when establishing a redirected Telnet connection. To make these characters forwarded to the Telnet server, 0xff needs to be converted to 0xff 0xff so the device filters one string of 0xff and forwards the other string to be forwarded.

If the Telnet client does not send the characters of 0xff, execute the command to configure the user interface not to perform the conversion.

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

# Configure the user interface to not convert the ASCII characters of 0xff to 0xff 0xff when establishing a redirected Telnet connection.

```
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect refuse-teltransfer
```

# redirect return-deal from-telnet

Use **redirect return-deal from-telnet** to configure the user interface to change carriage returns 0x0d 0x0a and 0x0d 0x00 received from Telnet clients to 0x0d during redirecting a Telnet connection.

Use **undo redirect return-deal from-telnet** to restore the default.

Use **redirect return-deal from-telnet** to configure the user interface to change carriage returns 0x0d 0x0a and 0x0d 0x00 received from a terminal (a PC connected to the console port for example) to 0x0d during redirecting a Telnet connection

## Syntax

**redirect return-deal from-telnet**

**undo redirect return-deal from-telnet**

## Default

The user interface does not change carriage returns received from Telnet clients during redirecting a Telnet connection.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Enable the device to process carriage returns sent by Telnet clients.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect return-deal from-telnet
```

## redirect return-deal from-terminal

Use **redirect return-deal from-terminal** to configure the user interface to change carriage returns 0x0d 0x0a and 0x0d 0x00 received from a terminal (a PC connected to the console port for example) to 0x0d during redirecting a Telnet connection.

Use **undo redirect return-deal from-terminal** to restore the default.

## Syntax

```
redirect return-deal from-terminal
undo redirect return-deal from-terminal
```

## Default

The user interface does not change carriage returns received from a terminal during redirecting a Telnet connection.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Enable user interface tty 1 to process the carriage returns sent from terminals when redirecting a
Telnet connection.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect return-deal from-terminal
```

## redirect timeout

Use **redirect timeout** to set the idle timeout timer for Telnet redirect. If no data is received from a Telnet client before the timer expires, the user interface terminates the redirected connection.

Use **undo redirect timeout** to allow the system to maintain a redirected Telnet connection until you tear down the connection.

## Syntax

```
redirect timeout time
undo redirect timeout
```

## Default

The idle timeout is 360 seconds.

## Views

User interface view

## Default command level

2: System level

## Parameters

*time*: Idle timeout, in the range of 30 to 86400 seconds.

## Usage guidelines

This command is supported only on AUX and TTY user interfaces.

This command is applicable to user interfaces on which redirect is enabled. To enable redirect on a user interface, use the **redirect enable** command.

## Examples

```
# Set the idle timeout for redirected Telnet connections to 200 seconds.
<Sysname> system-view
[Sysname] user-interface tty 1
[Sysname-ui-tty1] redirect timeout 200
```

# screen-length

Use **screen-length** to set the maximum number of lines to be displayed on a screen.

Use **undo screen-length** to restore the default.

## Syntax

**screen-length** *screen-length*

**undo screen-length**

## Default

Up to 24 lines are displayed on a screen.

## Views

User interface view

## Default command level

2: System level

## Parameters

*screen-length*: Specifies the maximum number of lines to be displayed on a screen, in the range of 0 to 512. The value of 0 disables pausing between screens of output.

## Usage guidelines

When screen output pauses, press the **Space** key to display the next screen. Not all terminals support this setting. For example, assume you set *screen-length* to 40, but the terminal can display 24 lines in one screen at most. When you press **Space**, the device sends 40 lines to the terminal, but the screen displays only lines 18 through 40. To view the first 17 lines, press the page up or page down key.

To disable pausing between screens of output for the current session, use the **screen-length disable** command.

## Examples

```
# Set the maximum number of lines to be displayed on a screen to 30 for user interface Console 0.
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] screen-length 30
```

## Related commands

**screen-length disable**

# send

Use **send** to send messages to user interfaces.

## Syntax

```
send { all | num1 | { aux | console | tty | vty } num2 }
```

## Views

User view

## Default command level

1: Monitor level

## Parameters

**all**: Specifies all user interfaces.

**num1**: Specifies a user interface by its absolute number. The value range typically starts from 0.

**aux**: Specifies an AUX user interface.

**console**: Specifies a console user interface.

**tty**: Specifies a TTY user interface.

**vty**: Specifies a VTY user interface.

**num2**: Relative number of a user interface.

## Usage guidelines

To end message input, press **Ctrl+Z**. To cancel message input and return to user view, press **Ctrl+C**.

## Examples

```
# Send message hello abc to your own user interface Console 0.
<Sysname> send console 0
Enter message, end with CTRL+Z or Enter; abort with CTRL+C:
hello abc^Z
Send message? [Y/N]:y
<Sysname>

***
***
***Message from con0 to con0
***
hello abc
```

<Sysname>

# Before you restart the device, inform other login users so they prepare for the reboot:

1. Display information about the user interfaces that are being used.

```
<Sysname> display users
```

```
The user application information of the user interface(s):
```

```
  Idx UI      Delay    Type Userlevel
+ 82 VTY 0    00:00:00 TEL    3
  83 VTY 1    00:00:03 TEL    3
```

```
Following are more details.
```

```
VTY 0  :
```

```
      Location: 192.168.1.26
```

```
VTY 1  :
```

```
      Location: 192.168.1.20
```

```
+   : Current operation user.
```

```
F   : Current operation user work in async mode.
```

```
// The output shows that you are using VTY 0 and another user is using VTY 1.
```

2. Send a notification message to the user of VTY1.

```
<Sysname> send vty 1
```

```
Enter message, end with CTRL+Z or Enter; abort with CTRL+C:
```

```
Your attention, please. I will reboot the system in 3 minutes!^Z
```

```
Send message? [Y/N]:y
```

The message should appear on the screen of the user's configuration terminal. The following example assumes that the user was executing the **interface ethernet** command when the message arrived:

```
[Sysname] interface eth
```

```
***
```

```
***
```

```
***Message from vty0 to vty1
```

```
***
```

```
Note please, I will reboot the system in 3 minutes!
```

## set authentication password

Use **set authentication password** to set a password for password authentication.

Use **undo set authentication password** to remove the password.

### Syntax

```
set authentication password [ [ hash ] { cipher | simple } password ]
```

```
undo set authentication password
```

### Default

No password is set for password authentication.

### Views

User interface view

## Default command level

3: Manage level

## Parameters

**hash**: Enables hash-based encryption.

{ **cipher** | **simple** } *password*: Specifies a case-sensitive password string. The password length and form requirements vary as shown in [Table 11](#).

**Table 11 Password length and form requirements for the *password* argument**

Keyword combination	Password string form	Length (in characters)
<b>simple</b>	Plain text	1 to 16
<b>hash simple</b>	Plain text	1 to 16
<b>cipher</b>	Plain text, ciphertext	Plain text: 1 to 16 Ciphertext: 1 to 53
<b>hash cipher</b>	Ciphertext (hashed form)	1 to 110

## Usage guidelines

This command is not available in FIPS mode.

For security purposes, all passwords, including passwords configured in plain text, are saved in cipher text to the configuration file.

## Examples

# Set the password for password authentication on user interface Console 0 to **hello**.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0] authentication-mode password
[Sysname-ui-console0] set authentication password simple hello
```

## Related commands

**authentication-mode**

# shell

Use **shell** to enable the terminal service for a user interface.

Use **undo shell** to disable the terminal service for a user interface.

## Syntax

**shell**

**undo shell**

## Default

The terminal service is enabled on all user interfaces.

## Views

User interface view

## Default command level

3: Manage level

## Usage guidelines

The console user interface does not support the **undo shell** command.

The AUX user interface does not support the **undo shell** command when the device has only one AUX port and no console port.

You cannot disable the terminal service on the user interface you are using.

## Examples

# Disable the terminal service for user interface VTY 0 through VTY 4 so no user can log in to the device through the user interfaces.

```
<Sysname> system-view
[Sysname] user-interface vty 0 4
[Sysname-ui-vty0-4] undo shell
% Disable ui-vty0-4 , are you sure? [Y/N]:y
[Sysname-ui-vty0-4]
```

The following message appears when a user tries to Telnet to the device:

```
The connection was closed by the remote host!
```

## speed (user interface view)

Use **speed** to set the transmission rate (also called the "baud rate") on a user interface.

Use **undo speed** to restore the default.

### Syntax

**speed** *speed-value*

**undo speed**

### Default

The transmission rate is 9600 bps.

### Views

User interface view

### Default command level

2: System level

### Parameters

*speed-value*: Transmission rate in bps. The transmission rates available for asynchronous serial interfaces include: 300 bps, 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, and 115200 bps. The transmission rate varies with devices and configuration environments.

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

The configuration terminal and the device must be configured with the same transmission rate to communicate.

## Examples

# Set the transmission rate on the user interface AUX 0 to 19200 bps.

```
<Sysname> system-view
[Sysname] user-interface aux 0
[Sysname-ui-aux0] speed 19200
```

# stopbit-error intolerance

Use **stopbit-error intolerance** to enable stop bits detection for a user interface.

Use **undo stopbit-error intolerance** to restore the default.

## Syntax

**stopbit-error intolerance**

**undo stopbit-error intolerance**

## Default

Stop bits detection is disabled.

## Views

User interface view

## Default command level

2: System level

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

## Examples

```
# Enable stop bits detection for user interface AUX 0.  
<Sysname> system-view  
[Sysname] user-interface aux 0  
[Sysname-ui-aux0] stopbit-error intolerance
```

## Related commands

**stopbits**

# stopbits

Use **stopbits** to specify the number of stop bits for a character.

Use **undo stopbits** to restore the default.

## Syntax

**stopbits { 1 | 1.5 | 2 }**

**undo stopbits**

## Default

One stop bit is used.

## Views

User interface view

## Default command level

2: System level

## Parameters

**1:** Uses one stop bit.

**1.5:** Uses one and a half stop bits.

2: Uses two stop bits.

## Usage guidelines

This command is only applicable to asynchronous serial interfaces, including AUX and console ports.

The configuration terminal and the device must be configured to use the same number of stop bits to communicate.

## Examples

```
# Set the number of stop bits to 1.5 for user interface AUX 0.
<Sysname> system-view
[Sysname] user-interface aux 0
[Sysname-ui-aux0] stopbits 1.5
```

## Related commands

**stopbit-error intolerance**

# telnet

Use **telnet** to Telnet to a host in an IPv4 network.

## Syntax

```
telnet remote-host [ service-port ] [ vpn-instance vpn-instance-name ] [ source { interface interface-type interface-number | ip ip-address } ]
```

## Views

User view

## Default command level

0: Visit level

## Parameters

**remote-host**: Specifies the IPv4 address or host name of a remote host, a case-insensitive string of 1 to 20 characters.

**service-port**: Specifies the TCP port number for the Telnet service on the remote host, in the range of 0 to 65535. The default is 23.

**vpn-instance** *vpn-instance-name*: Specifies the MPLS L3VPN that the remote host belongs to, where *vpn-instance-name* is a case-sensitive string of 1 to 31 characters. If the remote host is on the public network, do not specify this option.

**source**: Specifies a source IPv4 address or source interface for outgoing Telnet packets.

**interface** *interface-type interface-number*: Specifies the source interface. The primary IPv4 address of the interface will be used as the source IPv4 address for outgoing Telnet packets.

**ip** *ip-address*: Specifies the source IPv4 address for outgoing Telnet packets.

## Usage guidelines

This command is not available in FIPS mode.

To terminate the current Telnet connection, press **Ctrl+K** or execute the **quit** command.

The source IPv4 address or source interface specified by this command is only applicable to the current Telnet connection.

## Examples

```
# Telnet to host 1.1.1.2, using 1.1.1.1 as the source IP address for outgoing Telnet packets.
```

```
<Sysname> telnet 1.1.1.2 source ip 1.1.1.1
```

## telnet client source

Use **telnet client source** to specify a source IPv4 address or source interface for outgoing Telnet packets when the device serves as a Telnet client.

Use **undo telnet client source** to remove the configuration.

### Syntax

```
telnet client source { interface interface-type interface-number | ip ip-address }
```

```
undo telnet client source
```

### Default

No source IPv4 address or source interface is specified for outgoing Telnet packets. The source IPv4 address is the primary IPv4 address of the outbound interface.

### Views

System view

### Default command level

2: System level

### Parameters

**interface** *interface-type interface-number*: Specifies a source interface. The primary IP address of this interface will be used as the source IPv4 address for outgoing Telnet packets.

**ip** *ip-address*: Specifies a source IPv4 address.

### Usage guidelines

This command is not available in FIPS mode.

The source IPv4 address or source interface specified by this command is applicable to all Telnet connections. However, if a user specifies a source IPv4 address or source interface when executing the **telnet** command, the setting specified by the user takes effect.

### Examples

```
# Set the source IPv4 address for outgoing Telnet packets to 1.1.1.1 when the device serves as a Telnet client.
```

```
<Sysname> system-view
```

```
[Sysname] telnet client source ip 1.1.1.1
```

### Related commands

```
display telnet client configuration
```

## telnet ipv6

Use **telnet ipv6** to Telnet to a host in an IPv6 network

### Syntax

```
telnet ipv6 remote-host [ -i interface-type interface-number ] [ port-number ] [ vpn-instance vpn-instance-name ]
```

### Views

User view

## Default command level

0: Visit level

## Parameters

*remote-host*: Specifies the IP address or host name of a remote host, a case-insensitive string of 1 to 46 characters.

**-i** *interface-type interface-number*: Specifies the outbound interface for sending Telnet packets. This option is required when the destination address is a link-local address.

*port-number*: Specifies the TCP port number for the Telnet service on the remote host, in the range of 0 to 65535. The default is 23.

**vpn-instance** *vpn-instance-name*: Specifies the MPLS L3VPN that the remote host belongs to, where *vpn-instance-name* is a case-sensitive string of 1 to 31 characters. If the remote host is on the public network, do not specify this option.

## Usage guidelines

This command is not available in FIPS mode.

To terminate the current Telnet connection, press **Ctrl+K** or execute the **quit** command.

## Examples

```
# Telnet to the host at 5000::1.  
<Sysname> telnet ipv6 5000::1
```

# telnet server enable

Use **telnet server enable** to enable the Telnet server function.

Use **undo telnet server enable** to disable the Telnet server function.

## Syntax

**telnet server enable**

**undo telnet server enable**

## Default

The Telnet server function is disabled.

## Views

System view

## Default command level

3: Manage level

## Usage guidelines

This command is not available in FIPS mode.

## Examples

```
# Enable the Telnet server function.  
<Sysname> system-view  
[Sysname] telnet server enable
```

# terminal type

Use **terminal type** to specify the terminal display type.

Use **undo terminal type** to restore the default.

### Syntax

```
terminal type { ansi | vt100 }  
undo terminal type
```

### Default

The terminal display type is ANSI.

### Views

User interface view

### Default command level

2: System level

### Parameters

**ansi**: Specifies the terminal display type ANSI.

**vt100**: Specifies the terminal display type VT100.

### Usage guidelines

The device supports two terminal display types: ANSI and VT100. To ensure correct display on the terminal, set the display type of both the device and the configuration terminal to VT100. Otherwise, when a command line has more than 80 characters, an anomaly such as cursor positioning error or abnormal display might occur.

### Examples

```
# Set the terminal display type to VT100.  
<Sysname> system-view  
[Sysname] user-interface vty 0  
[Sysname-ui-vty0] terminal type vt100
```

## user privilege level

Use **user privilege level** to configure the user privilege level. Users logging into the user interface are assigned a user privilege level.

Use **undo user privilege level** to restore the default.

### Syntax

```
user privilege level level  
undo user privilege level
```

### Default

The command level is 3 for the console user interface and 0 for other user interfaces.

### Views

User interface view

### Default command level

3: Manage level

### Parameters

*level*: Specifies a user privilege level in the range of 0 to 3.

## Usage guidelines

This command is not available in FIPS mode. In FIPS mode, the authentication mode can only be scheme.

User privilege levels include visit, monitor, system, and manage, represented by the number 0, 1, 2 and 3 respectively. You can change the user privilege level when necessary.

## Examples

# Set the command level for users logging in through VTY 0 to 0.

```
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname-ui-vty0] user privilege level 0
```

After you Telnet to the device through VTY 0, the terminal only displays commands of level 0 in the help information:

```
<Sysname> ?
User view commands:
  cluster  Run cluster command
  display  Display current system information
  ping     Ping function
  quit     Exit from current command view
  rsh      Establish one RSH connection
  ssh2     Establish a secure shell client connection
  super    Set the current user priority level
  telnet   Establish one TELNET connection
  tracert  Trace route function
```

## user-interface

Use **user-interface** to enter user interface view.

### Syntax

```
user-interface { first-num1 [ last-num1 ] | { aux | console | tty | vty } first-num2 [ last-num2 ] }
```

### Views

System view

### Default command level

2: System level

### Parameters

*first-num1*: Specifies the absolute number of the first user interface. The value range typically starts from 0.

*last-num1*: Specifies the absolute number of the last user interface. The value range typically starts from 0, and *last-num1* cannot be smaller than *first-num1*.

**aux**: Specifies the AUX user interface.

**console**: Specifies the console user interface.

**tty**: Specifies the TTY user interface.

**vty**: Specifies the VTY user interface.

*first-num2*: Specifies the relative number of the first user interface.

*last-num2*: Specifies the relative number of the last user interface. It cannot be smaller than *first-num2*.

## Usage guidelines

If you use this command to enter a single user interface view, your configuration applies only to the user interface.

If you use this command to enter multiple user interface views, your configuration applies to all the specified user interfaces.

## Examples

# Enter the view of user interface Console 0.

```
<Sysname> system-view
[Sysname] user-interface console 0
[Sysname-ui-console0]
```

# Enter the views of user interfaces VTY 0 to VTY 4.

```
<Sysname> system-view
[Sysname] user-interface vty 0 4
[Sysname-ui-vty0-4]
```

# web captcha

Use **web captcha** to specify a fixed verification code for Web login.

Use **undo web captcha** to restore the default.

## Syntax

**web captcha** *verification-code*

**undo web captcha**

## Default

A Web user must enter the verification code indicated on the login page to log in.

## Views

User view

## Default command level

3: Manage level

## Parameters

*verification-code*: Fixed verification code for Web login, a case-sensitive 4-character string.

## Usage guidelines

You can configure the **web captcha** command multiple times, but only the most recent configuration takes effect.

After you configure a fixed verification code for Web login, a Web user can use the code for login, without caring about the verification code displayed on the login page. This feature is intended for test environments where a script is usually used for Web function tests. Eliminating the requirement for entering the verification code every time, this feature helps improve the test efficiency.

For Web access security, do not use this feature in production environments.

This command is not saved to the configuration file and cannot survive a reboot.

## Examples

# Specify a fixed verification code for Web login

```
<Sysname> web captcha test
```

## web https-authorization mode

Use **web https-authorization mode** to specify the authentication mode for users trying to log in to the device through HTTPS.

Use **undo web https-authorization mode** to restore the default.

### Syntax

```
web https-authorization mode { auto | manual }
```

```
undo web https-authorization mode
```

### Default

A user must enter correct username and password to log in through HTTPS.

### Views

System view

### Default command level

2: System level

### Parameters

**auto**: Uses the PKI certificates of HTTPS users to automatically authenticate them.

**manual**: Provides a login page for HTTPS users to enter the correct username and password.

### Usage guidelines

When the **auto** mode is enabled:

- If the PKI certificate of the user is correct and not expired, the CN field in the certificate is used as the username to perform AAA authentication. If the authentication succeeds, the user automatically enters the Web interface of the device.
- If the PKI certificate of the user is correct and not expired, but the AAA authentication fails, the device shows the Web login page. The user can log in to the device after entering correct username and password.
- When the PKI certificate of the user is incorrect or expired, the HTTPS connection is terminated.

### Examples

```
# Specify the auto authentication mode for users trying to log in to the device through HTTPS.
```

```
<Sysname> system-view
```

```
[Sysname] web https-authorization mode auto
```

## web idle-timeout

Use **web idle-timeout** to set the Web user connection timeout time.

Use **undo web idle-timeout** to restore the default.

### Syntax

```
web idle-timeout minutes
```

```
undo web idle-timeout
```

### Default

The Web user connection timeout time is 10 minutes.

## Views

System view

## Default command level

2: System level

## Parameters

*minutes*: Timeout time in minutes, in the range of 1 to 999.

## Examples

```
# Set the Web user connection timeout time to 20 minutes.
```

```
<System> system-view
```

```
[System] web idle-timeout 20
```

# web logbuffer size

Use **web logbuffer size** to set the size of the buffer for Web login logging.

Use **undo web logbuffer size** to restore the default.

## Syntax

```
web logbuffer size pieces
```

```
undo web logbuffer size
```

## Default

The buffer can save up to 512 Web login logs.

## Views

System view

## Default command level

2: System level

## Parameters

*pieces*: Size of the buffer for Web login logging, in the number of log messages. It is in the range of 0 to 1024.

## Examples

```
# Set the size of the buffer for Web login logging to 800.
```

```
<System> system-view
```

```
[System] web logbuffer size 800
```

# Device management commands

The following matrix shows the storage media supported on different router models:

Hardware	Supported storage media
MSR800	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR 900	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR900-E	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR 930	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR 20-1X	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR 20	<ul style="list-style-type: none"><li>CF card</li><li>USB disk</li></ul>
MSR 30	<ul style="list-style-type: none"><li>Flash memory (supported by the MSR 30-10, MSR 30-11, MSR 30-11E, and MSR 30-11F)</li><li>CF card (supported by the MSR 30-16, MSR 30-20, MSR 30-40, and MSR 30-60)</li><li>USB disk (not supported by the MSR 30-11)</li></ul>
MSR 50	<ul style="list-style-type: none"><li>Flash memory (not supported by the MPUF)</li><li>CF card</li><li>USB disk</li></ul>
MSR 2600	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>
MSR3600-51F	<ul style="list-style-type: none"><li>Flash memory</li><li>USB disk</li></ul>

The examples in this chapter uses the flash memory.

## card-mode

Use **card-mode** to set the working mode of an interface card.

### Syntax

**card-mode slot** *slot-number mode-name*

### Views

System view

### Default command level

2: System level

### Parameters

**slot** *slot-number*. Specifies the slot number of an interface card.

*mode-name*: Specifies a working mode. This argument might take one of the following values, which depends on the interface card type.

- **e**: Specifies the E mode (including E1 and E3).
- **t**: Specifies the T mode (including T1 and T3).
- **e1**: Sets the working mode of the CPOS interface card to E1.
- **t1**: Sets the working mode of the CPOS interface card to T1.
- **ipsec**: Sets the working mode of the ESM interface card to IPsec.
- **ssl**: Sets the working mode of the ESM interface card to SSL.
- **atm**: Sets the working mode of the G.SHDSL.BIS interface card to ATM.
- **auto**: Sets the working mode of the G.SHDSL.BIS interface card to Auto.
- **efm**: Sets the working mode of the G.SHDSL.BIS interface card to Ethernet first mile (EFM).
- **ppp**: Sets the working mode of the 3G modem interface card to PPP.
- **ethernet**: Sets the working mode of the 3G modem interface card to Ethernet.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

To make the configured working mode take effect, restart the device or hot swap the interface card (if the interface card supports hot swapping) after you change the working mode.

## Examples

```
# Set the working mode of the G.SHDSL.BIS interface card in slot 5 to EFM.
<Sysname> system-view
[Sysname] card-mode slot 5 efm
```

## clock datetime

Use **clock datetime** to set the system time and date.

### Syntax

**clock datetime** *time date*

### Views

User view

## Default command level

3: Manage level

## Parameters

*time*: Specifies a time, in the *hh:mm:ss* format. The *hh* value is in the range of 00 to 23, the *mm* value is in the range of 00 to 59, and the *ss* value is in the range of 00 to 59. Zeros can be omitted, unless you specify 00:00:00.

*date*: Specifies a date, in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The *YYYY* value is in the range of 2000 to 2035, the *MM* value is in the range of 1 to 12, and the *DD* value is in the range of 1 to 31.

## Usage guidelines

You can leave the *ss* field blank when you specify the time parameters.

## Examples

```
# Set the current system time to 14:10:20 08/01/2005.
<Sysname> clock datetime 14:10:20 8/1/2005

# Set the current system time to 00:06:00 01/01/2007.
<Sysname> clock datetime 0:6 2007/1/1
```

## Related commands

- **clock summer-time one-off**
- **clock summer-time repeating**
- **clock timezone**
- **display clock**

# clock summer-time one-off

Use **clock summer-time one-off** to adopt daylight saving time from the *start-time* of the *start-date* to the *end-time* of the *end-date*. Daylight saving time adds the *add-time* to the standard time of the device.

Use **undo clock summer-time** to cancel the configuration of the daylight saving time.

## Syntax

```
clock summer-time zone-name one-off start-time start-date end-time end-date add-time
undo clock summer-time
```

## Default

Daylight saving time is disabled and the UTC time zone applies.

## Views

System view

## Default command level

3: Manage level

## Parameters

*zone-name*: Specifies a daylight saving time schedule by a zone name, a case-sensitive string of 1 to 32 characters.

*start-time*: Specifies a start time, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

*start-date*: Specifies a start date, in the *MM/DD/YYYY* or *YYYY/MM/DD* format.

*end-time*: Specifies an end time, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

*end-date*: Specifies an end date, in the *MM/DD/YYYY* or *YYYY/MM/DD* format.

*add-time*: Specifies a time to be added to the standard time of the device, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

## Usage guidelines

The interval between *start-time start-date* and *end-time end-date* must be longer than one day and shorter than one year. If the current system time is in the specified daylight saving days, the *add-time* value automatically adds to the system time.

To verify the setting, use the **display clock** command.

The timestamps in system messages are adjusted in reference to the time zone and daylight saving schedule.

## Examples

```
# Set the system time ahead one hour for the period between 06:00:00 on 08/01/2011 and 06:00:00 on 09/01/2011.
```

```
<Sysname> system-view
```

```
[Sysname] clock summer-time abc1 one-off 6 08/01/2011 6 09/01/2011 1
```

## Related commands

- **clock datetime**
- **clock summer-time repeating**
- **clock timezone**
- **display clock**

# clock summer-time repeating

Use **clock summer-time repeating** to set a recurring daylight saving schedule.

Use **undo clock summer-time** to cancel the configuration of the daylight saving time.

## Syntax

```
clock summer-time zone-name repeating start-time start-date end-time end-date add-time
```

```
undo clock summer-time
```

## Default

Daylight saving time is disabled and UTC time zone applies.

## Views

System view

## Default command level

3: Manage level

## Parameters

*zone-name*: Specifies a daylight saving time schedule by a zone name, a case-sensitive string of 1 to 32 characters.

*start-time*: Specifies a start time, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

*start-date*: Specifies a start date, which can be set in the following ways:

- Enter the year, month and date at one time, in the *MM/DD/YYYY* or *YYYY/MM/DD* format.

- Enter the year, month and date one by one, separated by spaces. The year is in the range of 2000 to 2035; the month can be **January, February, March, April, May, June, July, August, September, October, November** or **December**; the start week can be the **first, second, third, fourth, fifth** or **last** week of the month; the start date is **Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday**.

*end-time*: Specifies an end time, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

*end-date*: Specifies an end date, which can be set in the following ways:

- Enter the year, month and date at one time, in the *MM/DD/YYYY* or *YYYY/MM/DD* format.
- Enter the year, month and date one by one, separated by spaces. The year is in the range of 2000 to 2035; the month can be **January, February, March, April, May, June, July, August, September, October, November** or **December**; the end week can be the **first, second, third, fourth, fifth** or **last** week of the month; the end date is **Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday**.

*add-time*: Specifies a time to be added to the standard time of the device, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

## Usage guidelines

The interval between *start-time start-date* and *end-time end-date* must be longer than one day and shorter than one year. If the current system time is in the specified daylight saving days, the *add-time* value automatically adds to the system time.

To verify the setting, use the **display clock** command.

The timestamps in system messages are adjusted in reference to the time zone and daylight saving schedule.

## Examples

```
# Set the system time ahead one hour every year after 2011 (inclusive) for the period from August 1
at 06:00:00 to September 1 at 06:00:00.
```

```
<Sysname> system-view
```

```
[Sysname] clock summer-time abc2 repeating 06:00:00 08/01/2011 06:00:00 09/01/2011
01:00:00
```

## Related commands

- **clock datetime**
- **clock summer-time one-off**
- **clock timezone**
- **display clock**

## clock timezone

Use **clock timezone** to set the local time zone.

Use **undo clock timezone** to restore the local time zone to the default UTC time zone.

## Syntax

```
clock timezone zone-name { add | minus } zone-offset
```

```
undo clock timezone
```

## Default

The local time zone is UTC zone.

## Views

System view

## Default command level

3: Manage level

## Parameters

*zone-name*: Specifies a time zone by its name, a case-sensitive string of 1 to 32 characters.

**add**: Adds a specified offset to UTC.

**minus**: Subtracts a specified offset to UTC.

*zone-offset*: Specifies an offset to the UTC, in the *hh:mm:ss* format. Zeros can be omitted, unless you specify 00:00:00.

## Usage guidelines

To verify the setting, use the **display clock** command.

The timestamps in system messages are adjusted in reference to the time zone and daylight saving schedule.

## Examples

```
# Set the local time zone to add five hours to UTC time.
<Sysname> system-view
[Sysname] clock timezone z5 add 5
```

## Related commands

- **clock datetime**
- **clock summer-time one-off**
- **clock summer-time repeating**
- **display clock**

# configure-user count

Use **configure-user count** to configure the maximum number of users allowed to enter system view at the same time.

Use **undo configure-user count** to restore the default.

## Syntax

**configure-user count** *number*

**undo configure-user count**

## Views

System view

## Default command level

2: System level

## Parameters

*number*: Specifies the maximum number of concurrent users.

The following matrix shows the value ranges for the *number* argument:

Hardware	Value range
MSR800	1 to 70
MSR 900	1 to 86
MSR900-E	1 to 70
MSR 930	1 to 70
MSR 20-1X	1 to 86
MSR 20	1 to 87
MSR 30	1 to 183
MSR 50	1 to 535
MSR 2600	1 to 182
MSR3600-51F	1 to 183

## Usage guidelines

Two users are allowed to enter system view by default.

When multiple users enter system view to configure certain attribute, the most recent configuration takes effect.

When the number of users has already reached the limit, other users can not enter system view.

## Examples

# Configure to allow up to four users to enter system view concurrently.

```
<Sysname> system-view
[Sysname] configure-user count 4
```

## Related commands

**display configure-user**

# copyright-info enable

Use **copyright-info enable** to enable displaying the copyright statement.

Use **undo copyright-info enable** to disable displaying the copyright statement.

## Syntax

**copyright-info enable**

**undo copyright-info enable**

## Default

This feature is enabled.

## Views

System view

## Default command level

3: Manage level

## Examples

# Enable displaying the copyright statement.

```
<Sysname> system-view
[Sysname] copyright-info enable
```

- When a Telnet user logs in, the following statement appears:

```
*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved.*
* Without the owner's prior written consent,                               *
* no decompiling or reverse-engineering shall be allowed.                 *
*****
```

<Sysname>

- When a console user quits user view, the following message appears:

```
*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved.*
* Without the owner's prior written consent,                               *
* no decompiling or reverse-engineering shall be allowed.                 *
*****
```

User interface con0 is available.

Please press ENTER.

#### # Disable displaying the copyright statement.

<Sysname> system-view

[Sysname] undo copyright-info enable

- When a Telnet user logs in, the user view prompt appears:

<Sysname>

- When a console user quits user view, the following message appears:

User interface con0 is available.

Please press ENTER.

## display clock

Use **display clock** to display the system time and date.

### Syntax

**display clock** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The current system time and date are decided by the **clock datetime**, **clock summer-time one-off**, or **clock summer-time repeating**, and **clock timezone** commands. For more information about how the system time and date are decided, see *Fundamentals Configuration Guide*.

## Examples

```
# Display the system time and date.
<Sysname> display clock
09:41:23 UTC Thu 12/15/2005
```

## Related commands

- **clock datetime**
- **clock summer-time one-off**
- **clock summer-time repeating**
- **clock timezone**

# display configure-user

Use **display configure-user** to display the users that have logged in to the device but are not in user view.

## Syntax

```
display configure-user [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the users that have logged into the system but are not in user view.
<Sysname> display configure-user
The information of current configuration user(s):
  Idx UI      Delay      Type Userlevel
+ 178 VTY 0    01:10:16 TEL 3
+ 179 VTY 1    00:00:00 TEL 3
Following are more details.
VTY 0      :
```

```

Location: 192.168.1.59
VTY 1   :
Location: 192.168.1.54
+       : User-interface is active.
F       : User-interface is active and work in async mode.

```

**Table 12 Command output**

Field	Description
The information of current configuration user(s)	Information of the users that have logged in and are not in user view.
Idx	Absolute ID of the user interface.
UI	Type and relative ID of the user interface that the user used for login.
Delay	Delay between the most recent CLI input and the execution of the <b>display configure-user command</b> , in the format hh:mm:ss
Type	User type, telnet, SSH, or PAD.
Userlevel	User level, level 0 (visit level), level 1 (monitor level), level 2 (system level), or level 3 (manage level)
Following are more details.	Detailed information about the login user.
Location	IP address of the login user.
+ : User-interface is active.	User interface that is being used.
F : User-interface is active and work in async mode.	User interface that is being used and operating in asynchronous mode.

## Related commands

**configure-user count**

## display copyright

Use **display copyright** to display the software and hardware copyright statements.

### Syntax

```
display copyright [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

With this command, you can view the software and hardware copyright statements, and third-party software license agreements.

## Examples

```
# Display the software and hardware copyright statements. (The output is omitted here.)
<Sysname> display copyright
```

# display cpu-usage

Use **display cpu-usage** to display CPU usage statistics.

## Syntax

```
display cpu-usage [ entry-number [ offset ] [ verbose ] [ from-device ] ] [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

*entry-number*: Number of entries to be displayed, in the range of 1 to 60.

*offset*: Offset between the serial number of the first CPU usage rate record to be displayed and that of the last CPU usage rate record to be displayed. It is in the range of 0 to 59.

For example, the *idx* of the latest statistics record is 12. If the *offset* is set to 3, the system will display the statistics records from the one with the *idx* of 9, where *idx* represents the serial number of the period for the statistics, and its value is in the range of 0 to 60 cyclically. The system collects CPU usage rates periodically, and the system records the average CPU usage rate during this period, and the *idx* value is added by 1 automatically.

**verbose**: Displays the average CPU usage statistics for each task in the specified period. If this keyword is not provided, this command displays the brief information of the CPU usage statistics.

**from-device**: Displays the external storage medium, such as a Flash or hard disk. The **from-device** keyword is not supported in the current software version. It is reserved for further use.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The system regularly (typically at 60-second intervals) collects CPU usage statistics and saves the statistical results in the history record area. The maximum number of records that can be saved depends on your device model.

The **display cpu-usage** *entry-number* command displays *entry-number* latest records, starting from the latest record. The **display cpu-usage** *entry-number* *offset* command displays *number* latest records, starting from the last (*offset*+1)th record.

## Examples

# Display the current CPU usage statistics.

```
<Sysname> display cpu-usage
```

```
Unit CPU usage:
```

```
    1% in last 5 seconds
```

```
    1% in last 1 minute
```

```
    1% in last 5 minutes
```

# Display the last fifth and sixth record entries in CPU usage statistics.

```
<Sysname> display cpu-usage 2 4
```

```
===== CPU usage info (no: 0 idx: 58) =====
```

```
CPU Usage Stat. Cycle: 60 (Second)
```

```
CPU Usage           : 3%
```

```
CPU Usage Stat. Time : 2006-07-10 10:56:55
```

```
CPU Usage Stat. Tick : 0x1d9d(CPU Tick High) 0x3a659a70(CPU Tick Low)
```

```
Actual Stat. Cycle   : 0x0(CPU Tick High) 0x95030517(CPU Tick Low)
```

```
===== CPU usage info (no: 1 idx: 57) =====
```

```
CPU Usage Stat. Cycle: 60 (Second)
```

```
CPU Usage           : 3%
```

```
CPU Usage Stat. Time : 2006-07-10 10:55:55
```

```
CPU Usage Stat. Tick : 0x1d9c(CPU Tick High) 0xa50e5351(CPU Tick Low)
```

```
Actual Stat. Cycle   : 0x0(CPU Tick High) 0x950906af(CPU Tick Low)
```

**Table 13 Command output**

Field	Description
Unit CPU usage	CPU usage rates.
1% in last 5 seconds	After a boot, the system calculates and records the average CPU usage rate every five seconds. This field displays the average CPU usage rate in the last five seconds.
1% in last 1 minute	After a boot, the system calculates and records the average CPU usage rate every one minute. This field displays the average CPU usage rate in the last minute.
1% in last 5 minutes	After a boot, the system calculates and records the average CPU usage rate every five minutes. This field displays the average CPU usage rate in the last five minutes.
CPU usage info (no: idx:)	Information of CPU usage rate records: <ul style="list-style-type: none"> <li><b>no</b>—(no+1)th record. The "no" starts with 0, a smaller number means a newer record.</li> <li><b>idx</b>—Index of the current record in the history record table.</li> </ul> If you specify to display the current CPU usage statistics, (no: idx:) is not displayed.
CPU Usage Stat. Cycle	CPU usage rate measurement interval, in seconds. For example, if the value is 41, it indicates that the average CPU usage rate during the last 41 seconds is calculated. The value range of this field is 1 to 60.
CPU Usage	Average CPU usage rate in a measurement interval, in percentage.
CPU Usage Stat. Time	CPU usage rate statistics time in seconds, that is, the system time when the command is executed.
CPU Usage Stat. Tick	System runtime in ticks, represented by a 64-bit hexadecimal. CPU Tick

Field	Description
	High represents the most significant 32 bits and the CPU Tick Low the least significant 32 bits.
Actual Stat. Cycle	Actual CPU usage rate measurement interval in ticks, represented by a 64-bit hexadecimal. CPU Tick High represents the most significant 32 bits and the CPU Tick Low the least significant 32 bits. Owing to the precision of less than one second, the actual measurement periods of different CPU usage rate records might differ slightly.

## display cpu-usage history

Use **display cpu-usage history** to display historical CPU usage statistics in charts.

### Syntax

```
display cpu-usage history [ task task-id ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**task** *task-id*: Displays the historical CPU usage statistics for the specified task, where *task-id* represents the task number. If the *task-id* argument is not provided, this command displays the historical CPU usage statistics for the entire system (the CPU usage rates of the entire system is the sum of CPU usage rates of all tasks).

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

If no argument is provided, this command displays the historical CPU usage statistics for the whole system.

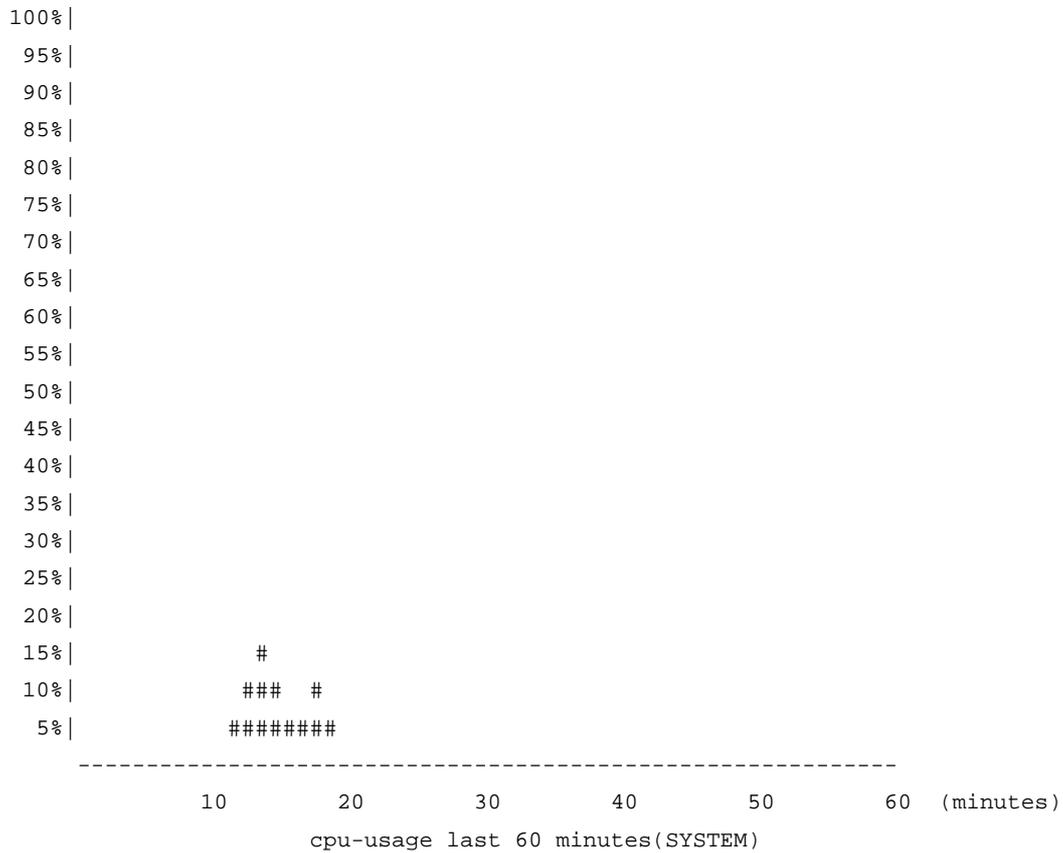
The system regularly collects CPU usage statistics and saves the statistics in the history record area. The **display cpu-usage history** command displays the CPU usage statistics for the last 60 minutes in axes, where:

- The vertical axis represents the CPU usage. If a statistic is not a multiple of the usage step, it is rounded up or down to the closest multiple of the usage step, whichever is closer. For example, if the CPU usage step is 5%, the statistic 53% is rounded up to 55%, and the statistic 52% is rounded down to 50%.
- The horizontal axis represents the time.
- Consecutive pound signs (#) indicate the CPU usage at a specific time. The value on the vertical axis for the topmost # sign at a specific time represents the CPU usage at that time.

### Examples

# Display historical CPU usage statistics.

```
<Sysname> display cpu-usage history
```

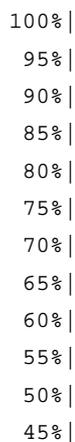


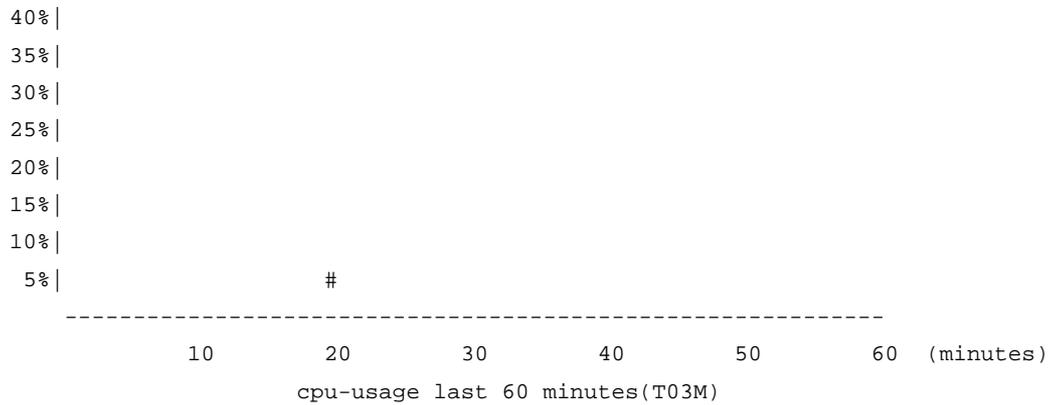
The output shows the historical CPU usage statistics (with the task name **SYSTEM**) in the last 60 minutes:

- 5%: 12 minutes ago
- 10%: 13 minutes ago
- 15%: 14 minutes ago
- 10%: 15 minutes ago
- 5%: 16 and 17 minutes ago
- 10%: 18 minutes ago
- 5%: 19 minutes ago
- 2% or lower than 2%: other time

# Display the historical CPU usage statistics for task 6.

```
<Sysname> display cpu-usage history task 6
```





The output shows the historical CPU usage statistics of task 6 (with the task name **T03M**) in the last 60 minutes:

- 5%: 20 minutes ago
- 2% or lower than 2%: other time

## display device

Use **display device** to display device information.

### Syntax

```
display device [ cf-card | usb ] [ slot slot-number | verbose ] [ [ { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

**cf-card**: Displays CF card information.

**usb**: Displays USB interface-connected device information.

The following matrix shows the **cf-card** and **usb** keywords and hardware compatibility:

Hardware	Compatibility for cf-card	Compatibility for usb
MSR800	No	Yes
MSR 900	No	Yes
MSR900-E	No	Yes
MSR 930	Yes except MSR 930-GU, MSR 930-GT, MSR 930-DG, and MSR 930-SA	Yes
MSR 20-1X	No	Yes
MSR 20	Yes	Yes
MSR 30	Yes except MSR 30-10, MSR 30-11, MSR 30-11E, and MSR 30-11F	Yes except MSR 30-11
MSR 50	Yes	Yes
MSR 2600	No	Yes

Hardware	Compatibility for cf-card	Compatibility for usb
MSR3600-51F	No	Yes

**slot** *slot-number*: Displays information about the specified card. The *slot-number* argument represents the slot number of a card.

**verbose**: Displays detailed information.

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

If no CF card or USB disk is specified, this command displays information about all cards.

## Examples

# Display device information.

```
<Sysname> display device
```

```
Slot No.   Board Type           Status   Max Ports
0          MSR20-21 RPU Board  Normal   12
1          SIC-1FEA            Normal   1
```

**Table 14 Command output**

Field	Description
Slot No.	Number of the slot where the card resides.
Board Type	Hardware type of the card.
Status	Card status: <ul style="list-style-type: none"> <li><b>Fault</b>—Error occurred, and the card cannot start correctly.</li> <li><b>Normal</b>—The card is operating correctly.</li> </ul>
Max Ports	Maximum number of physical ports that the card supports.

## display device manuinfo

Use **display device manuinfo** to display the electronic label data for the device.

### Syntax

```
display device manuinfo [ slot slot-number ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

3: Manage level

### Parameters

**slot** *slot-number*: Displays the electronic label data for the specified interface card. The *slot-number* argument represents the slot number of an interface card.

]: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

An electronic label is a profile of a device or card and contains the permanent configuration including the serial number, manufacturing date, MAC address, and vendor name. The data is written to the storage component during debugging or testing.

This command displays part of the electronic label data.

## Examples

```
# Display the electronic label data for the device.
<Sysname> display device manuinfo
slot 0
DEVICE_NAME           : aaaa
DEVICE_SERIAL_NUMBER  : xxxx
MAC_ADDRESS           : 000F-E26A-58EA
MANUFACTURING_DATE    : 2007-11-10
VENDOR_NAME           : H3C
slot 1
The card does not support manufacture information.
```

# display diagnostic-information

Use **display diagnostic-information** to display or save running status data for multiple feature modules.

## Syntax

```
display diagnostic-information [ [ { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

]: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

For diagnosis or troubleshooting, you can use separate **display** commands to collect running status data module by module, or use the **display diagnostic-information** command to bulk collect

running data for multiple modules. The **display diagnostic-information** command equals this set of commands: **display clock**, **display version**, **display device**, and **display current-configuration**.

## Examples

# Save running status data for multiple feature modules.

```
<Sysname> display diagnostic-information
Save or display diagnostic information (Y=save, N=display)?[Y/N]y
Please input the file name(*.diag)[flash:/default.diag]:aa.diag
Diagnostic information is outputting to flash:/aa.diag.
Please wait...
Save succeeded.
```

To view the content of file **aa.diag**, execute the **more.aa.diag** command in user view, in combination of the **Page Up** and **Page Down** keys.

# Display running status data for multiple feature modules.

```
<Sysname> display diagnostic-information
Save or display diagnostic information (Y=save, N=display)? [Y/N]:n
=====
=====display clock=====
=====
08:54:16 UTC Fri 11/15/2008
=====
=====display version=====
=====
.....Part of the output is not shown.....
```

## display environment

Use **display environment** to display temperature information, including the current temperature and temperature thresholds.

### Syntax

```
display environment [ cpu ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**cpu**: Displays temperature information of the CPUs on the device.

The following matrix shows the **cpu** keyword and hardware compatibility:

Hardware	Keyword compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No

Hardware	Keyword compatibility
MSR 20	No
MSR 30	No
MSR 50	Yes
MSR 2600	No
MSR3600-51F	No

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

## Examples

# Display temperature information.

```
<Sysname> display environment
System Temperature information (degree centigrade):
-----
SlotNo    Temperature    Lower limit    Upper limit
0         41             5              60
```

# Display temperature information for all CPUs.

```
<Sysname> display environment cpu
CPU Temperature information (degree centigrade):
-----
SlotNO    Temperature    Lower limit    Upper limit
0         29             12             63
```

**Table 15 Command output**

Field	Description
System Temperature information (degree centigrade)	Temperature information of system cards.
CPU Temperature information (degree centigrade)	Temperature information of cards of the system (degree centigrade).
SlotNO	Number of the slot in which the card resides.
Temperature	Current temperature.
Lower limit	Lower limit of temperature.
Upper limit	Upper limit of temperature.

## display fan

Use **display fan** to display the operating states of fans.

### Syntax

```
display fan [ fan-id ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

*fan-id*: Displays the operating state of the specified fan, where the *fan-id* argument represents the built-in fan number.

The following matrix shows the *fan-id* argument and hardware compatibility:

Hardware	Argument compatibility	Value
MSR800	No	N/A
MSR 900	No	N/A
MSR900-E	No	N/A
MSR 930	No	N/A
MSR 20-1X	No	N/A
MSR 20	Yes	1
MSR 30	Yes	1
MSR 50	Yes	1
MSR 2600	Yes	1
MSR3600-51F	Yes	1

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

## Examples

```
# Display the operating states of all fans.
```

```
<Sysname> display fan
```

```
Fan 1 State: Normal
```

# display job

Use **display job** to display information about scheduled jobs configured by using the **job** command.

## Syntax

```
display job [ job-name ] [ [ { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

*job-name:* Specifies the job name, which is a string of 1 to 32 characters.

*]:* Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

If no job is specified, this command displays information about all scheduled jobs.

## Examples

```
# Display detailed information about the scheduled job saveconfig.
```

```
<Sysname> display job saveconfig
```

```
Job name: saveconfig
```

```
Specified view: monitor
```

```
Time 1: Execute command save 1.cfg after 40 minutes
```

The output shows that the current configuration will be automatically saved to the configuration file **1.cfg** in 40 minutes.

**Table 16 Command output**

Field	Description
Job name	Name of the scheduled job.
Specified view	View containing the commands in the job.
Time <i>timeID</i>	Execution time of each command in the job.
Execute command	Command string.

## Related commands

- **job**
- **time**
- **view**

## display memory

Use **display memory** to display memory usage statistics.

### Syntax

```
display memory [ [ { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display memory usage statistics.
```

```
<Sysname> display memory
```

```
System Total Memory(bytes): 431869088
```

```
Total Used Memory(bytes): 71963156
```

```
Used Rate: 16%
```

**Table 17 Command output**

Field	Description
System Total Memory(bytes)	Total size of the system memory (in bytes)
Total Used Memory(bytes)	Size of the memory used (in bytes)
Used Rate	Percentage of the memory used to the total memory.

## display power

Use **display power** to display power supply information.

### Syntax

```
display power [ power-id ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

*power-id*: Displays information about the specified power supply, where the *power-id* argument represents the power supply number.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

```
# Display power supply information.  
<Sysname> display power  
Power    0 State: Normal
```

## display reboot-type

Use **display reboot-type** to display the mode of the most recent reboot.

### Syntax

```
display reboot-type [ slot slot-number ] [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

**slot** *slot-number*: Displays the mode of the most recent reboot for an interface card. The *slot-number* argument represents the slot number of an interface card.

]: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

If no card is specified, this command displays the mode of the most recent reboot of the device.

## Examples

```
# Display the mode of the most recent reboot.
```

```
<Sysname> display reboot-type
The rebooting type this time is: Cold
```

The output shows that the most recent reboot mode is Cold boot (cold boot will restart a device by powering it on). (The display of Warm represents a warm boot, which means to restart a device by using the commands like **reboot**).

# display rps

Use **display rps** to display RPS status information.

## Syntax

```
display rps [ rps-id ] [ { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

*rps-id:* Displays the status of the specified RPS, where the *rps-id* argument represents the RPS number.

]: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No

Hardware	Command compatibility
MSR 20-1X	No
MSR 20	No
MSR 30	Yes except MSR 30-1X
MSR 50	No
MSR 2600	No
MSR3600-51F	Yes

## Examples

# Display RPS status information.

```
<Sysname> display rps
RPS      1 State: Normal
```

## display schedule job

Use **display schedule job** to display the job configured by using the **schedule job** command.

### Syntax

```
display schedule job [ [ { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

# Display the configuration of the job configured by using the **schedule job** command.

```
<Sysname> display schedule job
Specified command: execute 1.bat
Specified view: system view
Executed time: at 12:00 10/31/2007 (in 0 hours and 16 minutes)
```

If you change the system time within 16 minutes after you execute the **schedule job** command, the scheduled task becomes invalid. Then, if you execute the **display schedule job** command again, no information is displayed.

### Table 18 Command output

Field	Description
Specified command	Command to be executed.

Field	Description
Specified view	View for the command to be executed.
Executed time	Execution time of the command and the difference between the current system time and scheduled time.

## Related commands

**schedule job**

## display schedule reboot

Use **display schedule reboot** to display the reboot schedule.

### Syntax

```
display schedule reboot [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

3: Manage level

### Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

```
# Display the reboot schedule.
<Sysname> display schedule reboot
System will reboot at 16:00:00 03/10/2006 (in 2 hours and 5 minutes).
```

### Related commands

- **schedule reboot at**
- **schedule reboot delay**

## display system-failure

Use **display system-failure** to display the exception handling method.

### Syntax

```
display system-failure [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

3: Manage level

## Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the exception handling method.
<Sysname> display system-failure
    System failure handling method: reboot
```

## Related commands

**system-failure**

# display transceiver

Use **display transceiver** to display the key parameters of transceiver modules.

## Syntax

```
display transceiver { controller [ controller-type controller-number ] | interface [ interface-type interface-number ] } [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

2: System level

## Parameters

**controller** [ *controller-type controller-number* ]: Displays the key parameters of the transceiver module in a controller interface. The *controller-type controller-number* argument specifies a controller interface by its type and number. If no controller interface is specified, this command displays the key parameters for the transceiver modules in all controller interfaces.

**interface** [ *interface-type interface-number* ]: Displays the key parameters of the transceiver module in an interface. The *interface-type interface-number* argument specifies an interface by its type and number. If no interface is specified, this command displays the key parameters of the transceiver modules in all interfaces.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the key parameters of the transceiver module in interface GigabitEthernet 2/3.
<Sysname> display transceiver interface gigabitethernet 2/3
GigabitEthernet2/3 transceiver information:
    Transceiver Type           : 1000_BASE_SX_SFP
```

```

Connector Type           : LC
Wavelength(nm)         : 850
Transfer Distance(m)    : 550(50um) , 270(62.5um)
Digital Diagnostic Monitoring : YES
Vendor Name             : H3C
Ordering Name          : SFP-GE-SX-MM850

```

**Table 19 Command output**

Field	Description
transceiver information	Transceiver module information.
Transceiver Type	Transceiver module type.
Connector Type	Connector type options: <ul style="list-style-type: none"> <li>• <b>SC</b>—Fiber connector developed by NTT.</li> <li>• <b>LC</b>—1.25 mm/RJ-45 fiber connector developed by Lucent.</li> <li>• RJ-45.</li> <li>• CX 4.</li> </ul>
Wavelength(nm)	<ul style="list-style-type: none"> <li>• Fiber transceiver: central wavelength (in nm) of the transmit laser. If the transceiver supports multiple wavelengths, every two wavelength values are separated by a comma.</li> <li>• Copper transceiver: displayed as N/A.</li> </ul>
Transfer Distance(xx)	Transfer distance, with xx representing km for single-mode transceiver modules and m for other transceiver modules. If the transceiver module supports multiple transfer media, every two transfer distance values are separated by a comma. The corresponding transfer medium is included in the bracket following the transfer distance value. The following are the supported transfer media: <ul style="list-style-type: none"> <li>• <b>9 um</b>—9/125 um single-mode fiber.</li> <li>• <b>50 um</b>—50/125 um multi-mode fiber.</li> <li>• <b>62.5 um</b>—62.5/125 um multi-mode fiber.</li> <li>• <b>TP</b>—Twisted pair.</li> <li>• <b>CX4</b>—CX4 cable.</li> </ul>
Digital Diagnostic Monitoring	Support for the digital diagnosis function: <ul style="list-style-type: none"> <li>• <b>YES</b>—Supported.</li> <li>• <b>NO</b>—Not supported.</li> </ul>
Vendor Name	Vendor name.
Ordering Name	Product code.

## display transceiver alarm

Use **display transceiver alarm** to display alarms present on transceiver modules.

### Syntax

```

display transceiver alarm { controller [ controller-type controller-number ] | interface
[ interface-type interface-number ] } [ { begin | exclude | include } regular-expression ]

```

### Views

Any view

## Default command level

2: System level

## Parameters

**controller** [ *controller-type controller-number* ]: Displays alarms that are present on the transceiver module in a controller interface. The *controller-type controller-number* argument specifies a controller interface by its type and number. If no controller interface is specified, this command displays alarm information for the transceiver modules in all controller interfaces.

**interface** [ *interface-type interface-number* ]: Displays the alarms that are present on the transceiver module in an interface. The *interface-type interface-number* argument specifies an interface by its type and number. If no interface is specified, this command displays alarm information for the transceiver modules in all interfaces.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

If no error occurs, **None** is displayed. [Table 20](#) describes the transceiver module alarms that might occur.

**Table 20 Common transceiver module alarms**

Field	Remarks
SFP	
RX loss of signal	Incoming (RX) signal is lost.
RX power high	Incoming (RX) power is high.
RX power low	Incoming (RX) power is low.
TX fault	Transmit (TX) fault.
TX bias high	TX bias current is high.
TX bias low	TX bias current is low.
TX power high	TX power is high.
TX power low	TX power is low.
Temp high	Temperature is high.
Temp low	Temperature is low.
Voltage high	Voltage is high.
Voltage low	Voltage is low.
Transceiver info I/O error	Transceiver information read and write error.
Transceiver info checksum error	Transceiver information checksum error.
Transceiver type and port configuration mismatch	Transceiver type does not match port configuration.
Transceiver type not supported by port hardware	The port does not support the transceiver type.

## Examples

```
# Display the alarms present on the transceiver module in interface GigabitEthernet 2/1.
<Sysname> display transceiver alarm interface gigabitethernet 2/1
GigabitEthernet2/1 transceiver current alarm information:
  RX loss of signal
  RX power low
```

**Table 21 Command output**

Field	Description
transceiver current alarm information	Alarms present on the transceiver module.
RX loss of signal	Incoming (RX) signal is lost.
RX power low	Incoming (RX) power level is low.

## display transceiver diagnosis

Use **display transceiver diagnosis** to display the measured values of the digital diagnosis parameters for transceiver modules.

### Syntax

```
display transceiver diagnosis { controller [ controller-type controller-number ] | interface [ interface-type interface-number ] } [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

**controller** [ *controller-type controller-number* ]: Displays the measured values of the digital diagnosis parameters for the transceiver module in a controller interface. The *controller-type controller-number* argument specifies a controller interface by its type and number. If no controller interface is specified, this command displays the measured values of the digital diagnosis parameters for transceiver modules in all controller interfaces.

**interface** [ *interface-type interface-number* ]: Displays the measured values of the digital diagnosis parameters for the transceiver module in an interface. The *interface-type interface-number* argument specifies an interface by its type and number. If no interface is specified, this command displays the measured values of the digital diagnosis parameters for the transceiver modules in all interfaces.

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the measured values of the digital diagnosis parameters for the transceiver module in interface GigabitEthernet 2/2.
<Sysname> display transceiver diagnosis interface gigabitethernet 2/2
GigabitEthernet2/2 transceiver diagnostic information:
```

Current diagnostic parameters:

Temp(°C)	Voltage(V)	Bias(mA)	RX power(dBM)	TX power(dBM)
36	3.31	6.13	-35.64	-5.19

**Table 22 Command output**

Field	Description
transceiver diagnostic information	Digital diagnosis information of the transceiver in the interface.
Current diagnostic parameters	Current diagnostic parameters.
Temp.(°C)	Digital diagnosis parameter-temperature, in °C, with the precision to 1°C.
Voltage(V)	Digital diagnosis parameter-voltage, in V, with the precision to 0.01 V.
Bias(mA)	Digital diagnosis parameter-bias current, in mA, with the precision to 0.01 mA.
RX power(dBM)	Digital diagnosis parameter-RX power, in dBM, with the precision to 0.01 dBM.
TX power(dBM)	Digital diagnosis parameter-TX power, in dBM, with the precision to 0.01 dBM.

## display transceiver manuinfo

Use **display transceiver manuinfo** to display the electronic label data for transceiver modules.

### Syntax

```
display transceiver manuinfo { controller [ controller-type controller-number ] | interface [ interface-type interface-number ] } [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

**controller** [ *controller-type controller-number* ]: Displays the electronic label data for the transceiver module in a controller interface. The *controller-type controller-number* argument specifies a controller interface by its type and number. If no controller interface is specified, this command displays the electronic label data for the transceiver modules in all controller interfaces.

**interface** [ *interface-type interface-number* ]: Displays the electronic label data for the transceiver module in an interface. The *interface-type interface-number* argument specifies represents interface type and interface number. If no interface is specified, this command displays the electronic label data for the transceiver modules in all interfaces.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display the electronic label data for the transceiver module in interface GigabitEthernet 2/4.
```

```
<Sysname> display transceiver manuinfo interface gigabitethernet 2/4
```

```
GigabitEthernet2/4 transceiver manufacture information:
```

```
Manu. Serial Number   : 213410A0000054000251
```

```
Manufacturing Date    : 2006-09-01
```

```
Vendor Name           : H3C
```

**Table 23 Command output**

Field	Description
Manu. Serial Number	Serial number generated during debugging and testing of the transceiver module.
Manufacturing Date	Debugging and testing date. The date takes the value of the system clock of the computer that performs debugging and testing.
Vendor Name	Vendor name of the transceiver module.

## display version

Use **display version** to display system version information, including the system software version, chassis model, and basic MPU and interface card data.

### Syntax

```
display version [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

```
# Display system version information.
```

```
<Sysname> display version
```

## header

Use **header** to create a banner.

Use **undo header** to clear a banner.

## Syntax

```
header { incoming | legal | login | motd | shell } text
undo header { incoming | legal | login | motd | shell }
```

## Views

System view

## Default command level

2: System level

## Parameters

**incoming:** Configures the banner displayed before a Modem dial-in user accesses user view.

**legal:** Configures the banner displayed before a user inputs the username and password to access the CLI.

**login:** Configures the banner displayed before password or scheme authentication is performed for a login user.

**motd:** Configures the greeting banner displayed before the legal banner appears.

**shell:** Configures the banner displayed before a non-Modem dial-in user accesses user view.

*text:* Banner message, which can be input in two formats. For more information, see *Fundamentals Configuration Guide*.

## Usage guidelines

Banners are greeting or alert messages that the system displays during the login process of a user.

## Examples

# Configure banners.

```
<Sysname> system-view
[Sysname] header incoming %
Please input banner content, and quit with the character '%'.
Welcome to incoming(header incoming)%
[Sysname] header legal %
Please input banner content, and quit with the character '%'.
Welcome to incoming(header incoming)%
[Sysname] header login %
Please input banner content, and quit with the character '%'.
Welcome to login(header login)%
[Sysname] header motd %
Please input banner content, and quit with the character '%'.
Welcome to motd(header motd)%
[Sysname] header shell %
Please input banner content, and quit with the character '%'.
Welcome to shell(header shell)%
```

In this example, the percentage sign (%) is the starting and ending characters of text. Entering % after the displayed test quits the **header** command. As the starting and ending characters, % is not part of the banners.

# Verify the configuration by using Telnet. (The login authentication is not configured.)

```

*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved. *
* Without the owner's prior written consent, *
* no decompiling or reverse-engineering shall be allowed. *
*****

Welcome to legal (header legal)
  Press Y or ENTER to continue, N to exit.

Welcome to motd(header motd)
Welcome to shell(header shell)
<Sysname>

# Verify the configuration by using Telnet. (Password authentication is configured.)
*****
* Copyright (c) 2004-2017 New H3C Technologies Co., Ltd. All rights reserved. *
* Without the owner's prior written consent, *
* no decompiling or reverse-engineering shall be allowed. *
*****

Welcome to legal (header legal)
  Press Y or ENTER to continue, N to exit.

Welcome to motd(header motd)

Welcome to login(header login)

Login authentication

Password:

Welcome to shell(header shell)
<Sysname>

```

## job

Use **job** to create a job or enter job view.

Use **undo job** to delete a scheduled job.

### Syntax

**job** *job-name*

**undo job** *job-name*

### Default

No job is created.

### Views

System view

### Default command level

3: Manage level

## Parameters

*job-name*: Specifies the name for a job, a string of 1 to 32 characters.

## Usage guidelines

You can add commands in job view to execute at certain times.

You can use the **job** command to create multiple jobs.

## Examples

# Create the job **saveconfiguration** or enter its view.

```
<Sysname> system-view  
[Sysname] job saveconfiguration  
[Sysname-job-saveconfiguration]
```

## Related commands

- **time**
- **view**

# nms monitor-interface

Use **nms primary monitor-interface** to configure the primary monitored interface.

Use **nms secondary monitor-interface** to configure the secondary monitored interface.

Use **undo nms monitor-interface** to remove the configurations.

## Syntax

```
nms { primary | secondary } monitor-interface interface-type interface-number  
undo nms { primary | secondary } monitor-interface
```

## Default

A network management system (NMS) does not monitor any interface on the device.

## Views

System view

## Default command level

3: Manage level

## Parameters

**primary**: Specifies the primary monitored interface.

**secondary**: Specifies the secondary monitored interface.

*interface-type interface-number*: Type and number of the interface to be monitored.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	Yes
MSR 900	Yes
MSR900-E	Yes
MSR 930	Yes

Hardware	Command compatibility
MSR 20-1X	Yes
MSR 20	No
MSR 30	No
MSR 50	No
MSR 2600	Yes
MSR3600-51F	No

If you configure only the primary monitored interface or the secondary monitored interface, the device monitors the IP address of the configured interface. If the interface gets or changes its IP address when the interface status is up, the device sends traps to the NMS to inform it of the available IP address.

If you configure both the primary and secondary monitored interfaces, the device monitors the primary one first.

## Examples

```
# Configure Ethernet 1/1 as the primary monitored interface
<Sysname> system-view
[Sysname] nms primary monitor-interface ethernet 1/1
```

## password-recovery enable

Use **password-recovery enable** to enable password recovery capability.

Use **undo password-recovery enable** to disable password recovery capability.

### Syntax

**password-recovery enable**

**undo password-recovery enable**

### Default

Password recovery capability is enabled.

### Views

System view

### Default command level

3: Manage level

### Usage guidelines

Password recovery capability controls console user access to the device configuration and SDRAM from Boot ROM menus.

If password recovery capability is enabled, a console user can access the device configuration without authentication to configure new passwords.

If password recovery capability is disabled, console users must restore the factory-default configuration before they can configure new passwords. Restoring the factory-default configuration deletes the next-startup configuration files.

To enhance system security, disable password recovery capability.

## Examples

```
# Disable password recovery capability.
```

```
<Sysname> system-view
[Sysname] undo password-recovery enable
```

## reboot

Use **reboot** to reboot the device or the specified interface card.

### Syntax

```
reboot [ slot slot-number ]
```

### Views

User view

### Default command level

3: Manage level

### Parameters

**slot slot-number**: Specifies the slot number of a card. If you do not specify this option, this command reboots all cards.

### Usage guidelines

---

#### CAUTION:

- Device reboot can interrupt network services.
  - If the main system software image file has been corrupted or does not exist, the device cannot reboot. You must re-specify a main system software image file, or power off the device and then power it on so the system can reboot with the backup system software image file.
- 

For data security, if you are performing file operations at the reboot time, the system does not reboot.

### Examples

```
# Reboot the device.
<Sysname> reboot
The output is not shown.
```

## reset unused porttag

Use **reset unused porttag** to clear unused 16-bit interface indexes.

### Syntax

```
reset unused porttag
```

### Views

User view

### Default command level

1: Monitor level

### Usage guidelines

A confirmation is required when you execute this command. The command will not run if you enter **N** to cancel the operation or fail to make a confirmation within 30 seconds.

### Examples

```
# Clear unused 16-bit interface indexes.
<Sysname> reset unused porttag
```

Current operation will delete all unused port tag(s). Continue? [Y/N]:y  
<Sysname>

## schedule job

Use **schedule job** to schedule a job by using the non-modular method.

Use **undo schedule job** to remove the scheduled job.

### Syntax

**schedule job** { **at** *time1* [ *date* ] | **delay** *time2* } **view** *view-name* *command*

**undo schedule job**

### Views

User view

### Default command level

3: Manage level

### Parameters

**at** *time1* [ *date* ]: Specifies the time and/or date to execute a command.

- *time1*: Sets time to execute the command, in the *hh:mm* format. The *hh* value is in the range of 0 to 23, and the *mm* value is in the range of 0 to 59.
- *date*: Sets the date to execute the command, in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The *YYYY* value is in the range of 2000 to 2035, the *MM* value is in the range of 1 to 12, and the *DD* value is in the range of 1 to 31.

**delay** *time2*: Runs the job after a delay. The *time2* argument specifies the delay in one of the following formats:

- *hh:mm* format—The *hh* value is in the range of 0 to 720, and the *mm* value is in the range of 0 to 59. When the *hh* value is 720, the *mm* value cannot be more than 0.
- *mm* format—It is in the range of 0 to 432000 minutes, with 0 indicating that the command is executed immediately.

**view** *view*: Specifies the view in which the command is executed. The *view* argument represents the view name, and it can take only one of the following keywords:

- **shell**—Represents user view.
- **system**—Represents system view.

*command*: Command to execute.

### Usage guidelines

You can schedule a job to automatically run a command or a set of commands without administrative interference. The commands in a job are polled every minute. When the scheduled time for a command is reached, the job automatically executes the command. If a confirmation is required while the command is running, the system automatically enters **Y** or **Yes**. If characters are required, the system automatically enters a default character string or an empty character string when no default character string is available.

Follow these guidelines when you schedule a job by using the non-modular method:

- You can schedule only one job and run only one command by using this method. If you perform the **schedule job** command multiple times, the most recent configuration takes effect.
- To have the command successfully executed, check that the specified view and command are valid. The system does not verify their validity.
- If you specify both the *time1* and *date* arguments, the execution time or date must be later than the current system time or date.

- If you specify the *time1* argument, but not the *date* argument:
  - When *time1* is earlier than the current system time, the command runs at *time1* the next day.
  - When *time1* is later than the current system time, the command runs at *time1* of the current day.
- The interval between the scheduled time and the current system time cannot exceed 720 hours, or 30 days.
- Changing any clock setting can cancel the job set by using the **schedule job** command.
- After job execution, the configuration interface, view, and user status that you have before job execution restore even if the job has run a command that changes the user interface (for example, **telnet**, **ftp**, and **ssh2**), the view (for example, **system-view** and **quit**), or the user status (for example, **super**).

## Examples

# Schedule a job to execute the batch file **1.bat** in system view in 60 minutes (assuming that the current time is 11:43).

```
<Sysname> schedule job delay 60 view system execute 1.bat
```

Info: Command execute 1.bat in system view will be executed at 12:43 10/31/2007 (in 1 hours and 0 minutes).

# Schedule a job to execute the batch file **1.bat** in system view at 12:00 (assuming that the current time is 11:43).

```
<Sysname> schedule job at 12:00 view system execute 1.bat
```

Info: Command execute 1.bat in system view will be executed at 12:00 10/31/2007 (in 0 hours and 16 minutes).

## schedule reboot at

Use **schedule reboot at** to schedule a device reboot to occur at a specific time and date.

Use **undo schedule reboot** to disable the scheduled reboot function.

### Syntax

```
schedule reboot at hh:mm [date]
```

```
undo schedule reboot
```

### Default

The scheduled reboot function is disabled.

### Views

User view

### Default command level

3: Manage level

### Parameters

*hh:mm*: Specifies a reboot time, in the hh:mm format. The *hh* value is in the range of 0 to 23, and the *mm* value is in the range of 0 to 59.

*date*: Specifies a reboot date, in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The *YYYY* value is in the range of 2000 to 2035, the *MM* value is in the range of 1 to 12, and the *DD* value is in the range of 1 to 31.

## Usage guidelines

---

### CAUTION:

- Device reboot can interrupt network services.
  - Changing any clock setting can cancel the reboot schedule.
- 

The interval between the reboot date and the current date cannot exceed 30 x 24 hours, or 30 days.

When no reboot date is specified:

- If the reboot time is later than the current time, a reboot occurs at the reboot time of the current day.
- If the reboot time is earlier than the current time, a reboot occurs at the reboot time the next day.

The device supports only one device reboot schedule. If you configure the **schedule reboot at** command multiple times, the most recent configuration takes effect. The **schedule reboot at** command and the **schedule reboot delay** command overwrite each other, and the command configured most recently takes effect.

The alert "REBOOT IN ONE MINUTE" appears one minute before the reboot time.

For data security, if you are performing file operations at the reboot time, the system does not reboot.

## Examples

# Configure the switch to reboot at 12:00 AM. This example assumes that the current time is 11:43.

```
<Sysname> schedule reboot at 12:00
Reboot system at 12:00 06/06/2006(in 0 hour(s) and 16 minute(s))
confirm? [Y/N]:
```

Enter **y** at the prompt. If you have used the **terminal logging** command to enable the log display function (enabled by default) on the terminal, the system automatically displays a reboot schedule log message.

```
<Sysname>
%Jun  6 11:43:11:629 2006 Sysname CMD/4/REBOOT:
vty0(192.168.1.54): Set schedule reboot parameters at 11:43:11 06/06/2006, and system will
reboot at 12:00 06/06/2006.
```

## Related commands

**schedule reboot delay**

# schedule reboot delay

Use **schedule reboot delay** to schedule a device reboot to occur after a delay.

Use **undo schedule reboot** to disable the scheduled reboot function.

## Syntax

```
schedule reboot delay { hh:mm | mm }
```

```
undo schedule reboot
```

## Default

The scheduled reboot function is disabled.

## Views

User view

## Default command level

3: Manage level

## Parameters

*hh:mm*: Specifies a delay for the device reboot, in the *hh:mm* format. The *hh* value is in the range of 0 to 720, and the *mm* value is in the range of 0 to 59. When the *hh* value is 720, the *mm* value cannot be more than 0.

*mm*: Specifies a delay for the device reboot in minutes, in the range of 0 to 43200.

## Usage guidelines

### CAUTION:

- Device reboot can interrupt network services.
- Changing any clock setting can cancel the reboot schedule.

The reboot delay cannot exceed 30 x 24 x 60 minutes, or 30 days.

The device supports only one device reboot schedule. If you configure the **schedule reboot delay** command multiple times, the most recent configuration takes effect. The **schedule reboot at** command and the **schedule reboot delay** command overwrite each other, and whichever is configured most recently takes effect.

The alert "REBOOT IN ONE MINUTE" appears one minute before the reboot time.

For data security, if you are performing file operations at the reboot time, the system does not reboot.

## Examples

# Schedule a device reboot in 88 minutes. This example assumes that the current time is 11:48 on June 6, 2006.

```
<Sysname> schedule reboot delay 88
```

```
Reboot system at 13:16 06/06/2006(in 1 hour(s) and 28 minute(s)). confirm? [Y/N]:
```

Enter **y** at the prompt. If you have used the **terminal logging** command to enable the log display function (enabled by default) on the terminal, the system automatically displays a reboot schedule log message.

```
<Sysname>
```

```
%Jun 6 11:48:44:860 2006 Sysname CMD/4/REBOOT:
```

```
vty0(192.168.1.54): Set schedule reboot parameters at 11:48:44 06/06/2006, and system will  
reboot at 13:16 06/06/2006.
```

## Related commands

**schedule reboot at**

## shutdown-interval

Use **shutdown-interval** to set the port status detection timer.

Use **undo shutdown-interval** to restore the default.

## Syntax

**shutdown-interval** *time*

**undo shutdown-interval**

## Default

The port status detection timer is 30 seconds.

## Views

System view

## Default command level

2: System level

## Parameters

*time*: Specifies the port status detection timer in seconds, in the range of 0 to 300.

## Usage guidelines

Some protocols might shut down ports under specific circumstances. For example, MSTP shuts down a BPDU guard-enabled port when the port receives a BPDU. In this case, you can set the port status detection timer. If the port is still down when the detection timer expires, the protocol module automatically cancel the shutdown action and restore the port to its original physical status.

- If you change the detection timer to T1 during port detection, the interval from when you change the timer to the time when the protocol module shuts down the port is T. If  $T < T1$ , the down port will be recovered after  $T1 - T$  time. If  $T \geq T1$ , the down port is recovered immediately. For example, if the detection timer is set to 30 seconds and you change it to 10 seconds ( $T1 = 10$ ) two seconds after the port is shut down ( $T = 2$ ), this port will be recovered 8 seconds later. If the detection timer is set to 30 seconds and you change it to 2 seconds ten seconds after the port is shut down, this port is recovered immediately.
- If the detection timer is set to 0, the protocol module never automatically recovers the port. You need to manually bring up the port by using the **undo shutdown** command or change the detection timer to a non-zero value.

## Examples

```
# Set the port status detection timer to 100 seconds.
```

```
<Sysname> system-view  
[Sysname] shutdown-interval 100
```

# sysname

Use **sysname** to set the device name.

Use **undo sysname** to restore the default.

## Syntax

```
sysname sysname
```

```
undo sysname
```

## Default

The default name is H3C.

## Views

System view

## Default command level

2: System level

## Parameters

*sysname*: Name of the device, which is a string of 1 to 30 characters.

## Usage guidelines

A device name identifies a device in a network and works as the user view prompt at the CLI. For example, if the device name is **Sysname**, the user view prompt is <Sysname>.

## Examples

```
# Set the name of the device to R2000.
```

```
<Sysname> system-view
[Sysname] sysname R2000
[R2000]
```

## system-failure

Use **system-failure** to configure the exception handling method.

Use **undo system-failure** to restore the default.

### Syntax

```
system-failure { maintain | reboot }
undo system-failure
```

### Default

The system adopts the **reboot** method to handle exceptions.

### Views

System view

### Default command level

3: Manage level

### Parameters

**maintain**: Specifies that when the system detects any software abnormality, it maintains the current situation, and does not take any measure to recover itself.

**reboot**: Specifies that when the system detects any software abnormality, it recovers itself through automatic reboot.

### Examples

```
# Set the exception handling method to reboot.
```

```
<Sysname> system-view
[Sysname] system-failure reboot
```

## temperature-limit

Use **temperature-limit** to set the temperature alarm thresholds for a card.

Use **undo temperature-limit** to restore the default.

### Syntax

```
temperature-limit slot-number lower-value upper-value
undo temperature-limit slot-number
```

### Default

The temperature alarm thresholds depend on device models.

### Views

System view

### Default command level

2: System level

### Parameters

*slot-number*: This argument does not take effect.

*lower-value*: Lower temperature threshold in Celsius degrees. .

*upper-value*: Upper temperature threshold in Celsius degrees.

The *upper-value* argument must be larger than the *lower-value* argument.

The following matrix shows the *lower-value* and *upper-value* arguments and hardware compatibility:

Hardware	Argument compatibility	Value range for <i>lower-value</i>	Value range for <i>upper-value</i>
MSR800	No	N/A	N/A
MSR 900	No	N/A	N/A
MSR900-E	No	N/A	N/A
MSR 930	No	N/A	N/A
MSR 20-1X	No	N/A	N/A
MSR 20	Yes	0 to 14	50 to 90
MSR 30	Yes	0 to 14	40 to 90
MSR 50	Yes	0 to 30	40 to 90
MSR 2600	No	N/A	N/A
MSR3600-51F	Yes	0 to 14	40 to 90

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	No
MSR3600-51F	Yes

## Examples

# Set the lower temperature threshold for card 1 to 10°C (50°F) and the upper temperature threshold to 75°C (167°F).

```
<Sysname> system-view
[Sysname] temperature-limit 1 10 75
Setting temperature limit succeeded.
```

## time at

Use **time at** to add a command to run at a specific time and date in the job schedule.

Use **undo time** to remove a command from the job schedule.

## Syntax

**time** *time-id* **at** *time date* **command** *command*

**time** *time-id* { **one-off** | **repeating** } **at** *time* [ **month-date** *month-day* | **week-day** *week-daylist* ]  
**command** *command*

**undo time** *time-id*

## Views

Job view

## Default command level

3: Manage level

## Parameters

**time** *timeid*: Time setting entry, an integer in the range of 1 to 10.

**at** *time*: Specifies an execution time, in the hh:mm format. The *hh* value is in the range of 0 to 23 and the *mm* value is in the range of 0 to 59.

**one-off**: Specifies that the specified command is executed for once.

**repeating**: Specifies a recurring time schedule.

*date*: Specifies an execution date, in the MM/DD/YYYY or YYYY/MM/DD format. The YYYY value is in the range of 2000 to 2035, the MM value is in the range of 1 to 12, and the DD value is in the range of 1 to 31. The specified execution date must be ahead of the current date.

**month-date** *month-day*: Specifies the date for executing the command. The *month-day* argument specifies the date, and is in the range of 1 to 31.

**week-day** *week-daylist*: Specifies the day or days for executing the command. The *week-daylist* argument specifies one day or up to seven days, which can be any combination of Sun, Mon, Tue, Wed, Thu, Fri, and Sat. For example, to have a command executed on Monday, you can enter **week-day** Mon; to have a command executed on Friday and Saturday, enter **week-day** Fri Sat. Use a space between every two days for separation.

**command** *command*: Specifies the command to be automatically executed, in the text format. The command must be executable in the view specified by the **view** command. Otherwise this command cannot be automatically executed. Therefore, ensure the correctness of the configuration.

## Usage guidelines

The commands in a job must be in the same view.

Every job can have up to 10 commands.

The time ID (*time-id*) must be unique in a job. If two time and command bindings have the same time ID, the one configured most recently takes effect.

Changing a clock setting does not affect the schedule set by using the **time at** command.

Use [Table 24](#) when you add commands in a job.

**Table 24 Command schedule options**

Command	Description
<b>time</b> <i>timeid</i> <b>at</b> <i>time date</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific time and date. The time or date must be later than the current system time or date.
<b>time</b> <i>timeid</i> <b>one-off</b> <b>at</b> <i>time</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific time on the current day. If the specified time has passed, the command runs the next day. The command runs only once.

Command	Description
<b>time</b> <i>timeid</i> <b>one-off at</b> <i>time</i> <b>month-date</b> <i>month-day</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific day in the current month. If the specified time or day has passed, the command runs in the next month.  The command runs only once.
<b>time</b> <i>timeid</i> <b>one-off at</b> <i>time</i> <b>week-day</b> <i>week-daylist</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific time on a specific day or days in the current week. If the specified time or day has passed, the command runs in the next week.  The command runs only once.
<b>time</b> <i>timeid</i> <b>repeating at</b> <i>time</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific time every day.
<b>time</b> <i>timeid</i> <b>repeating at</b> <i>time</i> <b>month-date</b> <i>month-day</i> <b>command</b> <i>command</i>	Schedules a command to run on a specific day every month.
<b>time</b> <i>timeid</i> <b>repeating at</b> <i>time</i> <b>week-day</b> <i>week-daylist</i> <b>command</b> <i>command</i>	Schedules a command to run at a specific time in a specific day or days every week.

## Examples

# Schedule a job to save the configuration file **a.cfg** at 3:00 on May 18, 2009.

```
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 at 3:00 2009/05/18 command save a.cfg
```

# Schedule a job to save the configuration file at 12:00 every day.

```
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 repeating at 12:00 command save a.cfg
```

# Schedule a job to save the configuration file at 8:00 AM on 5<sup>th</sup> in the current month, which might be executed in the second month if the time has passed.

```
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 one-off at 8:00 month-date 5 command save a.cfg
```

# Schedule a job to save the configuration file at 8:00 AM on 5<sup>th</sup> every month.

```
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 repeating at 8:00 month-date 5 command save a.cfg
```

# Schedule a job to save the configuration file at 8:00 AM on Friday and Saturday in the current week, which might be delayed to the next week if the time has passed.

```
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 one-off at 8:00 week-day fri sat command save a.cfg
```

# Schedule a job to save the configuration file at 8:00 every Fridays and Saturdays.

```
<Sysname> system-view
[Sysname] job saveconfig
```

```
[Sysname-job-saveconfig] view monitor
```

```
[Sysname-job-saveconfig] time 1 repeating at 8:00 week-day fri sat command save a.cfg
```

## Related commands

- **job**
- **view**

## time delay

Use **time delay** to add a command to run after a delay in the job schedule.

Use **undo time** to remove a command from the job schedule.

## Syntax

```
time time-id { one-off | repeating } delay time command command
```

```
undo time time-id
```

## Views

Job view

## Default command level

3: Manage level

## Parameters

**time** *timeid*: Time setting entry, an integer in the range of 1 to 10.

**one-off**: Specifies that the specified command is executed for once.

**repeating**: Specifies a recurring time schedule.

**delay** *time*: Specifies the delay time for executing the command, in the hh:mm format or *mm* format.

- When the time argument is in the hh:mm format, the *hh* value is in the range of 0 to 720, and the *mm* value is in the range of 0 to 59. When the *hh* value is 720, the *mm* value can be only 00.
- When the time argument is in the *mm* format, the *mm* value is in the range of 1 to 43200. The maximum value of the delay timer is 30 days.

**command** *command*: Specifies the command to be automatically executed, in the text format. The specified command must be a complete command without interactive input.

## Usage guidelines

The commands in a scheduled job must be in the same view.

Every job can have up to 10 commands.

The time ID (*time-id*) must be unique in a job. If two time and command bindings have the same time ID, the one configured most recently takes effect.

Changing a clock setting does not affect the schedule set by using the **time delay** command.

Use [Table 25](#) when you add commands in a job.

**Table 25 Command schedule options**

Command	Description
<b>time</b> <i>timeid</i> <b>one-off</b> <b>delay</b> <i>time2</i> <b>command</b> <i>command</i>	Schedules a command to run after a delay time. The command runs only once.
<b>time</b> <i>timeid</i> <b>repeating</b> <b>delay</b> <i>time2</i> <b>command</b> <i>command</i>	Schedules a command to run every the delay time.

---

**NOTE:**

- The commands in a scheduled job must be in the same view.
  - Every job can have up to 10 commands.
  - The time ID (*time-id*) must be unique in a job. If two time and command bindings have the same time ID, the one configured most recently takes effect.
  - Changing a clock setting does not affect the schedule set by using the **time delay** command.
- 

**Examples**

```
# Save the configuration file five minutes later.
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 one-off delay 5 command save a.cfg

# Save the configuration file every five minutes.
<Sysname> system-view
[Sysname] job saveconfig
[Sysname-job-saveconfig] view monitor
[Sysname-job-saveconfig] time 1 repeating delay 5 command save a.cfg
```

**Related commands**

- **job**
- **view**

## transceiver phony-alarm-disable

Use **transceiver phony-alarm-disable** to disable alarm traps for transceiver modules.

Use **undo transceiver phony-alarm-disable** to restore the default.

**Syntax**

```
transceiver phony-alarm-disable
undo transceiver phony-alarm-disable
```

**Default**

Alarm traps are enabled for transceiver modules.

**Views**

System view

**Default command level**

3: Manage level

**Usage guidelines**

If you install a transceiver module whose vendor name is not H3C, the system repeatedly outputs traps and logs to notify you to replace the module. To continue to use such a transceiver module that is manufactured or customized by H3C but has no vendor information, you can disable alarm traps so that the system stops outputting alarm traps.

**Examples**

```
# Disable alarm traps for transceiver modules.
<Sysname> system-view
```

```
[Sysname] transceiver phony-alarm-disable
```

## usb disable

Use **usb disable** to disable the USB ports.

Use **undo usb disable** to enable the USB ports.

### Syntax

**usb disable**

**undo usb disable**

### Default

The USB ports are enabled.

### Views

System view

### Default command level

3: Manage level

### Usage guidelines

Before you executing this command, make sure the USB ports are not being used for data read/write operation. Otherwise, the operation might fail.

Disabling the USB ports also disables the USB-based storage and 3G functions.

### Examples

```
# Disable the USB ports.
```

```
<sysname> system-view
```

```
[Sysname] usb disable
```

## view

Use **view** to specify a view for a job.

Use **undo view** to remove the view of a job.

### Syntax

**view** *view-name*

**undo view**

### Default

No view is specified for a job.

### Views

Job view

### Default command level

3: Manage level

### Parameters

*view-name*: Specifies a view in which commands in the job run. A view name is a string of 1 to 90 characters.

## Usage guidelines

Every job can have only one view. If you specify multiple views, the most recent configuration takes effect.

Enter a view name in its complete form and make sure the view name is available on the device. Most commonly used view names include **monitor** for user view, **system** for system view, **Ethernetx/x** for Ethernet interface view, and **Vlan-interfacex** for VLAN interface view.

## Examples

# Specify system view for the job **creatvlan**.

```
<Sysname> system-view
```

```
[Sysname] job creatvlan
```

```
[Sysname-job-creatvlan] view system
```

## Related commands

- **job**
- **time**

# Configuration file management commands

Table 26 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode. For more information about FIPS mode, see *Security Configuration Guide*.

**Table 26 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes (except the MSR 3016)
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

## archive configuration

Use **archive configuration** to manually archive the running configuration to the configuration archive directory.

### Syntax

**archive configuration**

### Views

User view

### Default command level

3: Manage level

### Usage guidelines

Before manually archiving the running configuration, complete the following tasks:

1. Create a directory for saving configuration archives.
2. Use the **archive configuration location** command to specify the directory as the configuration archive directory and specify an archive name prefix.

Configuration archive is a function that facilitates configuration rollback. It provides the manual and automatic methods for saving the running configuration as checkpoint references. For more information about the archiving mechanism, see the section about configuration rollback in *Fundamentals Configuration Guide*.

To avoid decreasing system performance, follow these guidelines:

- If the device configuration does not change frequently, manually archive the running configuration as needed.
- If a low-speed storage medium (such as a Flash) is used, archive the running configuration manually, or configure automatic archiving with an interval longer than 1440 minutes (24 hours).
- If a high-speed storage medium (such as a CF card) is used and the device configuration changes frequently, set a shorter saving interval.

## Examples

```
# Archive the running configuration.
<Sysname> archive configuration
Warning: Save the running configuration to an archive file. Continue? [Y/N]: Y
Please wait...
Info: The archive configuration file myarchive_1.cfg is saved.
```

## Related commands

**archive configuration location**

# archive configuration interval

Use **archive configuration interval** to enable automatic running-configuration archiving and set the archiving interval.

Use **undo archive configuration interval** to restore the default.

## Syntax

**archive configuration interval** *minutes*

**undo archive configuration interval**

## Default

The system does not automatically archive the running configuration.

## Views

System view

## Default command level

3: Manage level

## Parameters

*minutes*: Specifies the interval (in minutes) for automatically saving the running configuration. The value range is 10 to 525600 (365 days).

## Usage guidelines

Before enabling automatic configuration archiving, complete the following tasks:

1. Create a directory for saving configuration archives.
2. Use the **archive configuration location** command to specify the directory as the configuration archive directory and specify an archive name prefix.

Configuration archive is a function that facilitates configuration rollback. It provides the manual and automatic methods for saving the running configuration as checkpoint references.

Automatic configuration archiving enables the system to automatically save the running configuration to the archive directory. For more information about the archiving mechanism, see the section about configuration rollback in *Fundamentals Configuration Guide*.

To avoid decreasing system performance, follow these guidelines:

- If the device configuration does not change frequently, manually archive the running configuration as needed.
- If a low-speed storage medium (such as a Flash) is used, archive the running configuration manually, or configure automatic archiving with an interval longer than 1440 minutes (24 hours).
- If a high-speed storage medium (such as a CF card) is used and the device configuration changes frequently, set a shorter saving interval.
- Change the archiving interval depending on the available storage space. The shorter the interval, the more free storage space is required.

## Examples

# Configure the system to archive the running configuration every 60 minutes.

```
<Sysname> system-view
```

```
[Sysname] archive configuration interval 60
```

```
Info: Archive files will be saved every 60 minutes.
```

## Related commands

**archive configuration location**

# archive configuration location

Use **archive configuration location** to configure the directory and file name prefix for archiving the running configuration.

Use **undo archive configuration location** to restore the default.

## Syntax

**archive configuration location** *directory filename-prefix filename-prefix*

**undo archive configuration location**

## Default

No configuration archive directory or configuration archive file name prefix has been set.

## Views

System view

## Default command level

3: Manage level

## Parameters

*directory*: Specifies a configuration archive directory, a case-insensitive string of 1 to 63 characters. The directory must take the format *storage-medium-name:folder-name*. This directory must already exist on the device.

*filename-prefix*: Specifies a file name prefix for configuration archives, a case-insensitive string of 1 to 30 characters. Valid characters are letters, digits, underscores (\_), and hyphens (-).

## Usage guidelines

Before archiving the running configuration, either manually or automatically, you must configure a directory and file name prefix for configuration archives.

Configuration archives take the file name format *prefix\_serial number.cfg*, for example, **20080620archive\_1.cfg** and **20080620archive\_2.cfg**. The serial number is automatically assigned from 1 to 1000, increasing by 1. After the serial number reaches 1000, it restarts from 1.

After you change the file directory or file name prefix, or reboot the device, the old configuration archives are regarded as common configuration files, the configuration archive counter resets, and

the display archive configuration command does not display them. The serial number for new configuration archives starts from 1.

The **undo archive configuration location** command not only removes the configuration archive directory and file name prefix settings, but also disables the configuration archive function (both manual and automatic methods), restores the default settings of the **archive configuration interval** and **archive configuration max** commands, and clears all configuration archives.

## Examples

# Configure the configuration archive directory and archive file name prefix as **flash:/archive/** and **my\_archive**:

1. Create the directory.

```
<Sysname> mkdir archive
%Created dir flash:/archive.
```

2. Specify the directory as the configuration archive directory, and configure an archive file name prefix.

```
<Sysname> system-view
[Sysname] archive configuration location flash:/archive filename-prefix my_archive
```

## Related commands

**mkdir**

# archive configuration max

Use **archive configuration max** to set the maximum number of configuration archives.

Use **undo archive configuration max** to restore the default.

## Syntax

**archive configuration max** *file-number*

**undo archive configuration max**

## Default

A maximum of five configuration archives can be saved.

## Views

System view

## Default command level

3: Manage level

## Parameters

*file-number*. Sets the maximum number of configuration archives that can be saved. The value range is 1 to 10. Change the setting depending on the available storage space.

## Usage guidelines

Before you can set a limit on configuration archives, use the **archive configuration location** command to specify a configuration archive directory and archive file name prefix.

After the maximum number of configuration archives is reached, the system deletes the oldest archive for the new archive.

Changing the limit setting to a lower value does not cause immediate deletion of exceeding archives. Instead, the configuration archive function deletes the oldest  $n$  files when a new archive is manually or automatically saved, where  $n = \text{current archive count} - \text{new archive limit} + 1$ . Suppose seven configuration archives have been saved before the archive limit is set to four. When saving a new configuration archive, the system first deletes the oldest four ( $7 - 4 + 1$ ) archives.

If you execute the **undo archive configuration location** command, the default archive limit is restored.

## Examples

```
# Set the maximum number of configuration archives to 10.
<Sysname> system-view
[Sysname] archive configuration max 10
```

## Related commands

**archive configuration location**

# backup startup-configuration

Use **backup startup-configuration** to back up the next-startup configuration file to a TFTP server.

## Syntax

**backup startup-configuration to** *dest-addr* [*dest-filename*]

## Views

User view

## Default command level

2: System level

## Parameters

*dest-addr*: Specifies a TFTP server's IPv4 address or name, a string of 1 to 20 characters.

*dest-filename*: Specifies the target file name used for saving the file on the server. The file extension must be .cfg. If you do not specify a target file name, the source file name is used.

## Usage guidelines

This command is not supported in FIPS mode, because the device does not support TFTP in FIPS mode.

Before performing this task, make sure the server is reachable, the server is enabled with TFTP service, and you have read and write permissions.

This command backs up only the main next-startup configuration file.

## Examples

# Back up the next-startup configuration file to the TFTP server at 2.2.2.2, and set the target file name to **192-168-1-26.cfg**.

```
<Sysname> display startup
  Current startup saved-configuration file:      flash:/config.cfg
  Next startup saved-configuration file:        flash:/test.cfg
<Sysname> backup startup-configuration to 2.2.2.2 192-168-1-26.cfg
Backup next startup-configuration file to 2.2.2.2, please wait...finished!
<Sysname>
```

# configuration encrypt

Use **configuration encrypt** to enable configuration encryption.

Use **undo configuration encrypt** to restore the default.

## Syntax

**configuration encrypt** { **private-key** | **public-key** }

## undo configuration encrypt

### Default

Configuration encryption is disabled. The running configuration is saved to a configuration file without encryption.

### Views

System view

### Default command level

3: Manage level

### Parameters

**private-key**: Encrypts configuration with a private key. Only the current device can decrypt the encrypted configuration file.

**public-key**: Encrypts configuration with a public key. Any device that supports the configuration encryption function can decrypt the encrypted configuration file.

### Usage guidelines

Configuration encryption enables the device to automatically encrypt a configuration file when saving the current configuration to it.

To view encrypted configuration, use the **display saved-configuration** command instead of the **more** command. If you use the **more** command, the system displays a failure message or garbled text.

### Examples

```
# Enable the public-key method for configuration encryption.  
<Sysname> system-view  
[Sysname] configuration encrypt public-key
```

## configuration replace file

Use **configuration replace file** to perform configuration rollback.

### Syntax

**configuration replace file** *filename*

### Views

System view

### Default command level

3: Manage level

### Parameters

*filename*: Specifies the name of the replacement configuration file for configuration rollback.

### Usage guidelines

To replace the running configuration with the configuration in a configuration file without rebooting the device, use the configuration rollback function. This function helps you revert to a previous configuration state or adapt the running configuration to different network environments.

To avoid rollback failure:

- Use the configuration archive function or the **save** command on the current device to create the replacement configuration file.

- If the configuration file is not created on the current device, make sure the configuration file content format is fully compatible with the current device.
- The replacement configuration file is not encrypted.

## Examples

```
# Replace the running configuration with the configuration in the my_archive_1.cfg configuration file.
<Sysname> system-view
[Sysname] configuration replace file my_archive_1.cfg
Current configuration will be lost, save current configuration? [Y/N]:n
Info: Now replacing the current configuration. Please wait...
Info: Succeeded in replacing current configuration with the file my_archive_1.cfg.
```

## display archive configuration

Use **display archive configuration** to display configuration archive information, including the archive directory, archive prefix, archive interval, maximum number of archives, and saved archives.

### Syntax

```
display archive configuration [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

```
# Display configuration archive information.
<Sysname> display archive configuration
Location: flash:/archive
Filename prefix: my_archive
Archive interval in minutes: 120
Maximum number of archive files: 10
Saved archive files:
  No. TimeStamp          FileName
  1   Jan 05 2012 20:24:54 my_archive_1.cfg
  2   Jan 05 2012 20:34:54 my_archive_2.cfg
# 3   Jan 05 2012 20:44:54 my_archive_3.cfg
'#' indicates the most recent archive file.
Next archive file to be saved: my_archive_4.cfg
```

**Table 27 Command output**

Field	Description
Location	Directory for saving running-configuration archives.
Filename prefix	File name prefix for configuration archives.
Archive interval in minutes	Interval (in minutes) for the system to automatically archive the running configuration. If automatic configuration saving is disabled, this field is not available.
TimeStamp	Time when the configuration archive was created.
Filename	Configuration archive file name, with the directory excluded.

## display current-configuration

Use **display current-configuration** to display the running configuration.

### Syntax

```
display current-configuration [ configuration [ configuration ] | controller | interface
[ interface-type [ interface-number ] ] | exclude modules ] [ by-linenum ] [ [ { begin | exclude |
include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

**configuration** [ *configuration* ]: Displays non-interface configuration. The *configuration* argument specifies a type of configuration. If no configuration type is specified, this command displays all non-interface settings. If a type of configuration is specified, this command displays the specific configuration. For example:

- **system**: Displays the system configuration.
- **user-interface**: Displays the user interface configuration.

**controller**: Displays the controller configuration, for example, CE1/PRI interface. For more information, see *Interface Configuration Guide*.

**interface** [ *interface-type* [ *interface-number* ] ]: Displays interface configuration, where *interface-type* represents the interface type and *interface-number* represents the interface number.

**exclude modules**: Excludes the configuration of specific modules. The *modules* argument can be **acl**, **acl6**, or both separated by a space.

- **acl**: Excludes the IPv4 ACL configuration.
- **acl6**: Excludes the IPv6 ACL configuration.

**by-linenum**: Displays the number of each line.

**]**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

Use this command to verify the configuration you have made.

Typically, this command does not display parameters that are set to their default settings.

If the system has automatically changed the setting you have made for a parameter, for example, due to a system restriction, this command displays the effective setting rather than the configured one. For example, assign IP address 11.11.11.11 24 to a Loopback interface. However, the **display current-configuration** command displays 11.11.11.11 255.255.255.255, because the subnet mask for a Loopback interface must be 32 bits, and the system has automatically corrected the subnet mask.

## Examples

# Display the configuration of all controllers.

```
<Sysname> display current-configuration controller
#
controller E1 6/0
#
controller E1 6/1
  pri-set
#
controller E1 6/2
  pri-set
#
controller E1 6/3
  using e1
#
return
```

# Display the configuration from the line containing "user-interface" to the last line in the running configuration.

```
<Sysname> display current-configuration | begin user-interface
user-interface con 0
user-interface aux 0
user-interface vty 0 4
  authentication-mode none
  user privilege level 3
#
return
```

# Display the running SNMP configuration.

```
<Sysname> display current-configuration | include snmp
snmp-agent
snmp-agent local-engineid 800063A203000FE240A1A6
snmp-agent community read public
snmp-agent community write private
snmp-agent sys-info version all
undo snmp-agent trap enable ospf 100
```

## Related commands

- **display saved-configuration**
- **reset saved-configuration**
- **save**

# display saved-configuration

Use **display saved-configuration** to display the contents of the configuration file to be used at the next startup.

## Syntax

```
display saved-configuration [ by-linum ] [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

2: System level

## Parameters

**by-linum**: Identifies each line of displayed information with a line number.

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

Use this command to verify that important settings have been saved to the next-startup configuration file.

This command displays the main next-startup configuration file.

If no next-startup configuration file has been specified, or the specified next-startup configuration does not exist, this command displays the error message "The config file does not exist!"

## Examples

```
# Display the next-startup configuration file.
```

```
<H3C> display saved-configuration
```

```
#
```

```
version 5.20, Test 5310
```

```
#
```

```
sysname H3C
```

```
#
```

```
domain default enable system
```

```
#
```

```
telnet server enable
```

```
#
```

```
multicast routing-enable
```

```
#
```

```
vlan 1
```

```
#
```

```
vlan 999
```

```
#
```

```
domain system
```

```
access-limit disable
```

```

state active
idle-cut disable
self-service-url disable
#
interface NULL0
#
---- More ----

```

At the prompt of **More**, press **Enter** to display the next line, press **Space** to display the next screen of configuration, or press **Ctrl+C** or any other key to stop displaying the configuration.

# Display the next-startup configuration file and number each line.

```

<H3C> display saved-configuration by-linenum
 1: #
 2:  version 5.20, Test 5310
 3: #
 4:  sysname H3C
 5: #
 6:  domain default enable system
 7: #
 8:  telnet server enable
 9: #
10:  multicast routing-enable
11: #
12:  vlan 1
13: #
14:  vlan 999
15: #
16:  domain system
17:  access-limit disable
18:  state active
19:  idle-cut disable
20:  self-service-url disable
21: #
22:  interface NULL0
23: #
---- More ----

```

## Related commands

- **display current-configuration**
- **reset saved-configuration**
- **save**

## display startup

Use **display startup** to display the current startup configuration file and the next-startup configuration file.

### Syntax

```
display startup [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

Current startup configuration file is the configuration file used at this startup. Next-startup configuration file is the configuration file used at the next startup.

## Examples

# Display the startup configuration files.

```
<Sysname> display startup
Current startup saved-configuration file:      flash:/config.cfg
Next main startup saved-configuration file:    flash:/config.cfg
Next backup startup saved-configuration file:  flash:/config2.cfg
```

**Table 28 Command output**

Field	Description
Current Startup saved-configuration file	Configuration file used at the current startup.
Next main startup saved-configuration file	Main configuration file to be used at the next startup.
Next backup startup saved-configuration file	Backup configuration file to be used at the next startup.
(This file does not exist.)	If the specified next-startup configuration file has been deleted, this comment appears next to the file name.

## Related commands

**startup saved-configuration**

## display this

Use **display this** to display the running configuration in the current view.

## Syntax

```
display this [ by-linenum ] [ [ { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**by-linenum:** Displays the number of each line.

**]:** Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

Use this command to verify the configuration you have made in a certain view.

Typically, this command does not display parameters that are set to their default settings.

For some parameters that can be successfully configured even if their dependent features are not enabled, this command displays their settings after the dependent features are enabled.

Executed in any user interface view, this command displays the running configuration of all user view interfaces.

Executed in any VLAN view, this command displays the running configuration of all VLANs.

## Examples

# Display the running configuration on interface Ethernet 1/1.

```
<Sysname> system-view
[Sysname] interface ethernet 1/1
[Sysname-Ethernet1/1] display this
#
interface Ethernet1/1
  port link-mode bridge
  port link-type hybrid
  undo port hybrid vlan 1
  port hybrid vlan 2 to 4 untagged
  port hybrid pvid vlan 2
#
return
```

# Display the running configuration on user interfaces.

```
<Sysname> system-view
[Sysname] user-interface vty 0
[Sysname-ui-vty0] display this
#
user-interface con 0
user-interface vty 0
history-command max-size 256
user-interface vty 1 4
#
return
```

## reset saved-configuration

Use **reset saved-configuration** to delete next-startup configuration files.

## Syntax

**reset saved-configuration [ backup | main ]**

## Views

User view

## Default command level

3: Manage level

## Parameters

**backup**: Deletes the backup next-startup configuration file.

**main**: Deletes the main next-startup configuration file.

## Usage guidelines

Delete the next-startup configuration file if it does not match the software version or has been corrupted.

Use this command with caution. This command permanently deletes the next-startup configuration file from the device.

You can delete the main, the backup, or both. If the main and backup next-startup configuration files are the same file, the system sets the attribute of the configuration file to NULL instead of deleting the file. You can permanently delete the file after its attribute changes to NULL.

If no configuration file attribute is specified, the **reset saved-configuration** command deletes the main startup configuration file.

## Examples

```
# Delete the next-startup configuration file.
```

```
<Sysname> reset saved-configuration
```

```
The saved configuration file will be erased. Are you sure? [Y/N]:y
```

```
Configuration file in flash is being cleared.
```

```
Please wait .....
```

```
Configuration file is cleared.
```

## Related commands

- **display saved-configuration**
- **save**

# restore startup-configuration

Use **restore startup-configuration** to download a configuration file from a TFTP server and specify it as the next-startup configuration file.

## Syntax

**restore startup-configuration from *src-addr* *src-filename***

## Views

User view

## Default command level

3: Manage level

## Parameters

*src-addr*: Specifies a TFTP server's IPv4 address or name. The name can comprise 1 to 20 characters.

*src-filename*: Specifies the file name of the configuration file to be downloaded.

## Usage guidelines

This command is not supported in FIPS mode, because the device does not support TFTP in FIPS mode.

Before restoring the configuration file for the next startup, make sure the server is reachable, the server is enabled with TFTP service, and you have read and write permissions.

This command restores only the main next-startup configuration file.

This command provides an easy method for configuration file restoration by automatically performing all operations required for restoring the next-startup configuration file.

## Examples

# Download the configuration file **test.cfg** from the TFTP server at 2.2.2.2, and specify the file as the startup configuration file for the next startup.

```
<Sysname> restore startup-configuration from 2.2.2.2 test.cfg
Restore next startup-configuration file from 2.2.2.2. Please wait.....
finished!
```

## save

Use **save** *file-url* to save the running configuration to a configuration file, without specifying the file as a next-startup configuration file.

Use **save** [ **safely** ] [ **backup** | **main** ] [ **force** ] to save the running configuration to the root directory of the storage media, and specify the file as a next startup configuration file.

## Syntax

**save** *file-url*

**save** [ **safely** ] [ **backup** | **main** ] [ **force** ]

## Views

Any view

## Default command level

2: System level

## Parameters

*file-url*: Specifies a file path, where the file extension must be .cfg.

**safely**: Saves the configuration file in safe mode. If this keyword is not specified, the system saves the configuration file in fast mode. Safe mode is less fast than fast mode, but more secure. In safe mode, the system saves configuration in a temporary file and starts overwriting the target next-startup configuration file after the save operation is complete. If a reboot or power failure occurs during the save operation, the next-startup configuration file is still retained. In fast mode, the device directly overwrites the target next-startup configuration file. If a reboot or power failure occurs during this process, the next-startup configuration file is lost.

**backup**: Saves the running configuration to a configuration file, and specifies the file as the backup next-startup configuration file.

**main**: Saves the running configuration to a configuration file, and specifies the file as the main next-startup configuration file.

**force**: Saves the running configuration to the next-startup configuration file already specified in the system. Without this keyword, the system asks you to confirm your operation. If you do not confirm your operation within 30 seconds, the system automatically aborts the operation. If you enter Y within

the time limit, you can continue the save process and change the next-startup configuration file during this process.

## Usage guidelines

If the file specified for *file-url* does not exist, the system creates the file before saving the configuration.

If the **backup** or **main** keyword is not specified, the **main** keyword applies.

## Examples

# Save the running configuration to the configuration file **test.cfg**, without specifying the file as the next-startup configuration file.

```
<Sysname> save test.cfg
The current configuration will be saved to flash:/test.cfg. Continue? [Y/N]:y
Now saving current configuration to the device.
Saving configuration flash:/test.cfg. Please wait...
.....
Configuration is saved to flash successfully.
```

# After a software upgrade, save the running configuration to the next-startup configuration file **config.cfg** for the first time.

```
<Sysname> display startup
Current startup saved-configuration file: flash:/hmr.cfg
Next main startup saved-configuration file: flash:/config.cfg
Next backup startup saved-configuration file: NULL
<Sysname> save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/config.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/config.cfg exists, overwrite? [Y/N]:y
The configuration file flash:/config.cfg will be automatically backed up as
flash:/_config_bak.cfg for a future version downgrading.
Validating file. Please wait.....
Configuration is saved to device successfully.
```

The output shows that the system backed up the configuration file as **\_config\_bak.cfg** and used the running configuration to overwrite the configuration file.

```
<Sysname> display startup
Current startup saved-configuration file: flash:/hmr.cfg
Next main startup saved-configuration file: flash:/config.cfg
Next backup startup saved-configuration file: NULL
```

The output shows that **config.cfg** is still the main next-startup configuration file.

# After a software upgrade, save the running configuration to the next-startup configuration file **config.cfg** for the first time.

```
<Sysname> save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/config.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/config.cfg exists, overwrite? [Y/N]:y
The configuration file flash:/config.cfg will be automatically backed up as
flash:/_config_bak.cfg for a future version downgrading.
Failed to back up configuration file.
The system will overwrite the configuration file. Continue?[Y/N]:n
```

```
Failed to save the current configuration.
```

The output shows that the system tried to back up the next-startup configuration file, but its backup attempt failed. If you enter **N** or **n** at the prompt that follows the failure message, the system would give up saving the running configuration. If you enter **Y** or **y**, the system would overwrite the configuration file with the running configuration without backing up the old configuration file.

```
# Save the running configuration to the main next-startup configuration file without any confirmation required.
```

```
<Sysname> save force
Validating file. Please wait...
Configuration is saved to device successfully.
```

## Related commands

- **display current-configuration**
- **display saved-configuration**
- **reset saved-configuration**

## startup saved-configuration

Use **startup saved-configuration** to specify the configuration file to be used at the next startup.

Use **undo startup saved-configuration** to configure the system to start up with factory defaults at the next startup.

### Syntax

```
startup saved-configuration cfgfile [ backup | main ]
```

```
undo startup saved-configuration
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*cfgfile*: Specifies a configuration file name with the extension `.cfg`. The file must be stored in the root directory of the storage media.

**backup**: Sets the configuration file as the backup next-startup configuration file.

**main**: Sets the configuration file as the main next-startup configuration file.

### Usage guidelines

If neither **backup** nor **main** is specified, the **startup saved-configuration** command specifies the main next-startup configuration file.

For high availability, specify separate files as the main and backup next-startup configuration files, even though they can be the same file.

The **undo startup saved-configuration** command changes the file attribute of the main and backup next-startup configuration files to NULL, but does not delete the two configuration files.

You can also specify a configuration file as the startup configuration file to be used at the next startup when you use the **save** command save the running configuration to it.

### Examples

```
# Specify a next-startup configuration file.
```

```
<Sysname> startup saved-configuration testcfg.cfg
```

Please wait ....

... Done!

## **Related commands**

**display startup**

# File system management commands

The following table shows the storage medium types supported on different router models:

Hardware	Storage media
MSR800	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR 900	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR900-E	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR 930	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR 20-1X	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR 20	<ul style="list-style-type: none"><li>CF card</li><li>USB disk</li></ul>
MSR 30	<ul style="list-style-type: none"><li>Flash (supported on MSR 30-10, MSR 30-11, MSR 30-11E, and MSR 30-11F)</li><li>CF card (supported on MSR 30-16, MSR 30-20, MSR 30-40, and MSR 30-60)</li><li>USB disk (unsupported only on MSR 30-11)</li></ul>
MSR 50	<ul style="list-style-type: none"><li>Flash (unsupported only on MPUF)</li><li>CF card</li><li>USB disk</li></ul>
MSR 2600	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>
MSR3600-51F	<ul style="list-style-type: none"><li>Flash</li><li>USB disk</li></ul>

In the following examples, the current working directory is the root directory of the storage medium on the device.

For information about the qualified file name formats, see *Fundamental Configuration Guide*.

## cd

Use **cd** to change the current working directory.

### Syntax

```
cd { directory | .. | / }
```

### Views

User view

### Default command level

3: Manage level

## Parameters

*directory*: Name of the target directory in the format [*drive:/*]path. For more information about the drive and path arguments, see *Fundamentals Configuration Guide*. If no drive information is provided, the argument represents a folder or subfolder in the current directory.

*..*: Returns to an upper directory. If the current working directory is the root directory, or if no upper directory exists, the current working directory does not change when the **cd ..** command is executed. No online help information is available for this keyword.

*/*: Returns to the root directory of the storage medium. No online help information is available for this keyword.

## Examples

# Enter the **test** folder after logging in to the device.

```
<Sysname> cd test
```

# Return to the upper directory. (A space is required after the keyword **cd**.)

```
<Sysname> cd ..
```

# Return to the root directory.

```
<Sysname> cd /
```

After you change the current directory by using the **cd** command, you can use the **pwd** command to view the path of the current working directory.

## copy

Use **copy** to copy a file.

### Syntax

```
copy fileurl-source fileurl-dest
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*fileurl-source*: Name of the source file.

*fileurl-dest*: Name of the target file or folder.

### Usage guidelines

If you specify a target folder, the system will copy the file to the specified folder and use the name of the source file as the file name.

### Examples

# Copy file **testcfg.cfg** in the current folder and save it as **testbackup.cfg**.

```
<Sysname> copy testcfg.cfg testbackup.cfg
```

```
Copy flash:/test.cfg to flash:/testbackup.cfg?[Y/N]:y
```

```
....
```

```
%Copy file flash:/test.cfg to flash:/testbackup.cfg...Done.
```

# Copy file **1.cfg** in the **test** folder on the Flash to the **testbackup** folder in the CF card, and save it as **1backup.cfg**.

```
<Sysname> copy flash:/test/1.cfg cfa0:/testbackup/1backup.cfg
```

```
Copy flash:/test/1.cfg to cfa0:/testbackup/1backup.cfg?[Y/N]:y
```

```
%Copy file flash:/test/1.cfg to cfa0:/testbackup/1backup.cfg...Done.
```

## crypto-digest

Use **crypto-digest** to calculate the digest of a file.

### Syntax

```
crypto-digest sha256 file file-url
```

### Views

User view

### Default command level

2: System level

### Parameters

**sha256**: Specifies the SHA-256 algorithm.

**file** *file-url*: Specifies a file.

### Usage guidelines

The digest can be used to verify the integrity of the file. For example, you can use this command to calculate the digest of a software image file and compare it with that provided on the website of the device vendor to verify whether the file has been tampered with.

### Examples

```
# Use the SHA-256 algorithm to calculate the digest of file cc.bin.
<Sysname> crypto-digest sha256 file cc.bin
Computing digest...
SHA256 digest(cc.bin)=
7bcb92458222f91f9a09a807c4c4567efd4d5dc4e4abc06c2a741df7045433eb
```

## delete

Use **delete** *file-url* to temporarily delete a file.

Use **delete /unreserved** *file-url* to permanently delete a file.

### Syntax

```
delete [ /unreserved ] file-url
```

### Views

User view

### Default command level

3: Manage level

### Parameters

**/unreserved**: Permanently deletes the specified file, and the deleted file can never be restored.

**file-url**: Name of the file to be deleted. Asterisks (\*) are acceptable as wildcards. For example, to remove files with the extension of **.txt** in the current directory, enter **delete \*.txt**.

## Usage guidelines

The **delete** *file-url* command moves a file to the recycle bin. To restore the file, use the **undelete** command.

If you delete two or more files with the same file name from different directories, only the last one is retained in the recycle bin.

The **dir /all** command displays the files moved to the recycle bin. These files are enclosed in pairs of square brackets [ ]. To permanently delete these files, use the **reset recycle-bin** command.

The **delete /unreserved** *file-url* command permanently deletes a file, and the deleted file cannot be restored.

## Examples

# Remove file **tt.cfg** from the current directory.

```
<Sysname> delete tt.cfg
Delete flash:/tt.cfg? [Y/N]:y
.
%Delete file flash:/tt.cfg...Done.
```

## dir

Use **dir** to display files or folders.

## Syntax

```
dir [ /all ] [ file-url | /all-file systems ]
```

## Views

User view

## Default command level

3: Manage level

## Parameters

**/all**: Displays all files and folders in the current directory, including hidden files, hidden folders, files moved from the current directory to the recycle bin. Files in the recycle bin are enclosed in square brackets [ ].

**file-url**: Displays the specified file. Asterisks (\*) are acceptable as wildcards. For example, to display files with the **.txt** extension in the current directory, enter **dir \*.txt**.

**/all-file systems**: Displays files and folders in the root directory of all storage media on the device.

## Usage guidelines

If no parameter is specified, the command displays all visible files and folders in the current directory.

## Examples

# Display information about all files and folders.

```
<Sysname> dir /all
Directory of flash:/

 0  drw-   6985954  Apr 26 2007 21:06:29  logfile
 1  -rw-     1842  Apr 27 2007 04:37:17  mainup.bin
 2  -rw-     1518  Apr 26 2007 12:05:38  config.cfg
 3  -rw-     2045  May 04 2007 15:50:01  backcfg.cfg
 4  -rwh      428  Apr 27 2007 16:41:21  hostkey
```

```

5  -rwh          572  Apr 27 2007 16:41:31  serverkey
6  -rw-         2737556  Oct 12 2007 01:31:44  [old.bin]

```

14605 KB total (5096 KB free)

[ ] indicates this file is in the recycle bin.

# Display files and folders in the root directory of all storage media on the device.

```
<Sysname> dir /all-filestems
```

Directory of flash:/

```

0  -rw-         1520300  Dec 01 2010 11:37:47  cmdtree.txt
1  drw-          -      Dec 01 2010 11:37:41  logfile
2  drw-          -      Dec 01 2010 15:07:15  diaglog
3  drw-          -      Dec 01 2010 15:07:15  seclog
4  drw-          -      Dec 03 2010 09:48:05  secl
5  -rw-           909  Dec 03 2010 09:48:38  secl.log
6  -rw-         302515  Dec 09 2010 15:18:09  default.diag

```

2540 KB total (447 KB free)

Directory of flasha:/

```

0  -rw-           909  Dec 15 2010 15:09:46  secl.log

```

3712 KB total (2556 KB free)

**Table 29 Command output**

Field	Description
Directory of	Current working directory.
d	Directory. If this field does not exist, it indicates a file.
r	The file or directory is readable.
w	The file or directory is writable.
h	The file or directory is hidden.
[ ]	The file is in the recycle bin.

## display nandflash file-location

Use **display nandflash file-location** to display the location of the specified file in the NAND Flash memory.

### Syntax

```
display nandflash file-location filename [ [ { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

## Parameters

*filename*: File name.

*|*: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	Yes
MSR 900	No
MSR900-E	Yes
MSR 930	Yes
MSR 20-1X	No
MSR 20	No
MSR 30	Supported only on MSR 30-10, MSR 30-11E, and MSR 30-11F
MSR 50	No
MSR 2600	Yes
MSR3600-51F	Yes

The displayed information includes all the physical pages corresponding to the logical pages of the specified file.

## Examples

# Display the location of the file **test.cfg** in the NAND Flash memory.

```
<Sysname> display nandflash file-location test.cfg
```

```
Logical Chunk  Physical Page
```

```
-----
```

```
chunk(0)      1234
```

```
chunk(1)      1236
```

```
chunk(2)      1235
```

```
filename: test.cfg
```

**Table 30 Command output**

Field	Description
Logic Chunk	Serial number of the logical pages.
Physical Page	Serial number of the physical pages.
chunk(0) 1234	The first logical page of this file corresponds to the 1234th physical page on the device.

# display nandflash badblock-location

Use **display nandflash badblock-location** to display the number and location of bad blocks in the NAND Flash memory.

## Syntax

```
display nandflash badblock-location [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

1: Monitor level

## Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	Yes
MSR 900	No
MSR900-E	Yes
MSR 930	Yes
MSR 20-1X	No
MSR 20	No
MSR 30	Supported only on MSR 30-10, MSR 30-11E, and MSR 30-11F
MSR 50	No
MSR 2600	Yes
MSR3600-51F	Yes

## Examples

# Display the number and location of bad blocks in the NAND Flash memory.

```
<Sysname> display nandflash badblock-location
```

```
No                Physical block
```

```
-----
```

```
badblock(0)      1234
```

```
badblock(1)      1235
```

```
badblock(2)      1236
```

```
3200 block(s) total, 3 block(s) bad.
```

**Table 31 Command output**

Field	Description
No	Serial number of the bad blocks.
Physical block	Serial number of the physical pages with bad blocks.
3200 block(s) total, 3 block(s) bad.	Total number of blocks and bad blocks in the NAND Flash memory.

## display nandflash page-data

Use **display nandflash page-data** to display the data on the specified physical page in the NAND Flash memory.

### Syntax

**display nandflash page-data** *page-value* [ | { **begin** | **exclude** | **include** } *regular-expression* ]

### Views

Any view

### Default command level

1: Monitor level

### Parameters

*page-value*: Serial number of a physical page.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatible
MSR800	Yes
MSR 900	No
MSR900-E	Yes
MSR 930	Yes
MSR 20-1X	No
MSR 20	No
MSR 30	Supported only on MSR 30-10, MSR 30-11E, and MSR 30-11F
MSR 50	No
MSR 2600	Yes
MSR3600-51F	Yes

This command is always used in combination with the **display nandflash file-location** command to check the correctness of the data in the NAND Flash memory.

## Examples

# Display the content of the file **test.cfg** which is saved in the NAND Flash memory.

```
<Sysname> display nandflash file-location test.cfg
Logical Chunk  Physical Page
-----
chunk(0)      1234
chunk(1)      1236
chunk(2)      1235
filename: test.cfg
<Sysname> display nandflash page-data 1236
0000: 0D 0A 23 0D 0A 20 76 65 72 73 69 6F 6E 20 35 2E  ..#.. version 5.
0010: 32 30 2C 20 41 6C 70 68 61 20 31 30 31 31 0D 0A  20, Alpha 1011..
0020: 23 0D 0A 20 73 79 73 6E 61 6D 65 20 48 33 43 0D  #.. sysname H3C.
0030: 0A 23 0D 0A 20 70 61 73 73 77 6F 72 64 2D 63 6F  .#.. password-co
...
```

## execute

Use **execute** to execute the specified batch file.

### Syntax

**execute** *filename*

### Views

System view

### Default command level

2: System level

### Parameters

*filename*: Name of a batch file with the .bat extension. To change the extension of a configuration file to .bat, use the **rename** command.

### Usage guidelines

Batch files are command line files. Executing a batch file is to execute a set of command lines in the file.

Do not include invisible characters in a batch file. If an invisible character is found during the execution, the batch process will abort and the commands that have been executed cannot be cancelled.

Not every command in a batch file is sure to be executed. For example, if a certain command is not correctly configured, the command will not be executed, and the system skips this command and goes to the next one.

Each configuration command in a batch file must be a standard configuration command, meaning that the valid configuration information can be displayed with the **display current-configuration** command.

## Examples

# Execute the batch file **test.bat** in the root directory.

```
<Sysname> system-view
```

```
[Sysname] execute test.bat
```

## file prompt

Use **file prompt** to set the file operation mode.

### Syntax

```
file prompt { alert | quiet }
```

### Default

The operation mode is **alert**.

### Views

System view

### Default command level

3: Manage level

### Parameters

**alert**: Enables the system to warn you about operations that might bring undesirable results such as file corruption or data loss.

**quiet**: Disables the system from warning you about any operation.

### Usage guidelines

When the operation mode is set to **quiet**, the system does not warn for any file operation. To avoid misoperation, use the alert mode.

### Examples

```
# Set the file system operation mode to alert.
```

```
<Sysname> system-view
```

```
[Sysname] file prompt alert
```

## fixdisk

Use **fixdisk** to examine a storage medium for damage and repair any damage.

### Syntax

```
fixdisk device
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*device*: Storage medium name.

### Usage guidelines

Use this command to fix a storage medium when the medium becomes unavailable or cannot operate correctly.

### Examples

```
# Examine the Flash for damage and repair any damage.
```

```
<Sysname> fixdisk flash:
```

```
Fixdisk flash: may take some time to complete...
%Fixdisk flash: completed.
```

## format

Use **format** to format a storage medium.

### Syntax

```
format device [ FAT16 | FAT32 ]
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*device*: Specifies the name of a storage medium, for example flash or cfa0.

**FAT16**: Formats a storage medium using the FAT16 format. FAT16 does not support **Tab** matching and must be entered completely if used, and is not applicable to a Flash card.

**FAT32**: Formats a storage medium using the FAT32 format. FAT32 does not support **Tab** matching and must be entered completely if used, and is not applicable to a Flash card.

### Usage guidelines

After a storage medium is formatted, all files on it are erased and cannot be restored. If a startup configuration file exists on the storage medium, formatting the storage medium results in loss of the startup configuration file.

### Examples

```
# Format the flash.
<Sysname> format flash:
All data on flash: will be lost, proceed with format? [Y/N]:y
./
%Format flash: completed.

# Format the CF card using the FAT16 format.
<Sysname> format cfa0: FAT16
```

## mkdir

Use **mkdir** to create a folder under a specified directory on the storage medium.

### Syntax

```
mkdir directory
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*directory*: Name of a folder.

## Usage guidelines

The name of the folder to be created must be unique in the specified directory. Otherwise, you will fail to create the folder in the directory.

To use this command to create a folder, the specified directory must exist. For example, to create folder **flash:/test/mytest**, the **test** folder must exist. Otherwise, you will fail to create the **mytest** folder.

## Examples

```
# Create a folder named test in the current directory.
```

```
<Sysname> mkdir test
```

```
....
```

```
%Created dir flash:/test
```

```
# Create folder test/subtest in the current directory.
```

```
<Sysname> mkdir test/subtest
```

```
....
```

```
%Created dir flash:/test/subtest
```

## more

Use **more** to display the contents of a file.

## Syntax

```
more file-url [ | { begin | exclude | include } regular-expression ]
```

## Views

User view

## Default command level

3: Manage level

## Parameters

*file-url*: File name.

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

If the content is more than will fit on one screen:

- Pressing **Enter** displays the next line.
- Pressing **Space** displays the next screen.
- Pressing **Ctrl+C** or any other key exits the display.

This command is only applicable to text files.

## Examples

```
# Display the contents of file test.txt.
```

```
<Sysname> more test.txt
```

```
Welcome to H3C.
```

# Display the contents of file **testcfg.cfg**.

```
<Sysname> more testcfg.cfg
```

```
#
  version 5.20, Beta 1201, Standard
#
  sysname Sysname
#
vlan 2
#
return
<Sysname>
```

## mount

Use **mount** to mount a hot swappable storage medium (excluding the flash), such as a CF card or a USB disk.

### Syntax

**mount** *device*

### Default

A storage medium is automatically mounted and in mounted state after being connected to the device, and you can use it without mounting it.

### Views

User view

### Default command level

3: Manage level

### Parameters

*device*: Specifies the name of a storage medium, for example, flash or cfa0.

### Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	Yes
MSR 900	Yes
MSR900-E	Yes
MSR 930	Yes
MSR 20-1X	Yes
MSR 20	Yes
MSR 30	Yes except MSR 30-11
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

This command applies only when the device is in unmounted state.

Do not remove the storage medium or swap a card when mounting or unmounting the device, or when you are processing files on the storage medium. Otherwise, the file system could be damaged.

When a storage medium is connected to a lower version system, the system might not be able to recognize the device automatically, in which case you must use the **mount** command for the storage medium to function correctly.

Before removing a mounted storage medium from the system, unmount it to avoid damaging the storage medium.

## Examples

```
# Mount a CF card.
<Sysname> mount cfa0:
% Mount cfa0: successfully.
%Apr 23 01:50:00:628 2008 Sysname VFS/0/MOUNTED:
cfa0: mounted into slot 0.
```

## Related commands

**umount**

## move

Use **move** to move a file.

## Syntax

```
move fileurl-source fileurl-dest
```

## Views

User view

## Default command level

3: Manage level

## Parameters

*fileurl-source*: Name of the source file.

*fileurl-dest*: Name of the target file or folder.

## Usage guidelines

If you specify a target folder, the system moves the source file to the specified folder, without changing the file name.

You cannot move files between storage media of different types.

## Examples

```
# Move file flash:/test/sample.txt to flash:/, and save it as 1.txt.
```

```
<Sysname> move test/sample.txt 1.txt
Move flash:/test/sample.txt to flash:/1.txt?[Y/N]:y
...
% Moved file flash:/test/sample.txt to flash:/1.txt
```

```
# Move file b.cfg to the subfolder test2.
```

```
<Sysname> move b.cfg test2
Move flash:/b.cfg to flash:/test2/b.cfg?[Y/N]:y
.
%Moved file flash:/b.cfg to flash:/test2/b.cfg.
```

# pwd

Use **pwd** to display the current path.

## Syntax

```
pwd
```

## Views

User view

## Default command level

3: Manage level

## Examples

```
# Display the current path.  
<Sysname> pwd  
flash:
```

# rename

Use **rename** to rename a file or folder. The target file name must be unique in the current path.

## Syntax

```
rename fileurl-source fileurl-dest
```

## Views

User view

## Default command level

3: Manage level

## Parameters

*fileurl-source*: Name of the source file or folder.

*fileurl-dest*: Name of the target file or folder.

## Examples

```
# Rename file sample.txt as sample.bat.  
<Sysname> rename sample.txt sample.bat  
Rename flash:/sample.txt to flash:/sample.bat? [Y/N]:y  
  
% Renamed file flash:/sample.txt to flash:/sample.bat
```

# reset recycle-bin

Use **reset recycle-bin** to permanently delete the files in the recycle bin in the current directory.

## Syntax

```
reset recycle-bin [ /force ]
```

## Views

User view

## Default command level

3: Manage level

## Parameters

**/force**: Deletes all files in the recycle bin, including files that cannot be deleted by the command without the **/force** keyword.

## Usage guidelines

If a file is corrupted, you might not be able to delete the file using the **reset recycle-bin** command. Use the **reset recycle-bin /force** command to delete the corrupted file in the recycle bin forcibly.

The **delete file-url** command only moves a file to the recycle bin. To permanently delete the file in the recycle bin, use the **reset recycle-bin** command in the original directory of the file.

The **reset recycle-bin** command deletes files in the current directory and in the recycle bin. If the original path of the file to be deleted is not the current directory, use the **cd** command to enter the original directory of the file, and then execute the **reset recycle-bin** command.

## Examples

# Delete file **b.cfg** in the current directory and in the recycle bin:

1. Display all files in the recycle bin or in the current directory.

```
<Sysname> dir /all
Directory of flash:/
```

```
 0  -rwh      3080  Apr 26 2008 16:41:43  private-data.txt
 1  -rw-       2416  Apr 26 2008 13:45:36  config.cfg
 2  -rw-    8036197  May 14 2008 10:13:18  main.bin
 3  -rw-      2386  Apr 26 2008 13:30:30  back.cfg
 4  drw-         -  May 08 2008 09:49:25  test
 5  -rwh       716  Apr 24 2007 16:17:30  hostkey
 6  -rwh       572  Apr 24 2007 16:17:44  serverkey
 7  -rw-      2386  May 08 2008 11:14:20  [a.cfg]
 8  -rw-      3608  Dec 03 2007 17:29:30  [b.cfg]
```

```
14605 KB total (6730 KB free)
```

//The output shows that the current directory is **flash:**, and there are two files **a.cfg** and **b.cfg** in the recycle bin.

2. Delete file **b.cfg** in the current directory and in the recycle bin.

```
<Sysname> reset recycle-bin
Clear flash:~/a.cfg ?[Y/N]:n
Clear flash:~/b.cfg ?[Y/N]:y
```

```
%Cleared file flash:~/b.cfg...
```

3. In directory **flash:**, check in the recycle bin whether the file **b.cfg** is deleted.

```
<Sysname> dir /all
Directory of flash:/
```

```
 0  -rwh      3080  Apr 26 2008 16:41:43  private-data.txt
 1  -rw-       2416  Apr 26 2008 13:45:36  config.cfg
 2  -rw-    8036197  May 14 2008 10:13:18  main.bin
 3  -rw-      2386  Apr 26 2008 13:30:30  back.cfg
 4  drw-         -  May 08 2008 09:49:25  test
```

```

5      -rwh          716  Apr 24 2007 16:17:30  hostkey
6      -rwh          572  Apr 24 2007 16:17:44  serverkey
7      -rw-         2386  May 08 2008 11:14:20  [a.cfg]

```

```
14605 KB total (6734 KB free)
```

// The output shows that file **flash:/b.cfg** is deleted permanently.

# Delete file **aa.cfg** in the subdirectory **test** and in the recycle bin:

4. Enter the subdirectory

```
<Sysname> cd test/
```

5. Display all files in the subfolder **test**.

```
<Sysname> dir /all
```

```
Directory of flash:/test
```

```

0      -rw-          2161  Apr 26 2000 21:22:35  [aa.cfg]

```

```
14605 KB total (6734 KB free)
```

// The output shows that only one file exists in the folder, and the file has been moved to the recycle bin.

6. Permanently delete file **test/aa.cfg**.

```
<Sysname> reset recycle-bin
```

```
Clear flash:/test/~/.aa.cfg ?[Y/N]:y
```

```
%Cleared file flash:/test/~/.aa.cfg...
```

## rmdir

Use **rmdir** to remove a folder.

### Syntax

```
rmdir directory
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*directory*: Name of the folder.

### Usage guidelines

The folder must be empty. If not, delete all files and subfolders under it by using the **delete** command.

After you execute the **rmdir** command successfully, the files in the recycle bin in the folder will be automatically deleted.

### Examples

# Remove folder **mydir**.

```
<Sysname> rmdir mydir
```

```
Rmdir flash:/mydir?[Y/N]:y
```

%Removed directory flash:/mydir.

## umount

Use **umount** to unmount a hot swappable storage medium excluding the Flash, such as a CF card or a USB disk.

### Syntax

**umount** *device*

### Default

A storage medium is automatically mounted and placed in mounted state. You must unmount it before removing it from the device.

### Views

User view

### Default command level

3: Manage level

### Parameters

*device*: Specifies the name of a storage medium, for example, flash or cfa0.

### Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	Yes
MSR 900	Yes
MSR900-E	Yes
MSR 930	Yes
MSR 20-1X	Yes
MSR 20	Yes
MSR 30	Yes except MSR 30-11
MSR 50	Yes
MSR 2600	Yes
MSR3600-51F	Yes

This command applies only when the device is in mounted state.

When mounting or unmounting a storage medium, or performing file operations on it, do not unplug or switchover the storage medium or the card where the storage medium resides. Otherwise, the file system could be damaged.

When a storage medium is connected to a lower version system, the system might not be able to recognize the device automatically, and you must use the **mount** command for the storage medium to function correctly.

Before removing a mounted storage medium from the system, unmount it to avoid damaging the storage medium.

### Examples

# Unmount a CF card.

```
<Sysname> umount cfa0:
% Umount cfa0: successfully.
%Apr 23 01:49:20:929 2008 Sysname VFS/5/UNMOUNTED:
cfa0: unmounted from slot 0.
```

## Related commands

**mount**

# undelete

Use **undelete** to restore a file from the recycle bin.

## Syntax

```
undelete file-url
```

## Views

User view

## Default command level

3: Manage level

## Parameters

*file-url*: Name of the file to be restored.

## Usage guidelines

If another file with the same name exists in the same path, the system prompts you on whether to overwrite the original file.

## Examples

# Restore file **a.cfg** in directory **flash:** from the recycle bin.

```
<Sysname> undelete a.cfg
Undelete flash:/a.cfg?[Y/N]:y
.....
%Undeleted file flash:/a.cfg.
```

# Restore file **b.cfg** in directory **flash:/test** from the recycle bin.

```
<Sysname> undelete flash:/test/b.cfg
Undelete flash:/test/b.cfg?[Y/N]:y
.....
%Undeleted file flash:/test/b.cfg.
```

Or:

```
<Sysname> cd test
<Sysname> undelete b.cfg
Undelete flash:/test/b.cfg?[Y/N]:y
.....
%Undeleted file flash:/test/b.cfg.
```

# FTP configuration commands

Table 32 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode.

**Table 32 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No.
MSR 900	No.
MSR900-E	No.
MSR 930	No.
MSR 20-1X	No.
MSR 20	Yes.
MSR 30	Yes (except the MSR 3016).
MSR 50	Yes.
MSR 2600	Yes.
MSR3600-51F	Yes.

**NOTE:**

FTP is not available in FIPS mode.

## FTP server commands

### display ftp-server

Use **display ftp-server** to display the FTP server configuration and status information.

#### Syntax

```
display ftp-server [ | { begin | exclude | include } regular-expression ]
```

#### Views

Any view

#### Default command level

3: Manage level

#### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

After configuring FTP server parameters, you can verify them with this command.

## Examples

# Display the FTP server configuration and status information.

```
<Sysname> display ftp-server
  FTP server is running
  Max user number:          1
  User count:               1
  Timeout value(in minute): 30
  Put Method:               fast
```

**Table 33 Command output**

Field	Description
Max user number	Maximum number of concurrent login users.
User count	Number of the current login users.
Timeout value (in minute)	Allowed idle time of an FTP connection. If there is no packet exchange between the FTP server and client during this period, the FTP connection will be broken.
Put Method	File update method of the FTP server, <b>fast</b> or <b>normal</b> .

## Related commands

- **ftp server enable**
- **ftp timeout**
- **ftp update**

## display ftp-user

Use **display ftp-user** to display the detailed information of current FTP users.

## Syntax

```
display ftp-user [ | { begin | exclude | include } regular-expression ]
```

## Views

Any view

## Default command level

3: Manage level

## Parameters

| : Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

# Display the detailed information of FTP users.

```
<Sysname> display ftp-user
  UserName          HostIP      Port      Idle          HomeDir
  ftp               192.168.1.54  1190      0             flash:
```

# If a username exceeds 10 characters, the exceeded characters are displayed in the next line and right justified. For example, if the logged-in user name is **administrator**, the following information is displayed:

```
<Sysname> display ftp-user
  UserName          HostIP      Port      Idle          HomeDir
administra
tor               192.168.0.152  1031      0             flash:
```

**Table 34 Command output**

Field	Description
UserName	Name of the user.
HostIP	IP address of the user.
Port	Port number of the user.
Idle	Duration time of the current FTP connection in minutes.
HomeDir	Authorized directory for the user.

## free ftp user

Use **free ftp user** to manually release the FTP connection established by using a specific user account.

### Syntax

```
free ftp user username
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*username*: Username. You can use the **display ftp-user** command to view FTP login user information.

### Usage guidelines

This command releases the FTP connection established by the specified user no matter whether the user is transmitting a file.

## Examples

# Manually release the FTP connection established by using the user account named **ftpuser**.

```
<Sysname> free ftp user ftpuser
Are you sure to free FTP user ftpuser? [Y/N]:y
<Sysname>
```

## ftp server acl

Use **ftp server acl** to use an ACL to control FTP clients' access to the FTP server.

Use **undo ftp server acl** to restore the default.

### Syntax

**ftp server acl** *acl-number*

**undo ftp server acl**

### Default

No ACL is used to control FTP clients' access to the FTP server.

### Views

System view

### Default command level

2: System level

### Parameters

*acl-number*: Basic ACL number in the range of 2000 to 2999.

### Usage guidelines

You can use this command to permit FTP requests from specific FTP clients only. This configuration takes effect for FTP connections to be established only, and does not impact existing FTP connections. If you execute the command multiple times, the most recently specified ACL takes effect.

### Examples

# Use ACL 2001 to allow only the client 1.1.1.1 to access the FTP server.

```
<Sysname> system-view
[Sysname] acl number 2001
[Sysname-acl-basic-2001] rule 0 permit source 1.1.1.1 0
[Sysname-acl-basic-2001] rule 1 deny source any
[Sysname-acl-basic-2001] quit
[Sysname] ftp server acl 2001
```

## ftp server enable

Use **ftp server enable** to enable the FTP server.

Use **undo ftp server** to disable the FTP server.

### Syntax

**ftp server enable**

**undo ftp server**

### Default

The FTP server is disabled.

### Views

System view

## Default command level

3: Manage level

## Examples

```
# Enable the FTP server.
<Sysname> system-view
[Sysname] ftp server enable
[Sysname]
```

## ftp timeout

Use **ftp timeout** to set the idle-timeout timer for FTP connections.

Use **undo ftp timeout** to restore the default.

## Syntax

**ftp timeout** *minute*

**undo ftp timeout**

## Default

The FTP idle-timeout timer is 30 minutes.

## Views

System view

## Default command level

3: Manage level

## Parameters

*minute*: Idle-timeout time in the range of 1 to 35791 minutes.

## Usage guidelines

If no packet is exchanged on an FTP connection within the idle-timeout time, the FTP connection is broken.

## Examples

```
# Set the idle-timeout timer to 36 minutes.
<Sysname> system-view
[Sysname] ftp timeout 36
[Sysname]
```

## ftp update

Use **ftp update** to set the file update mode that the FTP server uses while receiving data.

Use **undo ftp update** to restore the default.

## Syntax

**ftp update** { **fast** | **normal** }

**undo ftp update**

## Default

The file update mode is **normal**.

## Views

System view

## Default command level

3: Manage level

## Parameters

**fast**: Fast update. In this mode, the FTP server writes the complete file to the memory before writing it to the storage medium.

**normal**: Normal update. In this mode, the FTP server writes the data of a file from the memory to the storage medium multiple times, with up to 4096 bytes per time.

## Examples

# Set the FTP update mode to **normal**.

```
<Sysname> system-view
```

```
[Sysname] ftp update normal
```

```
[Sysname]
```

# FTP client configuration commands

Before executing FTP client configuration commands, make sure you have made correct authority configurations for users on the FTP server. Authorized operations include view the files under the current directory, read/download the specified files, create directory/upload files, and rename/remove files.

The prompt information in the following examples varies with FTP server types.

## ascii

Use **ascii** to set the file transfer mode to ASCII.

## Syntax

**ascii**

## Default

The file transfer mode is ASCII.

## Views

FTP client view

## Default command level

3: Manage level

## Usage guidelines

The carriage return characters vary with operating systems. For example, H3C and Windows use characters **/r/n**, and Linux uses characters **/n**. To transfer files between two systems that use different carriage return characters, determine FTP transfer mode according to the file type.

FTP transfers files in either of the following modes:

- **Binary mode**—Transfers image files or pictures.
- **ASCII mode**—Transfers text files.

## Examples

```
# Set the file transfer mode to ASCII.  
[ftp] ascii  
200 Type set to A.  
  
[ftp]
```

## Related commands

**binary**

# binary

Use **binary** to set the file transfer mode to binary, which is also called the "flow mode".

## Syntax

**binary**

## Default

The transfer mode is ASCII mode.

## Views

FTP client view

## Default command level

3: Manage level

## Examples

```
# Set the file transfer mode to binary.  
[ftp] binary  
200 Type set to I.  
  
[ftp]
```

## Related commands

**ascii**

# bye

Use **bye** to disconnect from the remote FTP server and return to user view.

## Syntax

**bye**

## Views

FTP client view

## Default command level

3: Manage level

## Usage guidelines

If no connection is established between the device and the remote FTP server, use this command to return to user view.

## Examples

```
# Terminate the connection with the remote FTP server and return to user view.
[ftp] bye
221 Server closing.
<Sysname>
```

## Related commands

- **close**
- **disconnect**
- **quit**

## cd

Use **cd** to change the current working directory to another directory on the FTP server.

## Syntax

```
cd { directory | .. | / }
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*directory*: Name of the target directory, in the format of [*drive*:][/*path*], where *drive* represents the storage medium name. If the target directory does not exist, the **cd** command does not change the current working directory. If no drive information is provided, the argument represents a folder or subfolder in the current directory. For more information about the *drive* and *path* arguments, see *Fundamentals Configuration Guide*.

**..**: Returns to the upper directory. Executing the **cd ..** command is the same as executing the **cdup** command. If the current working directory is the FTP root directory, the **cd ..** command does not change the current working directory. This option does not support command line online help.

**/**: Returns to the FTP root directory. This option does not support command line online help.

## Examples

```
# Change the working directory to the sub-directory logfile of the current directory.
```

```
[ftp] cd logfile
250 CWD command successful.
```

```
# Change the working directory to the sub-directory folder of the FTP root directory.
```

```
[ftp] cd /folder
250 CWD command successful.
```

```
# Change the working directory to the upper directory of the current directory.
```

```
[ftp] cd ..
250 CWD command successful.
```

```
# Change the working directory to the FTP root directory.
```

```
[ftp] cd /
250 CWD command successful.
```

```
[ftp]
```

## Related commands

**pwd**

# cdup

Use **cdup** to enter the upper directory of the FTP server.

## Syntax

**cdup**

## Views

FTP client view

## Default command level

3: Manage level

## Usage guidelines

This command does not change the working directory if the current directory is the FTP root directory.

## Examples

```
# Change the working directory to the upper directory.
```

```
[ftp] pwd
```

```
257 "/ftp/subdir" is current directory.
```

```
[ftp] cdup
```

```
200 CDUP command successful.
```

```
[ftp] pwd
```

```
257 "/ftp" is current directory.
```

```
[ftp]
```

## Related commands

- **cd**
- **pwd**

# close

Use **close** to terminate the connection to the FTP server, but remain in FTP client view.

## Syntax

**close**

## Views

FTP client view

## Default command level

3: Manage level

## Usage guidelines

This command is equal to the **disconnect** command.

## Examples

```
# Terminate the connection to the FTP server and remain in FTP client view.
[ftp] close
221 Server closing.

[ftp]
```

## debugging

Use **debugging** to enable FTP client debugging.

Use **undo debugging** to disable FTP client debugging.

### Syntax

**debugging**

**undo debugging**

### Default

FTP client debugging is disabled.

### Views

FTP client view

### Default command level

1: Monitor level

## Examples

# The device serves as the FTP client. Enable FTP client debugging and use the active mode to download file **sample.file** from the current directory of the FTP server.

```
<Sysname> terminal monitor
<Sysname> terminal debugging
<Sysname> ftp 192.168.1.46
Trying 192.168.1.46 ...
Press CTRL+K to abort
Connected to 192.168.1.46.
220 FTP service ready.
User(192.168.1.46:(none)):ftp
331 Password required for ftp.
Password:
230 User logged in.

[ftp]undo passive
FTP: passive is off

[ftp] debugging
FTP: debugging switch is on

[ftp] get sample.file

---> PORT 192,168,1,44,4,21
200 Port command okay.
```

```

The parsed reply is 200
---> RETR sample.file
150 Opening ASCII mode data connection for /sample.file.
The parsed reply is 150
FTPC: File transfer started with the signal light turned on.
FTPC: File transfer completed with the signal light turned off.
.226 Transfer complete.
FTP: 3304 byte(s) received in 4.889 second(s), 675.00 byte(s)/sec.

```

```
[ftp]
```

**Table 35 Command output**

Field	Description
---> PORT 192,168,1,44,4,21	FTP command. 192,168,1,44 specifies the destination IP address, and 4,21 is used to calculate the data port number by using the formula $4*256+21$ .
The parsed reply is	Received reply code, which is defined in RFC 959.
---> RETR	Download the file.
FTPC: File transfer started with the signal light turned on.	File transfer starts, and the signal light is turned on.
FTPC: File transfer completed with the signal light turned off.	File transfer is completed, and the signal light is turned off.

## delete

Use **delete** to permanently delete a specified file on the remote FTP server.

### Syntax

```
delete remotefile
```

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*remotefile*: File name.

### Usage guidelines

To perform this operation, you must have delete permission on the FTP server.

### Examples

```

# Delete file temp.c.
[ftp] delete temp.c
250 DELE command successful.

[ftp]

```

# dir

Use **dir** to display detailed information about the files and subdirectories under the current directory on the FTP server.

Use **dir remotefile** to display detailed information about a specific file or directory on the FTP server.

Use **dir remotefile localfile** to save detailed information about a specific file or directory on the FTP server to a local file.

## Syntax

```
dir [ remotefile [ localfile ] ]
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*remotefile*: Name of the file or directory on the remote FTP server.

*localfile*: Name of the local file used to save the displayed information.

## Usage guidelines

The **ls** command displays only the names of files and directories. The **dir** command displays more information about the files and directories, such as the size and the creation date.

## Examples

```
# Display detailed information about the files and subdirectories under the current directory on the FTP server.
```

```
[ftp] dir
227 Entering Passive Mode (192,168,1,46,5,68).
125 ASCII mode data connection already open, transfer starting for /*.
drwxrwxrwx  1 noone  nogroup          0 Aug 08  2006 logfile
-rwxrwxrwx  1 noone  nogroup  20471748 May 11 10:21 test.bin
-rwxrwxrwx  1 noone  nogroup    4001 Dec 08  2007 config.cfg
-rwxrwxrwx  1 noone  nogroup    3608 Jun 13  2007 startup.cfg
drwxrwxrwx  1 noone  nogroup          0 Dec 03  2007 test
-rwxrwxrwx  1 noone  nogroup    299 Oct 15  2007 key.pub
226 Transfer complete.
FTP: 394 byte(s) received in 0.189 second(s), 2.00K byte(s)/sec.
```

```
[ftp]
```

```
# Save detailed information about file router.cfg to aa.txt.
```

```
[ftp] dir router.cfg aa.txt
227 Entering Passive Mode (192,168,1,50,17,158).
125 ASCII mode data connection already open, transfer starting for /router.cfg.
...226 Transfer complete.
FTP: 67 byte(s) received in 4.600 second(s), 14.00 byte(s)/sec.
```

```
# View the content of aa.txt.
```

```
[ftp] quit
<Sysname> more aa.txt
```

## disconnect

Use **disconnect** to disconnect from the remote FTP server but remain in FTP client view.

### Syntax

```
disconnect
```

### Views

FTP client view

### Default command level

3: Manage level

### Usage guidelines

This command is equal to the **close** command.

### Examples

```
# Disconnect from the remote FTP server but remain in FTP client view.
[ftp] disconnect
221 Server closing.
[ftp]
```

## display ftp client configuration

Use **display ftp client configuration** to display the source IP address configuration of the FTP client.

### Syntax

```
display ftp client configuration [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

If the specified source IP address is active, this command displays the source IP address. If the specified source interface is active, this command displays the source interface.

### Examples

```
# Display the source IP address configuration of the FTP client.
<Sysname> display ftp client configuration
```

The source IP address is 192.168.0.123

## Related commands

**ftp client source**

## ftp

Use **ftp** to log in to an FTP server and enter FTP client view.

## Syntax

```
ftp [ server-address [ service-port ] [ vpn-instance vpn-instance-name ] [ source { interface  
interface-type interface-number | ip source-ip-address } ] ]
```

## Views

User view

## Default command level

3: Manage level

## Parameters

*server-address*: IP address or host name of the FTP server, a string of 1 to 20 characters.

*service-port*: TCP port number of the FTP server, in the range of 0 to 65535. The default value is 21.

**vpn-instance** *vpn-instance-name*: Specifies the MPLS L3VPN that the FTP server belongs to. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the FTP server is on the public network, do not specify this option.

**source** { **interface** *interface-type interface-number* | **ip** *source-ip-address* }: Specifies the source address used to establish the FTP connection.

- **interface** *interface-type interface-number*: Specifies the source interface by its type and number. The primary IP address configured on this interface is the source address of the transmitted FTP packets. If no primary IP address is configured on the source interface, the connection cannot be established.
- **ip** *source-ip-address*: The source IP address of the transmitted FTP packets. This source address must be the one that has been configured on the device.

## Usage guidelines

This command is applicable applies to IPv4 networks only.

If no parameters are specified, this command enters the FTP client view without logging in to the FTP server.

If the server parameters are specified, you are prompted to type the username and password for accessing the FTP server.

## Examples

```
# Log in to the server 192.168.0.211 and specify the source IP address of sent FTP packets as 192.168.0.212.
```

```
<Sysname1> ftp 192.168.0.211 source ip 192.168.0.212  
Trying 192.168.0.211 ...  
Press CTRL+K to abort  
Connected to 192.168.0.211.  
220 FTP Server ready.  
User(192.168.0.211:(none)):abc  
331 Password required for abc
```

```
Password:
230 User logged in.

[ftp]
```

## ftp client source

Use **ftp client source** to specify a source IP address for outgoing FTP packets.

Use **undo ftp client source** to restore the default.

### Syntax

```
ftp client source { interface interface-type interface-number | ip source-ip-address }
undo ftp client source
```

### Default

The primary IP address of the output interface is used as the source IP address.

### Views

System view

### Default command level

2: System level

### Parameters

**interface** *interface-type interface-number*: Specifies a source interface for outgoing FTP packets.

**ip** *source-ip-address*: Specifies a source IP address for outgoing FTP packets. This IP address must be one of the IP addresses of the device.

### Usage guidelines

You can use the **ftp client source** command to specify a source IP address or source interface for the FTP packets sent by the device. If a source interface (typically a loopback interface) is specified, its primary IP address is used as the source IP address for the FTP packets sent by the device. The source interface setting and the source IP address setting overwrite each other.

---

#### ⓘ IMPORTANT:

To avoid FTP connection failures, when you specify a source interface for FTP packets, make sure the interface has been assigned a primary IP address.

---

The **ftp client source** command setting applies to all FTP sessions. When you set up an FTP session by using the **ftp** or **ftp ipv6** command, you can also specify a different source IP address for the FTP session.

### Examples

# Specify 2.2.2.2 as the source IP address for outgoing FTP packets.

```
<Sysname> system-view
[Sysname] ftp client source ip 2.2.2.2
```

# Use the primary IP address of interface Ethernet 1/1 as the source IP address for outgoing FTP packets.

```
<Sysname> system-view
[Sysname] ftp client source interface ethernet 1/1
[Sysname]
```

## Related commands

**display ftp client configuration**

## ftp ipv6

Use **ftp ipv6** to log in to an FTP server and enter FTP client view.

### Syntax

```
ftp ipv6 [ server-address [ service-port ] [ vpn-instance vpn-instance-name ] [ source ipv6 source-ipv6-address ] [ -i interface-type interface-number ] ]
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*server-address*: IP address or host name of the remote FTP server.

*service-port*: TCP port number of the FTP server, in the range of 0 to 65535. The default value is 21.

**source ipv6** *source-ipv6-address*: Specifies a source IPv6 address for transmitted FTP packets. This address must be an IPv6 address that has been configured on the device.

**-i** *interface-type interface-number*: Specifies an output interface by its type and number. This parameter can be used only when the FTP server address is a link local address and the specified output interface has a link local address. For the configuration of link local addresses, see *Layer 3—IP Services Configuration Guide*.

**vpn-instance** *vpn-instance-name*: Specifies the MPLS L3VPN that the FTP server belongs to. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the FTP server is on the public network, do not specify this option.

### Usage guidelines

If no parameters are specified, this command enters the FTP client view without logging in to an FTP server.

If the FTP server parameters are specified, you also need to enter the username and password for accessing the FTP server.

---

#### NOTE:

This command is applicable only to IPv6 networks.

---

### Examples

```
# Log in to the FTP server at 3000::200.
```

```
<Sysname> ftp ipv6 3000::200
Trying 3000::200 ...
Press CTRL+K to abort
Connected to 3000::200.
220 Welcome!
User(3000::200:(none)): MY_NAME
331 Please specify the password.
Password:
230 Login successful.
```

```
[ftp]
# Log in to the FTP server at 3000::200 in VPN 1.
<Sysname> ftp ipv6 3000::200 vpn-instance vpn1
Trying 3000::200 ...
Press CTRL+K to abort
Connected to 3000::200.
220 Welcome!
User(3000::200:(none)): MY_NAME
331 Please specify the password.
Password:
230 Login successful.
[ftp]
```

## get

Use **get** to download a file from the FTP server and save it.

### Syntax

```
get remotefile [ localfile ]
```

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*remotefile*: Name of the file to be downloaded.

*localfile*: Name for the downloaded file. If this argument is not specified, the original name is used.

### Examples

```
# Download file testcfg.cfg and save it as aa.cfg.
```

```
[ftp] get testcfg.cfg aa.cfg
```

```
227 Entering Passive Mode (192,168,1,50,17,163).
```

```
125 ASCII mode data connection already open, transfer starting for /testcfg.cfg.
```

```
.....226 Transfer complete.
```

```
FTP: 5190 byte(s) received in 7.754 second(s), 669.00 byte(s)/sec.
```

## lcd

Use **lcd** to display the local working directory of the FTP client.

### Syntax

```
lcd
```

### Views

FTP client view

### Default command level

3: Manage level

## Examples

```
# Display the local working directory.
[ftp] lcd
FTP: Local directory now flash:/clienttemp.
```

The output shows that the working directory of the FTP client before execution of the **ftp** command is **flash:/clienttemp**.

## ls

Use **ls** to list files and subdirectories in the current directory of the FTP server.

Use **ls remotefile** to list files under a specific subdirectory or verify the existence of a file in the current directory of the FTP server.

Use **ls remotefile localfile** to save the name of a file or the list of files under a specific subdirectory to a local file.

## Syntax

```
ls [ remotefile [ localfile ] ]
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*remotefile*: Filename or directory on the remote FTP server.

*localfile*: Name of a local file used to save the displayed information.

## Usage guidelines

The **ls** command displays only the names of files and directories on the FTP server. The **dir** command displays more information about the files and directories, such as the size and the creation date.

## Examples

```
# List all files and subdirectories in the current directory of the FTP server.
[ftp] ls
227 Entering Passive Mode (192,168,1,50,17,165).
125 ASCII mode data connection already open, transfer starting for /*.
router.cfg
logfile
main.bin
basicbtm.bin
ftp
test
bb.cfg
testcfg.cfg
226 Transfer complete.
FTP: 87 byte(s) received in 0.132 second(s) 659.00 byte(s)/sec.

# List all files in subdirectory logfile.
[ftp] ls logfile
```

```

227 Entering Passive Mode (192,168,1,50,10,49).
125 ASCII mode data connection already open, transfer starting for /logfile/*.
logfile.log
a.cfg
226 Transfer complete.
FTP: 20 byte(s) received in 0.075 second(s), 266.00 byte(s)/sec. .

# Save the names of all files in subdirectory logfile to file aa.txt.
[ftp] ls logfile aa.txt
227 Entering Passive Mode (192,168,1,50,4,3).
125 ASCII mode data connection already open, transfer starting for /logfile/*.
...226 Transfer complete.
FTP: 20 byte(s) received in 3.962 second(s), 5.00 byte(s)/sec.

# View the content of file aa.txt.
[ftp] quit
221 Server closing.

<Sysname> more aa.txt
logfile.log
a.cfg

<Sysname>

```

## mkdir

Use **mkdir** to create a subdirectory in the current directory on the remote FTP server.

### Syntax

```
mkdir directory
```

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*directory*: Name of the directory to be created.

### Usage guidelines

You must have permissions to perform this operation on the FTP server.

### Examples

```

# Create subdirectory mytest in the current directory of the remote FTP server.
[ftp] mkdir mytest
257 "/mytest" new directory created.

[ftp]

```

# open

Use **open** to log in to the IPv4 FTP server under FTP client view.

## Syntax

```
open server-address [ service-port ]
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*server-address*: IP address or host name of a remote FTP server.

*service-port*: Port number of the remote FTP server, in the range of 0 to 65535. The default value is 21.

## Usage guidelines

At login, enter the username and password. If your input is correct, the login succeeds.

If you have logged in to the IPv4 FTP server, you cannot use the **open** command to log in to another server. To do so, you must disconnect from the current server first.

## Examples

```
# In FTP client view, log in to the FTP server at 192.168.1.50.
```

```
<Sysname> ftp
[ftp] open 192.168.1.50
Trying 192.168.1.50 ...
Press CTRL+K to abort
Connected to 192.168.1.50.
220 FTP service ready.
User(192.168.1.50:(none)):aa
331 Password required for aa.
Password:
230 User logged in.
```

```
[ftp]
```

## Related commands

**close**

# open ipv6

Use **open ipv6** to log in to the IPv6 FTP server in FTP client view.

## Syntax

```
open ipv6 server-address [ service-port ] [ -i interface-type interface-number ]
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*server-address*: IP address or host name of the remote FTP server.

*service-port*: Port number of the remote FTP server, in the range of 0 to 65535. The default value is 21.

*-i interface-type interface-number*: Specifies an output interface by its type and number. This parameter can be used only when the FTP server address is a link local address and the specified output interface has a link local address. For the configuration of link local addresses, see *Layer 3—IP Services Configuration Guide*.

## Usage guidelines

At login, enter the username and password for accessing the FTP server. If your input is correct, the login succeeds.

## Examples

```
# Log in to the FTP server at 3000::200 in FTP client view.
<Sysname> ftp
[ftp] open ipv6 3000::200
Trying 3000::200 ...
Press CTRL+K to abort
Connected to 3000::200.
220 Welcome!
User(3000::200:(none)): MY_NAME
331 Please specify the password.
Password:
230 Login successful.
[ftp]
```

## Related commands

**close**

## passive

Use **passive** to set the FTP operation mode to **passive**.

Use **undo passive** to set the FTP operation mode to **active**.

## Syntax

**passive**

**undo passive**

## Default

The FTP operation mode is **passive**.

## Views

FTP client view

## Default command level

3: Manage level

## Usage guidelines

FTP can operate in either of the following modes:

- **Active mode**—The FTP server initiates the TCP connection.
- **Passive mode**—The FTP client initiates the TCP connection.

## Examples

```
# Set the FTP operation mode to passive.
```

```
[ftp] passive
```

```
FTP: passive is on
```

```
[ftp]
```

## put

Use **put** to upload a file on the client to the remote FTP server.

### Syntax

```
put localfile [ remotefile ]
```

### Default

If no name is assigned to the file to be saved on the FTP server, the name of the source file is used.

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*localfile*: Name of the local file to be uploaded.

*remotefile*: File name used after a file is uploaded and saved on the FTP server.

## Usage guidelines

When a file is uploaded, it is saved in the user's authorized directory, which can be set with the **authorization-attribute** command on the remote server.

## Examples

```
# Upload source file cc.txt to the remote FTP server and save it as dd.txt.
```

```
[ftp] put cc.txt dd.txt
```

```
227 Entering Passive Mode (192,168,1,50,17,169).
```

```
125 ASCII mode data connection already open, transfer starting for /dd.txt.
```

```
226 Transfer complete.
```

```
FTP: 9 byte(s) sent in 0.112 second(s), 80.00 byte(s)/sec.
```

## pwd

Use **pwd** to display the currently accessed directory on the remote FTP server.

### Syntax

```
pwd
```

## Views

FTP client view

## Default command level

3: Manage level

## Examples

# Display the currently accessed directory on the remote FTP server.

```
[ftp] cd servertemp
```

```
[ftp] pwd
```

```
257 "/servertemp" is current directory.
```

The output shows that the **servertemp** folder in the FTP root directory is being accessed by the user.

# quit

Use **quit** to disconnect the FTP client from the remote FTP server and exit to user view.

## Syntax

```
quit
```

## Views

FTP client view

## Default command level

3: Manage level

## Examples

# Disconnect from the remote FTP server and exit to user view.

```
[ftp] quit
```

```
221 Server closing.
```

```
<Sysname>
```

# remotehelp

Use **remotehelp** to display the help information of FTP-related commands supported by the remote FTP server.

## Syntax

```
remotehelp [ protocol-command ]
```

## Views

FTP client view

## Default command level

3: Manage level

## Parameters

*protocol-command*: FTP command.

## Usage guidelines

If no argument is specified, FTP-related commands supported by the remote FTP server are displayed.

## Examples

# Display FTP commands supported by the remote FTP server.

```
[ftp] remotehelp
214-Here is a list of available ftp commands
    Those with '*' are not yet implemented.
    USER  PASS  ACCT*  CWD   CDUP  SMNT*  QUIT  REIN*
    PORT  PASV  TYPE  STRU*  MODE*  RETR  STOR  STOU*
    APPE*  ALLO*  REST*  RNFR*  RNT0*  ABOR*  DELE  RMD
    MKD   PWD   LIST  NLST  SITE*  SYST  STAT*  HELP
    NOOP*  XCUP  XCWD  XMKD  XPWD  XRMD
```

214 Direct comments to H3C company.

# Display the help information for the **user** command.

```
[ftp] remotehelp user
214 Syntax: USER <sp> <username>.
```

[ftp]

**Table 36 Command output**

Field	Description
USER	Username.
PASS	Password.
CWD	Change the current working directory.
CDUP	Change to parent directory.
SMNT*	File structure setting.
QUIT	Quit.
REIN*	Re-initialization.
PORT	Port number.
PASV	Passive mode.
TYPE	Request type.
STRU*	File structure.
MODE*	Transmission mode.
RETR	Download a file.
STOR	Upload a file.
STOU*	Store unique.
APPE*	Appended file.
ALLO*	Allocation space.
REST*	Restart.
RNFR*	Rename the source.
RNT0*	Rename the destination.
ABOR*	Abort the transmission.
DELE	Delete a file.

Field	Description
RMD	Delete a folder.
MKD	Create a folder.
PWD	Print working directory.
LIST	List files.
NLST	List file description.
SITE*	Locate a parameter.
SYST	Display system parameters.
STAT*	State.
HELP	Help.
NOOP*	No operation.
XCUP	Extension command, the same meaning as CDUP.
XCWD	Extension command, the same meaning as CWD.
XMKD	Extension command, the same meaning as MKD.
XPWD	Extension command, the same meaning as PWD.
XRMD	Extension command, the same meaning as RMD.
Syntax: USER <sp> <username>.	Syntax of the <b>user</b> command: user (keyword) + space + <i>username</i> .

## rmdir

Use **rmdir** to remove a specified directory from the FTP server.

### Syntax

**rmdir** *directory*

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*directory*: Directory name on the remote FTP server.

### Usage guidelines

Only authorized users are allowed to use this command.

Delete all files and subdirectories under a directory before you delete the directory. For more information about how to delete files, see the **delete** command.

When you execute the **rmdir** command, the files in the remote recycle bin in the directory will be automatically deleted.

### Examples

# Delete the **temp1** directory from the FTP root directory.

```
[ftp] rmdir /temp1
```

```
200 RMD command successful.
```

```
[ftp]
```

## user

Use **user** to switch to another user account.

### Syntax

```
user username [ password ]
```

### Views

FTP client view

### Default command level

3: Manage level

### Parameters

*username*: Login username.

*password*: Login password. You can input this argument a space after the *username* argument; or you can input this argument when the "Password:" prompt appears after you input the username and then press **Enter**.

### Usage guidelines

Before using this command, you must configure the corresponding username and password on the FTP server or the login will fail and the FTP connection will close.

### Examples

# User **ftp1** has logged in to the FTP server. Use username **ftp2** to log in to the current FTP server: (Assume username **ftp2** and password **123123123123** have been configured on the FTP server.)

- Method 1:

```
[ftp] user ftp2
331 Password required for ftp2.
Password:
230 User logged in.
```

```
[ftp]
```

- Method 2:

```
[ftp] user ftp2 123123123123
331 Password required for ftp.
230 User logged in.
```

```
[ftp]
```

## verbose

Use **verbose** to enable display of detailed prompt information received from the server.

Use **undo verbose** to disable display of detailed prompt information.

### Syntax

```
verbose
```

## **undo verbose**

### **Default**

The display of detailed prompt information is enabled.

### **Views**

FTP client view

### **Default command level**

3: Manage level

### **Examples**

# Enable display of detailed prompt information.

```
[ftp] verbose
```

```
FTP: verbose is on
```

# Disable display of detailed prompt information. and perform a Get operation.

```
[ftp] undo verbose
```

```
FTP: verbose is off
```

```
[ftp] get startup.cfg bb.cfg
```

```
FTP: 3608 byte(s) received in 0.052 second(s), 69.00K byte(s)/sec.
```

```
[ftp]
```

# Enable display of detailed prompt information. and perform a Get operation.

```
[ftp] verbose
```

```
FTP: verbose is on
```

```
[ftp] get startup.cfg aa.cfg
```

```
227 Entering Passive Mode (192,168,1,46,5,85).
```

```
125 ASCII mode data connection already open, transfer starting for /startup.cfg.
```

```
226 Transfer complete.
```

```
FTP: 3608 byte(s) received in 0.193 second(s), 18.00K byte(s)/sec.
```

# TFTP configuration commands

Table 37 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode.

**Table 37 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No.
MSR 900	No.
MSR900-E	No.
MSR 930	No.
MSR 20-1X	No.
MSR 20	Yes.
MSR 30	Yes (except the MSR 3016).
MSR 50	Yes.
MSR 2600	Yes.
MSR3600-51F	Yes.

**NOTE:**

TFTP is not available in FIPS mode.

## display tftp client configuration

Use **display tftp client configuration** to display source IP address configuration of the TFTP client.

### Syntax

```
display tftp client configuration [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Usage guidelines

The **display tftp client configuration** command displays the source IP address configuration of the TFTP client. If the specified source IP address is active, this command displays the source IP address. If the specified source interface is active, this command displays the source interface.

## Examples

```
# Display the source IP address configuration of the TFTP client.
<Sysname> display tftp client configuration
The source IP address is 192.168.0.123
```

## Related commands

**tftp client source**

## tftp-server acl

Use **tftp-server acl** to use an ACL to control the device's access to a specific TFTP server.

Use **undo tftp-server acl** to restore the default.

## Syntax

```
tftp-server [ ipv6 ] acl acl-number
undo tftp-server [ ipv6 ] acl
```

## Default

No ACL is used to control the device's access to a TFTP server.

## Views

System view

## Default command level

3: Manage level

## Parameters

**ipv6**: References an IPv6 ACL. If it is not specified, an IPv4 ACL is referenced.

*acl-number*: Number of a basic ACL, in the range of 2000 to 2999.

## Usage guidelines

You can use an ACL to deny or permit the device's access to a specific TFTP server.

For more information about ACL, see *ACL and QoS Configuration Guide*.

## Examples

```
# Allow the device to access only the TFTP server at 1.1.1.1.
<Sysname> system-view
[Sysname] acl number 2000
[Sysname-acl-basic-2000] rule permit source 1.1.1.1 0
[Sysname-acl-basic-2000] quit
[Sysname] tftp-server acl 2000

# Allow the device to access only the TFTP server at 2001::1 only.
<Sysname> system-view
[Sysname] acl ipv6 number 2001
[Sysname-acl6-basic-2001] rule permit source 2001::1/128
[Sysname-acl6-basic-2001] quit
```

```
[Sysname] tftp-server ipv6 acl 2001
[Sysname]
```

## tftp

Use **tftp** to download a specified file from the TFTP server to the local device or upload a specified local file to the TFTP server in an IPv4 network.

### Syntax

```
tftp server-address { get | put | sget } source-filename [ destination-filename ] [ vpn-instance
vpn-instance-name ] [ source { interface interface-type interface-number | ip source-ip-address } ]
```

### Views

User view

### Default command level

3: Manage level

### Parameters

**server-address**: IP address or host name of a TFTP server.

**get**: Downloads a file in normal mode.

**put**: Uploads a file.

**sget**: Downloads a file in secure mode.

**source-filename**: Source file name.

**destination-filename**: Destination file name. If this argument is not specified, the file uses the source file name, and is saved in the directory where the user performed the TFTP operation.

**vpn-instance vpn-instance-name**: Specifies the MPLS L3VPN where the TFTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the TFTP server is on the public network, do not specify this option.

**source**: Configures parameters for source address binding.

**interface interface-type interface-number**: Specifies the source interface by its type and number. The primary IP address configured on the source interface is the source IP address of the packets sent by TFTP. If no primary IP address is configured on the source interface, the transmission fails.

**ip source-ip-address**: Specifies the source IP address for the current TFTP client to transmit packets. This source address must be an IP address that has been configured on the device.

### Examples

# Download the **config.cfg** file from the TFTP server at 192.168.0.98 and save it as **config.bak**. Specify the source IP address to be 192.168.0.92.

```
<Sysname> tftp 192.168.0.98 get config.cfg config.bak source ip 192.168.0.92
```

```
...
```

```
File will be transferred in binary mode
```

```
Downloading file from remote TFTP server, please wait....
```

```
TFTP:      372800 bytes received in 1 second(s)
```

```
File downloaded successfully.
```

# Upload the **config.cfg** file from the local device to the default path of the TFTP server at 192.168.0.98 and save it as **config.bak**. Specify the source IP interface to be Ethernet 1/1.

```
<Sysname> tftp 192.168.0.98 put config.cfg config.bak source interface ethernet 1/1
```

```
File will be transferred in binary mode
Sending file to remote TFTP server. Please wait...
TFTP:      345600 bytes sent in 1 second(s).
File uploaded successfully.
```

## tftp client source

Use **tftp client source** to specify a source IP address for outgoing TFTP packets.

Use **undo tftp client source** to restore the default.

### Syntax

```
tftp client source { interface interface-type interface-number | ip source-ip-address }
```

```
undo tftp client source
```

### Default

The primary IP address of the output interface is used as the source IP address for outgoing TFTP packets.

### Views

System view

### Default command level

2: System level

### Parameters

**interface** *interface-type interface-number*: Specifies a source interface for outgoing TFTP packets.

**ip** *source-ip-address*: Specifies a source IP address for outgoing TFTP packets. This IP address must be one of the IP addresses configured on the device.

### Usage guidelines

You can use the **tftp client source** command to specify a source IP address or source interface for the TFTP packets sent by the device. If a source interface (typically, a loopback interface) is specified, its primary IP address is used as the source IP address for the TFTP packets. The source interface setting and the source IP address setting overwrite each other.

---

#### ! IMPORTANT:

To avoid TFTP connection failures, when you specify a source interface for TFTP packets, make sure the interface has been assigned a primary IP address.

---

The **tftp client source** command setting applies to all TFTP sessions. When you set up a TFTP session with the **tftp** command, you can also specify a different source IP address for the TFTP session.

### Examples

# Specify 2.2.2.2 as the source IP address for outgoing TFTP packets.

```
<Sysname> system-view
[Sysname] tftp client source ip 2.2.2.2
```

# Use the primary IP address of interface Ethernet 1/1 as the source IP address for outgoing TFTP packets.

```
<Sysname> system-view
[Sysname] tftp client source interface ethernet 1/1
[Sysname]
```

## Related commands

**display tftp client configuration**

## tftp ipv6

Use **tftp ipv6** to download a specified file from a TFTP server or upload a specified local file to a TFTP server in an IPv6 network.

### Syntax

```
tftp ipv6 tftp-ipv6-server [ -i interface-type interface-number ] { get | put } source-filename  
[ destination-filename ] [ vpn-instance vpn-instance-name ]
```

### Views

User view

### Default command level

3: Manage level

### Parameters

*tftp-ipv6-server*: IPv6 address or host name of a TFTP server, a string of 1 to 46 characters.

**-i** *interface-type interface-number*: Specifies an output interface by its type and number. This parameter can be used only when the TFTP server address is a link local address and the specified output interface has a link local address. For the configuration of a link local address, see *Layer 3—IP Services Configuration Guide*.

**get**: Downloads a file.

**put**: Uploads a file.

*source-file*: Source filename.

*destination-file*: Destination filename. If this argument is not specified, the file uses the source file name.

**vpn-instance** *vpn-instance-name*: Specifies the MPLS L3VPN where the TFTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the TFTP server is on the public network, do not specify this option.

### Examples

```
# Download filetoget.txt from the TFTP server.
```

```
<Sysname> tftp ipv6 fe80::250:daff:fe91:e058 -i ethernet 1/1 get filetoget.txt  
...  
File will be transferred in binary mode  
Downloading file from remote TFTP server, please wait....  
TFTP:      411100 bytes received in 2 second(s)  
File downloaded successfully.
```

# License management commands

## display license

Use **display license** to display system software registration information.

### Syntax

```
display license [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

1: Monitor level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	No
MSR3600-51F	Yes

### Examples

```
# Display system software registration information.
```

```
<Sysname> display license
Software license information
-----
Serial Number: VZa47-6AbBh-gt09c-K47A0-F79D8-dE840-tg2j0
Register Date: 2006-10-10 15:50:28
```

Trade Code : 121234A757C06A000693

**Table 38 Command output**

Field	Description
Software license information	System software license information.
Serial Number	Serial number of the license.
Register Date	Registration date and time.
Trade Code	Production serial number.

## license register

Use **license register** to register the system software for a device.

### Syntax

**license register** *serial-number*

### Views

User view

### Default command level

3: Manage level

### Parameters

*serial-number*: Serial number of a license, in the format of *XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX*, where X represents a character. Valid characters include letters (case sensitive), digits, plus signs (+), and forward slashes (/).

### Usage guidelines

The following matrix shows the command and hardware compatibility:

Hardware	Command compatibility
MSR800	No
MSR 900	No
MSR900-E	No
MSR 930	No
MSR 20-1X	No
MSR 20	Yes
MSR 30	Yes
MSR 50	Yes
MSR 2600	No
MSR3600-51F	Yes

Before registering the system software, purchase a system software license.

Enter the serial number in the correct format.

## Examples

# Register the system software. The serial number in this example is only for illustration. Use a valid system software serial number.

```
<Sysname> license register aaaaa-bbbbb-cccc--ddddd-eeee-ffff-gggg
```

```
Info: Registered successfully!
```

# Software upgrade commands

Table 39 shows the support of MSR routers for the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode.

**Table 39 Hardware and FIPS mode compatibility matrix**

Hardware	FIPS mode compatibility
MSR800	No.
MSR 900	No.
MSR900-E	No.
MSR 930	No.
MSR 20-1X	No.
MSR 20	Yes.
MSR 30	Yes (except the MSR 3016).
MSR 50	Yes.
MSR 2600	Yes.
MSR3600-51	Yes.

## boot-loader

Use **boot-loader** to specify a startup system software image for the device.

### Syntax

```
boot-loader file file-url { main | backup }
```

### Views

User view

### Default command level

3: Manage level

### Parameters

**file** *file-url*: Specifies a file name, a string of 1 to 63 characters. If you enter a relative path, the system automatically converts it to an absolute path. The absolute path can contain up to 63 characters. The file name uses the *drive:/file-name* format or the *file-name* format, where:

- The *drive* argument specifies the storage medium where the file is saved. If the device has only one storage medium, you can execute this command without providing this argument.
- The *file-name* argument specifies the file name, which must use the **.bin** extension.

**main**: Specifies the file as the main system software image. The main system software image has higher priority than the backup system software image at startup.

**backup**: Specifies the file as the backup system software image. The backup system software image is used at startup only if the main system software image is not available.

### Usage guidelines

To execute the **boot-loader** command successfully, make sure you have saved the image file to the root directory of the storage medium.

In FIPS mode, the file must pass authenticity verification before it can be set as a system software image for the next system startup.

## Examples

# Specify **test.bin** as the main startup system software image file. This example assumes that this file has been saved in the root directory of the storage medium.

```
<Sysname> boot-loader file test.bin main
```

```
This command will set the boot file. Continue? [Y/N]:y
```

```
The specified file will be used as the main boot file at the next reboot on slot 0!
```

## Related commands

**display boot-loader**

# bootrom

Use **bootrom** to read, restore, back up, or upgrade the BootWare image.

## Syntax

```
bootrom { backup | read | restore | update file file-url } [ slot slot-number-list ] [ all | part ]
```

## Views

User view

## Default command level

3: Manage level

## Parameters

**backup**: Backs up the BootWare image in the Normal area of memory to the Backup area.

**read**: Backs up the BootWare image in the Normal area of memory to a storage medium.

**restore**: Replaces the BootWare image in the Normal area with the BootWare image in the Backup area for image restoration or version rollback.

**update file** *file-url*: Loads a BootWare image in a storage medium to the Normal area of memory. The *file-url* argument specifies the image file path, a string of 1 to 63 characters. For more information about file path naming, see "[boot-loader](#)."

**slot** *slot-number-list*: Specifies a space-separated list of up to seven slot number items. Each item specifies an interface module by its slot number or a range of interface modules in the form of *start-slot-number* **to** *end-slot-number*. For example, **slot 0 to 1 2**. If you do not provide this option, all interface modules on the router are specified.

**all**: Applies the action to the entire BootWare image, including the basic segment and the extended segment. If neither **all** nor **part** is specified, the action applies to the entire BootWare image.

**part**: Applies the action to the extended BootWare image segment.

## Usage guidelines

To execute the **bootrom** command successfully, you must first save the upgrade BootWare image file to the root directory of the storage media.

When you execute the **bootrom update file** *file-url* command in FIPS mode, the file must pass authenticity verification before it can be set as the BootWare image file.

## Examples

# Read the BootWare image.

```
<Sysname> bootrom read all
```

```
Now reading bootrom, please wait...
```

```
Read bootrom! Please wait...
Start reading basic bootrom!
Read basic bootrom completed!
Start reading extended bootrom!
Read extended bootrom completed!
Read bootrom completed! Please check the file!
```

After the BootWare image is read, two files, **extendbtm.bin** and **basicbtm.bin**, are generated on the storage medium.

```
<Sysname> dir
Directory of cfa0:/
 0      drw-      -   Jul 07 2009 21:09:12  logfile
 1      -rw- 15074620 Aug 08 2008 13:03:44  test.bin
 2      -rw-      139 Sep 24 2008 06:51:38  system.xml
 3      -rw- 524288 Aug 13 2008 17:07:18  extendbtm.bin
 4      -rw- 524288 Aug 13 2008 17:07:18  basicbtm.bin
 5      -rw- 4232 Sep 24 2008 06:51:40  startup.cfg
250088 KB total (223700 KB free)
File system type of cfa0: FAT16
```

#### # Back up the BootWare image.

```
<Sysname> bootrom backup all
  Now backuping bootrom, please wait...
Backup bootrom! Please wait...
Read normal basic bootrom completed!
.....
Backup normal basic bootrom completed!
Read normal extended bootrom completed!
.....
Backup normal extended bootrom completed!
Backup bootrom completed!
```

#### # Restore the BootWare image.

```
<Sysname> bootrom restore all
  This command will restore bootrom file, Continue? [Y/N]:y
  Now restoring bootrom, please wait...

Restore bootrom! Please wait...
Read backup basic bootrom completed!
.....
Restore basic bootrom completed!
Read backup extended bootrom completed!
.....
Restore extended bootrom completed!
Restore bootrom completed!
```

#### # Use the **a.btm** file to upgrade the BootWare image.

```
<Sysname> bootrom update file a.btm
  This command will update bootrom file, Continue? [Y/N]:y
  Now updating bootrom, please wait...
Updating basic bootrom!
.....
```

```

Update basic bootrom success!
Updating extended bootrom!
.....
Update extended bootrom success!
Update bootrom success!

```

## display boot-loader

Use **display boot-loader** to display system software image information, including the current system software image and the startup system software images.

### Syntax

```
display boot-loader [ | { begin | exclude | include } regular-expression ]
```

### Views

Any view

### Default command level

2: System level

### Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

### Examples

```
# Display system software images.
```

```
<Sysname> display boot-loader
```

```

The boot file used at this reboot:flash:/test.bin attribute: main
The boot file used at the next reboot:flash:/test.bin attribute: main
The boot file used at the next reboot:flash:/test.bin attribute: backup
Failed to get the secure boot file used at the next reboot!

```

**Table 40 Command output**

Field	Description
The boot file used at this reboot	System software image that has been loaded.
attribute	Attributes of the system software image: <ul style="list-style-type: none"> <li>main.</li> <li>backup.</li> </ul>
The boot file used at the next reboot	System software image to be used at the next startup.
Failed to get the secure boot file used at the next reboot!	If the main and the backup system software images are not available or damaged, the secure system software image will be used for the boot of the device.

### Related commands

**boot-loader**

# display patch

Use **display patch** to display patch files that have been installed.

If a patch file is loaded from a patch package file, this command also displays the package file version.

## Syntax

**display patch** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

## Views

Any view

## Default command level

3: Manage level

## Parameters

**|**: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin**: Displays the first line that matches the specified regular expression and all lines that follow.

**exclude**: Displays all lines that do not match the specified regular expression.

**include**: Displays all lines that match the specified regular expression.

*regular-expression*: Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

# Display patch files that have been installed.

```
<Sysname> display patch
```

```
flash:/patch_main.bin, B90H01a, loaded on slot(s):0
```

**Table 41 Command output**

Field	Description
flash:/patch_main.bin	Directory of the installed patch file.
B90H01a	Version of the patch package.
loaded on slot(s):0	Indicates the current device. The value for this field is always 0.

# display patch information

Use **display patch information** to display patch information.

## Syntax

**display patch information** [ | { **begin** | **exclude** | **include** } *regular-expression* ]

## Views

Any view

## Default command level

3: Manage level

## Parameters

|: Filters command output by specifying a regular expression. For more information about regular expressions, see *Fundamentals Configuration Guide*.

**begin:** Displays the first line that matches the specified regular expression and all lines that follow.

**exclude:** Displays all lines that do not match the specified regular expression.

**include:** Displays all lines that match the specified regular expression.

*regular-expression:* Specifies a regular expression, a case-sensitive string of 1 to 256 characters.

## Examples

# Display patch information.

```
<Sysname> display patch information
```

```
The location of patches: flash:
```

```
Slot Version   Temporary Common Current Active Running   Start-Address
-----
0    20S001     0           1         1         0         1           0x310bd74
```

**Table 42 Command output**

Field	Description
The location of patches	Patch file location. To configure the location, use the <b>patch location</b> command.
Slot	Indicates the current device. This field always displays 0.
Version	Patch version. The first three characters represent the suffix of the PATCH-FLAG. For example, if the PATCH-FLAG of the card is PATCH-20S, "20S" is displayed. The following three digits, if any, represent the patch number. (The patch number can be read after the patch is loaded.)
Temporary	Number of temporary patches. These patches are interim solutions for fixing critical bugs. They are not formally released.
Common	Number of common patches. These patches are formally released to users. A common patch always includes the functions of its previous temporary patches.
Current	Total number of patches.
Running	Number of patches in RUNNING state.
Active	Number of patches in ACTIVE state.
Start-Address	Start address of the patch memory area in the memory.

## patch active

Use **patch active** to activate patches.

### Syntax

```
patch active [ patch-number ]
```

### Views

System view

## Default command level

3: Manage level

## Parameters

*patch-number*. Specifies the sequence number of a patch. If no sequence number is specified, this command validates all DEACTIVE patches. If a sequence number is specified, this command activates the specified patch and all its previous DEACTIVE patches.

## Usage guidelines

Before executing this command, you must use the **patch load** command to load patches.

The **patch active** command changes the state of DEACTIVE patches to ACTIVE state and runs the patches. To continue to run these patches after a reboot, use the **patch run** command to change their state to RUNNING. If not, the state of ACTIVE patches changes back to DEACTIVE at a reboot.

## Examples

```
# Activate patch 3 and all its previous DEACTIVE patches.
```

```
<Sysname> system-view  
[Sysname] patch active 3
```

```
# Activate all DEACTIVE patches.
```

```
<Sysname> system-view  
[Sysname] patch active
```

# patch deactivate

Use **patch deactivate** to stop running patches.

## Syntax

```
patch deactivate [ patch-number ]
```

## Views

System view

## Default command level

3: Manage level

## Parameters

*patch-number*. Specifies the sequence number of a patch. If no sequence number is specified, this command deactivates all ACTIVE patches. If a sequence number is specified, this command deactivates the specified patch and all its subsequent ACTIVE patches.

## Usage guidelines

This command is not applicable to patches in RUNNING state.

## Examples

```
# Stop running patch 3 and all its subsequent ACTIVE patches.
```

```
<Sysname> system-view  
[Sysname] patch deactivate 3
```

```
# Stop running all ACTIVE patches.
```

```
<Sysname> system-view  
[Sysname] patch deactivate
```

# patch delete

Use **patch delete** to remove patches from the patch memory area.

## Syntax

```
patch delete [ patch-number ]
```

## Views

System view

## Default command level

3: Manage level

## Parameters

*patch-number*: Specifies the sequence number of a patch. If no sequence number is specified, this command removes all patches in the patch memory area. If a sequence number is specified, this command removes the specified patch and all its subsequent patches.

## Usage guidelines

This command does not delete patches from the storage media. After being removed from the patch memory area, the patches changes to the IDLE state.

## Examples

```
# Remove patch 3 and all its subsequent patches from the patch memory area.
```

```
<Sysname> system-view  
[Sysname] patch delete 3
```

```
# Remove all patches from the patch memory area.
```

```
<Sysname> system-view  
[Sysname] patch delete
```

# patch install

Use **patch install** to install and run patches in one step.

Use **undo patch install** to remove all ACTIVE and RUNNING patches from the patch memory area.

## Syntax

```
patch install { patch-location | file filename }
```

```
undo patch install
```

## Views

System view

## Default command level

3: Manage level

## Parameters

*patch-location*: Specifies the patch file path, a string of 1 to 64 characters. The file must be saved in the root directory of the storage media. Provide this argument if the patch file is not packaged in a patch package file, and make sure the file name is correct.

**file** *filename*: Specifies a patch package file name.

## Usage guidelines

Before installing patches, save the patch file or patch package file to the root directory of the storage media on the device.

In FIPS mode, the patch file or the patch package file must pass authenticity verification before it can be installed.

The **patch install** command changes the state of installed patches from IDLE to ACTIVE or RUNNING, depending on your choice during the command execution process. If you choose to have installed patches continue to run after a reboot, the installed patches are set in RUNNING state and remain in this state after a reboot. If not, the installed patches are set in ACTIVE state and change to the DEACTIVE state at a reboot.

The **undo patch install** command change the state of ACTIVE and RUNNING patches to IDLE, but does not delete them from the storage media.

## Examples

# Install the patches located on the Flash.

```
<Sysname> system-view
[Sysname] patch-install flash:
Patches will be installed. Continue? [Y/N]:y
Do you want to run patches after reboot? [Y/N]:y
Installing patches...
Installation completed, and patches will continue to run after reboot.
[Sysname]
```

# Install patches from a patch package file.

```
<Sysname> system-view
[Sysname] patch install file:/patch_package.bin
Patches will be installed. Continue? [Y/N]:y
Do you want to run patches after reboot? [Y/N]:y
Installing patches...
Installation completed, and patches will continue to run after reboot.
[Sysname]
```

## patch load

Use **patch load** to load patches from the storage media (Flash or CF card) to the patch memory area.

### Syntax

```
patch load [ file filename ]
```

### Default

The system loads patch files from the root directory of storage media.

### Views

System view

### Default command level

3: Manage level

### Parameters

**file filename**: Specifies a patch package file name. If the package file is specified, the system loads patch files from the patch package. If no package file is specified, the system loads patch files from the patch file location specified with the **patch location** command.

## Usage guidelines

Before loading patches, save the patch file or patch package file to the root directory of the storage media on the device.

In FIPS mode, the patch package file or the patch file must pass authenticity verification before it can be loaded.

## Examples

```
# Load patches from a patch file.
<Sysname> system-view
[Sysname] patch load

# Load patches from a patch package file.
<Sysname> system-view
[Sysname] patch load file flash:/patchpackage.bin
```

## patch location

Use **patch location** to configure the patch file location.

### Syntax

```
patch location patch-location
```

### Default

The patch file location is the root directory of the default storage medium. (The default storage medium is user configurable. For more information, see "Managing the file system.")

### Views

System view

### Default command level

3: Manage level

### Parameters

*patch-location*: Specifies the patch file location, a string of 1 to 64 characters.

## Usage guidelines

This command does not take effect for patch package files.

If the device has only one storage medium, you do not need to use this command to specify the patch file location.

The **patch install** *patch-location* command can change the patch file location that has been specified with the **patch location** command. In contrast, the **patch install file** *filename* does not.

## Examples

```
# Specify the root directory of the CF card as the patch file location.
<Sysname> system-view
[Sysname] patch location cf:
```

## patch run

Use **patch run** to confirm ACTIVE patches.

### Syntax

```
patch run [ patch-number ]
```

## Views

System view

## Default command level

3: Manage level

## Parameters

*patch-number*. Specifies the sequence number of a patch. If no sequence number is specified, this command confirms all ACTIVE patches and changes their state to RUNNING. If a sequence number is specified, this command confirms the specified ACTIVE patch and all its previous patches, and changes their state to RUNNING.

## Usage guidelines

This command is applicable to patches in ACTIVE state only.

After being confirmed, ACTIVE patches are set in RUNNING state and can continue to run after a reboot. If not being confirmed, ACTIVE patches are set in DEACTIVE state at a reboot.

## Examples

# Confirm patch 3 and all its previous ACTIVE patches.

```
<Sysname> system-view
```

```
[Sysname] patch run
```

# Confirm all ACTIVE patches.

```
<Sysname> system-view
```

```
[Sysname] patch run
```

# Automatic configuration deployment command

## autodeploy udisk enable

Use **autodeploy udisk enable** to enable automatic configuration from a USB disk.

Use **undo autodeploy udisk enable** to disable automatic configuration from a USB disk.

### Syntax

```
cd { directory | .. | / }
```

### Default

Automatic configuration from a USB disk is enabled.

### Views

System view

### Default command level

2: System level

### Examples

```
# Disable automatic configuration from a USB disk.
```

```
<Sysname> system-view
```

```
[Sysname] undo autodeploy udisk enable
```

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